

All our energy.  
All the time.



November 30, 2018



Island Regulatory & Appeals Commission  
PO Box 577  
Charlottetown PE C1A 7L1

Dear Commissioners:

Please find enclosed six (6) copies of Maritime Electric's General Rate Application and Evidence for approval of a revised schedule of rates, tolls and charges for the period March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022. An electronic copy will be forwarded shortly.

If you require further information, please do not hesitate to contact me at (902) 629-3696.

Yours truly,

MARITIME ELECTRIC

A handwritten signature in blue ink, appearing to be "J. Roberts", written over a horizontal line.

Jason C. Roberts  
Vice President,  
Finance & Chief Financial Officer

JCR62  
Encl. as noted

**MARITIME ELECTRIC**

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**C A N A D A**

**PROVINCE OF PRINCE EDWARD ISLAND**

**BEFORE THE ISLAND REGULATORY  
AND APPEALS COMMISSION**

**IN THE MATTER** of Sections 10, 13(1) and 20 of the Electric Power Act (R.S.P.E.I. 1988, Cap. E-4) and **IN THE MATTER** of the Application of Maritime Electric Company, Limited for an order of the Commission approving rates, tolls and charges for electric service for the years March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022 and for certain approvals incidental to such an order.

**APPLICATION  
AND  
EVIDENCE OF  
MARITIME ELECTRIC COMPANY, LIMITED**

**Date: November 28, 2018**

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**APPENDICES**

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| APPENDIX 13 | Cost of Capital Report prepared by Concentric Energy Advisors, Inc. dated November 27, 2018                                                                                 |
| APPENDIX 14 | 2017 Cost Allocation Study prepared by Chymko Consulting Ltd. dated June 26, 2018                                                                                           |

**1.0 APPLICATION**

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**C A N A D A**

**PROVINCE OF PRINCE EDWARD ISLAND**

**BEFORE THE ISLAND REGULATORY  
AND APPEALS COMMISSION**

**IN THE MATTER** of Sections 10, 13(1) and 20 of the Electric Power Act (R.S.P.E.I. 1988, Cap. E-4) and **IN THE MATTER** of the Application of Maritime Electric Company, Limited for an order of the Commission approving rates, tolls and charges for electric service for the years March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022 and for certain approvals incidental to such an order.

**Introduction**

1. Maritime Electric Company, Limited ("Maritime Electric" or the "Company") is a public utility subject to the Electric Power Act ("EPA" or the "Act") engaged in the production, purchase, transmission, distribution and sale of electricity within Prince Edward Island.

**Application**

2. Maritime Electric hereby applies for an order of the Island Regulatory and Appeals Commission ("IRAC" or the "Commission") approving the Rates and General Rules and Regulations effective March 1, 2019, which are outlined in Appendix 1, as well as rates, tolls and charges ("rates") for electric service for the years March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022 as set out in Appendix 2 and certain other approvals incidental thereto. Maritime Electric proposes adjustment to the base rate per kWh contained in the Energy Cost Adjustment Mechanism calculation to reflect changes in forecast energy related costs. The Company is also requesting confirmation of its Average Common Equity and Return on Average Common Equity from the Commission in respect of the fiscal years 2019, 2020 and 2021.

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***November 28, 2018***

**SECTION 1 – APPLICATION**

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3. The proposals contained in this Application represent a just and reasonable balance of the interests of Maritime Electric and those of its customers and will, if approved, allow the Company to continue to provide a high level of service at prices that are, in all circumstances, reasonable.

**Procedure**

4. Filed herewith is the Affidavit of John D. Gaudet, Jason C. Roberts, Angus S. Orford and Enrique A. Riveroll which contains the evidence on which Maritime Electric relies in this Application.

Dated at Charlottetown, Province of Prince Edward Island, this 28<sup>th</sup> day of November, 2018.



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**D. Spencer Campbell, Q.C.**

STEWART MCKELVEY  
65 Grafton Street, PO Box 2140  
Charlottetown PE C1A 8B9  
Telephone: (902) 629-4549  
Facsimile: (902) 892-2485  
Solicitors for Maritime Electric Company, Limited

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**November 28, 2018**

**2.0 AFFIDAVIT**

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**C A N A D A**

**PROVINCE OF PRINCE EDWARD ISLAND**

**BEFORE THE ISLAND REGULATORY  
AND APPEALS COMMISSION**

**IN THE MATTER** of Sections 10, 13(1) and 20 of the Electric Power Act (R.S.P.E.I. 1988, Cap. E-4) and **IN THE MATTER** of the Application of Maritime Electric Company, Limited for an order of the Commission approving rates, tolls and charges for electric service for the years March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022 and for certain approvals incidental to such an order.

**AFFIDAVIT**

We, John David Gaudet of Charlottetown, Jason Christopher Roberts of Suffolk, Angus Sumner Orford of Charlottetown and Enrique Alfonso Riveroll of New Dominion, in Queens County, Province of Prince Edward Island, MAKE OATH AND SAY AS FOLLOWS:

1. We are the President and Chief Executive Officer, Vice President, Finance and Chief Financial Officer, Vice President, Corporate Planning and Energy Supply and Vice President, Customer Service for Maritime Electric Company, Limited (“Maritime Electric” or the “Company”) respectively and as such have personal knowledge of the matters deposed to herein, except where noted, in which case we rely upon the information of others and in which case we verily believe such information to be true.
2. Maritime Electric is a public utility subject to the provisions of the Electric Power Act engaged in the production, purchase, transmission, distribution and sale of electricity within Prince Edward Island.

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***November 28, 2018***

## **SECTION 2 – AFFIDAVIT**

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3. We prepared or supervised the preparation of the evidence and to the best of our knowledge and belief the evidence is true in substance and in fact. A copy of the evidence is attached to this our Affidavit, and is collectively known as Exhibit “A”, contained at Tabs 3 through 17 inclusive.
4. The evidence found at Tab 3 (the “Introduction”) contains a brief overview of Maritime Electric and a summary of the impact of the proposals on customer electricity costs.
5. The evidence found at Tab 4 (the “Provincial Costs Recoverable”) contains information on amounts to be recovered from customers on behalf of the Province of PEI including proposed recoveries under the Prince Edward Island Energy Corporation’s application for approval of an Electricity Efficiency and Conservation Plan 2018-2021 under Commission Docket UE41400.
6. The evidence found at Tab 5 (the “Regulatory Deferrals”) contains information on the operation and rebasing of the Energy Cost Adjustment Mechanism, the Weather Normalization Reserve, including Commission Docket UE21219, and the Rate of Return Adjustment accounts.
7. The evidence found at Tab 6 (the “Charlottetown Thermal Generating Station Decommissioning Study”) contains information on the Company’s proposed Decommissioning Plan under Commission Docket UE23001.
8. The evidence found at Tab 7 (the “Energy Sales Forecast”) outlines the Company’s energy sales forecast.
9. The evidence found at Tab 8 (the “Energy Supply Expenses”) contains a summary of the energy supply, including Commission Docket UE20944 by source, required to meet the forecast energy sales.
10. The evidence found at Tab 9 (the “Transmission and Distribution Expenses”) outlines the cost to deliver the forecast energy (the “wires” cost) to customers.

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**November 28, 2018**

## **SECTION 2 – AFFIDAVIT**

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11. The evidence found at Tab 10 (the “General and Administrative Expenses”) details the administrative and overhead costs, not directly related to energy sales, required to operate the Company.
12. The evidence found at Tab 11 (the “Amortization Expenses”) contains information on the amortization rates for the Company’s fixed assets based on the results of the 2017 Depreciation Study, Commission Docket UE21604.
13. The evidence found at Tab 12 (the “Financial Objectives”) contains an outline of the Company’s financial objectives including its proposal to maintain the allowed Return on Average Common Equity at 9.35 per cent and implement an Earnings Sharing Mechanism for 2019 and future years.
14. The evidence found at Tab 13 (the “Cost Allocation Study”) contains information on the results and proposals from the Point Lepreau Cost Allocation Classification Study, Commission Docket UE22502 and the 2017 Cost Allocation Study, Commission Docket UE21222.
15. The evidence found at Tab 14 (the “Financial Forecast”) contains the forecast financial results based on the evidence contained in the Application.
16. The evidence found at Tab 15 (the “Impact of Proposals on Customers”) illustrates the impact of the proposals in the Company’s Application on a cross section of Customers’ annual costs in the residential and commercial rate classes.
17. Tab 16 contains a proposed Order of the Commission based on the Company’s Application.
18. The evidence found at Tab 17 (the “Appendices”) contains Appendix 1 through 14 inclusive which are referred to in the evidence.

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**November 28, 2018**

**SECTION 2 – AFFIDAVIT**

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SWORN TO SEVERALLY at  
Charlottetown, Prince Edward  
Island, the 28<sup>th</sup> day of November, 2018.  
Before me:



John D. Gaudet



Jason C. Roberts



Angus S. Orford



Enrique A. Riveroll



A Commissioner for taking affidavits  
in the Supreme Court of Prince Edward Island.

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**November 28, 2018**



**3.0 INTRODUCTION**

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**3.1 Corporate Profile**

Maritime Electric Company, Limited owns and operates a fully integrated system providing for the purchase, generation, transmission, distribution and sale of electricity throughout Prince Edward Island. The Company's head office is located in Charlottetown with generating facilities in Charlottetown and Borden-Carleton.

Maritime Electric is the primary provider of electricity on PEI delivering over 90 per cent of the energy supplied on Prince Edward Island. Schedule 3-1 shows the number of customers served by Maritime Electric and the Company's energy sales for 2016 and 2017 as well as the forecast for the period 2018-2021.

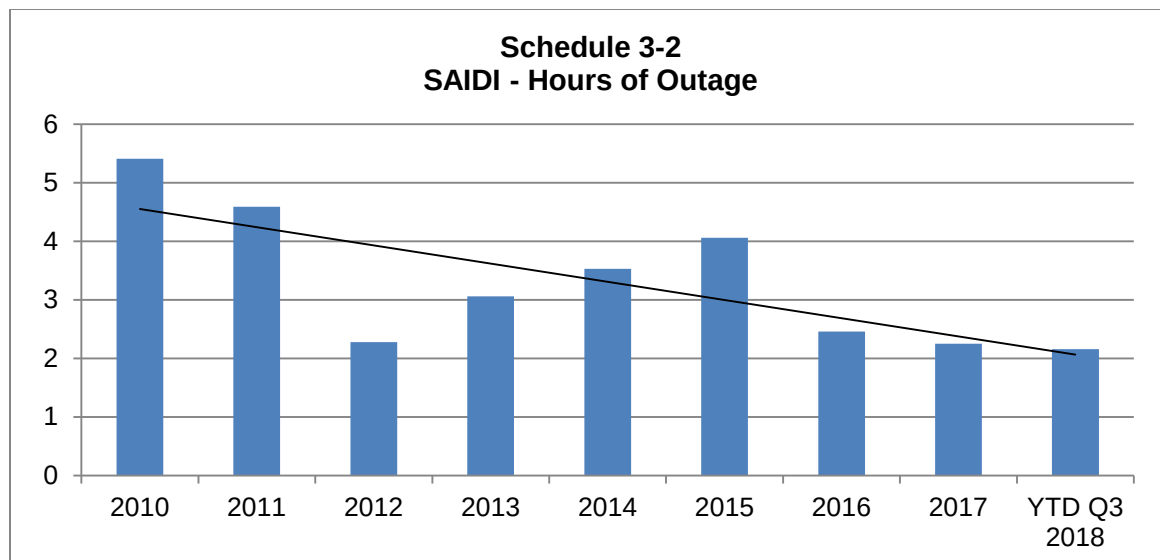
| <b>Schedule 3-1</b>          |                        |                        |                          |                          |                          |                          |
|------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Customers and Sales</b>   |                        |                        |                          |                          |                          |                          |
|                              | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Customers (thousands)</b> | 79.0                   | 80.0                   | 80.6                     | 81.7                     | 82.9                     | 84.0                     |
| <b>Sales (GWh)</b>           | 1,188.4                | 1,208.0                | 1,234.9                  | 1,267.0                  | 1,300.8                  | 1,321.3                  |

To meet customers' energy demand and supply requirements, the Company has contractual entitlement to capacity and energy from NB Power's Point Lepreau Nuclear Generating Station ("Point Lepreau") and an agreement for the purchase of capacity and system energy from NB Power delivered via four submarine cables leased from the Province of Prince Edward Island. The Company also purchases 92.5 MW of wind powered energy under contract with the PEI Energy Corporation and maintains 145 MW of on-Island generating capacity.

Maritime Electric continues to provide safe and reliable electricity service to customers through capital investments to rebuild or replace aging assets and annual operating expenditures such as tree trimming or other line and substation maintenance activities.

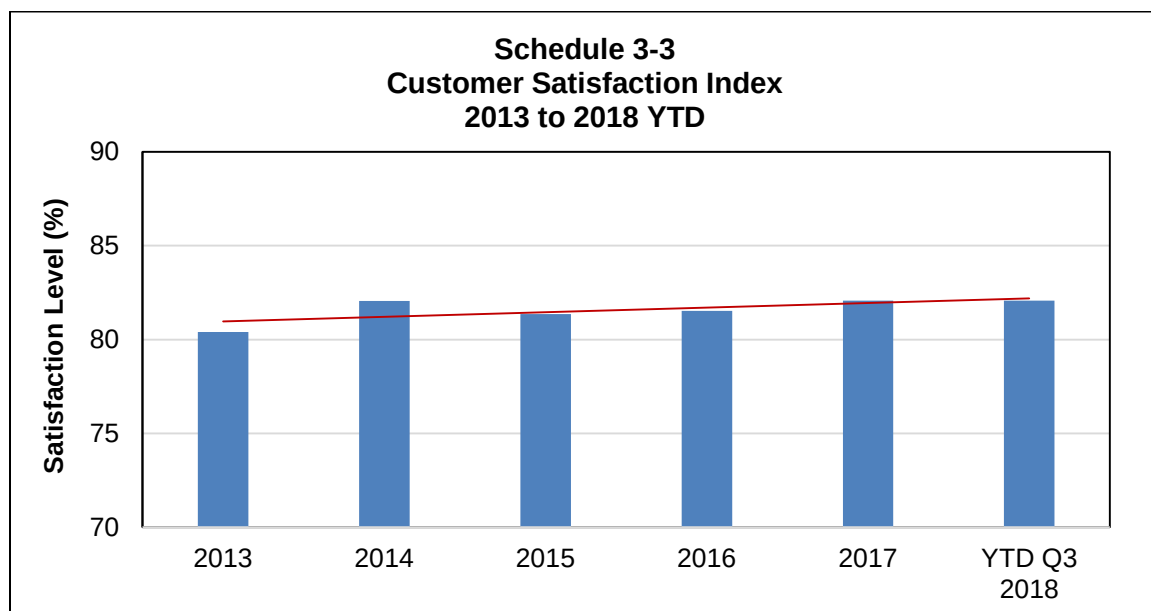
### SECTION 3 – INTRODUCTION

Schedule 3-2 below shows an improvement in the Company's reliability performance as measured by the System Average Interruption Duration Index (SAIDI) which is a standard used in the utility industry.



\* Based upon the IEEE methodology which excludes major event days such as storms

As a measure of the level of customer service provided to customers, Maritime Electric regularly surveys customers to obtain an overall assessment of their satisfaction with Company's service delivery. Schedule 3-3 presents the results of the Company's customer satisfaction index since 2013 which shows an overall improving trend.



November 28, 2018

The Company recognizes that customers expect high levels of service at reasonable prices. Achieving a reasonable balance between reliability and economically priced service requires prudent planning of expenditures to ensure an effective use of available resources. This continues to be a focus for Maritime Electric.

### **3.2 Overview of Evidence**

The evidence in support of the Company's Application for rates, tolls and charges for service to its customers on Prince Edward Island for the periods beginning March 1, 2019, March 1, 2020 and March 1, 2021 is filed pursuant to Sections 10, 13(1) and 20 of the EPA.

In support of this Application, the Company has pre-filed the following Applications and Studies:

- 2019 Capital Budget (Docket UE20728 – filed August 8, 2018)
- Point Lepreau Cost Allocation Classification Study (Docket UE22502 – filed April 27, 2017)
- Charlottetown Thermal Generating Station Decommissioning Study (Docket UE23001 – filed June 28, 2018)
- 2017 Depreciation Study (Docket UE21604 – filed June 29, 2018)
- 2017 Cost Allocation Study (Docket UE21222 – filed June 29, 2018)
- Annual Update to Interim Weather Normalization Reserve (Docket UE21219 – filed October 31, 2017)
- Energy Purchase Agreement with New Brunswick Energy Power Marketing Corporation (Docket UE20944 – filed March 2, 2018)

In addition, this Application also incorporates the proposals in the Prince Edward Island Energy Corporation's Electricity Efficiency and Conservation Plan 2018-2021 (Docket UE41400 – filed June 29, 2018). Together these Applications and Studies, to varying degrees, have implications for customer rate adjustments proposed in this Application. These pre-filed Applications and Studies are addressed within the applicable areas of this Application.

### **SECTION 3 – INTRODUCTION**

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The proposals in this Application, with respect to the adjustment of customer electricity costs effective March 1, 2019, March 1, 2020 and March 1, 2021 are derived from two fundamental drivers.

First, the overall general adjustment to customer electricity costs is comprised of the Company's forecast revenue requirement and other required collections as outlined in Sections 4 through 14, excluding Section 13 – Cost Allocation Study. The annual revenue requirement for each year is required to recover the Company's forecast annual cost to provide safe and reliable service to customers. The Company is proposing no changes to the allowed return on average common equity for purposes of establishing the annual revenue requirement. As a result, there is no impact on the proposed general rate adjustment. The other required collections represent the amounts that are required to be recovered from customers on behalf of the Province of PEI and are outlined in Section 4 of this Application.

The second source of adjustment to customers' electricity costs relates to two specific rate design recommendations within the Residential rate class. These recommendations are based upon the results of the 2017 Cost Allocation Study as discussed in Section 13 and the Commission's last rate decision, Order UE16-04.

First, the 2017 Cost Allocation Study indicates that the Company continues to under collect from the Residential rate class, in part, due to the lower priced second block consumption category within the rate. As stated by the Commission in Order UE16-04, the Commission views the continued existence of the residential second block as being contrary to the principles behind the EPA. The Company is proposing a staged elimination of the Residential second block in a manner that addresses the issue while balancing the ultimate impact on customers' electricity costs in the class by providing those customers most affected sufficient time to consider the impact and to implement strategies to better manage their consumption.

Second, the Company, in reviewing the Residential rate class, acknowledges that the existing geographic segregation between Rural and Urban customers is no longer appropriate. As a result, the Company is proposing to eliminate this distinction by

lowering the monthly service charge for the approximately 42,000 rural customers to be the same as that charged to urban residential customers. This will result in all Residential class customers being treated equally and all customers within the class being classified a Residential regardless of geographic location. These recommended changes are discussed in Section 13 – Cost Allocation.

### **3.3 Summary of Impact of Proposals on Customer Electricity Costs**

The Company is proposing a general rate adjustment that will result in an annual increase in electricity costs (before taxes) of 1.1 per cent in each of the next three years for a typical customer in the Residential, General Service, Industrial and other rate classes. For individual customers within each rate class, the overall annual impact may differ to the extent that their consumption differs from that of the typical customer in that class. For example, residential customers consuming less than 650 kWh per month will see annual increases less than the proposed general rate adjustments whereas residential customers consuming more than 650 kWh per month will see annual cost increases greater than the proposed general rate adjustments.

The Company is also proposing changes within the Residential rate class as a result of the 2017 Cost Allocation Study and IRAC Order UE16-04. Specifically, the Company is recommending the elimination of the Urban/Rural distinction by lowering the monthly service charge for current rural customers to the rate charged to urban customers. This will save nearly two thirds (approximately 42,000) of all residential customers \$2.35 per month (before taxes) in lower service charges. As a result, the typical rural residential customer will see a 0.9 per cent decrease in electricity costs in the first year (saving approximately \$1.06 per month before taxes) followed by annual increases of 1.1 per cent in the next two years.

The impact on the typical Residential class customer discussed above is presented on a before tax basis. Effective July 16, 2018, the Province of PEI implemented the Clean Energy Price Incentive which provides eligible year-round Residential class customers with a 10 per cent rebate on the first 2,000 kWh per month of energy consumed.

As a result, eligible Residential customers will see further reductions in their annual

electricity costs under this incentive. On an overall basis, when considering tax and the Clean Energy Price Incentive rebate, a typical urban Residential customer consuming 650 kWh per month will see a decrease in the first year of 1.4 per cent (approximately \$1.76 per month) in their annual electricity costs followed by an annual increase of 1.1 per cent in each of the two following years. A typical rural Residential customer consuming 650 kWh per month will see a 3.4 per cent decrease in year one (approximately \$4.46 per month) followed by an annual increase of 1.1 per cent in each of the next two following years. In comparison to the current three year period ending February 28, 2019, a typical urban Residential customer and a typical rural Residential customer will see overall decreases in annual electricity costs of 3.0 per cent (\$142.61) and 1.0 per cent (\$45.48) respectively over the next three years ending February 28, 2022.

In addition, the Company is proposing that the residential second block threshold be phased out by increasing the threshold on March 1, 2021 to 5,000 kWh. This proposed increase to the second block threshold will not have any impact on the majority of customers in the Residential rate class. Based upon customer consumption data used in the 2017 Cost Allocation Study, 87.2 per cent of customers (in February 2017) do not access the lower rate second block in the colder months while 98.4 per cent of customers (in July 2017) do not access the second block during the warmer months. Conversely, only between 1.6 per cent (warm months) and 12.8 per cent (cold months) of customers in the Residential class will be affected to some degree by these changes to the second block threshold.

The Company's proposal to phase out the Residential class second block threshold will provide affected customers with the time to assess the impact on their annual electricity costs and adopt strategies to better manage their electricity consumption. In addition, during this time, the Company will complete two load and consumption studies that will be used to develop future rate design recommendations with respect to customers in both the Residential and General Service rate classes.

Section 15 of the Application provides further discussion of the impact on customer electricity costs as a result of the Company's proposals contained in this Application.

**4.0 PROVINCIAL COSTS RECOVERABLE**

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**4.1 PEI Energy Accord**

**4.1.1 Background**

The PEI Energy Accord (the “Accord”), which expired on February 29, 2016, was a collaborative five year agreement between the Company and the Province of PEI intended, in part, to provide lower, stable electricity rates for PEI consumers. The Accord set out Government’s commitment to achieving lower customer electricity costs by assuming and financing certain extraordinary costs incurred by the Company to serve customers during the Point Lepreau refurbishment and to exit the Dalhousie Participation Agreement.

To facilitate the recovery of these amounts assumed by the Province, legislative amendments were enacted to add Section 49 of the EPA to deem the amounts assumed by the Province during the Accord as debts owing by Maritime Electric customers to the Province. The EPA further states that these amounts are to be recovered by Maritime Electric through customer electricity rates and remitted to the Province.

The electricity rates charged to customers since March 1, 2011 have included a rider on the rates for the collection of these costs recoverable from customers on behalf of the Province. The amount of the rider, which has been adjusted at times since 2011, was designed, using forecast sales levels, to provide sufficient cash flows to the Province to fund and repay the costs assumed previously by the Province.

**4.1.2 Point Lepreau Settlement**

By a separate Notice of Motion dated March 26, 2018 (Motion), NB Power disclosed to the New Brunswick Energy and Utilities Board (“NBEUB” or “Board”) that an insurance claim in connection with the Point Lepreau Nuclear Generating Station (PLNGS) was settled on March 22, 2018 (“PLNGS Settlement”). The claim related to material damage and a delay in start-up in connection with the PLNGS refurbishment project.<sup>1</sup>

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<sup>1</sup> NBEUB Decision Matter No. 375 dated July 20, 2018, Paragraph 9

NB Power filed a Claim for Confidentiality on March 26, 2018 requesting that the terms and conditions of the PLNGS Settlement be afforded confidential treatment. It requested that the Minutes of Settlement not be filed with the Board. The claim referred to the terms of the confidentiality provisions of the settlement, and that those terms were important to the commercial interests of both NB Power and the insurers who were the counter-parties to the settlement.<sup>2</sup>

In its NBEUB ruling issued on April 4, 2018, the Board determined that the nature of the information in question is confidential. The circumstances of NB Power's Claim for Confidentiality are unique and any undue disclosure of the settlement terms would be detrimental to NB Power and ratepayer interests.<sup>3</sup>

As a participant in the Point Lepreau Nuclear Generating Station, Maritime Electric has received a portion of the insurance proceeds in accordance with the settlement agreement. These proceeds, under the terms of the settlement agreement, were allocated between:

- the net capital investment in Point Lepreau which results in a lower monthly charge for output from the unit; and
- the incremental energy cost deferrals incurred as a result of the delays in returning the unit to service.

Since the incremental energy cost deferrals were assumed and financed by the Province as part of the PEI Energy Accord and related legislative changes, Maritime Electric has an obligation to remit its portion of the settlement related to these incremental energy costs deferrals to the PEI Energy Corporation ("PEIEC") on behalf of the Province of PEI.

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<sup>2</sup> IBID, Paragraph 16

<sup>3</sup> IBID, Paragraph 21



## **SECTION 4 – PROVINCIAL COSTS RECOVERABLE**

### **4.1.3 Collection Rate**

Schedule 4-1 below shows the rate rider included in customer electricity rates for 2011 to February 2019 as well as the actual and forecast amounts remitted to fund the repayment of the debt associated with the costs financed by the Province.

| <b>Schedule 4-1</b>                                           |                      |                           |
|---------------------------------------------------------------|----------------------|---------------------------|
| <b>Costs Recoverable From Customers on Behalf of Province</b> |                      |                           |
| <b>Year</b>                                                   | <b>Rate (\$/kWh)</b> | <b>Paid to PEIEC (\$)</b> |
| <b>2011</b>                                                   | 0.00130              | 1,118,900                 |
| <b>2012</b>                                                   | 0.00170              | 1,754,248                 |
| <b>2013</b>                                                   | 0.00676              | 6,537,983                 |
| <b>2014</b>                                                   | 0.00525              | 6,472,753                 |
| <b>2015</b>                                                   | 0.00536              | 6,345,495                 |
| <b>2016</b>                                                   | 0.00536              | 6,369,955                 |
| <b>2017</b>                                                   | 0.00536              | 6,475,192                 |
| <b>2018</b>                                                   | 0.00536              | 6,618,712 - Forecast      |
| <b>January – February 2019</b>                                | 0.00536              | 1,306,652 - Forecast      |

The receipt of the settlement proceeds by the PEIEC has been used, to the benefit of PEI electricity consumers, to reduce the debt outstanding with respect to the deferred energy costs assumed by the Province under the Accord. As a result of this debt repayment and the PEIEC's intent to restructure the financing with fixed repayment terms, the PEIEC and Maritime Electric propose that the fixed repayment amounts charged to customers for costs recoverable on behalf of the Province should, subject to Commission approval, be recovered as an energy related cost as opposed to a rider on customers' bills. This will eliminate the variability in the monthly repayment amount associated with a rate rider based on monthly consumption levels.

Based on the PEIEC's expected refinancing arrangements for this debt, it is proposed that the fixed repayment amounts begin effective March 1, 2019 such that the following estimated annual amounts would be remitted to the PEIEC as set out in Schedule 4-2 below.

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| <b>Schedule 4-2</b>                                                             |                    |
|---------------------------------------------------------------------------------|--------------------|
| <b>Annual Payment of Costs Recoverable From Customers on Behalf of Province</b> |                    |
| <b>Year</b>                                                                     | <b>Amount (\$)</b> |
| <b>2019 (March – December)</b>                                                  | \$4,783,200        |
| <b>2020</b>                                                                     | \$5,739,900        |
| <b>2021</b>                                                                     | \$5,721,300        |

Since the amount to be recovered relates to deferred energy costs associated with the closure of Dalhousie and the refurbishment of Point Lepreau, the Company proposes to treat the repayment of these amounts as an energy related cost that would be recovered through the Energy Cost Adjustment Mechanism. This treatment is consistent with the Amortization of Deferred Charges related to Point Lepreau as well as the recovery of the new submarine cable investment as discussed in Section 8 of the Application.

#### **4.2 Prince Edward Island Energy Corporation Electricity Efficiency and Conservation Plan 2018-2021**

##### **4.2.1 Background**

On November 3, 2015, the Commission issued Order UE15-02 with respect to the Company's 2015-2020 DSM Application filed June 3, 2015. The Commission approved annual expenditures of \$167,500, commencing in 2016, with respect to public outreach and education. Other aspects of the DSM Application were not approved.

Recognizing that a new DSM plan may be approved in 2016, the General Rate Agreement approved by the Commission for the period March 1, 2016 to February 28, 2019 included a provision for recovery of these expenditures during the period. As a result, the Company maintained the budgeted provisions in the General Rate Agreement for DSM Project expenditures and related annual amortization based upon what was presented in the Company's 2015-2020 DSM Application.

In 2017, the Company recorded \$178,254 that was collected through electricity rates based on the General Rate Agreement inputs for DSM and in 2018, the Company is accruing the \$362,346 balance of its expected funding requirement based upon the

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## **SECTION 4 – PROVINCIAL COSTS RECOVERABLE**

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PEIEC's application. These amounts for 2017 and 2018, totaling \$540,600, are included in Energy Supply Costs as part of the balance of Amortization of Deferred Charges discussed in Section 8.3 of this Application.

In December 2017, Section 16.1 of the EPA was amended to implement the PEI Energy Strategy recommendation to set up an independent energy efficiency utility. These amendments also provided that the PEIEC is to be considered a public utility under the EPA for purposes of Section 16.1 with responsibility for submitting energy efficiency and demand side resource plans for approval to IRAC.

On June 29, 2018, the PEIEC filed an application with IRAC seeking approval of an Electricity Efficiency and Conservation Plan ("EE&C Plan") for the term 2018-2021. The application sets out the PEIEC's plan and the proposed funding requirements from the provincial and federal governments as well as Maritime Electric and the City of Summerside Electricity Utility. This filing is listed as Commission Docket UE41400.

### **4.2.2 Collection Rate**

In its application to IRAC for approval of the EE&C Plan (Docket UE41400), the PEIEC is proposing the following funding amounts from Maritime Electric.

|           |             |
|-----------|-------------|
| 2018/2019 | \$540,000   |
| 2019/2020 | \$873,000   |
| 2020/2021 | \$1,080,000 |

In addition, the PEIEC is requesting that the EE&C Plan costs be treated by Maritime Electric as a pass-through to the PEIEC and that the EE&C Plan costs be shown as a separate line item on customers' electricity bills. Maritime Electric agrees with this approach towards recovering any EE&C Plan costs approved by the Commission as part of PEIEC's application. For purposes of establishing customer electricity rates for the period March 1, 2019 to February 28, 2022, the Company is forecasting that the PEIEC EE&C Plan programming will extend beyond 2021 at funding levels for Maritime Electric customers similar to the 2020/2021 level of \$1.1 million per year. To the extent that the forecast amount may differ from the amount ultimately approved by IRAC for the 2021-

## **SECTION 4 – PROVINCIAL COSTS RECOVERABLE**

2022 period, the rider on customers' bills during this period would be adjusted accordingly.

Schedule 4-3 below shows the collection rate to be shown as a separate line item on customers' bills for the March 1, 2019 to February 28, 2022 period to recover the Company's share of the funding requested in the PEIEC's EE&C Plan filing.

| <b>Schedule 4-3</b>                            |                      |
|------------------------------------------------|----------------------|
| <b>Collection Rate for PEIEC EE&amp;C Plan</b> |                      |
| <b>Year</b>                                    | <b>Rate (\$/kWh)</b> |
| 2019                                           | 0.0007               |
| 2020                                           | 0.0008               |
| 2021                                           | 0.0009               |

### **4.3. Summary**

A summary of this section follows:

- Through the PEI Energy Accord and related legislative amendments to the EPA, the Company is required to recover sufficient cash flows to repay the costs assumed previously by the Province that are deemed to be debts owing by Maritime Electric customers to the Province.
- Effective March 1, 2019, it is proposed that the amount owing by Maritime Electric customers to the Province be recovered as an energy-related cost through ECAM.
- As a result of an insurance settlement related to the Point Lepreau Nuclear Generating Station and the PEIEC's intent to restructure the financing with fixed repayment terms, the annual amount to be recovered is forecast to be \$4,783,200 in 2019, \$5,739,900 in 2020 and \$5,721,300 in 2021.
- Customer electricity costs include a rate rider of \$0.0007/kWh effective March 1, 2019, \$0.0008/kWh effective March 1, 2020 and \$0.0009/kWh effective March 1, 2021 to recover the proposed funding costs of the 2018-2021 PEIEC Electricity Efficiency and Conservation Plan as filed with the Commission in Docket UE41400.

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**5.0 REGULATORY DEFERRALS**

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The proposed amount charged to customers for electricity service contains several components. These include amounts to be recovered related to the operations of Maritime Electric including the amortization of certain regulatory deferral accounts as directed by the Commission. Electricity rates also include amounts to be recovered on behalf of the Province of PEI with respect to the PEI Energy Accord and the PEIEC's 2018-2021 EE&C Plan as discussed in Section 4.

The first component related to the Company's operations is the Service Charge which collects the cost of investment in fixed assets required to deliver energy. The next components related to the Company's operations are the demand and energy charges which recover the balance of the revenue requirement, including a base amount for energy related costs. Another component is the Rate of Return Adjustment credit which is discussed in Section 5.3. The final component related to the Company's operations is the Energy Cost Adjustment Mechanism ("ECAM") which enables the utility to collect/return fluctuations in approved energy related costs above/below the base amount per kilowatt-hour ("kWh") as approved by the Commission for inclusion in rates.

**5.1 Energy Cost Adjustment Mechanism****5.1.1 Background**

Maritime Electric has had a mechanism to recover/rebate energy costs above/below a base amount in place since the 1970's<sup>4</sup>. The mechanism has undergone several modifications during that period; however, the fundamental objective has remained the same. The ECAM provides a smoothing effect to the collection or rebate of energy costs.

The most recent modification occurred in Order UE16-04 in 2016 when the Commission approved the ECAM as applied during the PEI Energy Accord. Under the ECAM, the calculation of the rate charged to customers is updated annually, based upon the ECAM balance at December 31 of the prior year and the forecast kWh sales for the period March

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<sup>4</sup> During the period 1994 – 2000 there was no mechanism in place.

## **SECTION 5 – REGULATORY DEFERRALS**

1 to February 28 following. This approach provides more stability in customer electricity rates and, as a result, no changes are proposed to how the mechanism works.

### **5.1.2 Rebasing of the ECAM**

Under the operation of the ECAM the Company charges to expense, on a monthly basis, an amount equal to the net purchased and produced energy for the month (“NPP”) multiplied by the ECAM Base Rate amount per kWh, currently set at \$0.09161/kWh. This amount is subtracted from the actual cost of energy purchased or produced during the month with the difference (positive or negative) added to the Company’s Balance Sheet for future recovery from or return to customers.

With the recent execution of a new five year Energy Purchase Agreement for the period March 1, 2019 to February 29, 2024, the Company can reasonably estimate the average unit cost of a significant portion of the annual energy purchases. Although unplanned events, such as curtailments, changes in wind generation output or unplanned outages at Point Lepreau can affect the annual cost of purchased and produced energy, the operation of the ECAM allows the Company to establish the proposed ECAM Base Rates for the three year period March 1, 2019 to February 28, 2022 and provide customer electricity rate adjustment predictability over the period.

Schedule 5-1 below shows the ECAM Base Rates approved by the Commission under Order UE16-04 and the proposed Base Rates for the March 1, 2019 to February 29, 2022 period.

| <b>Schedule 5-1</b>                            |                      |
|------------------------------------------------|----------------------|
| <b>ECAM Base Rates (March 1 – February 28)</b> |                      |
| <b>Year</b>                                    | <b>Rate (\$/kWh)</b> |
| 2016                                           | 0.08605              |
| 2017                                           | 0.08988              |
| 2018                                           | 0.09161              |
| 2019                                           | 0.09335              |
| 2020                                           | 0.09475              |
| 2021                                           | 0.09591              |

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## **SECTION 5 – REGULATORY DEFERRALS**

With the adoption of the proposed ECAM Base Rates, Schedule 5-2 shows the forecast balance of Costs Recoverable From (Payable To) Customers at December 31 for the years 2016 – 2021.

| <b>Schedule 5-2</b>                                         |                        |                        |                          |                          |                          |                          |
|-------------------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Costs Recoverable From (Payable To) Customers (\$)</b>   |                        |                        |                          |                          |                          |                          |
|                                                             | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Cost Recoverable<br/>From (Payable To)<br/>Customers</b> | \$2,158,214            | \$2,876,604            | \$4,639,400              | \$2,329,000              | \$1,950,900              | \$250,000                |

The fluctuations in the balance of Costs Recoverable From (Payable To) Customers during the General Rate Agreement period (2016-2018) are driven substantially by higher costs associated with the Point Lepreau Nuclear Generating Station caused by longer than planned maintenance outages. The ECAM, as currently approved, has mitigated an immediate impact on customer electricity costs through the deferral of excess costs.

Assuming there are no material fluctuations in energy costs from that forecasted, the proposed ECAM Base Rates for 2019-2021 as outlined in Schedule 5-1 will ensure recovery of deferred energy costs over the 2019-2021 period. The proposed ECAM Base Rates also provide predictability with respect to the changes in customer electricity costs.

### **5.1.3 Summary**

The Company proposes that the ECAM Base Rate to be used in the ECAM formula, as currently approved, be set as follows:

|               | <b><u>Per kWh</u></b> |
|---------------|-----------------------|
| March 1, 2019 | \$0.09335             |
| March 1, 2020 | \$0.09475             |
| March 1, 2021 | \$0.09591             |

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**5.2 Weather Normalization Reserve****5.2.1 Background**

The use of weather normalization reserves are a common in approach throughout the utility industry and are part of a broader group of deferral reserves designed to mitigate volume or demand fluctuations. The purpose of a Weather Normalization Reserve (the “Reserve”) is to stabilize electricity rates charged to customers by removing the volatility in sales and related energy supply costs driven by temperature changes relative to historical averages. Where the Heating Degree Days<sup>5</sup> (“HDD”) variation is above normal (colder temperature than historical average), the Company will experience incremental marginal net revenue (revenue less energy costs) which would be returned to customers but when HDD variation is below normal (warmer temperature than historical average) there will be a shortfall in net revenue which will need to be recovered from customers.

In Commission Order UE16-04, the Commission granted interim approval to adopt a Weather Normalization Reserve for the period January 1, 2016 to February 28, 2019 but expressed concerns about the impact that the Reserve may have on the Rate of Return Adjustment (“RORA”) account. As a result the Commission also ordered the Company to provide the monthly balance of the Weather Normalization Reserve as part of its monthly reporting requirements to IRAC and to also file the year-end balance of the Weather Normalization Reserve on or before February 28<sup>th</sup> of each of 2017, 2018 and 2019. The Commission has indicated it will determine whether to approve a permanent Weather Normalization Reserve based on its review of these monthly and annual reports.

The interim Weather Normalization Reserve states that “Revisions to the components of the MWh Variation from Average and Marginal Net Revenue formulas for a calendar year are to be submitted to the Commission for approval on or before October 31<sup>st</sup> of the year prior thereto.” On October 31, 2016, the Company filed an application with the Commission to update the components of the Weather Normalization Reserve for the 2017 fiscal year. On February 23, 2017, Commission Order UE17-01 approved this

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<sup>5</sup> [http://climate.weather.gc.ca/glossary\\_e.html](http://climate.weather.gc.ca/glossary_e.html) - Heating degree-days for a given day are the number of degrees Celsius that the mean temperature is below 18°C. If the temperature is equal to or greater than 18°C, then the number will be zero. For example, a day with a mean temperature of 15.5°C has 2.5 heating degree-days; a day with a mean temperature of 20.5°C has zero heating degree-days.



application as filed. On October 31, 2017, the Company filed an application with the Commission to update the components of the Weather Normalization Reserve for the 2018 fiscal year. This Application, Commission Docket UE21219, is currently before the Commission awaiting a decision. The evidence in this Application is filed in support of the proposed revisions to the components of the MWh Variation from Average and Marginal Net Revenue formulas for the period beginning January 1, 2019.

**5.2.2 Contribution to the Weather Normalization Reserve**

The balance of the Weather Normalization Reserve on the Company's balance sheet represents the cumulative monthly change in the contribution of sales margin resulting from variations in HDD from the normal ten year average.

When the HDD total in a month is higher than the normal ten year average for that month, a marginal net revenue amount will be subtracted on the Company's income statement and added to the Reserve as an amount owing to the customer. However, when HDD in a month are lower than the normal ten year average for that month, a marginal net revenue amount will be added to the Company's income statement and subtracted from the Reserve as an amount recoverable from the customer. Schedule 4 in Appendix 5 provides the monthly change in the Reserve from its initial approval effective January 1, 2016 to October 31, 2018.

As a formula, the monthly contribution to the Weather Normalization Reserve is a product of the two components as expressed below:

$$\text{Contributions to Weather Normalization Reserve} = \text{MWh Variation From Average} \times \text{Marginal Net Revenue}$$

Where,

$$\text{MWh Variation from Average} = (\text{Actual HDD Value} - \text{Average HDD Value}) \times (\text{MWh per HDD Coefficient})$$

$$\text{Marginal Net Revenue} = \text{Forecast Unit Revenue per MWh} - \text{Forecast Unit Energy Cost per MWh}$$

**5.2.3 MWh Variation From Average**

There are two elements of the MWh Variation from Average components that require revision for the period beginning January 1, 2019:

- i. Average HDD value; and
- ii. MWh per HDD Coefficient

i. **Average HDD Value**

The Average HDD Value is calculated using the rolling 10 year average HDD value based upon the most recent 10 years of information available as measured by Environment Canada for the Charlottetown Airport weather station.

For 2018, the Average HDD Value of 4,400 was calculated based upon the ten year period from 2007-2016. The revised average HDD Value proposed to be used for 2019 is 4,364 based upon the years 2008-2017 as calculated in Appendix 5 – Schedule 1.

ii. **MWh Per HDD Coefficient**

The determination of the MWh per HDD Coefficient (the “Coefficient”) to be used for the upcoming year is calculated using econometric modelling with a linear regression analysis. The linear regression analysis identifies the estimated change in MWh sales (customer usage) resulting from a unit variation in HDD.

For 2018, the Coefficient of 46.66 MWh per HDD was calculated based upon the data from October 2016 to May 2017. The revised Coefficient proposed for 2019 is 50.19 MWh per HDD based upon the data from October 2017 to May 2018 as calculated in Appendix 5 – Schedule 2.

**5.2.4 Marginal Net Revenue**

The Marginal Net Revenue rate is calculated as the Forecast Unit Revenue per MWh less the Forecast Unit Energy Cost per MWh. As a result, there are two elements of the Marginal Net Revenue component that require revision for the period beginning January 1, 2019:

- i. Forecast Unit Revenue per MWh; and
- ii. Forecast Unit Energy Cost per MWh

i. **Forecast Unit Revenue Per MWh**

For 2018, the Forecast Unit Revenue per MWh of \$142.99 was based upon the forecast 2018 information derived from actual sales results to September 30, 2017 and the 2018 rate adjustments approved by IRAC in Order UE16-04. The revised Forecast Unit Revenue per MWh proposed for 2019 has been updated with actual results to September 30, 2018 and reflects the proposed 2019 rate adjustments filed in this Application. Using these inputs, the Forecast Unit Revenue per MWh for 2019 is \$145.83 as detailed in Appendix 5 – Schedule 3.

ii. **Forecast Unit Energy Cost Per MWh**

The Forecast Unit Energy Cost per MWh is to be revised based upon the Commission approved Base Rate for the Energy Cost Adjustment Mechanism for the particular year. In Order UE16-04, IRAC approved the Schedule of Inputs which included the 2018 Base Rate of \$91.61 per MWh that is currently used in the Marginal Net Revenue calculation. For 2019, the proposed Base Rate in Schedule 5-1 of this Application is \$93.35 per MWh. This rate is included in Appendix 5 – Schedule 3.

Using the Forecast Unit Revenue per MWh and Forecast Unit Energy Cost per MWh for 2019 as described above, the 2019 Marginal Net Revenue Rate is calculated to be \$52.48 per MWh as detailed in Appendix 5 – Schedule 3.

**5.2.5 Summary**

The Weather Normalization Mechanism and Reserve was approved by IRAC, on an interim basis, in Order UE16-04 effective for the period January 1, 2016 to February 28, 2019.

The Company proposes:

- that the interim Weather Normalization Mechanism and Reserve be approved for

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- adoption for 2019 and future years;
- that the Commission approve the revisions to the Weather Normalization Mechanism variables for 2018 as proposed in the Company's October 31, 2017 application, Commission Docket UE21219 and set out in Schedule 5-3 below; and
  - that the Commission approve the revisions to the Weather Normalization Mechanism variables for 2019 as outlined in this application and in Schedule 5-3.

| <b>Schedule 5-3</b>                                                                   |                                     |                                      |                                     |
|---------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| <b>Summary of Proposed Revisions to<br/>Weather Normalization Mechanism Variables</b> |                                     |                                      |                                     |
|                                                                                       | <b>Approved<br/>January 1, 2017</b> | <b>Proposed<br/>January 1, 2018*</b> | <b>Proposed<br/>January 1, 2019</b> |
| <b><u>MWh Variation from Average</u></b>                                              |                                     |                                      |                                     |
| Average HDD Value                                                                     | 4,369                               | 4,400                                | 4,364                               |
| MWh per HDD Coefficient                                                               | 43.21                               | 46.66                                | 50.19                               |
|                                                                                       |                                     |                                      |                                     |
| <b><u>Marginal Net Revenue</u></b>                                                    |                                     |                                      |                                     |
| Forecast Unit Revenue per MWh                                                         | 139.44                              | 142.99                               | 145.83                              |
| Forecast Unit Energy Cost per MWh                                                     | 89.88                               | 91.61                                | 93.35                               |

\* Commission Docket UE21219

### **5.3 Rate of Return Adjustment**

#### **5.3.1 Background**

The Rate of Return Adjustment Account ("RORA") was first approved by IRAC in Order UE11-04 to defer, with interest, any earnings for 2011 and 2012 in excess of the approved returns on average common equity for these years. These accumulated amounts were to be returned to customers once the PEI Energy Accord ended.

In 2012, the annual Schedule of Inputs for 2013 to 2015 and the resulting electricity rates for the remaining three years of the Accord were established. As part of the legislation enacted to implement the final three years, the Company was required to return to customers any earnings in excess of its allowed return on average common equity during the Accord over the period March 1, 2013 to February 28, 2017. On March

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1, 2013, the Company began refunding the 2011 actual RORA and forecast 2012 RORA as part of the legislated rates for the period March 1, 2013 to February 29, 2016.

During the remaining three years of the Accord, the Company also recorded a RORA for each of 2013, 2014 and 2015. As part of the Company's General Rate Application and the subsequent General Rate Agreement approved by IRAC in Order UE16-04, the Company is required to refund the balance of the RORA to December 31, 2015 over the period March 1, 2016 to February 28, 2019 at the rates approved by the Commission in Appendix 2 of Order UE16-04. Current electricity rates charged to customers reflect the refund of this RORA account at the rates approved.

Schedule 5-4 below provides details of the RORA deferral account recorded to the end of 2015 and the forecast balance remaining for refund to customers on February 28, 2019.

| <b>Schedule 5-4</b>                            |                      |                     |                              |                                   |
|------------------------------------------------|----------------------|---------------------|------------------------------|-----------------------------------|
| <b>Pre-2016 RORA Payable to Customers (\$)</b> |                      |                     |                              |                                   |
|                                                | <b>RORA</b>          | <b>Interest</b>     | <b>Refunded to Customers</b> | <b>Balance Owing to Customers</b> |
| <b>2011</b>                                    | \$ 1,874,268         | \$ -                | \$ -                         | \$ 1,874,268                      |
| <b>2012</b>                                    | 2,239,130            | 57,166              | -                            | 4,170,564                         |
| <b>2013</b>                                    | 3,586,955            | 117,873             | (648,556)                    | 7,226,836                         |
| <b>2014</b>                                    | 3,674,728            | 205,812             | (829,060)                    | 10,278,316                        |
| <b>2015</b>                                    | 5,444,928            | 277,477             | (843,956)                    | 15,156,765                        |
| <b>2016</b>                                    | -                    | 360,528             | (4,112,957)                  | 11,404,336                        |
| <b>2017</b>                                    | -                    | 243,471             | (5,567,325)                  | 6,080,482                         |
| <b>2018 (Forecast)</b>                         | -                    | 96,018              | (4,567,900)                  | 1,608,600                         |
| <b>2019 (Jan-Feb Forecast)</b>                 | -                    | -                   | (839,900)                    | 768,700                           |
| <b>Total</b>                                   | <b>\$ 16,820,009</b> | <b>\$ 1,358,345</b> | <b>\$ (17,409,654)</b>       | <b>\$ 768,700</b>                 |

The Company proposes that the remaining balance in the pre-2016 RORA, currently forecast to be \$768,700, be transferred to the post-2015 RORA account and refunded to customers as discussed in the following Section 5.3.2.

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## **SECTION 5 – REGULATORY DEFERRALS**

### **5.3.2 Post 2015 RORA**

The continued adoption of electricity based sources for space heating, recent taxation changes to residential electricity bills and stronger than expected economic growth on PEI have resulted in sales growth levels exceeding that previously forecast and used in establishing customer electricity rates during the General Rate Agreement period. As a result, the Company has recorded RORA in both 2016 and 2017 and is forecasting a RORA for 2018 as well.

In accordance with Order UE16-04, “any over earnings accumulated during the period from January 1, 2016 to February 28, 2019 shall be deposited to a separate RORA account, the balance of which shall be refunded to ratepayers commencing March 1, 2019, or as further directed by the Commission.” Although not specified in Order UE16-04, the Company has continued to accrue interest owing to customers on the accumulated RORA as part of the balance to be refunded.

Schedule 5-5 below provides details of the post-2015 RORA deferral account recorded to date and the forecast balance at February 28, 2019 available for refund to customers.

| <b>Schedule 5-5</b>                             |                     |                   |                                    |                                   |
|-------------------------------------------------|---------------------|-------------------|------------------------------------|-----------------------------------|
| <b>Post-2015 RORA Payable to Customers (\$)</b> |                     |                   |                                    |                                   |
|                                                 | <b>RORA</b>         | <b>Interest*</b>  | <b>Transfer from Pre-2016 RORA</b> | <b>Balance Owing to Customers</b> |
| <b>2016</b>                                     | \$ 2,100,000        | \$ -              | \$ -                               | \$ 2,100,000                      |
| <b>2017</b>                                     | 2,767,885           | 61,922            | -                                  | 4,929,807                         |
| <b>2018 (Forecast)</b>                          | 3,952,400           | 116,493           | -                                  | 8,988,700                         |
| <b>2019 (Jan – Feb Forecast)</b>                | -                   | -                 | 768,700                            | 9,767,400                         |
| <b>Total</b>                                    | <b>\$ 8,820,285</b> | <b>\$ 178,415</b> | <b>\$ 768,700</b>                  | <b>\$ 9,767,400</b>               |

\* Calculated monthly based on the Scotiabank prime rate.

With the transfer of the pre-2016 RORA balance to the post-2015 RORA account, the Company is proposing to refund the total accumulated RORA owing to customers over a three year period from March 1, 2019 to February 28, 2022 based upon forecast sales by applying a credit of \$0.00250/kWh to the per kWh rate for each rate class. Returning the RORA to customers over a three year (36 month) period will serve to smooth the impact on customers' electricity costs over the three year period and assist in providing

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stable and predictable rate adjustments during this time. Disposition of any remaining residual RORA balance to be refunded or recovered would be brought to the Commission for approval as part of the next application for rates effective March 1, 2022.

**5.3.3 Summary**

The Company proposes:

- that any residual balance of the pre-2016 RORA deferral account be transferred to the post-2015 RORA deferral account effective March 1, 2019 for refund to customers;
- that the accumulated post-2015 RORA account be refunded to customers over the period March 1, 2019 to February 28, 2022 by applying a credit of \$0.00250/kWh to the per kWh rate for each rate class; and
- that the disposition of any residual remaining balance in the RORA to be refunded or recovered would be subject to Commission review in the next General Rate Application.

## **SECTION 6 – CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

### **6.0 CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

#### **6.1 Introduction**

Maritime Electric owns and operates the Charlottetown Thermal Generating Station (“CTGS” or “Steam Plant”) which consists of six steam boilers that burn heavy fuel oil (bunker C) and four steam turbine units. The steam turbine units were installed in the 1950’s and 1960’s and range in size from 7.5 MW to 20 MW and have a demonstrated net capability of 55 MW.

On June 28, 2018, the Company filed the Charlottetown Thermal Generating Station Decommissioning Study (“Decommissioning Study”) for the CTGS as required by the Commission under Order UE16-04. The Decommissioning Study filing, Commission Docket UE23001, provides a detailed assessment of the decommissioning process, options, risks and estimated costs related to the proposed plan for the facility.

The following evidence in this section of the Application provides an overview of the Decommissioning Study filing along with the Company’s recommendations and proposals for the Commission’s consideration under Section 10 of the EPA.

#### **6.2 2009 Life Extension Study and ROS Consulting 2015 Update**

In 2009, ROS Consulting Inc. was hired to perform a life extension study of the CTGS. A follow-up assessment of the condition of the CTGS by ROS Consulting Inc. in 2015 further stressed that the generation equipment and components were approaching the end of their service life. The 2015 report provided a list of ‘must complete’ work in order to keep the CTGS operational until the decommissioning of the CTGS planned to begin in 2022. However, the report noted that in order to keep the CTGS operational beyond that point it would require a life extension refurbishment.

Based on the consultant’s 2009 report and the 2015 update, the Company estimated the cost of a life extension refurbishment to keep the facility in service for another 15 years to be approximately \$41 million in 2015 dollars. At that time Maritime Electric determined that replacing the CTGS with a combustion turbine would be more cost effective when

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operating costs were factored in.

In addition to being more cost effective, fast starting generation (such as combustion turbines) better suit Maritime Electric's capacity requirements to operate as emergency standby generation when the normal sources of supply on the mainland are lost, sometimes with little advance warning. As a result, the life extension refurbishment option was determined to be uneconomical.

### **6.3 Decision to Decommission the Charlottetown Thermal Generating Station (CTGS)**

Two recent developments have provided a means for the purchase of short-term replacement of the 55 MW of capacity from the CTGS and support the closure and decommissioning of the facility:

- The two new 180 MW submarine cables placed in service 2017 enables Maritime Electric to purchase additional energy and capacity resources from off-Island sources; and
- Maritime Electric recently signed a new Energy Purchase Agreement with NB Power which will allow it to purchase expected generating capacity requirements in the short-term (Agreement term is March 2019 to February 2024).

The Company believes that it is prudent to proceed with the decommissioning of the CTGS given the age of the facilities and the ability to meet the energy and capacity requirements in the short term through the new Energy Purchase Agreement. Generating capacity on Prince Edward Island will remain a consideration to be addressed over the longer-term.

### **6.4 CTGS Building Re-purposing Study**

In July 2017 the Company issued a Request for Proposal ("RFP") to six engineering/architectural firms for the completion of an independent review/study of the cost effectiveness and practicalities of re-purposing the CTGS building/structure for a different function within Maritime Electric or to lease the building out as an industrial/warehousing space until a more permanent use for the building could be determined.

## **SECTION 6 – CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

The result of this RFP was that CBCL Engineering Ltd. (“CBCL”) and an architectural firm Fowler, Bauld & Mitchell (“FBM”) were engaged to jointly prepare the CTGS Building Re-purposing Study. FBM had experience in a similar re-purposing project as they were the lead architectural firm in the re-development of Nova Scotia Power’s coal-fired Water Street Generating Station into the corporate head office for Emera.

The Re-purposing Options Explored in that study included:

- Consolidation of the West Royalty Service Centre (“WRSC”) Transformer Shop and the Hazardous Waste Facility (“HWF”) located on Longworth Avenue into one facility on the CTGS site;
- Relocation of Maritime Electric’s Head Office (“180 Kent Street”);
- Investigate CTGS building for housing a new combustion turbine;
- Investigate CTGS building for housing an indoor 69 kV gas-insulated substation to replace the 69 kV Charlottetown Switching Station located outdoors on-site;
- Make leasehold improvements to the CTGS building to lease as an industrial/warehousing space; and
- Retain CTGS empty building shell (e.g. Do Nothing or Status Quo option).

The key findings in the report issued in September 2017 were as follows:

- All options require roof membrane replacement/reinforcement due to the advanced age and deterioration of the roof and may also require structural roof upgrades to ensure the building meets the latest National Building Code snow loads.
- The building would have to be brought up to current National Building Code (“NBC”) requirements due to a deemed “Change in Occupancy”
- Construction of a new raised ‘ground floor’ to reduce risk of flood damage as experienced in January 2000 during a storm surge event.
- Re-purposing of the building was found to be un-economical when factoring-in investments required to bring building up to NBC Code and on-going heating/maintenance costs of a large, poorly insulated facility (45,000 ft<sup>2</sup> x 4 stories).

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## **SECTION 6 – CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

- Re-purposing would result in an expensive, renovated building which was not purpose-designed or built for the function it may eventually be used for.

After a review of all options Maritime Electric has concluded that re-purposing the CTGS building is not practical and is considered uneconomical.

### **6.5 Selection of Consultant for CTGS Decommissioning Study**

To assist with the development of the decommissioning plan, the Company engaged a consultant, Byron Webber, P.Eng. who has extensive experience in such projects. An RFP was issued in October 2017 to five pre-qualified engineering consulting firms to hire an engineering consulting firm with experience in cost estimating, site closure planning, environmental remediation and decommissioning of power generating stations as well as having the available resources to complete this study in the timelines required.

Based on an analysis of the proposals received and further in-person presentations, Maritime Electric selected GHD Limited (“GHD”) to provide engineering and regulatory support services including preparation of an American Association of Cost Engineering (“AACE”) Class 3 cost estimate for decommissioning of the CTGS. GHD is considered one of the world’s leading professional engineering companies in this area. GHD’s proposal benefitted from having recent experience in the decommissioning of generating stations in New Brunswick (Chatham, Grand Lake and Dalhousie) as well as other large decommissioning projects in North America (e.g. Wayne County - Detroit Airport Terminal, and Canadian Gypsum Company, etc.) and included local sub-consultants for mechanical engineering, geotechnical, asbestos abatement and electrical engineering expertise.

### **6.6 Preliminary Options Analysis: Full Demolition vs. Partial Demolition**

Two of the three consulting firms that were considered had indicated in their presentations that Maritime Electric’s initial concept to perform a partial demolition of the CTGS building and leave intact about 25 per cent of the footprint where Balance of Plant (“BOP”) equipment related to Combustion Turbine No. 3 (“CT3”) was located would be very expensive. Both noted that it might be more cost effective to build a new CT3 BOP building and either relocate the existing equipment into this building or purchase new

## **SECTION 6 – CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

BOP equipment to be installed into this building.

Based on this information, Maritime Electric had GHD perform a Preliminary Options Analysis of the Full Demolition versus Partial Demolition options for the CTGS building.

The Preliminary Options Analysis report on the Full Demolition and Partial Demolition options was finalized in June 2018 and included as Appendix 3 in the June 28, 2018 filing (UE23001) to IRAC for the CTGS Decommissioning Study. The report indicates that it would be more cost effective for the Company to relocate the BOP equipment associated with CT3 (currently located in the CTGS) into a new building on-site. The Full Demolition option is estimated to have 35-year Life Cycle Costs (“LCC”) that are \$621,000 lower than the Partial Demolition option. If several Risk Item Allowances are included in the analysis this LCC differential increases to \$1,077,500. Details on the LCC estimate are contained in Pages 8 to 11 of Appendix 3 in the June 28, 2018 filing.

With the CT3 BOP equipment relocated to a new building, the Decommissioning Study proposes that the infrastructure associated with the CTGS building be fully demolished and the site remediated to an open space condition that would permit future system expansion and energy infrastructure upgrades.

### **6.7 CT3 Balance of Plant Equipment Building**

In July 2018, Chandler Architecture Inc. (“Chandler”) was engaged to further define the design and refine GHD’s initial cost estimate for a new CT3 BOP building to an AACE Class 4 estimate with an accuracy range of -30 per cent to +50 per cent. The BOP building design and costing information is contained in Appendix 6. Schedules 1 and 2 illustrate the proposed building layout while Schedules 3, 4 and 5 contain the initial budget estimates for the building.

The AACE Class 4 cost estimate for the new CT3 BOP Building is comprised of new capital investment of approximately \$3 million with an additional provision of \$355,000 for retirement costs related to the removal of BOP assets that are determined to be unusable. The Company intends to further refine the accuracy of the cost estimate for the new CT3 BOP Building prior to the filing of the 2020 Capital Budget application to

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either an AACE Class 2 (+20% to -5%) or AACE Class 1 (+15% to -3%) cost estimate.

#### **6.8 Update of Phase II Environmental Site Assessment Report**

An updated Phase II Environmental Site Assessment (“ESA”) Report was prepared by GHD to supplement previous investigations completed at the CTGS, to aid in the development of the Decommissioning Study, and to assist in determining the costs to decommission the CTGS. A Phase I ESA was completed for the CTGS in 1995 to identify any significant actual or potential areas of environmental concern at the CTGS. A subsequent Phase II ESA was completed in 2002.

Key findings of the GHD ESA are found in the Conclusions section, Pages 22-24 of the Updated Phase II Environmental Site Assessment document which was included as Appendix 2 in the June 28, 2018 filing (UE23001) to IRAC for the CTGS Decommissioning Study.

#### **6.9 Decommissioning Options Analysis**

A decommissioning options analysis was completed by GHD, in conjunction with Maritime Electric, for major site infrastructure (e.g., infrastructure retained or sold) and decommissioning considerations (e.g. stack demolition; contaminated soil management). The decommissioning option analysis was completed as follows:

- Review of Decommissioning Assumptions Pre-determined by Maritime Electric: The pre-determined assumptions are primarily related to post closure ownership, general decommissioning approaches, and Maritime Electric liability and management requirements during decommissioning.
- Identification of potential decommissioning options for the management of environmental liabilities (i.e., impacted soils and groundwater, surfaces with lead/zinc-based paint, residual tank sludge and sourcing of material for site grading and closure methods).
- Qualitative Analysis of Potential Decommissioning Options: A qualitative evaluation of potential decommissioning options was completed to identify viable options for specific decommissioning activities based on local environment, regulatory requirements and best management practices.

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- Quantitative Analysis of Decommissioning Options: A quantitative assessment was completed for options where more than one option for a decommissioning activity was considered viable following the qualitative analysis.

The following eight decommissioning activities were discussed and/or carried forward for a quantitative option analysis by GHD:

1. Demolition of the Stacks (5 options studied)
2. Disposal of Excess Concrete Generated During Demolition Activities (2 options studied)
3. Management of metal/PAH impacted soil and groundwater (2 options studied)
4. Management of lead (and zinc) based painted concrete (3 options studied)
5. Management of bottom sludge from the Bulk Storage Tank and day tanks (2 options studied)
6. Decommissioning of CW lines from River Pumphouse to Steam Plant Building and from Steam Plant Building to the CW Outfalls and Diverter Box (8 options studied)
7. Decommissioning of the River Pumphouse, Wharf, Armour Stone Retaining Wall, CW Outfalls and Diverter Box (3 options studied)
8. Surface Drainage Management (3 options studied)

Further details on the results of the quantitative option analysis work may be found in Section 5.1, beginning on Page 40 in Appendix 1 of the June 28, 2018 filing (UE23001) to IRAC.

### **6.10 CTGS Decommissioning Study**

GHD's main deliverable as Owner's Engineer was to provide engineering and regulatory support services including the preparation of a Class 3 cost estimate and a preliminary plan for the decommissioning of the CTGS. This plan was included as Appendix 1 in the June 28, 2018 filing (UE23001) to IRAC for the CTGS Decommissioning Study.

The net decommissioning cost (including Owner's costs and net of salvage materials) is estimated to be \$10.43 million in 2018 dollars. This estimate is a Class 3 estimate as

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defined by the Association for the Advancement of Costing Engineering International (“AACE”) with an accuracy range of -20 per cent to +30 per cent and is considered appropriate at this stage considering that the CTGS decommissioning and demolition is not scheduled to begin until 2022 after the necessary approvals and permitting have been received. Market conditions will dictate contractor pricing and the salvage value of recyclable materials at that time. Schedule 6-3 below summarizes the Class 3 estimate of the decommissioning activities in 2018 dollars.

| <b>Schedule 6-3</b>                                                                        |                |
|--------------------------------------------------------------------------------------------|----------------|
| <b>AACE Class 3 Cost Estimate for Decommissioning of the CTGS (\$ million)</b>             |                |
| Site Decommissioning Cost                                                                  | \$6.47         |
| Allowances                                                                                 | \$1.94         |
| Project Management, Engineering and Implementation (including Owner's Costs)               | \$2.46         |
| Post Decommissioning and Other Miscellaneous Cost                                          | \$0.69         |
| Potential Resalable and Salvage Values                                                     | (\$1.13)       |
| <b>Net Decommissioning Cost<br/>(including Owner's Costs and net of salvage materials)</b> | <b>\$10.43</b> |

*Note: The AACE Class 3 cost estimate is equivalent to a Government of Canada - Treasury Board Class B estimate.*

Prior to the decommissioning, various engineering activities, stakeholder consultations and Provincial environmental approvals would be required. A proposed timeline for major project milestones is provided below. A more detailed schedule for the CTGS decommissioning tasks is provided in the form of a Gantt chart in Figure 12 on Page 99 of Appendix 1 of the June 28, 2018 filing (UE23001) to IRAC.

### **6.11 Proposed Project Timeline**

Subject to IRAC approval of the decommissioning plan, the following are the forecast timelines for decommissioning:

## **SECTION 6 – CHARLOTTETOWN THERMAL GENERATING STATION DECOMMISSIONING STUDY**

|                                                                                                  |                             |
|--------------------------------------------------------------------------------------------------|-----------------------------|
| Decommissioning Study and Cost Estimate Filing to IRAC                                           | June 28, 2018               |
| Planning for the Site and Preparing Draft Tendering Documents                                    | 2018 – 2019                 |
| Developing Proposed Project Plans                                                                | 2019                        |
| Civil Work for Construction of New CT3 BOP Building                                              | April 2020 – August 2020    |
| Relocation of CT3 BOP Equipment to New Building                                                  | August 2020 – November 2020 |
| Environmental Impact Assessment (EIA) Process<br>(stakeholder consultations and public meetings) | 2020/2021                   |
| Full Demolition of CTGS Building, stacks, etc. (52 Weeks)                                        | January 2022 – January 2023 |
| Landscaping and Final Site Cleanup Work                                                          | April 2023 – October 2023   |

### **6.12 Summary**

The CTGS Decommissioning Study, Commission Docket UE23001, is a comprehensive analysis and plan to decommission the CTGS over the 2022-2023 period. In consideration of the detailed Study filed with the Commission and summarized in this application, the Company proposes the following:

- The Commission grant approval, under Section 10 of the EPA, of the Decommissioning Plan, including the estimated \$10.43 million (2018 dollars) net decommissioning cost, the projected timelines and the CT3 Balance of Plant Equipment Building Capital expenditures;
- The Company be directed to submit, in its 2020 Capital Budget Application, the final project details and budget for the CT3 Balance of Plant Equipment Building;
- The Company be directed to take the steps necessary to effect the CTGS decommissioning, including public consultation, environmental and regulatory approvals; and
- The Company be directed to monitor the estimated cost estimates and report updates on costs and project timelines every six months with the first report due August 31, 2019 for the period ending June 30, 2019.

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### **7.0 ENERGY SALES FORECAST**

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#### **7.1 Economic Outlook<sup>6</sup>**

The Conference Board of Canada, in its most recent Provincial Economic Outlook publications, provides the following outlook for Prince Edward Island.

*“Positive news abounds for Prince Edward Island, as it is expected to lead the provinces in economic growth over the next two years. Impressively, this run of solid economic growth is underpinned by sound fundamentals, including strong population gains through immigration, a booming tourism industry, and elevated demand for P.E.I. products. Economic growth in Prince Edward Island has been strong in recent years, boosting government revenues to the point that the province was able to balance its budget for the first time in a decade last fiscal year, and it expects to post a bigger surplus this year. A balanced budget will provide the province with some much-needed fiscal wiggle-room at a time when fiscal challenges – including population aging (which is raising demand for government services) and rising interest rates (which are adding pressure to debt repayment charges) – also abound. Despite the challenges, the current hot streak of economic growth on the Island should keep the province in its newfound surplus position over the near term.*

*One of the biggest factors behind the recent economic growth on the Island is international migration. The influx of these new citizens is the driving force behind the population gains seen on the Island, with the impacts being felt across the province. One result has been a boom in the housing market, which in turn is leading to higher construction activity. The population growth is also providing a boost for retail sales. At the same time, tourism continues to play a growing role in the Island's economy. The high levels of visitors will encourage further spending on local products, benefiting the food and accommodation industry. Additionally, with high demand for P.E.I. products expected to continue, manufacturing activity on the Island will continue to flourish. Overall real GDP on the Island is expected to grow 2.8 per cent this year and 2.5 per cent in 2019.*

#### **7.2 Energy Sales Forecast**

The energy sales forecast is the basis of the short-term and long-term energy supply planning process. The sales forecast is used to calculate the total energy required to serve customers and the associated costs.

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<sup>6</sup> See attached Appendix 7 - The Conference Board of Canada - Provincial Outlook Executive Summary and Provincial Outlook Economic Forecast (Summer 2018)

## **SECTION 7 – ENERGY SALES FORECAST**

The development of the sales growth forecast involves a detailed sales regression analysis which reflects a number of variables such as population growth, changes in the Consumer Price Index, the number of customers expected to exit and enter the system, furnace oil prices, heating and cooling degree day experience and the rate of adoption of electricity based space heating. Management also conducts a review of trends in historic sales growth which includes a two-year average growth rate calculation and an analysis of year-to-date growth over the previous period. These results are then compared to actual results to date and any other known economic inputs. Based on this process, a forecast of energy sales is made.

Schedule 7-1 shows a comparison of the results of the regression analysis model, the two-year average growth rate calculation and the year-to-date growth over the previous period for 2016 – 2021.

| <b>Schedule 7-1</b>        |                        |                        |                          |                          |                          |                          |
|----------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Energy Sales (GWh)</b>  |                        |                        |                          |                          |                          |                          |
| <b>Measure</b>             | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Regression Analysis Growth | 1,188.4                | 1,208.0                | 1,234.9                  | 1,267.0                  | 1,300.8                  | 1,321.3                  |
| Two-year Average Growth    | 1,254.9                | 1,199.5                | 1,236.8                  | 1,267.4                  | 1,299.9                  | 1,334.4                  |
| Year-To-Date Growth        | 1,188.4                | 1,208.0                | 1,245.3                  | 1,288.2                  | 1,336.8                  | 1,391.5                  |

In addition to the variables noted above, the regression analysis model has been updated to include forecasted new load for the cannabis industry and the anticipated impact of efficiencyPEI's energy efficiency plan. The estimated impacts of these developments on energy sales are shown in Schedule 7-2 below.

| <b>Schedule 7-2</b>                        |                          |                          |                          |                          |
|--------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Estimated Change in Energy Sales</b>    |                          |                          |                          |                          |
|                                            | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| New cannabis industry loads (GWh)          | 0.0                      | 17.5                     | 12.1                     | 0.0                      |
| New cannabis industry loads (%)            | 0.0                      | 1.4                      | 1.0                      | 0.0                      |
| efficiencyPEI energy efficiency Plan (GWh) | (0.7)                    | (3.7)                    | (6.7)                    | (8.6)                    |
| efficiencyPEI energy efficiency Plan (%)   | (0.1)                    | (0.3)                    | (0.5)                    | (0.7)                    |

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## **SECTION 7 – ENERGY SALES FORECAST**

Management's forecast of energy sales for the period 2019-2021 is based upon the energy sales regression analysis for the above stated reasons. Schedule 7-3 shows the actual energy sales for 2016 and 2017 as well as the forecast of energy sales for 2018 to 2021.

| <b>Schedule 7-3</b>        |                        |                        |                          |                          |                          |                          |
|----------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Energy Sales (GWh)</b>  |                        |                        |                          |                          |                          |                          |
|                            | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Energy Sales (GWh)</b>  |                        |                        |                          |                          |                          |                          |
| Residential                | 563.5                  | 577.0                  | 598.9                    | 620.7                    | 647.5                    | 667.0                    |
| General Service I          | 386.8                  | 384.9                  | 385.3                    | 389.7                    | 392.0                    | 392.3                    |
| Large Industrial           | 129.9                  | 133.6                  | 149.7                    | 154.7                    | 159.2                    | 160.0                    |
| Small Industrial           | 100.1                  | 104.6                  | 93.3                     | 94.4                     | 95.0                     | 95.0                     |
| Street Lighting/Unmetered  | 8.2                    | 7.9                    | 7.7                      | 7.5                      | 7.1                      | 7.0                      |
| <b>Total Energy Sales</b>  | <b>1,188.4</b>         | <b>1,208.0</b>         | <b>1,234.9</b>           | <b>1,267.0</b>           | <b>1,300.8</b>           | <b>1,321.3</b>           |
| <b>Growth Rate (%)</b>     |                        |                        |                          |                          |                          |                          |
| Residential                | (0.8)                  | 2.4                    | 3.8                      | 3.6                      | 4.3                      | 3.0                      |
| General Service I          | (0.6)                  | (0.5)                  | 0.1                      | 1.1                      | 0.6                      | 0.1                      |
| Large Industrial           | (0.2)                  | 2.9                    | 12.1                     | 3.3                      | 2.9                      | 0.5                      |
| Small Industrial           | 7.5                    | 4.5                    | (10.8)                   | 1.2                      | 0.6                      | -                        |
| Street Lighting/Unmetered  | (2.8)                  | (3.2)                  | (2.5)                    | (2.6)                    | (5.3)                    | (1.4)                    |
| <b>Overall Growth Rate</b> | <b>0.0</b>             | <b>1.6</b>             | <b>2.2</b>               | <b>2.6</b>               | <b>2.7</b>               | <b>1.6</b>               |

The forecast change in the 2018 growth rates between the Small Industrial and Large Industrial classes is driven by the reclassification of three customers from Small to Large Industrial in late 2017. In addition, the Company is forecasting annual decreases in the Street Lighting/Unmetered rate class as a result of the LED Street Light Conversion program which replaces higher use high pressure sodium and mercury vapour street lights with energy efficient LED fixtures.

Although the overall growth rate of sales over the 2019-2021 period ranges from 1.6 per cent to 2.6 per cent, the Company is forecasting higher rates of growth for the Residential rate class ranging from 3.0 per cent to 4.3 per cent. These higher growth rates in the Residential class reflect the assumptions in the sales regression analysis

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## **SECTION 7 – ENERGY SALES FORECAST**

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model (population and customer growth, CPI, rate of adoption of electric based heating and furnace oil prices), estimates for new incremental load growth and anticipated impacts of the Province's proposed energy efficiency plan.

### **7.3 Summary**

A summary of this section follows:

- Energy sales were 1,188.4 GWh in 2016 and 1,208.0 GWh in 2017.
- Energy sales are forecast to be 1,234.9 GWh for 2018, 1,267.0 GWh for 2019, 1,300.8 GWh for 2020 and 1,321.3 GWh for 2021.

## **SECTION 8 – ENERGY SUPPLY EXPENSES**

### **8.0 ENERGY SUPPLY EXPENSES**

#### **8.1 Energy Supply Expenses**

The forecast expenditures for energy supply are based upon Management's estimates for 2019 to 2021 and incorporate the latest available updates from third party suppliers. Schedule 8-1 below shows the breakdown of energy supply costs by source including the new Energy Purchase Agreement (Commission Docket UE20944) commencing March 1, 2019.

| <b>Schedule 8-1</b>                           |                        |                        |                          |                          |                          |                          |
|-----------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Forecast of Energy Costs by Source (%)</b> |                        |                        |                          |                          |                          |                          |
|                                               | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Point Lepreau Entitlement                     | 18.9                   | 20.3                   | 18.7                     | 18.9                     | 17.7                     | 17.5                     |
| Energy Purchase Agreement (System Energy)     | 53.7                   | 51.8                   | 51.7                     | 49.7                     | 49.1                     | 45.2                     |
| On-Island Renewable (Wind)                    | 21.4                   | 19.8                   | 20.6                     | 19.7                     | 21.5                     | 25.7                     |
| Transmission, Interconnection & Other Charges | 1.5                    | 4.0                    | 5.5                      | 8.7                      | 9.0                      | 8.9                      |
| Company Generation Costs                      | 4.5                    | 4.1                    | 3.6                      | 3.0                      | 2.7                      | 2.6                      |
| <b>Total</b>                                  | <b>100.0</b>           | <b>100.0</b>           | <b>100.0</b>             | <b>100.0</b>             | <b>100.0</b>             | <b>100.0</b>             |

The largest component of Maritime Electric's energy supply portfolio continues to be sourced through its Energy Purchase Agreement with NB Power with unit costs fixed on an annual basis, in Canadian dollars, out to February 29, 2024.

The Company's generation facilities at Charlottetown and Borden-Carleton are forecast to continue their role as backup energy supply for system disturbance and energy supply issues associated with the supply agreements or transmission curtailments in New Brunswick. Details with respect to the proposed decommissioning of the Charlottetown Thermal Generating Station ("CTGS") are outlined in Section 6. The impact of these proposals on the energy supply costs associated with the CTGS are reflected in this section.

The following Schedule 8-2 shows the forecast for the Maritime Electric peak load and the associated generation planning reserve requirement for the 2018–2021 period.

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| Schedule 8-2                                           |            |            |            |            |
|--------------------------------------------------------|------------|------------|------------|------------|
| Maritime Electric Generating Capacity Requirement (MW) |            |            |            |            |
|                                                        | 2018       | 2019       | 2020       | 2021       |
| Maritime Electric capacity requirement (MW):           |            |            |            |            |
| - Maritime Electric peak load                          | 244        | 256        | 265        | 266        |
| - less impact of DSM                                   | 0          | 1          | 2          | 3          |
| - less interruptible load                              | 14         | 14         | 14         | 14         |
| - plus 15% planning reserve                            | 34         | 36         | 37         | 37         |
|                                                        | 264        | 277        | 286        | 286        |
|                                                        |            |            |            |            |
| Maritime Electric capacity resources (MW):             |            |            |            |            |
| - Charlottetown Thermal Plant                          | 55         | 48         | 38         | 38         |
| - Borden Plant                                         | 40         | 40         | 40         | 40         |
| - Combustion Turbine 3                                 | 49         | 49         | 49         | 49         |
| - Point Lepreau (at Murray Corner)                     | 29         | 29         | 29         | 29         |
| - wind ELCC                                            | 21         | 21         | 24         | 24         |
| - short-term capacity purchases                        | 80         | 95         | 105        | 105        |
| <b>Subtotal</b>                                        | <b>274</b> | <b>282</b> | <b>285</b> | <b>285</b> |
|                                                        |            |            |            |            |
| <b>Surplus (deficit)</b>                               | <b>10</b>  | <b>5</b>   | <b>(1)</b> | <b>(1)</b> |

**NOTES:**

1. The impact of DSM is based on efficiency PEI's energy efficiency and DSM plan that is expected to get underway in late 2018.
2. The Charlottetown Thermal Generating Station is scheduled to be closed in January 2022.
3. The wind Effective Load Carrying Capability ("ELCC") is 23 per cent of the wind generation nameplate capacity under contract to Maritime Electric for the years 2018 and 2019, and then 20 per cent for remaining years, based on a probabilistic analysis. This reflects the addition of a new PEIEC 30 MW wind farm in September 2020.
4. The small increase in the peak load for 2021 over 2020 is due to the relatively large increase for 2020 over 2019. This in turn is a result of variability in the yearly estimates of Residential electric space heating load.
5. Short-term capacity deficiencies will be purchased from NB Power.

**8.2 Net Purchased and Produced Energy Requirement**

The Company's energy supply requirement is comprised of energy sales to customers, energy usage for Company use and an estimate for system losses. This total is referred to as the Net Purchased and Produced (NPP) energy requirement and represents the total amount that must be acquired to supply the system.

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Schedule 8-3 below shows the actual net purchased and produced energy for 2016 and 2017 as well as the forecast amounts for 2018-2021.

| <b>Schedule 8-3</b>                            |                        |                        |                          |                          |                          |                          |
|------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Net Purchased and Produced Energy (GWh)</b> |                        |                        |                          |                          |                          |                          |
|                                                | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Energy Sales                                   | 1,188.4                | 1,208.0                | 1,234.9                  | 1,267.0                  | 1,300.8                  | 1,321.3                  |
| Company Use and System Losses                  | 92.1                   | 89.9                   | 97.1                     | 98.0                     | 100.5                    | 101.8                    |
| <b>Total</b>                                   | <b>1,280.5</b>         | <b>1,297.9</b>         | <b>1,332.0</b>           | <b>1,365.0</b>           | <b>1,401.3</b>           | <b>1,423.1</b>           |

Annual Company use consists of the energy used to provide lighting, general service and in some cases heating throughout the Company's facilities including heating at the CTGS. Together lighting and heating consumes approximately 11.2 GWh on an annual basis.

System losses are incurred in the delivery of energy to customers. The Company must purchase or supply additional amounts of energy to supply system losses and to meet Company use requirements. The losses forecast is based upon the most recent three year average of actual losses as a percentage of net purchased and produced energy, which is 6.364 per cent for the period 2015-2017. The combined Company use and system losses are then added to the forecast energy sales to arrive at the forecast net purchased and produced energy requirement for a given year.

### **8.3 Energy Supply by Source**

In addition to determining the NPP requirement, an analysis is conducted to determine an hourly usage model that takes into account customer usage patterns based upon historical trends. The objective is to forecast the hourly forecast energy supply requirement in the most efficient, economical manner. As the Point Lepreau Agreement is essentially a take or pay contract, it is scheduled first. The on-Island wind energy agreements are added next as they are also take or pay contracts. Next to be included is an amount for firm energy purchases, typically as part of the Energy Purchase Agreement which allows for some limited flexibility in energy purchases versus annual energy forecasts provided to NB Energy Marketing. The balance of Maritime Electric's hourly energy supply requirements are met through system energy purchases under the

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Energy Purchase Agreement. A small amount of production is forecast for certain times of the year from the Company's Charlottetown and Borden-Carleton Plants based upon operator training requirements, a provision for transmission and supply curtailments, system voltage support and management of the submarine cable load flows.

The following Schedule 8-4 outlines the actual and forecast cost of energy supply by source for the 2016–2021 period.

| <b>Schedule 8-4</b>                                                       |                        |                        |                          |                          |                          |                          |
|---------------------------------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Energy Supply Cost by Source (\$)</b>                                  |                        |                        |                          |                          |                          |                          |
|                                                                           | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Point Lepreau                                                             | \$20,935,352           | \$23,980,233           | \$23,177,000             | \$24,320,200             | \$23,847,000             | \$23,922,000             |
| Energy Purchase Agreement - Firm Energy Purchases                         | 26,253,401             | 39,296,913             | 46,391,800               | 54,104,600               | 59,028,100               | 55,337,400               |
| Energy Purchase Agreement - System Energy Purchases                       | 32,803,402             | 21,812,357             | 17,977,300               | 9,011,500                | 5,934,300                | 5,181,700                |
| Charlottetown Plant                                                       | 2,879,000              | 2,585,034              | 2,645,400                | 1,765,100                | 1,530,600                | 1,356,700                |
| Combustion Turbine #3                                                     | 963,160                | 962,634                | 428,500                  | 580,100                  | 569,100                  | 604,000                  |
| Borden-Carleton Plant                                                     | 369,710                | 559,442                | 386,400                  | 383,500                  | 439,300                  | 456,700                  |
| Energy Control Centre Operations                                          | 785,578                | 763,155                | 962,500                  | 1,084,000                | 1,129,100                | 1,192,800                |
| Wind                                                                      | 23,771,059             | 23,426,491             | 25,617,300               | 25,288,400               | 29,004,800               | 35,099,800               |
| Ancillary Services                                                        | 515,592                | 39,012                 | (135,700)                | 791,100                  | 1,716,900                | 1,195,700                |
| Other Purchases                                                           | (9,558)                | 10,073                 | (18,700)                 | 900                      | -                        | -                        |
| PEI-NB Cable Interconnection, Facilities Rental and Transmission Services | 1,529,870              | 4,248,636              | 6,166,500                | 6,170,600                | 6,148,400                | 6,181,100                |
| PEI Energy Corporation Dalhousie and Lepreau Debt Repayment               | -                      | -                      | -                        | 4,783,200                | 5,739,900                | 5,721,300                |
| Amortization of Deferred Charges                                          | 97,362                 | 421,076                | 622,400                  | 260,400                  | 260,400                  | 260,400                  |
| <b>Total</b>                                                              | <b>\$110,893,928</b>   | <b>\$118,105,056</b>   | <b>\$124,220,700</b>     | <b>\$128,543,600</b>     | <b>\$134,807,900</b>     | <b>\$136,509,600</b>     |

### ***Point Lepreau***

These forecast expenditures are based upon inputs from NB Power and reflect Maritime Electric's participation in the costs to operate the facility, including provisions for decommissioning and irradiated fuel storage.

In recent history, Point Lepreau was typically scheduled for bi-annual maintenance outages that last 6 - 8 weeks. However, NB Power has recently adjusted its scheduling of maintenance outages to have shorter duration annual

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outages until 2020 and then biennially thereafter. The current schedule for planned maintenance outages is as follows:

|                |               |
|----------------|---------------|
| April 2019     | 25 day outage |
| April/May 2020 | 45 day outage |
| 2021           | No outage     |
| April 2022     | 30 day outage |
| 2023           | No outage     |

During these outages, replacement energy will be sourced through the Energy Purchase Agreement with NB Power.

### *Energy Purchase Agreement - Firm Energy Purchases*

Firm Energy Purchases are used to supplement the Point Lepreau purchases to provide the base load requirement for Maritime Electric through the Energy Purchase Agreement.

### *Energy Purchase Agreement - System Energy Purchases*

System Energy is made up of two components: Secure Energy and Assured Energy. Both energy components can be curtailed based upon predefined situations, with varying notice periods for each of the energy components.

Secure Energy is backed up by the 50 MW Combustion Turbine (“CT3”) located at the Charlottetown site and can be physically curtailed with 24 hours notice during the Winter period (November through March) and seven days notice during the Summer period (April through October). The pricing on Secure Energy purchases may also be changed by NB Power after the provision of written notification has been provided.

The Assured Energy product is backed up by 55 MW (2018) of oil-fired generation at the Charlottetown Plant and up to 40 MW at the Borden-Carleton Generating Station. Assured Energy purchases can be physically curtailed on two days notice during the months of December and January, four days notice

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during November, February and March and ninety days notice for April to October. The pricing on Assured Energy purchases may also be changed by NB Power after the provision of written notification has been provided. During the months of November to March, the Borden-Carleton Generating Station will backstop the Assured Energy product. This arrangement allows Maritime Electric to place the Charlottetown Plant into long-term layup starting in March 2019 subject to a 90 day return to service requirement under the Energy Purchase Agreement.

### *Charlottetown Plant*

The CTGS is approaching the end of its useful life and there are numerous risks and costs associated with continuing the operation of the oldest CTGS units. As a result, the Company has prepared a plan to decommission the CTGS in a staged approach starting with the older and smaller units. This Decommissioning Plan, filed with IRAC on June 28, 2018, calls for the two largest units (Unit 9 and Unit 10) to be placed into warm, long-term layup starting on March 1, 2019 and would be available to generate as required until December 31, 2021. Thermal Units 7 and 8 will cease to provide capacity value or generating capability effective January 1, 2019 and 2020 respectively.

Schedule 8-5 outlines the expenditures necessary to staff and maintain the facility in a condition to produce energy and meet the Company's capacity obligations under the Energy Purchase Agreement with NB Power until decommissioning commences in 2022 as outlined in Section 6 of this Application and in Commission Docket UE23001.

| Schedule 8-5                                |                     |                     |                     |                     |                     |                     |
|---------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Charlottetown Plant Operating Expenses (\$) |                     |                     |                     |                     |                     |                     |
| Description                                 | 2016<br>Actual      | 2017<br>Actual      | 2018<br>Forecast    | 2019<br>Forecast    | 2020<br>Forecast    | 2021<br>Forecast    |
| Buildings and Services                      | \$ 457,870          | \$ 409,240          | \$ 465,600          | \$ 367,800          | \$ 362,800          | \$ 325,300          |
| Plant Maintenance                           | 687,391             | 662,368             | 627,800             | 619,000             | 643,400             | 662,300             |
| Plant Operating                             | 579,937             | 423,800             | 583,000             | 430,400             | 238,100             | 254,600             |
| Superintendence                             | 188,476             | 279,252             | 294,400             | 85,100              | 111,100             | 114,400             |
| Generation Fuel and Plant Heating           | 965,326             | 810,374             | 674,600             | 262,800             | 175,200             | -                   |
| <b>Total</b>                                | <b>\$ 2,879,000</b> | <b>\$ 2,585,034</b> | <b>\$ 2,645,400</b> | <b>\$ 1,765,100</b> | <b>\$ 1,530,600</b> | <b>\$ 1,356,700</b> |

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The following is a breakdown of labour, generating and heating fuel and other costs associated with the operation of the Charlottetown Plant:

|               | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|---------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Labour</b> | \$ 1,546,179                  | \$ 1,442,978                  | \$ 1,580,400                    | \$ 964,000                      | \$ 987,200                      | \$ ,033,600                     |
| <b>Fuel</b>   | 965,326                       | 810,374                       | 674,600                         | 262,800                         | 175,200                         | -                               |
| <b>Other</b>  | <u>367,494</u>                | <u>331,682</u>                | <u>390,500</u>                  | <u>538,300</u>                  | <u>368,400</u>                  | <u>323,100</u>                  |
|               | <b><u>\$ 2,879,000</u></b>    | <b><u>\$ 2,585,034</u></b>    | <b><u>\$ 2,645,500</u></b>      | <b><u>\$ 1,765,100</u></b>      | <b><u>\$ 1,530,800</u></b>      | <b><u>\$ 1,356,700</u></b>      |

### *Combustion Turbine #3*

The 50 MW combustion turbine, CT3, is forecast to be used for peaking purposes with a provisional amount of generation that allows for periods of curtailment of contract energy and transmission curtailment in New Brunswick. This facility backstops the Secure Energy component of the Energy Purchase Agreement as well as supplying non-spinning reserve capacity. The forecast of operating expenses are shown in Schedule 8-6.

| <b>Schedule 8-6</b>                                  |                        |                        |                          |                          |                          |                          |
|------------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Combustion Turbine #3 Operating Expenses (\$)</b> |                        |                        |                          |                          |                          |                          |
| <b>Description</b>                                   | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Buildings and Services                               | \$ 9,644               | \$ 971                 | \$ 1,900                 | \$ 11,300                | \$ 11,600                | \$ 12,000                |
| Plant Maintenance                                    | 192,854                | 160,104                | 146,700                  | 178,900                  | 181,500                  | 188,400                  |
| Plant Operating                                      | 45,054                 | 58,331                 | 24,400                   | 25,700                   | 25,300                   | 40,800                   |
| Superintendence                                      | -                      | -                      | -                        | 36,300                   | 46,200                   | 49,300                   |
| Generation Fuel                                      | 715,608                | 743,228                | 255,500                  | 327,900                  | 304,500                  | 313,500                  |
| <b>Total</b>                                         | <b>\$ 963,160</b>      | <b>\$ 962,634</b>      | <b>\$ 428,500</b>        | <b>\$ 580,100</b>        | <b>\$ 569,100</b>        | <b>\$ 604,000</b>        |

The breakdown of labour, fuel and other costs associated with the operation of Combustion Turbine #3 is as follows:

|               | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|---------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Labour</b> | \$ 102,974                    | \$ 89,566                     | \$ 65,000                       | \$ 73,500                       | \$ 80,200                       | \$ 86,100                       |
| <b>Fuel</b>   | 715,608                       | 743,228                       | 255,500                         | 327,800                         | 304,500                         | 313,800                         |
| <b>Other</b>  | <u>144,578</u>                | <u>129,840</u>                | <u>108,000</u>                  | <u>178,800</u>                  | <u>184,400</u>                  | <u>204,100</u>                  |
|               | <b><u>\$ 963,160</u></b>      | <b><u>\$ 962,634</u></b>      | <b><u>\$ 428,500</u></b>        | <b><u>\$ 580,100</u></b>        | <b><u>\$ 569,100</u></b>        | <b><u>\$ 604,000</u></b>        |

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### *Borden-Carleton Plant*

These expenses are required to ensure the continued availability of the two generating units that serve to backstop the Company's purchase of Assured Energy and are a source of non-spinning reserve capacity as required for reliability purposes. The Borden-Carleton Plant is forecast to operate at times for system maintenance and voltage support purposes.

The following Schedule outlines the expenditures necessary to maintain the facility and to produce energy on an as-needed basis.

| <b>Schedule 8-7</b>                                  |                        |                        |                          |                          |                          |                          |
|------------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Borden-Carleton Plant Operating Expenses (\$)</b> |                        |                        |                          |                          |                          |                          |
| <b>Description</b>                                   | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Buildings and Services                               | \$ 228                 | \$ 1,450               | \$ 1,800                 | \$ 3,300                 | \$ 3,400                 | \$ 3,600                 |
| Plant Maintenance                                    | 11,533                 | 72,089                 | 11,200                   | 7,400                    | 7,300                    | 7,700                    |
| Plant Operating                                      | 197,702                | 255,209                | 196,500                  | 134,900                  | 133,700                  | 140,200                  |
| Superintendence                                      | -                      | -                      | -                        | 39,200                   | 49,200                   | 52,300                   |
| Generation Fuel                                      | 160,247                | 230,694                | 176,900                  | 198,700                  | 245,700                  | 252,900                  |
| <b>Total</b>                                         | <b>\$ 369,710</b>      | <b>\$ 559,442</b>      | <b>\$ 386,400</b>        | <b>\$ 383,500</b>        | <b>\$ 439,300</b>        | <b>\$ 456,700</b>        |

The following is a breakdown of labour, fuel and other costs associated with the operation of the Borden-Carleton Plant:

|               | <b>2016<br/>Actual</b>   | <b>2017<br/>Actual</b>   | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Labour</b> | \$ 172,041               | \$ 167,209               | \$ 158,800               | \$ 120,800               | \$ 127,300               | \$ 135,300               |
| <b>Fuel</b>   | 160,247                  | 230,694                  | 176,900                  | 198,700                  | 245,700                  | 252,900                  |
| <b>Other</b>  | <u>37,421</u>            | <u>161,539</u>           | <u>50,700</u>            | <u>64,000</u>            | <u>66,300</u>            | <u>68,500</u>            |
|               | <b><u>\$ 369,710</u></b> | <b><u>\$ 559,442</u></b> | <b><u>\$ 386,400</u></b> | <b><u>\$ 383,500</u></b> | <b><u>\$ 439,300</u></b> | <b><u>\$ 456,700</u></b> |

### *Energy Control Centre (ECC) Operations*

Included in this category are internal labour, training and communication costs associated with operating the ECC 24/7. The ECC is responsible for scheduling hourly energy purchases, monitoring and operating the Company's transmission and distribution system, managing the submarine cable loading and dispatching on-Island generation when called upon.

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Energy Control Centre operations costs are comprised of the following:

|        | 2016<br><u>Actual</u>    | 2017<br><u>Actual</u>    | 2018<br><u>Forecast</u>  | 2019<br><u>Forecast</u>    | 2020<br><u>Forecast</u>    | 2021<br><u>Forecast</u>    |
|--------|--------------------------|--------------------------|--------------------------|----------------------------|----------------------------|----------------------------|
| Labour | \$ 772,489               | \$ 748,310               | \$ 943,600               | \$ 1,068,900               | \$ 1,107,500               | \$ 1,122,900               |
| Other  | <u>13,089</u>            | <u>14,845</u>            | <u>18,900</u>            | <u>15,100</u>              | <u>21,600</u>              | <u>69,900</u>              |
|        | <b><u>\$ 785,578</u></b> | <b><u>\$ 763,155</u></b> | <b><u>\$ 962,500</u></b> | <b><u>\$ 1,084,000</u></b> | <b><u>\$ 1,129,100</u></b> | <b><u>\$ 1,192,800</u></b> |

### *Wind*

The Company has a total of 92.5 MW of wind generation under contract through the PEI Energy Corporation as summarized in Schedule 8-8:

| <b>Schedule 8-8</b>                                          |             |
|--------------------------------------------------------------|-------------|
| <b>PEI Energy Corporation Wind Generation Contracts (MW)</b> |             |
| North Cape                                                   | 10.5        |
| East Point                                                   | 30.0        |
| Hermanville                                                  | 30.0        |
| Norway - Engie                                               | 9.0         |
| Norway - Aeolus/PEIEC                                        | 3.0         |
| Norway - WEICan                                              | <u>10.0</u> |
| <b>Total</b>                                                 | <b>92.5</b> |

The 10.5 MW of wind generation from North Cape and the 3.0 MW from Norway - Engie are under contract with defined pricing methodologies while the additional 79 MW of wind generation is based on escalating purchase costs comparable to the Minimum Purchase Price Regulations under the Renewable Energy Act. The increase in wind energy costs in 2020 and 2021 reflects the expected 30 MW of new wind generation to be constructed by the PEIEC with a planned in service date of September 2020.

### *Ancillary Services*

Ancillary services such as load following, regulation, imbalance, spinning reserve, non-spinning reserve, reactive power supply and voltage control are charged to Maritime Electric as set out in NB Power's Open Access Transmission Tariff.

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The rates for ancillary services vary based on NB Power's costs to administer and supply these services and on the Company's peak load in comparison to the peak load in the Maritimes as ancillary services are allocated based on the Company's share of the Maritime peak load.

Historically, the Company used the Borden-Carleton combustion turbines 1 and 2 to provide the Company's requirement of 10 minute and 30 minute non-spinning reserves. Beginning on March 1, 2019 under the new Energy Purchase Agreement, the 40 MW at the Borden-Carleton Generating Station will be used, along with the Charlottetown Thermal Generating Station, to backstop the Assured Energy product. The Company will, therefore, be required to purchase its 10 minute and 30 minute non-spinning reserve requirement from the New Brunswick System Operator ("NBP-SO") via New Brunswick Energy Marketing ("NBEM") resulting in the forecasted increase in ancillary service charges from 2019 through 2021.

*Other Purchases*

This amount provides for a variety of miscellaneous charges, the largest of which is for the provision of off-Island energy purchases during times that the Energy Purchase Agreement has been curtailed and the purchase price of the replacement energy is less than on-Island generation costs.

*PEI-NB Cable Interconnection, Facilities Rental and Transmission Services*

These costs include the interconnection lease payments to the PEIEC for the two new underwater cables as well as NB Power's OATT Schedule 9 - Direct Assignment charges for the new transmission lines from Memramcook to Cape Tormentine and maintenance costs associated with the Murray Corner and Memramcook switching stations in New Brunswick. Increases in this category since 2016 are driven by the cost of the interconnection lease payments in March 2017 and the NB Power OATT Schedule 9 charges in 2018 as discussed above.

## **SECTION 8 – ENERGY SUPPLY EXPENSES**

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### *PEI Energy Corporation Dalhousie and Lepreau Debt Repayment*

These expenditures represent the annual payment of costs recoverable from customers on behalf of the Province as outlined in Section 4.1 of the Application. These amounts reflect the PEIEC's expected refinancing arrangements for those deferred energy costs assumed by the Province under the PEI Energy Accord and the proposed fixed repayment amounts effective March 1, 2019 as set out in Schedule 4-2.

### *Amortization of Deferred Charges*

This represents the amount associated with the amortization of Maritime Electric's portion of the 1998 NB Power \$450,000,000 write-down in the value of the Point Lepreau Nuclear Generating Station. Maritime Electric's portion was \$5,976,506. At December 31, 2017, the unamortized balance was \$1,674,743. The accounting treatment applied to this is to amortize it over the remaining useful life of the unit. The annual amortization expense of \$93,400 was approved by the Commission in Order UE05-08 and is proposed to continue to be recovered through the operation of the ECAM over the remaining 18 years. The recovery of this amount is also provided for in Section 47(4)(a)(ii) of the EPA.

This account also includes the amortization of the Company's annual public outreach and education expenditures under its Demand Side Management Plan ("DSM") as approved by IRAC under Order UE15-02 dated November 3, 2015. The amount amortized in each year represents the prior year's expenditures on the DSM programming subject to the maximum expenditure limit of \$167,500 per year approved by the Commission.

This account also includes the Company's share of the target funding for year one of the PEIEC EE&C Plan as discussed in Section 4.2.1. The Company recorded \$178,254 in 2017 and is forecasting an accrual of \$362,346 in 2018 for a total of \$540,600.

## **SECTION 8 – ENERGY SUPPLY EXPENSES**

### **8.4 Energy Supply Expenses - Other**

The accounts in Schedule 8-9 provide for other expenses that relate to the energy supply function.

| Schedule 8-9                             |                   |                   |                   |                   |                   |                   |
|------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Energy Supply Expenses - Other (\$)      |                   |                   |                   |                   |                   |                   |
| Description                              | 2016<br>Actual    | 2017<br>Actual    | 2018<br>Forecast  | 2019<br>Forecast  | 2020<br>Forecast  | 2021<br>Forecast  |
| Insurance                                | \$ 525,103        | \$ 552,481        | \$ 595,500        | \$ 613,400        | \$ 631,800        | \$ 670,300        |
| Property Tax                             | 206,439           | 214,619           | 220,800           | 229,600           | 236,500           | 250,900           |
| Professional Development<br>and Training | 1,386             | 14,050            | 30,100            | 46,300            | 47,700            | 49,100            |
| <b>Total</b>                             | <b>\$ 732,928</b> | <b>\$ 781,150</b> | <b>\$ 846,400</b> | <b>\$ 889,300</b> | <b>\$ 916,000</b> | <b>\$ 970,300</b> |

#### *Insurance*

This amount includes the cost of providing the necessary property, equipment and liability insurance coverage for the Company's generating assets.

#### *Property Tax*

This amount includes the cost of property taxes attributed to the Company's generating facilities based upon the assessed values of the physical properties.

#### *Professional Development and Training*

This amount captures the professional development and training costs for employees working to maintain the Company's generating assets and run the ECC operations.

### **8.5 Summary**

A summary of this section follows:

|                                               | Schedule<br>Reference | 2016<br><u>Actual</u> | 2017<br><u>Actual</u> | 2018<br><u>Forecast</u> | 2019<br><u>Forecast</u> | 2020<br><u>Forecast</u> | 2021<br><u>Forecast</u> |
|-----------------------------------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Net Purchased and<br>Produced Energy<br>(GWh) | 8-2                   | 1,280.5               | 1,297.9               | 1,332.0                 | 1,365.0                 | 1,401.3                 | 1,423.1                 |
| Total Energy Related<br>Operating Expenses    | 8-3                   | \$110,893,928         | \$118,105,056         | \$124,220,700           | \$128,543,600           | \$134,807,900           | \$136,509,600           |
| Total Energy Supply<br>Expenses - Other       | 8-8                   | \$ 732,928            | \$ 781,150            | \$ 846,400              | \$ 889,300              | \$ 916,000              | \$ 970,300              |

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

### **9.0 TRANSMISSION AND DISTRIBUTION EXPENSES**

The Transmission and Distribution component of the Company's operations plays a significant role in ensuring system reliability and the delivery of customer service. Productivity, safety and efficiency gains continue to be sought in the areas of improved work methods and materials, timely inspections, improved accuracy of field data, increased equipment automation and improved technical skills.

#### **9.1 Transmission Expenses**

The accounts in Schedule 9-1 provide for the day-to-day operation and maintenance of the Company's transmission system.

| <b>Schedule 9-1</b>                |                        |                        |                          |                          |                          |                          |
|------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Transmission Expenses (\$)</b>  |                        |                        |                          |                          |                          |                          |
| <b>Description</b>                 | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Substations                        | \$ 45,058              | \$ 53,856              | \$ 69,000                | \$ 62,900                | \$ 64,500                | \$ 66,200                |
| Rights of Way                      | 74,126                 | 701,576                | 366,100                  | 376,800                  | 388,100                  | 399,800                  |
| Line Maintenance                   | 247,142                | 284,820                | 313,800                  | 300,300                  | 309,000                  | 318,000                  |
| Line Control Devices               | 56,312                 | 54,106                 | 58,900                   | 60,600                   | 62,100                   | 63,600                   |
| Engineering                        | 108,110                | 126,090                | 126,900                  | 142,700                  | 148,300                  | 154,100                  |
| Open Access<br>Transmission Tariff | 6,842,195              | 6,272,903              | 7,284,400                | 8,137,000                | 8,213,600                | 8,356,500                |
| <b>Total</b>                       | <b>\$ 7,372,943</b>    | <b>\$ 7,493,351</b>    | <b>\$ 8,219,100</b>      | <b>\$ 9,080,300</b>      | <b>\$ 9,185,600</b>      | <b>\$ 9,358,200</b>      |

#### *Substations*

This account provides for the maintenance and inspection of the Company's transmission substations. It includes labour and related transportation costs as well as materials to maintain the transmission switches, insulators, bus connectors and transformers.

The following is a breakdown of labour and other costs associated with substations:

|               | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|---------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Labour</b> | \$ 41,881                     | \$ 40,600                     | \$ 53,900                       | \$ 52,700                       | \$ 53,500                       | \$ 54,900                       |
| <b>Other</b>  | <u>3,177</u>                  | <u>13,256</u>                 | <u>15,100</u>                   | <u>10,200</u>                   | <u>10,700</u>                   | <u>11,300</u>                   |
| <b>Total</b>  | <b><u>\$ 45,058</u></b>       | <b><u>\$ 53,856</u></b>       | <b><u>\$ 69,000</u></b>         | <b><u>\$ 62,900</u></b>         | <b><u>\$ 64,500</u></b>         | <b><u>\$ 66,200</u></b>         |

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

### *Rights of Way*

This account provides for the maintenance and inspection of the Company's transmission rights of way. The majority of the expenditure in this account is for third party contract labour as well as internal supervisory labour related to vegetation management which plays a vital role in system reliability, safety and service quality.

The following is a summary of the costs associated with transmission rights of way:

|        | 2016<br><u>Actual</u> | 2017<br><u>Actual</u> | 2018<br><u>Forecast</u> | 2019<br><u>Forecast</u> | 2020<br><u>Forecast</u> | 2021<br><u>Forecast</u> |
|--------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Labour | \$ 74,126             | \$ 701,576            | \$ 366,100              | \$ 376,800              | \$ 388,100              | \$ 399,800              |

Transmission rights of way maintenance is currently scheduled on a cyclical and priority basis such that vegetation management is conducted on all transmission lines at least every three to five years. However, to improve reliability, the Company continues to work towards a target three year cycle. The increase in rights of way expense in 2017 was driven by the necessity to clear right of ways for several transmission lines that had been scheduled for 2016 but were not completed due to third party contract labour requirements for distribution right of way maintenance. Forecast expenses for 2018-2021 are budgeted to meet the target vegetation management cycle.

### *Line Maintenance*

Charges to this account are comprised of internal and external labour costs along with related equipment and transportation costs. The account provides for the maintenance and inspection of over 785 km of transmission lines and is driven by preventative maintenance, storm damage and wear. Activities include repairing wires, connectors, and insulators, straightening poles and retightening guy wires and other hardware. Changes to this account may vary from year to year as a result of weather related events in a particular year.

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

A breakdown of labour, which includes related transportation costs, and other costs associated with transmission line maintenance is as follows:

|        | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | \$ 243,009               | \$ 254,586               | \$ 297,800               | \$ 269,400               | \$ 277,200               | \$ 285,200               |
| Other  | <u>4,133</u>             | <u>30,235</u>            | <u>16,000</u>            | <u>30,900</u>            | <u>31,800</u>            | <u>32,800</u>            |
| Total  | <b><u>\$ 247,142</u></b> | <b><u>\$ 284,820</u></b> | <b><u>\$ 313,800</u></b> | <b><u>\$ 300,300</u></b> | <b><u>\$ 309,000</u></b> | <b><u>\$ 318,000</u></b> |

### *Line Control Devices*

This account provides for the inspection and preventative maintenance of the transmission line control devices such as circuit breakers, switches, circuit switches and capacitors located in the Company's substations. The activities include inspection, replacing broken bushings, repainting and repairing control modules. The charges to this account are comprised of internal labour costs which includes related transportation costs as shown below.

|        | <b>2016</b>             | <b>2017</b>             | <b>2018</b>             | <b>2019</b>             | <b>2020</b>             | <b>2021</b>             |
|--------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|        | <b><u>Actual</u></b>    | <b><u>Actual</u></b>    | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  |
| Labour | <b><u>\$ 56,312</u></b> | <b><u>\$ 54,106</u></b> | <b><u>\$ 58,900</u></b> | <b><u>\$ 60,600</u></b> | <b><u>\$ 62,100</u></b> | <b><u>\$ 63,600</u></b> |

### *Engineering*

This account provides for the engineering support and analysis required to design, operate and maintain the transmission system. Activities include power flow analysis, equipment monitoring, and engineering analysis to ensure optimal system operation. The charges to this account are comprised of internal labour costs including related transportation costs as shown below.

|        | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | <b><u>\$ 108,110</u></b> | <b><u>\$ 126,090</u></b> | <b><u>\$ 126,900</u></b> | <b><u>\$ 142,700</u></b> | <b><u>\$ 148,300</u></b> | <b><u>\$ 154,100</u></b> |

### *Open Access Transmission Tariff ("OATT")*

This account provides for the costs associated with the administration and operation of the Company's OATT as well as the Company's OATT costs under the interim tariff approved by IRAC for the period up to July 31, 2018 and the final OATT tariff effective August 1, 2018. Under Canadian Accounting Standards for

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

Private Enterprises (“ASPE”), the Company is required to record and disclose both the expense and offsetting revenue (see Section 14.7 - Revenue) applicable to its participation in the OATT as well as any other costs incurred and recovered from other participants. These amounts are presented in Schedule 9-2 below as represented by the OATT charges for/under Network Service, Schedules 1, 2, 3C, 4, 9 and 10 expenses while the OATT Operations expense is the amount, primarily supervision and labour costs, for the OATT administration and operation.

The forecast increase in Network Service costs over the 2018-2021 period reflects the new OATT rates approved by the Commission effective August 1, 2018. In addition, OATT operations costs in 2018 are higher due to the incremental regulatory assessment from the Commission related to the 2018 OATT hearing.

| Schedule 9-2                         |                     |                     |                     |                     |                     |                     |
|--------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Maritime Electric OATT Expenses (\$) |                     |                     |                     |                     |                     |                     |
| Description                          | 2016<br>Actual      | 2017<br>Actual      | 2018<br>Forecast    | 2019<br>Forecast    | 2020<br>Forecast    | 2021<br>Forecast    |
| Network Service                      | \$ 5,166,393        | \$ 5,304,673        | \$ 6,222,300        | \$ 7,217,200        | \$ 7,264,900        | \$ 7,399,700        |
| Schedule 1                           | 204,180             | 210,292             | 210,300             | 204,600             | 210,400             | 210,300             |
| Schedule 2                           | 331,157             | 340,020             | 340,000             | 330,900             | 340,200             | 340,000             |
| Schedule 3C                          | 9,245               | 9,737               | -                   | -                   | -                   | -                   |
| Schedule 4                           | 825,010             | 108,068             | -                   | -                   | -                   | -                   |
| Schedule 9                           | 74,928              | 74,928              | 74,900              | 74,900              | 74,900              | 74,900              |
| Schedule 10                          | 17,555              | -                   | -                   | -                   | -                   | -                   |
| OATT Operations                      | 213,097             | 225,185             | 436,900             | 309,400             | 323,200             | 331,600             |
| <b>Total</b>                         | <b>\$ 6,842,195</b> | <b>\$ 6,272,903</b> | <b>\$ 7,284,400</b> | <b>\$ 8,137,000</b> | <b>\$ 8,213,600</b> | <b>\$ 8,356,500</b> |

### **9.2 Distribution Expenses**

The accounts in Schedule 9-3 provide for the day-to-day operation and maintenance of the Company's distribution system.

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## SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES

| Schedule 9-3               |                     |                     |                     |                     |                     |                     |
|----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Distribution Expenses (\$) |                     |                     |                     |                     |                     |                     |
| Description                | 2016<br>Actual      | 2017<br>Actual      | 2018<br>Forecast    | 2019<br>Forecast    | 2020<br>Forecast    | 2021<br>Forecast    |
| Substations                | \$ 122,624          | \$ 113,103          | \$ 113,600          | \$ 110,200          | \$ 113,300          | \$ 116,500          |
| Rights of Way              | 1,640,174           | 1,431,043           | 568,700             | 1,343,200           | 1,378,100           | 1,435,700           |
| Line Maintenance           | 1,628,418           | 1,635,121           | 1,641,000           | 1,869,200           | 1,922,500           | 1,976,600           |
| Line Control Devices       | 47,898              | 47,954              | 49,000              | 61,700              | 63,400              | 65,100              |
| Transformers               | 516,815             | 452,070             | 519,000             | 503,000             | 516,000             | 529,300             |
| Meters                     | 166,363             | 158,003             | 170,900             | 180,300             | 185,200             | 190,300             |
| Communications Systems     | 172,411             | 212,842             | 214,400             | 235,500             | 242,000             | 248,600             |
| Supervisory SCADA          | 77,128              | 105,279             | 87,200              | 112,700             | 115,800             | 118,900             |
| Engineering                | 326,251             | 320,270             | 344,600             | 398,400             | 412,100             | 426,400             |
| <b>Total</b>               | <b>\$ 4,698,082</b> | <b>\$ 4,475,585</b> | <b>\$ 3,708,400</b> | <b>\$ 4,814,200</b> | <b>\$ 4,948,400</b> | <b>\$ 5,107,400</b> |

### Substations

This account provides for the inspection and maintenance of the Company's distribution substations. It also includes labour, material and transportation to maintain the switches, insulators, bus connectors, substation fence and ground grid and vegetation management inside the substation fence.

The following is a breakdown of labour and other costs associated with substations:

|              | 2016<br><u>Actual</u>    | 2017<br><u>Actual</u>    | 2018<br><u>Forecast</u>  | 2019<br><u>Forecast</u>  | 2020<br><u>Forecast</u>  | 2021<br><u>Forecast</u>  |
|--------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Labour       | \$ 55,525                | \$ 47,066                | \$ 53,200                | \$ 54,600                | \$ 56,000                | \$ 57,500                |
| Other        | <u>67,099</u>            | <u>66,037</u>            | <u>60,400</u>            | <u>55,600</u>            | <u>57,300</u>            | <u>59,000</u>            |
| <b>Total</b> | <b><u>\$ 122,624</u></b> | <b><u>\$ 113,103</u></b> | <b><u>\$ 113,600</u></b> | <b><u>\$ 110,200</u></b> | <b><u>\$ 113,300</u></b> | <b><u>\$ 116,500</u></b> |

### Rights of Way

This account provides for the inspection and maintenance of the rights of way for the Company's approximately 5,200 km of distribution lines. Outages due to trees and cyclical tree trimming and clearing over a targeted five to seven year timeline, play a significant role in reliability, service quality and safety particularly in the windy environment of PEI, and results in variances from year to year. The majority of the expenditure in this account is for third party contract labour and internal supervisory labour including related equipment and transportation costs.

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

The charges to the account in 2018 are forecast to be significantly lower as a result of an amount owing by the Province to Maritime Electric related to past charges for right of way access. For the years 1998 to 2001, the Province charged the Company an annual fee of \$172,388 for right of way access to Provincially owned right of way. The Company was recently advised that the Province recognizes an obligation to refund these fees, with interest, in the amount of \$952,384. As a result, the Company has reduced its forecast Rights of Way expense for 2018 which increases the forecast RORA as noted in Schedule 5-5.

The following is a breakdown of labour and other costs associated with distribution rights of way:

|        | <b><u>2016</u></b><br><b><u>Actual</u></b> | <b><u>2017</u></b><br><b><u>Actual</u></b> | <b><u>2018</u></b><br><b><u>Forecast</u></b> | <b><u>2019</u></b><br><b><u>Forecast</u></b> | <b><u>2020</u></b><br><b><u>Forecast</u></b> | <b><u>2021</u></b><br><b><u>Forecast</u></b> |
|--------|--------------------------------------------|--------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Labour | \$ 1,639,506                               | \$ 1,405,717                               | \$ 565,700                                   | \$ 1,327,700                                 | \$ 1,362,200                                 | \$ 1,419,300                                 |
| Other  | <u>668</u>                                 | <u>25,326</u>                              | <u>3,000</u>                                 | <u>15,500</u>                                | <u>15,900</u>                                | <u>16,400</u>                                |
| Total  | <b><u>\$ 1,640,174</u></b>                 | <b><u>\$ 1,431,043</u></b>                 | <b><u>\$ 568,700</u></b>                     | <b><u>\$ 1,343,200</u></b>                   | <b><u>\$ 1,378,100</u></b>                   | <b><u>\$ 1,435,700</u></b>                   |

### *Line Maintenance*

This account provides for the maintenance and inspection of over 5,200 km of distribution lines, service lines to over 80,000 customers and 10,000 streetlights. Expenditures are driven by preventative maintenance, customer requests, and storm damage. Activities include repairing wires and connectors during no power calls, replacing fuses, straightening poles, retightening guy wires, repairs to underground services and streetlight maintenance. This account also includes expenditures for small tool and equipment purchases, flame resistant safety clothing, and tool and equipment testing.

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

The following is a breakdown of labour and other costs associated with this account:

|               | <b>2016</b>               | <b>2017</b>               | <b>2018</b>               | <b>2019</b>               | <b>2020</b>               | <b>2021</b>               |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|               | <b><u>Actual</u></b>      | <b><u>Actual</u></b>      | <b><u>Forecast</u></b>    | <b><u>Forecast</u></b>    | <b><u>Forecast</u></b>    | <b><u>Forecast</u></b>    |
| <b>Labour</b> | \$1,151,616               | \$1,109,564               | \$1,101,600               | \$1,275,600               | \$1,310,700               | \$1,346,100               |
| <b>Other</b>  | <u>476,802</u>            | <u>525,557</u>            | <u>539,400</u>            | <u>593,600</u>            | <u>611,800</u>            | <u>630,500</u>            |
| <b>Total</b>  | <b><u>\$1,628,418</u></b> | <b><u>\$1,635,121</u></b> | <b><u>\$1,641,000</u></b> | <b><u>\$1,869,200</u></b> | <b><u>\$1,922,500</u></b> | <b><u>\$1,976,600</u></b> |

### *Line Control Devices*

This account provides for the maintenance and inspection of distribution line control devices such as capacitors, voltage regulators and reclosers including inspection, replacing broken bushings, repainting and repairing control modules.

The following is a breakdown of labour and other costs associated with this account:

|               | <b>2016</b>             | <b>2017</b>             | <b>2018</b>             | <b>2019</b>             | <b>2020</b>             | <b>2021</b>             |
|---------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|               | <b><u>Actual</u></b>    | <b><u>Actual</u></b>    | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>  |
| <b>Labour</b> | \$ 35,418               | \$ 33,396               | \$ 38,500               | \$ 46,100               | \$ 47,400               | \$ 48,600               |
| <b>Other</b>  | <u>12,480</u>           | <u>14,458</u>           | <u>10,500</u>           | <u>15,600</u>           | <u>16,000</u>           | <u>16,500</u>           |
| <b>Total</b>  | <b><u>\$ 47,898</u></b> | <b><u>\$ 47,854</u></b> | <b><u>\$ 49,000</u></b> | <b><u>\$ 61,700</u></b> | <b><u>\$ 63,400</u></b> | <b><u>\$ 65,100</u></b> |

### *Transformers*

This account provides for the inspection and maintenance of approximately 34,000 distribution transformers, which includes both polemount and padmount units. The activities include inspection, testing, replacing broken bushings, repainting, PCB management and oil spill cleanup.

The following is a breakdown of labour and other costs associated with transformers:

|               | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|               | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| <b>Labour</b> | \$ 385,015               | \$ 350,668               | \$ 420,600               | \$ 436,300               | \$ 447,200               | \$ 458,400               |
| <b>Other</b>  | <u>131,800</u>           | <u>101,402</u>           | <u>98,400</u>            | <u>66,700</u>            | <u>68,800</u>            | <u>70,900</u>            |
| <b>Total</b>  | <b><u>\$ 516,815</u></b> | <b><u>\$ 452,070</u></b> | <b><u>\$ 519,000</u></b> | <b><u>\$ 503,000</u></b> | <b><u>\$ 516,000</u></b> | <b><u>\$ 529,300</u></b> |

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

### *Meters*

This account provides for the inspection, testing and maintenance of over 80,000 revenue meters. Maintenance is driven by compliance with Measurement Canada rules and regulations and the number of units maintained changes year over year. Meters are sent to an outside lab for testing to determine if the sample set of meters meet industry standards or require replacement.

The following is a breakdown of labour and other costs associated with meters:

|               | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|---------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Labour</b> | \$ 105,250                    | \$ 92,448                     | \$ 96,700                       | \$ 98,900                       | \$ 101,400                      | \$ 103,900                      |
| <b>Other</b>  | <u>61,113</u>                 | <u>65,555</u>                 | <u>74,200</u>                   | <u>81,400</u>                   | <u>83,800</u>                   | <u>86,400</u>                   |
| <b>Total</b>  | <b><u>\$ 166,363</u></b>      | <b><u>\$ 158,003</u></b>      | <b><u>\$ 170,900</u></b>        | <b><u>\$ 180,300</u></b>        | <b><u>\$ 185,200</u></b>        | <b><u>\$ 190,300</u></b>        |

### *Communications Systems*

The amount is comprised of the costs required to operate and maintain communication hardware such as radios, routers, fibre optic cables and teleprotection equipment used for the Company's protection and control facilities and communications systems.

The following is a breakdown of labour and other costs included in this account:

|               | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|---------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Labour</b> | \$ 105,616                    | \$ 98,691                     | \$ 110,800                      | \$ 126,700                      | \$ 130,000                      | \$ 133,200                      |
| <b>Other</b>  | <u>66,795</u>                 | <u>114,151</u>                | <u>103,600</u>                  | <u>108,800</u>                  | <u>112,000</u>                  | <u>115,400</u>                  |
| <b>Total</b>  | <b><u>\$ 172,411</u></b>      | <b><u>\$ 212,842</u></b>      | <b><u>\$ 214,400</u></b>        | <b><u>\$ 235,500</u></b>        | <b><u>\$ 242,000</u></b>        | <b><u>\$ 248,600</u></b>        |

### *Supervisory SCADA*

This account is comprised of the costs to maintain the SCADA system which controls and acquires data from the distribution and transmission system and transmits this information through the communication system to the Energy Control Centre. Equipment inspection and maintenance and licensing fees account for the majority of the expenditures.

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

The breakdown of labour and other costs associated with supervisory SCADA is as follows:

|        | <b>2016</b>             | <b>2017</b>              | <b>2018</b>             | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|-------------------------|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>    | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>  | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | \$ 71,865               | \$ 76,287                | \$ 75,500               | \$ 83,200                | \$ 85,400                | \$ 87,600                |
| Other  | <u>5,262</u>            | <u>28,992</u>            | <u>11,700</u>           | <u>29,500</u>            | <u>30,400</u>            | <u>31,300</u>            |
| Total  | <b><u>\$ 77,128</u></b> | <b><u>\$ 105,279</u></b> | <b><u>\$ 87,200</u></b> | <b><u>\$ 112,700</u></b> | <b><u>\$ 115,800</u></b> | <b><u>\$ 118,900</u></b> |

### ***Engineering***

This account is comprised substantially of labour and related costs and provides for the engineering support and analysis required to design, operate and maintain the distribution system. Activities include fuse coordination studies, power flow and voltage support analysis to ensure lines meet CSA standards, changing protection equipment settings to meet load growth and overall distribution system oversight and planning not associated with capital projects.

The following is a breakdown of labour and other costs associated with this account:

|        | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | \$ 251,146               | \$ 245,122               | \$ 270,500               | \$ 312,400               | \$ 322,700               | \$ 333,400               |
| Other  | <u>75,105</u>            | <u>75,148</u>            | <u>74,100</u>            | <u>86,000</u>            | <u>89,400</u>            | <u>93,000</u>            |
| Total  | <b><u>\$ 326,251</u></b> | <b><u>\$ 320,270</u></b> | <b><u>\$ 344,600</u></b> | <b><u>\$ 398,400</u></b> | <b><u>\$ 412,100</u></b> | <b><u>\$ 426,400</u></b> |

### **9.3 Transmission and Distribution Expenses - Other**

The accounts in Schedule 9-4 provide for other expenses that are common to both the transmission and distribution system.

| <b>Schedule 9-4</b>                                        |                        |                        |                          |                          |                          |                          |
|------------------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Transmission and Distribution Expenses – Other (\$)</b> |                        |                        |                          |                          |                          |                          |
| <b>Description</b>                                         | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Insurance                                                  | \$ 104,427             | \$ 117,034             | \$ 126,000               | \$ 123,600               | \$ 127,300               | \$ 131,100               |
| Property Tax                                               | 1,868,844              | 1,881,192              | 1,943,400                | 2,021,900                | 2,077,300                | 2,106,800                |
| Professional Development and Training                      | 66,258                 | 57,756                 | 100,200                  | 86,100                   | 88,700                   | 91,400                   |
| <b>Total</b>                                               | <b>\$ 2,039,529</b>    | <b>\$ 2,055,982</b>    | <b>\$ 2,169,600</b>      | <b>\$ 2,231,600</b>      | <b>\$ 2,293,300</b>      | <b>\$ 2,329,300</b>      |

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## **SECTION 9 – TRANSMISSION AND DISTRIBUTION EXPENSES**

### *Insurance*

This amount includes the cost of providing the necessary insurance coverage available for the Company's transmission and distribution system substation assets. Insurance is procured by Fortis on behalf of its group members which allows Maritime Electric to obtain insurance coverage on assets that is economically priced and for which it would be unable to procure if it were seeking coverage independently.

### *Property Tax*

This amount includes the cost of property taxes attributable to the Company's transmission and distribution system. Property taxes are levied as either a tax on physical properties based upon their assessed values or a revenue related tax calculated at 1.0 per cent of the Company's annual revenue. The revenue related tax is used as a proxy for the taxation of the Company's transmission and distribution assets situated on public right of ways.

### *Professional Development and Training*

This account includes the professional development and training costs for employees working to maintain a reliable transmission and distribution system.

## **9.4 Summary**

A summary of transmission and distribution operating expenses follows:

|                                                | <b>Schedule<br/>Reference</b> | <b>2016<br/><u>Actual</u></b> | <b>2017<br/><u>Actual</u></b> | <b>2018<br/><u>Forecast</u></b> | <b>2019<br/><u>Forecast</u></b> | <b>2020<br/><u>Forecast</u></b> | <b>2021<br/><u>Forecast</u></b> |
|------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Transmission System</b>                     | 9-1                           | \$ 7,372,943                  | \$ 7,493,351                  | \$ 8,219,100                    | \$ 9,080,300                    | \$ 9,185,600                    | \$ 9,358,200                    |
| <b>Distribution System</b>                     | 9-3                           | \$ 4,698,082                  | \$ 4,475,585                  | \$ 3,708,400                    | \$ 4,814,200                    | \$ 4,948,400                    | \$ 5,107,400                    |
| <b>Transmission and<br/>Distribution Other</b> | 9-4                           | \$ 2,039,529                  | \$ 2,055,982                  | \$ 2,169,600                    | \$ 2,231,600                    | \$ 2,293,300                    | \$ 2,329,300                    |

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## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

### **10.0 GENERAL AND ADMINISTRATIVE EXPENSES**

General and Administrative Expenses are comprised of internal and external costs required for the overall operation and management of the Company. In Order UE09-02 the Commission disallowed, for the purpose of determining the Company's regulated annual revenue requirement, all Fortis Inc. head office administrative costs charged to the Company. As a result, the costs presented in this section do not contain any Fortis Inc. administrative costs.

### **10.1 General and Administrative Expenses**

Schedule 10-1 outlines the General and Administrative Expenses for the period 2016 – 2021.

| Schedule 10-1                               |                     |                     |                     |                     |                     |                     |
|---------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| General and Administrative Expenses (\$)    |                     |                     |                     |                     |                     |                     |
| Description                                 | 2016<br>Actual      | 2017<br>Actual      | 2018<br>Forecast    | 2019<br>Forecast    | 2020<br>Forecast    | 2021<br>Forecast    |
| Customer Service and Meter Reading          | \$ 2,058,663        | \$ 1,933,563        | \$ 1,847,700        | \$ 2,131,900        | \$ 2,175,400        | \$ 2,245,700        |
| Finance and Accounting                      | 1,393,344           | 1,367,720           | 1,371,500           | 1,497,900           | 1,552,700           | 1,608,900           |
| Corporate Communications and Public Affairs | 434,713             | 515,418             | 559,200             | 447,400             | 460,800             | 531,700             |
| Information Technology                      | 460,060             | 443,471             | 635,200             | 781,400             | 716,300             | 737,800             |
| Regulation                                  | 743,681             | 649,891             | 838,200             | 757,800             | 757,500             | 780,200             |
| Directors' Fees and Expenses                | 242,017             | 251,962             | 335,300             | 407,800             | 420,100             | 432,700             |
| General Property – Tax and Maintenance      | 681,983             | 637,708             | 744,900             | 711,100             | 733,400             | 755,400             |
| Corporate Services and Support              | 2,708,645           | 2,647,973           | 2,304,300           | 2,644,000           | 4,070,000           | 5,007,800           |
| <b>Total</b>                                | <b>\$ 8,723,106</b> | <b>\$ 8,447,706</b> | <b>\$ 8,636,300</b> | <b>\$ 9,379,300</b> | <b>\$10,886,200</b> | <b>\$12,100,200</b> |

#### *Customer Service and Meter Reading*

These costs reflect the operation of the Company's Customer Service and Meter Reading functions. Included are internal labour and training costs related to meter reading and the customer service staff, costs paid to collection agents, damage claims, materials and supplies.

This category also includes bill payment processing costs related to collection of overdue accounts, customer communications costs, bad debt expense and other related costs.

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## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

The cost of reading customers' meters for billing purposes also includes materials, meter reading device maintenance costs and transportation costs.

The following is a breakdown of labour and other costs associated with customer service and meter reading.

|        | 2016<br><u>Actual</u> | 2017<br><u>Actual</u> | 2018<br><u>Forecast</u> | 2019<br><u>Forecast</u> | 2020<br><u>Forecast</u> | 2021<br><u>Forecast</u> |
|--------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Labour | \$1,561,326           | \$1,463,146           | \$1,393,400             | \$1,607,700             | \$1,640,300             | \$1,691,000             |
| Other  | <u>497,337</u>        | <u>470,417</u>        | <u>454,300</u>          | <u>524,200</u>          | <u>535,100</u>          | <u>554,700</u>          |
| Total  | <u>\$2,058,663</u>    | <u>\$1,933,563</u>    | <u>\$1,847,700</u>      | <u>\$2,131,900</u>      | <u>\$2,175,400</u>      | <u>\$2,245,700</u>      |

### *Finance and Accounting*

This category captures the costs associated with maintaining accurate and complete financial records, financial reporting and internal controls. Included are costs associated with customer billing including related internal labour and training, bill printing, enclosing and postage. This category also includes the cost of the annual external audit of the Company's financial statements.

Finance and Accounting costs are comprised of the following:

|        | 2016<br><u>Actual</u> | 2017<br><u>Actual</u> | 2018<br><u>Forecast</u> | 2019<br><u>Forecast</u> | 2020<br><u>Forecast</u> | 2021<br><u>Forecast</u> |
|--------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Labour | \$ 717,929            | \$ 706,819            | \$ 718,700              | \$ 807,600              | \$ 824,300              | \$ 841,500              |
| Other  | <u>675,414</u>        | <u>660,901</u>        | <u>652,800</u>          | <u>690,300</u>          | <u>728,400</u>          | <u>767,400</u>          |
| Total  | <u>\$1,393,344</u>    | <u>\$1,367,720</u>    | <u>\$1,371,500</u>      | <u>\$1,497,900</u>      | <u>\$1,522,700</u>      | <u>\$1,608,900</u>      |

### *Corporate Communications and Public Affairs*

Included in this category are the internal labour and training costs for those responsible for all aspects of disseminating information and communicating with customers and other stakeholders regarding the activities of the Company. Delivery of educational and safety programs, support to Island charities and community activities, development and delivery of business services and customer based web services, and public consultations are also included in these activities.

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## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

The following is a breakdown of labour and other costs included in Corporate Communications and Public Affairs.

|        | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | \$ 124,151               | \$ 217,747               | \$ 232,700               | \$ 131,400               | \$ 134,000               | \$ 192,100               |
| Other  | <u>310,562</u>           | <u>297,671</u>           | <u>326,500</u>           | <u>316,000</u>           | <u>326,800</u>           | <u>339,600</u>           |
| Total  | <b><u>\$ 434,713</u></b> | <b><u>\$ 515,418</u></b> | <b><u>\$ 559,200</u></b> | <b><u>\$ 447,400</u></b> | <b><u>\$ 460,800</u></b> | <b><u>\$ 531,700</u></b> |

### *Information Technology*

Included in this category are internal labour and training costs as well as costs associated with certain ongoing software maintenance agreements required to maintain the key IT systems of the Company. Such systems include work planning, customer information and billing, service order management, outage management and dispatching as well as cybersecurity and web site management.

Information Technology costs are comprised of the following:

|        | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|        | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| Labour | \$ 292,993               | \$ 297,622               | \$ 315,000               | \$ 356,400               | \$ 357,800               | \$ 364,900               |
| Other  | <u>167,067</u>           | <u>145,849</u>           | <u>320,200</u>           | <u>325,000</u>           | <u>358,500</u>           | <u>372,900</u>           |
| Total  | <b><u>\$ 460,060</u></b> | <b><u>\$ 443,471</u></b> | <b><u>\$ 635,200</u></b> | <b><u>\$ 781,400</u></b> | <b><u>\$ 716,300</u></b> | <b><u>\$ 737,800</u></b> |

Increases in other costs in 2018 onward are driven by targeted cybersecurity expenditures to protect the Company's systems and assets as well as customer data.

### *Regulation*

Included in this category is the annual assessment by IRAC as well as the cost of internal resources associated with regulatory filings and proceedings. This account also captures the external legal and consulting costs related to various regulatory matters.

The forecast costs for 2018 have increased due to incremental costs incurred by

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## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

the Company with respect to the Open Access Transmission tariff proceeding as well as incremental costs in preparation for this Application. These costs include third party expert consulting fees for the 2017 Depreciation Study Cost, the 2017 Cost Allocation Study and the Cost of Capital report as well as related legal fees. Forecast costs for 2019 and 2020 reflect the Company's proposals in this Application regarding a three year rate setting period which would result in lower regulatory costs during those years and lower regulatory costs related to the OATT.

The following is a breakdown of labour and other costs included in Regulatory:

|               | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|               | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| <b>Labour</b> | \$ 215,641               | \$ 219,268               | \$ 205,000               | \$ 235,800               | \$ 243,400               | \$ 248,300               |
| <b>Other</b>  | <u>528,040</u>           | <u>430,623</u>           | <u>633,200</u>           | <u>522,000</u>           | <u>514,000</u>           | <u>531,900</u>           |
|               | <b><u>\$ 743,681</u></b> | <b><u>\$ 649,891</u></b> | <b><u>\$ 838,200</u></b> | <b><u>\$ 757,800</u></b> | <b><u>\$ 757,400</u></b> | <b><u>\$ 780,200</u></b> |

### *Directors' Fees and Expenses*

This account captures the fees paid to Maritime Electric's Board of Directors and expenses incurred by them while performing their duties as Board members. This account may also be charged with legal and consulting costs if such work is required by the Board. The fees are reviewed periodically to ensure they remain competitive, enabling Maritime Electric to attract highly skilled individuals to serve on the Board.

### *General Property - Tax and Maintenance*

This account collects the cost of operating and maintaining the Company's buildings at 180 Kent Street, West Royalty, Sherbrooke and Roseneath Service Centres. Included are costs for general maintenance, janitorial services, security, fire prevention, elevator repair and maintenance, snow removal, HVAC and other miscellaneous costs as well as the property taxes associated with these properties. Property taxes related to the generating activities, distribution and transmission are discussed in Sections 8 and 9 respectively.

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## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

The following is a breakdown of the General Property maintenance costs by location.

|                     | <b>2016</b>              | <b>2017</b>              | <b>2018</b>              | <b>2019</b>              | <b>2020</b>              | <b>2021</b>              |
|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                     | <b><u>Actual</u></b>     | <b><u>Actual</u></b>     | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   | <b><u>Forecast</u></b>   |
| <b>180 Kent St</b>  | \$ 142,624               | \$ 130,251               | \$ 153,400               | \$ 141,000               | \$ 145,300               | \$ 149,700               |
| <b>West Royalty</b> | 212,504                  | 179,534                  | 260,500                  | 201,000                  | 207,200                  | 213,400                  |
| <b>Sherbrooke</b>   | 56,748                   | 45,836                   | 51,400                   | 53,800                   | 55,700                   | 57,400                   |
| <b>Roseneath</b>    | 48,908                   | 45,972                   | 46,300                   | 48,500                   | 50,400                   | 51,900                   |
| <b>Substations</b>  | 19,974                   | 27,151                   | 21,100                   | 45,300                   | 46,700                   | 48,100                   |
| <b>Property Tax</b> | <u>201,225</u>           | <u>208,964</u>           | <u>212,200</u>           | <u>221,500</u>           | <u>228,100</u>           | <u>234,900</u>           |
| <b>Total</b>        | <b><u>\$ 681,983</u></b> | <b><u>\$ 637,708</u></b> | <b><u>\$ 744,900</u></b> | <b><u>\$ 711,100</u></b> | <b><u>\$ 733,400</u></b> | <b><u>\$ 755,400</u></b> |

### *Corporate Services and Support*

This category captures the labour related costs for the Executive and certain Managerial and Supervisory staff associated with administrative support, health, safety and environment, human resources, internal audit and corporate planning as well as the related supplies and materials, communications and courier charges.

Rating fees charged by Standard & Poor's, trustee fees on Corporate bonds, costs related to employee future benefits, travel costs, employee training costs, general corporate legal fees and other general operating costs are also charged here.

This account also includes the cost of providing the necessary General Liability and Directors and Officers insurance coverage for the Company. Insurance costs specific to the generating activities and distribution and transmission equipment are discussed in Sections 8 and 9 respectively.

The following Schedule 10-2 shows a breakdown of the 2016 and 2017 actual costs for the Corporate Services and Support category as well as the projected costs for the period 2018-2021:

## **SECTION 10 – GENERAL AND ADMINISTRATIVE EXPENSES**

| <b>Schedule 10-2</b>                         |                        |                        |                          |                          |                          |                          |
|----------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Corporate Services and Support</b>        |                        |                        |                          |                          |                          |                          |
| <b>Description</b>                           | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Employee Future Benefit Costs <sup>(1)</sup> | \$ (1,397,692)         | \$ (1,262,600)         | \$ (1,022,500)           | \$ (987,900)             | \$ 275,800               | \$ 1,044,000             |
| Employee Training                            | 21,488                 | 49,887                 | 79,600                   | 25,200                   | 25,300                   | 26,100                   |
| Human Resources                              | 158,911                | 161,730                | 162,800                  | 175,200                  | 172,200                  | 177,400                  |
| Insurance                                    | 43,871                 | 38,794                 | 43,700                   | 40,200                   | 41,400                   | 42,600                   |
| Legal                                        | 64,220                 | 74,236                 | 193,800                  | 103,000                  | 74,300                   | 76,500                   |
| Corporate Services <sup>(2)</sup>            | 3,472,408              | 3,233,899              | 2,470,800                | 2,895,800                | 3,069,900                | 3,211,800                |
| Health, Safety and Environment               | 99,462                 | 81,727                 | 112,600                  | 109,100                  | 112,400                  | 115,800                  |
| Internal Audit                               | 71,210                 | 82,673                 | 90,100                   | 94,000                   | 97,700                   | 100,600                  |
| System Planning & Engineering                | 174,767                | 187,627                | 173,400                  | 189,400                  | 201,000                  | 213,000                  |
| <b>Total</b>                                 | <b>\$ 2,708,645</b>    | <b>\$ 2,647,973</b>    | <b>\$ 2,304,300</b>      | <b>\$ 2,644,000</b>      | <b>\$ 4,070,000</b>      | <b>\$ 5,007,800</b>      |

1. *Effective May 15, 2015, the Company implemented changes to the Employee Future Benefits Health Plan that resulted in actuarial gains that are required to be amortized over the 2015-2019 period as permitted by IRAC Order UE14-02.*
2. *Includes labour and benefits costs for senior management and the administrative support group, trustee fees related to long-term debt, bond and credit rating fees and other general administrative costs including maintenance agreements, postage, dues, fees and office supplies.*

### **10.2 Summary**

A summary of this section follows:

- General and Administrative operating expenses were \$8,723,106 in 2016 and \$8,477,706 for 2017.
- General and Administrative operating expenses are forecast to be \$8,636,300 for 2018, \$9,379,300 for 2019, \$10,886,200 for 2020 and \$12,100,200 for 2021.

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## **SECTION 11 – AMORTIZATION EXPENSES**

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### **11.0 AMORTIZATION EXPENSES**

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#### **11.1 Background**

From May 1, 1994 to December 31, 2003, the Company operated under a price cap regulatory model in accordance with the provisions of the Maritime Electric Company Limited Regulation Act. Through legislative changes, the Company returned to cost of service regulation by IRAC under the provisions of the EPA effective January 1, 2004.

Section 23 of the EPA states that:

“Every public utility shall carry a proper and adequate depreciation account when the Commission, after investigation, determines that the depreciation account can be reasonably required; the Commission shall ascertain and determine what are proper and adequate rates of depreciation of the several classes of property of each public utility.”

Proper and adequate depreciation requires the Company to maintain depreciation accounts whereby, over the useful life of the various asset classes, the capital costs of each asset are expensed and recovered from customers as a cost of providing electric service. Depreciation expense is calculated by applying the depreciation rates assigned to the various classes of the Company's fixed assets. Under good utility practice, proposals for changes to depreciation rates are brought to the regulator based upon studies conducted by experts who examine the Company's various asset classes and determine the average service lives of the assets for purposes of calculating the appropriate depreciation rates.

Since returning to cost of service regulation, the Company has filed with the Commission three depreciation studies prepared by depreciation experts, Gannett Fleming. The first study was filed on August 31, 2006 based on results as at December 31, 2005. By Order UE07-01, the Commission ordered that the existing rates of depreciation remain in effect until otherwise ordered.

The second study was filed with IRAC on July 23, 2015 based on results as at

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December 31, 2014 (the “2014 Study”). The 2014 Study was prepared in support of recommended changes to depreciation rates to be adopted in 2016 and used in calculating depreciation expense for purposes of determining customer electricity rate adjustments commencing March 1, 2016.

The 2014 Study recommended revisions to the annual depreciation rates based on the remaining average service life of the various asset groups and a prudent allowance for the costs of removal of the assets upon retirement. The 2014 Study also recommended further adjustments to depreciation rates to incorporate the amortization of a portion of the accumulated reserve variance estimated to be approximately \$33.4 million at December 31, 2014. The accumulated reserve variance represents the difference between the recorded accumulated depreciation on the Company's books and the theoretical reserve calculated by Gannett Fleming based on the depreciation rates recommended in the Study.

Upon consideration of the 2014 Depreciation Study results, which together would have resulted in a significant increase in depreciation expense, the Company proposed to adopt the recommended depreciation rates in the 2014 Study but defer the amortization of the accumulated reserve variance on all asset classes except for the CTGS. The Company believed that these proposals struck a reasonable balance between the impact on customer electricity costs from higher depreciation expense and the need to fully depreciate the CTGS assets prior to the facility's closure and decommissioning.

The Company's General Rate Application, filed on October 21, 2015, and the subsequent General Rate Agreement filed with the Commission for approval on February 5, 2016 incorporated the proposed new depreciation rates and amortization of the accumulated reserve variance related to the CTGS as outlined above. On February 29, 2016, IRAC issued Order UE16-04 approving the depreciation rates in Schedule 11-1 below, effective January 1, 2016:

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| <b>Schedule 11-1</b>         |                   |
|------------------------------|-------------------|
| <b>Asset Class</b>           | <b>Rate (%)</b>   |
| Total Steam Production Plant | 7.99 <sup>1</sup> |
| Borden Generating Station    | 4.81              |
| Combustion Turbine #3        | 2.28              |
| Transmission Plant           | 2.27              |
| Total Distribution Plant     | 3.32              |
| Total General Plant          | 5.96              |

<sup>1</sup> Rate is comprised of Depreciation – 4.53% and Accumulated Reserve Variance Amortization – 3.46%

In addition, Section 15 of Order UE16-04 states that on or before June 30, 2018 Maritime Electric shall file with the Commission an updated Depreciation Study based on financial results to December 31, 2017. On June 29, 2018, Maritime Electric filed this updated Depreciation Study (Commission Docket UE21604) as prepared by Gannett Fleming (the “2017 Study”), a copy of which is included in this evidence as Appendix 8.

### **11.2 2017 Depreciation Study Results**

The 2017 Study is based upon the assets in service at December 31, 2017 and uses the straight line method for calculating depreciation using the average service life methodology. The resulting calculations are based upon attained ages and the estimated average service life and net salvage for each group of depreciable assets. A more detailed overview of the 2017 Study's methodology is discussed in the Basis of the Study section on Page I-3 to I-6 of the report.

The annual depreciation rates recommended by Gannett Fleming in the 2017 Study incorporate the recovery of the original cost of the assets over their average remaining service life along with a prudent allowance for the costs to remove the assets upon retirement. These rates, as outlined in Part VI – Table 1 of the 2017 Study, are summarized below, along with the rates last approved by the Commission in Order UE16-04.

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| <b>Schedule 11-2</b>                                              |                          |                            |
|-------------------------------------------------------------------|--------------------------|----------------------------|
| <b>Existing and Recommended Depreciation Rates by Asset Class</b> |                          |                            |
| <b>Asset Class</b>                                                | <b>Existing Rate (%)</b> | <b>2017 Study Rate (%)</b> |
| Production Plant                                                  |                          |                            |
| ▪ Charlottetown Thermal Generating Station                        | 4.53                     | 5.09                       |
| ▪ Borden Generating Station                                       | 4.81                     | 4.12                       |
| ▪ Combustion Turbine #3                                           | 2.28                     | 2.34                       |
| Transmission Plant                                                | 2.27                     | 2.45                       |
| Distribution Plant                                                | 3.32                     | 3.41                       |
| General Plant                                                     | <u>5.96</u>              | <u>5.81</u>                |
| Composite Rate                                                    | 3.41                     | 3.51                       |

The 2017 Study also recommends further adjustment to depreciation rates to incorporate the amortization of the accumulated reserve variance which represents the difference between the recorded accumulated depreciation and the theoretical reserve calculated by Gannett Fleming. At December 31, 2017, Gannett Fleming has calculated the accumulated reserve variance to be \$43.973 million and recommends that this balance be amortized over the remaining estimated service lives of the related assets.

Further detailed analysis of the Gannett Fleming recommendations with respect to the accumulated reserve variance are contained in Part VI, Table 2 of the 2017 Study and are summarized in Schedule 11-3 below.

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| <b>Schedule 11-3</b>                              |                                      |                                                |
|---------------------------------------------------|--------------------------------------|------------------------------------------------|
| <b>Accumulated Reserve Variance (\$ Millions)</b> |                                      |                                                |
| <b>Asset Class</b>                                | <b>Balance<br/>December 31, 2017</b> | <b>Recommended<br/>Annual<br/>Amortization</b> |
| Production Plant                                  |                                      |                                                |
| ▪ Charlottetown Thermal Generating Station        | 18.007                               | 4.842                                          |
| ▪ Borden Generating Station                       | 3.044                                | 0.235                                          |
| ▪ Combustion Turbine #3                           | 1.834                                | 0.054                                          |
| Transmission Plant                                | (2.129)                              | (0.049)                                        |
| Distribution Plant                                | 22.931                               | 1.090                                          |
| General Plant                                     | <u>0.286</u>                         | <u>0.083</u>                                   |
| <b>Total</b>                                      | <b>43.973</b>                        | <b>6.255</b>                                   |

Combined, the Gannett Fleming recommended changes in depreciation rates and amortization of the accumulated reserve variance is detailed in the 2017 Study in Part VI, Table 3 and is summarized in Schedule 11-4 below.

| <b>Schedule 11-4</b>                                                                         |                                                  |                                                                |                                                        |                                             |
|----------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------|
| <b>Gannett Fleming Recommended<br/>Annual Depreciation and Reserve Variance Amortization</b> |                                                  |                                                                |                                                        |                                             |
| <b>Asset Class</b>                                                                           | <b>Annual<br/>Depreciation<br/>(\$ Millions)</b> | <b>Reserve<br/>Variance<br/>Amortization<br/>(\$ Millions)</b> | <b>Total Annual<br/>Depreciation<br/>(\$ Millions)</b> | <b>Annual<br/>Depreciation<br/>Rate (%)</b> |
| Production Plant                                                                             |                                                  |                                                                |                                                        |                                             |
| ▪ Charlottetown Thermal Generating Station                                                   | 3.090                                            | 4.842                                                          | 7.932                                                  | 13.06                                       |
| ▪ Borden Generating Station                                                                  | 0.563                                            | 0.235                                                          | 0.798                                                  | 5.83                                        |
| ▪ Combustion Turbine #3                                                                      | 0.825                                            | 0.054                                                          | 0.879                                                  | 2.49                                        |
| Transmission Plant                                                                           | 3.048                                            | (0.049)                                                        | 2.999                                                  | 2.42                                        |
| Distribution Plant                                                                           | 11.891                                           | 1.090                                                          | 12.981                                                 | 3.72                                        |
| General Plant                                                                                | <u>2.586</u>                                     | <u>0.083</u>                                                   | <u>2.699</u>                                           | <u>6.00</u>                                 |
| <b>Total</b>                                                                                 | <b>22.003</b>                                    | <b>6.255</b>                                                   | <b>28.258</b>                                          | <b>4.51</b>                                 |

**11.3 Financial Impact – 2017 Depreciation Study Results**

The financial impact of the 2017 Study's recommendations, if fully adopted, can be broken down into two main components:

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- i. impact of recommended changes in depreciation rates, prospectively, to depreciate assets over the projected average service life remaining; and
- ii. the impact of the recommended amortization of the calculated accumulated reserve variance as at December 31, 2017.

Schedule 11-5 below summarizes the incremental increase in annual depreciation expense, by asset class, for each of these two components based upon the Gannett Fleming recommendations in the 2017 Study as compared to the rates approved by IRAC in Order UE16-04.

| <b>Schedule 11-5</b>                                                |                               |                                                  |                        |                  |
|---------------------------------------------------------------------|-------------------------------|--------------------------------------------------|------------------------|------------------|
| <b>Increase in Annual Depreciation – 2017 Study Recommendations</b> |                               |                                                  |                        |                  |
| <b>(\$ Millions)</b>                                                |                               |                                                  |                        |                  |
| <b>Asset Class</b>                                                  | <b>New Depreciation Rates</b> | <b>Amortization Accumulated Reserve Variance</b> | <b>Total</b>           | <b>Reference</b> |
| <b>Production Plant</b>                                             |                               |                                                  |                        |                  |
| Charlottetown Thermal Generating Station                            | \$ 0.339                      | \$ 2.740                                         | \$ 3.079               | Section 11.3.1   |
| Borden Generating Station                                           | (0.095)                       | 0.235                                            | 0.140                  | Section 11.3.2   |
| Combustion Turbine #3                                               | <u>0.020</u>                  | <u>0.054</u>                                     | <u>0.074</u>           |                  |
|                                                                     | <u>0.264</u>                  | <u>3.029</u>                                     | <u>3.293</u>           |                  |
| <b>Transmission Plant</b>                                           |                               |                                                  |                        | Section 11.3.4   |
| Poles and Fixtures                                                  | 0.060                         | 0.064                                            | 0.124                  |                  |
| Overhead Conductors                                                 | 0.173                         | 0.057                                            | 0.230                  |                  |
| Other - Net                                                         | <u>(0.016)</u>                | <u>(0.170)</u>                                   | <u>(0.186)</u>         |                  |
|                                                                     | <u>0.217</u>                  | <u>(0.049)</u>                                   | <u>(0.168)</u>         |                  |
| <b>Distribution Plant</b>                                           |                               |                                                  |                        | Section 11.3.3   |
| Line Transformers                                                   | 0.164                         | 0.417                                            | 0.581                  |                  |
| Services - Overhead                                                 | 0.237                         | 0.111                                            | 0.348                  |                  |
| Meters                                                              | (0.022)                       | 0.387                                            | 0.365                  |                  |
| Other - Net                                                         | <u>(0.103)</u>                | <u>0.175</u>                                     | <u>0.072</u>           |                  |
|                                                                     | <u>0.276</u>                  | <u>1.090</u>                                     | <u>1.366</u>           |                  |
| <b>General Plant</b>                                                | <u>(0.048)</u>                | <u>0.083</u>                                     | <u>0.035</u>           | Section 11.3.5   |
| <b>Total Increase</b>                                               | <b><u>\$ 0.709</u></b>        | <b><u>\$ 4.153</u></b>                           | <b><u>\$ 4.862</u></b> |                  |

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**Change in Depreciation Rates**

As outlined in Schedule 11-2, the 2017 Study recommends changes to the depreciation rates last approved by IRAC in Order UE16-04 effective as of January 1, 2016. The recommended changes to the various depreciation rates in the 2017 Study would result in an estimated increase in the annual depreciation expense of \$708,735 per year as illustrated in Schedule 11-5 and in Appendix 9. This recommended increase corresponds to a one-time estimated annual increase in the Company's revenue requirement of approximately 0.36 per cent based upon an estimated \$195 million annual total revenue requirement.

**Accumulated Reserve Variance Amortization**

In its last General Rate Application, filed on October 21, 2015, and the subsequent General Rate Agreement filed on February 5, 2016, the Company proposed to adopt the depreciation rates recommended in the 2014 Depreciation Study but defer the amortization of the accumulated reserve variance on all asset classes except the CTGS. In Order UE16-04, the Commission agreed and approved a further increase in the depreciation rate for the CTGS to amortize the estimated accumulated reserve variance related to the facility. As noted in Schedule 11-1, the Commission approved a combined depreciation rate of 7.99 per cent for the CTGS of which 3.46 per cent represents the rate of amortization of the accumulated reserve variance.

Based upon the 2017 Study results, which indicate a CTGS facility cost of \$60.750 million, the annual amortization of the accumulated reserve variance currently approved by IRAC is approximately \$2.101 million ( $\$60.750 \text{ million} \times 3.46\%$ ) as compared to the recommended annual amortization of \$4.842 million as noted in Schedule 11-4 and in Part IV, Table 2 of the 2017 Study. A recommended increase of \$2.740 million. In addition, the recommended amortization of the accumulated reserve variance on other asset classes results in a further increase of \$1.413 million for a total increase of \$4.153 million as noted in Schedule 11-5.

**11.3.1 Charlottetown Thermal Generating Station**

As discussed in Section 6 of the evidence, the CTGS is approaching the end of its useful life and is scheduled for full closure by January 1, 2022 with planned decommissioning

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in 2022 and 2023. On June 28, 2018, the Company filed the CTGS Decommissioning Study with IRAC, as required by Order UE16-04, which sets out the Company's detailed plan and the estimated costs associated with decommissioning the facility.

In Part IV of the 2017 Depreciation Study, Gannett Fleming states that it is generally recognized that the cost of decommissioning and dismantling a steam plant will significantly exceed the salvage received for any reusable equipment or material at the Plant. The 2017 Study assumes that the net salvage for the CTGS will be incurred mostly in connection with the final retirement of the plant beginning in 2022. As a result, Gannett Fleming used the 2018 Decommissioning Study estimates prepared by GHD Limited of \$10.438 million and escalated to 2022 for a decommissioning cost estimate of \$11.298 million. This escalated value results in a negative net salvage percentage of 19 per cent as outlined on Page VIII-2 of the 2017 Study. By comparison, the 2014 Depreciation Study used a negative net salvage percentage of 10 per cent which resulted in an estimated decommissioning cost estimate of approximately \$6.2 million, an increase of approximately \$5.1 million.

For purposes of estimating the average remaining service life of the CTGS in the 2017 Depreciation Study, Gannett Fleming employed the life span technique in conjunction with the use of interim survivor curves to reflect retirements that are forecast to occur prior to the ultimate retirement of the facility. The basis of the interim retirements is derived from the Energy Purchase Agreement with NB Power which recognizes the available generating capacity of the CTGS turbogenerators until their expected retirement dates as indicated in Part VI, Table 1 of the 2017 Study.

The Gannett Fleming recommended depreciation rate for the CTGS, which includes the recommended amortization of the accumulated reserve variance, is 13.06 per cent as noted in Schedule 11-4. This rate, and the resulting annual depreciation of \$7.932 million, is based on the period from 2018 to 2021 or four years. As illustrated in Schedule 11-5, this would result in an annual increase in depreciation expense of approximately \$3.079 million for the 2018 to 2021 period, which represents approximately 63.3 per cent of the overall \$4.862 million annual increase recommended by Gannett Fleming in the 2017 Study.

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However, annual depreciation rates for 2018 have been set under Order UE16-04 and, therefore, are not subject to adjustment until 2019. Since the recommended annual depreciation accrual will not be increased in 2018, there will be a shortfall of approximately \$0.339 million in 2018 that will increase the projected accumulated reserve variance. In addition, the amortization of the accumulated reserve variance will remain at \$2.1 million as approved in Order UE16-04 resulting in a projected accumulated reserve variance at December 31, 2018 of \$16.245 million as illustrated in Appendix 10. Assuming this projected balance is amortized over the remaining three year period from 2019-2021, the amortization of the accumulated reserve variance would increase by approximately \$3.314 million, from the \$2.1 million currently approved, to \$5.415 million per year (\$16.245 million/3 years). Together with the recommended increase in the annual depreciation accrual of \$0.339 million, the recommended increase in the CTGS amortization would be \$3.653 million.

The Company recognizes the need to balance the requirement to collect the unrecovered costs of the CTGS prior to retirement and decommissioning with the resulting impact on customer electricity costs. The Company's proposals with respect to the recovery of undepreciated amounts and the accumulated reserve variance are outlined in Section 11.4 of the evidence.

### **11.3.2 Borden-Carleton Generating Station**

The Borden-Carleton Generating Station (or "BGS") consists of two aged combustion turbines installed in 1971 and 1973. As Gannett Fleming notes on Page III-3 of the 2017 Study, the Borden gas turbines operate infrequently (less than 70 hours in 2017) and primarily provide standby service. The 2017 Study concludes that, based on the BGS current and expected future mode of operation as an emergency standby unit primarily, the life span estimates for BGS are longer than industry norms.

Gannett Fleming developed its life span estimate for the BGS by considering experienced life spans of similar generating units, the age of surviving units, general operating characteristics of the units, major refurbishing and discussions with Maritime Electric personnel concerning the outlook for the units. Based on this information, Gannett Fleming selected a probable retirement date of 2031 as indicated in Part VI,

Table 1 of the 2017 Study. By comparison, the 2014 Depreciation Study used a probable retirement date of 2026.

The change in the probable retirement date results in a recommended decrease in the annual depreciation rate from 4.81 per cent to 4.12 per cent, as noted in Schedule 11-2, resulting in an approximate \$0.095 million reduction in annual depreciation. However, the current depreciation rates for the BGS do not include any amortization of the accumulated reserve variance related to the BGS which is estimated in Part VI, Table 2 to be \$3.044 million. The 2017 Study recommends that this balance be amortized at an annual amount of \$0.235 million or 1.71 per cent. Together, the 2017 Study recommends an incremental increase in annual depreciation for BGS of \$0.140 million as outlined in Schedule 11-5 or 2.9 per cent of the recommended \$4.862 million increase.

### **11.3.3 Distribution Plant**

The 2017 Study recommended decreases in depreciation rates for Distribution Plant results in an overall financial impact of \$1.366 million or 28.1 per cent of the recommended increase in depreciation of \$4.862 million as outlined in Schedule 11-5. The recommended increase is comprised of \$0.276 million for new recommended depreciation rates plus \$1.090 million related to recommended amortization of the accumulated reserve variance.

Within the Distribution Plant group, the increase is substantially driven by Line Transformers at \$0.581 million, Services – Overhead at \$0.348 million and Meters at \$0.365 million. The recommended increases for both Line Transformer and Services – Overhead are derived from Gannett Fleming's average service life calculations for existing plant and the estimated cost of removal related to these assets. As a result, the recommended depreciation rate for Line Transformers is 4.13 per cent (Part VI, Table 3 of the 2017 Study) versus the current rate of 3.29 per cent while the recommended rate for Services – Overhead would increase to 3.64 per cent (Part VI, Table 3 of the 2017 Study) versus the current rate of 3.12 per cent.

The increase in the recommended depreciation rates for Meters is substantially attributable to the Company's 2003-2015 conversion from electro mechanical meters to electronic meters and the assumed shorter life of the electronic meters. As a result, the recommended depreciation rate for Meters is 7.57 per cent as compared to the 5.01 per cent currently in effect.

**11.3.4 Transmission Plant**

The 2017 Study recommended increases in depreciation rates for Transmission Plant results in a financial impact of \$0.217 million for the new recommended depreciation rates less a \$0.049 million reduction for the amortization of the accumulated reserve variance for a net recommended change of \$0.168 million (Schedule 11-5). The recommended net change is driven primarily by Gannett Fleming's calculation of the average service lives for the existing plant as well as the estimated cost of removal of these assets. The resulting recommended annual depreciation rate is 2.42 per cent versus the current rate of 2.27 per cent (Schedule 11-4).

**11.3.5 General Plant**

The 2017 Study recommended decreases in depreciation rates for General Plant results in a financial impact of (\$0.048) million for the new recommended depreciation rates plus a \$0.083 million increase for the amortization of the accumulated reserve variance for a net recommended increase of \$0.035 million (Schedule 11-5). The recommended net change is driven primarily by Gannett Fleming's calculation of the coverage service lives for the existing plant. The resulting recommended annual depreciation rate is 6.0 per cent (Schedule 11-4) versus the current rate of 5.96 per cent.

**11.4 Proposed Depreciation Rates**

The changes to depreciation rates approved by IRAC under Order UE16-04, effective January 1, 2016, represent the first changes to rates since returning to cost of service regulation on January 1, 2004. The 2014 Depreciation Study, which provided the evidence supporting the Commission's decision, confirmed the need to increase depreciation rates and begin to address the accumulated reserve variance on the various asset classes.

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In particular, it was recognized that with the planned decommissioning of the CTGS, the full depreciation of these assets was a priority. As a result, the Commission approved the 2014 Depreciation Study's recommendations with respect to the annual depreciation rates of all asset classes as well as further adjustments, as recommended in the 2014 Study, to the CTGS depreciation rate to recover the calculated reserve variance on these assets. The Commission also directed the Company to conduct a CTGS Decommissioning Study as well as an updated Depreciation Study based on financial results to December 31, 2017.

The 2017 Depreciation Study reflects both the financial results to December 31, 2017 as well as the updated cost estimates to decommission and retire the CTGS as set out in the CTGS Decommissioning Study. The 2017 Study identifies the need to adjust depreciation rates within the various asset classes with an overall recommended increase in the annual depreciation accrual of \$0.709 million (see Appendix 9). The 2017 Study also provides an updated accumulated reserve variance which reflects certain estimates for the various asset classes along with the CTGS decommissioning plan and related cost estimates.

The recommended changes in depreciation rates, including the recommended changes in the accumulated reserve variance amortization, as outlined in the 2017 Study and in Schedule 11-4, are driven primarily by the following factors:

- i. revisions to the estimated remaining service lives of the CTGS assets to reflect the planned staged retirement of the facility;
- ii. updated costing information from the CTGS Decommissioning Study regarding the estimated cost of decommissioning and removal;
- iii. the one year delay (2015) in the implementation of revised depreciation rates from the 2014 Depreciation Study contributing to the increase in the accumulated reserve variance; and
- iv. changes in the average service life and cost of removal assumptions used by Gannett Fleming in the 2017 Study as compared to the 2014 Study.

The Company recognizes that fully adopting the Gannett Fleming 2017 Depreciation

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Study recommendations in total would result in a significant increase in depreciation expense to be recovered from customers of \$4.862 million (Schedule 11-5). Assuming an estimated annual revenue requirement of \$195 million, the recommended incremental increase in depreciation in the 2017 Study would result in a one-time increase in customer electricity costs of approximately 2.5 per cent.

The Company also recognizes that steps must be taken to properly adjust depreciation rates over an appropriate period of time to ensure that the following objectives are met:

- i. customer intergenerational equity is maintained to the extent reasonably possible;
- ii. good utility practice with respect to depreciation policy is adhered to;
- iii. the full cost of assets, including a prudent provision for asset removal is recovered from customers by the time the assets have been retired and disposed of; and
- iv. customers' electricity rates properly reflect the cost of providing electric service.

As noted by Gannett Fleming on Page I-5 of the 2017 Study:

“The calculated accrued depreciation is used as a measure to assess the adequacy of the Company’s book accumulated depreciation amount. The calculated accrued depreciation should not be viewed in exact terms as the correct reserve amount. Rather it should be viewed as a benchmark or a tool used by the depreciation professional to assess the standing of the book accumulated depreciation amount based on the most recent available information.”

The Company concurs with Gannett Fleming’s comments and, therefore, proposes changes to depreciation rates and the amortization of the accumulated reserve variance of the CTGS, that will strike a reasonable balance between the changes to overall depreciation rates (including accumulated reserve variance amortization) as recommended by Gannett Fleming in the 2017 Study and the potential material impact of those changes on customer electricity rates. These proposals are outlined in the following sections.

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**11.4.1 Depreciation Rates**

The Company proposes to adopt the depreciation rates recommended in Part VI – Table 1 of the 2017 Depreciation Study and as summarized in Appendix 9. Further, it is proposed that these depreciation rates be calculated and adopted as of January 1, 2019 and be incorporated into this Application for approval of new rates, tolls and charges for electric service for the period beginning March 1, 2019. The revised rates reflect Gannett Fleming's most recent conclusions with respect to the estimated average service lives of the various asset classes, as well as net salvage estimates that will provide a prudent allowance for the cost of removal of the assets upon retirement. In addition, the proposed change in depreciation rates will serve to prevent further increases in the calculated accumulated reserve variance, assuming no changes in the underlying assumptions in the 2017 Study.

The 2017 Study estimates that the proposed changes in depreciation rates will result in an increase of approximately \$0.709 million in annual depreciation expense based on 2017 asset values as outlined in Appendix 9. This increase corresponds to a one time estimated annual increase in the Company's revenue requirement of approximately 0.36 per cent, based upon an estimated \$195 million annual total revenue requirement.

**11.4.2 Accumulated Reserve Variance Amortization**

In Part VI, Table 2 of the 2017 Depreciation Study, Gannett Fleming has calculated the accumulated reserve variance to be \$43.973 million as at December 31, 2017. Depreciation rates currently in effect provide for an approximate \$2.101 million annual accumulated reserve variance amortization related only to the CTGS. The 2017 Study recommends a further increase of \$4.153 million as outlined in Schedule 11-5. This increase would correspond to a one time estimated annual increase in the Company's revenue requirement of approximately 2.1 per cent, based upon an estimated \$195 million annual total revenue requirement. However, to meet the objectives noted earlier in this Section, the Company proposes the following recommendations with respect to the amortization of the calculated accumulated reserve variance:

- i. CTGS
  - a. the Commission direct the establishment of a regulatory deferral account,

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as of January 1, 2019 for the projected accumulated reserve variance related to the CTGS in the amount of \$16.245 million as calculated in Appendix 10;

- b. the Commission order the annual amortization period of this regulatory deferral account to be from January 1, 2019 to December 31, 2023;
- c. the Commission approve the annual amortization of the regulatory deferral account in the amounts set out in Appendix 11, subject to any revisions that may be required and as approved by the Commission, as a result of further Depreciation Study updates or CTGS decommissioning cost changes; and
- d. the Commission approve the inclusion of the amounts to be amortized in the Company's annual revenue requirement and revisions to its rates, tolls and charges for electric service for the period beginning March 1, 2019, March 1, 2020 and March 1, 2021.

The use of a regulatory deferral account for the CTGS accumulated reserve variance will provide flexibility to the Utility and the Commission in managing the impact on customer electricity costs by enabling the establishment of an appropriate amortization period and determination of the amounts to be recovered in each year. The Company's proposal, as set out in Appendix 11, aligns with the anticipated period over which the CTGS will be available for service and the period during which it will be decommissioned and retired. As noted previously in the evidence, the Energy Purchase Agreement with NB Power recognizes the CTGS' available capacity until 2021 while the CTGS Decommissioning Plan calls for the decommissioning and removal of the assets in 2022 and 2023.

While the proposed amortization amounts in Appendix 11 provide for a smoothing effect on the CTGS accumulated reserve variance over the five year period, it is to be expected that the final total amount to be recovered for the CTGS facility will ultimately differ from current estimates. The amounts proposed to be amortized over the 2019-2023 period are based on the 2017 Depreciation Study which incorporates a Class B decommissioning cost estimate prepared by

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GHD in the CTGS Decommissioning Study. The Class B estimate includes many assumptions with respect to timelines, cost categories and salvage proceeds. In addition, Gannet Fleming has escalated the GHD estimate to 2022 using an assumed annual 2 per cent escalator. Changes in any of these variables could have a net positive or negative impact on the final costs to be recovered and should therefore be captured through the proposed regulatory deferral account.

The Company recognizes its obligation to balance the need to recover the remaining costs, including a prudent reserve for the retirement and removal of the CTGS, over an appropriate period with the resulting impact on customer electricity rates. It is the Company's position that this balance can be achieved through the establishment of a regulatory deferral account to be amortized over the 2019-2023 five year period with final disposition of any remaining balance to be determined by the Commission upon completion of the CTGS decommissioning.

ii. All Other Asset Classes

The Company proposes to defer recovery of the accumulated reserve variance on other assets until such time as there is more clarity with respect to the total cost and complete recovery of amounts related to the CTGS. The Company will continue to monitor the accumulated reserve variance on other assets and report these balances to the Commission through future Depreciation Study updates.

**11.4.3 Other Matters**

The Company proposes to:

- i. provide regular updates to the Commission with respect to any changes in the timelines or estimated costs associated with the CTGS assets and the decommissioning of the facility. The updates will be provided every six months with the first report to be filed by August 31, 2019 for the period ending June 30, 2019.
- ii. undertake a new Depreciation Study based upon financial results up to December 31, 2020 that will be filed with the Commission by June 30, 2021. The



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findings from the study will be used to update the Commission on the recovery of amounts related to the CTGS and other assets. It will also be used to develop recommendations on the establishment of new depreciation rates as well as the amortization of the calculated accumulated reserve variance for the various asset classes.

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**12.0 FINANCIAL OBJECTIVES**

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**12.1 Financial Objectives**

To compete for financing at rates that allow the Company to continue to invest in the energy delivery infrastructure while providing service at the lowest possible cost to electricity consumers on Prince Edward Island, the following financial objectives must be met:

- i. Maintain a debt ratio of 60 per cent and a common equity ratio of 40 per cent;
- ii. Maintain coverage ratios on total debt interest in the range of 2.4 times to 2.6 times; and
- iii. Provide a risk adjusted return to the Shareholder commensurate with that of comparable investor-owned utilities.

**12.2 Capital Structure and Interest Coverage**

Maritime Electric finances the investment in its infrastructure through a combination of debt (short-term debt and long-term first mortgage bonds) and Shareholder equity. To minimize the overall total cost of this financing, a balance between the two (referred to as the target capital structure) is required. The target capital structure provides the necessary interest coverage and flexibility to ensure the financial viability of the Company and lowest financing costs available.

Changes to the EPA, effective January 1, 2017, requires that the Company (i) maintain at all times not less than 35 per cent of its capital invested in the power system in the form of common equity; and (ii) ensure that, for the year, not more than 40 per cent of its capital is invested in the power system in the form of common equity. To ensure that the Company's capital structure remains flexible and able to adapt to changing market conditions, the target common equity component of the Company's capital structure throughout the year will fluctuate between 39 per cent and 40 per cent. The Company proposes that the target average common equity component of its capital structure be set at 40 per cent for purposes of determining the annual revenue requirement in customer rates related to the allowable return on average common equity.

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The target capital structure of Maritime Electric is based upon:

- The embedded and forecast cost of debt;
- The risk adjusted cost of common equity relative to other utilities;
- The requirement contained in the EPA for the Company to maintain an average common equity component in its capital structure of between 35 per cent and 40 per cent;
- Providing sufficient flexibility to allow for future external financing; and
- Maintaining adequate debt interest coverage ratios to ensure access to debt markets.

The following Schedule 12-1 shows the Company's average capital structure for the period 2016-2021.

| <b>Schedule 12-1</b>                           |                        |                        |                          |                          |                          |                          |
|------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Average Capital Structure 2016-2021 (%)</b> |                        |                        |                          |                          |                          |                          |
|                                                | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Debt                                           | 59.1                   | 60.3                   | 60.4                     | 60.2                     | 60.0                     | 60.0                     |
| Equity                                         | 40.9                   | 39.8*                  | 39.6                     | 39.8                     | 40.0                     | 40.0                     |
| <b>Total</b>                                   | <b>100.0</b>           | <b>100.0</b>           | <b>100.0</b>             | <b>100.0</b>             | <b>100.0</b>             | <b>100.0</b>             |

\* Contains non-regulated equity of 0.08 per cent in 2017.

Although debt financing is usually less expensive than equity financing, a balance between these two options must be reached in order to keep the total Weighted Average Cost of Capital ("WACC") as low as possible. Too high of a debt component leads lenders to view their investment as higher risk relative to other investment options, requiring higher returns (interest) on the debt, thereby increasing costs. Higher proportions of debt also cause equity investors to require a higher rate of return due to a higher investment risk caused by the need to service greater quantities of debt prior to any return on equity.

Conversely, while increasing equity levels will reduce the debt holders' risk (and required return) it increases the total cost of capital due to the higher return required on the

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## **SECTION 12 – FINANCIAL OBJECTIVES**

thicker equity ratio. The investor return required (both debt and equity) reflects the investors' perception of both the business and financial risks associated with the investment.

Schedule 12-2 below shows the 2018 forecast average common equity component for the Company and the currently authorized common equity component for other Canadian utilities.

| <b>Schedule 12-2</b>               |                                |
|------------------------------------|--------------------------------|
| <b>Common Equity Component (%)</b> |                                |
| <b>Utility</b>                     | <b>Common Equity Component</b> |
| Ontario Electric Distribution      | 40.0                           |
| ATCO Electric Distribution         | 37.0                           |
| FortisAlberta                      | 37.0                           |
| FortisBC Electric                  | 40.0                           |
| Newfoundland Power                 | 45.0                           |
| Nova Scotia Power                  | 37.5                           |
| <b>Average</b>                     | <b>39.4</b>                    |
| <b>Maritime Electric</b>           | <b>39.6</b>                    |

If Maritime Electric is to compete for funds on a basis similar to other utilities it must maintain a similar and comparable risk profile. One basis of comparison is the ability to pay dividends. The inability to pay dividends on a consistent basis may result in considerably more restrictive covenants for new debt issues, limitations on the term for which investors are prepared to lend, and ultimately a higher cost of financing. The regular payment of dividends also assists in maintaining an appropriate balance between debt and equity in order to meet the Company's target capital structure and comply with the legislative requirements of the EPA.

The Company is forecasting the continued payment of both regulated and non-regulated dividends over the 2019-2021 period. Regulated dividends represent amounts paid out of the equity retained in the Company to support the regulated operations and upon which the Company is allowed a regulated return.

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Non-regulated dividends arise from a non-regulated equity contribution by the Shareholder through a tax sharing agreement between the companies. As a non-regulated component of equity, Maritime Electric does not seek to earn a regulated return on this amount and, as a result, there is no revenue requirement to be recovered from customers. Since the Shareholder does not earn a return on this equity, it has requested that the non-regulated equity be returned through a dividend payment.

Schedule 12-3 shows Maritime Electric's actual and forecast dividend payments for the period 2016 – 2021.

| <b>Schedule 12-3</b>  |                        |                        |                          |                          |                          |                          |
|-----------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Dividends (\$)</b> |                        |                        |                          |                          |                          |                          |
|                       | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Regulated</b>      | \$ 8,000,000           | \$ 8,500,000           | \$ 8,500,000             | \$ 9,000,000             | \$ 9,000,000             | \$10,000,000             |
| <b>Non-Regulated</b>  | 297,500                | 297,500                | 1,247,120                | 297,500                  | 297,500                  | 297,500                  |
| <b>Total</b>          | <b>\$ 8,297,500</b>    | <b>\$ 8,797,500</b>    | <b>\$ 9,747,120</b>      | <b>\$ 9,297,500</b>      | <b>\$ 9,297,500</b>      | <b>\$10,297,500</b>      |

The Corporate Credit Rating, a measure of the Company's overall credit worthiness, is based upon an independent analytical review by Standard & Poor's (S&P) of the Company's capital structure, earnings, cash flows, financial position and an analysis of Company-specific and industry-related issues. The most recent report on the Company by S&P ("S&P Report"), dated April 3, 2018, is included in Appendix 12.

As noted in the S&P Report, the Company's Corporate Credit Rating is BBB<sup>+</sup> (stable outlook); two notches above the minimum rating the markets consider being investment grade, while its long-term debt is currently rated at A (investment grade). Maritime Electric's Corporate Credit Rating is based upon its stand-alone credit profile which is not impacted by being a wholly owned subsidiary of Fortis Inc.

Common equity is comprised of the Shareholder's investment in common shares and retained earnings. The level of common equity in the capital structure must be such that the resulting earnings provide for debt interest coverages within the targeted range, without undue burden on consumers.

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Target interest coverages are designed to ensure that the Company's long-term debt remains competitive with that of other similarly rated companies, enabling it to compete for funds in the capital markets. Interest coverage ratios are used by credit rating agencies and debt lenders to assess the adequacy of the Company's capital structure and associated investment risk. The interest coverage ratio is also a key test to issue new long-term debt under the Company's First Mortgage Bonds Trust Deed.

The earnings before interest and taxes (EBIT) coverage measure is calculated by dividing operating income and allowance for funds used during construction by total interest and debt issue costs to determine the number of "times" that operating income can cover the interest costs. Management believes that the target debt interest coverage of 2.4 times to 2.6 times is appropriate for supporting the Company's debt rating and meeting its target financial objectives.

### 12.3 Interest Costs

This section discusses the costs associated with financing through the use of short-term and long-term debt.

#### 12.3.1 Long-Term Debt Interest

Schedule 12-4 below shows the Company's actual and forecast long-term debt and annual long-term debt interest expense for 2016-2021.

| Schedule 12-4                                  |                |                  |                   |              |               |               |               |               |               |
|------------------------------------------------|----------------|------------------|-------------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Annual Interest Expense on Long-Term Debt (\$) |                |                  |                   |              |               |               |               |               |               |
| Issue Date                                     | Maturity Date  | Principal Amount | Interest Rate (%) | 2016 Actual  | 2017 Actual   | 2018 Forecast | 2019 Forecast | 2020 Forecast | 2021 Forecast |
| Aug. 15, 1991                                  | Aug. 15, 2016* | 12,000,000       | 11.500            | \$ 862,500   | \$ -          | \$ -          | \$ -          | \$ -          | \$ -          |
| Dec. 7, 1993                                   | Dec. 7, 2018** | 15,000,000       | 8.550             | 1,282,500    | 1,282,500     | 1,199,800     | -             | -             | -             |
| Dec. 22, 2000                                  | Dec. 22, 2025  | 15,000,000       | 7.570             | 1,135,500    | 1,135,500     | 1,135,500     | 1,135,500     | 1,135,500     | 1,135,500     |
| Jan. 15, 1997                                  | Jan. 15, 2027  | 15,000,000       | 8.625             | 1,293,750    | 1,293,750     | 1,293,800     | 1,293,800     | 1,293,800     | 1,293,800     |
| Jul. 3, 1996                                   | Jul. 3, 2031   | 20,000,000       | 8.920             | 1,784,000    | 1,784,000     | 1,784,000     | 1,784,000     | 1,784,000     | 1,784,000     |
| Apr. 2, 2008                                   | Apr. 2, 2038   | 60,000,000       | 6.054             | 3,632,400    | 3,632,400     | 3,632,400     | 3,632,400     | 3,632,400     | 3,632,400     |
| Dec. 5, 2011                                   | Dec. 5, 2061   | 30,000,000       | 4.915             | 1,474,500    | 1,474,500     | 1,474,500     | 1,474,500     | 1,474,500     | 1,474,500     |
| Aug. 23, 2016                                  | Aug. 23, 2056  | 40,000,000       | 3.657             | 523,670      | 1,462,800     | 1,462,800     | 1,462,800     | 1,462,800     | 1,462,800     |
| Nov. 2018***                                   | Nov. 2058      | 40,000,000       | 4.250             | -            | -             | 141,700       | 1,700,000     | 1,700,000     | 1,700,000     |
| Total                                          |                |                  |                   | \$11,988,820 | \$ 12,065,450 | \$ 12,124,500 | \$ 12,483,000 | \$ 12,483,000 | \$ 12,483,000 |

\* Redeemed in 2016

\*\* To be redeemed in 2018

\*\*\* Forecast First Mortgage Bond Issue

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As shown in the table above, the Company has a \$15 million, 8.550 per cent debt issue maturing on December 7, 2018. Based on forecast short-term borrowing levels for 2018, the Company expects to replace the maturing debt issue and accumulated short-term debt with a new \$40 million first mortgage bond issue in November/December 2018 at a forecast rate of 4.25 per cent. This borrowing is subject to a separate application filed with the Commission on October 22, 2018. On October 30, 2018, the Commission issued Order UE18-06 granting permission to proceed with the planned debt issue.

Maritime Electric uses the effective interest method of accounting for the costs associated with issuing debt. The Company has estimated that the costs associated with the 2018 debt issue will be approximately \$250,000. Under the effective interest method, these costs will be recorded as a deferred charge and amortized over the term of the debt in accordance with IRAC Order UE06-05. The forecast interest related expense arising from the amortization of deferred debt issue costs is shown in Schedule 12-5 below.

| Schedule 12-5                            |                  |                |                 |                 |                 |                  |                  |                  |
|------------------------------------------|------------------|----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| Amortization of Debt Issuance Costs (\$) |                  |                |                 |                 |                 |                  |                  |                  |
| Issue Date                               | Principal Amount | Deferred Costs | 2016 Actual     | 2017 Actual     | 2018 Forecast   | 2019 Forecast    | 2020 Forecast    | 2021 Forecast    |
| Apr. 2, 2008                             | \$60,000,000     | \$ 213,952     | \$ 4,217        | \$ 4,474        | \$ 4,746        | \$ 5,034         | \$ 5,340         | \$ 5,665         |
| Dec. 5, 2011                             | \$30,000,000     | 239,313        | 1,412           | 1,482           | 1,555           | 1,632            | 1,713            | 1,798            |
| Aug. 23, 2016                            | \$40,000,000     | 240,072        | 906             | 2,753           | 2,854           | 2,960            | 3,069            | 3,182            |
| Dec. 7, 2018                             | \$40,000,000     | 250,000        | -               | -               | 445             | 6,174            | 6,278            | 6,355            |
| <b>Total</b>                             |                  |                | <b>\$ 6,535</b> | <b>\$ 8,708</b> | <b>\$ 9,600</b> | <b>\$ 15,800</b> | <b>\$ 16,400</b> | <b>\$ 17,000</b> |

### **12.3.2 Short-Term Debt Interest**

The short-term financing requirements for Maritime Electric include, amongst other things, energy-related costs, operating and maintenance costs, tax installments, inventory purchases and payroll costs. To meet these requirements, the Company maintains a \$50.0 million committed unsecured credit facility with TD Bank as well as a \$5.0 million operating line with Scotiabank. The \$50.0 million credit facility with TD expires on February 27, 2019 and will be subject to a request for proposals process to seek the most favourable terms and pricing available.

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Maritime Electric continues to benefit from the combined borrowing power of the Fortis group of companies as it is able to borrow funds at a lower interest rate than it would be able to negotiate on its own. The Company uses Banker's Acceptances (BAs) where appropriate, to reduce its annual borrowing costs versus the use of its operating line. Recent BA interest rates have ranged between 1.93 and 2.05 as compared to the operating line which bears interest at the Scotiabank prime rate, currently 3.95 per cent.

The following are the actual and forecast short-term debt interest costs over the 2016-2021 period:

|                      | <b>Amounts (\$)</b> |
|----------------------|---------------------|
| <b>2016 Actual</b>   | \$ 788,933          |
| <b>2017 Actual</b>   | \$ 627,410          |
| <b>2018 Forecast</b> | \$ 1,318,300        |
| <b>2019 Forecast</b> | \$ 568,500          |
| <b>2020 Forecast</b> | \$ 664,300          |
| <b>2021 Forecast</b> | \$ 842,100          |

### **12.3.3 Allowance for Funds Used During Construction**

As is common throughout the utility industry, Maritime Electric provides for the cost of financing construction work in progress by including an Allowance for Funds Used During Construction (AFUDC) as an addition to the cost of property constructed. The AFUDC rate reflects the cost of the Company's debt and equity financing. This allowance is approved by IRAC through the annual capital budget application process and is charged to operations through amortization over the service life of the related assets. This approach ensures that the cost is paid, not just by those who are customers during the period of construction, but by those customers who benefit from the asset during its useful life.



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The actual and forecast AFUDC over the 2016 – 2021 period is as follows:

|                      | <b>Amounts (\$)</b> |
|----------------------|---------------------|
| <b>2016 Actual</b>   | \$ 405,915          |
| <b>2017 Actual</b>   | \$ 449,760          |
| <b>2018 Forecast</b> | \$ 400,000          |
| <b>2019 Forecast</b> | \$ 430,000          |
| <b>2020 Forecast</b> | \$ 493,000          |
| <b>2021 Forecast</b> | \$ 434,000          |

### **12.4 Return on Average Common Equity**

#### **12.4.1 Introduction**

In the Company's last General Rate Application, filed October 28, 2015, expert evidence in support of an allowed return on average common equity (ROE) of 9.7 per cent was presented. However, as a result of negotiations with the Province of PEI, a three year General Rate Agreement, setting the annual ROE at 9.35 per cent was subsequently filed with IRAC for approval.

In response to a Commission interrogatory seeking comments with respect to the agreed upon 9.35 per cent ROE, the Company stated:

*“A 9.35 per cent ROE is below the target range proposed in the General Rate Application. With the three year certainty of a known ROE target in place, the Company recognizes that regulatory risk has been somewhat mitigated during this period and has, therefore, agreed to an ROE at the lower end of what it considers to be a reasonable outcome.”*

In Commission Order UE16-04, the Commission accepted the negotiated ROE of 9.35 per cent and ordered that the ROE shall be in effect for the 2016, 2017 and 2018 calendar years, and thereafter until varied by the Commission. With the expiry of the General Rate Agreement on February 28, 2019, the Company engaged Concentric Energy Advisors (“Concentric”) to perform an independent analysis of the Company's cost of capital including a comparative risk assessment, and provide recommendations

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on an appropriate ROE for Maritime Electric. The Concentric evidence is included with this Application in Appendix 13.

Based on the evidence presented in this Application, Maritime Electric is requesting that the Commission order:

- i. the existing target ROE of 9.35 per cent based on a 40 per cent average common equity remain in place for purposes of establishing the 2019, 2020 and 2021 annual revenue requirement; and
- ii. the implementation of an Earnings Sharing Mechanism in the form of an allowed ROE range of  $\pm 50$  basis points around the authorized ROE of 9.35 per cent.

It is the Company's view that the proposed target ROE and common equity level, in combination with a  $\pm 50$  basis points allowed ROE range, is justifiable and reasonable for purposes of establishing the annual revenue requirements of 2019, 2020 and 2021 and in providing an appropriate form and level of incentive based regulation during the three year period.

#### **12.4.2 Risk Assessment**

Maritime Electric continues to have a higher overall level of risk (business and financial) than other Atlantic Canadian electric utilities and comparable utilities across Canada. This fact was first acknowledged by the Commission in Order UE06-03, paragraph 28 which stated that the Commission:

*"... agrees that the Company operates with a higher degree of business risk than other investor owned utilities in Atlantic Canada. This is due, in part, to the relative small size of the Company."*

Most recently, in Order UE16-04, paragraphs 71 and 75, the Commission stated:

*[Par 71]: "In response to the Commission's interrogatory, Maritime Electric reiterated many of the factors identified by Concentric as increasing the Company's overall risk profile relative to other Atlantic*

*Canadian electric utilities and comparable Canadian utilities. Based on these continuing risk factors, Maritime Electric submitted that a risk premium of 25 to 50 basis points was just and reasonable.”*

*[Par 75]: “The Commission also accepts that a ROE risk premium is appropriate due to the unique risk factors that exist in this Province, as set out by Concentric and Maritime Electric.”*

As discussed in the remainder of this section, Maritime Electric submits that its overall risk profile relative to other Atlantic Canadian electric utilities and comparable utilities across Canada has not materially changed since the Commission's previous assessment and conclusions. The higher overall risk profile for Maritime Electric is driven by a number of factors which have an impact on the Company's business risk and financial risk.

### **Business Risk**

The Concentric report states that business risk refers to the political and regulatory environment that the Company operates within and the operational and competitive forces that could potentially exert pressure on earnings and cash flows.

During the course of the last twenty-five years, the PEI regulatory framework has been substantially changed by the Provincial Government. Prior to 1994, the Company was regulated under a cost of service model by IRAC; however, price cap regulation was legislatively implemented on May 1, 1994 under the Maritime Electric Company Limited Regulation Act and continued until December 31, 2003.

On January 1, 2004, the Company returned to cost of service regulation as a result of legislative changes to the EPA. Although the EPA remains in effect, subsequent amendments have been enacted by the Provincial Government to legislate electricity rates during the period March 1, 2011 to February 29, 2016, set the range of allowable common equity in the Company's capital structure, empower the Provincial Government with the right to own future generation assets on PEI and, most recently, to transfer responsibility for energy efficiency programming away from Maritime Electric to the PEIEC.

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The Commission has previously acknowledged the increased political and regulatory risk faced by the Company. In Order UE16-04, paragraph 75, the Commission stated:

*“The Commission recognizes, in particular, that Maritime Electric faces incremental risk relative to other utilities due to the frequency in which the regulatory framework in this Province has been changed over the last twenty years. Such changes may be perceived by investors as increasing the regulatory risk of the Company, resulting in the need for a higher risk premium when compared to similar utilities in other jurisdictions.”*

In addition, the S&P report (Appendix 12) also highlights the increased level of political and regulatory risk when assessing the Company's overall business risk. S&P states:

*“Another offsetting factor [to the business risk assessment] is the Provincial Government's involvement and influence in energy policies, specifically establishing rates for Island customers, which we assess to be less favourable and exposes Maritime Electric to political risks as compared with those of regulated utilities in other Canadian provinces.”*

Maritime Electric submits that it continues to face higher levels of political and regulatory risk as compared to regulated electric utilities in other jurisdictions.

From an operating perspective, the Company is subject to higher relative levels of risk from both adverse economic developments and damaging weather events due to its Island location and small size resulting in a concentration of customers and assets in a restricted geographic location. Although PEI has experienced stronger than normal economic and population growth in recent years, rising interest rates, an aging population and recent changes announced to curtail aspects of the Provincial Nominee Program are expected to have a dampening effect on the overall Provincial economic climate in the coming years.

Although other utilities have regulator approved deferral accounts to mitigate the costs associated with extreme weather damage or other events, Maritime Electric does not

have the relative certainty of such deferrals. Without such deferrals, the Company is exposed to the negative impact of storms or the loss of a significant customer (for example, the McCain processing facility closed in October 2014) causing a reduction in cash flows, increased debt levels and an overall erosion in the common equity component of its capital structure.

The Island location also presents unique energy supply risks for Maritime Electric relative to other utilities. On-Island third party energy supply resources are limited to wind generation supplemented by limited solar applications. As a result, the Company is dependent upon off-Island energy supply sources provided through the provincially owned submarine interconnection cables.

While the new submarine cables installed in 2017 improve the capacity and reliability of the interconnection to mainland energy supply resources, the Company continues to be exposed to off-Island transmission interruptions and constraints which can limit the amount of energy that can be imported to PEI. This exposure is outside the Company's control and, since it has a legislated obligation to serve, the Company must therefore maintain and ensure that sufficient on-Island generation capacity is in place to meet the supply demands of customers. The planned closure and decommissioning of the CTGS in 2021 and the uncertainty arising from the Government's right to own future on-Island generation increases the Company's energy supply and overall operating risk.

The nature of Maritime Electric's operational responsibility as a vertically integrated utility (generation, transmission and distribution) also increases its operational risk relative to other utilities which often have minimal to no generation or transmission responsibilities. This increased risk level was acknowledged by IRAC in Order UE10-03, dated July 12, 2010, in which the Commission agreed that Maritime Electric's responsibility for electricity supply was a significant difference as compared to the electric distribution utilities in Ontario. The Commission also stated further in this same Order that it:

*“... views Maritime Electric as higher risk than the benchmark BC utility and FortisBC due to a variety of factors such as utility size, nature of operations, economic climate within which it operates and regulatory risk factors.”*

The Commission reaffirmed this position and acknowledged the appropriateness of a risk premium for Maritime Electric in Order UE16-04 in which it said:

*“The Commission recognizes the Company's responsibilities for electricity supply which are unique when compared to other Canadian distribution utilities. The Commission is reluctant to assign a value to the risk premium and views this as an assessment to be conducted based on the circumstances as they exist at the time of each rate application.”*

Maritime Electric submits that the operational risk factors previously accepted by the Commission as increasing the Company's risk relative to other utilities have not materially changed and will continue to remain for the foreseeable future.

### **Financial Risk**

The Concentric report states that financial risk refers to the amount of debt (or fixed financial obligations) in the utility's capital structure and the extent to which fixed debt obligations must be met before the Shareholder receives a return on its investment. The report notes that fixed financial obligations also reduce a company's financial flexibility and its ability to respond to adverse economic circumstances and capital market conditions.

The S&P Report categorizes the Company's financial risk profile as “significant” based upon an expectation of stable and predictable cash flows.

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Schedule 12-6 below is the Business and Financial Risk Matrix used by S&P in its report.

| Schedule 12-6                          |                        |        |              |             |            |                  |
|----------------------------------------|------------------------|--------|--------------|-------------|------------|------------------|
| S&P Business and Financial Risk Matrix |                        |        |              |             |            |                  |
|                                        | Financial Risk Profile |        |              |             |            |                  |
| Business Risk Profile                  | Minimal                | Modest | Intermediate | Significant | Aggressive | Highly Leveraged |
| Excellent                              | aaa/aa+                | aa     | a+/a         | a-          | bbb        | bbb-/bb+         |
| Strong                                 | aa/aa-                 | a+/a   | a-/bbb+      | bbb         | bb+        | bb               |
| Satisfactory                           | a/a-                   | bbb+   | bbb/bbb-     | bbb-/bb+    | bb         | b+               |
| Fair                                   | bbb/bbb-               | bbb-   | bb+          | bb          | bb-        | b                |
| Weak                                   | bb+                    | bb+    | bb           | bb-         | b+         | b/b-             |
| Vulnerable                             | bb-                    | bb-    | bb-/b+       | b+          | b          | b-               |

Schedule 12-7 below shows the comparative S&P rankings for the Canadian and US proxy groups used by Concentric in its report.

| Schedule 12-7                                 |            |               |                |
|-----------------------------------------------|------------|---------------|----------------|
| S&P Business Risk and Financial Risk Rankings |            |               |                |
|                                               | S&P Rating | Business Risk | Financial Risk |
| <b>Canadian Proxy Group</b>                   |            |               |                |
| Canadian Utilities Ltd.                       | A-         | Excellent     | Significant    |
| Emera                                         | BBB+       | Excellent     | Aggressive     |
| Enbridge, Inc.                                | BBB+       | Excellent     | Significant    |
| Valener, Inc.                                 | Not Rated  | -             | -              |
| <b>Maritime Electric</b>                      |            |               |                |
|                                               | BBB+       | Excellent     | Significant    |
| <b>US Proxy Group</b>                         |            |               |                |
| ALLETE, Inc.                                  | BBB+       | Strong        | Significant    |
| Alliant Energy Corp.                          | A-         | Excellent     | Significant    |
| American Electric Power Co.                   | A-         | Excellent     | Significant    |
| Duke Energy Corporation                       | BBB+       | Excellent     | Significant    |
| Edison International                          | BBB+       | Excellent     | Significant    |
| Eversource                                    | A+         | Excellent     | Intermediate   |
| OGE Energy Corporation                        | BBB+       | Strong        | Significant    |
| Pinnacle West Capital Corp.                   | A-         | Excellent     | Significant    |
| PNM Resources, Inc.                           | BBB+       | Strong        | Significant    |

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The significant category assigned by S&P is consistent with that assigned to comparable utilities; however, the Concentric report notes that the Company's financial risk remains higher due to its more leveraged capital structure which results from the legislated maximum 40 per cent average common equity cap.

The interest coverage ratio is a key measure of the Company's ability to meet its debt obligations and is a key covenant in some of its credit facilities. It is the Company's view that an Earnings Before Interest and Taxes (EBIT) coverage ratio in the range of 2.4 to 2.6 times is a reasonable target given the Company's relatively weaker financial risk profile and the need to compete for sources of financing.

Schedule 12-8 below compares Maritime Electric's actual and forecast EBIT coverage ratios for 2016 – 2021 and shows that from 2016 to 2018 the ratio has been at or near the bottom of the target range. The proposed ROE of 9.35 per cent is expected to continue to provide support to improve the forecast interest coverage ratio in the 2019 – 2021 period.

| <b>Schedule 12-8</b>             |                        |                          |                          |                          |                          |
|----------------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Interest Coverage (Times)</b> |                        |                          |                          |                          |                          |
| <b>2016<br/>Actual</b>           | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| 2.4                              | 2.5                    | 2.4                      | 2.5                      | 2.6                      | 2.6                      |

Reductions in the allowed ROE or the related equity component of capital structure could lead to deterioration of the interest coverage ratio and potentially put downward pressure on the Corporate Credit Rating.

The S&P Report confirmed Maritime Electric's Corporate Credit Rating at BBB+. However, S&P notes in their report that a downward revision could happen if the Company's adjusted funds from operations to debt falls and remains below 15 per cent from an expected 15 - 18 per cent result for 2018 and 2019. S&P notes that a lower adjusted funds from operations percentage:

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*“could happen should there be an adverse change in government policy, material operational difficulties, or a significantly adverse regulatory ruling impairing timely recovery of cash flows.”*

These factors noted by S&P are some of the business or operational risks noted previously that differentiate Maritime Electric from neighbouring utilities.

The Concentric report provides a detailed assessment of the current economic and capital market conditions and highlights the continued similarities as well as notable changes that have occurred since the Company's last General Rate Application. The global economy remains a complex set of interdependent relationships between countries increasing the risk of a disruption in one major economy impacting the economic conditions in other countries. PEI is not insulated from these circumstances.

A recent Bank of Canada (“BOC”) report notes that solid economic growth has led interest rates in Canada and some other advanced economies to rise from historically low levels. The BOC has increased its overnight target interest rate by 25 basis points five times since July 2017 to 1.75 per cent. As well, bond yields have risen across all maturities and are reflected in higher borrowing rates for businesses and households.

In summary, both the levels of interest rates and the recent changes in capital markets indicate that the cost of capital generally and the cost of equity for a utility specifically is clearly no lower, and is more likely higher, than it was when Maritime Electric last filed cost of equity evidence.

In determining the appropriate cost of equity range for Maritime Electric, Concentric uses both Canadian and US proxy groups to develop and estimate utility cost of equity using the Discounted Cash Flow (“DCF”) method and the Capital Asset Pricing Model (“CAPM”). Schedule 12-9 shows that the Concentric analysis of the proxy groups produced a range of results from 8.86 per cent to 10.13 per cent with an average of 9.89 per cent for Canadian regulated utilities, 9.20 per cent for the US electricity utility proxy group and an overall average of 9.46 per cent.

| <b>Schedule 12-9</b>                          |                                         |                                  |                                              |                |
|-----------------------------------------------|-----------------------------------------|----------------------------------|----------------------------------------------|----------------|
| <b>Proxy Group Cost of Equity Results (%)</b> |                                         |                                  |                                              |                |
|                                               | <b>Canadian<br/>Regulated Utilities</b> | <b>US Electric<br/>Utilities</b> | <b>North American<br/>Electric Utilities</b> | <b>Average</b> |
| CAPM                                          | 10.13                                   | 9.47                             | 9.56                                         | 9.72           |
| Constant Growth DCF                           | 9.41                                    | 9.26                             | 9.26                                         | 9.31           |
| Multi-Stage DCF                               | 10.13                                   | 8.86                             | 9.03                                         | 9.34           |
| <b>Average</b>                                | <b>9.89</b>                             | <b>9.20</b>                      | <b>9.28</b>                                  | <b>9.46</b>    |

Maritime Electric's proposed 9.35 per cent return on average common equity is comparable to the overall average of the proxy groups in the Concentric report, albeit on a much lower 40.0 per cent common equity component in comparison to the US utilities. A lower common equity percentage implies a higher level of risk.

Schedule 12-10 below shows the 2017 allowed and earned ROE and the 2018 allowed ROE for Canadian and US electric utilities.

| <b>Schedule 12-10</b>              |                             |                            |                             |
|------------------------------------|-----------------------------|----------------------------|-----------------------------|
| <b>Allowed and Earned ROE (%)</b>  |                             |                            |                             |
|                                    | <b>2017 Allowed<br/>ROE</b> | <b>2017 Earned<br/>ROE</b> | <b>2018 Allowed<br/>ROE</b> |
| <b>Maritime Electric</b>           | 9.35                        | 9.35                       | 9.35                        |
|                                    |                             |                            |                             |
| <b>Canadian Electric Utilities</b> |                             |                            |                             |
| Nova Scotia Power                  | 9.00                        | 9.25                       | 9.00                        |
| Newfoundland Power Inc.            | 8.50                        | 8.93                       | 8.50                        |
| FortisOntario Inc.                 | 8.78                        | 10.70                      | 9.00                        |
| ATCO Electric Distribution         | 8.50                        | 13.21                      | 8.50                        |
| FortisAlberta Inc.                 | 8.50                        | 9.32                       | 8.50                        |
| FortisBC Inc.                      | 9.15                        | 9.31                       | 9.15                        |
| <b>Average</b>                     | <b>8.74</b>                 | <b>10.12</b>               | <b>8.78</b>                 |
|                                    |                             |                            |                             |
| <b>U.S. Utilities</b>              |                             |                            |                             |
| Electric Utilities                 | 9.80                        | N/A                        | 9.70                        |

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The Concentric evidence shows that in 2017, the average ROE adopted for comparable US utilities was 9.80 per cent on an average common equity percentage of 49.4 per cent. Comparability of returns to US electric utilities is appropriate because in today's world of closely integrated economies and capital markets, investors will seek returns in multiple markets and assess investment risk between countries by comparing each country's relative economic conditions and business environments. The Concentric report provides further evidence on this comparability and integration between economies.

All of the factors discussed demonstrate that there are no fundamental differences between the Canadian and US economic and capital market environments that would cause a reasonable investor to not expect similar returns from comparable utilities in either country. Therefore, comparison to US electric utilities is considered appropriate.

In addition to the US returns, the Concentric evidence shows that the 2017 earned returns by Canadian electric utilities averaged 10.12 per cent (see Schedule 12-10) on average allowed equity of approximately 39.4 per cent (see Schedule 12-11), which is higher than the Company's requested return but comparable to the proposed average common equity percentage.

The difference between the allowed ROE and earned ROE occurs because of differences in the manner in which other jurisdictions establish ROE and revenue requirement as compared to PEI. Maritime Electric has traditionally been regulated by having a cap on ROE for purposes of determining revenue requirement and allowed ROE, whereas regulators in other jurisdictions will use a performance or incentive based approach through an ROE banding or range. First, the regulator sets revenue requirement and customer rates based upon an allowed or target ROE (or return on rate base). Utilities are then permitted to earn above the allowed or target ROE or return on rate base to the limits of the allowed range or band set by the regulator. The result has been that utilities in other jurisdictions, which the Commission has previously recognized as having lower risk than Maritime Electric, have been permitted to earn returns at similar or greater levels than the maximum return set for the Company.

## **SECTION 12 – FINANCIAL OBJECTIVES**

Since other utilities have both an allowed range of return, or a banded ROE, and a target common equity component for purposes establishing revenue requirement, a comparison of the weighted cost of common equity is useful in comparing utility returns. Schedule 12-11 below shows the 2017 weighted cost of equity for Canadian electric utilities.

| <b>Schedule 12-11</b>                        |                                   |                                      |                                                      |
|----------------------------------------------|-----------------------------------|--------------------------------------|------------------------------------------------------|
| <b>Weighted Cost of Common Equity – 2017</b> |                                   |                                      |                                                      |
|                                              | <b>Earned ROE<br/>(%)<br/>(A)</b> | <b>Target Equity<br/>(%)<br/>(B)</b> | <b>Weighted Cost of<br/>Equity (%)<br/>(A) x (B)</b> |
| <b>Maritime Electric</b>                     | 9.35                              | 40.0                                 | 3.74                                                 |
|                                              |                                   |                                      |                                                      |
| <b>Canadian Electric Utilities</b>           |                                   |                                      |                                                      |
| Nova Scotia Power                            | 9.25                              | 37.5                                 | 3.47                                                 |
| Newfoundland Power Inc.                      | 8.93                              | 45.0                                 | 4.02                                                 |
| FortisOntario Inc.                           | 10.70                             | 40.0                                 | 4.28                                                 |
| ATCO Electric Distribution                   | 13.21                             | 37.0                                 | 4.89                                                 |
| FortisAlberta Inc.                           | 9.32                              | 37.0                                 | 3.45                                                 |
| FortisBC Inc.                                | 9.31                              | 40.0                                 | 3.72                                                 |
| <b>Average</b>                               | <b>10.12</b>                      | <b>39.4</b>                          | <b>3.97</b>                                          |

When considering other utilities' weighted cost of equity based on their allowed range of return, Maritime Electric's weighted cost of equity is 27 basis points (0.27 per cent) higher than that of Nova Scotia Power's current weighted cost of equity but is, in fact, 28 basis points (0.28 per cent) less than that of Newfoundland Power's currently authorized weighted cost of equity. In comparison to FortisBC and FortisOntario, both of which the Commission has agreed are lower risk utilities, the Company's weighted cost of common equity is only 2 basis points (0.02 per cent) greater than FortisBC and is actually 54 basis points (0.54 per cent) less than FortisOntario.

Maritime Electric submits that the implementation of an allowed range of return on common equity, in the form of an earnings sharing mechanism, in conjunction with the proposed target ROE of 9.35 per cent on 40 per cent average common equity (which yields a 3.74 per cent weighted cost of equity) provides an acceptable ROE framework

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for purposes of establishing the annual revenue requirement given the changing economic and capital market conditions and the Company's recognized higher overall risk profile. The proposed 9.35 per cent ROE on 40 per cent common equity places the Company's weighted cost of equity at the midpoint between that of the other Atlantic investor owned utilities. As discussed further below, an earnings sharing mechanism would provide the Company with an appropriate form of incentive to achieve returns comparable to other utilities.

#### **12.4.3 Earnings Sharing Mechanism**

An Earnings Sharing Mechanism (ESM) defines the manner in which deviations in earnings from the authorized regulated ROE are apportioned between the utility and the customer. Maritime Electric currently has a Rate of Return Adjustment (RORA) deferral account which requires the Company to return to customers 100 per cent of regulated earnings above the authorized ROE, currently set at 9.35 per cent. The RORA was first implemented, at the request of the Company, during the PEI Energy Accord when electricity rates were set by legislation and there was no regulatory mechanism to address a variance in earnings results. In Order UE16-04, the Commission ordered a continuation of the RORA for the years of the General Rate Agreement, 2016 to 2018 along with additional reporting requirements.

The RORA, as currently in effect, places a hard ceiling on the Company's earnings which is inconsistent with the Earnings Sharing Mechanisms (ESM) implemented in other jurisdictions across Canada. Although most jurisdictions in Canada continue to regulate utilities under a cost of service model, many have to some degree adopted forms of incentive mechanisms to encourage utilities to seek efficiencies by allowing them to share in those gains with customers.

As shown in the diagram below from the London Economics International LLC presentation by Julia Frayer at the 2018 CAMPUT Conference, variations on the cost of service model have grown in number and ESMs or ROE bands are viewed as a "higher powered" approach in comparison to the traditional approach.



The Concentric report notes that the primary purpose of an ESM is to share with customers earnings that deviate in a meaningful way (either positive or negative) from the level of earnings associated with the authorized ROE. Since it is probable that revenues, costs and rate base will each deviate from the assumptions that are used as the basis for calculating rates, the earned ROE will also vary from the authorized ROE and an ESM is often used to apportion this variance between customers and the utility.

ESMs are defined by two key parameters: 1) the size of the allowed range of ROE or “deadband” around the authorized ROE; and 2) the percentage or rate of sharing of the earnings outside the deadband between the utility and customers.

Maritime Electric’s review of ESMs in Canada indicates that ESMs are used in many jurisdictions and, where the regulator has established a deadband, the utility retains or incurs any earnings or losses within the deadband and any amounts outside may be shared with customers. The range of the deadband and the sharing mechanism varies by jurisdiction.

In British Columbia, earnings or losses relative to the authorized ROE are shared on a 50:50 basis between ratepayers and the utility. In Alberta, the deadband is 500 basis points (5 per cent) above or below the approved ROE in a single year, or 300 basis points (3 per cent) above or below the approved ROE for two consecutive years before any sharing with customers is considered. Similarly, Ontario uses a 300 basis point (3 per cent) deadband above or below the authorized ROE.

ESMs are also utilized in other Atlantic Canadian jurisdictions. Newfoundland Power has an allowed range of return on rate base which translates into an approximate 40 – 50

basis points (0.4 per cent to 0.5 per cent) range of return on equity before any sharing with customers. Unlike most jurisdictions where the ESM is symmetrical, Newfoundland Power's Excess Earnings Account applies only to earnings above the 40 – 50 basis point ROE threshold. Nova Scotia Power follows a similar approach to Newfoundland Power in that the utility is permitted to earn an ROE up to 25 basis points (0.25 per cent) above the target ROE authorized for purposes of setting revenue requirement.

The primary benefits of an ESM is the sharing of growth, efficiencies and cost savings between the customer and the utility with a lower overall regulatory burden as compared to a detailed analysis of factors contributing to an earnings variance. Rather than focusing narrowly on a particular revenue, cost or rate base item, the ESM focuses on the end result which captures all items in a single measure of earnings or ROE.

Maritime Electric proposes the adoption of a symmetrical ESM with a deadband of  $\pm 50$  basis points on a proposed authorized ROE of 9.35 per cent. Under this model, the Company would retain the benefit of surplus earnings and assume the risk of an earnings shortfall within the deadband from 8.85 per cent to 9.85 per cent.

For earnings greater than 9.85 per cent in a year, it is proposed to return those excess earnings to the customer. In addition, for earnings below 8.85 per cent, it is proposed that the Company would be permitted to establish a deferral account for the shortfall to provide the Company with an earned ROE of no less than 8.85 per cent for that year. The deferral amount would then be recovered in future years as approved by IRAC.

Maritime Electric submits that the benefits to be derived with minimal regulatory burden warrant the implementation of an ESM similar to that used in jurisdictions across Canada. Given the Company's higher overall risk profile relative to other utilities in Atlantic Canada, in particular, the ESM as proposed is considered appropriate.

**12.5 Summary**

A summary of this section follows:

The Company's financial objectives are as follows:

- a. Maintain a debt ratio target of 60 per cent and a target common equity ratio of 40 per cent;
- b. Maintain coverage on total debt interest in the range of 2.4 times to 2.6 times; and
- c. Provide the Shareholder with the opportunity to earn a return commensurate with that of comparable risk investor-owned utilities.

In support of these objectives, the Company proposes the following:

- Interest expense on long-term debt is forecast to be \$12,483,000 in 2019, \$12,483,000 in 2020 and \$12,483,000 in 2021;
- Short-term interest costs are forecast to be \$568,500 in 2019, \$664,300 in 2020 and \$842,100 in 2021;
- The Allowance for Funds Used During Construction is forecast to be \$430,000 in 2019, \$493,000 in 2020 and \$434,000 in 2021;
- A Return on Average Common Equity of 9.35 per cent on an average common equity of 40 per cent for each of 2019, 2020 and 2021 is just and reasonable; and
- Maritime Electric proposes that the Commission approve the implementation of an Earnings Sharing Mechanism for 2019 and future years with a deadband of  $\pm 50$  basis points around the allowed ROE and all amounts outside the deadband returned to or recovered from the customer as directed by IRAC.



**13.0 COST ALLOCATION STUDY**

**13.1 Background**

The Company's current rates, tolls and charges were established, and fixed, over the period March 1, 2016 to February 28, 2019 pursuant to Order UE16-04 issued by IRAC on February 29, 2016. The basis of this order was a negotiated General Rate Agreement between Maritime Electric and the Province of PEI which addressed matters raised in the Company's previously filed General Rate Application and Depreciation Study Application as well as other matters relating to electric service on PEI.

Under the terms of the General Rate Agreement, it was recommended that the previously proposed staged phase out of the Residential Class second block be deferred until further information could be gathered, analyzed and filed with IRAC. The Company proposed further consultation with stakeholders, undertaking a rate design study to determine the appropriate classification for farms and the completion of an updated Cost Allocation Study using 2017 financial data.

Although the Commission expressed concerns with deferring the phase out of the Residential Class second block, it did accept the proposal under the condition that the Company prepare and file further studies prior to the Company's next application for rates commencing March 1, 2019. These studies included the following:

- A rate design study to consider changes to the multi-block residential energy pricing structure and related changes by April 30, 2018;
- A Point Lepreau cost allocation classification study by April 30, 2017; and
- An updated Cost Allocation Study based on financial results to December 31, 2017 by June 30, 2018.

On April 9, 2018, the Company filed a request with IRAC to defer the April 30, 2018 filing deadline for the Rate Design study until the earlier of October 31, 2018 or when the Company files its next General Rate Application. The purpose of the request was to allow sufficient information to be obtained and analyzed to support recommendations for

rate structure changes including the Cost Allocation Study and planned consumption and load analysis for farms.

On April 17, 2018, the Commission issued Order UE18-02 approving the Company's request. As a result, this Application contains the information and recommendations with respect to rate design and the impact on the various rate classes.

## **13.2 Point Lepreau Cost Allocation Classification Study**

### **13.2.1 Background**

On April 27, 2017, the Company filed the Point Lepreau Cost Allocation Classification Study (the "Lepreau Classification Study") as directed by IRAC in Order UE16-04. The recommendations contained in the Lepreau Classification Study filing, Commission Docket UE22502, are reflected in the evidence of this application.

### **13.2.2 Basis of Study**

The Lepreau Classification Study is based on reviews of Cost Allocation Study methodologies used in New Brunswick and Nova Scotia. In New Brunswick, the NB Energy and Utilities Board ("NBEUB") issued its Decision on May 13, 2016 on Matter No. 271, an application by NB Power for the approval of a Class Cost Allocation Study methodology. In Nova Scotia, the NS Utilities and Review Board ("NSUARB") issued its Decision on March 11, 2014 on M05473, an application by NS Power for approval of its 2013 Cost of Service Study.

In addition to the Lepreau Classification Study, the Company chose to expand the scope of its report to include two additional, but related, items:

- A review of the appropriateness of classifying generation fuel costs at the Company's oil-fired plants as fixed costs, and hence Demand related; and
- Whether a portion of wind power purchase costs, currently classified as 100 per cent Energy related, should be classified as Demand related.

## **SECTION 13 – COST ALLOCATION STUDY**

Due to the timing of completion of the Study, the analysis and related recommendations were based upon data contained in the 2014 Cost Allocation Study (“2014 CAS”). Schedule 13-1 shows how Maritime Electric’s power supply costs were classified in the 2014 CAS.

| <b>Schedule 13-1</b>                                               |                          |                           |
|--------------------------------------------------------------------|--------------------------|---------------------------|
| <b>Classification of Maritime Electric 2014 Power Supply Costs</b> |                          |                           |
|                                                                    | <b>Demand Related</b>    | <b>Energy Related</b>     |
| On-Island Oil-Fired Units                                          | 100%                     | -                         |
| Point Lepreau Participation                                        | 95%<br>(all fixed costs) | 5%<br>(fuel related only) |
| Wind Power Purchase Agreements (PPAs)                              | --                       | 100%                      |
| Short Term Capacity Purchases from NB Power                        | 100%                     | --                        |
| System Energy Purchases from NB Power                              | --                       | 100%                      |

For the Company’s on-Island oil-fired units, the fuel costs were classified as 100 per cent Demand related (the same as in previous studies) because of the limited number of hours of operation of the units and in recognition of the fact that a certain minimum amount of operation is needed each year for equipment testing and operator training. The wind power purchase costs, however, were classified as 100 per cent Energy related and, as such, did not recognize any of the potential Demand related capacity value derived from these contracts.

The costs associated with the Company’s 30 MW participation in the Point Lepreau Nuclear Generating Station (“Lepreau”) were classified as 95 per cent Demand related and 5 per cent Energy related. This was based on classifying all fixed costs as Demand related and only fuel costs as Energy related which is consistent with the Fixed and Variable classification method that was used for power supply costs in the 2014 CAS and in previous cost allocation studies. A drawback of the Fixed and Variable method is that it does not recognize that a significant portion of the fixed costs for a base load generating plant, such as Point Lepreau, are incurred to produce base load energy, and thus could be more appropriately classified as Energy related rather than Demand related.

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Further details and analysis with respect to these items are outlined in the Lepreau Classification Study, Commission Docket UE22502.

**13.2.3 Recommendations**

Upon review of these three areas, the Lepreau Classification Study recommends the following changes to the classification of power supply costs for future cost allocation studies:

1. Classify 25 per cent of Lepreau fixed costs as Demand related and 75 per cent as Energy related. This will reflect the fact that most of the fixed costs for a nuclear generating plant are incurred to provide base load energy. The 25 per cent Demand/75 per cent Energy split is representative of the results of applying several alternative classification methods to Lepreau fixed costs;
2. Classify all combustion turbine fuel costs as Energy related. This will reflect the fact that most fuel usage by the Company's combustion turbines occurs to supply energy for the system. Fuel costs for the Charlottetown Thermal Generating Station ("CTGS") should continue to be classified as Demand related because most fuel usage at the CTGS occurs for equipment testing, operator training and plant heating; and
3. Classify wind power purchase costs as Demand related in the same proportion that wind power nameplate capacity is counted as capacity for generating capacity planning purposes. Currently this proportion is 23 per cent (i.e. 23 per cent of the 92 MW of wind power that Maritime Electric purchases, equal to 21 MW, is counted as capacity toward meeting the Company's planning reserve requirement).

Schedule 13-2 below shows the cost shift that would have resulted in the 2014 CAS had these proposed changes to the classification of power supply costs been in effect.

**SECTION 13 – COST ALLOCATION STUDY**

| <b>Schedule 13-2</b>                                                   |                                     |                                     |                                                    |                                     |
|------------------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------------------|-------------------------------------|
| <b>Impact of Proposed Cost Allocation Study Classification Changes</b> |                                     |                                     |                                                    |                                     |
|                                                                        | <b>As classified in 2014 Study</b>  |                                     | <b>Classification result with proposed changes</b> |                                     |
|                                                                        | <b>Demand Related (\$ millions)</b> | <b>Energy Related (\$ millions)</b> | <b>Demand Related (\$ millions)</b>                | <b>Energy Related (\$ millions)</b> |
| Point Lepreau Participation                                            | 19.9                                | -                                   | 5.0                                                | 14.9                                |
| Combustion Turbine Fuel Costs                                          | 1.2                                 | -                                   | -                                                  | 1.2                                 |
| Wind Power Purchase Agreements                                         | -                                   | 23.0                                | 5.3                                                | 17.7                                |
| <b>Total</b>                                                           | <b>21.1</b>                         | <b>23.0</b>                         | <b>10.3</b>                                        | <b>33.8</b>                         |
| Overall shift from Demand to Energy related (\$ millions)              |                                     |                                     | (10.8)                                             | 10.8                                |

The impact of the proposed classification changes on the Revenue-to-Cost ("RTC") ratios in the 2014 CAS is shown in Schedule 13-3 below.

| <b>Schedule 13-3</b>                                                       |                                                           |                                                 |
|----------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|
| <b>Impact of Proposed Classification Changes on Revenue-to-Cost Ratios</b> |                                                           |                                                 |
| <b>Rate Class</b>                                                          | <b>Existing RTC with Lepreau 95% Demand and 5% Energy</b> | <b>RTC with proposed classification changes</b> |
| Residential                                                                | 92                                                        | 93                                              |
| Residential - Seasonal                                                     | 97                                                        | 94                                              |
| Residential - Farms                                                        | 81                                                        | 82                                              |
| General Service I                                                          | 117                                                       | 116                                             |
| General Service I - Seasonal                                               | 115                                                       | 109                                             |
| General Service II                                                         | 120                                                       | 118                                             |
| Small Industrial                                                           | 96                                                        | 95                                              |
| Large Industrial                                                           | 100                                                       | 97                                              |
| Street and Area Lighting                                                   | 103                                                       | 104                                             |
| Unmetered                                                                  | 103                                                       | 102                                             |

The Company proposes that the Commission approve the recommendations of the Lepreau Classification Study with respect to the classification of certain power supply costs.

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The 2017 Cost Allocation Study, as discussed in the following section, has been prepared on the basis of the recommendations from the Lepreau Classification Study as noted above.

### **13.3 2017 Cost Allocation Study**

#### **13.3.1 Overview**

Maritime Electric retained Chymko Consulting Ltd. (“Chymko”), a firm with expertise in performing cost allocations studies, to perform the 2017 Cost Allocation Study (the “2017 CAS”). Chymko also prepared the previous 2014 CAS which was filed with IRAC on October 28, 2015. The 2017 CAS consists of a technical update to the previous study based on the Company’s financial results for the twelve months ending December 31, 2017 and incorporating the recommendations of the Point Lepreau Cost Allocation Classification Study discussed in the previous section.

The 2017 CAS was filed with IRAC on June 28, 2018 pursuant to Commission Order UE16-04 and is included in this evidence as Appendix 14.

The following sections provide details on the methodology applied in the 2017 CAS, analysis of the results and conclusions, as well as the Company’s proposals with respect to the proposed adjustments within certain rate classes derived from the Study’s results.

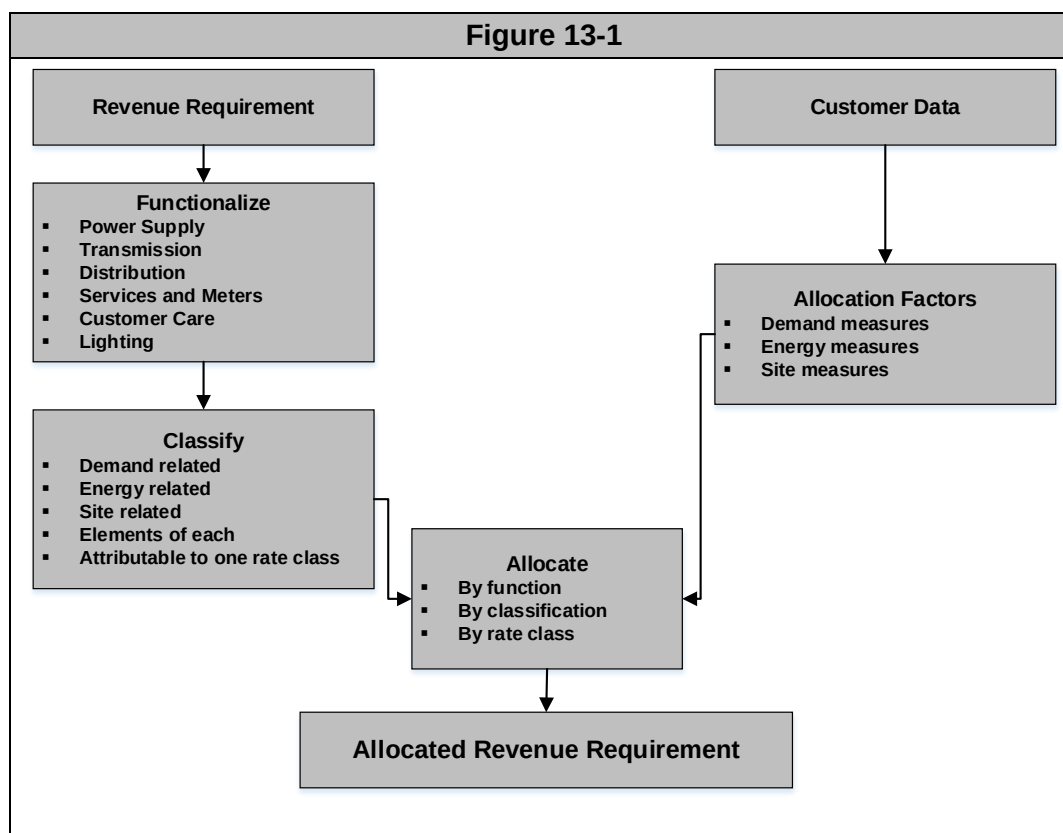
#### **13.3.2 Cost Allocation Study Methodology**

A Cost Allocation Study provides a benchmark to guide rate design. Generally, utilities record the revenue received from each group, or class, of customers, whereas the cost of providing service to each class is not tracked at the class level. As a result, the objective of a Cost Allocation Study is to allocate the utility’s total cost of providing service among the various classes of customers to provide a comparison between the revenues and allocated costs for each rate class as part of determining whether rates are just and reasonable. These studies follow a structured approach and generally accepted principles that have evolved over years of regulatory oversight and rulings.

The 2017 CAS follows these generally accepted principles. The Study first functionalizes revenue requirement (in this case, the Company's 2017 Statement of Earnings) which represents the Company's cost of providing service to its customers and attributes the full cost of service to the following specific purposes: power supply, transmission, distribution network, service and metering, customer care and lighting.

Next, the Study classifies each function as either demand related, energy related or site related depending upon how the cost of that function might vary with how end-use customers use the system. Finally, the Study allocates the functionalized and classified expenses to the various rate classes. The 2017 CAS follows the same methodology used in the 2014 CAS.

This structured process used in conducting cost allocation studies is illustrated in Figure 13-1 below.



The following provides an overview of each step of the process used by Chymko in preparing the 2017 CAS:

a. Functionalization<sup>7</sup>

The process begins with the Company's Statement of Earnings for the year ended December 31, 2017, as summarized in Table 1 on Page 6 of the 2017 CAS, which shows a net revenue requirement (i.e. cost of providing service) of approximately \$182.6 million.

The 2017 CAS then attributes the \$182.6 million revenue requirement to one of sixteen functions in the areas of power supply, transmission, distribution, services and metering, customer care and lighting.

The first objective in functionalization is to attribute, or directly assign, as much of the revenue requirement as possible to a given function without the need to undertake any allocations. Based upon the Company's financial accounting records, approximately 63 per cent of the total net revenue requirement was directly assignable. Other costs representing approximately 32 per cent of net revenue requirement including amortization, debt financing, earnings and corporate income taxes were allocated to the various functions based on the same proportion as the underlying capital asset and facilities infrastructure. The remainder of net revenue requirement was allocated based on underlying labour proportions or through professional judgement.

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<sup>7</sup> Appendix 14 - 2017 CAS - Pages 6 - 12



## **SECTION 13 – COST ALLOCATION STUDY**

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The functionalized revenue requirement is summarized in Schedule 13-4 below:

| <b>Schedule 13-4</b>                                    |                     |
|---------------------------------------------------------|---------------------|
| <b>Functionalized Revenue Requirement (\$ millions)</b> |                     |
| Power Supply Costs                                      | 126.1               |
| Transmission Costs                                      | 12.3                |
| Distribution Costs                                      | 33.2                |
| Services and Meters Costs                               | 9.1                 |
| Customer Care Costs                                     | 1.1                 |
| Lighting Costs                                          | <u>0.8</u>          |
| <b>Functionalized Revenue Requirement</b>               | <b><u>182.6</u></b> |

b. Classification<sup>8</sup>

Functionalized revenue requirement is next classified based on the generally accepted cost drivers that are measured in terms of how customers use the system. Costs associated with upstream functions (transmission, generation and substations) are generally accepted to be driven by the peak demand placed on the system. Downstream functions, such as services and metering, are generally driven by the number of sites (points of delivery) served.

The following provides an overview of the methodology used to classify net revenue requirement into categories of demand, energy and site-related:

i. Power Supply

The Company's energy supply costs are driven by both peak demand and energy consumed. Consistent with previous studies, energy purchases from NB Power are classified as energy related while the cost of the Company's Energy Control Centre (ECC) is classified as 95 per cent energy related (because the main purpose of the ECC is to manage and coordinate the delivery of energy supply) and 5 per cent demand related (because a portion of ECC activities support long-term resource planning).

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<sup>8</sup> Appendix 14 - 2017 CAS - Pages 13-17

As discussed in Section 13.2 of the evidence, the Lepreau Classification Study recommended the following changes that have been adopted in the 2017 CAS:

- 25 per cent of the Point Lepreau annual power supply costs are classified as demand related and 75 per cent are classified as energy related. In prior studies, the allocation was 95 per cent demand related and 5 per cent energy related.
- 100 per cent of the generation fuel costs for the Company's three on-island combustion turbines are classified as energy related. Previously, these costs were classified as demand related.
- 23 per cent of wind power purchase costs are classified as demand related and 77 per cent are classified as energy related. In previous studies, wind power purchase costs were classified as 100 per cent energy related.

ii. Transmission

Transmission lines are part of the bulk energy delivery system and are generally unaffected by the addition of one or more customers. As a result, the associated costs are considered to be demand related and are allocated in the Study on the basis of coincident peak demand.

iii. Distribution

Similar to transmission, substations are also part of the bulk energy delivery system and are generally unaffected by the addition of one or more customers. As a result, the associated costs are classified as demand-related and are allocated on the basis of coincident peak demand.

Other functions of the distribution system including primary lines, transformers and secondary lines are designed to meet peak demand. However, because the base level cost to meet peak demand will increase as more customers are added to the system there is also a site-related

component for these functions. As a result, lines are classified in the 2017 CAS as 50 per cent demand related and 50 per cent site related while transformers are classified as 60 per cent demand related and 40 per cent site related.

iv. Services, Metering and Customer Care

All of these functions are classified as site related as it is generally recognized that the cost of these functions will primarily vary with the number of customers served.

The outcome of the classification process results in the classified revenue requirement and is summarized in Schedule 13-5 below:

| <b>Schedule 13-5</b>                                |                     |
|-----------------------------------------------------|---------------------|
| <b>Classified Revenue Requirement (\$ millions)</b> |                     |
| Demand                                              | 57.8                |
| Energy                                              | 99.7                |
| Site Related                                        | <u>25.1</u>         |
| <b>Functionalized Revenue Requirement</b>           | <b><u>182.6</u></b> |

c. Allocation<sup>9</sup>

The final step following classification is to allocate revenue requirement to rate classes. The development of allocation factors starts with the collection of the Company's system load data and billing statistics. The choice of allocation factor is substantially influenced by classification. Demand related costs are allocated by the same proportion as the peak demand of each rate class. Energy costs are allocated based on energy sales and site related costs by the relative number of sites within each rate class.

The peak demand allocators, and the summary distribution for each allocator (coincident peak (kW), coincident peak-firm (kW), non-coincident peak (kW), energy (MWh) and sites) are provided in Table 7 of the Study on Page 20.

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<sup>9</sup> Appendix 14: 2017 CAS - Pages 18-23

## SECTION 13 – COST ALLOCATION STUDY

### 13.3.3 Cost Allocation Study Results and Conclusions

#### A. Summary of Results<sup>10</sup>

The Company's fully allocated revenue requirement of \$182.6 million, and cost of providing service by rate class, is presented in Schedule 13-6 below:

| Schedule 13-6                                                        |                    |                    |                   |                   |                   |                   |                                  |
|----------------------------------------------------------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|----------------------------------|
| Allocated 2017 Maritime Electric Cost of Providing Service (\$,000)* |                    |                    |                   |                   |                   |                   |                                  |
|                                                                      | Operating Expenses | Financing Expenses | Gross Expenses    | OATT Revenue      | Other Revenue     | Net Expenses      | Per cent Share of Allocated Cost |
| Residential                                                          | \$ 63,270          | \$ 31,019          | \$ 94,288         | \$ (1,093)        | \$ (1,389)        | \$ 91,806         | 50.3%                            |
| Residential (S)                                                      | 2,461              | 2,162              | 4,623             | (12)              | (98)              | 4,512             | 2.5%                             |
| Residential Farm                                                     | 6,177              | 2,375              | 8,552             | (113)             | (67)              | 8,372             | 4.6%                             |
| General Service I                                                    | 37,724             | 10,886             | 48,610            | (445)             | (285)             | 47,880            | 26.2%                            |
| General Service I (S)                                                | 896                | 694                | 1,590             | (0)               | (26)              | 1,565             | 0.9%                             |
| Small Industrial                                                     | 8,973              | 2,602              | 11,575            | (112)             | (61)              | 11,402            | 6.2%                             |
| Large Industrial                                                     | 12,392             | 1,864              | 14,256            | (125)             | (16)              | 14,115            | 7.7%                             |
| Lights                                                               | 954                | 1,644              | 2,598             | (11)              | (28)              | 2,559             | 1.4%                             |
| Unmetered                                                            | 296                | 99                 | 395               | (3)               | (2)               | 391               | 0.2%                             |
| <b>Total</b>                                                         | <b>\$ 133,143</b>  | <b>\$ 53,344</b>   | <b>\$ 186,488</b> | <b>\$ (1,914)</b> | <b>\$ (1,973)</b> | <b>\$ 182,601</b> | <b>100.0 %</b>                   |

\* May not sum to total due to rounding

The revenue to cost (or "RTC") ratios, which compare the revenue collected from each rate class with the allocated cost of providing service to each rate class, including a comparison to the results of the 2014 CAS, are presented in Schedule 13-7 and is provided in Table 11 of the Study on Page 25.

<sup>10</sup> Appendix 14: 2017 CAS - Pages 20-28

| <b>Schedule 13-7</b>                                                             |                          |                       |                                   |                      |
|----------------------------------------------------------------------------------|--------------------------|-----------------------|-----------------------------------|----------------------|
| <b>2017 Collected Revenue and Allocated Costs and Revenue to Cost Ratios (%)</b> |                          |                       |                                   |                      |
|                                                                                  | <b>Revenue Collected</b> | <b>Allocated Cost</b> | <b>Revenue to Cost Ratio 2017</b> | <b>2014 CA Study</b> |
| Residential                                                                      | 45.9                     | 50.3                  | 91                                | 92                   |
| Residential (S)                                                                  | 2.4                      | 2.5                   | 96                                | 97                   |
| Residential Farm                                                                 | 3.8                      | 4.6                   | 82                                | 81                   |
| General Service I                                                                | 31.9                     | 26.2                  | 122                               | 117                  |
| General Service I (S)                                                            | 1.0                      | 0.9                   | 113                               | 115                  |
| Small Industrial                                                                 | 6.4                      | 6.2                   | 102                               | 96                   |
| Large Industrial                                                                 | 7.2                      | 7.7                   | 94                                | 100                  |
| Lights                                                                           | 1.3                      | 1.4                   | 91                                | 103                  |
| Unmetered                                                                        | 0.2                      | 0.2                   | 104                               | 103                  |
| <b>Total</b>                                                                     | <b>100.0%</b>            | <b>100.0%</b>         | <b>100%</b>                       | <b>100%</b>          |

B. Conclusions from 2017 CAS

The objective of a Cost Allocation Study is to allocate the cost of providing service to rate classes on a cost causation basis; therefore, a revenue to cost ratio below 100 per cent indicates revenue should be increased for that rate class while a ratio above 100 per cent indicates that revenue for that rate class should be lower.

The preamble to the Electric Power Act states:

*Whereas the rates, tolls and charges for electric power should be reasonable, publically justifiable and not discriminatory.*

One of the criteria followed to ensure fairness to all customers' is that rates should be based on the cost of providing this service.

The Company makes the following observations and conclusions as a result of the completion of the 2017 CAS.

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i. Consistency of Results

The RTC ratio results from the 2017 CAS are reasonably consistent with the results of the 2014 CAS. The residential rate class continues to reflect a RTC ratio below 100 per cent indicating that revenue is lower than allocated costs in this rate class while General Service continues to show a RTC ratio above 100 per cent indicating that revenue is higher than allocated costs within the General Service classes.

Similar to the 2014 CAS, farms which are currently part of the Residential rate class, were segregated from other residential customers to determine a specific RTC ratio for farm customers. The RTC ratio for farms continues to be below 100 per cent indicating that revenue is lower than allocated costs for this group of customers.

The Large Industrial rate class RTC ratio is below 100 per cent in the 2017 CAS as compared to the 2014 study result of 100 per cent. This indicates that revenue is less than allocated costs for this rate class.

The Lighting rate class RTC ratio result of 91 per cent shows a decrease in the RTC compared to the results of previous study. This is substantially attributable to the LED streetlight conversion program which has resulted in increased capital costs from new light addition and reduced sales in the class.

ii. Study Methodology

The 2017 CAS follows substantially the same basic principles used in previous cost allocation studies which facilitates a more meaningful comparison of results over time. The only changes in methodology adopted in the 2017 CAS are derived from the Point Lepreau Cost Allocation Classification Study as discussed in Section 13.2 of this evidence.

iii. RTC Ratio Objectives

It is the Company's position that achieving RTC ratios of between 90 per cent and 110 per cent over an appropriate transition period is a reasonable objective. This objective is supported in the conclusion reached by Chymko who state:

*... What is generally accepted to be a reasonable revenue to cost ratio will vary among Canadian provinces and regulators. For MECL's specific circumstances, Chymko Consulting considers 100% to be a long-term objective, but variances in any given year would be expected and reasonable. ...*

*... Pending further rate design analysis, it may be necessary to compromise revenue to cost ratio objectives in the short run so as to mitigate rate shock for one or more rate classes or even subsets of customers within rate classes. In this situation, a short to medium term objective of transitioning customer rates toward a revenue to cost ratio between 90% and 110% may be more reasonable.*

The transition period over which the rate classes are transitioned to RTCs between 90 per cent and 110 per cent must be balanced against the impact on customer electricity costs and the risk of rate shock to customers. In the final remarks of the 2017 CAS, Chymko states:

*MECL's existing rate structure presents a number of challenges simply because the basic form and structure has changed only nominally for approximately twenty years. Customer acceptance is an important consideration in rate design and the longevity of the existing structure may make some changes, regardless of their merit, more difficult to accept. It is for this reason that cost allocation*

*results alone should not be the determining factor for rates. The revenue to cost ratios in Table 11 indicates that some rates might need to change significantly. Pending further analysis of any such change, it may well be that rate rebalancing would need to be implemented gradually over the course of multiple years.*

#### **13.4 Cost Allocation Study Analysis and Recommendations**

The following is an analysis of the 2017 CAS results by rate class along with the Company's corresponding recommendations with respect to rate adjustments within the rate classes. This analysis and the resulting recommendations constitute the Company's undertaking of a rate design study as ordered by the Commission.

##### **13.4.1 Residential Rate Classes**

As defined in Section N of the Company's Rates and General Rules and Regulations, the Residential rate applies to:

- customers who use electricity for domestic living purposes (homes, apartments, etc.);
- farms;
- churches;
- seasonal dwellings;
- premises providing lodging with nine beds or less; and
- a combined dwelling and business operation (measured by one meter, where connected load is two kilowatts or less, excluding heating and air conditioning).

For over 20 years, the Company has followed the rate schedules and regulatory policies of New Brunswick Power which were adopted during a period of price cap regulation through legislation. With the exception of some modifications to the regulations and minor changes within the Residential and General Service classes, adjustments to rates within rate classes, as a result of recommendations from cost allocation studies, have not been implemented. For example, the Residential Class second block was last changed from 1,200 kWh to 2,000 kWh in 2008-2009 and the General Service rate class



was last changed in 2016 by combining the General Service I and General Service II rate classes.

As noted in Section 13.3.3, the 2017 CAS separated the Residential class into three groups for purposes of determining each group's RTC. Schedule 13-7 in that section shows that the Residential customer group (domestic) has an RTC of 91, the Seasonal Residential group has an RTC of 96 and the Farm Residential group has an RTC of 82 which is below the Company's 90 – 110 RTC objective. As a whole, the Residential class (domestic, seasonal and farm) has an overall RTC of 91 which is within the Company's 90-110 RTC objective.

Within the Residential rate class, the Company is proposing two changes based on the results of the 2017 CAS that are in addition to the proposed general rate adjustment for the benchmark typical residential customer. As the following analysis shows, the proposed changes are expected to be substantially revenue neutral for the class as a whole but will have differing impacts on customers within the Residential class depending on their Urban/Rural classification and consumption levels.

First, the Company is proposing that the segregation of Rural and Urban customers be discontinued and that the monthly service charge for all Residential customers be set at the current lower Urban rate of \$24.57, resulting in a decrease of \$2.35 per month for former Rural customers. Based on the 2017 CAS, this proposed change will result in a lower monthly service charge for approximately 42,000 Residential customers (currently classified as Rural) and an overall reduction in total revenue from the Residential rate class of approximately \$990,000 per year as calculated in Schedule 13-12 of this evidence.

Second, it is proposed that the Residential class second block threshold be phased out during the currently proposed three year rate setting period such that after three years (effective March 1, 2022) there will only be a single rate for residential energy consumption. It is proposed that this be achieved by increasing the second block threshold commencing March 1, 2021 to 5,000 kWh as summarized in Schedule 13-8 below:

| <b>Schedule 13-8</b>                                           |       |
|----------------------------------------------------------------|-------|
| <b>Proposed Residential Second Block Threshold (kWh/month)</b> |       |
| Current                                                        | 2,000 |
| March 1, 2019                                                  | 2,000 |
| March 1, 2020                                                  | 2,000 |
| March 1, 2021                                                  | 5,000 |

Based on 2017 Residential class consumption data and using the Residential class rates effective March 1, 2018, this proposed change is expected to generate incremental revenue in the Residential class of approximately \$1,252,000 as calculated in Schedule 13-12 of this evidence.

**A. Reduce Rural Service Charges**

Prior to adopting the NB Power rules and rate structures under price cap regulation, Maritime Electric had three Residential rate class groups: City, Town and Rural, each of which had a different service charge. Although steps were in place to transition towards the consolidation of these separate groups into one class, the legislative changes to implement price cap regulation required the Company to adopt the current Urban and Rural classification within the Residential rate class.

Historically, there was a cost allocation justification for segregating customers within the Residential rate class based on their geographic location and therefore charging a different service charge due to differences in the cost of serving different locations. Due to the lack of customer density in the rural areas, the utility incurred incremental costs associated with meter reading, line construction and installation of line equipment such as transformers.

However, with changes in meter reading technology and increases in customer density throughout PEI, the cost differential between these groups is no longer considered material. As a result, the Company believes it is no longer appropriate to segregate the Urban and Rural customer groups within the

Residential rate class and, therefore, proposes that they be combined as one group with the same monthly service charge.

The current monthly service charge rates in the Residential class are \$24.57 per month for Urban customers, \$26.92 per month for Rural and Seasonal customers and a Residential Seasonal option customer monthly rate of \$37.50 (billed from May to October). The purpose of the monthly service charge is to recover the customer or site related costs associated with the rate class. Site related costs start with a portion of the primary distribution lines (25 kV, 13.8 kV and 12.5 kV) and move downstream to include a portion of pole-mounted and padmounted transformer costs as well as the costs associated with service lines, metering, meter reading, billing and other customer related costs.

Table 12 in the 2017 CAS provides a calculation of unit cost results for consideration in rate design. As Chymko states in Paragraph 84 of the 2017 CAS:

*Site related unit cost gives some indication for an appropriate service charge. Given that the service line, meter and billing costs are all considered site related, a monthly service charge equal to unit cost would at least ensure the utility is recovering the localized fixed costs from every customer regardless of their consumption.*

The Residential site related monthly cost calculated by Chymko in the 2017 CAS is \$24.61 per month which is substantially the same as the current monthly service charge for Urban customers at \$24.57 per month. As a result, the Company proposes that upon combining the Urban and Rural residential customers as a single group that the monthly service charge for all year round residential customers (excluding Optional Seasonal rate code 133) be set at the currently approved rate of \$24.57 per month (rate code 110).

Although this proposed change has a negative impact on the RTC for the Residential rate class overall, the Company asserts that this remains a just and reasonable approach to treat Urban and Rural customers equitably regardless of their geographic location. In addition, the revenue lost as a result of this change is expected to be offset by the further proposed changes with respect to the Residential rate second block discussed in the following section.

**B. Residential Second Block**

**i. Background**

The Company's last General Rate Application filed on October 28, 2015 presented evidence in support of a proposed phase out of the residential declining second block rate over a three year period. Subsequent to that filing, Maritime Electric and the Province of PEI negotiated a General Rate Agreement which, among other things, deferred the proposed phase out of the second block pending the completion of the PEI Provincial Energy Strategy and the Provincial DSM plan and to allow for consultation with impacted consumers.

The Commission, in Order UE16-04, accepted the proposal to defer the changes to the residential second block but ordered the Company to undertake a rate design study to consider changes to the multi-block Residential energy pricing structure and related changes to the Company's other rate structures. The Commission states at paragraph 59 of the Order:

*The Commission views the continued existence of the residential second block as being contrary to the principles behind the EPA, which directs that the rates, tolls and charges for electric power should be reasonable, publicly justifiable and non-discriminatory. The Commission fully expects that Maritime Electric and the Government will work together over the next two years to develop a*

*proposed rate structure that is fair and non-discriminatory for all ratepayers. Given the evidence presented on this application regarding the cross-subsidization of rate classes, the Commission is hereby putting Maritime Electric and the Government on notice that any proposed continuation of the residential second block rate in future rate applications will require compelling evidence of its equity to ratepayers.*

Maritime Electric and the Province have worked together and continue to have ongoing discussions with respect to the Residential second block. The Company has provided input to the PEIEC on its EE&C Plan (Commission Docket UE41400) and, through the load and consumption study for farms, as well as the proposed Load Research Study, the Company will gather the data necessary to develop consumption and rate mitigation solutions for customers impacted by the proposed second block changes.

As noted in the 2015 General Rate Application filing, PEI is the only remaining province in Canada where a residential declining block rate exists. The declining block rate structure was initially promoted in the early years of electrification when utilities had excess capacity for significant portions of the day and sought ways to promote the use of electricity on a consistent basis.

Today, this level of available capacity is not as prevalent and the use of the declining residential second block rate structure inappropriately communicates that the cost of energy decreases with each kWh consumed. This is not consistent with the Company's energy supply contract pricing structure nor its use of available generating equipment. As well, in an age where utilities and customers are seeking to promote energy conservation to defer investments in new capacity and reduce

customer electricity costs, the declining residential second block rate sends the wrong price signal to customers.

ii. **Residential Class Customer Profile**

As discussed previously, in addition to domestic dwellings, the Residential rate class also includes churches, lodging businesses and farms. Varying types of customers will all have different energy consumption profiles.

The proposed phase out of the second block threshold will affect high energy consumption customers such as electric resistive heat customers and farms more so than traditional domestic residential customers. However, the overall impact to each of these types of customers will be dependent upon their level of energy consumption throughout the year. For example, electric resistive heat customers may expect to exceed the proposed second block threshold during the winter heating months but will likely remain in the first block only during the warmer spring to fall months. A farm, depending upon its size of operation, may consistently consume energy above the second block threshold throughout the entire year and, thus may experience a greater impact from second block changes.

Schedule 13-9 below provides an overview of the number of farm and non-farm residential customers in various monthly consumption ranges for the months of February 2017 and July 2017.

## SECTION 13 – COST ALLOCATION STUDY

**Schedule 13-9**

**Number of Residential Customers by Monthly Consumption Range\***

**February 2017 and July 2017**

| Monthly Consumption Range (kWh) | February 2017 Customers |               |               |               |               |               | July 2017 Customers |               |               |               |               |               |
|---------------------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|
|                                 | Farm                    |               | Non-Farm      |               | Total         |               | Farm                |               | Non-Farm      |               | Total         |               |
|                                 | Customers               | %             | Customers     | %             | Customers     | %             | Customers           | %             | Customers     | %             | Customers     | %             |
| 1 to 650                        | 641                     |               | 27,752        |               | 28,393        |               | 1,163               |               | 45,053        |               | 46,216        |               |
| 651 to 1,300                    | 431                     |               | 15,766        |               | 16,197        |               | 493                 |               | 16,263        |               | 16,756        |               |
| 1,301 to 2,000                  | 297                     | 68.3%         | 6,458         | 87.8%         | 6,755         | 87.2%         | 115                 | 86.4%         | 2,000         | 98.8%         | 2,115         | 98.4%         |
| 2,001 to 5,000                  | 333                     | 16.6%         | 6,477         | 11.4%         | 6,810         | 11.5%         | 136                 | 6.6%          | 678           | 1.1%          | 814           | 1.3%          |
| 5,001 to 10,000                 | 168                     |               | 392           |               | 560           |               | 80                  |               | 63            |               | 143           |               |
| 10,000 and greater              | 134                     | 15.1%         | 48            | 0.8%          | 182           | 1.3%          | 64                  | 7.0%          | 14            | 0.1%          | 78            | 0.3%          |
| <b>TOTAL</b>                    | <b>2,004</b>            | <b>100.0%</b> | <b>56,893</b> | <b>100.0%</b> | <b>58,897</b> | <b>100.0%</b> | <b>2,051</b>        | <b>100.0%</b> | <b>64,071</b> | <b>100.0%</b> | <b>66,122</b> | <b>100.0%</b> |

\* Includes all Residential Customers (year round and seasonal)

The number of customers varies in total between February 2017 and July 2017 due to the Seasonal Residential rate option available to residential customers as well as fluctuations due to customer connections and disconnections. In addition, the number of customers within each consumption range will also vary between months reflecting the heating, lighting and weather conditions and their resulting impact on customer consumption levels.

Based on the 2017 data, the proposed increase to the second block threshold on March 1, 2021 to 5,000 kWh will impact approximately 11.5 per cent of Residential customers (approximately 6,810 customers) during the October-March period. During the remaining April-September period, it is estimated that approximately 814 customers or 1.3 per cent of Residential customers will be affected.

Of the 6,810 customers affected in the October-March period, 333 customers are classified as farms while the remaining 6,477 are other Residential customers. Likewise, of the 814 customers affected in the April-September period, 136 are classified as farms while the remaining

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678 are other Residential customers. By leaving the second block threshold at 2,000 kWh until March 1, 2021, higher use Residential customers will have sufficient time to assess the impact on their annual electricity costs and take steps to reduce energy consumption where possible. In addition, it will allow the Company additional time to complete its study of farm customers and a Load Research Study as discussed in the following section. The results of these studies will be used to continue working with the Province to develop and improve the current rate structure and to submit recommendations to IRAC for approval.

**Summary**

Overall, the proposed increase to the second block threshold on March 1, 2021, and its planned elimination effective March 1, 2022, will affect approximately 12.8 per cent or 7,552 customers during the October-March period (87.2 per cent of Residential customers will not be affected at all by the proposed changes) while during the April-September period, the proposed changes will impact only 1.6 per cent or 1,035 customers (98.4 per cent of customers will not be affected). Maritime Electric considers transitioning the Residential rate class to a 5,000 kWh per month threshold on March 1, 2021 appropriate to capture substantially all domestic Residential customers within the first block while providing affected customers with the time to assess and prepare for the change.

**iii. Farms**

As shown in Schedule 13-10 below, in 2017 the Company's billing records indicated between 2,004 to 2,051 Residential customers with a classification related to farms during the year. Of those customers, 1,369 (or 68 per cent) fall below the current second block threshold of 2,000 kWh/month in February while 1,771 (or 86 per cent) fall below the 2,000 kWh second block threshold in July.



| <b>Schedule 13-10</b>                                                 |                 |              |
|-----------------------------------------------------------------------|-----------------|--------------|
| <b>Residential Farm Customers by Monthly Consumption Range – 2017</b> |                 |              |
| <b>Annual Consumption Range<br/>(kWh)</b>                             | <b>February</b> | <b>July</b>  |
| 1 to 650                                                              | 641             | 1,163        |
| 651 to 1,300                                                          | 431             | 493          |
| 1,301 to 2,000                                                        | 297             | 115          |
| 2,001 to 5,000                                                        | 333             | 136          |
| 5,001 to 10,000                                                       | 168             | 80           |
| 10,001 and greater                                                    | 134             | 64           |
| <b>Total</b>                                                          | <b>2,004</b>    | <b>2,051</b> |

While farms fall within the Residential rate class in both New Brunswick and PEI, the classification of farms varies across the rest of Canada. Schedule 13-11 below provides an overview of the Company's last review of the classification of farms across Canada.

**SECTION 13 – COST ALLOCATION STUDY**

| <b>Schedule 13-11</b>                                               |                 |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|-----------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Classification of Farms Within Canadian Utility Rate Classes</b> |                 |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Utility</b>                                                      | <b>Province</b> | <b>Included in Residential Rate Class</b> | <b>Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| BC Hydro                                                            | BC              | In Part                                   | Farm use in conjunction with a single family dwelling (and where the farm does not produce products from another farm, has only farming-related commercial activities and has no more than a small roadside stand to sell products directly to the public) is served under the residential tariff. General Service rates apply to other farm use.                                                                                                                                                                                                                             |
| EPCOR Energy                                                        | AB              | No                                        | Farms are included in a separate farm rate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Sask Power                                                          | SK              | No                                        | Farms are included in a separate and specific rate class (E34).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Manitoba Hydro                                                      | MB              | In Part                                   | Farms included in residential rate schedules if demand of 50 kW or below. Farms with demand in excess of 50 kW classified under General Service.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Hydro One                                                           | ON              | In Part                                   | Farm use in conjunction with a primary residence is served under the residential (low density) tariff. Farms without a primary residence are served under the General Service rate classification.                                                                                                                                                                                                                                                                                                                                                                            |
| Hydro Quebec                                                        | QC              | In Part                                   | The residential (or domestic) rate is applicable to commercial farming given three conditions: 1) commercial activities must not exceed maximum load of 10 kW, 2) commercial and domestic use must be metered by a single meter and 3) commercial operations are carried out on a farm that is otherwise a residential farm. Farm Rate D includes fixed charge plus inclining block rate with second tier pricing applicable to consumption that is in excess of 912 kWh/month. If Rate D does not apply, the farm is billed at the appropriate commercial rate for its size. |
| NB Power                                                            | NB              | Yes                                       | Electricity supplied to a farm is subject to the residential rate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| NS Power                                                            | NS              | No                                        | The small industrial rate applies to farms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Newfoundland Power                                                  | NF              | No                                        | Electricity supplied to a farm is subject to the General Service rate classification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Maritime Electric                                                   | PE              | Yes                                       | Electricity supplied to a farm is subject to the residential rate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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The rate classifications applied to farms in other jurisdictions recognizes that larger farm operations can have consumption and demand profiles that may be more appropriately classified as commercial in nature and therefore included in a commercial rate class such as General Service, Small Industrial or Large Industrial. The determination of the appropriate rate classification for a farm operation requires a thorough understanding of the consumption and load profiles to support cost allocation which facilitates decisions regarding rate design for various customers' rate classifications.

As part of the Company's last General Rate Application proceeding and subsequent General Rate Agreement filing approved by the Commission, the Company recommended and was Ordered by IRAC to conduct a rate design study to consider changes to the multi-block residential pricing structure, and related changes to other rate structures, including recommendations with respect to farms. On April 17, 2018, the Commission issued Order UE18-02 allowing the Company to defer the filing of the rate design study until the Company filed its current General Rate Application.

The Company sought the deferral of the rate design filing to allow additional time to complete an updated Cost Allocation Study and to study farm customers currently included in the Residential rate class to better understand the load and usage patterns of these customers. The updated Cost Allocation Study was completed and filed with IRAC on June 29, 2018.

However, the meters required to complete the study on farm customers had specific design requirements which had to be ordered, produced by the supplier and tested by the Company prior to deployment in the field. As a result, the Company experienced delays in the delivery of the meters and installation could not be completed until March 2018.

As with any load study, to properly perform the load and usage analysis for farm customers, the Company requires at least one year of customer data (preferably two) in order to get an accurate and complete depiction of the customer's profile. With only six months of data accumulated to date, the Company is, therefore, not in a position to provide conclusive recommendations to the Commission (or farm customers) with respect to the recommended rate classification and resulting rates for farm customers.

The Company proposes that farm customers remain in the Residential rate class during the period covered by this Application such that farms, as with all Residential customers, would be subject to the proposed increase in the second block threshold from 2,000 kWh to 5,000 kWh on March 1, 2021. During this three year rate setting period, the Company expects to complete the farm study based on an appropriate set of data and be in a position to report the results to the Commission before the next rate setting application. This would allow sufficient time for the Commission to consider the results of the study. It will also enable an appropriate amount of time for the development of measures to mitigate the impact of any changes sought and for the Company to engage impacted farm customers and work with them as they transition to a new or different rate class on March 1, 2022.

**C. Impact of Residential Rate Class Recommendations**

For the Company, the estimated overall impact of the proposed changes to the Residential rate class revenue is calculated in Schedule 13-12 below:

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| Schedule 13-12                                                           |                           |                                   |                            |
|--------------------------------------------------------------------------|---------------------------|-----------------------------------|----------------------------|
| Impact of Residential Rate Class Changes on Total Revenue                |                           |                                   |                            |
| <b><u>Reduction in Rural Service Charge</u></b>                          |                           |                                   |                            |
| Urban Service Charge Rate per Month                                      | \$24.57                   | <sup>1</sup>                      |                            |
| Rural Service Charge Rate per Month                                      | <u>(26.92)</u>            | <sup>1</sup>                      |                            |
| Reduction in Monthly Service Charge for Rural                            | (2.35)                    |                                   |                            |
| Number of Rural Bills Issued in 2017                                     | <u>x 421,154</u>          | <sup>2</sup>                      |                            |
| Reduction in Residential Rate Class Revenue                              | \$(989,712)               |                                   | rounded \$(990,000)        |
| <b><u>Increase 2<sup>nd</sup> Block to 5,000 kWh – March 1, 2021</u></b> |                           |                                   |                            |
| 2017 Second Block Energy (MWh) <sup>2</sup>                              |                           |                                   |                            |
| - between 2,001-5,000 kWh                                                | 42,446                    | (a)                               |                            |
| <b><u>Approved Residential Rates (March 1, 2018)<sup>1</sup></u></b>     |                           |                                   |                            |
| - Block 1 Rate per kWh                                                   | \$0.1437                  |                                   |                            |
| - Block 2 Rate per kWh                                                   | <u>0.1142</u>             | <u>0.0295</u>                     | (b)                        |
| Increase in Residential Rate Class Revenue                               | (a) x (b) X 1,000         | <u>\$1,252,157</u>                | rounded \$1,252,000        |
| Net Impact of Proposals                                                  |                           |                                   | <u>\$262,000</u>           |
| <b><u>Impact on RTC</u></b>                                              |                           |                                   |                            |
|                                                                          | <b><u>2017 Actual</u></b> | <b><u>Incremental Revenue</u></b> | <b><u>2017 Revised</u></b> |
| Revenue                                                                  | 52.1                      | 0.262                             | 52.362                     |
| Allocated Cost                                                           | <u>57.4</u>               | —                                 | <u>57.4</u>                |
| Revenue to Cost Ratio                                                    | <u>90.8</u>               |                                   | <u>91.2</u>                |

<sup>1</sup> Section N-28, Rates and General Rules and Regulations, effective March 1, 2018.

<sup>2</sup> MECL Billing Data Analysis – Residential rate class

The above calculation, showing a net increase in Residential rate class revenue of approximately \$262,000, is an estimate based upon 2017 billing and consumption data along with those rates in effect as of March 1, 2018. The Company does not consider this to be material enough in amount to redistribute to other rate classes. However, as show in Schedule 13-12, the incremental revenue in the Residential rate class does improve the 2017 Residential class RTC from 90.8 to 91.2.

From a customer perspective, the impact of the proposed changes will be dependent upon the customer's consumption level and pattern as well as their current classification as either Urban or Rural. As noted previously in Schedule 13-9, 98.4 per cent of customers in July 2017 would not be impacted by the proposed second block changes and 87.2 per cent would not be impacted in February 2017. Likewise, the proposed

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service charge changes will not impact the approximately 25,000 Urban Residential customers but will result in lower costs for the approximately 42,000 Rural Residential customers.

The following schedules are presented to illustrate the impact of the proposed second block and service charge changes on rural and urban Residential customers considering the seasonality of customers' consumption patterns. The results are based upon a selection of actual customer consumption data from the Company's billing database using the current Residential electricity rates in effect until February 28, 2019.

Schedule 13-13 shows the incremental annual impact of the proposed second block and service charge changes on a Rural Residential customer for the period 2019-2021 before the proposed general rate increases.

| <b>Schedule 13-13</b>                                                   |             |          |             |          |             |          |                       |          |
|-------------------------------------------------------------------------|-------------|----------|-------------|----------|-------------|----------|-----------------------|----------|
| <b>Annual Impact of Second Block and Service Charge Changes – Rural</b> |             |          |             |          |             |          |                       |          |
| <b>Annual Consumption</b>                                               | <b>2019</b> |          | <b>2020</b> |          | <b>2021</b> |          | <b>3-Year Average</b> |          |
| <b>kWh</b>                                                              | <b>\$</b>   | <b>%</b> | <b>\$</b>   | <b>%</b> | <b>\$</b>   | <b>%</b> | <b>\$</b>             | <b>%</b> |
| <b>7,800</b>                                                            | (18.16)     | (1.3)    | (4.70)      | (0.3)    | -           | -        | (7.62)                | (0.5)    |
| <b>30,008</b>                                                           | (1.99)      | (0.0)    | (4.70)      | (0.1)    | 225.32      | 5.2      | 72.88                 | 1.7      |
| <b>42,009</b>                                                           | 2.54        | 0.0      | (4.70)      | (0.1)    | 417.54      | 7.2      | 138.46                | 2.4      |
| <b>54,030</b>                                                           | 29.96       | 0.4      | (4.70)      | (0.1)    | 487.75      | 7.0      | 171.00                | 2.4      |
| <b>90,060</b>                                                           | 9.08        | 0.1      | (4.70)      | (0.0)    | 708.00      | 6.3      | 237.46                | 2.1      |
| <b>146,280</b>                                                          | 53.96       | 0.3      | (4.70)      | (0.0)    | 885.00      | 5.0      | 311.42                | 1.8      |

Schedule 13-14 shows the incremental annual impact of the proposed second block and service charge changes on an Urban Residential customer for the period 2019-2021.

| Schedule 13-14                                                   |       |     |      |   |        |     |                |     |
|------------------------------------------------------------------|-------|-----|------|---|--------|-----|----------------|-----|
| Annual Impact of Second Block and Service Charge Changes – Urban |       |     |      |   |        |     |                |     |
| Annual Consumption                                               | 2019  |     | 2020 |   | 2021   |     | 3-Year Average |     |
| kWh                                                              | \$    | %   | \$   | % | \$     | %   | \$             | %   |
| 7,800                                                            | 5.34  | 0.4 | -    | - | -      | -   | 1.78           | 0.1 |
| 30,008                                                           | 21.51 | 0.5 | -    | - | 225.32 | 5.2 | 82.28          | 1.9 |
| 42,009                                                           | 26.04 | 0.5 | -    | - | 417.54 | 7.2 | 147.86         | 2.6 |
| 54,030                                                           | 53.46 | 0.8 | -    | - | 487.75 | 7.0 | 180.40         | 2.6 |
| 90,060                                                           | 32.58 | 0.3 | -    | - | 708.00 | 6.3 | 246.86         | 2.2 |
| 146,280                                                          | 77.46 | 0.4 | -    | - | 885.00 | 5.0 | 320.82         | 1.8 |

#### **13.4.2 General Service Rate Classes**

The 2017 CAS indicates a RTC of 122 per cent for the General Service rate class which remains outside the Company's proposed target 90 to 110 per cent RTC range. To enable the Company to develop recommendations and a course of action that will begin to transition this rate class towards the target RTC range further load and consumption data analysis needs to be completed.

The current project to gather and analyze the load and consumption data for farms included in the Residential rate class will provide valuable information to assist in properly classifying farm customers in the appropriate rate class. This farm study may conclude that some of these farm customers should be classified as commercial or general service customers which would impact the costs and revenues allocated to the General Service rate class and the resulting RTC.

In addition, the Company has proposed, in its 2019 Capital Budget Application (Commission Docket UE20728), to expand the 2018 Bridge Meter project to conduct a load research study for Residential and General Service customers. The current 2017 CAS results rely on estimates of peak loads for these rate classes based upon load research done in the early 1990s. The proposed load research study will provide a more accurate allocation of load to these classes which, in turn, will impact the allocated costs and resulting RTC.

The Company expects that the outcomes of these two planned studies will have an impact on the RTC for the General Service rate class in the next Cost Allocation Study proposed based upon financial results to 2020. As a result, the Company proposes that no rate design adjustments to the General Service rate class be made at this time, although the class would be subject to the general increase applicable to all rate classes.

**13.4.3 Small Industrial Rate Class**

The 2017 CAS indicates a RTC ratio of 102 per cent for the Small Industrial rate class. Since this result remains within the target 90 to 110 per cent RTC range proposed by the Company, no rate design adjustments to the Small Industrial rate structure are proposed in this Application. The Small Industrial rate class would be subject to the general increase applicable to all rate classes.

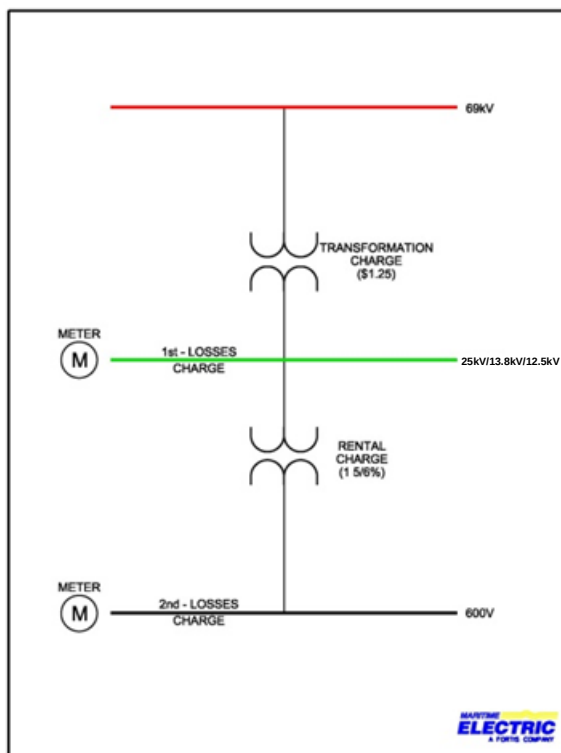
**13.4.4 Large Industrial Rate Class**

The 2017 CAS indicates a RTC ratio of 94 per cent for the Large Industrial rate class. Since this result is within the target 90 to 110 per cent RTC range proposed by the Company, no adjustments to the Large Industrial rate structure are proposed at this time. The Large Industrial rate class would be subject to the general increase applicable to all rate classes.

In addition, it is proposed that the Large Industrial Rate Schedule Guidelines on Pages N-9 and N-10 of the Rates and General Rules and Regulations (“GRR”) in Appendix 1 be updated to reflect a more accurate and complete description of the charges that may be applied to the Large Industrial customer based upon the voltage level of service provided.

Generally, the charges levied in the Large Industrial rate class are based upon providing service to the customer at 69 kV which is the expected metering point. However, there may be instances where the customer or the utility determine that service should be provided at a lesser voltage in which case additional fees for transformation, losses or rental charges may apply. The figure below illustrates when these charges apply based upon the voltage level of the service.





### **Transformation Charge**

This charge applies when the customer uses the Company's substation equipment to convert the level of service from transmission (69 kV) to a primary distribution voltage between 4 kV and 25 kV. The Company proposes the following updates to the Transformation Charge description on Page N-9 of the GRR:

### **Transformation Charge**

**- 69 kV to primary distribution voltage**

When a Customer is provided Service at a **primary distribution voltage between 4 kV and 25 kV** ~~voltages less than 69 kV~~, the Customer will also be charged an "equivalent kVA rental" charge equal to  $1\frac{5}{6}\%$  per month of the costs of the equivalent substation kVA utilized by the Customer's electrical load. The equivalent kVA charge is the Customer's kVA demand multiplied by \$1.25 per kVA per month.

**Losses Charges**

There can be two adjustments or charges for losses depending upon whether the customer is metered at a primary distribution voltage between 4 kV and 25 kV or at 600 V. If the customer is metered at a primary distribution voltage between 4 kV and 25 kV, there is one adjustment at 1.5 per cent; however, if the customer is metered at 600 V, there are two losses charges as illustrated in the figure above.

To clarify when one or both of these losses charges apply, the following changes to the Losses Charges description on Page N-9 of the GRR are proposed.

**Losses Charges**

*- 69 kV to primary distribution voltage*

*At the discretion of Maritime Electric, electricity may be supplied at a primary ~~distribution~~ Service voltage between 4 kV and 25 kV. In such cases, the monthly demand and energy consumption will be increased by 1½% to compensate for transformation losses.*

*- Primary distribution voltage to Customer's utilization voltage*

*At the discretion of Maritime Electric, electricity may be supplied at the Customer's utilization voltage. In such cases, the monthly demand and energy consumption will be increased by 1½% to compensate for transformation losses. This charge will be in addition to the losses charge for transformation from 69 kV to the primary distribution voltage.*

**Rental Charge**

This charge applies when the utility owns the padmount transformation equipment used to service the Customer. The Company proposes the following changes to the Rental Charge description on Page N-9 of the GRR:

**Rental Charges**

*– Primary distribution voltage to Customer's utilization voltage*

*At the Customer's request, Maritime Electric will supply, own and maintain the substation equipment at the Customer's premises, including from the primary distribution facilities from the high voltage switches to the low voltage terminals of the step-down transformers, provided such transformation satisfies Maritime Electric Standards. The charge for such rental equipment facilities is 1<sup>5</sup>/<sub>6</sub>% per month of the installed costs. The Customer will supply the low voltage switch gear, concrete substation foundation pads and necessary protective fencing.*

The proposed changes to the Large Industrial Rate Schedule Guidelines are included in the revised Section N – Rate Schedules and Rate Application Guidelines in Appendix 1.

**13.4.5 Lights and Unmetered**

The 2017 CAS indicates RTC ratios of 91 per cent and 104 per cent respectively for Lights and Unmetered. Since these results remain within the target 90 to 110 per cent RTC proposed by the Company, no rate design adjustments are proposed for these rate classes in this Application. Lights and Unmetered would be subject to the general increase applicable to all rate classes.

**13.4.6 Summary of Proposals**

The following is a summary of the Company's recommendations and proposals:

i. Lepreau Classification Study

Approve the following recommendations with respect to the classification of power supply costs for the 2017 CAS and future studies:

- Classify 25 per cent of Lepreau fixed costs as Demand related and 75 per cent as Energy related;
- Classify all combustion turbine fuel costs as Energy related; and
- Classify wind power purchase costs as Demand related in the same proportion that wind power nameplate capacity is counted as capacity for generating capacity planning purposes which is currently 23 per cent.

ii. RTC Ratio Objective

The objective of achieving rate class RTC ratios of between 90 per cent and 110 per cent is a reasonable and prudent objective that should be implemented over an appropriate period of time to mitigate the impact of rate shock.

iii. Residential Rate Class

a. Reduce Rural Service Charge

Eliminate the Urban and Rural distinction within the Residential rate class and set the monthly service charge for all Residential class customers (excluding seasonal Residential rate code 133) at the lower (formerly Urban) monthly rate of \$24.57.

b. Residential Second Block

Increase the current 2,000 kWh per month second block threshold for all Residential rate class customers as follows:

| <u>Effective Date</u> | <u>Threshold (kWh)</u> |
|-----------------------|------------------------|
| March 1, 2019         | 2,000                  |
| March 1, 2020         | 2,000                  |
| March 1, 2021         | 5,000                  |

c. Rate Design - Farms

- The Company will complete the load and consumption analysis for farms included in the Residential rate class.
- The results of this analysis will be used to design rate recommendations for farm customers which will be filed with the Commission.
- The rate design filing is to be used as the basis for consultations with affected farm customers to develop final rate class recommendations to be approved by the Commission for implementation effective March 1, 2022.

iv. General Service Rate Classes

No rate design adjustments will be made as a result of the 2017 CAS.

v. Small Industrial Rate Class

No rate design adjustments will be made as a result of the 2017 CAS.

vi. Large Industrial Rate Class

- No rate design adjustments will be made as a result of the 2017 CAS.
- The Large Industrial Rate Schedule Guidelines with respect to the charges for transformation, losses and equipment rental shall be updated as set out on Pages N-9 and N-10 in Appendix 1.

vii. Lights and Unmetered

No rate design adjustments will be made as a result of the 2017 CAS.

viii. Other

- A new Cost Allocation Study will be performed based on the Company's 2020 financial results and filed with the Commission by June 30, 2021. The updated Cost Allocation Study will be used as the basis for the elimination of the Residential Rate Class second block effective March 1, 2022 along with any other customer rate class rate design recommendations.

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- The Company will complete an updated Load Research Study for Residential and General Service customers to be used in future cost allocation studies.

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**14.0 FINANCIAL FORECAST**

**14.1 Financial Forecast Process**

The components of the financial forecast process will be discussed separately.

- Energy Sales Forecast;
- Capital Expenditures;
- Operating Expenses;
- Income Taxes;
- Revenue Requirement; and
- Revenue.

The financial forecast process incorporates other variables, as discussed previously throughout the Application, such as dividend payments, short-term interest rates, inventory requirements and cash flow requirements.

**14.2 Energy Sales Forecast**

The results of the energy sales forecast, as discussed in Section 7, are used in the preparation of the Capital and Operating Budgets as well as the forecast of annual electric revenue requirement.

**14.3 Capital Expenditures**

The capital expenditures forecast uses the energy sales forecast as a prime input. The projected increase in energy sales and the number of customers drive expenditures for system infrastructure. The balance of the capital expenditures is based on corporate needs in terms of ensuring the necessary infrastructure to continue to safely provide a high level of customer service.

Capital expenditures are categorized according to their amortization rate and the appropriate amortization expense ( $\frac{1}{2}$  in the first year) is calculated. The following Schedule shows the actual and forecast capital expenditures for the period 2016-2021. The expenditures for 2016-2018 reflect the Company's actual and forecast expenditures based on the annual Capital Budget application for those years as approved by IRAC.

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The 2019 expenditures reflect the Company's 2019 Capital Budget Application filed on August 8, 2018 (Commission Docket UE20728). Expenditures for 2020 and 2021 are based upon current forecast but will be subject to the annual Capital Budget application submitted to IRAC for approval in future years.

| <b>Schedule 14-1</b>                            |                        |                        |                          |                          |                          |                          |
|-------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Schedule of Capital Expenditures (\$)</b>    |                        |                        |                          |                          |                          |                          |
|                                                 | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Generation</b>                               |                        |                        |                          |                          |                          |                          |
| Charlottetown Plant                             | \$ 500,777             | \$ 983,658             | \$ 1,141,000             | \$ 1,603,000             | \$ 4,574,000             | \$ 612,000               |
| Borden-Carleton Plant                           | 740,335                | 81,062                 | 210,000                  | 143,000                  | 139,000                  | 159,000                  |
|                                                 |                        |                        |                          |                          |                          |                          |
| <b>Transmission and<br/>Distribution</b>        |                        |                        |                          |                          |                          |                          |
| Transmission                                    | 8,283,251              | 10,832,373             | 7,646,000                | 7,328,000                | 10,374,000               | 10,256,000               |
| Distribution                                    | 18,246,306             | 19,834,463             | 21,598,000               | 21,463,000               | 20,993,000               | 22,448,000               |
|                                                 |                        |                        |                          |                          |                          |                          |
| <b>Corporate</b>                                | 1,039,510              | 841,786                | 2,716,000                | 1,784,000                | 1,960,000                | 1,861,000                |
|                                                 |                        |                        |                          |                          |                          |                          |
| Sub-total                                       | 28,810,179             | 32,573,342             | 33,311,000               | 32,321,000               | 38,040,000               | 35,336,000               |
| Allowance for Funds Used<br>During Construction | 405,915                | 449,760                | 400,000                  | 429,000                  | 493,000                  | 434,000                  |
| General Expense<br>Capitalized                  | 477,714                | 502,450                | 527,000                  | 527,000                  | 541,000                  | 555,000                  |
| Less: Contributions                             | (1,262,517)            | (746,454)              | (700,000)                | (400,000)                | (1,400,000)              | (400,000)                |
| <b>Net Capital Expenditures</b>                 | <b>\$28,431,291</b>    | <b>\$32,779,098</b>    | <b>\$33,538,000</b>      | <b>\$32,877,000</b>      | <b>\$37,674,000</b>      | <b>\$35,925,000</b>      |

\* 2018 includes \$2,178,000 of forecast carryover expenditures (net of contributions) approved in prior years.

Details of the 2019 capital budget can be found in the 2019 Capital Budget Application that was filed with the Commission on August 8, 2018, Commission Docket UE20728.

As discussed in Section 6 of this Application, the 2020 capital budget includes the cost of a new CT3 Balance of Plant Building to house CT3 equipment which is currently being housed inside the Charlottetown Steam Plant Building. This new building will be more economical to operate over the long term and will result in the least cost demolition option for the CTGS structure. As the combustion turbine generating facilities in Charlottetown and Borden-Carleton will continue to fulfill an important role as sources of on-Island backup capacity, the Company will continue to invest in the safe and reliable operation of these facilities in 2020 and 2021 including regular inspections, replacements and upgrades including spare breaker replacements purchases in

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2020 and 2021.

The increase in transmission projects in 2020 and 2021 are the result of planned substation projects including a new O'Leary Substation to improve reliability and meet additional load growth in that area as well as a new communication tower to replace communications infrastructure currently housed on the CTGS smoke stacks. Both of these projects will be completed over two years, 2020 and 2021. The 2020 budget also includes integration infrastructure for the PEI Energy Corporation's proposed new 30 MW wind farm and is offset by an increase in contributions in aid of construction for that year. With an increased focus on transmission projects and the CT3 Balance of Plant Building planned for 2020, a temporary reduction in the distribution project work for 2020 is forecast.

### **14.4 Operating Expenses**

Operating expenses, including the amortization of deferred charges used in the financial forecast, are taken from this Evidence and are presented in Schedule 14-2.

| Schedule 14-2                       |                    |                      |                      |                      |                      |                      |                      |
|-------------------------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Operating Expenses (\$)             |                    |                      |                      |                      |                      |                      |                      |
|                                     | Schedule Reference | 2016 Actual          | 2017 Actual          | 2018 Forecast        | 2019 Forecast        | 2020 Forecast        | 2021 Forecast        |
| Energy Supply Expenses              | 8-3                | \$110,893,928        | \$118,105,056        | \$124,220,700        | \$128,543,600        | \$134,807,900        | \$136,509,600        |
| Energy Supply Expenses - Other      | 8-8                | 732,928              | 781,150              | 846,400              | 889,300              | 916,000              | 970,300              |
| ECAM                                | Appendix 4         | (344,276)            | (2,358,689)          | (2,623,100)          | (1,557,700)          | (2,408,100)          | (327,300)            |
| Distribution                        | 9-3                | 4,698,082            | 4,475,585            | 3,708,400            | 4,814,200            | 4,948,400            | 5,107,400            |
| Transmission*                       | 9-1                | 7,372,943            | 7,493,351            | 8,219,100            | 9,080,300            | 9,185,600            | 9,358,200            |
| Transmission and Distribution Other | 9-4                | 2,039,529            | 2,055,982            | 2,169,600            | 2,231,600            | 2,293,300            | 2,329,300            |
| General and Administrative **       | 10-1               | 8,723,106            | 8,447,706            | 8,636,300            | 9,379,300            | 10,886,200           | 12,100,200           |
| <b>Total</b>                        |                    | <b>\$134,116,240</b> | <b>\$139,000,141</b> | <b>\$145,177,400</b> | <b>\$153,380,600</b> | <b>\$160,629,300</b> | <b>\$166,047,700</b> |

\* Includes OATT expenses

\*\* Excludes Fortis Inc. Administrative Charges.

### **14.5 Income Taxes**

Maritime Electric uses the liability method of accounting for income taxes. Under this method future income taxes are recognized based on the expected future tax consequences of differences between the carrying amount of Balance Sheet items and their corresponding tax basis, using the enacted and substantively enacted income tax rates for the years in which the differences are expected to reverse. Maritime Electric maximizes its tax deductions to minimize cash taxes, reduce interest costs and minimize

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the impact on customers. Schedule 14-3 shows Maritime Electric's effective corporate income tax rates for the period 2016-2021.

| <b>Schedule 14-3</b>                            |                        |                        |                          |                          |                          |                          |
|-------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Effective Corporate Income Tax Rates (%)</b> |                        |                        |                          |                          |                          |                          |
|                                                 | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| Effective Tax Rate                              | 31.5                   | 31.5                   | 31.3                     | 31.5                     | 31.4                     | 31.4                     |

### **14.6 Revenue Requirement**

The requested revenue requirement is derived from the following:

- Forecast energy sales for the year (Section 7);
- The forecast cost of generating or purchasing energy to meet energy sales (Section 8);
- The forecast cost of delivering the energy to customers (the "wires" cost) (Section 9);
- The forecast amount of general and administrative expenses (Section 10);
- Forecast fixed asset amortization expense (Section 11);
- Forecast short-term and long-term interest expense (Section 12.3);
- Income taxes (Section 14.5); and
- Return on Average Common Equity (Section 12.4).

Schedule 14-4 outlines the actual Revenue Requirement for 2016 and 2017 and the forecast Revenue Requirements for 2018 to 2021. Based on the results of the financial forecast this results in a regulated Return on Average Common Equity of 9.35 per cent over the period.

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| Schedule 14-4                                                 |                       |                       |                       |                       |                       |                       |
|---------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Revenue Requirement (\$)                                      |                       |                       |                       |                       |                       |                       |
|                                                               | 2016<br>Actual        | 2017<br>Actual        | 2018<br>Forecast      | 2019<br>Forecast      | 2020<br>Forecast      | 2021<br>Forecast      |
| Operating Expenses (Net of ECAM)*                             | \$ 134,018,878        | \$ 138,579,065        | \$ 144,555,000        | \$ 153,120,200        | \$ 160,368,900        | \$ 165,787,300        |
| Interest Expense (including amortization of Debt Issue Costs) | 12,378,373            | 12,251,808            | 13,052,400            | 12,637,300            | 12,670,700            | 12,908,100            |
| Amortization – Fixed Assets                                   | 20,942,072            | 21,802,450            | 22,541,000            | 25,871,500            | 27,008,300            | 28,006,000            |
| Amortization – DSM Costs                                      | -                     | 327,676               | 529,000               | 167,000               | 167,000               | 167,000               |
| Amortization – Lepreau Writedown                              | 97,362                | 93,400                | 93,400                | 93,400                | 93,400                | 93,400                |
| Income Tax Expense                                            | 5,959,260             | 6,130,460             | 6,269,800             | 6,529,500             | 6,741,000             | 6,950,300             |
| Return on Equity **                                           | 12,941,456            | 13,350,422            | 13,788,300            | 14,240,700            | 14,714,200            | 15,183,100            |
| <b>Total</b>                                                  | <b>\$ 186,337,401</b> | <b>\$ 192,535,281</b> | <b>\$ 200,828,900</b> | <b>\$ 212,659,600</b> | <b>\$ 221,763,500</b> | <b>\$ 229,095,200</b> |

\* Excludes Fortis Inc. Costs

\*\* Before Disallowable Costs

### 14.7 Revenue

There are two components to the calculation of revenue. The first component is Basic Rate Revenue which is calculated using forecast energy sales at existing Basic Rates. ECAM base rate adjustments are developed to assist in providing predictable and stable rate adjustments during the period while ensuring a timely recovery of energy costs over the three years. In addition, the proposed changes to the Residential rate class outlined in Section 13, while effectively revenue neutral to the class, will address the goal of eliminating second block as well as removing the geographic distinction between Rural and Urban customers.

The second component is Other Revenue which is comprised of transmission revenue, connection fees, late payment charges and miscellaneous revenue. As discussed in Section 9.1 - Transmission Expenses, under Canadian ASPE the Company is required to record and disclose both the expense and offsetting revenue applicable to its participation in the OATT as well as any other costs incurred and recovered from other participants.

Schedule 14-5 below shows the components of Other Revenue for the period 2016-2021:

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**SECTION 14 - FINANCIAL FORECAST**

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| Schedule 14-5              |                     |                    |                     |                     |                     |                     |
|----------------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
| Other Revenue(\$)          |                     |                    |                     |                     |                     |                     |
|                            | 2016<br>Actual      | 2017<br>Actual     | 2018<br>Forecast    | 2019<br>Forecast    | 2020<br>Forecast    | 2021<br>Forecast    |
| <b>OATT</b>                |                     |                    |                     |                     |                     |                     |
| Network Service            | \$6,452,283         | \$6,690,324        | \$6,222,300         | \$7,200,100         | \$7,258,500         | \$7,383,300         |
| Schedule 1                 | 303,898             | 315,831            | 287,300             | 286,400             | 288,200             | 291,800             |
| Schedule 2                 | 447,655             | 464,307            | 465,500             | 464,100             | 466,800             | 472,800             |
| Schedule 3C                | 9,245               | 9,737              | -                   | -                   | -                   | -                   |
| Schedule 4                 | 833,834             | 155,313            | -                   | -                   | -                   | -                   |
| Schedule 7                 | -                   | -                  | 382,200             | 439,400             | 439,400             | 439,400             |
| Schedule 8                 | -                   | -                  | 1,303,800           | 1,466,200           | 1,465,900           | 1,466,200           |
| Schedule 9                 | 326,372             | 326,372            | 328,400             | 328,400             | 328,400             | 328,400             |
| Schedule 10                | 17,555              | -                  | -                   | -                   | -                   | -                   |
| <b>Sub-Total</b>           | 8,390,842           | 7,961,884          | 8,989,500           | 10,184,600          | 10,247,200          | 10,381,900          |
| <b>Other</b>               |                     |                    |                     |                     |                     |                     |
| Late Payment Charges       | 610,262             | 639,391            | 648,800             | 640,100             | 677,300             | 711,800             |
| Connection Fees            | 479,177             | 463,552            | 471,600             | 477,900             | 505,800             | 530,700             |
| Miscellaneous Revenue      | 673,772             | 859,462            | 1,026,300           | 858,400             | 894,600             | 827,200             |
| <b>Sub-Total</b>           | 1,763,211           | 1,962,405          | 2,146,700           | 1,976,400           | 2,077,700           | 2,069,700           |
| <b>Total Other Revenue</b> | <b>\$10,154,053</b> | <b>\$9,924,289</b> | <b>\$11,136,200</b> | <b>\$12,161,000</b> | <b>\$12,324,900</b> | <b>\$12,451,600</b> |

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**SECTION 14 - FINANCIAL FORECAST**

Schedule 14-6 shows the revenue derived from existing Basic Rates and Other Income for the period 2016-2021.

| <b>Schedule 14-6</b>                                |                        |                        |                          |                          |                          |                          |
|-----------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Energy Sales by Class (Existing Basic Rates)</b> |                        |                        |                          |                          |                          |                          |
|                                                     | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Energy by Class - (GWh)</b>                      |                        |                        |                          |                          |                          |                          |
| Residential                                         | 563.5                  | 577.0                  | 598.9                    | 620.7                    | 647.5                    | 667.0                    |
| General Service I                                   | 386.8                  | 384.9                  | 385.3                    | 389.7                    | 392.0                    | 392.3                    |
| Large Industrial                                    | 129.9                  | 133.6                  | 149.7                    | 154.7                    | 159.2                    | 160.0                    |
| Small Industrial                                    | 100.1                  | 104.6                  | 93.3                     | 94.4                     | 95.0                     | 95.0                     |
| Street Lighting                                     | 5.8                    | 5.5                    | 5.3                      | 5.1                      | 4.7                      | 4.5                      |
| Unmetered                                           | 2.4                    | 2.4                    | 2.4                      | 2.4                      | 2.4                      | 2.5                      |
| <b>Total Energy Sales</b>                           | <b>1,188.4</b>         | <b>1,208.0</b>         | <b>1,234.9</b>           | <b>1,267.0</b>           | <b>1,300.8</b>           | <b>1,321.3</b>           |
| <b>Gross Revenue by Class - (\$)</b>                |                        |                        |                          |                          |                          |                          |
| Residential                                         | \$92,562,937           | \$96,868,216           | \$102,317,400            | \$106,025,600            | \$110,583,500            | \$114,418,000            |
| General Service I                                   | 59,016,156             | 60,498,583             | 62,223,600               | 63,306,300               | 63,711,700               | 63,800,200               |
| Large Industrial                                    | 10,786,613             | 11,481,970             | 13,484,500               | 13,812,700               | 14,130,000               | 14,184,900               |
| Small Industrial                                    | 12,968,350             | 13,640,807             | 12,626,400               | 12,808,100               | 12,884,900               | 12,895,800               |
| Street Lighting                                     | 2,420,167              | 2,424,681              | 2,410,700                | 2,302,600                | 2,192,400                | 2,082,100                |
| Unmetered                                           | 403,098                | 412,465                | 418,900                  | 409,700                  | 410,900                  | 411,900                  |
| <b>Total Gross Electric Revenue</b>                 | <b>178,157,321</b>     | <b>185,326,722</b>     | <b>193,481,500</b>       | <b>198,665,000</b>       | <b>203,913,400</b>       | <b>207,792,900</b>       |
| Rate of Return Adjustment                           | (2,100,000)            | (2,767,885)            | (3,952,400)              | -                        | -                        | -                        |
| Weather Normalization Adjustment                    | 126,031                | 52,155                 | 161,800                  | -                        | -                        | -                        |
| <b>Total Electric Revenue</b>                       | <b>176,183,352</b>     | <b>182,610,992</b>     | <b>189,690,900</b>       | <b>198,665,000</b>       | <b>203,913,400</b>       | <b>207,792,900</b>       |
| <b>Total Other Revenue</b>                          | <b>10,154,053</b>      | <b>9,924,289</b>       | <b>11,136,200</b>        | <b>12,161,000</b>        | <b>12,324,900</b>        | <b>12,451,600</b>        |
| <b>Total Revenue</b>                                | <b>\$186,337,405</b>   | <b>\$192,535,281</b>   | <b>\$200,827,100</b>     | <b>\$210,826,000</b>     | <b>\$216,238,300</b>     | <b>\$220,244,500</b>     |

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## **SECTION 14 - FINANCIAL FORECAST**

Schedule 14-7 shows the revenue derived from Basic Rates and Other Income for the period 2016-2021 as a result of the proposals in this Application.

| <b>Schedule 14-7</b>                                |                        |                        |                          |                          |                          |                          |
|-----------------------------------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Energy Sales by Class (Proposed Basic Rates)</b> |                        |                        |                          |                          |                          |                          |
|                                                     | <b>2016<br/>Actual</b> | <b>2017<br/>Actual</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Forecast</b> | <b>2020<br/>Forecast</b> | <b>2021<br/>Forecast</b> |
| <b>Energy by Class - (GWh)</b>                      |                        |                        |                          |                          |                          |                          |
| Residential                                         | 563.5                  | 577.0                  | 598.9                    | 620.7                    | 647.5                    | 667.0                    |
| General Service I                                   | 386.8                  | 384.9                  | 385.3                    | 389.7                    | 392.0                    | 392.3                    |
| Large Industrial                                    | 129.9                  | 133.6                  | 149.7                    | 154.7                    | 159.2                    | 160.0                    |
| Small Industrial                                    | 100.1                  | 104.6                  | 93.3                     | 94.4                     | 95.0                     | 95.0                     |
| Street Lighting                                     | 5.8                    | 5.5                    | 5.3                      | 5.1                      | 4.7                      | 4.5                      |
| Unmetered                                           | 2.4                    | 2.4                    | 2.4                      | 2.4                      | 2.4                      | 2.5                      |
| <b>Total Energy Sales</b>                           | <b>1,188.4</b>         | <b>1,208.0</b>         | <b>1,234.9</b>           | <b>1,267.0</b>           | <b>1,300.8</b>           | <b>1,321.3</b>           |
| <b>Gross Revenue by Class - (\$)</b>                |                        |                        |                          |                          |                          |                          |
| Residential                                         | \$92,562,937           | \$96,868,216           | \$102,301,800            | \$106,638,600            | \$112,816,300            | \$118,588,100            |
| General Service I                                   | 59,016,156             | 60,498,583             | 62,207,800               | 64,105,300               | 65,848,400               | 66,877,200               |
| Large Industrial                                    | 10,786,613             | 11,481,970             | 13,500,900               | 14,028,400               | 14,756,700               | 15,041,800               |
| Small Industrial                                    | 12,968,350             | 13,640,807             | 12,638,200               | 12,967,200               | 13,310,100               | 13,504,300               |
| Street Lighting                                     | 2,420,167              | 2,424,681              | 2,414,800                | 2,343,100                | 2,279,600                | 2,196,600                |
| Unmetered                                           | 403,098                | 412,465                | 419,800                  | 416,000                  | 427,500                  | 435,800                  |
| <b>Total Gross Electric Revenue</b>                 | <b>178,157,321</b>     | <b>185,326,722</b>     | <b>193,483,200</b>       | <b>200,498,600</b>       | <b>209,438,600</b>       | <b>216,643,800</b>       |
| Rate of Return Adjustment                           | (2,100,000)            | (2,767,885)            | (3,952,400)              | -                        | -                        | -                        |
| Weather Normalization Adjustment                    | 126,031                | 52,155                 | 161,800                  | -                        | -                        | -                        |
| <b>Total Electric Revenue</b>                       | <b>176,183,352</b>     | <b>182,610,992</b>     | <b>189,692,700</b>       | <b>200,498,600</b>       | <b>209,438,600</b>       | <b>216,643,800</b>       |
| <b>Total Other Revenue</b>                          | <b>10,154,053</b>      | <b>9,924,289</b>       | <b>11,136,200</b>        | <b>12,161,000</b>        | <b>12,324,900</b>        | <b>12,451,600</b>        |
| <b>Total Revenue</b>                                | <b>\$186,337,405</b>   | <b>\$192,535,281</b>   | <b>\$200,828,900</b>     | <b>\$212,659,600</b>     | <b>\$221,763,500</b>     | <b>\$229,095,400</b>     |

### **14.8 Financial Forecast Results**

The financial forecast uses the inputs previously outlined in this Evidence. A summary of the results (prepared in accordance with ASPE) of the Company's actual results for 2016-2017 and its financial forecast for the period 2018-2021 is shown in Appendix 3.

### **14.9 Summary**

A summary of the results of this section follows:

- The financial forecast is derived from the various inputs and proposals outlined in this Application.

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## **SECTION 14 - FINANCIAL FORECAST**

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- Total capital expenditures were \$28,431,291 in 2016 and \$32,779,098 in 2017.
- Total capital expenditures are forecast to be \$33,538,000 in 2018, \$32,877,000 in 2019, \$37,674,000 in 2020 and \$35,925,000 in 2021.
- Maritime Electric's effective corporate income tax rate was 31.5 per cent in 2016 and 31.5 per cent for 2017.
- The Company's effective corporate income tax rate is forecast to be 31.3 per cent in 2018, 31.5 in 2019, 31.4 in 2020 and 31.4 per cent in 2021.
- Total revenue requirement was \$186,337,401 in 2016 and \$192,535,281 in 2017.
- Total revenue requirement is forecast to be \$200,828,900 in 2018, \$212,659,600 in 2019, \$221,763,500 in 2020 and \$229,095,400 in 2021.

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**15.0 IMPACT OF PROPOSAL ON CUSTOMERS**

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**15.1 Revised Customer Rates**

Based upon the evidence contained in this Application, Schedule 15-1 shows the proposed change in Residential and Commercial rates effective March 1, 2019, March 1, 2020 and March 1, 2021 as compared to the current rates in effect until February 28, 2019. Further comparisons for Street Lights and other rate classes can be found in Appendix 2.



## **SECTION 15 – IMPACT OF PROPOSAL ON CUSTOMERS**

| <b>SCHEDULE 15-1</b>                                       |                                                         |                                    |                                   |                                   |                                   |
|------------------------------------------------------------|---------------------------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <b>Comparison of Residential and Commercial Rates (\$)</b> |                                                         |                                    |                                   |                                   |                                   |
| <b>Rate Code</b>                                           |                                                         | <b>Effective<br/>March 1, 2018</b> | <b>Proposed<br/>March 1, 2019</b> | <b>Proposed<br/>March 1, 2020</b> | <b>Proposed<br/>March 1, 2021</b> |
| <b>110</b>                                                 | <b>Residential</b>                                      |                                    |                                   |                                   |                                   |
|                                                            | Service Charge                                          | \$ 24.57                           | \$ 24.57                          | \$ 24.57                          | \$ 24.57                          |
|                                                            | Energy Charge per kWh – First Block <sup>1</sup>        | \$ 0.1437                          | \$ 0.1456                         | \$ 0.1477                         | \$ 0.1498                         |
|                                                            | Energy charge per kWh for balance kWh                   | \$ 0.1142                          | \$ 0.1155                         | \$ 0.1168                         | \$ 0.1184                         |
| <b>131</b>                                                 | <b>Residential Seasonal</b>                             |                                    |                                   |                                   |                                   |
|                                                            | Service Charge                                          | \$ 26.92                           | \$ 26.92                          | \$ 26.92                          | \$ 26.92                          |
|                                                            | Energy Charge per kWh – First Block <sup>1</sup>        | \$ 0.1437                          | \$ 0.1456                         | \$ 0.1477                         | \$ 0.1498                         |
|                                                            | Energy charge per kWh for balance kWh                   | \$ 0.1142                          | \$ 0.1155                         | \$ 0.1168                         | \$ 0.1184                         |
| <b>133</b>                                                 | <b>Residential Seasonal Option</b>                      |                                    |                                   |                                   |                                   |
|                                                            | Service Charge                                          | \$ 37.50                           | \$ 37.50                          | \$ 37.50                          | \$ 37.50                          |
|                                                            | Energy Charge per kWh – First Block <sup>1</sup>        | \$ 0.1437                          | \$ 0.1456                         | \$ 0.1477                         | \$ 0.1498                         |
|                                                            | Energy charge per kWh for balance kWh                   | \$ 0.1142                          | \$ 0.1155                         | \$ 0.1168                         | \$ 0.1184                         |
| <b>232</b>                                                 | <b>General Service</b>                                  |                                    |                                   |                                   |                                   |
|                                                            | Service Charge                                          | \$ 24.57                           | \$ 24.57                          | \$ 24.57                          | \$ 24.57                          |
|                                                            | Demand Charge - per kW for first 20 kW                  | \$ -                               | \$ -                              | \$ -                              | \$ -                              |
|                                                            | Demand Charge - per kW for balance of kW                | \$ 13.43                           | \$ 13.43                          | \$ 13.43                          | \$ 13.43                          |
|                                                            | Energy Charge per kWh for first 5,000 kWh               | \$ 0.1767                          | \$ 0.1793                         | \$ 0.1822                         | \$ 0.1847                         |
|                                                            | Energy charge per kWh for balance kWh                   | \$ 0.1154                          | \$ 0.1167                         | \$ 0.1180                         | \$ 0.1196                         |
| <b>233</b>                                                 | <b>General Service - Seasonal Operators Option</b>      |                                    |                                   |                                   |                                   |
|                                                            | Service Charge                                          | \$ 24.57                           | \$ 24.57                          | \$ 24.57                          | \$ 24.57                          |
|                                                            | Demand Charge - per kW for first 20 kW                  | \$ -                               | \$ -                              | \$ -                              | \$ -                              |
|                                                            | Demand Charge - per kW for balance of kW                | \$ 13.43                           | \$ 13.43                          | \$ 13.43                          | \$ 13.43                          |
|                                                            | Energy Charge per kWh for first 5,000 kWh               | \$ 0.1767                          | \$ 0.1793                         | \$ 0.1822                         | \$ 0.1847                         |
|                                                            | Energy charge per kWh for balance kWh                   | \$ 0.1154                          | \$ 0.1167                         | \$ 0.1180                         | \$ 0.1196                         |
| <b>320</b>                                                 | <b>Small Industrial</b>                                 |                                    |                                   |                                   |                                   |
|                                                            | Demand Charge per kW                                    | \$ 7.46                            | \$ 7.46                           | \$ 7.46                           | \$ 7.46                           |
|                                                            | Energy Charge per kWh for 100 kWh per kW billing demand | \$ 0.1731                          | \$ 0.1756                         | \$ 0.1784                         | \$ 0.1809                         |
|                                                            | Energy Charge per kWh for balance of kWh                | \$ 0.0872                          | \$ 0.0879                         | \$ 0.0884                         | \$ 0.0895                         |
| <b>310</b>                                                 | <b>Large Industrial</b>                                 |                                    |                                   |                                   |                                   |
|                                                            | Demand Charge per kW                                    | \$ 14.50                           | \$ 14.50                          | \$ 14.50                          | \$ 14.50                          |
|                                                            | Energy Charge per kWh                                   | \$ 0.0714                          | \$ 0.0723                         | \$ 0.0733                         | \$ 0.0743                         |
| <b>340</b>                                                 | <b>Long Term Contract</b>                               |                                    |                                   |                                   |                                   |
|                                                            | Demand Charge per kW                                    | \$ 15.51                           | \$ 15.51                          | \$ 15.51                          | \$ 15.51                          |
|                                                            | Energy Charge per kWh                                   | \$ 0.0963                          | \$ 0.0937                         | \$ 0.0944                         | \$ 0.0956                         |
| <b>330</b>                                                 | <b>Short Term Contract</b>                              |                                    |                                   |                                   |                                   |
|                                                            | Demand Charge per kW                                    | \$ 16.79                           | \$ 16.79                          | \$ 16.79                          | \$ 16.79                          |
|                                                            | Energy Charge per kWh for all kWh in the first block    | \$ 0.0981                          | \$ 0.0991                         | \$ 0.1000                         | \$ 0.1013                         |
|                                                            | Energy Charge per kWh for balance of kWh in the month   | \$ 0.0814                          | \$ 0.0821                         | \$ 0.0825                         | \$ 0.0835                         |

<sup>1</sup> Effective Date: March 1, 2018 – 2,000 kWh; March 1, 2019 – 2,000 kWh; March 1, 2020 – 2,000 kWh; March 1, 2021 – 5,000 kWh

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**15.2 Impact on Residential Customers**

In addition to the general 1.1 per cent increase proposed for all rate classes, the Company has proposed specific changes for the Residential rate class which will impact certain customers within this class. These changes relate to the proposed increase to the second block threshold as well as the reduction in the monthly service charge for those customers currently classified as rural.

With approximately 42,000 residential class customers currently classified as “rural”, over 60 per cent of the 67,000 Residential rate class customers will see a \$2.35 per month (before taxes) reduction in their monthly service charge as a result of the proposed elimination of rural-urban classification. This proposed reduction, to set the monthly service charge for all Residential customers at \$24.57, aligns with the recommendations from the 2017 Cost Allocation Study and ensures all Residential customers are treated equally regardless of geographic location.

As shown in Schedule 13-8 of the Application, the Company is also proposing to increase the residential second block during the rate setting period to 5,000 kWh effective March 1, 2021. As illustrated in Schedule 13-9, approximately 87.2 per cent of customers in February 2017 (a typical cold weather month) had consumption below the current 2,000 kWh second block threshold. Further, in July 2017 (a typical warm weather month), 98.4 per cent of customers had consumption below the current 2,000 kWh second block threshold. These customers are not impacted by the proposed second block change. While the majority of residential customers will not be impacted by the proposed change to the second block threshold, the increase to 5,000 kWh on March 1, 2021 will result in the majority of domestic residential customers being billed at the first block rate.

For those residential customers consuming greater than 2,000 kWh per month, the impact of the proposed second block and service charge changes will be dependent upon their current urban or rural classification as well as their consumption pattern and level and, as a result, annual energy cost charges will vary from customer to customer. Schedules 13-13 and 13-14, illustrate the impact on a rural and urban customer based upon their annual consumption while considering the seasonality of consumption patterns. This sample of actual customer consumption data shows that rural Residential

## SECTION 15 – IMPACT OF PROPOSAL ON CUSTOMERS

customers will see changes in their annual electricity costs over the three year period averaging from (0.5) per cent to 2.4 per cent. Similarly, urban Residential customers will see changes in their annual electricity costs over the three year period averaging from 0.1 per cent to 2.6 per cent.

The impact on Residential class customers discussed above is presented on a before tax basis. Effective July 16, 2018, the Province of PEI implemented the Clean Energy Price Incentive which provides eligible year-round Residential class customers with a 10 per cent rebate on the first 2,000 kWh per month of energy consumed. This rebate has reduced Residential customer bills since July 2018 and is expected to continue to provide relief during the proposed three year rate setting period. As a result, eligible Residential customers will see further reductions in their annual electricity costs under this incentive.

Schedule 15-2 illustrates the components of the estimated annual cost for a rural Residential customer consuming 650 kWh per month (7,800 kWh per year) based upon the proposals in this Application.

| Schedule 15-2                                                                        |                    |                    |                    |                    |                    |                    |
|--------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Annual Cost for Rural Residential Customer<br>(650 kWh per Month/7,800 kWh per Year) |                    |                    |                    |                    |                    |                    |
| Bill Component                                                                       | 2016<br>Actual     | 2017<br>Actual     | 2018<br>Actual     | 2019<br>Forecast   | 2020<br>Forecast   | 2021<br>Forecast   |
| Service Charge                                                                       | \$ 323.04          | \$ 323.04          | \$ 323.04          | \$ 294.84          | \$ 294.84          | \$ 294.84          |
| Basic Energy Charge                                                                  | 1,029.60           | 1,072.50           | 1,099.02           | 1,121.64           | 1,151.28           | 1,169.22           |
| ECAM Charge                                                                          | 16.06              | 9.26               | 4.48               | 28.42              | 13.92              | 11.51              |
| Provincial Costs Recoverable                                                         | 41.81              | 41.81              | 41.81              | -                  | -                  | -                  |
| Provincial Energy Efficiency Program                                                 | -                  | -                  | -                  | 5.46               | 6.24               | 7.02               |
| Cable Contingency Fund*                                                              | 2.11               | 2.11               | 2.11               | -                  | -                  | -                  |
| RORA                                                                                 | (31.96)            | (36.91)            | (26.87)            | (19.53)            | (19.53)            | (19.53)            |
| <b>Sub-Total</b>                                                                     | 1,380.66           | 1,411.81           | 1,443.59           | 1,430.83           | 1,446.75           | 1,463.06           |
| HST**                                                                                | 199.05             | 211.78             | 216.54             | 214.62             | 217.01             | 219.46             |
| Provincial Clean Energy Rebate***                                                    | -                  | -                  | (74.70)            | (113.60)           | (115.19)           | (116.82)           |
| <b>Total Annual Cost</b>                                                             | <b>\$ 1,579.71</b> | <b>\$ 1,623.59</b> | <b>\$ 1,585.43</b> | <b>\$ 1,531.85</b> | <b>\$ 1,548.57</b> | <b>\$ 1,565.70</b> |
| <b>Percentage Annual Increase (%)</b>                                                | <b>2.7%</b>        | <b>2.8%</b>        | <b>-2.4%</b>       | <b>-3.4%</b>       | <b>1.1%</b>        | <b>1.1%</b>        |

\* Effective March 1, 2019, recovered as an OATT charge under the Interconnection Lease Agreement

\*\* HST Rate increased from 14% to 15% effective October 1, 2016

\*\*\* Effective July 16, 2018 on first 2,000 kWh of consumption

November 28, 2018

## SECTION 15 – IMPACT OF PROPOSAL ON CUSTOMERS

At 650 kWh per month, the rural Residential customer is not impacted by the proposed changes to the second block threshold but will see a reduction in their monthly service charge effective March 1, 2019. As a result, when considering the service charge reduction and the Provincial Clean Energy Rebate, this customer will see an overall reduction in 2019 of approximately 3.4 per cent followed by annual increases of approximately 1.1 per cent in 2020 and 2021.

An urban Residential customer consuming 650 kWh per month will not be impacted by either the proposed second block changes or the reduced monthly service charge but will benefit from the Provincial Clean Energy Rebate. As a result, this customer will see an overall reduction in 2019 of 1.4 per cent followed by annual increases of approximately 1.1 per cent in 2020 and 2021 as shown in Schedule 15-3 below.

| Schedule 15-3                                                                        |                    |                    |                    |                    |                    |                    |
|--------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Annual Cost for Urban Residential Customer<br>(650 kWh per Month/7,800 kWh per Year) |                    |                    |                    |                    |                    |                    |
| Bill Component                                                                       | 2016<br>Actual     | 2017<br>Actual     | 2018<br>Actual     | 2019<br>Forecast   | 2020<br>Forecast   | 2021<br>Forecast   |
| Service Charge                                                                       | \$ 294.84          | \$ 294.84          | \$ 294.84          | \$ 294.84          | \$ 294.84          | \$ 294.84          |
| Basic Energy Charge                                                                  | 1,029.60           | 1,072.50           | 1,099.02           | 1,121.64           | 1,151.28           | 1,169.22           |
| ECAM Charge                                                                          | 16.06              | 9.26               | 4.48               | 28.42              | 13.92              | 11.51              |
| Provincial Costs Recoverable                                                         | 41.81              | 41.81              | 41.81              | -                  | -                  | -                  |
| Provincial Energy Efficiency Program                                                 | -                  | -                  | -                  | 5.46               | 6.24               | 7.02               |
| Cable Contingency Fund*                                                              | 2.11               | 2.11               | 2.11               | -                  | -                  | -                  |
| RORA                                                                                 | (31.96)            | (36.91)            | (26.87)            | (19.53)            | (19.53)            | (19.53)            |
| <b>Sub-Total</b>                                                                     | 1,352.46           | 1,383.61           | 1,415.39           | 1,430.83           | 1,446.75           | 1,463.06           |
| HST**                                                                                | 194.98             | 207.55             | 212.31             | 214.62             | 217.01             | 219.46             |
| Provincial Clean Energy Rebate***                                                    | -                  | -                  | (74.70)            | (113.60)           | (115.19)           | (116.82)           |
| <b>Total Annual Cost</b>                                                             | <b>\$ 1,547.44</b> | <b>\$ 1,591.16</b> | <b>\$ 1,553.00</b> | <b>\$ 1,531.85</b> | <b>\$ 1,548.57</b> | <b>\$ 1,565.70</b> |
| <b>Percentage Annual Increase (%)</b>                                                | <b>2.7%</b>        | <b>2.8%</b>        | <b>-2.4%</b>       | <b>-1.4%</b>       | <b>1.1%</b>        | <b>1.1%</b>        |

\* Effective March 1, 2019, recovered as an OATT charge under the Interconnection Lease Agreement

\*\* HST Rate increased from 14% to 15% effective October 1, 2016

\*\*\* Effective July 16, 2018 on first 2,000 kWh of consumption

As discussed in Section 13 of this Application, the majority of customers (see Schedule 13-9) will not be impacted by the proposed second block threshold changes. However, for those customers with consumption greater than 2,000 kWh per month, the impact on annual electricity costs will vary from customer to customer based on their monthly electricity consumption level and pattern. This variability is illustrated for both rural and urban residential customers in Schedule 13-13 and 13-14.

**November 28, 2018**

## SECTION 15 – IMPACT OF PROPOSAL ON CUSTOMERS

### 15.3 Impact on Other Customers

For the typical customer in each of the other rate classes, the Company is proposing a general increase of 1.1 per cent per year during the three year rate setting period. Similar to the Residential rate class, the impact for each individual customer will vary depending upon each customer's demand, where applicable, and energy consumption profile.

Schedule 15-4 shows the impact for a General Service customer with a monthly consumption and demand profile of 10,000 kWh and 50 kW, respectively (120,000 kWh/600 kW per year)

| Schedule 15-4                                                                                           |                     |                    |                     |                    |                     |                     |
|---------------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------------|--------------------|---------------------|---------------------|
| Annual Cost for General Service Customer<br>(10,000 kWh/50 kW per Month or 120,000 kWh/600 kW per Year) |                     |                    |                     |                    |                     |                     |
| Bill Component                                                                                          | 2016<br>Actual      | 2017<br>Actual     | 2018<br>Actual      | 2019<br>Forecast   | 2020<br>Forecast    | 2021<br>Forecast    |
| Service Charge                                                                                          | \$ 294.84           | \$ 294.84          | \$ 294.84           | \$ 294.84          | \$ 294.84           | \$ 294.84           |
| Demand Charge                                                                                           | 4,834.80            | 4,834.80           | 4,834.80            | 4,834.80           | 4,834.80            | 4,834.80            |
| Basic Energy Charge                                                                                     | 16,092.00           | 16,764.00          | 17,190.00           | 17,544.00          | 18,000.00           | 18,270.00           |
| ECAM Charge                                                                                             | 247.01              | 142.53             | 69.00               | 437.21             | 214.12              | 177.05              |
| Provincial Costs Recoverable                                                                            | 643.20              | 643.20             | 643.20              | -                  | -                   | -                   |
| Provincial Energy Efficiency Program                                                                    | -                   | -                  | -                   | 84.00              | 96.00               | 108.00              |
| Cable Contingency Fund*                                                                                 | 32.40               | 32.40              | 32.40               | -                  | -                   | -                   |
| RORA                                                                                                    | (491.68)            | (567.81)           | (413.42)            | (300.47)           | (300.47)            | (300.47)            |
| <b>Sub-Total</b>                                                                                        | 21,652.57           | 22,143.96          | 22,650.82           | 22,894.38          | 23,139.29           | 23,384.22           |
| HST**                                                                                                   | 3,121.58            | 3,321.60           | 3,397.63            | 3,434.16           | 3,470.89            | 3,507.63            |
| <b>Total Annual Cost</b>                                                                                | <b>\$ 24,774.15</b> | <b>\$25,465.56</b> | <b>\$ 26,048.45</b> | <b>\$26,328.54</b> | <b>\$ 26,610.18</b> | <b>\$ 26,891.85</b> |
| <b>Percentage Annual Increase (%)</b>                                                                   | <b>2.7%</b>         | <b>2.8%</b>        | <b>2.3%</b>         | <b>1.1%</b>        | <b>1.1%</b>         | <b>1.1%</b>         |

\* Effective March 1, 2019, recovered as an OATT charge under the Interconnection Lease Agreement

\*\* HST Rate increased from 14% to 15% effective October 1, 2016

Typical customers in the Small and Large Industrial rate classes will also experience an annual increase in electricity costs of approximately 1.1 per cent per year. The actual annual impact on per customer basis will, however, be dependent upon the level of consumption and demand of that customer which may result in annual electricity costs changing by more or less than the general increases per year.

November 28, 2018

**16.0 PROPOSED ORDER**

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**C A N A D A**

**PROVINCE OF PRINCE EDWARD ISLAND**

**BEFORE THE ISLAND REGULATORY  
AND APPEALS COMMISSION**

**IN THE MATTER** of Sections 10, 13(1) and 20 of the Electric Power Act (R.S.P.E.I. 1988, Cap. E-4) and **IN THE MATTER** of the Application of Maritime Electric Company, Limited for an order of the Commission approving rates, tolls and charges for electric service for the years March 1, 2019 to February 29, 2020 and March 1, 2020 to February 28, 2021 and March 1, 2021 to February 28, 2022 and for certain approvals incidental to such an order.

UPON receiving an Application by Maritime Electric Company, Limited (the "Company") for approval of proposed amendments to its rates, tolls and charges and certain approvals incidental to such an order;

AND UPON considering the Application as well as the Evidence of the Company;

NOW THEREFORE for the reasons given in the annexed Reasons for Order;  
IT IS ORDERED THAT

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**November 28, 2018**

**SECTION 16 - PROPOSED ORDER**

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1. The General Rules and Regulations shall be adjusted to reflect the proposals contained in the Application effective March 1, 2019 as proposed in Appendix 1.
2. The Basic Rates shall be adjusted to reflect the proposals contained in the Application effective March 1, 2019, March 1, 2020 and March 1, 2021 as proposed in Appendix 2.
3. Costs recoverable from customers on behalf of the Province of PEI related to Point Lepreau and Dalhousie shall be recovered as an energy related cost through the Energy Cost Adjustment Mechanism ("ECAM")
4. Customers shall be billed, as a separate line item on their bill, for the recovery of costs under the Province of PEI's Electricity Efficiency and Conservation Plan (Commission Docket UE41400) on a per kWh basis at the following rates:

| <b><u>Effective</u></b> | <b><u>Rate per kWh</u></b> |
|-------------------------|----------------------------|
| March 1, 2019           | \$0.0007                   |
| March 1, 2020           | \$0.0008                   |
| March 1, 2021           | \$0.0009                   |

5. The base rate per kWh used in the Energy Cost Adjustment Mechanism ("ECAM") formula approved by the Commission in Order UE16-04 shall be set as follows:

| <b><u>Effective</u></b> | <b><u>Rate per kWh</u></b> |
|-------------------------|----------------------------|
| March 1, 2019           | \$0.09335                  |
| March 1, 2020           | \$0.09475                  |
| March 1, 2021           | \$0.09591                  |

6. The Company shall prepare an updated proposal on ECAM rebasing for inclusion in its next rate application.
7. The interim Weather Normalization Mechanism and Reserve account approved by Order UE16-04 is approved for 2019 and future years.

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**November 28, 2018**

**SECTION 16 - PROPOSED ORDER**

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8. Revisions to the Weather Normalization Mechanism variables for 2018 as proposed in Commission Docket UE21219 are approved.
9. Revisions to the Weather Normalization Mechanism variables for 2019 are approved.
10. Any balance remaining in the pre-2016 Rate of Return Adjustment Account (RORA) at February 28, 2019 shall be transferred to a post-2015 RORA account for refund to customers.
11. The Company shall refund the post-2015 RORA account to customers at a rate of \$0.00250/kWh commencing March 1, 2019.
12. The Company shall prepare and file a proposal with respect to the refund or recovery of any remaining RORA balance for the period March 1, 2019 to February 28, 2022 for inclusion in its next rate application.
13. The Commission approves the Company's plans to decommission the Charlottetown Thermal Generating Station ("CTGS") as outlined in the CTGS Decommissioning Study filed under Commission Docket UE23001.
14. Any capital investments required as part of the CTGS Decommissioning shall be included in future capital budget applications for approval of the Commission.
15. The Company shall file progress reports on the CTGS Decommissioning every six months commencing August 31, 2019 for the period ending June 30, 2019.
16. The Company shall adopt the Depreciation rates recommended in Part VI – Table 1 of the 2017 Depreciation Study filed under Commission Docket UE21604 and as summarized in Appendix 9, effective as of January 1, 2019.
17. The CTGS Reserve Variance deferral account, as calculated in Appendix 10, is approved as at January 1, 2019 in the amount of \$16.245 million.

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***November 28, 2018***



**SECTION 16 - PROPOSED ORDER**

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18. The CTGS Reserve Variance deferral shall be amortized as part of the Company's annual revenue requirement from January 1, 2019 to December 31, 2023 in the amounts set out in Appendix 11, subject to any revisions that may be approved by the Commission as a result of future depreciation studies, changes to the CTGS decommissioning costs or other reasons approved by the Commission.
19. On or before June 30, 2021, the Company shall file with the Commission an updated depreciation study based on financial results to December 31, 2020.
20. The Company's requested return on average common equity of 9.35 per cent on an average common equity of 40 per cent for 2019, 2020 and 2021 is approved.
21. The proposed Earnings Sharing Mechanism with an allowed  $\pm 50$  basis points deadband around the allowed return on average common equity with any amounts outside the deadband returned to or recovered from the customer is approved.
22. The proposals in the Company's filing (Commission Docket UE22502) with respect to the Point Lepreau Cost Allocation Classification Study are approved.
23. The urban and rural distinction in the Residential rate class shall be eliminated by reducing the rural service charge to the urban rate of \$24.57
24. The Company shall modify the current multi-block energy pricing structure for residential customers by increasing the second block threshold in accordance with the following schedule:

|                               | Current | March 1, 2019 | March 1, 2020 | March 1, 2021 |
|-------------------------------|---------|---------------|---------------|---------------|
| <b>Second Block Threshold</b> | 2,000   | 2,000         | 2,000         | 5,000         |

25. The Company shall prepare and file rate design recommendations for farm customers in the Residential class for implementation effective March 1, 2022.
26. The Company shall file an updated Cost Allocation Study based on 2020 results by June 30, 2021.

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**November 28, 2018**

**SECTION 16 - PROPOSED ORDER**

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DATED at Charlottetown this \_\_\_\_ day of \_\_\_\_, 2019

BY THE COMMISSION:

\_\_\_\_\_  
\_\_\_\_\_, Chair

\_\_\_\_\_  
\_\_\_\_\_, Commissioner

\_\_\_\_\_  
\_\_\_\_\_, Commissioner

\_\_\_\_\_  
\_\_\_\_\_, Commissioner

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***November 28, 2018***

## **Rates and General Rules and Regulations**

**effective March 1, 2019**



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|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of this Document</b> | <p>The purpose of this document is to define the scope and application of the General Rules and Regulations and electricity rates for the Maritime Electric Company, Limited (hereafter called Maritime Electric) Service areas in the Province of Prince Edward Island.</p> <p>Maritime Electric is required, by the Electric Power Act, to file with the Island Regulatory and Appeals Commission a Tariff of Rates for the provision of Service and the terms and conditions and ancillary charges Maritime Electric has established for any Service to be performed within the Province of Prince Edward Island. Until the Tariff of Rates and/or the terms and conditions and ancillary charges are modified, altered or amended, as provided under the Electric Power Act, they will remain in effect as filed.</p> |
| <b>Audience</b>                 | <p>This document is intended for the following audiences:</p> <ul style="list-style-type: none"><li>▪ Customers of Maritime Electric</li><li>▪ Maritime Electric Employees</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>General</b>                  | <p>This Rate Schedule and the General Rules and Regulations, and the latest authorized edition of the Canadian Electrical Code, and any amendments or additions thereto made from time to time, shall apply to all electrical installations connected to and supplied from the Utility's power system.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Effective Date</b>           | <p>Unless otherwise indicated, this Rate Schedule and the General Rules and Regulations are effective April 28, 2017.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



|                            |                                                                                                                                                                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Account</b>             | A record of a customer's business transactions with Maritime Electric for electricity consumed and Services rendered.                                                                                                                     |
| <b>Apartment Building</b>  | Three or more self – contained dwelling units each having a separate entrance from a common hallway, lobby or stairway.                                                                                                                   |
| <b>Applicant</b>           | Any person who applies or on whose behalf an application is made for any Service provided by Maritime Electric (i.e., a potential customer).                                                                                              |
| <b>Billing Period</b>      | The period of time for which a customer is billed for Services provided by Maritime Electric.                                                                                                                                             |
| <b>Business Partner</b>    | A natural person or legal entity with whom Maritime Electric has a business relationship. This can be an individual, an organization or group and can include a prospective customer.                                                     |
| <b>Commission</b>          | "Commission" means the Island Regulatory and Appeals Commission, constituted pursuant to the Island Regulatory and Appeals Commission Act R.S.P.E.I. 1988, Cap. I-1.1.                                                                    |
| <b>Church</b>              | A building used primarily for public worship.                                                                                                                                                                                             |
| <b>Construction Charge</b> | Maritime Electric's total cost of extending its facilities less any facility allowances prescribed in these General Rules and Regulations.                                                                                                |
| <b>Contract Account</b>    | One or more contracts grouped together which set the terms and conditions of Maritime Electric's relationship with a Business Partner.                                                                                                    |
| <b>Customer</b>            | An individual, partnership, organization, corporation, institution or business that is receiving or has received electrical energy or electrical Services in Prince Edward Island from Maritime Electric.                                 |
| <b>Customer Facilities</b> | All facilities beyond the delivery point provided, owned and maintained by the Customer (excluding Metering Equipment).                                                                                                                   |
| <b>Delivery Point</b>      | The place defined by Maritime Electric at which the Customer's facilities and Maritime Electric's facilities are connected. Delivery point is more specifically defined in Section K – Connection of Customer Facilities, Delivery Point. |
| <b>Distribution System</b> | All interests in land, structures, lines, transformers and other facilities employed between the transmission system and the delivery point of the Customer.                                                                              |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dwelling</b>                     | A private suite of rooms used for living purposes in which the occupants have free access to all rooms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Extension</b>                    | Any extension to Maritime Electric's facilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Farm</b>                         | <p>A farm is a holding on which agricultural operations are carried out. Agricultural operations include the production of field crops including grain, vegetables, seed and forage crops; animal and dairy products including milk, cream, eggs, meat and poultry products, poultry hatcheries, nurseries and greenhouses for the production of crops or bedding plants, fur farms, apiaries, fish hatcheries and fish farms.</p> <p>A farm may be operated by the operator's labour alone or with the assistance of members of the household or hired employees, or it may be operated by a partnership, corporation or other organization.</p> |
| <b>General Service</b>              | Rate categories for Customers who use electricity for all purposes other than those specifically covered under the Residential, Industrial, Street Lighting or Unmetered Service classes.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Industrial Service</b>           | Rate categories for Customers who use electricity chiefly for manufacturing, assembly or processing of goods, or the extraction of raw materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Maypole</b>                      | The Service pole with the delivery point attached.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Metering Equipment</b>           | Meters and associated equipment, approved by Measurement Canada (or such other authority as may be from time to time charged with such responsibility), required for measuring demand and/or energy supplied to the Customer.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Metering Point</b>               | The place specified by Maritime Electric at which power and energy supplied to a premises are measured.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Maritime Electric Facilities</b> | The generation, transmission and distribution systems up to the delivery point, together with the metering equipment provided, owned and maintained by Maritime Electric.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Overhead Secondary Service</b>   | Overhead secondary cables or conductors, together with their supports, extending from Maritime Electric's overhead distribution system to the delivery point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Premises</b>                                    | <p>One of the following:</p> <ul style="list-style-type: none"> <li>▪ A complete building such as an office building, factory or house;</li> <li>▪ Part of a building such as a suite of offices in an office building or an apartment in an apartment building; the part of the building occupied must be adjoining and not include any space uncontrolled by the Customer; or</li> <li>▪ A group of buildings served by one electric Service considered as one Customer for billing purposes.</li> </ul> |
| <b>Principal Residence</b>                         | The dwelling used most of the time by a Customer in a year.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Rate Category</b>                               | Grouping of Customers to which a specific rate schedule applies; e.g., <del>Residential—Rural</del> , Residential <del>—Urban</del> .                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Rental Facilities</b>                           | Those facilities provided, owned and maintained by Maritime Electric for which the Customer pays a rental charge.                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Residential Service</b>                         | Rate categories for domestic use, use in churches and farms.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Service</b>                                     | Any Service(s) provided by the Company pursuant to these General Rules and Regulations.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Special Care Establishment</b>                  | Premises used exclusively for the care of the elderly or disabled.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Standard Industrial Classification (S.I.C.)</b> | The standard coding system implemented by the Government of Canada for arranging the total of the national economic production by similar industries known as producing units. A system for arranging producing units into industries is known as an industrial classification. Maritime Electric uses the Standard Industrial Classification coding to assign the appropriate rate category to a Customer.                                                                                                |
| <b>Temporary Facilities</b>                        | Temporary facilities are Maritime Electric facilities that are not expected to remain in place for the duration of their normal life cycle.                                                                                                                                                                                                                                                                                                                                                                |
| <b>Underground Secondary Service</b>               | Customer owned underground secondary cables or conductors extending from the delivery point to the Customer's Service entrance.                                                                                                                                                                                                                                                                                                                                                                            |





Maritime Electric is regulated by the Island Regulatory and Appeals Commission (“IRAC”) under the provision of the Electric Power Act. These General Rules and Regulations, as approved or amended by IRAC, set out the rules, charges, rates and tolls for the provision of Service to the Company’s Customers on Prince Edward Island.

By accepting Service from Maritime Electric under the applicable terms, conditions and rate schedules set out in this document, the Customer has contracted with Maritime Electric to comply with all applicable terms and conditions as set out herein.



**Initiation of Service**

An account is set up in the name of the Applicant(s) when Service is required. The Applicant(s) must be the owner(s) or occupants(s) of the Premise for which Service is required. The Applicant(s), when required by the Company, shall provide proof of their identity. Maritime Electric will, as promptly as practicable, provide Service in accordance with these General Rules and Regulations. Electric Service will be provided if the installation satisfies the requirements of these General Rules and Regulations and the requirements issued by the Planning and Inspection Services Division of the Province of Prince Edward Island.

An account may be transferred to the Applicant at no charge if the applicant accepts responsibility for payment of any billed or unbilled Services for that account as of the last scheduled meter reading date. In all other cases, an additional meter reading is required and the Applicant is charged for the transfer of Service. Fees charged for connections and reconnections are detailed in Section O - Fees and Charges, Service Call Fees and Connection and Reconnection Charges.

**Refusal of Service**

Notwithstanding the foregoing, Maritime Electric reserves the right to refuse to provide or continue to provide Service where:

- the Applicant, when requested to do so by the Company, fails or refuses to complete an application for Service;
- the Applicant provides false or misleading information on the application of Service;
- the Applicant is not the owner or an occupant of the premises to be served or being served;
- such Service would or does interfere with Maritime Electric's electrical Service to other Customers or Maritime Electric's own equipment;
- there are safety concerns at the premises to be served or being served;
- Service would contravene law, including orders or regulations of lawfully constituted public agencies;
- the Applicant/Customer refuses to pay any required security deposit;
- the Applicant/Customer fails to provide acceptable access to the Service entrance equipment. Note: By special arrangement a key box, approved by the Utility, may be installed which shall contain the necessary key to gain access to metering equipment;
- the person applying for electric service is an agent for another person, and that other person has an outstanding electric service account and satisfactory arrangements for settlement have not been made;
- the Applicant or the owner of the premises to be served or being served has an outstanding bill for any Service provided by the Company which is not paid in full 30 days or more after being issued; or
- the Applicant does not pay the required fees under, or otherwise fails to comply with any of, these General Rules and Regulations.

|                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Obligations of Customer</b>                                                   | If Maritime Electric's facilities or rental facilities on the Customer's premises are damaged by other than ordinary wear and tear, the Customer will pay Maritime Electric the charges associated with repairing or replacing these facilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Contracts</b>                                                                 | All Applicants or Customers requesting Industrial Service with an expected load of 750 kW or more are required to sign a contract. The contract must include the name, signature and title of the Applicant's signing officer and the corporate seal if applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Accessibility to Maritime Electric Owned Equipment on Customer's Premises</b> | <p>The Customer shall provide Maritime Electric with space and cleared rights-of-way on private property for any lines or facilities required to serve the Customer. Further, when deemed necessary by Maritime Electric, the Customer shall allow the Company to trim all trees in close proximity to Service lines in order to maintain the lines in a safe manner.</p> <p>Maritime Electric shall have the right to enter the premises of the Customer at all reasonable hours for the purpose of inspecting, meter reading, maintenance or replacement of Maritime Electric facilities or rental equipment and the application of Maritime Electric's rates schedules, General Rules and Regulations. The Customer shall not unreasonably interfere with Maritime Electric's access to its property. In addition, the Customer shall not erect any buildings or obstructions on, or alter the grade of, any of the Company's easements or rights-of-way.</p> <p>When suitable arrangements cannot be made for the Customer's meter to be periodically read at the normal reading time, Maritime Electric may require modifications to the metering facilities. The cost of such modifications shall be borne by the Customer.</p> <p>All equipment and facilities provided by Maritime Electric will remain the property of the Company unless otherwise agreed to in writing. Unless otherwise authorized by Maritime Electric, only authorized employees and agents of Maritime Electric shall be allowed to make any repairs or adjustments to any Maritime Electric equipment facilities, easements or rights-of-ways. The Customer shall be responsible for any costs or damages caused by tampering or interfering with or restricting access to Maritime Electric's equipment or facilities installed on the Customer's premises or its easements and rights-of-way.</p> |

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Deposit Requirements</b> | <p>A security deposit, when required, must be paid before Service is provided.</p> <p>A security deposit is not required from:</p> <ul style="list-style-type: none"><li>▪ Customers who have no history of arrears for the most recent 12 consecutive month period on another Maritime Electric account in their name;</li><li>▪ An Applicant or Customer who supplies a credit reference from another electric utility substantiating a history of no arrears in the most recent 12 consecutive month period on the account in their name;</li><li>▪ Municipal, Provincial or Federal Government agencies; or</li><li>▪ Publicly owned schools and hospitals.</li></ul> |
| <b>Forms of Deposits</b>    | <p>Security deposits may be in the form of cash, letters of credit from Chartered Canadian Banks or Trust Companies, bearer bonds guaranteed by either the Government of Canada or the Province of Prince Edward Island, surety bonds issued by duly authorized companies or other forms approved by the Company. The Company may in its discretion require specific guarantees from an Applicant or Customer whose location or load characteristics would require abnormal investment in facilities or who require Service of a special nature.</p>                                                                                                                      |
| <b>Deposit Amount</b>       | <p>The amount of security deposit for all Applicants/Customers is two months' estimated billing as calculated by the Company.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**Deposit Duration  
and Interest**

The interest rate for a cash deposit is set at the beginning of the calendar month in which it is received.

Interest shall be calculated on the basis of prime less 1% where prime is defined as the rate on the last day of the prior month as published by the Canadian Financial Institution with whom the utility conducts its daily banking Services.

Interest on all cash security deposits is compounded monthly as long as any portion of the deposit remains.

Residential, General Service and Industrial accounts are reviewed periodically and deposits will be refunded as a credit to the account for which the deposit was held if the Customer has established a satisfactory payment history. Residential Customer deposits are reviewed twelve months after a deposit is made, General Service and Industrial Customer deposits are reviewed twenty-four months after a deposit is made. If the Customer has established a satisfactory payment history of not having the account in arrears during the review period then the security deposit is refunded otherwise an extension will be required for a further one year period. After a one year extension, the same terms for a satisfactory payment history and refund apply. Interest on security deposit extensions is calculated in accordance with this section.

**Metering Procedures**

Maritime Electric does not permit the initiation of a multiple metered account that sums two or more metering points. For all new Customers, each metering point is a separate account. If an existing multiple metered premises requires a new Service, reconnection or upgrade for any reason (including a change in ownership), each meter will be billed as a separate Customer account.

When new buildings are constructed for Services that combine a business operation and a dwelling, owners must provide for the installation of separate meters. When major alterations are made to buildings or the wiring of buildings already containing combined Service, owners must provide for the installation of separate meters.

**Unmetered Service**

If, in the opinion of Maritime Electric, metering is not practical and usage of electricity is uniform and can be easily estimated, Customers may be provided Unmetered Service. In such cases, no metering device is employed to record either the demand or energy.

**The Bill**

Every bill for metered Service will show the last date the meter was read or estimated, the number of days in the billing period, the number of kilowatt hours (and the demand, if any) and will identify the appropriate rate category.

Maritime Electric will assist Customers in checking the amounts indicated on their bills when requested to do so.

**Estimated Billing**

An estimated bill may be issued for any billing period in which any of the following has occurred:

- Maritime Electric has taken appropriate and reasonable measures to read a Customer's meter but, due to circumstances beyond its control, is unable to read the meter; or
- The Customer has denied acceptable access to Maritime Electric's representative to read the meter.

Estimated bills are payable in all respects as if they were based on actual meter readings.

**Establishment  
of  
Rate Category**

The Customer will inform Maritime Electric regarding the use of the Service. Based on this information, Maritime Electric then establishes the applicable rate category.

Any Customer whose use of Service changes such that the Customer is subject to a different rate category will notify Maritime Electric of this change. Maritime Electric will then determine the applicable rate category and backbill or refund the Customer for any changes to the amount billed from the date of notification of the change.

**Payment Terms and  
Late Payment  
Charges**

All bills for Service are due when rendered and are subject to a late payment charge when payments are received after the date specified on the bill. The late payment charge is calculated on the amount unpaid as of the date of the next billing. Late payment charges are not prorated.

Accounts are in arrears if there is greater than a zero balance at the date of the next billing. Late payment charges are listed in Section O - Fees and Charges, Late Payment Charges.

**Payment of  
Customer  
Contribution**

Applicants are required to pay the full amount of the contribution in advance. Acceptable forms of payment include certified cheque, bank draft, cash, credit card or other forms approved by the Company. Municipal, Provincial or Federal Government Departments may also provide letters of intent to meet payment requirements.



**Metering Accuracy**

If a difference of opinion arises regarding the accuracy of the metering equipment, and Maritime Electric and the Customer are not able to resolve the dispute, then either Maritime Electric or the Customer may request that Measurement Canada conduct an accuracy test in accordance with the Electricity and Gas Inspection Act R.S.C. Ch. E-4. If the Customer initiates the request, it will be in writing.

If the test results indicate that the meter accuracy is not within the allowable limits as set out in the Electricity and Gas Inspection Act, the Customer's account will be adjusted in accordance with the provisions of this Act.

If the test results indicate that meter accuracy is within allowable limits and the Customer initiated the request, the Customer will be charged a Service call fee specified under Section O – Fees and Charges, Service Call Fees. If the test results indicate that meter accuracy is within allowable limits and Maritime Electric initiated the request, no Service call fee will be charged.

**Billing Errors, Rebates and Back Billing**

Maritime Electric will ensure that any billing error is explained to the Customer and corrective action is taken.

If a Customer has been overbilled for any reason other than Establishment of Rate Category, Maritime Electric will reimburse the difference between the amount billed and the amount the Customer should have been billed for the period during which the error occurred. If the period during which the overbilling began cannot be reasonably confirmed, the period will be deemed to be 12 billing periods prior to the period in which the error was identified.

Customers will be compensated at the Bank Prime Lending Rate (based on the weighted average monthly prime rate). Interest is compounded monthly.

Customers underbilled as a result of their illegal acts or willful damage or interference with equipment used to record the consumption of energy, are backbilled for the full error over the time the error is deemed or determined to have existed. In all other cases, the backbilling is limited to six billing periods prior to the period in which the error was identified.

The provisions of the Electricity and Gas Inspection Act R.S.C. Ch. E-4 apply in the implementation of backbilling.

**The Harmonized Sales Tax (The Tax)**

The Tax applies to all rates and charges in Sections N and O with the exception of Late Payment Charges in Section O.



**Equalized Billing**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eligibility</b>         | <p>Equalized billing is available to:</p> <ul style="list-style-type: none"><li>▪ Residential Service Customers; and</li><li>▪ General Service Customers or Industrial Service Customers with less than 100 kW of maximum monthly metered demand or, if they have no demand meter, less than 25,000 kWh monthly energy use.</li></ul>                                                                                                |
| <b>Items Equalized</b>     | <p>Equalized billing payment amounts include:</p> <ul style="list-style-type: none"><li>▪ Monthly Service charges;</li><li>▪ Energy charges;</li><li>▪ Demand charges, as applicable; and</li><li>▪ Rental charges for area lights, and poles as applicable.</li></ul>                                                                                                                                                               |
| <b>Items Not Equalized</b> | <p>Monthly bills are issued based on equalized billing payment amounts. Late payment charges, Service call fees and connection charges are not included in equalized billing payment amounts, but are added to the bill for the month in which these charges are applicable.</p>                                                                                                                                                     |
| <b>Payment Amount</b>      | <p>The equalized billing payment amount is calculated by multiplying the average monthly use in the preceding year by the applicable rate when the payment amount is established. If a full year of history is not available, or if the Customer has added load in the previous year, Maritime Electric estimates use and establishes payment amounts.</p>                                                                           |
| <b>Review</b>              | <p>Accounts on equalized billing are reviewed every six months for Residential Customers and every three months for General Service and Small Industrial Customers. As a result of the review, Customers will be contacted if actual charges are expected to vary by 10% or more from their equalized amounts. Maritime Electric will, if necessary, adjust equalized billing payment amounts in consultation with the Customer.</p> |

**Equalized Billing – Cont'd****Start and Settlement Month**

Customers may request and start equalized billing at any time during the year providing the Customer's account is in a non-arrears status. Customers must pay any accumulated difference between equalized billing amounts paid and actual total charges each year in the month of the equalized billing anniversary for the Account.

**Subsequent Arrangements**

Following settlement, the equalized billing payment amount is revised to reflect the most recent yearly requirements and recent or expected additions to Customer load and changes in Maritime Electric rates.

**Removal from Equalized Billing**

Customers are required to pay the equalized billing amount each month or may be removed from equalized billing.

**Customer Load Control Equipment**

Load control equipment, when installed, will be on the Customer's side of the metering equipment.

If a Customer requires use of Maritime Electric's metering equipment as input to the load control equipment, all of the following conditions must be met:

- Installation of this equipment must be under the direction of Maritime Electric's Metering Section;
- Metering accuracy must be maintained;
- Customers must sign a Customer Load Control Agreement prior to the installation;
- Customer load control equipment connections to Maritime Electric Facilities are installed, sealed, maintained and removed by Maritime Electric at the Customer's expense; and
- The Customer accepts full responsibility for any failure of the load control equipment and any additional billing charges that may result from such failure.

Street and Area Lighting**Street and  
Area Lighting**

Rental Facilities for street and area lighting include the luminaire, required brackets and mounting hardware.

Street and area lights are served overhead on existing poles. The Customer can request Maritime Electric to supply a pole as part of the Rental Facilities.

All charges for facilities other than rental facilities will be borne by the Customer.

For each luminaire, Maritime Electric provides one span of secondary and necessary transformation from voltages of 25 kV or less.

Poles for mounting Maritime Electric luminaires must be Maritime Electric or joint use installations.

Street and area lights are not rented to tenants of an apartment building.

If a Customer requests that a fixture be placed on a main line pole, the fixture must be located so that the light is directed only on to the Customer's property.

**Underground  
Supply**

Customer facilities for underground supply to street and area lighting include the secondary facilities from the luminaire to the nearest Maritime Electric occupied pole, junction box or pad-mounted transformer.

Customers will supply, install, own and maintain their underground supply. A sufficient length of wire must be provided at the base of Maritime Electric's supply device (e.g. padmounted transformer, pole) to allow connection to Maritime Electric facilities.

The Customer will provide the necessary rights-of-way, materials, easements and perform the civil work. Maritime Electric will install the conduit, weatherhead and all other equipment within the primary zone and make the necessary connections.

Customers requesting underground supply to street and area lighting will pay all applicable charges. Customers requesting replacement of existing overhead supply to street and area lighting with underground supply will be responsible for all charges.

Customers who install fixtures with electrical receptacles, and who are billed on a flat rate basis, must arrange for the permission of the Company to use these receptacles and agree to payment terms as per these Regulations. Customers who use (or allow to be used) receptacles without permission, and arrangement for payment, may be required to have the fixture metered or have the receptacles removed from the fixture.

**Other  
Applications**

The street and area lighting General Rules and Regulations apply to unmetered ferry landing lights and bridge lighting if the luminaires are Maritime Electric facilities.

**Provision of Service to Unmetered Customers****Outdoor Christmas  
Lighting**

Although Maritime Electric does not install Customer owned outdoor Christmas lighting, if connections or disconnections to Maritime Electric facilities are required, the Customer will be charged the actual costs for this Service. No connection fee is charged. The minimum energy charge is for one week as specified in Section N – Rate Schedules and Rate Application Guidelines, Miscellaneous Rate Schedules.

Customers must supply Canadian Standards Association (CSA) approved equipment and maintain it after the installation.

**Provision of Service to Unmetered Customers – Cont'd****Miscellaneous  
Services**

Applicants will pay all charges for extending Service to unmetered and miscellaneous Services. Refer to the Unmetered Rate Application Guidelines and the Miscellaneous Rate Schedules in Section N for examples of these Services.

With Maritime Electric's approval, the Applicant may choose metered Service at the General Service Rate. Applicants will pay all charges for extending Maritime Electric's facilities to these Services and are responsible for maintenance and transfer costs of the Service entrance equipment.

**Work on Customer Facilities**

The Customer may request Maritime Electric to construct, relocate, maintain or remove Customer facilities. The Customer is charged for this work.





**Extensions****Standard Facilities**

Maritime Electric's standard distribution facilities are for front lot overhead Service.

All other types of facilities are considered Optional Facilities.

These General Rules and Regulations cover standard facilities for metered Customers for front lot overhead extensions. Optional facilities are covered in Section I – Extension of Facilities – Optional Underground and Section J – Optional Facilities.

**Conditions for Overhead Extension**

Maritime Electric makes overhead extensions of its facilities to serve Applicants/Customers provided the following terms and conditions are met:

- The location to be served must be within a territory where Maritime Electric provides Service;
- The Applicant/Customer, the location to be served and the anticipated usage meet the requirements of all applicable sections of these General Rules and Regulations;
- Rights-of-Way on Public Roads as designated by the Prince Edward Island Department of Transportation will be obtained and cleared at no cost to the Applicant/Customer. For all other Rights-of-Way, the Applicant/Customer is responsible for supplying and clearing, as well as any costs in acquiring easements. If tree and brush clearing is performed by Maritime Electric, the Applicant/Customer is charged. These charges are non-refundable;
- Maritime Electric requires a written agreement relating to contributions and refunds in compliance with these General Rules and Regulations;
- All facilities will be constructed in accordance with Maritime Electric's Engineering Distribution Standards and applicable CSA Standards and will be owned, operated and maintained by Maritime Electric.

**Standard Facility Distance**

For the purpose of calculating the Standard Facility Allowance, the Standard Facility Distance of the extension is the lessor of:

- the shortest distance over which Maritime Electric selects to build a line from the Customer's approved delivery point to the nearest Maritime Electric facility that forms part of the distribution system, consistent with sound economic and engineering practices.

And

- 90 metres.

**Extensions – Cont'd****Standard Facility Allowance**

This allowance is applied as a reduction to the Construction Charge associated with the extension of standard facilities as specified below. The Standard Facility Allowance is equal to the Standard Facility Distance multiplied by the Company's average per meter construction cost of the extension based on the type of extension, single or three phase, as specified in Section O – Fees and Charges: Extension of Overhead Facilities Allowance and the Customer's Rate Category.

Standard Facility Allowances by Rate Category are specified as follows:

Residential (Urban, Rural and Residential Seasonal):

Maritime Electric supplies at no charge to the Customer the Standard Facility Allowance for single-phase overhead Service and the required transformation and metering for each Customer eligible for a Residential Service Rate Category. Delivery is at a standard Service voltage and delivery point as specified in Section K - Connection of Customer Facilities.

An optional facilities charge is applied to a Residential Service Customer requesting three-phase Service in accordance with Section J – Optional Facilities.

General Service and Small Industrial Rate Categories:

Maritime Electric supplies at no charge to the Customer the required transformation, metering and Standard Facility Allowance for either single-phase or three-phase overhead Service depending on the type of Service provided. Delivery is at a Maritime Electric standard Service voltage and delivery point as defined in Section K – Connection of Customer Facilities.

Large Industrial:

For Large Industrial Customers served from the transmission system refer to Section N – Large Industrial Rate Schedule.

For Large Industrial Customers served from the distribution system, Maritime Electric supplies at no charge to the Customer primary metering and the Standard Facility Allowance for three-phase overhead primary Service.

Delivery is at a Maritime Electric standard Service voltage and delivery point as defined in Section K- Connection of Customer Facilities.

**Extensions – Cont'd****Construction  
Charge for  
Extension of  
Overhead Facilities**

This Construction Charge is for the extension of overhead facilities.

**Abandoned  
Facilities**

Maritime Electric facilities which are considered to serve no useful purpose in the foreseeable future are removed. This means the conductor, poles, transformers and all other related equipment are removed and are therefore considered abandoned.

Facilities which have been isolated but left in place are not considered abandoned. A Customer contribution is required if the facilities require upgrading for the addition of a new Service in order to meet engineering and safety standards.

Maritime Electric determines the suitability for use of any existing facilities.

**Customer  
Contributions**

Customer contributions for extensions of standard facilities are the sum of all Construction Charges related to the extension less the Standard Facility Allowance.

**Removal of  
Overhead Facilities**

If a Customer requests that existing overhead facilities be removed, the Customer pays a nonrefundable contribution to cover dismantling costs and the sacrificed life value of the assets removed.

**Refund of  
Customer  
Contribution**

Customers will be entitled to a refund if additional development on the extension takes place within five (5) years from the date the contribution was paid.

Refunds are non-interest bearing and will be made either on the Customer's request or by Maritime Electric automatically during the fifth year following the date the contribution was paid.

The total amount of the refund will not exceed the original refundable contribution. Any balance of the contribution that has not been refunded during this five (5) year period is retained by Maritime Electric.

If Maritime Electric utilized the extension for its own operating purposes such as a tieline during this five (5) year period, the total amount of the refundable contribution, less any previous refunds, will be returned.

In order for the Customer to be eligible for any refund, a Customer Facility Contribution Refund Agreement must be signed by the Customer.

Refunds are calculated as shown in Section O - Fees and Charges, Extension of Overhead Facilities; Refunds.

**Distribution Line Extensions:****Basis for  
Refunds**

The connection of a Customer (meter) from a section of line upon which a contribution has been paid will entitle the original contributing Customer to one (1) refund for each permanent Customer (meter) added.

The contributing Customer will normally receive refunds at the Standard Facility Allowance rate in effect when the original contribution was paid based on the type of permanent Customer (meter) added in accordance with Section O – Fees and Charges – Extensions of Overhead Facilities Funds.

If the original contributing Customer upgraded the line from single to three-phase Service and contributed based on the addition of two-phases, and a single-phase Customer requests Service from that section of facilities, then the Customer who contributed to the facility is not entitled to a refund.

**Extension of Transmission Facilities****Large Industrial**

Maritime Electric will extend the transmission system to the Customer's substation terminating structure. The Customer will provide a guarantee for the total cost of the line. Guarantees may be in the form of cash, letters of credit from chartered Canadian banks or trust companies, bearer bonds guaranteed by either the Government of Canada or the Province of Prince Edward Island, or surety bonds issued by a duly authorized company.

This guarantee is reduced each year by an amount equal to 10% of the total of the previous twelve months' paid bills for power and energy. If the guarantee is not fully refunded within the first five (5) years, Maritime Electric will demand payment for the remaining amount of the guarantee.

When the guarantee is cash, the interest rate is set at the beginning of the calendar quarter in which it is received and then remains constant for as long as any part of the deposit is held. The interest rate will be the rate prevailing on five (5) year Government of Canada bonds.

Interest on all cash security deposits is compounded semi-annually as long as any portion of the deposit remains.



**Extensions****Standard Facilities**

Underground extensions to Maritime Electric's existing facilities are considered optional.

These General Rules and Regulations cover optional facilities for metered Customers for underground extensions. Front lot overhead and other optional facilities are covered in Section H - Extension of Facilities – Overhead and in Section J – Optional Facilities.

**Customer Facilities**

Underground Secondary Services are Customer facilities.

**Conditions for Underground Extensions**

Maritime Electric makes underground extensions of its facilities to serve Applicants/Customers provided the following terms and conditions are met:

- The location to be served must be within a territory where Maritime Electric provides Service;
- The Applicant/Customer, the location to be served, and the anticipated usage meet the requirements of all applicable sections of these General Rules and Regulations;
- Rights-of-Way on Public Roads as designated by the Prince Edward Island Department of Transportation will be obtained and cleared at no cost to the Applicant/Customer. For all other Rights-of-Way, the Applicant/Customer is responsible for supplying and clearing, as well as any costs in acquiring easements. If tree and brush clearing is performed by Maritime Electric, the Applicant/Customer is charged. These charges are nonrefundable;
- Maritime Electric requires a written agreement relating to contributions in compliance with these General Rules and Regulations;
- All facilities will be constructed in accordance with Maritime Electric's Standard Construction Practices, applicable CSA Standards, Provincial Laws, Municipal Bylaws and Regulations, and will be owned, operated and maintained by Maritime Electric;
- Maritime Electric determines the location of any padmounted equipment. The Customer is responsible for digging, sanding and backfilling of trenches and all other civil work, including necessary conduits and pads for padmounted equipment and all other non-electrical infrastructure as required by Maritime Electric's Standard Construction Practices, applicable CSA Standards, Provincial Laws, Municipal Bylaws and Regulations.

Notwithstanding the foregoing, Maritime Electric reserves the right to refuse an underground extension to its facilities for reasons of safety, environmental conditions or sound engineering practice.

Customers will supply, install, own and maintain their Underground Secondary Service. A sufficient length of wire must be provided at the base of Maritime Electric's supply device (e.g., padmounted transformer, pole) to allow connection to Maritime Electric facilities.

**Extensions – Cont'd****Underground  
Secondary  
Service**

The optional underground facilities charge recovers the difference in construction costs between what Maritime Electric normally supplies and what the Customer requests and is provided. All charges related to optional underground facilities are non-refundable.

**Optional  
Underground  
Facilities Charge**

The optional underground facilities charge equals the total cost of the facilities less the Maritime Electric investment for the equivalent standard overhead facilities.

The Maritime Electric investment is equal to the total estimated cost of the equivalent standard overhead facilities less any Customer contributions towards those facilities.

The optional facility charge includes the incremental cost of padmounted transformation, if required. An exception is when Maritime Electric approves a transformer rated at 500 kVA or greater.



**Extensions – Cont'd****Installation,  
Design,  
Material and  
Inspection**

Maritime Electric or its contractor installs the facilities.

Maritime Electric provides the electrical design, standard electrical installation material (primary conductor, connectors, transformation and associated protective equipment), and inspection and supervision Services required to meet Maritime Electric's Standard Construction Practices, applicable CSA Standards, Provincial Laws, Municipal Bylaws and Regulations.

When complex conduit systems are specified in the design, Customers must have the installation designed by qualified designers and approved by Maritime Electric. The Customer must provide as built drawings upon completion of the work and prior to Service connection. The Customer is responsible for the cost of the design work.

Maritime Electric assumes ownership and responsibility for Customer provided equipment that meets Maritime Electric's Standard Construction Practices, applicable CSA Standards and municipal bylaws and regulations, upon final inspection and acceptance by Maritime Electric, excluding secondary Services and street lighting systems.



**Optional Facilities**

Optional facilities are facilities required by a Customer that are different from standard distribution facilities which Maritime Electric would normally provide. Examples of optional facilities are:

- Underground facilities covered in Section I – Extension of Facilities – Optional Underground;
- Back lot Service;
- Residential Service Customers requesting three-phase Service; or
- Choice of a route different from that selected by Maritime Electric.

**Optional Facilities Charge**

The optional facilities charge recovers the difference in construction costs between what Maritime Electric normally supplies and what the Customer requests and is provided. All charges related to optional facilities are nonrefundable.

The optional facilities charge equals the total cost of the facilities less the Maritime Electric investment for the equivalent standard overhead facilities.

The Maritime Electric investment is equal to the total estimated cost of the equivalent standard overhead facilities less any Customer contribution towards those facilities.

If a Customer requests the use of materials not normally stocked by Maritime Electric, the charges for purchase, installation and maintenance must be borne by the Customer; the Customer must also retain ownership.

As an exception to this, Maritime Electric will contribute towards the cost of a dry type transformer an amount equal to the charge for an oil filled transformer that would normally have been supplied.

**Maintenance Charge for Optional Facilities**

A maintenance charge is a nonrefundable contribution determined by Maritime Electric to recover above normal operating, maintenance and replacement costs resulting from a Customer's request for optional facilities. These charges are specified in Section O - Fees and Charges, Optional Facilities Charges.

*Example:*

Distribution facilities are normally designed and built to occupy rights-of-way that are accessible by on-road vehicles. If a Customer requests facilities to be placed in any location that is not accessible from a public road by on-road vehicles, the Customer pays a prepaid nonrefundable maintenance charge based on the total estimated construction charges of the section.

**Nonstandard  
Delivery Point**

Maritime Electric specifies the location of the Applicant's delivery point. If an Applicant requests Maritime Electric to locate the delivery point at a location other than the one specified, and this results in additional expense for Maritime Electric, the Applicant is charged for such non-standard facilities. See Section O - Fees and Charges, Optional Facilities Charges.

**Customer  
Contribution  
For Temporary  
Facilities**

A temporary facilities charge is a contribution to recover costs of providing temporary facilities. This charge is to compensate Maritime Electric for the estimated construction cost of installation, charges for materials that cannot be salvaged and reused, and subsequent dismantling of these facilities. This charge is nonrefundable unless these facilities become permanent.

Examples of Customers that often require Temporary Facilities are asphalt plants, construction sites, portable sawmills and short term connections for festivals, bazaars, sporting events, etc.

**Customer  
Contribution  
for Facilities to  
Non-Fixed  
Premises**

Non-fixed premises are usually found in recreational areas. Examples of non-fixed premises are travel trailers and motorized homes.

Maritime Electric will provide overhead Service up to 27 metres from the nearest operational Maritime Electric facility that forms part of the distribution system.

All charges for the overhead extension beyond the 27 meter point will be paid by the Customer in accordance with Section H – Extension of Facilities – Overhead, except the standard facility allowance will be reduced to 27 meters.

Pole mounted metering is permitted by Maritime Electric for maypoles (refer to Section K – Connection of Customer Facilities) and non-fixed premises when the following conditions are met:

- If Maritime Electric supplies the pole, Maritime Electric will set it and charge the Customer. This pole is a Maritime Electric facility. See Section O - Fees and Charges, Optional Facilities Charges.
- The Customer will install Service entrance equipment in accordance with requirements as specified in the Canadian Electrical Code – Part I and any Provincial Amendments from an Authorized Government Department or Agency of the Province of Prince Edward Island. The Customer is responsible for the maintenance and transfer costs of the pole mounted Service entrance equipment.
- Maritime Electric will make the connection(s) and install the meter. Metering Equipment or conduit will not be installed on a pole with primary facilities attached, except when primary metering is being used.
- The Customer pays the nonstandard Service entrance – location charge. See Section O – Fees and Charges, Optional Facilities Charges.

If a Customer requests an Underground Secondary Service, the Customer must meet all the requirements of Section I – Extension of Facilities – Optional Underground.

**Removal of  
Optional  
Facilities**

If a Customer requests that existing operational facilities be removed, the Customer pays a nonrefundable contribution to cover dismantling costs and the sacrificed life value of the assets removed.



**Standard  
Service  
Voltages**

Maritime Electric's electric Service is provided in the form of alternating current at a frequency of 60 Hertz (cycles per second).

The nominal Service voltages are:

**Standard single-phase Service:****Secondary voltage:**

- 120 volts
- 120/240 volts

**Standard three-phase Service and combination single-phase and three-phase Service:****Secondary voltage:**

- 120/208 volts, wye connected
- 347/600 volts, wye connected

**Primary voltage, as available:**

Maritime Electric provides primary Service at a variety of voltages. Customers requesting primary Service should make application to the Company to determine the voltage available.

Customers desiring Service at nonstandard voltages provide all the necessary facilities to convert a standard Service voltage to the desired utilization voltage.

Where two or more Maritime Electric lines are available to serve the Customer's load requirements, Maritime Electric will determine from which line Service will be provided to the Customer.

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Delivery Point</b>             | <p>Maritime Electric makes all connections to the delivery point and specifies the delivery point as being one of the following:</p> <ul style="list-style-type: none"><li>▪ The point of connection of the Customer's Service entrance mast conductors to Maritime Electric's Overhead Secondary Service at the weatherhead;</li><li>▪ The point of connection of the Customer's Underground Secondary Service to Maritime Electric's secondary voltage system;</li><li>▪ The secondary bushings of Maritime Electric's transformer;</li><li>▪ The primary bushings of the Customer's transformer;</li><li>▪ The primary side of the Customer's main disconnect switch located in the Customer's electrical vault (existing Customers only, not available to new Customers);</li><li>▪ The load side of Maritime Electric's fuse disconnect;</li><li>▪ The source side of the Customer's disconnect switches;</li><li>▪ The source side of the Customer's switchgear located at the Customer's premises;</li><li>▪ The load side of the primary metering unit; or</li><li>▪ Any other point specified by Maritime Electric.</li></ul> |
| <b>Service Entrance Equipment</b> | <p>Service entrance equipment standards are specified in the Canadian Electrical Code – Part 1 and any Provincial Amendments issued by an Authorized Government Department or Agency of the Province of Prince Edward Island.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Metering Equipment</b>         | <p>Metering equipment is part of Maritime Electric's facilities supplied to Customers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



Metering equipment, except as noted below, is installed on the low voltage side of the transformer. General Service and Small Industrial Customers are primary metered under any of the following circumstances:

- Service entrance size exceeds 2000 amps;
- The Customer requests that the transformer be placed indoors; or
- The Customer requires a voltage that is not a Maritime Electric standard Service voltage.

Large Industrial Customers are normally metered at a primary voltage of 69 kV; if they are metered at a voltage below 69 kV, readings are adjusted for the associated transformation losses.

**Service to  
Multiple  
Buildings**

Normally, Maritime Electric installs a meter for each individual building of a premises except as follows:

A group of adjacent buildings located on the same property served by one electric Service is accepted by Maritime Electric as one Customer for billing purposes if the buildings:

- Are owned by the Applicant; and
- Are used for a related purpose.

The meter may be installed at either a primary or secondary voltage level. The Customer must supply, install, own and maintain all primary and/or secondary facilities beyond the delivery point.

Specific applications of a maypole or primary voltage supply are specified in the following sections.

**Secondary Voltage Supply/Maypole Service**

The delivery point is generally at the maypole on the Customer's property at a secondary voltage. The maypole, conductors from Maritime Electric facilities to the maypole, the anchor and metering equipment are Maritime Electric facilities. Maritime Electric makes all connections at the maypole.

The Customer will make connection(s) to buildings, leaving a sufficient length of wire at the maypole to allow connection to Maritime Electric facilities. Customer facilities include the secondary Services, attachment hardware on the load side of the delivery point, the conduit and meter socket, and all equipment on the maypole except metering equipment.

If the maypole subsequently has to be replaced, Maritime Electric must first disconnect the facilities. The Customer is responsible for the maintenance and transfer costs of the pole mounted Service entrance equipment.

**Primary Voltage Supply**

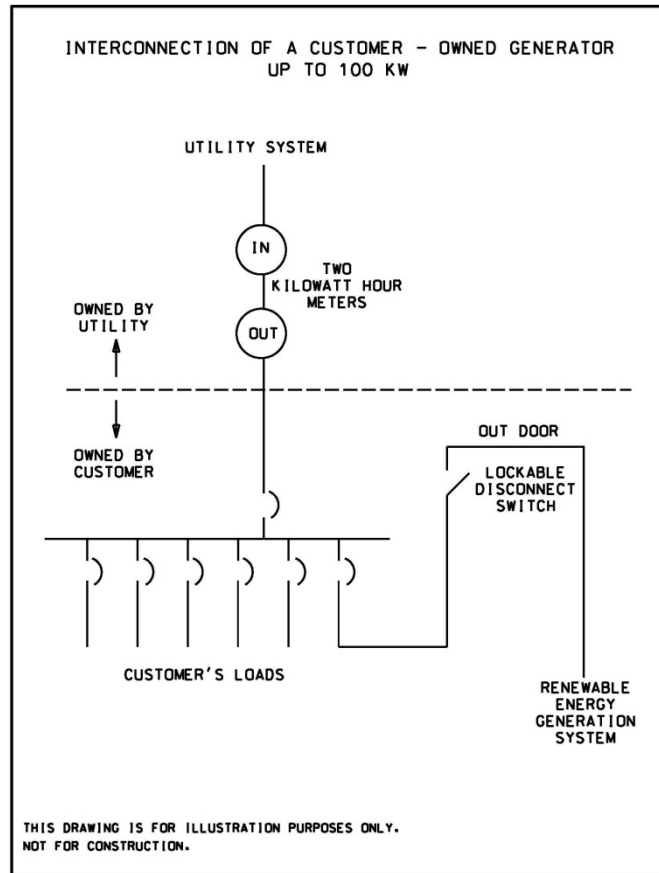
A primary voltage supply may be run by Maritime Electric to a pole or structure on the Customer's property. The delivery point is the load side of the primary metering unit. Connections at the delivery point will be made by Maritime Electric.

Primary conductors and equipment up to the delivery point including the metering equipment are Maritime Electric facilities. All facilities beyond the delivery point are Customer facilities.

**Overhead  
Secondary  
Service  
or  
Underground  
Secondary  
Service**

Maritime Electric designates the point on its facilities where the Overhead Secondary Service or Underground Secondary Service originates.

Net Metering is a way of allowing Customers to self-supply a portion of or all of their annual electrical load from a Customer-owned renewable energy generation system. The diagram below shows the relationship between the metering and the Customer's generator in a net metering installation.



- When a Customer connects a small generator to the Utility's system, a second kWh meter is installed and only one monthly Service charge is applied for the two meters. One meter measures the energy that is supplied to the utility's system during periods when the Customer's generator is producing more electricity than is being used by the Customers load ("out" meter). The other meter measures the electricity that the utility delivers to the Customer during times when the Customer's loads are using more electricity than the Customer's generator is producing ("in" meter). In calculating the monthly bill, the number of kWh supplied by the Customer to the utility is subtracted from the number of kWh delivered by the utility to the Customer. The Customer still pays the monthly Service charge, even if the resulting number of kWh is zero.

- In months when the energy produced by the Customer exceeds the Customer's energy consumption the extra kilowatt hours are credited to the Customer's account for possible future use. However, the credits do not accumulate indefinitely. On October 31 of each year, or such other dates as may be provided for under the Renewable Energy Act any outstanding credits from the preceding calendar year will expire.
- Net Metering Service is available to all Maritime Electric Customers who are served from the distribution system and are billed under one of the metered Service rates, and who install a renewable energy generator of less than 100 kW capacity, which meets the requirements of the Renewable Energy Act. For an account to be eligible for Net Metering Service, the Customer's renewable energy generator must be connected on the Customer's side of the meter. Net Metering is not applicable for un-metered Services.
- To make application, the Customer must provide a written request to take the net metering Service. The Renewable Energy Act refers to a "net-metering system agreement" that the Customer is to fill out as being the mechanism (i.e. the application form) by which the Customer requests the utility to enter into a net-metering arrangement and submit to the utility, along with drawings and other information regarding the Customer's renewable energy generation facility.
- Customers considering a renewable energy generation facility should consult the Renewable Energy Act and Regulations. Responsibilities in setting up a Net Metering arrangement are as follows:
  - The Utility shall;
    1. Within 30 days of receiving an application inspect the Customer's renewable energy generation facility to determine if it meets the requirements of the Renewable Energy Act.
    2. Within 70 days of receiving an application enter into a net-metering system agreement with the Customer if the Customer's renewable energy generation facility meets the requirements of the Renewable Energy Act. The utility shall sign the net-metering system agreement submitted by the Customer and return a copy to the customer.
    3. Within 30 days of entering (signing) into a net-metering system agreement install the appropriate meter(s) and make changes to the Customer's electricity account to put the net-metering system agreement into effect.

- The Customer shall;
  - o Submit to the utility the completed application forms and other material as outlined in the Renewable Energy Act.
  - o Be responsible for the cost of any changes (other than metering) the utility makes to its electric system in order to accommodate the parallel operation of the Customer's renewable energy generation facility. Examples of such changes are installation of larger Service conductors or distribution transformers to serve the Customer's premises or provision of a three phase supply to the Customer's premises where the existing supply is single phase.
  - o Install a lockable disconnect switch acceptable to the utility that can be used by utility personnel to isolate the Customer's renewable energy generation facility from the utility's electric system.
  - o Equip their renewable energy generation facility with under/over frequency and under/over voltage tripping devices which will isolate the Customer's renewable energy generation facility from the utility's electric system if the frequency or voltage on the utility's electric system deviates beyond pre-set limits.
  - o Install their renewable energy generation facility in accordance with the latest edition of the Canadian Electrical Code and obtain the approval of the PEI Electrical Inspector for their renewable energy generation facility.
  - o Obtain liability insurance as described in the net-metering system agreement and provide a copy of the policy to the utility.



**Service  
Continuity and  
Interruption**

Maritime Electric reserves the right to interrupt the supply of electricity at any time.

Maritime Electric will make reasonable efforts to notify Customers before interrupting the supply.

Maritime Electric will make every reasonable effort to restore the supply as soon as conditions permit.

**Prohibition of  
Resale of  
Electricity**

Electricity supplied to Customers, other than to wholesale Customers on Rate Schedule N-16, is not to be directly resold. This does not prohibit the lease of space in a premises, at a fixed rental rate that includes electrical Service.

**Apportionment  
of Bills**

With Maritime Electric's written consent, a Customer may apportion the electricity bill for a multi-tenant premise. The metering equipment used must be approved by Measurement Canada and used solely for the purposes of apportioning the bills. Maritime Electric reserves the right to review metered data and the apportionment of electricity costs.

**Interference  
with Service**

The attachment to Maritime Electric's facilities of any electrical equipment or use of any connected equipment that causes undue fluctuations in voltage or that in any other way interferes with provision of safe, adequate and satisfactory Service by Maritime Electric is prohibited.

If the Customer uses any equipment or facility that for any reason adversely affects the quality of Maritime Electric's Service to any other Customer then, on notice from Maritime Electric, the Customer will immediately take corrective measures as a condition of continuance of Service.

**Attachment to  
Maritime Electric  
Facilities**

The attachment to Maritime Electric facilities, except with consent from Maritime Electric, of anything including wires, cables, radio or television antennae, light fixtures, clotheslines, signs, posters, underground Services, etc., is prohibited.

If consent is requested and the attachment is acceptable to Maritime Electric, permission is given on the conditions that Maritime Electric will not be responsible for any damage to the attachment(s) and that Maritime Electric may at any time cancel this permission.

If consent is requested and the attachment is not acceptable to Maritime Electric, permission will not be given.

If Maritime Electric finds unacceptable attachments to its facilities, it will notify the persons involved to remove the attachments without unnecessary delay. If the person fails to comply, Maritime Electric's agents will remove the attachment(s) at the person's expense without liability for any damages which may result.



|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Notice</b>                                                  | <p>In the event that a Customer has a written contract with Maritime Electric or the terms of the applicable rate category fix a term of Service and period for notice of cancellation, those provisions will prevail. In the event there is no written contract for Service or provision for termination of Service for the Customer's rate category, the Customer will give at least five (5) business days' notice to Maritime Electric.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Liability for Charges</b>                                   | <p>Any Customer required by contract or by the terms of the rate category to give notice of termination will be liable for all charges incurred as a result of the contract.</p> <p>All other Customers terminating Service will be liable for all applicable charges until the expiration of the five (5) day notice period or until Maritime Electric has had reasonable opportunity to take a final meter reading.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Disconnection of Service Initiated by Maritime Electric</b> | <p>Maritime Electric reserves the right to disconnect Service for any of the following reasons:</p> <ul style="list-style-type: none"><li>▪ The Customer does not meet one or more of Maritime Electric's requirements under Section D for the Provision of Service;</li><li>▪ To make repairs or alterations. Where reasonable and practical, the Company shall give prior notice to the Customers;</li><li>▪ Undue interference with Maritime Electric's own equipment that may affect Service to other Customers;</li><li>▪ Safety considerations including defective wiring conditions or condemned properties;</li><li>▪ The Customer's refusal to grant or provide safe access by Maritime Electric personnel to Maritime Electric facilities and rental facilities for inspection, meter reading, maintenance and/or replacement of equipment;</li><li>▪ At the request of an Authorized Government Department or Agency, Police Authority or Fire Authority;</li><li>▪ On account of or to prevent fraud, abuse or misappropriation of Service including misrepresentation of identify for the purpose of obtaining utility Service;</li><li>▪ Failure to pay a security deposit as required.</li><li>▪ Non-payment of a delinquent account. The Company reserves the right to use a load-limiting device that will limit the flow of incoming electricity to provide for only minimal load as an alternative to disconnection. The decision to use a load-limiting device, and its duration of use, are at the discretion of the Company, recognizing that if a delinquent account regains a non-arrears status full load will be reinstated; or</li><li>▪ When a person who has not become a Customer of Maritime Electric is in receipt of electricity.</li></ul> |

**Reconnection of Service**

Services will only be reconnected when the Customer is in compliance with all applicable requirements in these rules and regulations.

Services disconnected for nonpayment will only be reconnected when satisfactory payment and deposit arrangements are made.

A security deposit or additional security deposit as outlined in Section E – Security Deposits may be collected as a condition of reconnection of Service.

A Service call fee will be charged as outlined in Section O - Fees and Charges, Service Call Fees.

Any account disconnected for nonpayment cannot be reconnected in the name of another member of the household unless satisfactory payment has been received and security deposit arrangements have been made.

- Maritime Electric shall not be responsible for any damage (direct or consequential), loss or liability that a Customer may sustain by reason of disconnection or interruption of Service or deviation from the prescribed limits applicable to voltage, frequency and other electrical characteristics whether scheduled or unscheduled unless caused by the negligence of Maritime Electric.
- Interruptions of Service shall not relieve the Customer from any charge for power and energy supplied and delivered to the Customer.



**Energy Cost Adjustment Mechanism**

|                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>                                                     | The following energy cost adjustment mechanism applies to all scheduled rates applicable to the sale of energy by Maritime Electric Company, Limited.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Energy Cost Adjustment Mechanism</b>                                | <p>The energy charge applicable under all applicable rates will be subject to a rate adjustment when the cost of purchased and produced electricity increases or decreases from the base cost.</p> <p>The forecast Base Rate Cost for purchased and produced electricity is \$0.09335/kWh and may be adjusted as Ordered by the Commission.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Deferral of Increases or Decreases from the Base Cost</b>           | <p>The deferral of increases or decreases in purchased and produced electricity from the Base Cost shall be calculated at the end of each month as follows:</p> <ol style="list-style-type: none"> <li>1. Determine the total cost of purchasing and producing electricity in the month including any amounts amortized to ECAM as Ordered by the Commission;</li> <li>2. Determine the net kilowatt hours of purchased and produced energy in the month;</li> <li>3. Multiply the quantity of net purchased and produced energy determined in (2) above by the forecast Base Rate Cost of \$0.09335/kWh to determine the base cost of electricity;</li> <li>4. Subtract the base cost of electricity determined in (3) above from the total cost of purchasing and producing electricity determined in (1) above to calculate the excess or deficiency of the cost of purchased or produced electricity from the base cost;</li> <li>5. Add the excess (or deficiency) of the cost of purchased or produced energy calculated in (4) above to the corresponding excess (or deficiency) costs on the Balance Sheet.</li> </ol> |
| <b>Calculation of ECAM Rate Adjustment Applied to Customers' Bills</b> | <p>The ECAM Rate Adjustment applied to Customers' bills shall be calculated as follows and applied to Customers' bills for not less than twelve months unless otherwise Ordered by the Commission.</p> <ol style="list-style-type: none"> <li>6. Determine the total of the excess (or deficiency) costs on the Balance Sheet at the end of the third month proceeding the month in which the ECAM rate will be applied.</li> <li>7. Determine the forecast total kilowatt hour sales for the twelve month period commencing with the month in which the ECAM rate will be applied.</li> <li>8. Divide the amount calculated in (6) above by the amount calculated in (7) above to determine the ECAM rate adjustment required in cents per kilowatt hour sold and which will be applied to Customers' bills. Rate adjustment shall be calculated to the nearest three decimal places (five decimal places on the dollar).</li> </ol> <p>* Application of the Energy Cost Adjustment Mechanism is subject to the terms and provisions of the Electric Power Act.</p>                                                           |

**Residential Service Rate Schedule****Residential  
Urban**

That category of Residential Customers located in all incorporated cities, towns and villages with population over 2000 served by Maritime Electric.

**Rate (Code 110)**

Service Charge: \$24.57 per Billing Period

Energy Charge: 14.56¢ per kWh for first 2000 kWh per Billing Period  
11.55¢ per kWh for balance kWh per Billing Period

**Residential  
Rural**

~~That category of Residential Customers located in all other areas not included under Residential Urban category served by Maritime Electric.~~

~~**Rate (Code 130)**~~

~~Service Charge: \$26.92 per Billing Period~~

~~Energy Charge: 14.37¢ per kWh for first 2000 kWh per Billing Period  
11.42¢ per kWh for balance kWh per Billing Period~~

**Residential  
Seasonal**

That category of Residential Customers who require Service to a dwelling other than a principal residence (e.g., summer cottages).

**Rate (Code 131)**

Service Charge: \$26.92 per Billing Period

Energy Charge: 14.56¢ per kWh for first 2000 kWh per Billing Period  
11.55¢ per kWh for balance kWh per Billing Period

**Residential  
Seasonal  
Option**

Residential Seasonal Customers with fully accessible outside meters may remain connected year round provided that the energy used during the period 1 November to 31 May inclusive does not exceed fifty percent (50%) of the total energy used between 1 June and 31 October of the preceding year. Residential Seasonal Customers whose 1 November to 31 May consumption exceeds this fifty percent (50%) shall be billed under the applicable Residential Service rate for the periods connected. Meters shall be read or estimated and bills shall be rendered for May, June, July, August, September and October.

**Rate (Code 133)**

Service Charge: \$37.50 per Billing Period

Energy Charge: 14.56¢ per kWh for first 2000 kWh per Billing Period  
11.55¢ per kWh for balance kWh per Billing Period

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Residential Service Rate Application Guidelines**

~~Urban and~~  
~~Rural~~  
**Residential**

Customers who use electricity for living purposes in any of the following:

- Dwellings;
- Dwelling out buildings; and
- Individually metered, self-contained dwelling units within an apartment building.

In addition, the Residential Rate applies to:

- Services to farms and churches; and
- Service for the construction phase of a dwelling.

A premise providing lodging with nine (9) beds or less, including boarding and rooming houses, special care establishments, senior citizen homes, nursing homes, hostels and transition homes.

The combined usage of a dwelling and a business operation measured by one meter, where the connected load of the business operation, excluding space heating and air conditioning, is two (2) kilowatts or less.

**Seasonal**

Customers who use electricity for living purposes in a dwelling other than the Customer's principal residence; e.g., summer cottage.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**General Service Rate Schedules****General Service**

That category of Customers in all areas served by Maritime Electric who use electricity for purposes other than those specifically covered under Residential, Small and Large Industrial, Street Lighting or Unmetered Categories.

**Billing Demand**

The greater of the maximum kW demand or 90% of the maximum kVA demand in the billing period.

**Rate (Code 232)**

Service Charge: \$24.57 per Billing Period

Demand Charge: No charge for first 20 kW or less per Billing Period  
\$13.43 per kW for balance kW per Billing Period

Energy Charge: 17.93¢ per kWh for first 5000 kWh per Billing Period  
11.67¢ per kWh for balance kWh per Billing Period

**General Service – Seasonal Operators Option**

General Service seasonal operators with fully accessible outside meters may remain connected year round provided that the energy used during the period 1 November to 31 May inclusive does not exceed fifty percent (50%) of the total energy used between 1 June and 31 October of the preceding year. General Service seasonal operators whose 1 November to 31 May consumption exceeds this fifty percent (50%) shall be billed under the applicable General Service rate for the periods connected. Meters shall be read or estimated and bills shall be rendered for May, June, July, August, September and October.

**Rate (Code 233)**

Service Charge: \$24.57 per Billing Period

Demand Charge: No charge for first 20 kW or less per Billing Period  
\$13.43 per kW for balance kW per Billing Period

Energy Charge: 17.93¢ per kWh for first 5000 kWh per Billing Period  
11.67¢ per kWh for balance kWh per Billing Period

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**



**General Service Rate Schedules – Cont'd****General  
Service II**

Rate Class closed effective March 1, 2016

**General Service Rate Application Guidelines****General  
Service**

General Service rate applications include the following:

- Religious and charitable institutions, excluding churches;
- Service for the construction phase of any premises other than a dwelling;
- Dwellings providing lodging with more than nine (9) beds, including boarding and rooming houses, special care establishments, senior citizen homes, nursing homes, hostels and transition homes;
- Combined usage of a dwelling and a business operation measured by one meter, where the connected load of the business operation, excluding space heating and air conditioning, is greater than two (2) kilowatts;
- Bulk metered apartment buildings that combine the Service to the dwelling units and/or the common use areas;
- Service to common areas in apartment buildings;
- Any business operation involving both manufacturing/processing and Service/repair on which less than one half of the business volume is manufacturing/processing;
- Warehousing, storage and distribution centres on the same property and forming part of a manufacturing or processing operation with one meter where the warehousing, storage and distribution load is greater than one half of the total electricity consumed;
- A retail or wholesale operation on a farm must install a separate meter to measure that retail/wholesale load;

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**General Service Rate Application Guidelines – Cont'd**

- Water pumping, sewage lift stations, sewage lagoons, chlorinating plants and sewage treatment plants directly related to municipally owned water supplies or waste disposal systems are normally billed at General Service Rates. At the option of the Customer, an Industrial Service Rate may be applied; and
- General Service seasonal operators with fully accessible outside meters may remain connected year round provided that the energy used during the period 1 November to 31 May inclusive does not exceed fifty percent (50%) of the total energy used between 1 June and 31 October of the preceding year. Examples of eligible facilities include seasonal tourist accommodations, attractions or eateries.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Small Industrial Rate Schedule****Small  
Industrial**

That category of Customers who use electricity chiefly for manufacturing or processing of goods or for the extraction of raw materials and have a minimum contracted demand of five (5) kilowatts.

***Billing Demand***

The greatest of:

- The monthly maximum kW demand;
- 90% of the monthly maximum kVA demand; or
- 5 kW.

As a result of installed metering, both the monthly maximum kW demand and 90% of the monthly maximum kVA demand noted above may not apply.

***Rate (Code 320)***

Demand Charge: \$7.46 per kW of billing demand per month

Energy Charge: 17.56¢ per kWh for first 100 kWh per kW of billing demand per month  
8.79¢ per kWh for balance of kWh per month

To be eligible for Service with a contracted demand, Customers must sign the Contract for Electrical Service under Section C – Agreements and Forms.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Small Industrial Rate Application Guidelines**

Industrial Rates apply to the following S.I.C. groups:

Division C Major group:

04 Logging Industry

Division D Major groups:

06 Mining Industries

07 Crude Petroleum and Natural Gas Industries

08 Quarry and Sand Pit Industries

09 Service Industries Incidental to Mineral Extraction

Division E Manufacturing Industries.

In addition:

Fish hatcheries qualify for this rate.

Any business operation involving both manufacturing/processing and service/repair in which more than one half of the business volume is manufacturing/processing.

Warehousing, storage and distribution centres on the same property and forming part of a manufacturing or processing operation with one (1) meter where the manufacturing/processing load is greater than one half of the total electricity consumed.

A processing operation on a farm must install a separate meter to measure that processing load.

Customers whose demand is above 750 kW and less than 3000 kW may choose to be billed at the Small Industrial Rate but must meet certain conditions of the Large Industrial Rate; specifically, they must be metered at a primary voltage of 69 kV and own the step-down transformation from the primary service voltage or pay an equivalent rental charge.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Large Industrial Rate Schedule****Large Industrial**

That category of Customers in all areas served by Maritime Electric who use electricity chiefly for manufacturing or processing of goods or for the extraction of raw materials and have a minimum contracted demand of 750 kW.

***Billing Demand***

The greatest of:

- The monthly maximum kW demand;
- 90% of the maximum kVA demand;
- 90% of the firm amount reserved in the contract for non-curtailable Customers or 100% of the total contracted amount for curtailable Customers;
- 90% of the maximum demand recorded during the current calendar year excluding April through November; or
- 90% of the lesser of the average demand recorded during the previous calendar year, or the previous calendar year excluding April through November.

***Rate (Code 310)***

Demand Charge: \$14.50 per kW of the billing demand per month

Energy Charge: 7.23¢ per kWh for all kWh per month

**Rental Charges****- Primary distribution voltage to customer's utilization voltage**

At the Customer's request, Maritime Electric will supply, own and maintain the substation equipment at the Customer's premises, including from the primary distribution facilities from the high voltage switches to the low voltage terminals of the step-down transformers, provided such transformation satisfies Maritime Electric Standards. The charge for such rental equipment facilities is 1<sup>5</sup>/<sub>6</sub>% per month of the installed costs. The Customer will supply the low voltage switch gear, concrete substation foundation pads and necessary protective fencing.

**Losses Charge****- 69 kV to primary distribution voltage**

At the discretion of Maritime Electric, electricity may be supplied at a primary distribution Service voltage between 4 kV and 25 kV. In such cases, the monthly demand and energy consumption will be increased by 1½% to compensate for transformation losses.

**- Primary distribution voltage to Customer's utilization voltage**

At the discretion of Maritime Electric, electricity may be supplied at the Customer's utilization voltage. In such cases, the monthly demand and energy consumption will be increased by 1½% to compensate for transformation losses. This charge will be in addition to the losses charge for transformation from 69 kV to the primary distribution voltage.

**Transformation  
Charge**

- 69 kV to primary distribution voltage

When a Customer is provided Service at a primary distribution voltage between 4 kV and 25 kV ~~voltages less than 69 kV~~, the Customer will also be charged an “equivalent kVA rental” charge equal to  $1\frac{5}{6}\%$  per month of the costs of the equivalent substation kVA utilized by the Customer’s electrical load. The equivalent kVA charge is the Customer’s kVA demand multiplied by \$1.25 per kVA per month.

**Large Industrial Rate Schedule – Cont'd**

**Contracts** A Customer supplied at the Large Industrial Rate is required, and is deemed, to have entered a firm contract providing for the payment of the rate, for an initial term of five (5) years, in the case of a Customer considered by Maritime Electric to be a new Customer, and for an initial term of one year for a customer considered by Maritime Electric to be an existing Customer. The contract will continue thereafter on a firm basis subject to termination by either the Customer or Maritime Electric at the end of the initial term, or any date thereafter by either party giving at least twelve month's notice in writing.

**Metering** The metering point shall be at or near the transmission line terminals (69 kV).

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**



**Large Industrial Rate Application Guidelines**

Industrial Rates apply to the following S.I.C. groups:

Division C Major Group:

04 Logging Industry

Division D Major Groups:

06 Mining Industries

07 Crude Petroleum and Natural Gas Industries

08 Quarry and Sand Pit Industries

09 Service Industries Incidental to Mineral Extraction

Division E, Manufacturing Industries.

In addition:

Any business operation involving both manufacturing/processing and Service/repair in which more than one half of the business volume is manufacturing/processing.

Warehousing, storage and distribution centres on the same property and forming part of a manufacturing or processing operation with one (1) meter where the manufacturing or processing load is greater than one half of the total load.

Customers whose demand is above 750 kW and less than 3000 kW may choose to be billed at the Small Industrial Rate but must meet certain conditions of the Large Industrial Rate; specifically, they must be metered at a primary service voltage of 69 kV and own the step-down transformation from the delivery voltage or pay an equivalent rental charge.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

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**Wholesale Rate Schedule**

|                                         |                                                                                                                                                                                                                                                               |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>                      | The City of Summerside Electric Department.                                                                                                                                                                                                                   |
| <b>Long Term Contract:</b>              | The Wholesale Customer agrees to enter into a contract with Maritime Electric for a period not less than 10 years.                                                                                                                                            |
|                                         | <b>Rate (Code 340)</b>                                                                                                                                                                                                                                        |
|                                         | Demand Charge: \$15.51 per kW per month                                                                                                                                                                                                                       |
|                                         | Energy Charge: 9.37¢ per kWh for all kWh in the month                                                                                                                                                                                                         |
| <b>Short Term Contract:</b>             | The Wholesale Customer agrees to enter into a contract with Maritime Electric for a period not less than 1 year.                                                                                                                                              |
|                                         | <b>Rate (Code 330)</b>                                                                                                                                                                                                                                        |
|                                         | Demand Charge: \$16.79 per kW per month                                                                                                                                                                                                                       |
|                                         | Energy Charge: 9.91¢ per kWh for all kWh in the first block per month                                                                                                                                                                                         |
|                                         | 8.21¢ per kWh for balance of kWh in the month                                                                                                                                                                                                                 |
| <b>First Energy Block Determination</b> | Set each year on 1 April based on the minimum monthly energy purchases that would have been required from Maritime Electric during the previous year period of 1 April to 31 March, assuming normalized generation from the Customer's generating facilities. |
|                                         | <b>This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.</b>                                                                                 |

**Unmetered Rate Schedules****Unmetered  
Service**

That category of Customers in all areas served by Maritime Electric requiring Unmetered Service.

***Rate***

Minimum Charge: \$11.67 per month

Energy Charge: 17.57¢ per kWh of estimated consumption

***Rate Codes:***      ***810 – 8 hour***  
                             ***820 – 12 hour***  
                             ***830 – 24 hour***

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Unmetered Rate Application Guidelines**

Services for which electricity consumption is uniform and easily estimated.

Services where metering is not considered practical by Maritime Electric.

Specific applications of the Unmetered Rates include:

- Traffic control lights;
- Self – contained sign lighting;
- Architectural flood lighting;
- Decorative lighting;
- Carrier repeaters;
- Radio transmitters;
- Telephone booths;
- Range lights;
- Airport runway lights;
- Highway traffic counters; and
- CATV power supply units.

**Estimating Consumption**

Electricity consumption is estimated by multiplying the connected load in watts times the hours of usage. For example, a photoelectrically controlled 100 watt sign light operates approximately 12 hours per day, has an estimated annual consumption calculated as follows:

100 watts x 12 hours x 365 days = 438,000 watt-hours or 438 kWh per year.

If conditions are such as to cause reasonable doubt concerning the connected load, recording equipment will be installed to determine the kW connected load.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**



**Miscellaneous Rate Schedules****Air Raid and Fire  
Sirens (unmetered)**

Customer is charged \$4.52 per month per HP of nameplate rating.  
**(Code 840)**

**Outdoor Christmas  
Lighting**

Customer is charged 5.77¢ per watt of connected load per week. The minimum charge is for a period of one (1) week.  
**(Code 850)**

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Short Term Unmetered Rate Schedule**

That category of Customers in all areas served by Maritime Electric requiring single-phase and three-phase installations and connected for no longer than one (1) month. The installation will not be metered.

**Rate**

|                    |              |             |
|--------------------|--------------|-------------|
| Connection Charge: | Single-Phase | Three-Phase |
|--------------------|--------------|-------------|

|                                                |         |         |
|------------------------------------------------|---------|---------|
| A. Connecting to existing<br>Secondary voltage | \$99.08 | \$99.08 |
|------------------------------------------------|---------|---------|

B. Where transformer installations are required, the following connection charges will apply:

|                               |              |             |
|-------------------------------|--------------|-------------|
|                               | Single-Phase | Three-Phase |
| 1. Up to and including 10 kVA | \$148.87     | \$209.17    |
| 2. 11 kVA to 15 kVA           | \$240.79     | \$301.01    |
| 3. 16 kVA to 25 kVA           | \$269.20     | \$336.64    |
| 4. 26 kVA to 37 kVA           | \$301.01     | \$336.64    |
| 5. 38 kVA to 50 kVA           | \$336.64     | \$336.64    |
| 6. 51 kVA to 75 kVA           | \$369.58     | \$523.96    |
| 7. 76 kVA to 125 kVA          | \$431.07     | \$555.59    |
| 8. Above 125 kVA              | -            | \$594.94    |

Energy Charge:

**17.57¢** per kWh of estimated consumption

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Short Term Unmetered Rate Application Guidelines**

Available to serve such events as carnivals, bazaars and unmetered installations.

Connected for no longer than one (1) month.

When the Service exceeds one month, the installation will be billed and the remaining time considered as a new installation.

When meters are involved, and not disconnected, a reading will be taken and the kilowatt hours noted for record purposes only.

When poles or additional equipment other than the transformer installation are required, the installation and removal charges will be estimated and collected before work commences. Customers who have a credit history, acceptable to Maritime Electric, may be billed using a Customers Contribution Estimate.

**Estimating  
Consumption**

Electricity consumption is estimated by multiplying the connected load in kW (or kVA times 0.9), times the hours of usage. For example, a carnival with a connected load of 25 kVA operates 12 hours per day for 10 days has an estimated consumption calculated as follows:

$25 \text{ kVA} \times 0.9 \text{ power factor} \times 12 \text{ hours} \times 10 \text{ days} = 2,700 \text{ kWh.}$

If conditions are such as to cause reasonable doubt concerning the connected load, recording equipment will be installed to determine the kVA connected load.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Rental Facility Rate Schedules****Street and  
Area Lighting**

This rate applies to Customers renting area lighting from Maritime Electric for a minimum of 12 consecutive months.

**Rate****Luminaires:**

| Lamp Wattage                                | Mean<br>Output<br>(Lumens) | (\$)<br>Rate<br>Per Month | Rate<br>Code | Annual<br>kWhs |
|---------------------------------------------|----------------------------|---------------------------|--------------|----------------|
| <b>LED Lighting</b>                         |                            |                           |              |                |
| 70 Watt HPS Equivalent St Lights            | -                          | 12.20                     | 619          |                |
| 100 Watt HPS Equivalent St Lights           | -                          | 12.63                     | 625          |                |
| 175 Watt MV Equivalent St Lights            | -                          | 14.04                     | 666          |                |
| *100 Watt                                   | -                          | 16.34                     | 670          | 410            |
| 150 Watt /200 Watt HPS Equivalent St Lights | -                          | 15.18                     | 675          |                |
| <b>Mercury Vapour</b>                       |                            |                           |              |                |
| *125 Watt                                   | 5300                       | 15.98                     | 635/735      | 656            |
| *175 Watt                                   | 7500                       | 20.31                     | 736          | 881            |
| *250 Watt                                   | 11100                      | 28.26                     | 737          | 1210           |
| <b>High Pressure Sodium</b>                 |                            |                           |              |                |
| *70 Watt Lantern                            | 5500                       | 59.32                     | 639          | 389            |
| *70 Watt                                    | 5500                       | 16.14                     | 630/730      | 389            |
| *100 Watt                                   | 8500                       | 20.49                     | 631/731      | 553            |
| *150 Watt                                   | 14400                      | 29.30                     | 632/732      | 799            |
| 250 Watt                                    | 27000                      | 39.84                     | 633/733      | 1283           |
| 400 Watt                                    | 45000                      | 46.60                     | 634/734      | 1886           |
| <b>High Pressure Sodium Floodlight</b>      |                            |                           |              |                |
| 250 Watt                                    | -                          | 38.01                     | 753          | -              |
| 400 Watt                                    | -                          | 47.32                     | 754          | -              |
| <b>Metal Halide Floodlight</b>              |                            |                           |              |                |
| 250 Watt                                    | -                          | 40.04                     | 755          | -              |
| 400 Watt                                    | -                          | 49.28                     | 756          | -              |
| 1000 Watt                                   | -                          | 84.57                     | 757          | -              |

\*These charges are applicable to existing fixtures only.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Rental Facility Rate Schedules – Cont'd**

**Pole** That category of Customers renting poles from Maritime Electric.

**Rate**

The rental rate for poles is:

(\$)

|           | Rate<br>Per Month | Rate<br>Code |
|-----------|-------------------|--------------|
| Wood pole | 4.38              | 610          |

**Customer Facility Rate Schedule****Customer Owned  
Street and Area  
Lighting**

That category of Customers owned street and area lighting.

| <b>Rate</b>                  | <b>(\$)<br/>Per<br/>Month</b> | <b>Rate<br/>Code<br/>St. Lt.</b> | <b>Rate<br/>Code<br/>Yd. Ltd.</b> | <b>Annual<br/>kWhs</b> |
|------------------------------|-------------------------------|----------------------------------|-----------------------------------|------------------------|
| Lamp Wattage                 |                               |                                  |                                   |                        |
| <b>Low Pressure Sodium</b>   |                               |                                  |                                   |                        |
| 180 Watt                     | 13.09                         | 749                              | 749                               | 869                    |
| <b>High Pressure Sodium</b>  |                               |                                  |                                   |                        |
| 70 Watt                      | 6.34                          | 640 *                            | 740 *                             | 389                    |
| 100 Watt                     | 8.36                          | 641 *                            | 741 *                             | 553                    |
| 150 Watt                     | 11.23                         | 642 *                            | 742 *                             | 779                    |
| 250 Watt                     | 17.79                         | 643                              | 743                               | 1283                   |
| 400 Watt                     | 28.07                         | 644                              | 744                               | 1886                   |
| <b>Metal Halide Lighting</b> |                               |                                  |                                   |                        |
| 100 Watt                     | 7.82                          | -                                | 759                               | 533                    |
| 150 Watt                     | 11.12                         | -                                | 765                               | 759                    |
| 175 Watt                     | 13.12                         | -                                | 760                               | 894                    |
| 250 Watt                     | 16.83                         | -                                | 761                               | 1148                   |
| 400 Watt                     | 27.52                         | -                                | 762                               | 1878                   |
| <b>LED Lighting</b>          |                               |                                  |                                   |                        |
| 43 Watt                      | 2.58                          | 719                              | -                                 | 176                    |
| 72 Watt                      | 4.32                          | 766                              | -                                 | 295                    |
| 100 Watt                     | 6.01                          | 764                              | -                                 | 410                    |
| 107 Watt                     | 6.42                          | 775                              | -                                 | 438                    |
| 143 Watt                     | 8.59                          | 780                              | -                                 | 586                    |
| 175 Watt                     | 10.50                         | 785                              | -                                 | 718                    |

**\* These charges are applicable to existing fixtures only.**

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

The above charges apply to photocontrolled lights operating from dusk to dawn. The energy charges for lights operating from dusk to 1:30 a.m. and controlled by a time switch shall be 50% of the above rates.

**Customer Facility Rate Schedule****Customer Owned  
Street and Area  
Lighting**

Customers may request Service for a Customer owned street and area lighting fixture other than those categories listed above provided the fixture meets current electrical standards and is approved for installation by Maritime Electric. Installation of fixtures not approved by Maritime Electric may result in additional charges and may be required to be metered.

The interim rate for these new fixtures will be calculated using the formula below, as approved by IRAC.

$$\text{Basic Rate} = \frac{4,100 \text{ hrs} \times W / 1000 \times U}{12 \text{ months}}$$

Where:

4,100 hours = the number of hours the fixture is on during the year

W = total wattage of the fixture, ballast and any other apparatus associated with the fixture

U = the basic Un-metered Service energy rate from Section N-17 of the approved tariff.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**

**Customer Facility Rate Schedule – Cont'd****Customer Owned  
Outdoor  
Recreational  
Lighting**

That category of Customer owning metered outdoor lighting which operates only during the period April through November.

**Rate (Code 234)**

Service Charge: \$24.57 billing period

Energy Charge: 17.57¢ per kWh for first 5000 kWh per billing period

10.79¢ per kWh for balance kWh per billing period

The above rate is available to Customers with outdoor recreation lighting. Examples of Customers on this rate include: baseball parks, soccer fields and tennis courts. Customers who have non-lighting requirements on the same Service can also qualify for this rate if the connected non-lighting load is less than 20 kilowatts.

Customers on this rate who use electricity during December through March will be assessed demand charges for each month, including the preceding April through November, in which electricity is used. The demand charges will be assessed at the General Service Rate. Failure to pay demand charges will result in the customer being placed on the General Service Rate.

**This rate is inclusive of the Energy Cost Adjustment Mechanism and other rates and tolls approved by the Commission and/or as authorized under the Electric Power Act.**



**Open Access Transmission Tariff**

This rate applies to eligible Customers requiring transmission services. An eligible Customer is:

- i. any electric utility (including the transmission provider), wholesale Customer or any person generating electric energy for sale or resale outside of Prince Edward Island.

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>                   | Eligible Customers requesting transmission services must apply in writing and request services for a minimum 12 month period.                                                                                                                                                                                                                                                                                                                         |
| <b>Transmission Services Include</b> | Transmission Access and Capacity<br>Scheduling, System Control and Dispatch Service<br>Reactive Supply and Voltage Control                                                                                                                                                                                                                                                                                                                            |
| <b>Billing Procedure</b>             | Within a reasonable time after the first day of each month, the transmission provider or its designated agent shall submit an invoice to the transmission Customer for the charges for all Services furnished under the Tariff during the preceding month. The invoice shall be paid by the transmission Customer within 20 calendar days of receipt. All payments shall be made in immediately available funds payable to the transmission provider. |

**Rate (Code XXX)**

The rates charged will be equal to 95% of those under the New Brunswick Power Tariff as amended from time to time.

**Energy Cost Adjustment Mechanism:** This rate is not subject to the Energy Cost Adjustment Mechanism.

| N-28 Rate Schedules and Rate Application Guidelines                           |               |
|-------------------------------------------------------------------------------|---------------|
| Schedule of "Adjusted Rates"                                                  |               |
| Maritime Electric Company Limited<br>Applied to Bills Effective March 1, 2019 |               |
| Rate Code                                                                     | March 1, 2019 |
| <b>110 Residential</b>                                                        |               |
| Service Charge                                                                | \$ 24.57      |
| Energy Charge per kWh for first 2,000 kWh                                     | \$ 0.1456     |
| Energy Charge per kWh for balance kWh                                         | \$ 0.1155     |
| <b>131 Residential Seasonal</b>                                               |               |
| Service Charge                                                                | \$ 26.92      |
| Energy Charge per kWh for first 2,000 kWh                                     | \$ 0.1456     |
| Energy Charge per kWh for balance of kWh                                      | \$ 0.1155     |
| <b>133 Residential Seasonal Option</b>                                        |               |
| Service Charge                                                                | \$ 37.50      |
| Energy Charge per kWh for first 2,000 kWh                                     | \$ 0.1456     |
| Energy Charge per kWh for balance of kWh                                      | \$ 0.1155     |
| <b>232 General Service</b>                                                    |               |
| Service Charge                                                                | \$ 24.57      |
| Demand Charge - per kW for first 20 kW                                        | \$ -          |
| Demand Charge - per kW for balance of kW                                      | \$13.43       |
| Energy Charge per kWh for first 5,000 kWh                                     | \$ 0.1793     |
| Energy Charge per kWh for balance of kWh                                      | \$ 0.1167     |
| <b>233 General Service - Seasonal Operators Option</b>                        |               |
| Service Charge                                                                | \$ 24.57      |
| Demand Charge - per kW for first 20 kW                                        | \$ -          |
| Demand Charge - per kW for balance of kW                                      | \$ 13.43      |
| Energy Charge per kWh for first 5,000 kWh                                     | \$ 0.1793     |
| Energy Charge per kWh for balance of kWh                                      | \$ 0.1167     |
| <b>320 Small Industrial</b>                                                   |               |
| Demand Charge - per kW                                                        | \$ 7.46       |
| Energy Charge per kWh for first 100 kWh per kW billing demand                 | \$ 0.1756     |
| Energy Charge per kWh for balance of kWh                                      | \$ 0.0879     |
| <b>310 Large Industrial</b>                                                   |               |
| Demand Charge per kW                                                          | \$ 14.50      |
| Energy Charge per kWh                                                         | \$ 0.0723     |
| <b>340 Long Term Contract</b> (Currently no customers in this rate category)  |               |
| Demand Charge per kW                                                          | \$ 15.51      |
| Energy Charge per kWh                                                         | \$ 0.0937     |
| <b>330 Short Term Contract</b> (Currently no customers in this rate category) |               |
| Demand Charge - per kW                                                        | \$ 16.79      |
| Energy Charge per kWh for all kWh in the first block                          | \$ 0.0991     |
| Energy Charge per kWh for balance of kWh in the month                         | \$ 0.0821     |

## Schedule of "Adjusted Rates"

**Maritime Electric Company, Limited**  
**Applied to Bills Seffective March 1, 2019**

|                    |             |          | Annual<br>kWh                                 | Monthly<br>kWh | March 1, 2019 |
|--------------------|-------------|----------|-----------------------------------------------|----------------|---------------|
| <b>Residential</b> | <b>Type</b> |          |                                               |                |               |
|                    | 619         | LED      | 70 W HPS Equivalent St Lights - Rented        | 15             | \$ 12.20      |
|                    | 625         | LED      | 100 W HPS Equivalent St Lights - Rented       | 17             | \$ 12.63      |
| *                  | 630         | HPS      | St Lights - Rented                            | 389            | \$ 16.14      |
| *                  | 631         | HPS      | St Lights - Rented                            | 553            | \$ 20.49      |
| *                  | 632         | HPS      | St Lights - Rented                            | 799            | \$ 29.30      |
|                    | 633         | HPS      | St Lights - Rented                            | 1283           | \$ 39.84      |
|                    | 634         | HPS      | St Lights - Rented                            | 1886           | \$ 46.60      |
| *                  | 635         | MV       | St Lights - Rented                            | 656            | \$ 15.98      |
|                    | 639         | Lanterns | City Lanterns - Rented                        | 389            | \$ 59.32      |
| *                  | 640         | HPS      | St Lights - Owned                             | 389            | \$ 6.34       |
| *                  | 641         | HPS      | St Lights - Owned                             | 553            | \$ 8.36       |
| *                  | 642         | HPS      | St Lights - Owned                             | 779            | \$ 11.23      |
|                    | 643         | HPS      | St Lights - Owned                             | 1283           | \$ 17.79      |
|                    | 644         | HPS      | St Lights - Owned                             | 1886           | \$ 28.07      |
|                    | 666         | LED      | 175 W MV Equivalent St Lights - Rented        | 25             | \$ 14.04      |
|                    | 670         | LED      | St Lights - Rented                            | 410            | \$ 16.34      |
|                    | 675         | LED      | 150 W/200 W HPS Equivalent St Lights - Rented | 37             | \$ 15.18      |
|                    | 719         | LED      | St Lights - Owned                             | 176            | \$ 2.58       |
| *                  | 730         | HPS      | Yard Lights - Rented                          | 389            | \$ 16.14      |
| *                  | 731         | HPS      | Yard Lights - Rented                          | 553            | \$ 20.49      |
| *                  | 732         | HPS      | Yard Lights - Rented                          | 799            | \$ 29.30      |
|                    | 733         | HPS      | Yard Lights - Rented                          | 1283           | \$ 39.84      |
|                    | 734         | HPS      | Yard Lights - Rented                          | 1886           | \$ 46.60      |
| *                  | 735         | MV       | Yard Lights - Rented                          | 656            | \$ 15.98      |
| *                  | 736         | MV       | Yard Lights - Rented                          | 881            | \$ 20.31      |
| *                  | 737         | MV       | Yard Lights - Rented                          | 1210           | \$ 28.26      |
| *                  | 740         | HPS      | Yard Lights - Owned                           | 389            | \$ 6.34       |
| *                  | 741         | HPS      | Yard Lights - Owned                           | 553            | \$ 8.36       |
|                    | 742         | HPS      | Yard Lights - Owned                           | 779            | \$ 11.23      |
|                    | 743         | HPS      | Yard Lights - Owned                           | 1283           | \$ 17.79      |
|                    | 744         | HPS      | Yard Lights - Owned                           | 1886           | \$ 28.07      |
|                    | 749         | LPS      | Yard Lights - Owned                           | 869            | \$ 13.09      |
|                    | 753         | Flood    | Yard Lights - Rented                          | 1283           | \$ 38.01      |
|                    | 754         | Flood    | Yard Lights - Rented                          | 1886           | \$ 47.32      |
|                    | 755         | Halide   | Yard Lights - Rented                          | 1148           | \$ 40.04      |
|                    | 756         | Halide   | Yard Lights - Rented                          | 1878           | \$ 49.28      |
|                    | 757         | Halide   | Yard Lights - Rented                          | 4346           | \$ 84.57      |
|                    | 759         | Halide   | St Lights - Owned                             | 533            | \$ 7.82       |
|                    | 760         | Halide   | St Lights - Owned                             | 894            | \$ 13.12      |
|                    | 761         | Halide   | St Lights - Owned                             | 1148           | \$ 16.83      |
|                    | 762         | Halide   | St Lights - Owned                             | 1878           | \$ 27.52      |
|                    | 764         | LED      | St Lights - Owned                             | 410            | \$ 6.01       |
|                    | 765         | Halide   | St Lights - Owned                             | 759            | \$ 11.12      |
|                    | 766         | LED      | St Lights - Owned                             | 295            | \$ 4.32       |
|                    | 775         | LED      | St Lights - Owned                             | 438            | \$ 6.42       |
|                    | 780         | LED      | St Lights - Owned                             | 586            | \$ 8.59       |
|                    | 785         | LED      | St Lights - Owned                             | 718            | \$ 10.50      |

\* These charges are applicable to existing fixtures only.

**N-28 Rate Schedules and Rate Application Guidelines****Schedule of "Adjusted Rates"**

**Maritime Electric Company, Limited**  
**Applied to Bills Seffective March 1, 2019**

|                                                                                               |                                              | <b>March 1, 2019</b> |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|----------------------|
| 610 Pole Rental -Wood Residential                                                             | \$                                           | 4.38                 |
| Unmetered Rates (based on 100 watt fixture)                                                   |                                              |                      |
| 810 8 Hour Lighting per kWh                                                                   | \$                                           | 0.1757               |
| Minimum Charge                                                                                | \$                                           | 11.67                |
| 820 12 Hour Lighting per kWh                                                                  | \$                                           | 0.1757               |
| Minimum Charge                                                                                | \$                                           | 11.67                |
| 830 24 Hour Lighting per kWh                                                                  | \$                                           | 0.1757               |
| Minimum Charge                                                                                | \$                                           | 11.67                |
| 840 Air Raid & Fire Sirens                                                                    | Currently no customers in this rate category |                      |
| 850 Outdoor Christmas Lighting - 5.77¢ per watt of connected load per week                    |                                              |                      |
| 234 Customer Owned Outdoor Recreational Lighting                                              |                                              |                      |
| Service Charge                                                                                | \$                                           | 24.57                |
| Energy Charge per kWh for first 5,000 kWh                                                     | \$                                           | 0.1757               |
| Energy Charge per kWh for balance of kWh                                                      | \$                                           | 0.1079               |
| Short Term Unmetered Rates                                                                    | Currently no customers in this rate category |                      |
| Energy Charge:                                                                                |                                              |                      |
| per kWh of estimated consumption                                                              | \$                                           | 0.1757               |
| Connection Charge:                                                                            | Single-Phase                                 | Three-Phase          |
| A. Connecting to existing secondary voltage                                                   | \$99.08                                      | \$99.08              |
| B. Where transformer installations are required, the following connection charges will apply: |                                              |                      |
|                                                                                               | Single-Phase                                 | Three-Phase          |
| (1) Up to and including 10 kVA                                                                | \$148.87                                     | \$209.17             |
| (2) 11 kVA to 15 kVA                                                                          | \$240.79                                     | \$301.01             |
| (3) 16 kVA to 25 kVA                                                                          | \$269.20                                     | \$336.64             |
| (4) 26 kVA to 37 kVA                                                                          | \$301.01                                     | \$336.64             |
| (5) 38 kVA to 50 kVA                                                                          | \$336.64                                     | \$336.64             |
| (6) 51 kVA to 75 kVA                                                                          | \$369.58                                     | \$523.96             |
| (7) 76 kVA to 125 kVA                                                                         | \$431.07                                     | \$555.59             |
| (8) Above 125 kVA                                                                             | 0                                            | \$594.94             |

**Service Call Fee**

**A Service call fee of \$42.44 is applicable to the following Services:**

Change from temporary to permanent Service.

Reconnection of Service, including reconnection for accounts disconnected for nonpayment, installations where Services have been upgraded, connections that do not require installation of a secondary Service, and connection of Services that require a meter reading only.

If the meter is removed for testing at the Customer's request and the test results indicate the meter accuracy is within the allowable limits.

Each addition or modification to an existing unmetered account.

**A Service call fee is not applicable to the following Services:**

Reconnection of Service disconnected as a result of fire or other casualty or any incident not the fault of the Customer.

Initial installation of street or area lights.

Additions to street lighting or traffic control light Accounts.

Disconnection of Service.

Service to a premises to facilitate changes of a minor nature such as meter removal for replacement of siding.

**Connection and Reconnection Fees**

A connection fee of \$75.08 is charged for all initial Service connections including metered temporary facilities.

For multiple metered installations, e.g., apartment buildings, the \$75.08 fee applies to the Service for the common area. If there is no separate Service for the common area, this charge applies to the first Service connected. The remainder of the initial connections in multiple metered premises will be charged the Service call fee and not the connection fee.

Connection of a mobile home to Maritime Electric facilities that requires installation of an Overhead Secondary Service is considered to be an initial installation.

A seasonal reconnection fee of \$89.90 is applicable to the reconnection of an existing seasonal Service to Maritime Electric facilities if the reconnection is for the same occupants of the premises.

**After Hour Fees**

If a Customer requests Service outside Maritime Electric's normal working hours, an after hours fee will be charged in addition to the connection or Service call fee.

The after hours fee is \$61.67 for jobs requiring two (2) person hours or less, including travel. For jobs requiring more than two (2) person hours, the after hours fee is set at Maritime Electric's incremental cost of providing the Service.

**Non Sufficient Funds Charge**

The charge for non sufficient funds is \$16.50. If two non-sufficient funds are incurred within a twelve month period, the Customer is suspended for one year in the use of personal cheques, unless certified.

**Late Payment Charge**

The late payment charge for all Customers is 1.65% per month (effective annual rate 21.70% per annum or 0.05382% compounded daily rate).

**Late Payment Charge – Cont'd**

The minimum late payment charge is 55¢. If an account is less than \$4.00 in arrears, no late payment charge is applied.

**Extension of Overhead Facilities – Standard Facility Allowance**

In calculating the Standard Facility Allowance to be applied as a reduction to the Construction Charge associated with the extension of standard facilities, Maritime Electric shall use the average per meter construction costs of the extension, as filed with IRAC from time to time, based on the Company's costs to construct each type of extension. The average per meter construction cost for single-phase or three-phase extensions shall be calculated based on the estimated material, labour and other costs required to construct a standard 90 meter line extension divided by 90 meters.

The average per meter construction cost rates are as follows:

|              | \$ Per Meter |
|--------------|--------------|
| Single-Phase | 28.00        |
| Three-Phase  | 53.00        |

**Extension of Overhead Facilities Refunds**

| <b>Type of New<br/>Account Connected</b> | <b>Refund</b>                                                                                                                     |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Single-Phase                             | 90 meters times the single-phase Standard Facility Allowance rate in effect at the time the original contribution was calculated. |
| Three-Phase                              | 90 meters times the three-phase Standard Facility Allowance rate in effect at the time the original contribution was calculated.  |

**Optional Facilities Charges****Maintenance Charge for Optional Facilities:**

16.5% of the total estimated construction cost of the optional facilities.



**Disputes**

If any dispute arises between Maritime Electric and a Customer over the interpretation or application of any of these General Rules and Regulations that is subject to the jurisdiction of the Commission, either party may refer the matter to the Commission for decision and the Commission may, notwithstanding anything contained in these General Rules and Regulations, make such decision as it may deem appropriate.

Appendix 2

| Maritime Electric Company, Limited                                            |                                                               |               |               |               |  |
|-------------------------------------------------------------------------------|---------------------------------------------------------------|---------------|---------------|---------------|--|
| Schedule of Rates                                                             |                                                               |               |               |               |  |
| Rate Code                                                                     |                                                               | March 1, 2019 | March 1, 2020 | March 1, 2021 |  |
| <b>110 Residential</b>                                                        |                                                               |               |               |               |  |
|                                                                               | Service Charge                                                | \$ 24.57      | \$ 24.57      | \$ 24.57      |  |
|                                                                               | Energy Charge per kWh - <b>First Block<sup>1</sup></b>        | \$ 0.1456     | \$ 0.1477     | \$ 0.1498     |  |
|                                                                               | Energy Charge per kWh for balance kWh                         | \$ 0.1155     | \$ 0.1168     | \$ 0.1184     |  |
| <b>131 Residential Seasonal</b>                                               |                                                               |               |               |               |  |
|                                                                               | Service Charge                                                | \$ 26.92      | \$ 26.92      | \$ 26.92      |  |
|                                                                               | Energy Charge per kWh - <b>First Block<sup>1</sup></b>        | \$ 0.1456     | \$ 0.1477     | \$ 0.1498     |  |
|                                                                               | <b>Energy Charge per kWh for balance of kWh</b>               | \$ 0.1155     | \$ 0.1168     | \$ 0.1184     |  |
| <b>133 Residential Seasonal Option</b>                                        |                                                               |               |               |               |  |
|                                                                               | Service Charge                                                | \$ 37.50      | \$ 37.50      | \$ 37.50      |  |
|                                                                               | Energy Charge per kWh - <b>First Block<sup>1</sup></b>        | \$ 0.1456     | \$ 0.1477     | \$ 0.1498     |  |
|                                                                               | Energy Charge per kWh for balance of kWh                      | \$ 0.1155     | \$ 0.1168     | \$ 0.1184     |  |
| <b>232 General Service</b>                                                    |                                                               |               |               |               |  |
|                                                                               | Service Charge                                                | \$ 24.57      | \$ 24.57      | \$ 24.57      |  |
|                                                                               | Demand Charge - per kW for first 20 kW                        | \$ -          | \$ -          | \$ -          |  |
|                                                                               | Demand Charge - per kW for balance of kW                      | \$ 13.43      | \$ 13.43      | \$ 13.43      |  |
|                                                                               | Energy Charge per kWh for first 5,000 kWh                     | \$ 0.1793     | \$ 0.1822     | \$ 0.1847     |  |
|                                                                               | Energy Charge per kWh for balance of kWh                      | \$ 0.1167     | \$ 0.1180     | \$ 0.1196     |  |
| <b>233 General Service - Seasonal Operators Option</b>                        |                                                               |               |               |               |  |
|                                                                               | Service Charge                                                | \$ 24.57      | \$ 24.57      | \$ 24.57      |  |
|                                                                               | Demand Charge - per kW for first 20 kW                        | \$ -          | \$ -          | \$ -          |  |
|                                                                               | Demand Charge - per kW for balance of kW                      | \$ 13.43      | \$ 13.43      | \$ 13.43      |  |
|                                                                               | Energy Charge per kWh for first 5,000 kWh                     | \$ 0.1793     | \$ 0.1822     | \$ 0.1847     |  |
|                                                                               | Energy Charge per kWh for balance of kWh                      | \$ 0.1167     | \$ 0.1180     | \$ 0.1196     |  |
| <b>320 Small Industrial</b>                                                   |                                                               |               |               |               |  |
|                                                                               | Demand Charge - per kW                                        | \$ 7.46       | \$ 7.46       | \$ 7.46       |  |
|                                                                               | Energy Charge per kWh for first 100 kWh per kW billing demand | \$ 0.1756     | \$ 0.1784     | \$ 0.1809     |  |
|                                                                               | Energy Charge per kWh for balance of kWh                      | \$ 0.0879     | \$ 0.0884     | \$ 0.0895     |  |
| <b>310 Large Industrial</b>                                                   |                                                               |               |               |               |  |
|                                                                               | Demand Charge per kW                                          | \$ 14.50      | \$ 14.50      | \$ 14.50      |  |
|                                                                               | Energy Charge per kWh                                         | \$ 0.0723     | \$ 0.0733     | \$ 0.0743     |  |
| <b>340 Long Term Contract</b> (Currently no customers in this rate category)  |                                                               |               |               |               |  |
|                                                                               | Demand Charge per kW                                          | \$ 15.51      | \$ 15.51      | \$ 15.51      |  |
|                                                                               | Energy Charge per kWh                                         | \$ 0.0937     | \$ 0.0944     | \$ 0.0956     |  |
| <b>330 Short Term Contract</b> (Currently no customers in this rate category) |                                                               |               |               |               |  |
|                                                                               | Demand Charge - per kW                                        | \$ 16.79      | \$ 16.79      | \$ 16.79      |  |
|                                                                               | Energy Charge per kWh for all kWh in the first block          | \$ 0.0991     | \$ 0.1000     | \$ 0.1013     |  |
|                                                                               | Energy Charge per kWh for balance of kWh in the month         | \$ 0.0821     | \$ 0.0825     | \$ 0.0835     |  |

<sup>1</sup> Effective Date: March 1, 2019 - 2,000 kWh; March 1, 2020 - 3,500 kWh; March 1, 2021 - 5,000 kWh

## Appendix 2

| Maritime Electric Company, Limited                        |      |          |                                               |             |               |               |               |          |
|-----------------------------------------------------------|------|----------|-----------------------------------------------|-------------|---------------|---------------|---------------|----------|
| Schedule of Rates                                         |      |          |                                               |             |               |               |               |          |
|                                                           |      |          | Annual kWh                                    | Monthly kWh |               |               |               |          |
|                                                           |      |          |                                               |             | March 1, 2019 | March 1, 2020 | March 1, 2021 |          |
|                                                           |      |          |                                               |             |               |               |               |          |
| Residential                                               | Type |          |                                               |             |               |               |               |          |
|                                                           | 619  | LED      | 70 W HPS Equivalent St Lights - Rented        |             | 15            | \$ 12.20      | \$ 12.33      | \$ 12.47 |
|                                                           | 625  | LED      | 100 W HPS Equivalent St Lights - Rented       |             | 17            | \$ 12.63      | \$ 12.77      | \$ 12.91 |
| *                                                         | 630  | HPS      | St Lights - Rented                            | 389         | 32            | \$ 16.14      | \$ 16.32      | \$ 16.50 |
| *                                                         | 631  | HPS      | St Lights - Rented                            | 553         | 46            | \$ 20.49      | \$ 20.72      | \$ 20.95 |
| *                                                         | 632  | HPS      | St Lights - Rented                            | 799         | 66            | \$ 29.30      | \$ 29.62      | \$ 29.95 |
|                                                           | 633  | HPS      | St Lights - Rented                            | 1283        | 106           | \$ 39.84      | \$ 40.28      | \$ 40.72 |
|                                                           | 634  | HPS      | St Lights - Rented                            | 1886        | 157           | \$ 46.60      | \$ 47.11      | \$ 47.63 |
| *                                                         | 635  | MV       | St Lights - Rented                            | 656         | 54            | \$ 15.98      | \$ 16.16      | \$ 16.34 |
|                                                           | 639  | Lanterns | City Lanterns - Rented                        | 389         | 32            | \$ 59.32      | \$ 59.97      | \$ 60.63 |
| *                                                         | 640  | HPS      | St Lights - Owned                             | 389         | 32            | \$ 6.34       | \$ 6.41       | \$ 6.48  |
| *                                                         | 641  | HPS      | St Lights - Owned                             | 553         | 46            | \$ 8.36       | \$ 8.45       | \$ 8.54  |
| *                                                         | 642  | HPS      | St Lights - Owned                             | 779         | 65            | \$ 11.23      | \$ 11.35      | \$ 11.47 |
|                                                           | 643  | HPS      | St Lights - Owned                             | 1283        | 107           | \$ 17.79      | \$ 17.99      | \$ 18.19 |
|                                                           | 644  | HPS      | St Lights - Owned                             | 1886        | 157           | \$ 28.07      | \$ 28.38      | \$ 28.69 |
|                                                           | 666  | LED      | 175 W MV Equivalent St Lights - Rented        |             | 25            | \$ 14.04      | \$ 14.19      | \$ 14.35 |
|                                                           | 670  | LED      | St Lights - Rented                            | 410         | 34            | \$ 16.34      | \$ 16.52      | \$ 16.70 |
|                                                           | 675  | LED      | 150 W/200 W HPS Equivalent St Lights - Rented |             | 37            | \$ 15.18      | \$ 15.35      | \$ 15.52 |
|                                                           | 719  | LED      | St Lights - Owned                             | 176         | 15            | \$ 2.58       | \$ 2.61       | \$ 2.64  |
| *                                                         | 730  | HPS      | Yard Lights - Rented                          | 389         | 32            | \$ 16.14      | \$ 16.32      | \$ 16.50 |
| *                                                         | 731  | HPS      | Yard Lights - Rented                          | 553         | 46            | \$ 20.49      | \$ 20.72      | \$ 20.95 |
| *                                                         | 732  | HPS      | Yard Lights - Rented                          | 799         | 66            | \$ 29.30      | \$ 29.62      | \$ 29.95 |
|                                                           | 733  | HPS      | Yard Lights - Rented                          | 1283        | 106           | \$ 39.84      | \$ 40.28      | \$ 40.72 |
|                                                           | 734  | HPS      | Yard Lights - Rented                          | 1886        | 157           | \$ 46.60      | \$ 47.11      | \$ 47.63 |
| *                                                         | 735  | MV       | Yard Lights - Rented                          | 656         | 54            | \$ 15.98      | \$ 16.16      | \$ 16.34 |
| *                                                         | 736  | MV       | Yard Lights - Rented                          | 881         | 73            | \$ 20.31      | \$ 20.53      | \$ 20.76 |
| *                                                         | 737  | MV       | Yard Lights - Rented                          | 1210        | 100           | \$ 28.26      | \$ 28.57      | \$ 28.88 |
| *                                                         | 740  | HPS      | Yard Lights - Owned                           | 389         | 32            | \$ 6.34       | \$ 6.41       | \$ 6.48  |
| *                                                         | 741  | HPS      | Yard Lights - Owned                           | 553         | 46            | \$ 8.36       | \$ 8.45       | \$ 8.54  |
|                                                           | 742  | HPS      | Yard Lights - Owned                           | 779         | 65            | \$ 11.23      | \$ 11.35      | \$ 11.47 |
|                                                           | 743  | HPS      | Yard Lights - Owned                           | 1283        | 107           | \$ 17.79      | \$ 17.99      | \$ 18.19 |
|                                                           | 744  | HPS      | Yard Lights - Owned                           | 1886        | 157           | \$ 28.07      | \$ 28.38      | \$ 28.69 |
|                                                           | 749  | LPS      | Yard Lights - Owned                           | 869         | 72            | \$ 13.09      | \$ 13.23      | \$ 13.38 |
|                                                           | 753  | Flood    | Yard Lights - Rented                          | 1283        | 107           | \$ 38.01      | \$ 38.43      | \$ 38.85 |
|                                                           | 754  | Flood    | Yard Lights - Rented                          | 1886        | 157           | \$ 47.32      | \$ 47.84      | \$ 48.37 |
|                                                           | 755  | Halide   | Yard Lights - Rented                          | 1148        | 95            | \$ 40.04      | \$ 40.48      | \$ 40.93 |
|                                                           | 756  | Halide   | Yard Lights - Rented                          | 1878        | 156           | \$ 49.28      | \$ 49.82      | \$ 50.37 |
|                                                           | 757  | Halide   | Yard Lights - Rented                          | 4346        | 362           | \$ 84.57      | \$ 85.50      | \$ 86.44 |
|                                                           | 759  | Halide   | St Lights - Owned                             | 533         | 44            | \$ 7.82       | \$ 7.91       | \$ 8.00  |
|                                                           | 760  | Halide   | St Lights - Owned                             | 894         | 74            | \$ 13.12      | \$ 13.26      | \$ 13.41 |
|                                                           | 761  | Halide   | St Lights - Owned                             | 1148        | 95            | \$ 16.83      | \$ 17.02      | \$ 17.21 |
|                                                           | 762  | Halide   | St Lights - Owned                             | 1878        | 156           | \$ 27.52      | \$ 27.82      | \$ 28.13 |
|                                                           | 764  | LED      | St Lights - Owned                             | 410         | 34            | \$ 6.01       | \$ 6.08       | \$ 6.15  |
|                                                           | 765  | Halide   | St Lights - Owned                             | 759         | 63            | \$ 11.12      | \$ 11.24      | \$ 11.36 |
|                                                           | 766  | LED      | St Lights - Owned                             | 295         | 25            | \$ 4.32       | \$ 4.37       | \$ 4.42  |
|                                                           | 775  | LED      | St Lights - Owned                             | 438         | 37            | \$ 6.42       | \$ 6.49       | \$ 6.56  |
|                                                           | 780  | LED      | St Lights - Owned                             | 586         | 49            | \$ 8.59       | \$ 8.68       | \$ 8.78  |
|                                                           | 785  | LED      | St Lights - Owned                             | 718         | 60            | \$ 10.50      | \$ 10.62      | \$ 10.74 |
| * These charges are applicable to existing fixtures only. |      |          |                                               |             |               |               |               |          |

## Appendix 2

| Maritime Electric Company, Limited                                                            |                                              |               |               |  |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|---------------|---------------|--|
| Schedule of Rates                                                                             |                                              |               |               |  |
|                                                                                               | March 1, 2019                                | March 1, 2020 | March 1, 2021 |  |
| 610 Pole Rental -Wood Residential                                                             | \$ 4.38                                      | \$ 4.38       | \$ 4.38       |  |
| Unmetered Rates (based on 100 watt fixture)                                                   |                                              |               |               |  |
| 810 8 Hour Lighting per kWh                                                                   | \$ 0.1757                                    | \$ 0.1776     | \$ 0.1796     |  |
| Minimum Charge                                                                                | \$ 11.67                                     | \$ 11.67      | \$ 11.67      |  |
| 820 12 Hour Lighting per kWh                                                                  | \$ 0.1757                                    | \$ 0.1776     | \$ 0.1796     |  |
| Minimum Charge                                                                                | \$ 11.67                                     | \$ 11.67      | \$ 11.67      |  |
| 830 24 Hour Lighting per kWh                                                                  | \$ 0.1757                                    | \$ 0.1776     | \$ 0.1796     |  |
| Minimum Charge                                                                                | \$ 11.67                                     | \$ 11.67      | \$ 11.67      |  |
| 840 Air Raid & Fire Sirens                                                                    | Currently no customers in this rate category |               |               |  |
| 850 Outdoor Christmas Lighting - 5.77¢ per watt of connected load per week                    |                                              |               |               |  |
| 234 Customer Owned Outdoor Recreational Lighting Service Charge                               | \$ 24.57                                     | \$ 24.57      | \$ 24.57      |  |
| <b>Energy Charge per kWh for first 5,000 kWh</b>                                              | \$ 0.1757                                    | \$ 0.1776     | \$ 0.1796     |  |
| Energy Charge per kWh for balance of kWh                                                      | \$ 0.1079                                    | \$ 0.1091     | \$ 0.1103     |  |
| Short Term Unmetered Rates                                                                    | Currently no customers in this rate category |               |               |  |
| Energy Charge:                                                                                |                                              |               |               |  |
| per kWh of estimated consumption                                                              | \$ 0.1757                                    | \$ 0.1776     | \$ 0.1796     |  |
| Connection Charge:                                                                            | Three-Phase                                  |               |               |  |
| A. Connecting to existing secondary voltage                                                   | \$99.08                                      |               |               |  |
| B. Where transformer installations are required, the following connection charges will apply: |                                              |               |               |  |
|                                                                                               | Single-Phase                                 | Three-Phase   |               |  |
| (1) Up to and including 10 kVA                                                                | \$148.87                                     | \$209.17      |               |  |
| (2) 11 kVA to 15 kVA                                                                          | \$240.79                                     | \$301.01      |               |  |
| (3) 16 kVA to 25 kVA                                                                          | \$269.20                                     | \$336.64      |               |  |
| (4) 26 kVA to 37 kVA                                                                          | \$301.01                                     | \$336.64      |               |  |
| (5) 38 kVA to 50 kVA                                                                          | \$336.64                                     | \$336.64      |               |  |
| (6) 51 kVA to 75 kVA                                                                          | \$369.58                                     | \$523.96      |               |  |
| (7) 76 kVA to 125 kVA                                                                         | \$431.07                                     | \$555.59      |               |  |
| (8) Above 125 kVA                                                                             | 0                                            | \$594.94      |               |  |

**Appendix 3**  
**Maritime Electric**  
**Financial Results (Actual and Forecast)**  
**Statements of Earnings**

|                                                        | <b>Actual<br/>2017</b> | <b>Forecast<br/>2018</b> | <b>Forecast<br/>2019</b> | <b>Forecast<br/>2020</b> | <b>Forecast<br/>2021</b> |
|--------------------------------------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Revenue</b>                                         |                        |                          |                          |                          |                          |
| Revenue Requirement                                    | \$ 192,535,281         | \$ 200,828,900           | \$ 212,659,600           | \$ 221,763,500           | \$ 229,095,200           |
| Operating Expenses (net of ECAM)                       | 138,579,065            | 144,555,000              | 153,120,100              | 160,368,900              | 165,787,300              |
| Amortization - Fixed Assets                            | 21,802,450             | 22,541,000               | 25,871,500               | 27,008,300               | 28,006,000               |
| Amortization - Deferred Charges                        | 421,076                | 622,400                  | 260,400                  | 260,400                  | 260,400                  |
| <b>Operating Income</b>                                | <b>31,732,690</b>      | <b>33,110,500</b>        | <b>33,407,600</b>        | <b>34,125,900</b>        | <b>35,041,500</b>        |
| Financing Costs                                        | 12,251,808             | 13,052,400               | 12,637,300               | 12,670,600               | 12,908,200               |
| Earnings Before Income Taxes                           | 19,480,882             | 20,058,100               | 20,770,300               | 21,455,300               | 22,133,300               |
| Income Taxes                                           | 6,130,460              | 6,269,800                | 6,529,500                | 6,741,000                | 6,950,300                |
| <b>Net Earnings - Regulated</b>                        | <b>\$ 13,350,422</b>   | <b>\$ 13,788,300</b>     | <b>\$ 14,240,800</b>     | <b>\$ 14,714,300</b>     | <b>\$ 15,183,000</b>     |
| Fortis Inc Head Office Costs (net of tax) <sup>1</sup> | 422,280                | 409,900                  | 409,900                  | 421,600                  | 436,800                  |
| <b>Net Earnings - Non-Regulated</b>                    | <b>\$ 12,928,142</b>   | <b>\$ 13,378,400</b>     | <b>\$ 13,830,900</b>     | <b>\$ 14,292,700</b>     | <b>\$ 14,746,200</b>     |
| Return on Average Common Equity (%) - Non-Regulated    | 9.17%                  | 9.07%                    | 9.08%                    | 9.08%                    | 9.08%                    |
| Return on Average Common Equity (%) - Regulated        | 9.35%                  | 9.35%                    | 9.35%                    | 9.35%                    | 9.35%                    |

<sup>1</sup> Costs disallowed in calculating the Annual Revenue Requirement and Regulated Return as per Order UE09-02

| <b>Appendix 3</b><br><b>Maritime Electric</b><br><b>Financial Results (Actual and Forecast)</b><br><b>Balance Sheets</b> |                        |                          |                          |                          |                          |
|--------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                                                                                                                          | <b>Actual<br/>2017</b> | <b>Forecast<br/>2018</b> | <b>Forecast<br/>2019</b> | <b>Forecast<br/>2020</b> | <b>Forecast<br/>2021</b> |
| <b>ASSETS</b>                                                                                                            |                        |                          |                          |                          |                          |
| <b>Current Assets</b>                                                                                                    |                        |                          |                          |                          |                          |
| Accounts receivable                                                                                                      | \$ 43,897,741          | \$ 43,555,300            | \$ 44,099,200            | \$ 44,332,600            | \$ 45,726,900            |
| Future income taxes                                                                                                      | 1,301,000              | 1,491,000                | 1,820,600                | 2,144,000                | 2,364,900                |
| Materials and supplies                                                                                                   | 3,669,499              | 3,000,000                | 2,500,000                | 2,000,000                | 2,000,000                |
| Prepaid expenses                                                                                                         | 610,702                | 494,700                  | 502,900                  | 510,800                  | 518,500                  |
|                                                                                                                          | 49,478,942             | 48,541,000               | 48,922,700               | 48,987,400               | 50,610,300               |
| <b>Fixed Assets</b>                                                                                                      |                        |                          |                          |                          |                          |
| Property, plant and equipment                                                                                            | 626,273,240            | 658,346,000              | 687,018,800              | 719,532,800              | 697,822,200              |
| Less: Accumulated amortization                                                                                           | 223,415,183            | 242,700,400              | 261,593,100              | 279,672,900              | 245,662,300              |
|                                                                                                                          | 402,858,057            | 415,645,600              | 425,425,700              | 439,859,900              | 452,159,900              |
| <b>Other Long-Term Assets</b>                                                                                            |                        |                          |                          |                          |                          |
| Costs Recoverable from Customers (Post-2003 ECAM & WNR)                                                                  | 3,054,790              | 4,979,400                | 2,669,100                | 2,290,900                | 590,000                  |
| Regulatory Asset - OPEB                                                                                                  | -                      | 1,498,500                | 3,045,800                | 3,342,400                | 2,888,400                |
| Intangible assets                                                                                                        | 3,915,322              | 4,000,000                | 4,150,000                | 4,300,000                | 4,450,000                |
| Deferred charges                                                                                                         | 1,841,445              | 1,398,100                | 1,304,700                | 1,211,300                | 950,900                  |
|                                                                                                                          | 8,811,557              | 11,876,000               | 11,169,600               | 11,144,600               | 8,879,300                |
| <b>TOTAL ASSETS</b>                                                                                                      | <b>\$ 461,148,556</b>  | <b>\$ 476,062,600</b>    | <b>\$ 485,518,000</b>    | <b>\$ 499,991,900</b>    | <b>\$511,649,500</b>     |
| <b>SHAREHOLDER'S EQUITY AND LIABILITIES</b>                                                                              |                        |                          |                          |                          |                          |
| <b>Current Liabilities</b>                                                                                               |                        |                          |                          |                          |                          |
| Bank indebtedness                                                                                                        | \$ 1,895,798           | \$ 439,600               | \$ 351,600               | \$ 847,300               | \$ 357,800               |
| Short-term borrowings                                                                                                    | 27,000,000             | 9,000,000                | 12,000,000               | 19,000,000               | 26,000,000               |
| Rebates Payable to Customers                                                                                             | 14,589,900             | 14,377,100               | 11,110,700               | 7,989,100                | 4,817,700                |
| Regulatory Liability - OPEB                                                                                              | 48,800                 | -                        | -                        | -                        | -                        |
| Accounts payable and accrued liabilities                                                                                 | 32,518,291             | 35,134,300               | 37,038,400               | 37,994,700               | 38,626,700               |
|                                                                                                                          | 76,052,789             | 58,951,000               | 60,500,700               | 65,831,100               | 69,802,200               |
| <b>Long-term Debt</b>                                                                                                    | <b>194,352,496</b>     | <b>219,112,100</b>       | <b>219,127,900</b>       | <b>219,144,300</b>       | <b>219,161,300</b>       |
| <b>Other Long-Term Liabilities</b>                                                                                       |                        |                          |                          |                          |                          |
| Future income taxes                                                                                                      | 20,028,291             | 23,900,000               | 27,000,000               | 30,300,000               | 33,700,000               |
| Contributions                                                                                                            | 24,752,434             | 24,208,100               | 23,347,600               | 23,460,500               | 22,546,800               |
|                                                                                                                          | 44,780,725             | 48,108,100               | 50,347,600               | 53,760,500               | 56,246,800               |
| <b>Shareholder's Equity</b>                                                                                              |                        |                          |                          |                          |                          |
| Common shares                                                                                                            | 31,100,681             | 31,100,700               | 31,100,700               | 31,100,700               | 31,100,700               |
| Retained earnings                                                                                                        | 114,861,865            | 118,790,700              | 124,441,100              | 130,155,300              | 135,338,500              |
|                                                                                                                          | 145,962,546            | 149,891,400              | 155,541,800              | 161,256,000              | 166,439,200              |
| <b>TOTAL SHAREHOLDER'S EQUITY AND LIABILITIES</b>                                                                        | <b>\$ 461,148,556</b>  | <b>\$ 476,062,600</b>    | <b>\$ 485,518,000</b>    | <b>\$ 499,991,900</b>    | <b>\$511,649,500</b>     |
| <b>Capital Structure - Year End</b>                                                                                      |                        |                          |                          |                          |                          |
| Total Debt                                                                                                               | 60.5%                  | 60.4%                    | 60.0%                    | 60.0%                    | 60.0%                    |
| Common Equity                                                                                                            | 39.5%                  | 39.6%                    | 40.0%                    | 40.0%                    | 40.0%                    |
|                                                                                                                          | 100.0%                 | 100.0%                   | 100.0%                   | 100.0%                   | 100.0%                   |

**Appendix 3**  
**Maritime Electric**  
**Financial Results (Actual and Forecast)**  
**Statements of Cash Flows**

|                                             | Actual<br>2017 | Forecast<br>2018 | Forecast<br>2019 | Forecast<br>2020 | Forecast<br>2021 |
|---------------------------------------------|----------------|------------------|------------------|------------------|------------------|
| <b>Cash Flow from Operating Activities</b>  |                |                  |                  |                  |                  |
| Net Earnings                                | \$ 13,350,422  | \$ 13,788,300    | \$ 14,240,800    | \$ 14,714,300    | \$ 15,183,000    |
| Add (deduct) non-cash items:                |                |                  |                  |                  |                  |
| Amortization - Fixed Assets                 | 21,802,450     | 22,541,000       | 25,871,500       | 27,008,300       | 28,006,000       |
| Amortization - Deferred Charges             | 429,784        | 632,000          | 276,200          | 276,800          | 277,400          |
| Future income taxes                         | (10,011,112)   | 3,681,700        | 2,770,400        | 2,976,600        | 3,179,100        |
| Changes in non-cash working capital         | 7,338,706      | (53,100)         | 55,800           | (1,527,000)      | (1,489,300)      |
|                                             | 32,910,250     | 40,589,900       | 43,214,700       | 43,449,000       | 45,156,200       |
| <b>Cash Flow From Financing Activities</b>  |                |                  |                  |                  |                  |
| Issuance (Repayment) of long-term debt      | -              | 25,000,000       | -                | -                | -                |
| Contributions                               | 746,454        | 700,000          | 400,000          | 1,400,000        | 400,000          |
| Financing Fees                              | -              | (250,000)        | -                | -                | -                |
| Payment of dividends - Regulated            | (8,500,000)    | (8,500,000)      | (9,000,000)      | (9,000,000)      | (10,000,000)     |
| - Non-regulated                             | (297,500)      | (1,247,100)      | (297,500)        | (297,500)        | (297,500)        |
|                                             | (8,051,046)    | 15,702,900       | (8,897,500)      | (7,897,500)      | (9,897,500)      |
| <b>Cash Flow from Investing Activities</b>  |                |                  |                  |                  |                  |
| Expenditures for Fixed Assets (Net)         | (36,680,434)   | (36,657,500)     | (37,062,200)     | (42,880,200)     | (41,769,200)     |
| Deferred Charges                            | (344,956)      | (179,100)        | (167,000)        | (167,000)        | 0                |
|                                             | (37,025,390)   | (36,836,600)     | (37,229,200)     | (43,047,200)     | (41,769,200)     |
| <b>Increase (Decrease) in Cash</b>          | (12,166,186)   | 19,456,200       | (2,912,000)      | (7,495,700)      | (6,510,500)      |
| <b>Bank Indebtedness, Beginning of Year</b> | (16,729,612)   | (28,895,800)     | (9,439,600)      | (12,351,600)     | (19,847,300)     |
| <b>Bank Indebtedness, End of Year</b>       | (\$28,895,798) | (\$9,439,600)    | (\$12,351,600)   | (\$19,847,300)   | (\$26,357,800)   |
|                                             |                |                  |                  |                  |                  |

## Appendix 4

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# Appendix 5 Schedule 1 Calculation of 10-Year Average HDD

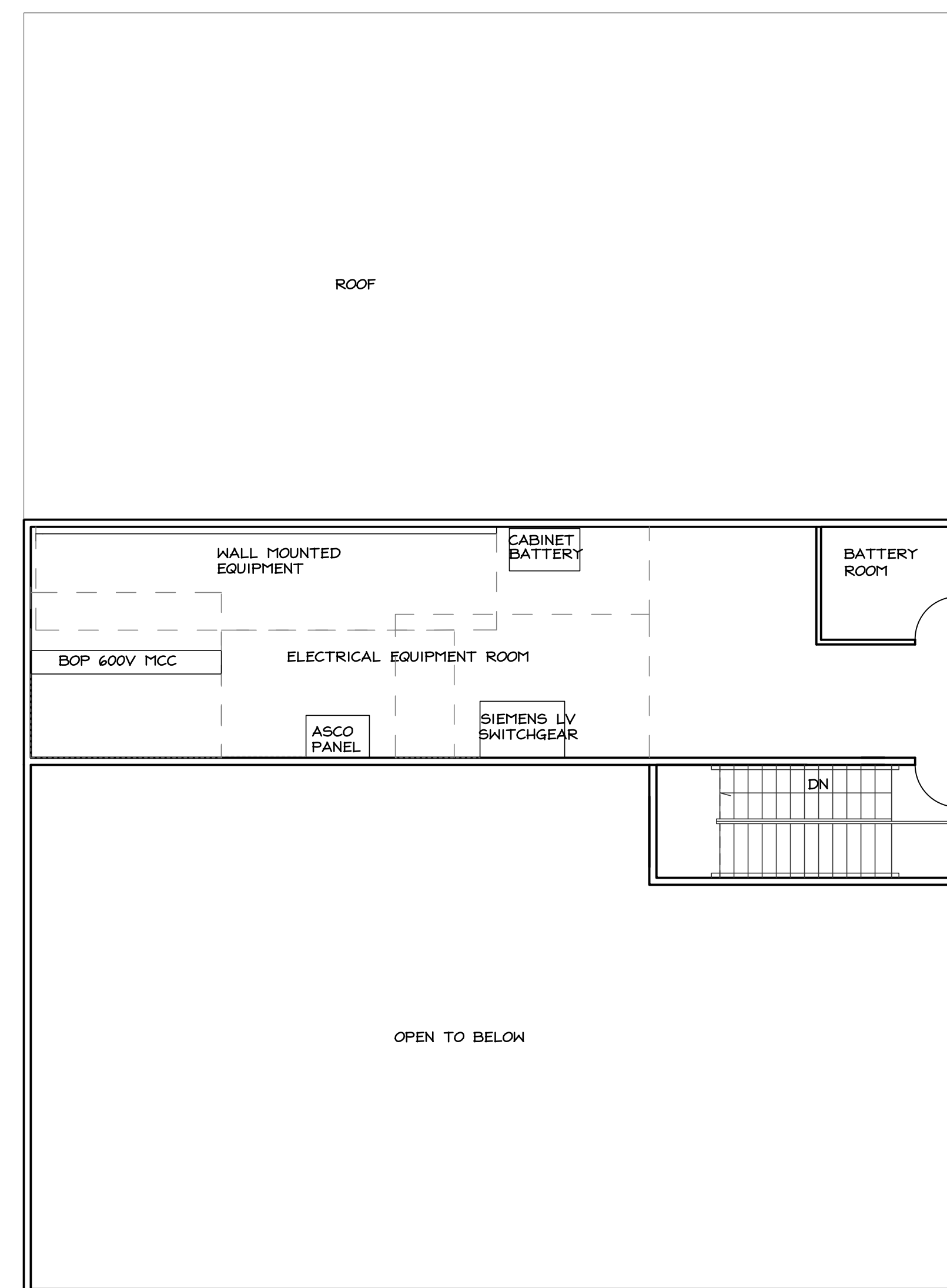
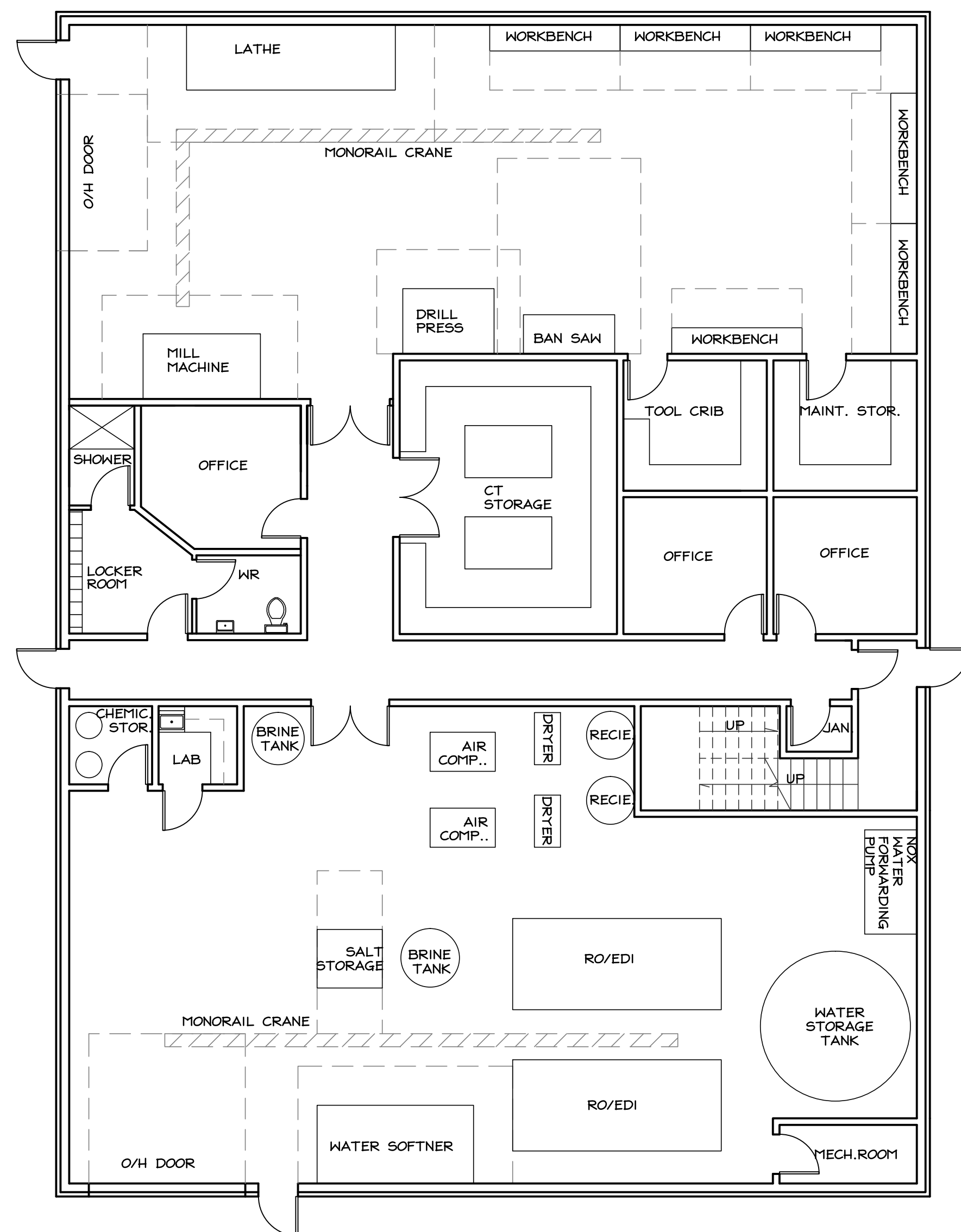
|       |                    |       |       |       |       |       |       |       |       |       | 10 year<br>average<br>(2008 - 2017) |
|-------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------|
| Month | 2008               | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  |                                     |
| Jan   | 728                | 866   | 686   | 744   | 715   | 812   | 771   | 829   | 713   | 712   | 758                                 |
| Feb   | 686                | 664   | 608   | 697   | 700   | 672   | 717   | 858   | 608   | 657   | 687                                 |
| Mar   | 694                | 675   | 556   | 621   | 572   | 603   | 760   | 743   | 654   | 690   | 657                                 |
| Apr   | 418                | 420   | 367   | 420   | 379   | 441   | 453   | 537   | 475   | 416   | 433                                 |
| May   | 286                | 245   | 262   | 259   | 224   | 235   | 308   | 233   | 259   | 264   | 258                                 |
| Jun   | 95                 | 102   | 114   | 150   | 119   | 107   | 120   | 163   | 121   | 94    | 119                                 |
| Jul   | 0                  | 42    | 13    | 21    | 12    | 13    | 1     | 28    | 30    | 27    | 19                                  |
| Aug   | 20                 | 30    | 21    | 14    | 5     | 17    | 28    | 3     | 23    | 29    | 19                                  |
| Sep   | 121                | 135   | 107   | 90    | 76    | 106   | 118   | 73    | 101   | 92    | 102                                 |
| Oct   | 300                | 345   | 290   | 249   | 240   | 291   | 228   | 315   | 255   | 203   | 272                                 |
| Nov   | 421                | 392   | 429   | 397   | 424   | 472   | 461   | 420   | 401   | 440   | 426                                 |
| Dec   | 620                | 643   | 515   | 569   | 589   | 750   | 582   | 545   | 665   | 695   | 617                                 |
|       | 4,389              | 4,559 | 3,968 | 4,231 | 4,055 | 4,519 | 4,547 | 4,747 | 4,305 | 4,319 | 4,364                               |
|       | Standard Deviation |       |       |       |       |       |       |       |       |       | 240                                 |

| Appendix 5<br>Schedule 2<br>Calculation of MWh/HDD Coefficient |       |                     |               |                |                              |                               |                           |                           |
|----------------------------------------------------------------|-------|---------------------|---------------|----------------|------------------------------|-------------------------------|---------------------------|---------------------------|
| Year                                                           | Month | Days<br>in<br>month | Actual<br>HDD | HDD<br>per day | Reported<br>sales<br>( MWh ) | Fewer<br>hours of<br>daylight | Average<br>HDD<br>per day | Average<br>MWh<br>per day |
| 2017                                                           | Jul   | 31                  | 27            | 0.9            | 76,298                       |                               |                           |                           |
|                                                                | Aug   | 31                  | 29            | 0.9            | 78,217                       |                               |                           |                           |
|                                                                | Sep   | 30                  | 92            | 3.1            | 80,074                       |                               |                           |                           |
|                                                                | Oct   | 31                  | 203           | 6.5            | 75,216                       | 2.52                          | 4.8                       | 2,507                     |
|                                                                | Nov   | 30                  | 440           | 14.7           | 82,686                       | 4.07                          | 10.6                      | 2,667                     |
|                                                                | Dec   | 31                  | 695           | 22.4           | 96,151                       | 5.21                          | 18.5                      | 3,205                     |
| 2018                                                           | Jan   | 31                  | 764           | 24.7           | 111,163                      | 5.40                          | 23.5                      | 3,586                     |
|                                                                | Feb   | 28                  | 621           | 22.2           | 106,524                      | 4.53                          | 23.4                      | 3,436                     |
|                                                                | Mar   | 31                  | 602           | 19.4           | 89,909                       | 3.11                          | 20.8                      | 3,211                     |
|                                                                | Apr   | 30                  | 445           | 14.8           | 92,948                       | 1.53                          | 17.1                      | 2,998                     |
|                                                                | May   | 31                  | 280           | 9.0            | 78,410                       | 0.00                          | 11.9                      | 2,614                     |
|                                                                | Jun   | 30                  | 168           | 5.6            | 77,199                       |                               |                           |                           |
| Linear regression results:<br>(Oct 2017 - May 2018)            |       |                     |               |                |                              |                               |                           |                           |
|                                                                |       |                     | HDD           | Daylight hrs   | b                            |                               |                           |                           |
|                                                                |       |                     | 50.19         | 51.18          | 2039.06                      | coefficients                  |                           |                           |
|                                                                |       |                     | 5.35          | 18.99          | 82.54                        | standard error coefficients   |                           |                           |
|                                                                |       |                     | 0.97          | 81.40          | #N/A                         | R^2, standard error y         |                           |                           |
|                                                                |       |                     | 81.77         | 5.00           | #N/A                         | F, degrees of freedom         |                           |                           |
|                                                                |       |                     | 1083543       | 33128.63       | #N/A                         | Regression SS, residual SS    |                           |                           |
|                                                                |       |                     | 9.38          | 2.70           | 24.70                        | t values                      |                           |                           |

| Appendix 5<br>Schedule 3<br>Calculation of Forecast Marginal Net Revenue Rate for 2019 |                           |                |                          |
|----------------------------------------------------------------------------------------|---------------------------|----------------|--------------------------|
| Appendix 5<br>Schedule 1                                                               | 2019 (Forecast)           |                |                          |
| Rate Class                                                                             | Revenue<br>(\$)           | Sales<br>(MWh) | Unit Revenue<br>(\$/MWh) |
| Residential                                                                            | 83,664,714                | 599,584        | *                        |
| General Service                                                                        | 60,057,639                | 380,508        | *                        |
| Small Industrial                                                                       | 12,967,232                | 94,407         |                          |
| Total                                                                                  | 156,689,585               | 1,074,499      | \$ 145.83                |
| ECAM Base Rate (Proposed)                                                              |                           |                | \$ (93.35)               |
|                                                                                        | Marginal Net Revenue Rate |                | \$ 52.48                 |
| * Excludes revenue and kWh sales from seasonal customers                               |                           |                |                          |

| Appendix 5<br>Schedule 4<br>Monthly Change in Weather Normalization Reserve - January 1, 2016 to October 31, 2018 |                                           |                                   |                                          |                          |                                      |                                       |                                  |                                          |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|------------------------------------------|--------------------------|--------------------------------------|---------------------------------------|----------------------------------|------------------------------------------|
| MM/YY                                                                                                             | Heating Degree Days<br>( below 18 deg C ) |                                   |                                          | Space heating load       |                                      | Marginal<br>Net Revenue<br>( \$/MWh ) | Weather Normalization Reserve    |                                          |
|                                                                                                                   | Actual<br>HDD                             | 10 Year<br>Average<br>Monthly HDD | Variation<br>from 10 Year<br>Average HDD | Coefficient<br>(MWh/HDD) | Variation<br>from Average<br>( MWh ) |                                       | Increase<br>(Decrease)<br>( \$ ) | Balance Owing<br>(Recoverable)<br>( \$ ) |
| January, 2016                                                                                                     | 713                                       | 753.9                             | (40.9)                                   | 41.73                    | (1,707)                              | 50.42                                 | (86,055)                         | (86,055)                                 |
| February, 2016                                                                                                    | 608                                       | 688.2                             | (80.2)                                   | 41.73                    | (3,347)                              | 50.42                                 | (168,743)                        | (254,798)                                |
| March, 2016                                                                                                       | 654                                       | 637.2                             | 16.8                                     | 41.73                    | 701                                  | 50.42                                 | 35,348                           | (219,450)                                |
| April, 2016                                                                                                       | 475                                       | 420.6                             | 54.4                                     | 41.73                    | 2,270                                | 50.42                                 | 114,459                          | (104,991)                                |
| May, 2016                                                                                                         | 259                                       | 264.5                             | (5.5)                                    | 41.73                    | (230)                                | 50.42                                 | (11,572)                         | (116,563)                                |
| June, 2016                                                                                                        | 121                                       | 110.0                             | 11.0                                     | 41.73                    | 459                                  | 50.42                                 | 23,144                           | (93,419)                                 |
| July, 2016                                                                                                        | 30                                        | 16.5                              | 13.5                                     | 41.73                    | 563                                  | 50.42                                 | 28,404                           | (65,014)                                 |
| August, 2016                                                                                                      | 23                                        | 24.2                              | (1.2)                                    | 41.73                    | (50)                                 | 50.42                                 | (2,525)                          | (67,539)                                 |
| September, 2016                                                                                                   | 101                                       | 107.1                             | (6.1)                                    | 41.73                    | (255)                                | 50.42                                 | (12,835)                         | (80,374)                                 |
| October, 2016                                                                                                     | 255                                       | 272.8                             | (17.8)                                   | 41.73                    | (743)                                | 50.42                                 | (37,452)                         | (117,825)                                |
| November, 2016                                                                                                    | 401                                       | 421.8                             | (20.8)                                   | 41.73                    | (868)                                | 50.42                                 | (43,764)                         | (161,589)                                |
| December, 2016                                                                                                    | 665                                       | 622.1                             | 42.9                                     | 41.73                    | 1,790                                | 50.42                                 | 90,263                           | (71,327)                                 |
| January, 2017                                                                                                     | 712                                       | 751.4                             | (39.4)                                   | 43.21                    | (1,702)                              | 49.56                                 | (84,375)                         | (155,701)                                |
| February, 2017                                                                                                    | 657                                       | 704.2                             | (47.2)                                   | 43.21                    | (2,040)                              | 49.56                                 | (101,078)                        | (256,779)                                |
| March, 2017                                                                                                       | 690                                       | 646.1                             | 43.9                                     | 43.21                    | 1,897                                | 49.56                                 | 94,011                           | (162,768)                                |
| April, 2017                                                                                                       | 416                                       | 433.7                             | (17.7)                                   | 43.21                    | (765)                                | 49.56                                 | (37,904)                         | (200,672)                                |
| May, 2017                                                                                                         | 264                                       | 256.4                             | 7.6                                      | 43.21                    | 328                                  | 49.56                                 | 16,275                           | (184,397)                                |
| June, 2017                                                                                                        | 94                                        | 114.6                             | (20.6)                                   | 43.21                    | (890)                                | 49.56                                 | (44,115)                         | (228,512)                                |
| July, 2017                                                                                                        | 27                                        | 16.4                              | 10.6                                     | 43.21                    | 458                                  | 49.56                                 | 22,700                           | (205,812)                                |
| August, 2017                                                                                                      | 29                                        | 22.8                              | 6.2                                      | 43.21                    | 268                                  | 49.56                                 | 13,277                           | (192,535)                                |
| September, 2017                                                                                                   | 92                                        | 106.2                             | (14.2)                                   | 43.21                    | (614)                                | 49.56                                 | (30,409)                         | (222,944)                                |
| October, 2017                                                                                                     | 203                                       | 279.6                             | (76.8)                                   | 43.21                    | (3,319)                              | 49.56                                 | (164,466)                        | (387,410)                                |
| November, 2017                                                                                                    | 440                                       | 423.6                             | 16.1                                     | 43.21                    | 696                                  | 49.56                                 | 34,478                           | (352,932)                                |
| December, 2017                                                                                                    | 695                                       | 613.8                             | 81.6                                     | 43.21                    | 3,526                                | 49.56                                 | 174,745                          | (178,187)                                |
| January, 2018                                                                                                     | 764                                       | 760.1                             | 4.3                                      | 46.66                    | 201                                  | 51.38                                 | 10,309                           | (167,878)                                |
| February, 2018                                                                                                    | 621                                       | 697.3                             | (76.5)                                   | 46.66                    | (3,569)                              | 51.38                                 | (183,400)                        | (351,278)                                |
| March, 2018                                                                                                       | 602                                       | 652.1                             | (50.1)                                   | 46.66                    | (2,338)                              | 51.38                                 | (120,109)                        | (471,388)                                |
| April, 2018                                                                                                       | 445                                       | 440.1                             | 5.0                                      | 46.66                    | 233                                  | 51.38                                 | 11,987                           | (459,401)                                |
| May, 2018                                                                                                         | 280                                       | 261.9                             | 18.0                                     | 46.66                    | 840                                  | 51.38                                 | 43,153                           | (416,248)                                |
| June, 2018                                                                                                        | 168                                       | 121.2                             | 47.2                                     | 46.66                    | 2,202                                | 51.38                                 | 113,157                          | (303,091)                                |
| July, 2018                                                                                                        | 14                                        | 18.9                              | (4.9)                                    | 46.66                    | (229)                                | 51.38                                 | (11,747)                         | (314,838)                                |
| August, 2018                                                                                                      | 9                                         | 19.9                              | (10.5)                                   | 46.66                    | (490)                                | 51.38                                 | (25,173)                         | (340,011)                                |
| September, 2018                                                                                                   | 125                                       | 104.7                             | 20.0                                     | 46.66                    | 933                                  | 51.38                                 | 47,948                           | (292,063)                                |
| October, 2018                                                                                                     | 341                                       | 276.1                             | 65.2                                     | 46.66                    | 3,042                                | 51.38                                 | 156,310                          | (135,753)                                |





|                                                                                       |               |                  |         |            |                                                                                       |                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                               |   |     |          |      |
|---------------------------------------------------------------------------------------|---------------|------------------|---------|------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|----------|------|
|  | Project :     | MARTINE ELECTRIC | Scale   | 1/8"=1'-0" |  | <b>CHANDLER</b><br><b>ARCHITECTURE</b><br><b>DESIGN MATTERS</b><br>92 Queen Street PO Box 590 Chalkstone<br>Prince Edward Island, Canada C1A 7L1<br>Tel: 803 539 6539<br>Fax: 802 566 9214 <a href="http://www.chandlerarchitecture.ca">www.chandlerarchitecture.ca</a> | All measurements must be checked on site prior to construction or fabrication.<br><br>This drawing is the property of Chandler Architecture and shall not be reproduced or used for any extensions to this project except by agreement in writing from the Architect.<br><br>This drawing is not to be used for construction unless stamped by the Architect. | 0 | Rev | 00/00/00 | Date |
|                                                                                       | Sheet Title : | FLOOR PLANS      | Dwg No. | MNC18-029  |                                                                                       |                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                               |   |     |          |      |
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## Maritime Electric CT3 BOP Building

### Architectural and Structural Construction Budget Estimate

September 30, 2018

#### Architectural and Structural

|                                                              |               |
|--------------------------------------------------------------|---------------|
| - general conditions                                         | 50,000        |
| - site work (excavating and backfilling)                     | 40,000        |
| - landscaping                                                | 20,000        |
| - asphalt paving                                             | 65,000        |
| - foundation walls (inc. rigid insulation)                   | 50,000        |
| - concrete floor slab (inc. VB and insulation)               | 40,000        |
| - structural steel (columns, beams, joists and deck)         | 130,000       |
| - concrete block walls                                       | 220,000       |
| - exterior siding (inc air/moisture barrier and insulation): |               |
| - brick masonry                                              | 55,000        |
| - metal siding                                               | 45,000        |
| - modified bitumen roofing (inc. VB & insulation)            | 85,000        |
| - steel stairs and railings                                  | 12,000        |
| - windows                                                    | 10,000        |
| - overhead doors                                             | 10,000        |
| - doors, frames and hardware                                 | 25,000        |
| - flooring (epoxy type flooring)                             | 80,000        |
| - ceramic tile in Locker Rooms                               | 5,000         |
| - painting (walls, doors, frames, trims)                     | 20,000        |
| - painting exposed structure ceiling                         | 20,000        |
| - ceilings in offices, locker room, and washrooms            | 5,000         |
| - millwork                                                   | 5,000         |
| - lockers                                                    | 3,000         |
| - miscellaneous (accessories, etc.)                          | 5,000         |
| - new work benches                                           | 25,000        |
| - Architectural, Civil, and Structural Consultants           | <u>75,000</u> |

Sub-total \$1,100,000

10% Contingency 110,000

Projected Budget \$1,210,000

Note: Budget estimate does not include:

- mechanical or electrical work
- furnishings or equipment

MARITIME ELECTRIC  
CT3 BOP UPGRADES  
PRELIMINARY COST ESTIMATE  
REPORT NO. 012-495-18-01

CT3 BOP Relocation - Preliminary Electrical Cost Estimate

| CT3 BOP ELECTRICAL EQUIPMENT                                              | Labour |           |     |           | Equipment |           |     |           | Total     |
|---------------------------------------------------------------------------|--------|-----------|-----|-----------|-----------|-----------|-----|-----------|-----------|
|                                                                           | Unit   | Unit Rate | Qty | Amount    | Unit      | Unit Rate | Qty | Amount    |           |
| Relocate 2000A, 3P, 3W, Switchgear                                        | hours  | \$90      | 200 | \$18,000  | lot       |           |     |           | \$18,000  |
| Relocate ASCO Transfer Panel                                              | hours  | \$90      | 80  | \$7,200   | lot       |           |     |           | \$7,200   |
| New Diesel Generator (Note 4)                                             | hours  | \$90      | 160 | \$14,400  | lot       | \$250,000 | 1   | \$250,000 | \$264,400 |
| New 600V, CT3, BOP MCC, 600V, 1200A, 3P, 3W                               | hours  | \$90      | 112 | \$10,080  | lot       | \$40,000  | 1   | \$40,000  | \$50,080  |
| New CT3 BOP Building Services (Note 3)                                    | hours  | \$90      | 630 | \$56,700  | lot       | \$40,000  | 1   | \$40,000  | \$96,700  |
| Relocate Fuel Oil Heater Control Panel                                    | hours  | \$90      | 40  | \$3,600   | lot       | \$1,000   | 1   | \$1,000   | \$4,600   |
| Relocate Balance of Plant Fuel Oil PLC Cabinet                            | hours  | \$90      | 40  | \$3,600   | lot       | \$1,000   | 1   | \$1,000   | \$4,600   |
| New BOP Charger and Batteries - Maint. Free                               | hours  | \$90      | 32  | \$2,880   | lot       | \$25,000  | 1   | \$25,000  | \$27,880  |
| New BOP DC Panel                                                          | hours  | \$90      | 32  | \$2,880   | lot       | \$15,000  | 1   | \$15,000  | \$17,880  |
| Relocate RO VEDA Drive #1, 50HP, 600V                                     | hours  | \$90      | 16  | \$1,440   | lot       | \$1,000   | 1   | \$1,000   | \$2,440   |
| Relocate RO VEDA Drive #1, 50HP, 600V                                     | hours  | \$90      | 16  | \$1,440   | lot       | \$1,000   | 1   | \$1,000   | \$2,440   |
| Relocate RO Rectifier #1, 400VDC, 27A                                     | hours  | \$90      | 16  | \$1,440   | lot       | \$1,000   | 1   | \$1,000   | \$2,440   |
| Relocate RO Rectifier #2, 400VDC, 27A                                     | hours  | \$90      | 16  | \$1,440   | lot       | \$1,000   | 1   | \$1,000   | \$2,440   |
| Relocate 1500kVA, 13.8kV/347-600V, Outdoor Pad Mount Transformer (Note 7) | hours  | \$90      | 160 | \$14,400  | lot       |           |     |           | \$14,400  |
| New Fire Detection System                                                 | hours  | \$90      | 160 | \$14,400  | lot       | \$15,000  | 1   | \$15,000  | \$29,400  |
| New Telecom                                                               | hours  | \$90      | 160 | \$14,400  | lot       | \$10,000  | 1   | \$10,000  | \$24,400  |
| New RO Instrumentation cables (Note 6)                                    | hours  | \$90      | 96  | \$8,640   | lot       | \$10,000  | 1   | \$10,000  | \$18,640  |
| New WWT Instrumentation cables (Note 6)                                   | hours  | \$90      | 192 | \$17,280  | lot       | \$10,000  | 1   | \$10,000  | \$27,280  |
| New Fuel System Instrumentation cables (Note 6)                           | hours  | \$90      | 192 | \$17,280  | lot       | \$35,000  | 1   | \$35,000  | \$52,280  |
| New BOP 125VDC Power Feeders (Note 6)                                     | hours  | \$90      | 120 | \$10,800  | lot       | \$5,000   | 1   | \$5,000   | \$15,800  |
| New BOP MCC Power Feeders and Cables (Note 6)                             | hours  | \$90      | 320 | \$28,800  | lot       | \$37,000  | 1   | \$37,000  | \$65,800  |
| New Cable Tray (Note 1,6)                                                 | hours  | \$90      | 450 | \$40,500  | lot       | \$60,000  | 1   | \$60,000  | \$100,500 |
| New BOP Switchgear Power Feeders (Notes 5,6)                              | hours  | \$90      | 80  | \$7,200   | lot       | \$74,000  | 1   | \$74,000  | \$81,200  |
| Engineering Services                                                      | lot    |           |     | \$180,000 | lot       |           |     |           | \$180,000 |
| Contingency (10%)                                                         | lot    |           |     |           | lot       |           |     |           | \$111,080 |
|                                                                           |        |           |     |           |           |           |     |           |           |

Notes:

- Total (Note 2) \$1,221,880
1. Cost estimate for cable tray developed in conjunction with MECL.

2. No tax included

3. Demand load of 1200kVA was assumed for the new CT3 BOP station service in accordance with an email from MECL dated 6 September 2018.

4. The new CT3 BOP diesel generator has been assumed to be 750kVA (one unit).

5. MECL has confirmed that the cables between the GE MCC and the Switchgear and the cables between the padmount transformer and the switchgear will be re-used in an email dated 27 September 2018.

6. Assumed that the new power feeder cables associated with the GE and CT3 BOP MCC’s will be the same size and type as existing cables. Cable lengths may be significantly different if the routing must be adjusted to accommodate MECL requirements.

7. Due to scheduling, new Outdoor Pad Mount Transformer to be supplied by MECL. Old Outdoor Pad Mount Transformer will be returned to MECL stock.



# PRELIMINARY CAPITAL COST ESTIMATE

|                                                                  |                                |
|------------------------------------------------------------------|--------------------------------|
| <b>PROJECT</b><br>MECL - CT3 BOP Building                        | <b>PROJECT NO.</b><br>18-130   |
| <b>DESCRIPTION</b><br>Preliminary Capital Cost Estimate (Rev. 2) | <b>DATE</b><br>October 1, 2018 |

| PRELIMINARY CAPITAL COST ESTIMATE                     |      |                 |            |           |                  |
|-------------------------------------------------------|------|-----------------|------------|-----------|------------------|
| Description                                           | Qty  | Units           | Unit Price | Amount    | Total            |
| <b>Part 1 General Conditions</b>                      |      |                 |            |           | <b>\$ 15,000</b> |
| 1.01 Mobilization                                     | 1    | lot             | \$ 3,000   | \$ 3,000  |                  |
| 1.02 General Conditions                               | 1    | lot             | \$ 12,000  | \$ 12,000 |                  |
| <b>Part 2 General Conditions</b>                      |      |                 |            |           | <b>\$ 43,500</b> |
| 2.01 Permits                                          | 1    | lot             | \$ 2,000   | \$ 2,000  |                  |
| 2.02 Coordination Drawings                            | 1    | lot             | \$ 3,000   | \$ 3,000  |                  |
| 2.03 Access Doors                                     | 1    | lot             | \$ 1,000   | \$ 1,000  |                  |
| 2.04 Cutting and Patching                             | 1    | lot             | \$ 3,000   | \$ 3,000  |                  |
| 2.05 Bases and Supports                               | 1    | lot             | \$ 10,000  | \$ 10,000 |                  |
| 2.06 Spare Parts and Tools                            | 1    | lot             | \$ 500     | \$ 500    |                  |
| 2.07 Testing                                          | 1    | lot             | \$ 2,000   | \$ 2,000  |                  |
| 2.08 Flushing and Cleaning                            | 1    | lot             | \$ 4,500   | \$ 4,500  |                  |
| 2.09 Air and Water Balancing                          | 1    | lot             | \$ 7,500   | \$ 7,500  |                  |
| 2.10 Identification                                   | 1    | lot             | \$ 3,000   | \$ 3,000  |                  |
| 2.11 O & M Manuals                                    | 1    | lot             | \$ 1,000   | \$ 1,000  |                  |
| 2.12 Record Drawings                                  | 1    | lot             | \$ 1,000   | \$ 1,000  |                  |
| 2.13 Commissioning and Demonstration                  | 1    | lot             | \$ 5,000   | \$ 5,000  |                  |
| <b>Part 3 Plumbing</b>                                |      |                 |            |           | <b>\$ 81,000</b> |
| 3.01 New Domestic Water Service                       | 1    | lot             | \$ 10,000  | \$ 10,000 |                  |
| 3.02 New Sanitary Service                             | 1    | lot             | \$ 6,000   | \$ 6,000  |                  |
| 3.03 Domestic Water Piping                            | 6000 | ft <sup>2</sup> | \$ 3       | \$ 18,000 |                  |
| 3.04 Sanitary Piping                                  | 6000 | ft <sup>2</sup> | \$ 2       | \$ 12,000 |                  |
| 3.05 Insulation                                       | 6000 | ft <sup>2</sup> | \$ 5       | \$ 30,000 |                  |
| 3.06 Fixtures and Trim                                | 5    | ea              | \$ 1,000   | \$ 5,000  |                  |
| <b>Part 4 Fire Protection</b>                         |      |                 |            |           | <b>\$ 60,800</b> |
| 4.01 Fire Water Entrance                              | 1    | lot             | \$ 15,000  | \$ 15,000 |                  |
| 4.02 Sprinkler System                                 | 6000 | ft <sup>2</sup> | \$ 5       | \$ 30,000 |                  |
| 4.03 Certification                                    | 1    | lot             | \$ 2,000   | \$ 2,000  |                  |
| 4.04 Fire Extinguishers                               | 6    | ea              | \$ 300     | \$ 1,800  |                  |
| 4.05 Relocate Existing Hydrant/Modify Exterior Piping | 1    | lot             | \$ 12,000  | \$ 12,000 |                  |

|                                                  |      |     |            |           |                   |
|--------------------------------------------------|------|-----|------------|-----------|-------------------|
| <b>Part 5 HVAC</b>                               |      |     |            |           | <b>\$ 94,500</b>  |
| 5.01 Office A/C                                  | 4    | ton | \$ 6,000   | \$ 24,000 |                   |
| 5.02 Office HRV                                  | 1    | ea  | \$ 5,000   | \$ 5,000  |                   |
| 5.03 Electrical Room Ventilation                 | 1    | lot | \$ 8,000   | \$ 8,000  |                   |
| 5.04 B.O.P. Ventilation                          | 1    | lot | \$ 15,000  | \$ 15,000 |                   |
| 5.05 Shop General Ventilation                    | 1    | lot | \$ 7,500   | \$ 7,500  |                   |
| 5.06 Electric Unit Heaters                       | 100  | kw  | \$ 200     | \$ 20,000 |                   |
| 5.07 Task Ventilation - Shop                     | 1    | lot | \$ 15,000  | \$ 15,000 |                   |
| <b>Part 6 CT3 BOP Equipment</b>                  |      |     |            |           | <b>\$ 250,100</b> |
| 6.01 Relocate RO-EDI System (4 people, 4 weeks)  | 640  | hrs | \$ 80      | \$ 51,200 |                   |
| 6.02 RO-EDI Tanks (New) - HDPE                   | 1    | ea  | \$ 40,000  | \$ 40,000 |                   |
| 6.03 RO Water Piping                             | 1000 | ft  | \$ 80      | \$ 80,000 |                   |
| 6.04 New Waste Line from CT3                     | 250  | ft  | \$ 40      | \$ 10,000 |                   |
| 6.05 New Oil Water Separator                     | 1    | lot | \$ 10,000  | \$ 10,000 |                   |
| 6.06 WWT Piping                                  | 1    | lot | \$ 10,000  | \$ 10,000 |                   |
| 6.07 Compressed Air (Existing Relocated)         | 80   | hrs | \$ 80      | \$ 6,400  |                   |
| 6.08 Compressed Air Piping                       | 1    | lot | \$ 17,500  | \$ 17,500 |                   |
| 6.09 Instrument Air Piping                       | 250  | ft  | \$ 40      | \$ 10,000 |                   |
| 6.10 Maintenance Fit-Up (Air/Water)              | 1    | lot | \$ 15,000  | \$ 15,000 |                   |
| <b>Part 7 Automatic Controls</b>                 |      |     |            |           | <b>\$ 45,000</b>  |
| 7.01 Wiring, Termination                         | 1    | lot | \$ 12,000  | \$ 12,000 |                   |
| 7.02 Devices, Equipment                          | 1    | lot | \$ 15,000  | \$ 15,000 |                   |
| 7.03 Commissioning                               | 1    | lot | \$ 15,000  | \$ 15,000 |                   |
| 7.04 Training                                    | 1    | lot | \$ 3,000   | \$ 3,000  |                   |
| <b>Part 8 Engineering and Project Management</b> |      |     |            |           | <b>\$ 70,788</b>  |
| 8.01 Professional Design Fees                    |      |     |            |           |                   |
| Mechanical Consultant                            | 12%  |     | \$ 589,900 | \$ 70,788 |                   |
| Project Management & Contract                    |      |     |            |           |                   |
| 8.01 Administration by Owner (By Owner)          | 0%   |     |            | \$ -      |                   |
| <b>Part 9 Suggested Contingency</b>              |      |     |            |           | <b>\$ 66,069</b>  |
| 9.01 Based on Suggested Budget Amounts           | 10%  |     | \$ 660,688 | \$ 66,069 |                   |
| <b>Suggested Total Budget</b>                    |      |     |            |           | <b>\$ 726,757</b> |



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# PROVINCIAL OUTLOOK EXECUTIVE SUMMARY.

## **Provincial Outlook Executive Summary: Summer 2018**

The Conference Board of Canada

### **Preface**

The *Provincial Outlook Economic Forecast* was prepared by Marie-Christine Bernard, Director, under the general direction of Pedro Antunes, Deputy Chief Economist.

The report examines the economic outlook for the provinces, including gross domestic product (GDP), output by industry and labour market conditions. At the end of the report, there is a forecast for Canadian economic indicators and a comparison of GDP by province and industry.

The outlook is updated quarterly using the Conference Board's large econometric model of the provincial economies.

The publication can be accessed on-line at [www.e-library.ca](http://www.e-library.ca) and for clients subscribing to e-Data at [www.conferenceboard.ca/edata.htm](http://www.conferenceboard.ca/edata.htm). For more information, please contact our information specialist at 613-526-3280 or 1-866-711-2262 or e-mail [contactcboc@conferenceboard.ca](mailto:contactcboc@conferenceboard.ca).

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## Acknowledgements

The article was written by Marie-Christine Bernard, Director, and the provincial forecasting team.

## EXECUTIVE SUMMARY

# Weaker Economic Performances

### At a Glance

- High debt levels, rising interest rates, and a correction in the housing market are weighing on economic growth in Canada.
- Most provinces will see their economic performance weaken over the near term.
- New regulations in the housing sector have slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the resource sector recession hit in 2015.
- Despite trade issues, private investment, mainly in machinery and equipment, has been picking up across the country.
- The strongest economic performances next year are forecast for Newfoundland and Labrador and Prince Edward Island.
- There are risks to the outlook, the recent announcement in the uranium sector will lead to more layoffs in Saskatchewan and lower uranium production.
- There is renewed interest in investment in Alberta's energy sector and the province is primed for private investment growth next year, but no large-scale, multi-phase, multi-billion oil sands capital projects are planned at the moment.

## National Overview

**The economy expanded at an annual pace of just 1.3 per cent in the first quarter of 2018 as consumer spending softened, the trade sector continued to perform poorly, and the housing sector weakened in response to recent policy changes. One piece of good news was that Canadian companies largely shrugged off concerns about NAFTA and new tariffs and boosted their investment in plants and equipment substantially. The recent increases in business investment are overdue and will go a long way toward easing record-high capacity utilization levels across many sectors of the Canadian economy.**

Over the next two years, we expect consumer spending growth to continue to fall as households reduce their pace of borrowing in the face of higher interest rates and slower job growth. Lower home prices will also impact spending, as households will be less willing to borrow against their homes. In the trade sector, export growth will be limited by recently enacted tariffs on softwood lumber, steel, and aluminum. The potential collapse of NAFTA and daily threats of new tariffs across a wide range of goods, including autos and parts, will also weigh on exporters' investment decisions and limit a return to solid growth in the near future. Overall, we project that the Canadian economy will grow by 1.8 per cent in both 2018 and 2019, down from of a 3.0 per cent gain last year.

## Provincial Overview

As we entered the second half of this year, nearly all provinces were contending with weaker economic growth. Job creation stalled in the first half of the year, mainly in the service sector, with Quebec and British Columbia bearing the brunt of the weakness there. In addition, new



regulations in the housing sector slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the recession in the resource sector hit in 2015.

While the sluggish labour market conditions were not widespread, the pullback in consumer demand was visible across the country. But with stronger energy prices, inflation has been accelerating, as year-over-year gasoline prices are up by close to 25 per cent. As well, minimum wage increases, particularly the one in Ontario, are adding to wage costs in the food industry and boosting restaurant food prices. On July 11, the Bank of Canada raised its key interest rate for the fourth time in a year. Further increases are expected, but not until next year. While inflation is high on the Bank of Canada's radar, the Bank's governor, Stephen Poloz, is also keeping an eye on the unsettled NAFTA trade negotiations and the impacts that the new U.S. tariffs on steel and aluminum and rising global trade protectionism could have on the economy. The trade tensions bring considerable instability to the economy, with U.S. president Donald Trump ratcheting up his rift with his country's main trading partners, including Canada. Tariffs on steel and aluminum aren't likely to derail Canadian economic growth, but tariffs on autos and parts would be far more detrimental to economic growth and employment. Still, despite the trade conflicts that the Trump administration has fired up, global stock markets have remained generally calm.

As well, a positive trend started early in 2017—businesses are purchasing more machinery and equipment in order to raise their productive capacity and competitiveness. This trend emerged despite trade issues weighing on business investment decisions. Trade uncertainties are detrimental to business investment, but those uncertainties are being overridden by high capacity utilization rates and a booming U.S. economy, both of which are encouraging firms to upgrade and expand their equipment.

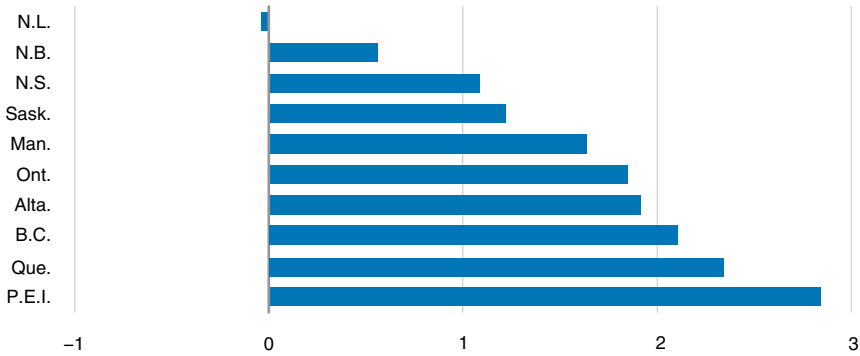
While the Canadian economy grew at a much weaker pace in the last quarter of 2017 and the first half of this year, the second half of 2018 is expected to be more stable, and that stability should continue through

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2019 as well. While the various major trade negotiations are still unresolved, other key indicators have been more encouraging in recent months.

Smaller provinces will take the lead in economic growth next year, with Newfoundland and Labrador and Prince Edward Island both expected to outpace the national average. Quebec, Ontario, and Alberta are expected to average less than 2 per cent growth in 2019, while British Columbia is forecast to continue to outpace the national average, growing by more than 2 per cent. The outlook for New Brunswick and Nova Scotia mirrors the outlook for faint growth in the labour force, with only modest economic growth forecast over the near term due to the aging of their workforces, which more than offsets the positive impact of the progress made in attracting newcomers to the region.  
(See charts 1 and 2.)

Chart 1  
**Real GDP by Province, 2018**  
(percentage change\*)

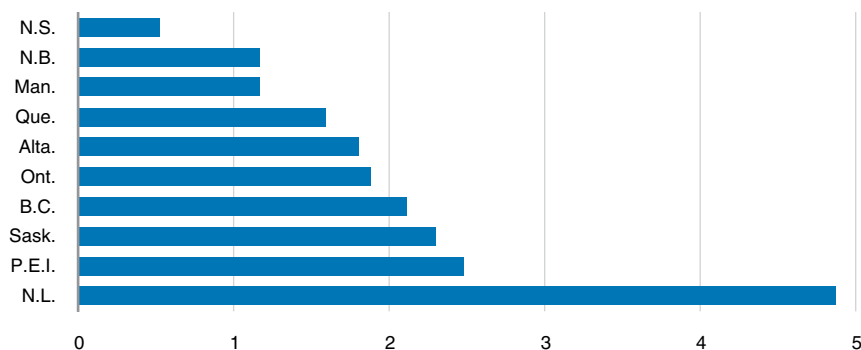


\*based on 2007 \$  
Sources: The Conference Board of Canada; Statistics Canada.

## Chart 2

### Real GDP by Province, 2019

(percentage change\*)



\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

## Provincial Assumptions

Economic growth will essentially stall this year in Newfoundland and Labrador. The provincial economy is being held back by weakening construction, a sharp drop in fishing and sub-par wholesale and retail trade activity. The start of oil production late last year at the province's fourth major oil project, Hebron, should be a big source of optimism. But production interruptions at other offshore oil fields will limit the oil sector's contribution to the economy. Still, rising oil production at Hebron will help push overall real GDP growth in the province to 4.9 per cent in 2019. Fundamentally, the Newfoundland and Labrador economy will struggle as the wrapping up of major construction projects hurts workers' job prospects and weakens consumer demand. On a positive note, a recent agreement between the provincial government and two international companies to develop the province's first deep-water production project—the \$6.8-billion Bay du Nord initiative—is good news for the province.

Prince Edward Island will be the only province that will maintain its economic momentum this year. For a second consecutive year, Canada's smallest province will grow strongly, expanding by 2.8 per cent and outpacing all other provinces. Central to this solid economic performance is the Atlantic Growth Strategy, which helped to raise the number of newcomers and fuel consumer demand for housing and retail goods. In

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addition, the favourable conditions for tourism are helping to stimulate growth on the Island, as more and more passenger cruise ships visit the Island. Overall, real GDP growth is forecast to inch down a few notches to 2.5 per cent in 2019 as a less-accommodative monetary policy cools consumers' appetite for big-ticket items.

Nova Scotia will improve its economic performance slightly this year, growing by 1.1 per cent. Positive contributors include an expanding housing market, healthy job creation, a strong showing on the immigration front, and solid consumer demand. Limiting economic growth is the winding down of natural gas production in the province. Mineral fuel production had been a source of economic activity for decades, and until someone starts up a new venture, there will be no mineral fuel production in the province at all. Exploration, however, is recovering. BP Canada's Scotian Basin Exploration Project could see up to seven exploration wells drilled off the southeast coast of Nova Scotia—some welcome news for the industry and possibly leading to a new development down the road. Economic growth will slow to just 0.5 per cent next year as manufacturing contributes less to bottom-line growth.

New Brunswick economy has lost some of its momentum. It is forecast to grow by 0.6 per cent in 2018 and 1.2 per cent in 2019, compared with growth of 1.7 per cent in 2017. Retail sales and housing starts have been easing quickly. As well, while manufacturing provided a boost to the economy last year, more moderate increases in petroleum and coal product refining mean that manufacturing will not do much to shore up bottom-line growth this year or next. Labour market conditions have been improving, as net international immigration is still elevated and adding to the workforce. But the number of retirements is rising fast and offsetting the positive contribution from newcomers.

As Quebec prepares for a provincial election on October 1, the province's economy continues to perform well. On the heels of the best economic performance in nearly two decades last year, Quebec's economy will outpace the national average in 2018, advancing by 2.3 per cent. However, the momentum will fade, as economic growth is expected to ease to 1.6 per cent in 2019. The U.S. tariffs on aluminum are bad news for Quebec's massive aluminum industry. But while trade

worries will be a drag on the economy, it is easing consumer demand that will be mostly responsible for the loss of momentum in the economy. Rising interest rates and lower housing construction will take a bite out of consumer spending next year. Housing starts have been flirting with record-high levels in recent months, but that is not sustainable given Quebec's softer demographics and resulting weaker requirements. We expect housing starts to decline from 48,716 units in 2018 to 42,747 units in 2019.

Also being hurt by the new stress test regulations for home purchases is the Ontario economy, which has shifted into a lower gear and is forecast to grow by 1.8 per cent this year and 1.9 per cent in 2019. Residential investment is forecast to contract by 7.3 per cent in 2018, the biggest pullback since the 2008–09 recession. The housing market is adjusting to the new measures. Consumers have also pulled back considerably on their purchases of goods, and that is a contributing factor to the weaker economic prospects over the near term. The weakness on the consumer side of the economy masks the solid growth in other private investments. New commercial projects in the Greater Toronto area and strong machinery and equipment investment are forecast to push up real business investment (excluding residential) by 8.6 per cent this year and 4.4 per cent in 2019. The trade sector provides considerable risk to the economic outlook, mainly in the form of Trump's trade strategies and his threat toward the auto industry. More stringent requirements for the auto industry have not been factored into our economic outlook but do present downside risks.

The forecast for Manitoba is influenced greatly by the development of two major power projects—the Bipole III transmission line and the Keeyask generating station. Construction will continue to grow rapidly in 2018, thanks to these projects as well as to the building of the Roquette pea-processing plant. Overall, real GDP in Manitoba is expected to grow by 1.6 per cent in 2018. Next year, however, with development of the Keeyask station moving along and Bipole III expected to be completed, overall real GDP growth will cool. In addition, the planned shutdown of metal mines will hit economic growth over the next few years. The provincial economy is expected to grow by just 1.2 per cent in 2019.

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President Trump also has uranium on his radar and could impose tariffs on that commodity as well. Saskatchewan is the number one supplier to the U.S. of uranium, which is mainly used in nuclear power generation. The uranium industry has struggled in recent years, as a collapse of demand in Japan following the 2011 Fukushima Daiichi nuclear disaster led to global oversupply and low prices. Saskatoon-based uranium giant Cameco has cut back on production in Saskatchewan, leading to job losses and helping to keep overall growth in real GDP to just 1.2 per cent this year. The domestic economy has yet to recover fully from the resource sector crash that led to a recession in the province in 2016. But with improved commodity prices and stronger global demand in a number of key sectors, we expect a turnaround in the domestic economy. However, the recent announcement that the indefinite shutdowns of the McArthur River and Key Lake uranium mines are to be prolonged is bad news. This was not factored into our forecast of 2.3 per cent real GDP growth for Saskatchewan next year. As such, growth is at risk of coming in lower than we projected.

Alberta's economic growth has been easing over the last few quarters. But, generally, the provincial economy is still performing well and has nearly fully recovered from the worst recession to hit the province in the last half century. Job creation is accelerating, and the unemployment rate is falling. Wage growth remains modest relative to the gains in other provinces. Higher borrowing costs are cooling the domestic economy. Oil production is growing at a strong pace, the federal government has purchased Kinder Morgan's Trans Mountain project, and there is renewed interest in investing in the energy sector. But no large-scale oil sands capital projects are planned at this point. All in all, Alberta's real economic growth is expected to average 1.9 per cent in 2018 and 1.8 per cent in 2019.

British Columbia's economy is losing speed and is forecast to grow by a much weaker 2.1 per cent in 2018 and again in 2019, down from average growth exceeding 3 per cent since the start of the decade. The bulk of the weakness is coming from a job market that is running out of fuel, a sharp correction in the housing market, and much weaker consumer demand. The measures put in place to address runaway housing prices and affordability issues have taken the shine off the housing market,

especially for sales of much pricier, existing single-detached homes. Home resale activity was down by more than 20 per cent in the first half of this year compared with 2017. Housing starts have been falling as well, but not at such a dramatic pace.

## U.S. Outlook

The U.S. economy expanded at a 2.2 per cent annual pace in the first quarter of this year and then accelerated sharply to 4.1 per cent in the second quarter. For this year as a whole, we expect growth in U.S. real GDP to come in at about 3.0 per cent. (See Chart 3.) Next year, the economy will maintain its momentum, as a gain of 2.7 per cent is anticipated. The U.S. economy is currently benefiting from the fiscal stimulus provided by tax cuts and higher government spending. Tightening labour markets have started to boost wages, which should support household spending over the near term. Real spending is expected to increase by 2.5 per cent this year and 2.4 per cent in 2019.

However, there are a few developments that pose downside risks to our outlook for the U.S. economy. Last December, average gasoline prices in the U.S. were less than \$2.50 per gallon. Since then, they have increased to more than \$3 per gallon, while in states such as California prices are around \$4 a gallon. Higher world oil prices are the main culprit. They have been pushed higher by a variety of factors, including OPEC production cuts, reduced supply from Venezuela, and the uncertain situation concerning oil shipments from Iran now that the U.S. has decided to walk away from the Iran nuclear weapons agreement that it had signed with its European partners and Tehran. If gasoline prices average \$3 or more for the remainder of the year, a good part of the stimulus to the economy attributable to tax cuts will be negated.

The off-again-on-again trade war appears to be back on. In late May, the Trump administration imposed a 25 per cent tariff on imported steel and a 10 per cent tariff on imported aluminum from Mexico, the European Union, and Canada. The three U.S. trade partners quickly retaliated by putting tariffs on many U.S. exports. While the immediate consequence for the U.S. economy will be minimal, consumers will have

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to pay higher prices for food and cars if the trade war escalates. Many trade analysts contend that President Trump is using the tariffs as a means of intensifying the pressure on Canada and Mexico during the NAFTA negotiations. Concerns about a global trade war ratcheted up even higher in June when the U.S. president imposed a 25 per cent tariff on \$50 billion worth of imports of Chinese goods. The direct impact on the economy will be minor, as the tariffs cover less than 10 per cent of total U.S. imports from China and around 2 per cent of all U.S. imports. The effect on core U.S. inflation is less than 0.1 per cent. However, of far greater concern is the retaliation from China. Following the U.S. actions, the Chinese government backed out of an earlier agreement to purchase \$70 billion of U.S. goods and promised to put tariffs on about \$34 billion worth of U.S. exports to China. The Trump administration countered by threatening even more tariffs on Chinese exports. At present, neither side appears willing to back down, and a full-blown trade war cannot be ruled out.

The other factor that could dampen U.S. growth is the rapid increase in labour shortages. In an economy with an unemployment rate below 4.0 per cent, shortages of available workers are quickly becoming a reality for many U.S. firms. The National Federation of Independent Business recently reported that around one-third of small businesses today have posted job openings—a level not seen since the tech boom in the late 1990s.

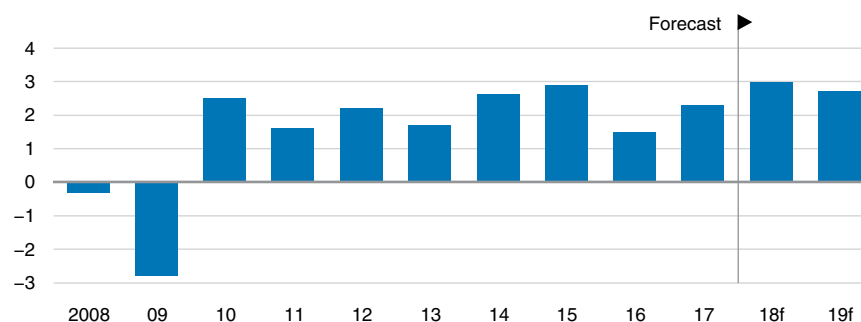
Tightening labour markets are finally translating into wage gains, something that had been absent since 2009 when the economy started to slowly recover from the severe recession. Wages are currently expanding in the 3.0 per cent range, or close to double the average seen since 2009. The hope is that the combination of record job openings and rising wages will entice more people to join the workforce and thereby ease the labour shortages. However, the Trump administration's anti-immigration stance is hurting growth in an important source of labour supply at this time of record-low unemployment. Two of President Trump's most high-profile domestic policies are currently working against each other. His fiscal stimulus is boosting demand for workers, but the restrictions on immigrants are hurting labour supply and making it difficult for firms to find workers.



Chart 3

### Tax Cuts Fuelling Growth in U.S. Economy

(real GDP, percentage change)



f = forecast

Sources: The Conference Board of Canada; U.S. Bureau of Economic Analysis.

## Monetary Policy

While economic growth in Canada is expected to slow over the next two years, capacity pressures continue to brew, suggesting that the Bank of Canada should consider increasing interest rates at a more aggressive pace. While monetary authorities will tolerate the inflation rate drifting somewhat above the target range, wage growth has accelerated to a pace above 3.0 per cent as labour markets in Canada have continued to tighten. The unemployment rate is hovering around 6.0 per cent and is projected to fall to an all-time low of 5.7 per cent by year-end. Higher wages will eventually feed into inflation.

Despite capacity pressures and rising inflation, we expect no further rate hikes by the Bank of Canada this year following the 25 basis-point increases in January and July. (See Chart 4.) Although we expect three further rate increases in 2019, there is some downside risk to this outlook, given the great degree of uncertainty in the economy—in particular, the potential for a quickly escalating global trade war. Canada, Mexico, and the EU have all retaliated against U.S. steel and aluminum tariffs, while President Trump has promised to take further steps to limit imports that he claims are harmful to the U.S. economy. On several occasions, the U.S. president has threatened to impose 25 per cent tariffs on imports of autos and parts. In addition, the NAFTA

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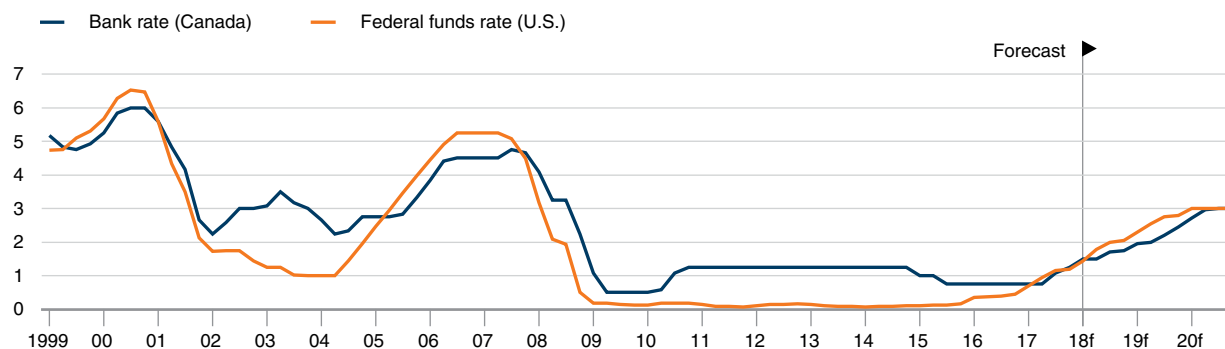
renegotiations have bogged down due to disagreements concerning the domestic content of autos produced in North America and the U.S. demand for a sunset clause for any new NAFTA deal. Further tariffs on Canadian goods, especially on autos and parts, could have a devastating impact on the Canadian economy.

While the Canadian dollar is getting some support from the recent strength in oil prices, it is under pressure due to a combination of the rising spread between Canadian and U.S. interest rates and the increasing uncertainty over global trade. At the beginning of this year, the loonie was trading in the US\$0.79–0.80 range as the U.S. dollar came under selling pressure due to concerns about rising fiscal deficits. However, the uncertainty over NAFTA negotiations and the different paths of monetary policy in the two countries caused the loonie to depreciate recently to the US\$0.75 range. The Canadian dollar will generally trade in this range until the second half of 2019 when it will start to appreciate gradually as interest rate increases accelerate. We do not expect the loonie to return to the US\$0.80 mark until sometime in 2022. Even that modest outlook for the Canadian dollar is contingent upon there being a marked reduction in the trade tensions that currently exist in the global economy.

#### Chart 4

#### Bank of Canada to Hike Again in 2019

(per cent)



f = forecast

Sources: The Conference Board of Canada; Bank of Canada

## Fiscal Outlook

While last year's strong economic growth propelled a notable pickup in government revenues, government spending growth also accelerated, resulting in no notable improvement in either the federal or collective provincial budget deficits. This year, the expected slowdown in economic growth will result in softer gains in government revenues, which will challenge government balances. At the federal level, we project a deficit of \$19.8 billion this year. While the deficit should shrink over the next few years, the pace of improvement will be slow. Provincial deficits are likely to widen considerably this year, and we anticipate only a slight narrowing over the next few years.

While running operating shortfalls when the economy is near its peak is not ideal, the spending by the federal and provincial governments will help stimulate economic growth over the near term. The most notable boost will be from public infrastructure investment.

## Newfoundland and Labrador

### **New Opportunities in the Oil Industry**

Newfoundland and Labrador's economic prospects are uneven. No real GDP growth is forecast this year as big declines in fishing, construction, and consumer demand weigh on the economy. But real GDP growth is forecast to jump to 4.9 per cent next year. That will place Newfoundland and Labrador at the head of the provincial pack in 2019. The strong growth will be led by the ramping up of oil production at Hebron (see Chart 5), where pumping is already ahead of schedule. Oil production from the project averaged 13,500 barrels per day over the second quarter of this year and will continue to increase before reaching full capacity next year. The good news for the oil industry does not stop there. The provincial government recently came to an agreement with two international companies to develop what would be the province's first deep-water production project, the \$6.8-billion Bay du Nord initiative. A final decision by the companies on whether to go ahead is not expected for a few years, but there will be further exploration and development work in the meantime.

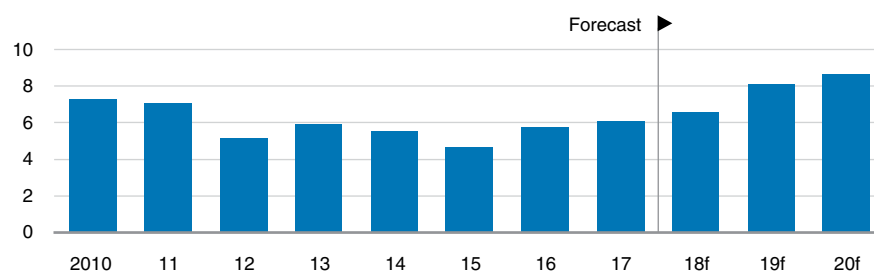
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Despite rising oil production, the domestic economy remains fundamentally weak. Business investment is on a downward slide as major projects, such as the Muskrat Falls hydro project, approach the end of their construction phase. The biggest challenges facing the province are the dynamics in the labour force. The unemployment rate will hold steady at 15.1 per cent next year, but that will come despite almost 1,000 people leaving the labour force and there being more than 1,700 fewer people employed in the province. Newfoundland and Labrador is the only province with an unemployment rate in the double-digits. This is particularly worrisome given that it is also the province with the oldest population and that it continues to see its workforce shrink and its tax base erode.

Chart 5

**N.L. Mineral Fuels to Grow Strongly**

(mineral fuels, 2007 \$ billions)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

## Prince Edward Island

### Prince Edward Island Set to Lead Canada

Positive news abounds for Prince Edward Island, as it is expected to lead the provinces in economic growth over the next two years. Impressively, this run of solid economic growth is underpinned by sound fundamentals, including strong population gains through immigration, a booming tourism industry, and elevated demand for P.E.I. products. Economic growth in Prince Edward Island has been strong in recent years, boosting

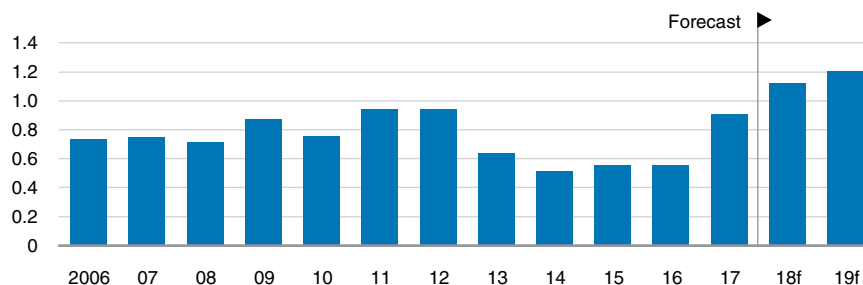
government revenues to the point that the province was able to balance its budget for the first time in a decade last fiscal year, and it expects to post a bigger surplus this year. A balanced budget will provide the province with some much-needed fiscal wiggle-room at a time when fiscal challenges—including population aging (which is raising demand for government services) and rising interest rates (which are adding pressure to debt repayment charges)—also abound. Despite the challenges, the current hot streak of economic growth on the Island should keep the province in its newfound surplus position over the near term.

One of the biggest factors behind the recent economic growth on the Island is international migration. The influx of these new citizens is the driving force behind the population gains seen on the Island, with the impacts being felt across the province. One result has been a boom in the housing market, which in turn is leading to higher construction activity. (See Chart 6.) The population growth is also providing a boost for retail sales. At the same time, tourism continues to play a growing role in the Island's economy. The high levels of visitors will encourage further spending on local products, benefiting the food and accommodation industry. Additionally, with high demand for P.E.I. products expected to continue, manufacturing activity on the Island will continue to flourish. Overall, real GDP on the Island is expected to grow 2.8 per cent this year and 2.5 per cent in 2019.

**Chart 6**

**Strong Immigration Leads to Housing Market Boom in P.E.I.**

(housing starts, 000s)



f = forecast

Source: Conference Board of Canada; CMHC Timeseries Database.

## Nova Scotia

### **Weaker Growth Ahead for Nova Scotia**

Nova Scotia's economic growth will improve slightly this year. Overall, real GDP is forecast to grow by 1.1 per cent. However, economic growth will slow to just 0.5 per cent in 2019.

Prospects in the primary sector are bleak, as both offshore natural gas operations are expected to shut down completely in the next few months. Growth in the manufacturing sector is expected to slow to 0.5 per cent next year, further weighing on GDP growth.

Nova Scotia's job market has been growing steadily over the past few months. Combined with healthy wage gains, the increase in jobs has led to strong growth in household consumption. However, going forward, labour markets will struggle as a growing number of aging workers retire from the labour force. Household consumption is forecast to remain flat this year and grow by 0.5 per cent next year.

Growth in real business investment is forecast to fall from 2.4 per cent this year to 1.2 per cent in 2019, as residential and machinery and equipment investment weakens. The lower value of the Canadian dollar and uncertain trade relations with the United States pose important risks to the business investment climate. Mitigating this uncertainty is the capital spending required to plug offshore natural gas wells.

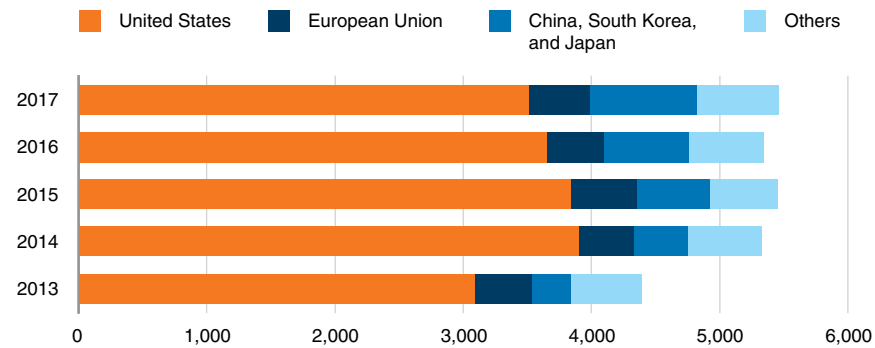
Despite trade uncertainty with the United States, exports are forecast to increase by 1.5 per cent this year and 1.7 per cent next year thanks to the implementation of the Comprehensive Economic and Trade Agreement with the European Union. Better conditions for the fishing sector are also expected to help on the export front. (See Chart 7.)

To maintain its modest budget surplus, the Nova Scotia government is expected to avoid any significant increases in program spending or major personal or corporate tax changes. Growth in non-commercial services, which takes into account activity in the education and health care and social services sectors, is expected to remain flat as of next year, as the implementation period of the universal pre-primary education program is completed.

## Chart 7

### Nova Scotia's Export Destinations

(\$ 000s)



Sources: The Conference Board of Canada; Statistics Canada.

## New Brunswick

### Lack of Workforce Growth Will Slow Economic Growth

Following stronger economic growth in 2017, New Brunswick's economy is expected to grow by just 0.6 per cent this year. Real GDP is forecast to advance by 1.2 per cent next year.

The main factor behind the more modest outlook is the province's workforce. Atlantic Canada's population is aging at a faster pace than in other parts of the country. At the same time, a high number of people are leaving for opportunities in other provinces. That combination will keep labour force growth stagnant despite strong international immigration. These demographic trends heavily influence household consumption, which is expected to remain flat over the next two years. (See Chart 8.)

Public investment will take a back seat to private sector activity starting next year. Although most of the work on the Mactaquac Generating Station will occur in the next decade, spending on the project is expected to start as soon as next year. This will help to sustain activity in the construction sector.

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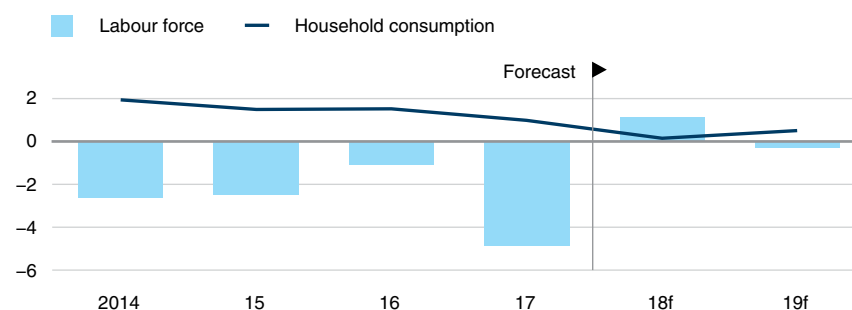
Real exports are forecast to grow by 1.9 per cent next year. The implementation of the Comprehensive and Economic Trade Agreement with the European Union, as well as better conditions in the fishing sector, will support export growth. However, there are significant risks to this outlook, as New Brunswick is among the provinces that are the most reliant on trade with the United States. The forestry and wood manufacturing sectors are already feeling the impacts of the trade disputes with the U.S., as they are dealing with tariffs imposed by the U.S. Department of Commerce late last year.

New Brunswick's service industries will continue to contribute positively to the province's economic outlook. Many large corporations, including TD and WestJet, are setting up business services centres in Saint John and Moncton. This is expected to translate into 3.3 per cent growth for the professional services sector this year.

### Chart 8

#### New Brunswick's Declining Labour Force

(labour force gains/losses, 000s; household consumption, percentage change)



Note: 2017 household consumption is forecast data.

Sources: The Conference Board of Canada; Statistics Canada.



## Quebec

### **Tariffs Hurt Trade Prospects**

More than \$15 billion worth of transit and road infrastructure projects are currently under way in Montréal, so it is no surprise that 2018 will be a good year for the construction industry. These projects make a big difference. Quebec's economy is forecast to grow 2.3 per cent in 2018, the province's second-best performance since the 2008–09 recession. Looking ahead, the pace of growth will slow to 1.6 per cent in 2019.

Employment grew strongly last year, wages are growing, and inflation has been subdued for some time. That has given Quebecers more money to spend. But the pace of growth will ease. The population is aging, and the number of retirees is growing. With unemployment hovering near all-time lows, that leaves less room for job growth, which has slowed down. At the same time, as inflation begins to accelerate, rising prices will eat into households' disposable income.

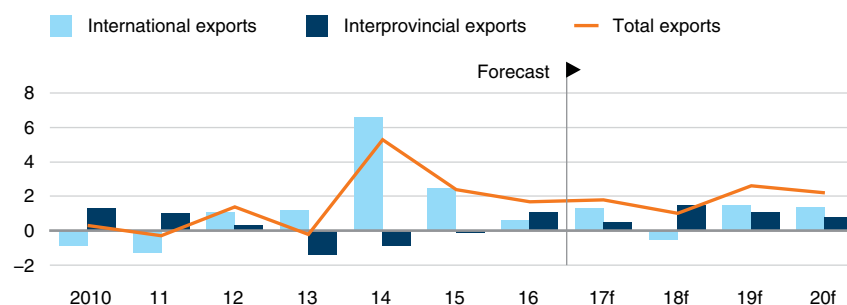
A shortage of labour will be a problem for businesses, as it becomes more and more difficult for companies to expand or even maintain production levels by hiring new workers. Businesses will have to invest in productive capital, such as new machines or more efficient tools, allowing them to do more with less. Quebec has not excelled in this area in recent years. That is beginning to turn around, but not in a big way. Investment spending will be only slightly more than what is needed just to offset the depreciation of existing capital.

Finally, trade continues to be a problem. Most of Canada's aluminum operations are in Quebec, and they now face 10 per cent tariffs on their shipments to U.S. markets. That will put a dent in their performance. Trade will detract from the bottom line again in 2018 but will begin to recover next year. (See Chart 9.) However, the risk that the global trade war could escalate adds uncertainty to the outlook.

## Chart 9

### Quebec Exports Struggle

(contribution to total percentage change, percentage points)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

## Ontario

### Ontario Entering a Period of Economic Uncertainty

The Ontario economy will expand by 1.8 per cent in 2018 and 1.9 per cent next year. That is close to the Canada-wide averages. Rising interest rates and new policies for homebuyers have weakened the housing sector and slowed the pace of employment, income, and consumption growth. (See Chart 10.) Growth in employment will also be hurt by this year's increase in the minimum wage to \$14 per hour. Retail sales are expected to expand by 2.9 per cent this year and 3.2 per cent in 2019. In 2017, when the economy was growing at a faster clip, retail sales grew by more than 7 per cent.

Another key factor that is having a negative impact on the province's economy—particularly on investment spending—is the ongoing uncertainty about global trade. The NAFTA negotiations have bogged down over U.S. demands that any new agreement include a sunset clause (which Mexico and Canada strongly oppose) and over the trade rules governing the auto industry. President Trump has suggested that in order to benefit from preferential U.S. tariffs, at least 40 per cent of auto content in any vehicle sold in the U.S. would have to be sourced from high-waged economies. This has the potential to benefit Ontario's manufacturing sector.

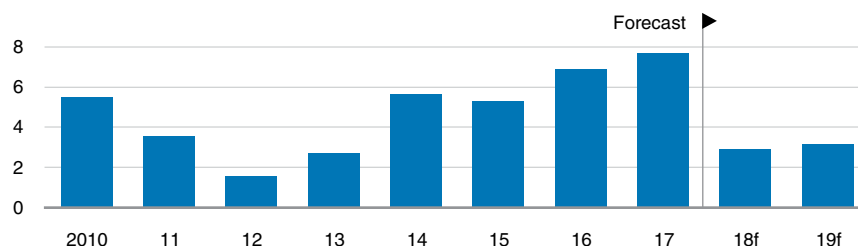
Despite growth in the U.S. economy of better than 3 per cent and the competitively low value of the Canadian dollar, export growth will remain below the 3 per cent mark over the near term. In addition to concerns about tariffs, export growth will be restrained by weaker car sales in the U.S. and ongoing competition from China (although China's competitive advantage in the U.S. market has been hurt by tariffs).

The election of a new Progressive Conservative government in Ontario poses both upside and downside risks for the Ontario economy. Premier Doug Ford has promised to cut government spending, although few details have emerged. His government has talked about cutting taxes to close the gap between U.S. and Ontario taxes. And it has promised to eliminate the carbon tax, which could lower gasoline prices.

**Chart 10**

### **Consumer Demand Easing Quickly in Ontario**

(percentage change\*)



\*based on 2007 \$

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

## **Manitoba**

### **Growth Outlook for Key Sectors Is Mixed**

Economic growth in Manitoba is projected to slow over the next few years because of mine closures and the completion of major construction projects, such as the Bipole III Transmission Line and the Keeyask Generating Station. Real GDP is forecast to grow 1.6 per cent this year and 1.2 per cent in 2019.

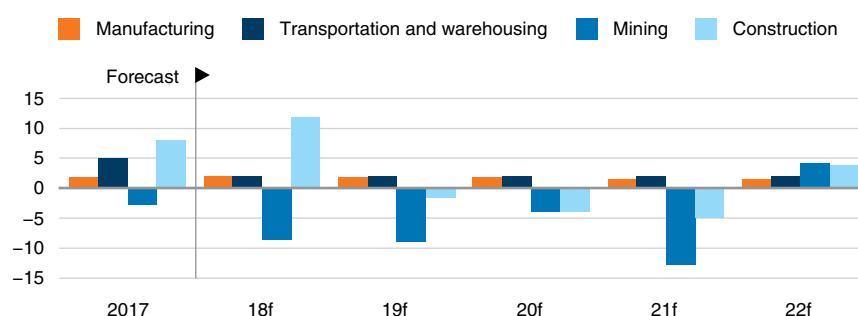
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The province is benefiting from capacity investments in power generation and food manufacturing. As well, the expected construction of the Manitoba segment of the Enbridge Line 3 replacement project will stimulate construction activity. Unique to 2018 is the boost in revenue for commercial services that resulted from the Winnipeg Jets' playoff run. The positive drivers of economic growth this year will be counterbalanced by the closure of mining operations (due to dwindling reserves and low prices), a slowing of the housing market, and declines in retail trade. After 2018, the economy will be supported mostly by steady growth in the manufacturing and transportation sectors, thanks in part to stronger foreign demand for transportation vehicles and equipment. (See Chart 11.) Further declines in mining production will weigh on economic growth in Manitoba over the next few years.

Chart 11

**Diverging Growth in Some of Manitoba's Key Sectors**

(percentage change\*)



\*based on 2007 \$

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

The stellar growth of Manitoba's agriculture sector in 2017 is unlikely to be repeated this year, as unusually dry conditions in parts of the province have hurt crop development. However, conditions could improve in the later part of the growing season. This year, the province's farmers focused more on wheat, corn, and oats and less on soybeans and canola.

The cooling of the economy will be reflected in modest employment growth of 0.5 per cent per year on average over the next few years and slower consumption growth, particularly for durable goods.

The economic outlook for Manitoba is subject to considerable risk, given the current tense state of international trade relations and the volatile weather conditions.

## Saskatchewan

### Uranium Sector Woes to Hurt Economy

The Saskatchewan economy will benefit from solid gains in many of its key industries, including energy, manufacturing, and potash mining. However, weakness in wholesale and retail trade, significant declines in uranium production, and cuts in public infrastructure spending will hold real GDP growth to 1.2 per cent this year. In 2019, real GDP is projected to expand 2.3 per cent, led by 5.6 per cent growth in the mining sector. However, the outlook for growth is at risk, given the recent announcement by Cameco that the McArthur River and Key Lake uranium mine shutdowns are being extended indefinitely and that the company has laid off 150 workers at its head office in Saskatoon. The announcement came in late July after our provincial forecast had been finalized and therefore represents a risk to our outlook for real GDP. Initial estimates of the direct impacts of the uranium sector difficulties indicate that real GDP growth will be around 0.6 percentage points lower in 2019 than forecast.

The forecast for other key sectors of the economy is more upbeat but faces some uncertainty as well. While the discount in the price of Western Canadian Select (WCS) crude relative to the West Texas Intermediate (WTI) benchmark price improved in April and May, recent pipeline and rail bottlenecks, as well as insufficient pipeline capacity down the road, continue to be worrisome. The July 22 deadline for the federal government to quickly sell the Trans Mountain pipeline was missed, further fuelling the uncertainty surrounding oil prices. Since mid-May, the WCS–WTI price differential has widened to as much as US\$32 per barrel. However, global demand for crude oil

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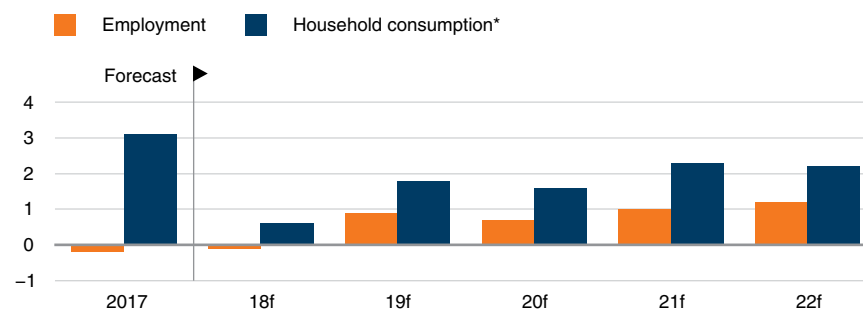
is expected to remain strong over the next few years, and thermal extraction technologies will allow for a steady rate of production—which is conducive to a low-price environment. Husky Energy has six thermal plants planned over the medium term, two of which are already under construction.

After contracting 2.4 per cent last year, Saskatchewan's agriculture sector is projected to rebound this year, thanks to rising wheat prices and steady global demand for cattle and hog products. However, a challenging winter and unusually cool and dry conditions for much of the spring have hurt the development of some crops.

Weakness in Saskatchewan's labour market is another sign pointing to more modest economic growth in 2018. Because of lower employment and rising inflation, real household consumption growth will be capped at 0.6 per cent this year. Employment and spending are forecast to pick up starting next year. But our forecast for the domestic economy will likely be revised downward as the economy starts to feel the impacts of the layoffs in the uranium sector. (See Chart 12.)

Chart 12

**Employment Growth to Boost Spending in Saskatchewan Next Year**  
(percentage change\*)



\*based on 2007 \$  
f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

## Alberta

### **Pipeline Expansions Good News for Investment Climate**

While the fundamentals of Alberta's economy remain strong, growth is projected to be a middling 1.9 per cent this year and 1.8 per cent next year. This will be good enough to match the Canadian average but not enough to match that of neighbouring British Columbia in 2019. Growth will pick up beginning in the 2020s but will not surpass 2.5 per cent over the forecast period.

The uncertainty surrounding whether the Trans Mountain Pipeline expansion project would go ahead was not good for the business environment. However, the federal government's decision to purchase the project from Kinder Morgan meant that the expansion is back on track. The Enbridge Line 3 expansion also looks set to move ahead after receiving regulatory approval from the Minnesota Public Utilities Commission. Line 3 could be operational by the second half of next year. With rail exports of crude at a three-year high and current pipelines operating at close to capacity, this is excellent news for the province, as the new capacity could help relieve the steep price discount Alberta's oil producers are forced to take for their product.

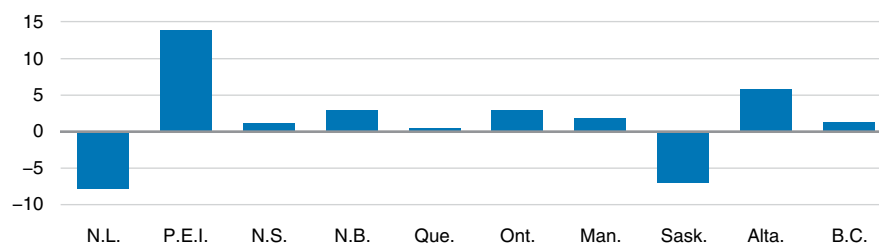
Although a cloud of uncertainty still hangs over the broader competitiveness and regulatory climate in Alberta, it appears that businesses are growing more confident about their medium-term prospects. With more pipeline capacity in the offing, new energy investments have recently been announced by Nexen Energy and Prosper Petroleum. That, along with pipeline investments, will make Alberta a prime province for growth in private sector investment in 2019. (See Chart 13.)

Outside of the energy sector, virtual all areas of the economy are showing some growth. This will cause the labour market to slowly tighten. Albertans can expect wages and household income to continue to grow in 2019 as the unemployment rate ticks down to 6.3 per cent.

Chart 13

### Stronger Private Sector Investment for Alberta in 2019

(business gross fixed capital formation, percentage change\*)



f = forecast

\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

## British Columbia

### Slower Growth for B.C.'s Economy

The B.C. economy expanded at an annual pace above the 3.0 per cent mark from 2011 to 2017, thanks in part to soaring housing markets and strong activity in the service sector, both of which are linked to healthy gains in labour markets. We expect weaker but still above-trend growth of 2.1 per cent in both 2018 and 2019. The slower growth will be a result of tight labour markets restraining employment growth and of the uncertain outlook for trade and investment attributable to an escalating global trade war and difficulties in obtaining approval for pipelines and LNG export facilities throughout the province.

The double-digit increases in B.C. housing starts in 2015 and 2016 were linked to several factors, including rock-bottom mortgage rates, rapid population growth, and tight supply. The strength in this sector is apparent from the data, which show that close to one-third of B.C.'s growth over the past few years was due to residential investment. The pace of expansion was unsustainable, and new tighter mortgage rules and several housing market taxes implemented in the provincial government's Budget 2018 have resulted in a sharp slowdown in activity. We expect housing starts to decline in 2018 and 2019. (See Chart 14.) The lack of housing affordability, combined with rising mortgage rates, has also hurt demand, especially in the Greater Vancouver region.



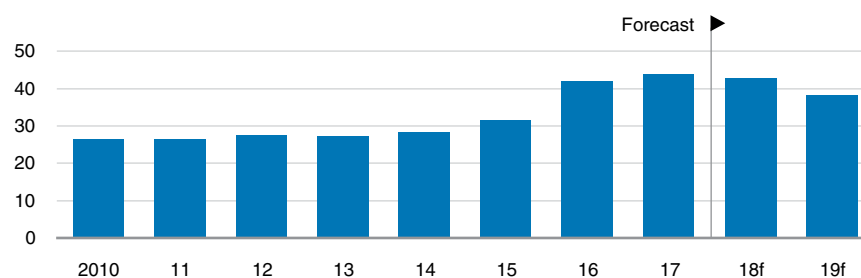
The outlook for non-residential investment is also less optimistic, although there are some pockets of ongoing strength. Ongoing disagreements between the B.C. and Alberta governments have postponed and threatened the Trans Mountain Pipeline expansion—and at a time when several other projects in the sector are being cancelled. However, this outlook assumes that the multi-billion-dollar pipeline expansion will get the go-ahead now that the federal government has stepped in to purchase the pipeline. Investment will also continue to flow to several other projects, including the Site C hydroelectric dam. Outside of the energy and utilities sectors, the outlook for investment spending is not bright due to the uncertainty created by the lack of progress in the NAFTA negotiations.

While employment growth over the near term will be weaker than the nearly 4 per cent gain recorded in 2017, labour markets will tighten and put upward pressure on wages. This, combined with an upcoming increase in the minimum wage, will help households deal with rising gasoline prices linked, in part, to an increase in the carbon tax.

#### Chart 14

#### B.C. Housing Starts Retreat

(units, 000s)



f = forecast.

Sources: The Conference Board of Canada; CMHC Timeseries Database.

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## APPENDIX A

# Forecast Tables

Table 1

### Key Economic Indicators by Province, 2017–19

(forecast completed July 24, 2018)

|                           | Gross domestic product at market prices (2007 \$ millions) |                         |                         | Gross domestic product at basic prices (2007 \$ millions) |                         |                         | Employment (000s)    |                      |                      | Unemployment rate (per cent) |      |      | Retail sales (\$ millions) |                       |                       |
|---------------------------|------------------------------------------------------------|-------------------------|-------------------------|-----------------------------------------------------------|-------------------------|-------------------------|----------------------|----------------------|----------------------|------------------------------|------|------|----------------------------|-----------------------|-----------------------|
|                           | 2017                                                       | 2018                    | 2019                    | 2017                                                      | 2018                    | 2019                    | 2017                 | 2018                 | 2019                 | 2017                         | 2018 | 2019 | 2017                       | 2018                  | 2019                  |
| Newfoundland and Labrador | 28,382<br><i>1.9</i>                                       | 28,371<br><i>0.0</i>    | 29,753<br><i>4.9</i>    | 26,773<br><i>2.1</i>                                      | 26,843<br><i>0.3</i>    | 28,142<br><i>4.8</i>    | 224<br><i>-3.7</i>   | 222<br><i>-0.8</i>   | 221<br><i>-0.7</i>   | 14.7                         | 15.1 | 15.1 | 9,227<br><i>2.4</i>        | 9,095<br><i>-1.4</i>  | 9,219<br><i>1.4</i>   |
| Prince Edward Island      | 5,391<br><i>2.9</i>                                        | 5,544<br><i>2.8</i>     | 5,682<br><i>2.5</i>     | 4,883<br><i>3.2</i>                                       | 5,037<br><i>3.2</i>     | 5,161<br><i>2.5</i>     | 74<br><i>3.0</i>     | 76<br><i>2.8</i>     | 77<br><i>1.9</i>     | 9.8                          | 9.7  | 8.9  | 2,349<br><i>6.3</i>        | 2,443<br><i>4.0</i>   | 2,490<br><i>1.9</i>   |
| Nova Scotia               | 37,004<br><i>1.0</i>                                       | 37,405<br><i>1.1</i>    | 37,600<br><i>0.5</i>    | 33,470<br><i>1.2</i>                                      | 33,934<br><i>1.4</i>    | 34,102<br><i>0.5</i>    | 449<br><i>0.7</i>    | 454<br><i>1.2</i>    | 454<br><i>0.0</i>    | 8.4                          | 7.5  | 7.6  | 15,861<br><i>7.8</i>       | 16,330<br><i>3.0</i>  | 16,603<br><i>1.7</i>  |
| New Brunswick             | 29,862<br><i>1.7</i>                                       | 30,030<br><i>0.6</i>    | 30,381<br><i>1.2</i>    | 27,363<br><i>1.9</i>                                      | 27,599<br><i>0.9</i>    | 27,914<br><i>1.1</i>    | 353<br><i>0.4</i>    | 356<br><i>0.7</i>    | 357<br><i>0.4</i>    | 8.1                          | 7.7  | 7.2  | 12,792<br><i>6.8</i>       | 12,802<br><i>0.1</i>  | 12,993<br><i>1.5</i>  |
| Quebec                    | 353,565<br><i>3.0</i>                                      | 361,844<br><i>2.3</i>   | 367,607<br><i>1.6</i>   | 328,688<br><i>3.1</i>                                     | 336,698<br><i>2.4</i>   | 342,144<br><i>1.6</i>   | 4,226<br><i>2.2</i>  | 4,276<br><i>1.2</i>  | 4,304<br><i>0.7</i>  | 6.0                          | 5.3  | 5.0  | 125,723<br><i>5.5</i>      | 129,976<br><i>3.4</i> | 133,237<br><i>2.5</i> |
| Ontario                   | 703,485<br><i>2.7</i>                                      | 716,496<br><i>1.8</i>   | 729,981<br><i>1.9</i>   | 651,932<br><i>2.8</i>                                     | 663,772<br><i>1.8</i>   | 676,484<br><i>1.9</i>   | 7,127<br><i>1.8</i>  | 7,229<br><i>1.4</i>  | 7,328<br><i>1.4</i>  | 6.0                          | 5.6  | 5.4  | 216,318<br><i>7.7</i>      | 222,569<br><i>2.9</i> | 229,631<br><i>3.2</i> |
| Manitoba                  | 62,039<br><i>2.6</i>                                       | 63,053<br><i>1.6</i>    | 63,791<br><i>1.2</i>    | 57,250<br><i>2.9</i>                                      | 58,359<br><i>1.9</i>    | 59,027<br><i>1.1</i>    | 644<br><i>1.6</i>    | 647<br><i>0.5</i>    | 651<br><i>0.7</i>    | 5.4                          | 6.2  | 6.3  | 20,362<br><i>7.8</i>       | 20,429<br><i>0.3</i>  | 20,873<br><i>2.2</i>  |
| Saskatchewan              | 64,223<br><i>2.7</i>                                       | 65,007<br><i>1.2</i>    | 66,504<br><i>2.3</i>    | 60,592<br><i>2.9</i>                                      | 61,516<br><i>1.5</i>    | 62,916<br><i>2.3</i>    | 568<br><i>-0.1</i>   | 568<br><i>-0.1</i>   | 572<br><i>0.7</i>    | 6.3                          | 6.3  | 6.5  | 19,577<br><i>4.1</i>       | 19,785<br><i>1.1</i>  | 20,354<br><i>2.9</i>  |
| Alberta                   | 316,653<br><i>4.6</i>                                      | 322,727<br><i>1.9</i>   | 328,560<br><i>1.8</i>   | 304,709<br><i>4.9</i>                                     | 311,478<br><i>2.2</i>   | 317,025<br><i>1.8</i>   | 2,289<br><i>1.0</i>  | 2,328<br><i>1.7</i>  | 2,354<br><i>1.1</i>  | 7.8                          | 6.4  | 6.3  | 80,318<br><i>7.1</i>       | 83,130<br><i>3.5</i>  | 86,154<br><i>3.6</i>  |
| British Columbia          | 249,620<br><i>3.7</i>                                      | 254,871<br><i>2.1</i>   | 260,252<br><i>2.1</i>   | 228,195<br><i>3.9</i>                                     | 233,688<br><i>2.4</i>   | 238,563<br><i>2.1</i>   | 2,467<br><i>3.7</i>  | 2,480<br><i>0.5</i>  | 2,509<br><i>1.1</i>  | 5.1                          | 4.8  | 4.7  | 84,291<br><i>9.3</i>       | 87,825<br><i>4.2</i>  | 90,925<br><i>3.5</i>  |
| Canada                    | 1,856,263<br><i>3.0</i>                                    | 1,890,060<br><i>1.8</i> | 1,924,504<br><i>1.8</i> | 1,739,819<br><i>3.3</i>                                   | 1,776,770<br><i>2.1</i> | 1,808,696<br><i>1.8</i> | 18,421<br><i>1.9</i> | 18,635<br><i>1.2</i> | 18,828<br><i>1.0</i> | 6.3                          | 5.7  | 5.6  | 588,828<br><i>7.1</i>      | 606,451<br><i>3.0</i> | 624,576<br><i>3.0</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous year.

Sources: The Conference Board of Canada; Statistics Canada.

**Table 2**  
**Key Economic Indicators by Province, 2017–19**

(forecast completed July 24, 2018)

|                           | Gross domestic product at market prices—per capita (2007 \$) |                      |                       | Gross domestic product at basic prices—per capita (2007 \$) |                      |                       | Employment rate (per 1,000 people) |                      |                      | Household disposable income per capita (\$) |                      |                      | Primary household income per capita (\$) |                       |                      |
|---------------------------|--------------------------------------------------------------|----------------------|-----------------------|-------------------------------------------------------------|----------------------|-----------------------|------------------------------------|----------------------|----------------------|---------------------------------------------|----------------------|----------------------|------------------------------------------|-----------------------|----------------------|
|                           | 2017                                                         | 2018                 | 2019                  | 2017                                                        | 2018                 | 2019                  | 2017                               | 2018                 | 2019                 | 2017                                        | 2018                 | 2019                 | 2017                                     | 2018                  | 2019                 |
| Newfoundland and Labrador | 53,637<br><i>2.1</i>                                         | 54,012<br><i>0.7</i> | 57,275<br><i>6.0</i>  | 50,597<br><i>2.3</i>                                        | 51,102<br><i>1.0</i> | 54,173<br><i>6.0</i>  | 503<br><i>-3.9</i>                 | 501<br><i>-0.4</i>   | 502<br><i>0.2</i>    | 33,019<br><i>1.4</i>                        | 33,120<br><i>0.3</i> | 33,857<br><i>2.2</i> | 36,409<br><i>0.9</i>                     | 36,423<br><i>0.0</i>  | 37,291<br><i>2.4</i> |
| Prince Edward Island      | 35,592<br><i>1.2</i>                                         | 36,109<br><i>1.5</i> | 36,347<br><i>0.7</i>  | 32,242<br><i>1.4</i>                                        | 32,808<br><i>1.8</i> | 33,015<br><i>0.6</i>  | 596<br><i>1.4</i>                  | 604<br><i>1.4</i>    | 605<br><i>0.1</i>    | 29,227<br><i>3.5</i>                        | 30,073<br><i>2.9</i> | 30,400<br><i>1.1</i> | 31,028<br><i>2.2</i>                     | 31,826<br><i>2.6</i>  | 32,249<br><i>1.3</i> |
| Nova Scotia               | 38,803<br><i>0.3</i>                                         | 38,997<br><i>0.5</i> | 39,004<br><i>0.0</i>  | 35,098<br><i>0.6</i>                                        | 35,378<br><i>0.8</i> | 35,375<br><i>0.0</i>  | 567<br><i>0.2</i>                  | 570<br><i>0.5</i>    | 567<br><i>-0.5</i>   | 29,678<br><i>4.0</i>                        | 30,158<br><i>1.6</i> | 30,554<br><i>1.3</i> | 33,590<br><i>2.7</i>                     | 34,111<br><i>1.6</i>  | 34,565<br><i>1.3</i> |
| New Brunswick             | 39,333<br><i>1.3</i>                                         | 39,442<br><i>0.3</i> | 39,837<br><i>1.0</i>  | 36,041<br><i>1.6</i>                                        | 36,249<br><i>0.6</i> | 36,602<br><i>1.0</i>  | 565<br><i>0.2</i>                  | 567<br><i>0.3</i>    | 568<br><i>0.2</i>    | 30,425<br><i>4.2</i>                        | 31,117<br><i>2.3</i> | 31,555<br><i>1.4</i> | 32,079<br><i>2.9</i>                     | 32,968<br><i>2.8</i>  | 33,511<br><i>1.6</i> |
| Quebec                    | 42,169<br><i>2.1</i>                                         | 42,750<br><i>1.4</i> | 43,099<br><i>0.8</i>  | 39,202<br><i>2.2</i>                                        | 39,779<br><i>1.5</i> | 40,113<br><i>0.8</i>  | 610<br><i>1.5</i>                  | 613<br><i>0.5</i>    | 613<br><i>0.1</i>    | 29,094<br><i>4.8</i>                        | 30,122<br><i>3.5</i> | 30,646<br><i>1.7</i> | 34,344<br><i>3.7</i>                     | 35,451<br><i>3.2</i>  | 36,132<br><i>1.9</i> |
| Ontario                   | 49,645<br><i>1.1</i>                                         | 49,776<br><i>0.3</i> | 50,084<br><i>0.6</i>  | 46,007<br><i>1.2</i>                                        | 46,113<br><i>0.2</i> | 46,414<br><i>0.7</i>  | 610<br><i>0.4</i>                  | 609<br><i>-0.2</i>   | 610<br><i>0.2</i>    | 32,939<br><i>2.5</i>                        | 33,996<br><i>3.2</i> | 34,694<br><i>2.1</i> | 38,679<br><i>2.1</i>                     | 39,758<br><i>2.8</i>  | 40,711<br><i>2.4</i> |
| Manitoba                  | 46,460<br><i>1.1</i>                                         | 46,637<br><i>0.4</i> | 46,510<br><i>-0.3</i> | 42,873<br><i>1.3</i>                                        | 43,165<br><i>0.7</i> | 43,037<br><i>-0.3</i> | 635<br><i>0.2</i>                  | 632<br><i>-0.6</i>   | 628<br><i>-0.6</i>   | 30,185<br><i>3.6</i>                        | 30,905<br><i>2.4</i> | 31,243<br><i>1.1</i> | 34,605<br><i>2.4</i>                     | 35,325<br><i>2.1</i>  | 35,707<br><i>1.1</i> |
| Saskatchewan              | 55,271<br><i>1.3</i>                                         | 55,380<br><i>0.2</i> | 55,881<br><i>0.9</i>  | 52,146<br><i>1.5</i>                                        | 52,406<br><i>0.5</i> | 52,866<br><i>0.9</i>  | 648<br><i>-1.0</i>                 | 642<br><i>-1.0</i>   | 638<br><i>-0.5</i>   | 33,697<br><i>2.8</i>                        | 33,901<br><i>0.6</i> | 34,376<br><i>1.4</i> | 38,844<br><i>1.3</i>                     | 38,765<br><i>-0.2</i> | 39,404<br><i>1.6</i> |
| Alberta                   | 73,960<br><i>3.3</i>                                         | 74,307<br><i>0.5</i> | 74,503<br><i>0.3</i>  | 71,170<br><i>3.6</i>                                        | 71,717<br><i>0.8</i> | 71,888<br><i>0.2</i>  | 667<br><i>0.2</i>                  | 672<br><i>0.7</i>    | 670<br><i>-0.2</i>   | 38,475<br><i>3.0</i>                        | 39,634<br><i>3.0</i> | 40,447<br><i>2.1</i> | 47,277<br><i>2.4</i>                     | 48,484<br><i>2.6</i>  | 49,611<br><i>2.3</i> |
| British Columbia          | 51,902<br><i>2.3</i>                                         | 52,334<br><i>0.8</i> | 52,810<br><i>0.9</i>  | 47,448<br><i>2.6</i>                                        | 47,984<br><i>1.1</i> | 48,409<br><i>0.9</i>  | 620<br><i>2.4</i>                  | 616<br><i>-0.6</i>   | 616<br><i>0.0</i>    | 36,420<br><i>5.7</i>                        | 37,597<br><i>3.2</i> | 38,391<br><i>2.1</i> | 41,689<br><i>4.9</i>                     | 42,940<br><i>3.0</i>  | 43,968<br><i>2.4</i> |
| Canada                    | 50,638<br><i>1.8</i>                                         | 50,918<br><i>0.6</i> | 51,278<br><i>0.7</i>  | 47,462<br><i>2.0</i>                                        | 47,866<br><i>0.9</i> | 48,192<br><i>0.7</i>  | 33,019<br><i>1.4</i>               | 33,120<br><i>0.3</i> | 33,857<br><i>2.2</i> | 32,972<br><i>3.6</i>                        | 33,976<br><i>3.0</i> | 34,633<br><i>1.9</i> | 38,658<br><i>2.9</i>                     | 39,702<br><i>2.7</i>  | 40,579<br><i>2.2</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous year.

Sources: The Conference Board of Canada; Statistics Canada.



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# PROVINCIAL OUTLOOK ECONOMIC FORECAST.

## **Provincial Outlook Economic Forecast: Summer 2018**

The Conference Board of Canada

### **Preface**

The *Provincial Outlook Economic Forecast* was prepared by Marie-Christine Bernard, Director, and the provincial forecast team under the general direction of Pedro Antunes, Deputy Chief Economist.

The report examines the economic outlook for the provinces, including gross domestic product (GDP), output by industry and labour market conditions. At the end of the report, there is a forecast for Canadian economic indicators and a comparison of GDP by province and industry.

The outlook is updated quarterly using the Conference Board's large econometric model of the provincial economies.

The publication can be accessed on-line at [www.e-library.ca](http://www.e-library.ca) and for clients subscribing to e-Data at [www.conferenceboard.ca/edata.htm](http://www.conferenceboard.ca/edata.htm). For more information, please contact our information specialist at 613-526-3280 or 1-866-711-2262 or e-mail [contactcboc@conferenceboard.ca](mailto:contactcboc@conferenceboard.ca).

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## EXECUTIVE SUMMARY

# Weaker Economic Performances

### At a Glance

- High debt levels, rising interest rates, and a correction in the housing market are weighing on economic growth in Canada.
- Most provinces will see their economic performance weaken over the near term.
- New regulations in the housing sector have slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the resource sector recession hit in 2015.
- Despite trade issues, private investment, mainly in machinery and equipment, has been picking up across the country.
- The strongest economic performances next year are forecast for Newfoundland and Labrador and Prince Edward Island.
- There are risks to the outlook, the recent announcement in the uranium sector will lead to more layoffs in Saskatchewan and lower uranium production.
- There is renewed interest in investment in Alberta's energy sector and the province is primed for private investment growth next year, but no large-scale, multi-phase, multi-billion oil sands capital projects are planned at the moment.

## National Overview

**The economy expanded at an annual pace of just 1.3 per cent in the first quarter of 2018 as consumer spending softened, the trade sector continued to perform poorly, and the housing sector weakened in response to recent policy changes. One piece of good news was that Canadian companies largely shrugged off concerns about NAFTA and new tariffs and boosted their investment in plants and equipment substantially. The recent increases in business investment are overdue and will go a long way toward easing record-high capacity utilization levels across many sectors of the Canadian economy.**

Over the next two years, we expect consumer spending growth to continue to fall as households reduce their pace of borrowing in the face of higher interest rates and slower job growth. Lower home prices will also impact spending, as households will be less willing to borrow against their homes. In the trade sector, export growth will be limited by recently enacted tariffs on softwood lumber, steel, and aluminum. The potential collapse of NAFTA and daily threats of new tariffs across a wide range of goods, including autos and parts, will also weigh on exporters' investment decisions and limit a return to solid growth in the near future. Overall, we project that the Canadian economy will grow by 1.8 per cent in both 2018 and 2019, down from of a 3.0 per cent gain last year.

## Provincial Overview

As we entered the second half of this year, nearly all provinces were contending with weaker economic growth. Job creation stalled in the first half of the year, mainly in the service sector, with Quebec and British Columbia bearing the brunt of the weakness there. In addition, new

regulations in the housing sector slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the recession in the resource sector hit in 2015.

While the sluggish labour market conditions were not widespread, the pullback in consumer demand was visible across the country. But with stronger energy prices, inflation has been accelerating, as year-over-year gasoline prices are up by close to 25 per cent. As well, minimum wage increases, particularly the one in Ontario, are adding to wage costs in the food industry and boosting restaurant food prices. On July 11, the Bank of Canada raised its key interest rate for the fourth time in a year. Further increases are expected, but not until next year. While inflation is high on the Bank of Canada's radar, the Bank's governor, Stephen Poloz, is also keeping an eye on the unsettled NAFTA trade negotiations and the impacts that the new U.S. tariffs on steel and aluminum and rising global trade protectionism could have on the economy. The trade tensions bring considerable instability to the economy, with U.S. president Donald Trump ratcheting up his rift with his country's main trading partners, including Canada. Tariffs on steel and aluminum aren't likely to derail Canadian economic growth, but tariffs on autos and parts would be far more detrimental to economic growth and employment. Still, despite the trade conflicts that the Trump administration has fired up, global stock markets have remained generally calm.

As well, a positive trend started early in 2017—businesses are purchasing more machinery and equipment in order to raise their productive capacity and competitiveness. This trend emerged despite trade issues weighing on business investment decisions. Trade uncertainties are detrimental to business investment, but those uncertainties are being overridden by high capacity utilization rates and a booming U.S. economy, both of which are encouraging firms to upgrade and expand their equipment.

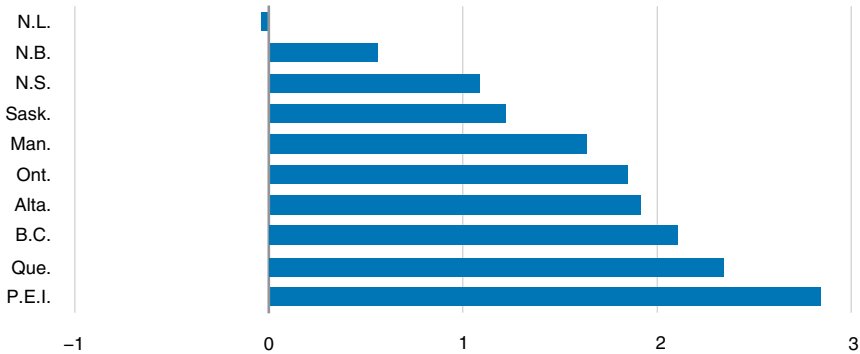
While the Canadian economy grew at a much weaker pace in the last quarter of 2017 and the first half of this year, the second half of 2018 is expected to be more stable, and that stability should continue through

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Summer 2018

2019 as well. While the various major trade negotiations are still unresolved, other key indicators have been more encouraging in recent months.

Smaller provinces will take the lead in economic growth next year, with Newfoundland and Labrador and Prince Edward Island both expected to outpace the national average. Quebec, Ontario, and Alberta are expected to average less than 2 per cent growth in 2019, while British Columbia is forecast to continue to outpace the national average, growing by more than 2 per cent. The outlook for New Brunswick and Nova Scotia mirrors the outlook for faint growth in the labour force, with only modest economic growth forecast over the near term due to the aging of their workforces, which more than offsets the positive impact of the progress made in attracting newcomers to the region.  
(See charts 1 and 2.)

**Chart 1**  
**Real GDP by Province, 2018**  
(percentage change\*)

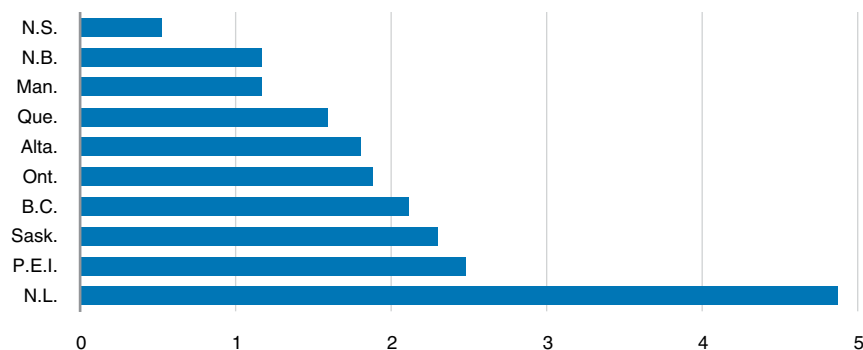


\*based on 2007 \$  
Sources: The Conference Board of Canada; Statistics Canada.

## Chart 2

### Real GDP by Province, 2019

(percentage change\*)



\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

## Provincial Assumptions

Economic growth will essentially stall this year in Newfoundland and Labrador. The provincial economy is being held back by weakening construction, a sharp drop in fishing and sub-par wholesale and retail trade activity. The start of oil production late last year at the province's fourth major oil project, Hebron, should be a big source of optimism. But production interruptions at other offshore oil fields will limit the oil sector's contribution to the economy. Still, rising oil production at Hebron will help push overall real GDP growth in the province to 4.9 per cent in 2019. Fundamentally, the Newfoundland and Labrador economy will struggle as the wrapping up of major construction projects hurts workers' job prospects and weakens consumer demand. On a positive note, a recent agreement between the provincial government and two international companies to develop the province's first deep-water production project—the \$6.8-billion Bay du Nord initiative—is good news for the province.

Prince Edward Island will be the only province that will maintain its economic momentum this year. For a second consecutive year, Canada's smallest province will grow strongly, expanding by 2.8 per cent and outpacing all other provinces. Central to this solid economic performance is the Atlantic Growth Strategy, which helped to raise the number of newcomers and fuel consumer demand for housing and retail goods. In



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addition, the favourable conditions for tourism are helping to stimulate growth on the Island, as more and more passenger cruise ships visit the Island. Overall, real GDP growth is forecast to inch down a few notches to 2.5 per cent in 2019 as a less-accommodative monetary policy cools consumers' appetite for big-ticket items.

Nova Scotia will improve its economic performance slightly this year, growing by 1.1 per cent. Positive contributors include an expanding housing market, healthy job creation, a strong showing on the immigration front, and solid consumer demand. Limiting economic growth is the winding down of natural gas production in the province. Mineral fuel production had been a source of economic activity for decades, and until someone starts up a new venture, there will be no mineral fuel production in the province at all. Exploration, however, is recovering. BP Canada's Scotian Basin Exploration Project could see up to seven exploration wells drilled off the southeast coast of Nova Scotia—some welcome news for the industry and possibly leading to a new development down the road. Economic growth will slow to just 0.5 per cent next year as manufacturing contributes less to bottom-line growth.

New Brunswick economy has lost some of its momentum. It is forecast to grow by 0.6 per cent in 2018 and 1.2 per cent in 2019, compared with growth of 1.7 per cent in 2017. Retail sales and housing starts have been easing quickly. As well, while manufacturing provided a boost to the economy last year, more moderate increases in petroleum and coal product refining mean that manufacturing will not do much to shore up bottom-line growth this year or next. Labour market conditions have been improving, as net international immigration is still elevated and adding to the workforce. But the number of retirements is rising fast and offsetting the positive contribution from newcomers.

As Quebec prepares for a provincial election on October 1, the province's economy continues to perform well. On the heels of the best economic performance in nearly two decades last year, Quebec's economy will outpace the national average in 2018, advancing by 2.3 per cent. However, the momentum will fade, as economic growth is expected to ease to 1.6 per cent in 2019. The U.S. tariffs on aluminum are bad news for Quebec's massive aluminum industry. But while trade

worries will be a drag on the economy, it is easing consumer demand that will be mostly responsible for the loss of momentum in the economy. Rising interest rates and lower housing construction will take a bite out of consumer spending next year. Housing starts have been flirting with record-high levels in recent months, but that is not sustainable given Quebec's softer demographics and resulting weaker requirements. We expect housing starts to decline from 48,716 units in 2018 to 42,747 units in 2019.

Also being hurt by the new stress test regulations for home purchases is the Ontario economy, which has shifted into a lower gear and is forecast to grow by 1.8 per cent this year and 1.9 per cent in 2019. Residential investment is forecast to contract by 7.3 per cent in 2018, the biggest pullback since the 2008–09 recession. The housing market is adjusting to the new measures. Consumers have also pulled back considerably on their purchases of goods, and that is a contributing factor to the weaker economic prospects over the near term. The weakness on the consumer side of the economy masks the solid growth in other private investments. New commercial projects in the Greater Toronto area and strong machinery and equipment investment are forecast to push up real business investment (excluding residential) by 8.6 per cent this year and 4.4 per cent in 2019. The trade sector provides considerable risk to the economic outlook, mainly in the form of Trump's trade strategies and his threat toward the auto industry. More stringent requirements for the auto industry have not been factored into our economic outlook but do present downside risks.

The forecast for Manitoba is influenced greatly by the development of two major power projects—the Bipole III transmission line and the Keeyask generating station. Construction will continue to grow rapidly in 2018, thanks to these projects as well as to the building of the Roquette pea-processing plant. Overall, real GDP in Manitoba is expected to grow by 1.6 per cent in 2018. Next year, however, with development of the Keeyask station moving along and Bipole III expected to be completed, overall real GDP growth will cool. In addition, the planned shutdown of metal mines will hit economic growth over the next few years. The provincial economy is expected to grow by just 1.2 per cent in 2019.

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President Trump also has uranium on his radar and could impose tariffs on that commodity as well. Saskatchewan is the number one supplier to the U.S. of uranium, which is mainly used in nuclear power generation. The uranium industry has struggled in recent years, as a collapse of demand in Japan following the 2011 Fukushima Daiichi nuclear disaster led to global oversupply and low prices. Saskatoon-based uranium giant Cameco has cut back on production in Saskatchewan, leading to job losses and helping to keep overall growth in real GDP to just 1.2 per cent this year. The domestic economy has yet to recover fully from the resource sector crash that led to a recession in the province in 2016. But with improved commodity prices and stronger global demand in a number of key sectors, we expect a turnaround in the domestic economy. However, the recent announcement that the indefinite shutdowns of the McArthur River and Key Lake uranium mines are to be prolonged is bad news. This was not factored into our forecast of 2.3 per cent real GDP growth for Saskatchewan next year. As such, growth is at risk of coming in lower than we projected.

Alberta's economic growth has been easing over the last few quarters. But, generally, the provincial economy is still performing well and has nearly fully recovered from the worst recession to hit the province in the last half century. Job creation is accelerating, and the unemployment rate is falling. Wage growth remains modest relative to the gains in other provinces. Higher borrowing costs are cooling the domestic economy. Oil production is growing at a strong pace, the federal government has purchased Kinder Morgan's Trans Mountain project, and there is renewed interest in investing in the energy sector. But no large-scale oil sands capital projects are planned at this point. All in all, Alberta's real economic growth is expected to average 1.9 per cent in 2018 and 1.8 per cent in 2019.

British Columbia's economy is losing speed and is forecast to grow by a much weaker 2.1 per cent in 2018 and again in 2019, down from average growth exceeding 3 per cent since the start of the decade. The bulk of the weakness is coming from a job market that is running out of fuel, a sharp correction in the housing market, and much weaker consumer demand. The measures put in place to address runaway housing prices and affordability issues have taken the shine off the housing market,

especially for sales of much pricier, existing single-detached homes. Home resale activity was down by more than 20 per cent in the first half of this year compared with 2017. Housing starts have been falling as well, but not at such a dramatic pace.

## U.S. Outlook

The U.S. economy expanded at a 2.2 per cent annual pace in the first quarter of this year and then accelerated sharply to 4.1 per cent in the second quarter. For this year as a whole, we expect growth in U.S. real GDP to come in at about 3.0 per cent. (See Chart 3.) Next year, the economy will maintain its momentum, as a gain of 2.7 per cent is anticipated. The U.S. economy is currently benefiting from the fiscal stimulus provided by tax cuts and higher government spending. Tightening labour markets have started to boost wages, which should support household spending over the near term. Real spending is expected to increase by 2.5 per cent this year and 2.4 per cent in 2019.

However, there are a few developments that pose downside risks to our outlook for the U.S. economy. Last December, average gasoline prices in the U.S. were less than \$2.50 per gallon. Since then, they have increased to more than \$3 per gallon, while in states such as California prices are around \$4 a gallon. Higher world oil prices are the main culprit. They have been pushed higher by a variety of factors, including OPEC production cuts, reduced supply from Venezuela, and the uncertain situation concerning oil shipments from Iran now that the U.S. has decided to walk away from the Iran nuclear weapons agreement that it had signed with its European partners and Tehran. If gasoline prices average \$3 or more for the remainder of the year, a good part of the stimulus to the economy attributable to tax cuts will be negated.

The off-again-on-again trade war appears to be back on. In late May, the Trump administration imposed a 25 per cent tariff on imported steel and a 10 per cent tariff on imported aluminum from Mexico, the European Union, and Canada. The three U.S. trade partners quickly retaliated by putting tariffs on many U.S. exports. While the immediate consequence for the U.S. economy will be minimal, consumers will have

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to pay higher prices for food and cars if the trade war escalates. Many trade analysts contend that President Trump is using the tariffs as a means of intensifying the pressure on Canada and Mexico during the NAFTA negotiations. Concerns about a global trade war ratcheted up even higher in June when the U.S. president imposed a 25 per cent tariff on \$50 billion worth of imports of Chinese goods. The direct impact on the economy will be minor, as the tariffs cover less than 10 per cent of total U.S. imports from China and around 2 per cent of all U.S. imports. The effect on core U.S. inflation is less than 0.1 per cent. However, of far greater concern is the retaliation from China. Following the U.S. actions, the Chinese government backed out of an earlier agreement to purchase \$70 billion of U.S. goods and promised to put tariffs on about \$34 billion worth of U.S. exports to China. The Trump administration countered by threatening even more tariffs on Chinese exports. At present, neither side appears willing to back down, and a full-blown trade war cannot be ruled out.

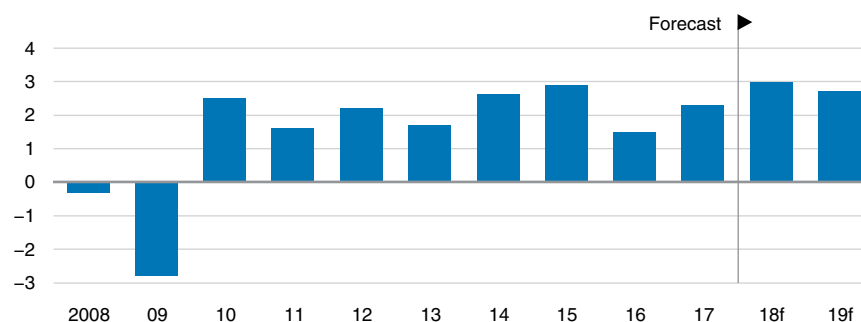
The other factor that could dampen U.S. growth is the rapid increase in labour shortages. In an economy with an unemployment rate below 4.0 per cent, shortages of available workers are quickly becoming a reality for many U.S. firms. The National Federation of Independent Business recently reported that around one-third of small businesses today have posted job openings—a level not seen since the tech boom in the late 1990s.

Tightening labour markets are finally translating into wage gains, something that had been absent since 2009 when the economy started to slowly recover from the severe recession. Wages are currently expanding in the 3.0 per cent range, or close to double the average seen since 2009. The hope is that the combination of record job openings and rising wages will entice more people to join the workforce and thereby ease the labour shortages. However, the Trump administration's anti-immigration stance is hurting growth in an important source of labour supply at this time of record-low unemployment. Two of President Trump's most high-profile domestic policies are currently working against each other. His fiscal stimulus is boosting demand for workers, but the restrictions on immigrants are hurting labour supply and making it difficult for firms to find workers.

**Chart 3**

### **Tax Cuts Fuelling Growth in U.S. Economy**

(real GDP, percentage change)



f = forecast

Sources: The Conference Board of Canada; U.S. Bureau of Economic Analysis.

## Monetary Policy

While economic growth in Canada is expected to slow over the next two years, capacity pressures continue to brew, suggesting that the Bank of Canada should consider increasing interest rates at a more aggressive pace. While monetary authorities will tolerate the inflation rate drifting somewhat above the target range, wage growth has accelerated to a pace above 3.0 per cent as labour markets in Canada have continued to tighten. The unemployment rate is hovering around 6.0 per cent and is projected to fall to an all-time low of 5.7 per cent by year-end. Higher wages will eventually feed into inflation.

Despite capacity pressures and rising inflation, we expect no further rate hikes by the Bank of Canada this year following the 25 basis-point increases in January and July. (See Chart 4.) Although we expect three further rate increases in 2019, there is some downside risk to this outlook, given the great degree of uncertainty in the economy—in particular, the potential for a quickly escalating global trade war. Canada, Mexico, and the EU have all retaliated against U.S. steel and aluminum tariffs, while President Trump has promised to take further steps to limit imports that he claims are harmful to the U.S. economy. On several occasions, the U.S. president has threatened to impose 25 per cent tariffs on imports of autos and parts. In addition, the NAFTA

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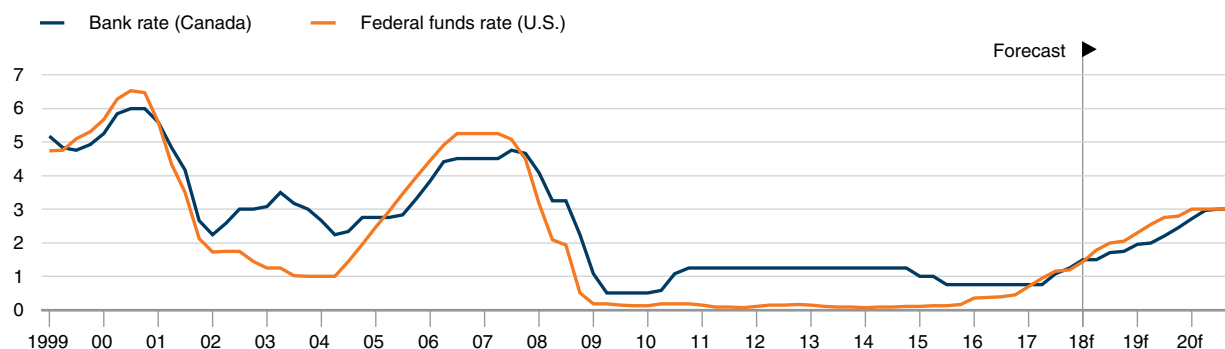
renegotiations have bogged down due to disagreements concerning the domestic content of autos produced in North America and the U.S. demand for a sunset clause for any new NAFTA deal. Further tariffs on Canadian goods, especially on autos and parts, could have a devastating impact on the Canadian economy.

While the Canadian dollar is getting some support from the recent strength in oil prices, it is under pressure due to a combination of the rising spread between Canadian and U.S. interest rates and the increasing uncertainty over global trade. At the beginning of this year, the loonie was trading in the US\$0.79–0.80 range as the U.S. dollar came under selling pressure due to concerns about rising fiscal deficits. However, the uncertainty over NAFTA negotiations and the different paths of monetary policy in the two countries caused the loonie to depreciate recently to the US\$0.75 range. The Canadian dollar will generally trade in this range until the second half of 2019 when it will start to appreciate gradually as interest rate increases accelerate. We do not expect the loonie to return to the US\$0.80 mark until sometime in 2022. Even that modest outlook for the Canadian dollar is contingent upon there being a marked reduction in the trade tensions that currently exist in the global economy.

#### Chart 4

#### Bank of Canada to Hike Again in 2019

(per cent)



f = forecast

Sources: The Conference Board of Canada; Bank of Canada

## Fiscal Outlook

While last year's strong economic growth propelled a notable pickup in government revenues, government spending growth also accelerated, resulting in no notable improvement in either the federal or collective provincial budget deficits. This year, the expected slowdown in economic growth will result in softer gains in government revenues, which will challenge government balances. At the federal level, we project a deficit of \$19.8 billion this year. While the deficit should shrink over the next few years, the pace of improvement will be slow. Provincial deficits are likely to widen considerably this year, and we anticipate only a slight narrowing over the next few years.

While running operating shortfalls when the economy is near its peak is not ideal, the spending by the federal and provincial governments will help stimulate economic growth over the near term. The most notable boost will be from public infrastructure investment.





## RÉSUMÉ

# Des performances économiques en baisse

### Aperçu

- Les hauts niveaux d'endettement, la hausse des taux d'intérêt et une correction du marché du logement plombent la croissance économique au Canada.
- Dans la plupart des provinces, la performance économique va fléchir à court terme.
- Les nouvelles règles mises en place dans le secteur du logement ont ralenti la construction résidentielle dans de nombreuses provinces, et les ventes au détail ont baissé au premier trimestre, pour la première fois depuis la récession qui a frappé le secteur des ressources naturelles en 2015.
- Ce sont Terre-Neuve-et-Labrador et l'Île-du-Prince-Édouard qui devraient afficher la meilleure performance économique en 2019.
- Certains risques pèsent sur les perspectives, et la récente annonce faite dans le secteur de l'uranium conduira à davantage de licenciements en Saskatchewan et à une baisse de la production d'uranium.
- En Alberta, l'investissement dans le secteur énergétique suscite un regain d'intérêt, et la province verra l'investissement privé augmenter en 2019, mais aucun projet d'immobilisation de grande envergure, à phases multiples et d'une valeur de plusieurs milliards de dollars n'est prévu actuellement dans le secteur des sables bitumineux.

## Vue d'ensemble nationale

**L'économie a progressé à un rythme annuel de seulement 1,3 % au premier trimestre 2018, étant donné que les dépenses de consommation se sont tassées, que le secteur du commerce extérieur est resté peu performant et que le secteur du logement s'est affaibli sous l'effet des récents changements de politiques. Une bonne nouvelle est que les entreprises canadiennes ont largement fait taire les inquiétudes entourant l'Accord de libre-échange nord-américain (ALENA) et les nouveaux tarifs douaniers, et qu'elles ont nettement augmenté leurs investissements dans les installations et le matériel. Les récentes augmentations de l'investissement des entreprises étaient attendues depuis longtemps, et elles contribueront beaucoup à atténuer la pression exercée sur l'utilisation des capacités de production, qui se trouve à un niveau sans précédent dans de nombreux secteurs de l'économie canadienne.**

Ces deux prochaines années, la croissance des dépenses de consommation devraient continuer de chuter, étant donné que les ménages réduisent leur rythme d'emprunt, sous l'effet de la hausse des taux d'intérêt et du ralentissement de la création d'emploi.. La diminution du prix des logements aura elle aussi une incidence sur les dépenses, car les ménages seront moins désireux d'emprunter. Dans le secteur du commerce, la croissance des exportations sera limitée par les tarifs douaniers récemment imposés sur le bois d'œuvre de résineux, l'acier et l'aluminium. La fin possible de l'ALENA et les menaces quotidiennes d'imposition de nouveaux tarifs douaniers sur un vaste éventail de produits, dont les véhicules et pièces automobiles, pèseront également

sur les décisions d'investissement des exportateurs et limiteront le retour à une croissance solide dans un avenir proche. Globalement, l'économie canadienne devrait croître de 1,8 % en 2018 et 2019, en recul par rapport aux 3 % de 2017.

## Vue d'ensemble provinciale

À l'entame du deuxième semestre de 2018, presque toutes les provinces faisaient face à un ralentissement de leur croissance économique. La création d'emplois a perdu de la vitesse au premier semestre de 2018, principalement dans le secteur des services. Ce sont le Québec et la Colombie-Britannique qui ont été les plus durement touchés. De plus, les nouvelles règles mises en place dans le secteur du logement ont ralenti la construction résidentielle dans de nombreuses provinces, et les ventes au détail ont baissé au premier trimestre, pour la première fois depuis la récession qui a frappé le secteur des ressources naturelles en 2015.

Certes, la léthargie du marché du travail n'a pas été généralisée, mais le recul de la demande des consommateurs s'est fait sentir partout dans le pays. En raison du raffermissement des prix de l'énergie, l'inflation accélère, étant donné que les prix du carburant sur douze mois sont en hausse de près de 25 %. En outre, l'augmentation du salaire minimum, surtout celle de l'Ontario, fait grimper les coûts salariaux dans l'industrie alimentaire, ainsi que les prix des plats au restaurant. Le 11 juillet, la Banque du Canada a relevé son taux directeur pour la quatrième fois en un an. D'autres hausses devraient survenir, mais pas avant 2019. L'inflation est une priorité pour la Banque du Canada, mais le gouverneur de celle-ci, Stephen Poloz, garde aussi un œil sur les négociations commerciales en cours sur l'ALENA ainsi que sur les possibles incidences économiques des nouveaux tarifs douaniers imposés par les États-Unis sur l'acier et l'aluminium et de la montée du protectionnisme commercial mondial. Les tensions commerciales instillent une instabilité considérable dans l'économie, et le président américain Donald Trump élargit la fracture entre les États-Unis et leurs principaux partenaires commerciaux, dont le Canada. Les tarifs douaniers qui frappent l'acier et l'aluminium ne risquent pas de perturber

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la croissance économique du Canada, mais ceux sur les véhicules et les pièces automobiles seraient bien plus préjudiciables pour l'emploi et la croissance économique. Cependant, malgré les conflits commerciaux déclenchés par le gouvernement Trump, les bourses mondiales sont généralement restées calmes.

Parallèlement, une tendance positive s'est amorcée au début de 2017 : les entreprises achètent davantage de machines et de matériel afin d'augmenter leurs capacités de production et de devenir plus concurrentielles. Cette tendance est apparue en dépit des problèmes commerciaux qui pèsent sur les décisions d'investissement des entreprises. Les incertitudes commerciales nuisent à l'investissement des entreprises, mais elles sont compensées par les taux élevés d'utilisation des capacités et par une économie américaine florissante, deux facteurs qui encouragent les entreprises à se mettre à niveau et à étoffer leur équipement.

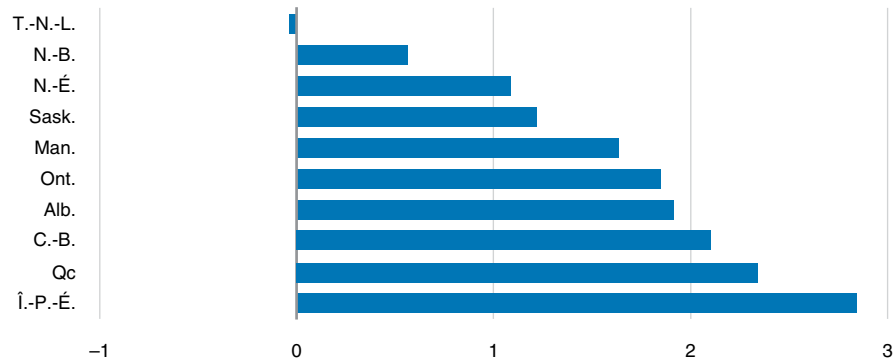
Certes, l'économie canadienne a progressé beaucoup moins rapidement au cours du dernier trimestre de 2017 et du premier semestre de 2018, mais elle devrait être plus stable au deuxième semestre, et cette stabilité devrait perdurer tout au long de 2019. S'il est vrai que les négociations commerciales majeures restent en suspens, les autres indicateurs clés ont été plus encourageants ces derniers mois.

Les petites provinces prendront la tête de la croissance économique en 2019, et Terre-Neuve-et-Labrador et l'Île-du-Prince-Édouard devraient toutes deux dépasser la moyenne nationale. Le Québec, l'Ontario et l'Alberta devraient afficher des moyennes inférieures à 2 % en 2019, tandis que la Colombie-Britannique devrait continuer de dépasser la moyenne nationale, avec une croissance supérieure à 2 %. Les perspectives pour le Nouveau-Brunswick et la Nouvelle-Écosse reflètent celles d'une faible croissance de la population active, et leur croissance économique devrait rester modeste à court terme en raison du vieillissement de la population active, qui fera plus qu'effacer les retombées positives des progrès réalisés pour attirer de nouveaux arrivants dans la région (voir les graphiques 1 et 2).

### Graphique 1

#### PIB réel par province, 2018

(variation en %\*)



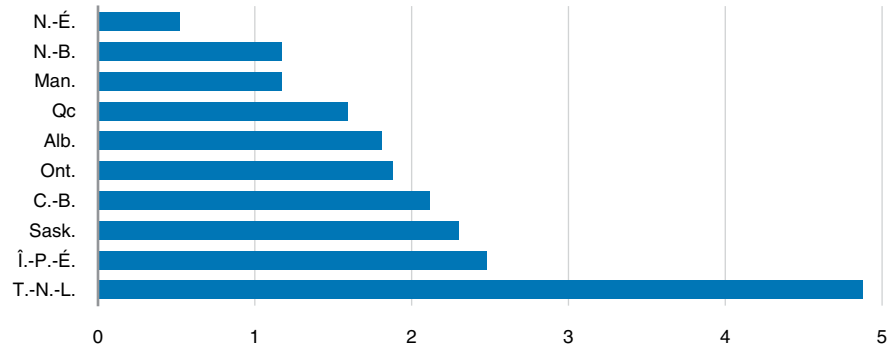
\*fondée sur les dollars de 2007

Sources : Le Conference Board du Canada; Statistique Canada.

### Graphique 2

#### PIB réel par province, 2018

(variation en %\*)



\*fondée sur les dollars de 2007

Sources : Le Conference Board du Canada; Statistique Canada.

## Hypothèses provinciales

En 2018, à Terre-Neuve-et-Labrador, la croissance économique va essentiellement stagner. L'économie de la province est freinée par l'affaiblissement du secteur de la construction, une chute abrupte des pêches et le recul de l'activité dans le commerce de gros et de détail. Le début de la production à la fin de 2017 sur le quatrième grand projet

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pétrolier de la province, à savoir la plateforme Hebron, devrait injecter une bonne dose d'optimisme, mais les interruptions de la production d'autres champs extracôtiers limiteront la contribution du secteur pétrolier à l'économie. Toutefois, l'augmentation de la production à Hebron contribuera à pousser la croissance globale du PIB réel de la province à 4,9 % en 2019. Pour l'essentiel, l'économie de Terre-Neuve-et-Labrador sera à la peine, car l'achèvement de projets de construction majeurs va nuire aux perspectives d'emploi des travailleurs et affaiblir la demande des consommateurs. Du côté des bonnes nouvelles, un accord récent entre le gouvernement provincial et deux entreprises internationales afin de développer le premier projet de production pétrolière en eaux profondes de la province — le projet Bay du Nord d'une valeur de 6,8 G\$ — vient améliorer les perspectives.

L'Île-du-Prince-Édouard sera la seule province qui restera sur son élan économique en 2018. Pour la deuxième année consécutive, la plus petite province du Canada progressera fortement et surpassera toutes les autres provinces avec sa croissance de 2,8 %. Derrière cette solide performance économique se trouve la Stratégie de croissance pour l'Atlantique, qui a contribué à augmenter le nombre de nouveaux arrivants et à alimenter la demande en logements et en biens de détail. De plus, les conditions favorables au tourisme aident à stimuler la croissance, car de plus en plus de navires de croisière visitent la province. Globalement, la croissance du PIB réel devrait progressivement ralentir pour atteindre 2,5 % en 2019, étant donné que la politique monétaire moins accommodante va calmer l'appétit des consommateurs pour les biens coûteux.

La Nouvelle-Écosse va légèrement améliorer sa performance économique en 2018, avec une croissance de 1,1 %. Les facteurs qui contribueront à cette croissance sont notamment un marché du logement en expansion, une solide création d'emplois, les bons chiffres de l'immigration et une forte demande des consommateurs. La croissance sera limitée par l'arrêt de la production de gaz naturel dans la province. La production de combustibles minéraux a été un moteur de l'activité économique durant des décennies, et tant qu'aucun nouveau projet n'aura été lancé, il n'y aura plus aucune production de ce type en Nouvelle-Écosse. Cependant, les activités d'exploration

reprennent. Le Projet de forage exploratoire dans le bassin Scotian de BP Canada pourrait voir le forage de jusqu'à sept puits d'exploration au large de la côte sud-est de la Nouvelle-Écosse, ce qui est une bonne nouvelle pour l'industrie et pourrait déboucher sur une nouvelle exploitation dans l'avenir. La croissance économique ralentira à seulement 0,5 % en 2019, étant donné que le secteur manufacturier contribuera moins à la croissance fondamentale.

L'économie du Nouveau-Brunswick a perdu de son élan. Elle devrait progresser de 0,6 % en 2018 et de 1,2 % en 2019, contre 1,7 % en 2017. Les ventes au détail et les mises en chantier de logements se sont rapidement tassées. De plus, si le secteur manufacturier a donné un coup de fouet à l'économie en 2017, les augmentations plus modestes dans le raffinage des produits du charbon et du pétrole font qu'il contribuera peu à consolider la croissance fondamentale en 2018 et 2019. La situation du marché du travail s'améliore, grâce à l'immigration internationale nette, qui reste élevée et vient grossir la population active. Cependant, le nombre de départs à la retraite augmente rapidement, ce qui annule la contribution positive des nouveaux arrivants.

Tandis que le Québec se prépare pour les élections provinciales du 1er octobre, son économie reste très performante. Dans la foulée de sa performance économique de 2017, la meilleure en presque vingt ans, la province va dépasser la moyenne nationale en 2018, avec une croissance de 2,3 %. Cependant, cet élan va s'essouffler, et la croissance ralentira à 1,6 % en 2019. Les tarifs douaniers imposés par les États-Unis sur l'aluminium sont une mauvaise nouvelle pour l'immense industrie québécoise de l'aluminium. Cependant, s'il est vrai que les préoccupations commerciales freineront l'économie, c'est le ralentissement de la demande des consommateurs qui sera surtout à l'origine de sa perte de vitesse. La hausse des taux d'intérêt et le ralentissement de la construction résidentielle ralentiront la cadence des dépenses des consommateurs en 2019. Les mises en chantier de logements ont tutoyé des sommets inédits ces derniers mois, mais pareille situation n'est guère soutenable, étant donné le ralentissement démographique de la province et la réduction des besoins qui en résulte. Les mises en chantier de logements devraient donc baisser, passant de 48 716 unités en 2018 à 42 747 unités en 2019.



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De son côté, l'économie de l'Ontario est affectée par les nouvelles règles dans le secteur résidentiel. Elle a ralenti et devrait progresser de 1,8 % en 2018 et de 1,9 % en 2019. L'investissement résidentiel devrait se contracter de 7,3 % en 2018, soit son plus gros recul depuis la récession de 2008-2009. Le marché du logement s'adapte aux nouvelles mesures. Les consommateurs ont aussi nettement ralenti leurs achats de biens, ce qui contribue à affaiblir les perspectives économiques à court terme. La faiblesse de la consommation occulte la solide croissance que connaissent les autres investissements privés. Les nouveaux projets commerciaux dans la région du Grand Toronto et les solides investissements réalisés dans les machines et le matériel devraient faire grimper l'investissement réel des entreprises (qui exclut l'investissement résidentiel) de 8,6 % en 2018 et de 4,4 % en 2019. Le secteur commercial injecte une bonne dose de risque aux perspectives économiques, le danger venant essentiellement des stratégies commerciales du président Trump et de ses menaces à l'égard de l'industrie automobile. Les exigences plus strictes concernant cette industrie n'ont pas été prises en compte dans nos perspectives économiques, mais elles font bel et bien peser des risques à la baisse.

En ce qui concerne le Manitoba, les prévisions sont considérablement influencées par le développement de deux grands projets énergétiques — la ligne de transport d'électricité Bipole III et la centrale hydro-électrique de Keeyask. Le secteur de la construction poursuivra sa croissance rapide en 2018, grâce à ces projets ainsi qu'à la construction de l'usine de production de protéines de pois de Roquette. Dans l'ensemble, le PIB réel du Manitoba devrait progresser de 1,6 % en 2018. Cependant, en 2019, en raison de la progression des travaux à la centrale de Keeyask et de l'achèvement attendu de la construction de Bipole III, la croissance globale du PIB réel va ralentir. De plus, la fermeture attendue de plusieurs mines de métaux affectera la croissance économique dans les années à venir. L'économie provinciale devrait croître de seulement 1,2 % en 2019.

Le président Trump a également l'uranium dans le collimateur, et il pourrait aussi imposer des tarifs douaniers sur ce produit de base. La Saskatchewan est le premier fournisseur d'uranium des États-Unis, qui l'utilisent principalement pour la production d'énergie nucléaire.

L'industrie de l'uranium est en difficultés depuis quelques années, car l'effondrement de la demande au Japon après la catastrophe nucléaire qui a frappé Fukushima Daiichi en 2011 a provoqué une offre excédentaire sur le marché mondial et fait chuter les prix. Cameco, le géant de l'uranium de Saskatoon, a réduit sa production en Saskatchewan, ce qui a provoqué des pertes d'emplois et maintenu la croissance globale du PIB réel à tout juste 1,2 % en 2018. L'économie provinciale ne s'est pas encore tout à fait remise de l'effondrement du secteur des ressources naturelles qui a provoqué une récession dans la province en 2016, mais, l'amélioration des prix des produits de base et l'augmentation de la demande mondiale dans un certain nombre de secteurs clés laissent entrevoir un redressement. Cependant, l'annonce récente que la fermeture des mines d'uranium de McArthur River et de Key Lake va se prolonger pour une durée indéterminée est une mauvaise nouvelle. Nos prévisions d'une croissance du PIB réel de 2,3 % pour la Saskatchewan en 2019 ne tiennent pas compte de ce fait. Par conséquent, la croissance pourrait être inférieure à nos prévisions.

En Alberta, la croissance économique ralentit depuis quelques trimestres. Cependant, de manière générale, l'économie provinciale reste très performante et s'est presque entièrement remise de la pire récession qu'ait connue la province en un demi-siècle. La création d'emplois s'accélère et le taux de chômage est en baisse. La croissance des salaires reste modeste par rapport à ce qu'elle est dans d'autres provinces. La hausse des coûts d'emprunt ralentit l'économie provinciale. La production pétrolière progresse rapidement, le gouvernement fédéral a acheté le projet Trans Mountain de Kinder Morgan, et l'investissement dans le secteur énergétique suscite un regain d'intérêt. Cependant, aucun grand projet d'immobilisation n'est prévu dans le secteur des sables bitumineux pour l'instant. Globalement, la croissance réelle de l'Alberta devrait s'établir en moyenne à 1,9 % en 2018 et à 1,8 % en 2019.

L'économie de la Colombie-Britannique perd de la vitesse, et elle devrait progresser de seulement 2,1 % en 2018 et 2019, ce qui est très inférieur à la croissance moyenne de plus de 3 % affichée depuis le début de la décennie. La majeure partie de ce recul est imputable à un marché du travail à bout de souffle, à une nette correction du marché du

logement et à une baisse marquée de la croissance de la demande des consommateurs. Les mesures adoptées pour résoudre les problèmes de flambée des prix des logements et d'abordabilité de ceux-ci ont fait perdre du lustre au marché du logement, surtout pour la vente de maisons individuelles existantes. Les activités de revente ont reculé de plus de 20 % durant le premier semestre de 2018 par rapport à 2017. Les mises en chantier de logements ont elles aussi chuté, mais de manière moins abrupte.

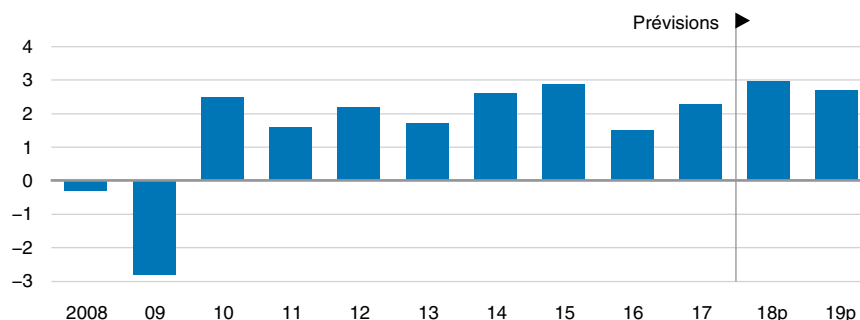
## Perspectives américaines

L'économie des États-Unis a progressé à un rythme annuel de 2,2 % au premier trimestre de 2018, puis a nettement accéléré pour passer à 4,1 % au deuxième trimestre. Pour l'ensemble de 2018, le PIB réel devrait croître de 3 % (voir le graphique 3). L'économie restera sur son élan en 2019, avec une progression de 2,7 %. Elle bénéficie actuellement des incitations fiscales fournies par les réductions d'impôts et l'accroissement des dépenses publiques. Le resserrement du marché du travail a commencé à pousser les salaires vers le haut, ce qui devrait stimuler les dépenses des ménages à court terme. Les dépenses réelles devraient augmenter de 2,5 % en 2018 et de 2,4 % en 2019.

### Graphique 3

#### Les réductions d'impôts alimentent la croissance de l'économie des États-Unis

(PIB réel; variation en %)



p = prévision

Sources : Le Conference Board du Canada; Bureau of Economic Analysis des États-Unis.

Cependant, quelques nouveautés font peser un risque à la baisse sur les perspectives économiques américaines. En décembre 2017, le prix moyen du carburant aux États-Unis était inférieur à 2,5 \$ par gallon. Depuis, il a augmenté pour passer à plus de 3 \$ par gallon, tandis que, dans des états comme la Californie, il tourne autour des 4 \$ par gallon. Les principaux coupables de cette situation sont les prix mondiaux du pétrole plus élevés. Ces prix ont été poussés vers le haut par divers facteurs, notamment les baisses de production de l'Organisation des pays exportateurs de pétrole, la baisse de l'offre en provenance du Venezuela, et l'incertitude qui entoure les expéditions de pétrole d'Iran, à présent que les États-Unis ont décidé de se retirer de l'accord sur le nucléaire iranien qu'ils avaient signé avec leurs partenaires européens et Téhéran. Si les prix du carburant tournent en moyenne autour des 3 \$ ou plus pour le reste de l'année, une bonne partie de l'effet des stimulations de l'économie attribuables aux réductions d'impôts sera annulé.

La guerre commerciale intermittente semble de retour. À la fin du mois de mai, le gouvernement Trump a imposé des tarifs douaniers de 25 % sur les importations d'acier et de 10 % sur les importations d'aluminium en provenance du Mexique, de l'Union européenne et du Canada. Ces trois partenaires commerciaux des États-Unis ont vite répliqué en imposant des tarifs douaniers sur de nombreuses exportations américaines. Cette décision aura des conséquences immédiates minimales pour l'économie américaine, mais les consommateurs devront payer plus cher la nourriture et les voitures si la guerre commerciale s'intensifie. De nombreux analystes commerciaux affirment que le président Trump utilise les tarifs douaniers pour renforcer la pression sur le Canada et le Mexique durant les négociations sur l'ALENA. Les craintes d'une guerre commerciale mondiale se sont encore aggravées en juin, quand le président américain a imposé des tarifs douaniers de 25 % sur des importations de produits chinois d'une valeur de 50 G\$. Cette décision aura des incidences directes mineures sur l'économie, étant donné que ces tarifs douaniers concernent moins de 10 % du total des importations américaines en provenance de Chine et environ 2 % de la totalité des importations américaines. Leur effet sur l'inflation sous-jacente américaine est inférieur à 0,1 %. Cependant, les mesures de rétorsion chinoises sont plus préoccupantes.

En réponse aux États-Unis, le gouvernement chinois s'est retiré d'un accord conclu précédemment en vue d'acheter pour 70 G\$ US de biens américains, et il a menacé d'imposer des tarifs douaniers sur des exportations américaines vers la Chine d'une valeur d'environ 34 G\$. Le gouvernement Trump a contre-attaqué en menaçant d'imposer encore plus de tarifs douaniers sur les exportations chinoises. Pour l'instant, aucune des deux parties ne semble prête à faire marche arrière, et l'éventualité d'une guerre commerciale sans merci ne peut pas être écartée.

L'autre facteur qui pourrait atténuer la croissance américaine est l'augmentation rapide des pénuries de main-d'œuvre. Dans une économie où le taux de chômage est inférieur à 4 %, les pénuries de travailleurs disponibles deviennent rapidement une réalité pour nombre d'entreprises américaines. La National Federation of Independent Business (fédération nationale des entreprises indépendantes) a récemment indiqué qu'environ un tiers des petites entreprises ont des offres d'emploi en cours — un niveau qu'on n'avait plus vu depuis le boom technologique de la fin des années 1990.

Le resserrement du marché du travail se traduit enfin par une hausse des salaires, ce qui n'était plus arrivé depuis 2009, quand l'économie a lentement commencé à se remettre de la grande récession. Actuellement, la progression des salaires est de l'ordre de 3 %, soit près du double de la moyenne enregistrée depuis 2009. L'espoir est que la combinaison du nombre record de possibilités d'emploi et de la hausse des salaires incite davantage de personnes à rejoindre la population active, atténuant ainsi la pénurie de main-d'œuvre. Cependant, la position anti-immigration du gouvernement Trump entrave la croissance d'une importante source de main-d'œuvre à un moment où le taux de chômage est à un bas inédit. Deux des politiques intérieures les plus en vue du président Trump travaillent actuellement l'une contre l'autre. Les stimulations financières alimentent la demande en travailleurs, mais les restrictions visant les immigrants nuisent à l'offre en main-d'œuvre et compliquent la tâche des entreprises qui cherchent à embaucher.

## Politique monétaire

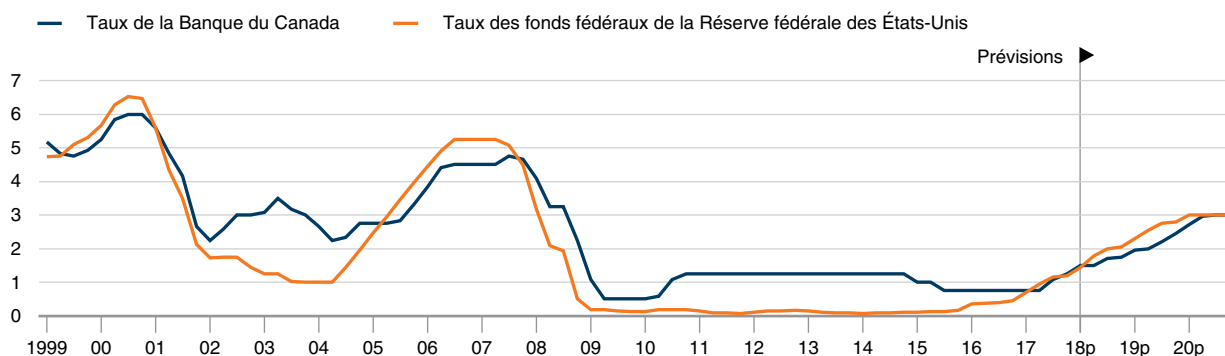
La croissance économique du Canada va probablement ralentir ces deux prochaines années, mais les pressions en matière de capacités continuent de couvrir, laissant penser que la Banque du Canada devrait envisager de relever ses taux d'intérêt à un rythme plus énergique. Les autorités monétaires toléreront certes que le taux d'inflation dérive un peu au-dessus de la fourchette cible, mais la hausse des salaires s'est accélérée à un rythme supérieur à 3 %, étant donné que le marché du travail a continué de se resserrer. Le taux de chômage tourne autour des 6 % et, d'ici la fin de 2018, il devrait tomber à un creux historique de 5,7 %. La hausse des salaires finira par alimenter l'inflation.

Malgré les pressions exercées sur les capacités et la hausse de l'inflation, nous ne pensons pas que la Banque du Canada relèvera de nouveau ses taux en 2018, après les augmentations de 25 points de base qui ont eu lieu en janvier et juillet (voir le graphique 4). Bien que nous prévoyions trois relèvements des taux en 2019, ces perspectives pourraient être revues à la baisse, étant donné le haut degré d'incertitude qui pèse sur l'économie — en particulier, le risque d'une escalade rapide de la guerre commerciale mondiale. Le Canada, le Mexique et l'Union européenne ont tous pris des mesures de rétorsion en réponse aux tarifs douaniers imposés par les États-Unis sur l'acier et l'aluminium, tandis que le président Trump a promis de prendre d'autres mesures afin de limiter les importations qu'il juge préjudiciables pour l'économie américaine. À plusieurs reprises, le président des États-Unis a menacé d'imposer des tarifs douaniers de 25 % sur les importations de véhicules et pièces automobiles. En outre, les négociations sur l'ALENA sont au point mort en raison des désaccords concernant le contenu national des automobiles produites en Amérique du Nord ainsi que de la volonté des États-Unis d'inclure une clause crépusculaire dans le nouvel accord. L'imposition de tarifs douaniers supplémentaires sur les produits canadiens, en particulier sur les véhicules et pièces automobiles, pourrait avoir des effets dévastateurs sur l'économie du Canada.

#### Graphique 4

#### La Banque du Canada relèvera de nouveau ses taux en 2019

(en %)



p = prévision

Sources : Le Conference Board du Canada; Banque du Canada.

Certes, le huard est quelque peu soutenu par la récente vigueur des prix du pétrole, mais il est mis sous pression par l'écart grandissant entre les taux d'intérêt du Canada et ceux des États-Unis combiné à l'incertitude de plus en plus grande entourant le commerce mondial. Au début de 2018, il s'échangeait entre 0,79 et 0,80 \$ US, car le dollar américain faisait l'objet de fortes pressions de vente dues aux inquiétudes concernant la hausse des déficits budgétaires. Cependant, l'incertitude concernant les négociations sur l'ALENA et les divergences des politiques monétaires entre le Canada et les États-Unis ont récemment entraîné la dépréciation du huard à 0,75 \$ US. Le huard s'échangera généralement à ce taux jusqu'au deuxième semestre de 2019, période où il commencera à s'apprécier progressivement, sous l'effet de l'accélération des hausses des taux d'intérêt. Selon nos prévisions, il ne devrait pas revenir à 0,80 \$ US avant le courant de 2022, et même cette modeste perspective est tributaire d'une baisse marquée des tensions commerciales qui agitent actuellement l'économie mondiale.

## Perspectives budgétaires

La solide croissance économique de 2017 a permis une hausse remarquable des recettes publiques, mais l'augmentation des dépenses publiques a elle aussi accéléré, ce qui a empêché toute réduction notable tant des déficits budgétaires du gouvernement fédéral que de ceux de l'ensemble des provinces. En 2018, en raison du ralentissement attendu de la croissance économique, les recettes publiques augmenteront moins, ce qui nuira aux soldes budgétaires. Au niveau fédéral, le déficit devrait être de 19,8 G\$ en 2018. Ce déficit devrait se résorber dans les années à venir, mais cela se fera lentement. Les déficits provinciaux risquent de se creuser considérablement en 2018, et nous ne prévoyons qu'une légère résorption au cours des prochaines années.

Certes, ce n'est pas l'idéal d'avoir un déficit de fonctionnement alors que l'économie est presque au mieux de sa forme, mais les dépenses des gouvernements fédéral et provinciaux aideront à stimuler la croissance économique à court terme. La stimulation la plus marquante viendra de l'investissement dans les infrastructures publiques.



NEWFOUNDLAND AND LABRADOR

# New Opportunities in the Oil Industry

## Chapter Summary

- Newfoundland and Labrador will lead all provinces in economic growth in 2019.
- The oil sector is driving the provincial economy, helping it expand by 4.9 per cent next year and preventing the decline of bottom-line growth this year.
- Long-term prospects for the oil sector look positive with the possibility of the province's first deepwater project on the horizon.
- The labour market remains in a challenging position as more people leave the labour force each year.



PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## NEWFOUNDLAND AND LABRADOR

### Government and Background Information

Premier Dwight Ball

Next election 2019

Population (2018Q2) 525,983

Government balance (2018–19) –\$683 million

Sources: The Conference Board of Canada; Newfoundland and Labrador Department of Finance; Statistics Canada.

### Forecast Risk

#### Short term

Oil production and overall real GDP growth could be lower than projected if extended shutdowns occur at any of the major oil platforms.



#### Medium term

If the projects under consideration do not materialize, the overall economy will perform much worse than expected, leading to lower economic growth, fewer jobs, and the province's failure to meet the goal of a balanced budget.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 1.9  | –0.0 | 4.9  |
| Consumer price index            | 2.4  | 1.8  | 1.7  |
| Household disposable income     | 1.2  | –0.4 | 1.1  |
| Employment                      | –3.7 | –0.8 | –0.7 |
| Unemployment rate (level)       | 14.7 | 15.1 | 15.1 |
| Retail sales                    | 2.4  | –1.4 | 1.4  |
| Wages and salaries per employee | 5.3  | –0.4 | 1.4  |
| Population                      | –0.2 | –0.7 | –1.1 |

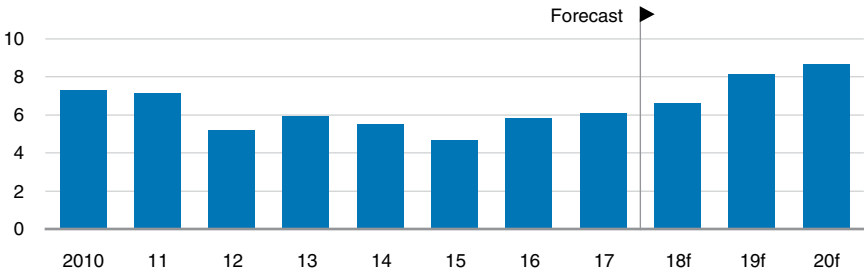
Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**Newfoundland and Labrador’s economic prospects are uneven. No real GDP growth is forecast for this year as big declines in fishing, construction, and consumer demand weigh on the economy. But real GDP growth is forecast to jump to 4.9 per cent next year. That will place Newfoundland and Labrador at the head of the provincial pack in 2019.**

The robust growth will be led by the ramping-up of oil production at Hebron, where pumping is already ahead of schedule. (See Chart 1.) Oil production from that project averaged 13,500 barrels per day over the second quarter of this year and will continue to increase before reaching full capacity next year. The good news for the oil industry does not stop there. The provincial government recently came to an agreement with two international companies to develop what would be the province’s first deepwater production project, the \$6.8-billion Bay du Nord initiative. A final decision by the companies on whether to go ahead is not expected for a few years, but there will be further exploration and development work in the meantime.

**Chart 1**  
**Mineral Fuels to Grow Strongly**  
(mineral fuels, 2007 \$ billions)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

Despite increasing oil production, the domestic economy remains fundamentally weak. Business investment is on a downward trajectory as major projects, such as the Muskrat Falls hydro project, approach the end of their construction phase. The biggest challenges facing the province are the dynamics in the labour force. The unemployment rate will hold steady at 15.1 per next year, but that will come despite almost 1,000 people leaving the labour force and with 1,700 fewer people employed in the province. Newfoundland and Labrador is the only province with an unemployment rate in the double digits. This is particularly worrisome, given that it is also the province with the oldest population.

## Consumption Outlook

On the back of next year's strong economic growth, wages will begin to recover the ground they lost this year. After falling by almost half of a per cent this year, wages will grow by 1.4 per cent in 2019 to almost \$59,000 per employee. This is good news for the retail sector, which will also see a recovery from lower sales in 2018. After a 1.4 per cent contraction in 2018, retail sales will grow by \$123 million or 1.4 per cent in 2019, thanks to next year's increase in household disposable income.

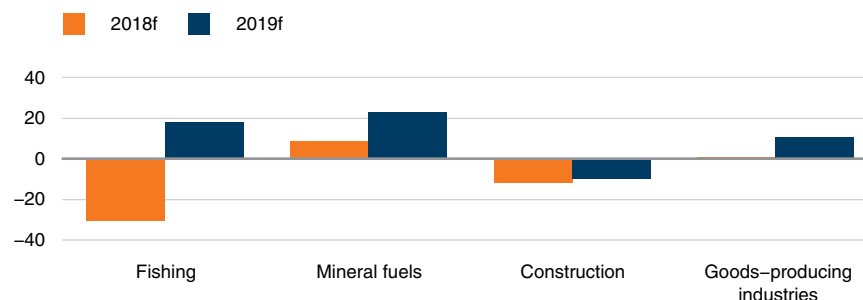
The uneven economic growth in Newfoundland and Labrador over this year and next is driven by large swings in output across several sectors and by inconsistent performances within the sectors from year to year. (See Chart 2.) Fishing and trapping will see a drop in volumes of over 30 per cent this year, but the sector is set to recover by more than 18 per cent in 2019. Likewise, the goods-producing industries will see virtually no growth this year but will enjoy an output boost of over 10 per cent next year. Mineral fuels mining will be the main driver of the provincial economy over the next two years. As Hebron ramps up oil production to capacity, this sector is expected to post 8 per cent growth in 2018, followed by 23 per cent growth next year.

Even with strong growth in some sectors, overall employment is set to decrease in both 2018 and 2019. With construction of the Muskrat Falls project almost completed, employment in the construction sector is set

## Chart 2

### Sectoral Performance Will Vary Widely Over 2018–19

(selected sectors' real GDP, 2007 \$ millions, percentage change)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

to continue its multi-year decline. However, 2019 will see a particularly large reduction in employment with 2,600 fewer jobs projected for the sector, a drop of over 13 per cent. While the labour force will benefit from the arrival of individuals from abroad, over five times as many people will leave Newfoundland and Labrador, looking for work in other provinces. This will result in a shrinking labour force of just 260,000 people in the province in 2019.

## Investment Outlook

Prospects are looking up over the long term with an important project announced recently. The Bay du Nord project is the first deepwater one in the province and the first in Flemish Pass. First oil is expected in 2025, and it is estimated that this project holds approximately 300 million barrels of reserves.<sup>1</sup> While the venture is not confirmed just yet, there is a significant amount of exploration work to be done before a final decision is made, and this will provide a boost to the province.

Vale recently announced that it is moving ahead with the expansion of Voisey's Bay. The project will entail the construction of an underground mine over five years. Capital expenditures on the project will begin this

<sup>1</sup> CBC News, "N.L., Equinor Announce \$6.8B Offshore Deepwater Oil Project," July 26, 2018, [www.cbc.ca/news/canada/newfoundland-labrador/oil-gas-announcement-premier-dwight-ball-1.4762299](http://www.cbc.ca/news/canada/newfoundland-labrador/oil-gas-announcement-premier-dwight-ball-1.4762299).

year and ramp up to the US\$300 million to US\$350 million range in 2019 and then up to US\$500 million in 2020. The initial expansion of refined cobalt production will begin in 2021, reaching full operating capacity in 2025. Under current plans, operations at full scale should last until 2033.<sup>2</sup>

Another mining project led by Altius Minerals on the Northern Peninsula is in the exploration phase. It is unclear whether the discoveries thus far will ultimately lead to the construction of a mine, but the company is moving ahead with further exploration as the results have been positive. Early samples indicate the possibility of economically viable deposits of silver and base metals.<sup>3</sup>

The oil boom years saw an overinvestment in housing stock. The industry is still trying to readjust to a new reality: people are no longer searching for large homes, and much of the population is set to retire. New housing starts will end 2018 having contracted by almost 10 per cent with a further decline of over 10 per cent expected in 2019. The number of new housing starts is not projected to return to growth until 2022.

## Government Outlook

The government recently announced a new Education Action Plan. The plan will see over 350 teaching assistants and specialists hired between 2018 and 2020. The province has budgeted \$3.1 million for the additional positions, but those costs are likely to increase.<sup>4</sup> The total cost of the plan will probably be closer to \$50 million as the province addresses the 82 recommendations provided by The Premier's Task Force on Improving Educational Outcomes, which was published last year.<sup>5</sup>

2 Tina Olivero, "Voisey's Bay: Project Update & Opportunities," July 9, 2018, <https://theogm.com/2018/07/09/voiseys-bay-project-update-opportunities/>.

3 Thom Barker, "Exploration Proceeds on Northern Peninsula Silver Claim," *The Telegram*, June 26, 2018, [www.thetelegram.com/business/exploration-proceeds-on-northern-peninsula-silver-claim-221601/](http://www.thetelegram.com/business/exploration-proceeds-on-northern-peninsula-silver-claim-221601/).

4 Garrett Barry, "N.L. schools hiring 355 teacher's assistants, specialists over 3 years," CBC News, July 13, 2018, [www.cbc.ca/news/canada/newfoundland-labrador/education-action-plan-government-way-forward-ball-1.4746233](http://www.cbc.ca/news/canada/newfoundland-labrador/education-action-plan-government-way-forward-ball-1.4746233).

5 Premier's Task Force on Improving Educational Outcomes, *Now Is the Time* (St. John's, NL: The Task Force, July 2017), [www.ed.gov.nl.ca/edu/task\\_force/report.pdf](http://www.ed.gov.nl.ca/edu/task_force/report.pdf).

The government remains on track to meet its goal of returning to budgetary balance in 2022–23. Moody’s and S&P both recently held the province’s credit rating steady, reflecting their belief that the government is progressing satisfactorily toward balancing its budget.<sup>6</sup> In an effort to meet this goal, the province has negotiated a new collective agreement with the Canadian Union of Public Employees (CUPE), which represents 4,000 public sector employees. The agreement holds wages constant, which will save the province a substantial amount of money.

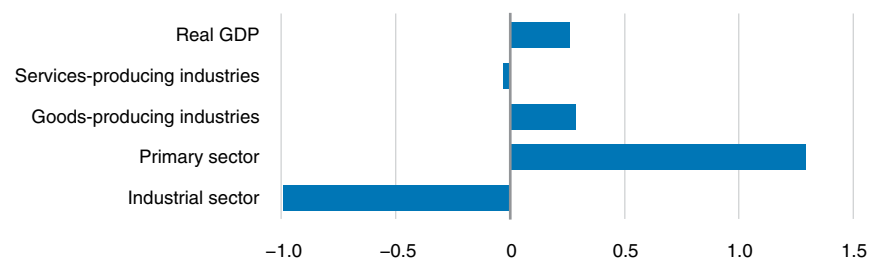
## Trade and Energy Outlook

The province is set to lead the country in export growth both this year and next. With increasing production from the oil sector, exports will expand by over 5 per cent this year and 11 per cent next year. Over the long term, prospects are positive for the trade sector. Many projects are under development or under consideration in the energy and mining sectors, with the products destined mainly for international markets.

**Chart 3**

### **Contributions to Newfoundland and Labrador Real GDP Growth, 2018**

(by industry/sector, percentage point; total GDP growth, per cent)



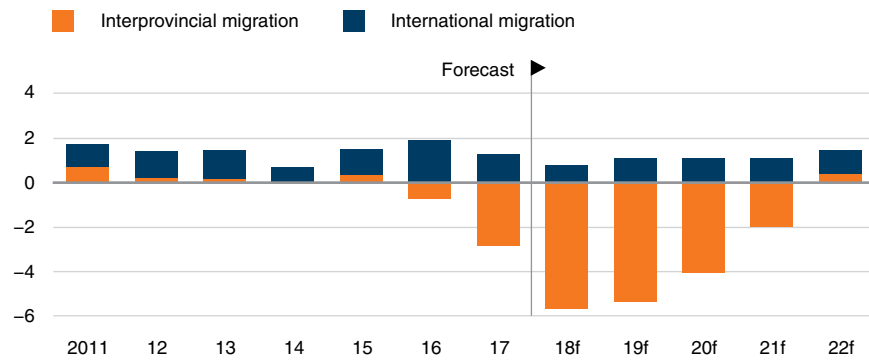
Note: “Primary” is the sum of agriculture, forestry, fishing and trapping, and mining sectors. “Industrial” is the sum of manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

<sup>6</sup> Newfoundland and Labrador Department of Finance, “Minister Osborne Welcomes Stable Credit Rating for Province,” news release, July 18, 2018, [www.releases.gov.nl.ca/releases/2018/fin/0718n06.aspx](http://www.releases.gov.nl.ca/releases/2018/fin/0718n06.aspx).

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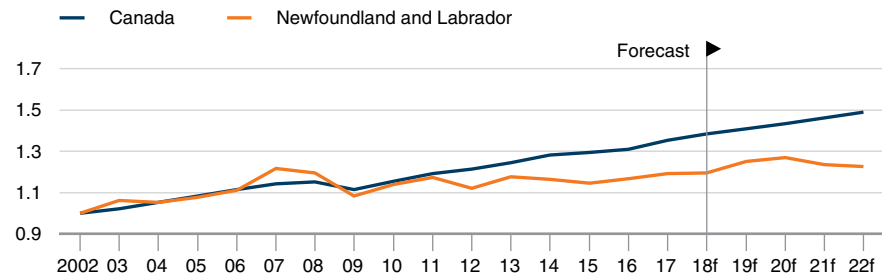
**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.



Table 1a

**Key Economic Indicators: Newfoundland and Labrador, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2     | 2017<br>Q3     | 2017<br>Q4     | 2018<br>Q1     | 2018<br>Q2    | 2018<br>Q3     | 2018<br>Q4    | 2019<br>Q1    | 2019<br>Q2    | 2019<br>Q3    | 2019<br>Q4    | 2017          | 2018           | 2019          |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|
| GDP at market prices (\$ millions)                        | 32,094<br>3.5  | 32,189<br>0.3  | 32,212<br>0.1  | 33,048<br>2.6  | 33,315<br>0.8  | 33,889<br>1.7 | 32,892<br>-2.9 | 34,762<br>5.7 | 35,422<br>1.9 | 35,779<br>1.0 | 36,092<br>0.9 | 36,365<br>0.8 | 32,386<br>4.1 | 33,715<br>4.1  | 35,915<br>6.5 |
| GDP at market prices (2007 \$ millions)                   | 28,314<br>0.2  | 28,408<br>0.3  | 28,294<br>-0.4 | 28,510<br>0.8  | 28,435<br>-0.3 | 28,649<br>0.8 | 27,423<br>-4.3 | 28,978<br>5.7 | 29,458<br>1.7 | 29,683<br>0.8 | 29,862<br>0.6 | 30,008<br>0.5 | 28,382<br>1.9 | 28,371<br>0.0  | 29,753<br>4.9 |
| GDP at basic prices (2007 \$ millions)                    | 26,656<br>0.2  | 26,770<br>0.4  | 26,708<br>-0.2 | 26,959<br>0.9  | 26,911<br>-0.2 | 27,125<br>0.8 | 25,931<br>-4.4 | 27,404<br>5.7 | 27,860<br>1.7 | 28,074<br>0.8 | 28,246<br>0.6 | 28,387<br>0.5 | 26,773<br>2.1 | 26,843<br>0.3  | 28,142<br>4.8 |
| Consumer price index (2002 = 1.0)                         | 1.352<br>0.7   | 1.353<br>0.1   | 1.358<br>0.3   | 1.363<br>0.4   | 1.372<br>0.6   | 1.377<br>0.3  | 1.384<br>0.5   | 1.390<br>0.5  | 1.395<br>0.3  | 1.401<br>0.4  | 1.407<br>0.4  | 1.413<br>0.5  | 1.357<br>2.4  | 1.381<br>1.8   | 1.404<br>1.7  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.133<br>3.3   | 1.133<br>0.0   | 1.138<br>0.5   | 1.159<br>1.8   | 1.172<br>1.1   | 1.183<br>1.0  | 1.199<br>1.4   | 1.200<br>0.0  | 1.202<br>0.2  | 1.205<br>0.2  | 1.209<br>0.3  | 1.212<br>0.3  | 1.141<br>2.2  | 1.188<br>4.1   | 1.207<br>1.6  |
| Wages and salary per employee (\$ 000s)                   | 57.7<br>1.2    | 57.8<br>0.2    | 59.1<br>2.3    | 58.1<br>-1.8   | 57.6<br>-0.8   | 57.9<br>0.5   | 58.1<br>0.3    | 58.3<br>0.3   | 58.5<br>0.4   | 58.7<br>0.4   | 58.9<br>0.4   | 59.2<br>0.4   | 58.2<br>5.3   | 58.0<br>-0.4   | 58.8<br>1.4   |
| Primary household income (\$ millions)                    | 19,287<br>-0.5 | 19,228<br>-0.3 | 19,302<br>0.4  | 19,243<br>-0.3 | 19,142<br>-0.5 | 19,164<br>0.1 | 19,072<br>-0.5 | 19,150<br>0.4 | 19,312<br>0.8 | 19,354<br>0.2 | 19,390<br>0.2 | 19,429<br>0.2 | 19,265<br>0.7 | 19,132<br>-0.7 | 19,371<br>1.3 |
| Household disposable income (\$ millions)                 | 17,446<br>-0.5 | 17,614<br>1.0  | 17,492<br>-0.7 | 17,335<br>-0.9 | 17,245<br>-0.5 | 17,404<br>0.9 | 17,449<br>0.3  | 17,492<br>0.3 | 17,538<br>0.3 | 17,573<br>0.2 | 17,605<br>0.2 | 17,637<br>0.2 | 17,471<br>1.2 | 17,397<br>-0.4 | 17,588<br>1.1 |
| Household net savings rate (per cent)                     | 5.4            | 5.6            | 5.8            | 5.1            | 4.7            | 5.6           | 5.3            | 5.2           | 5.0           | 4.9           | 4.9           | 4.8           | 5.5           | 5.2            | 4.9           |
| Population (000s)                                         | 530<br>-0.1    | 529<br>-0.2    | 529<br>-0.1    | 528<br>-0.1    | 528<br>-0.2    | 526<br>-0.3   | 524<br>-0.3    | 523<br>-0.3   | 522<br>-0.3   | 520<br>-0.3   | 519<br>-0.3   | 517<br>-0.3   | 529<br>-0.2   | 525<br>-0.7    | 519<br>-1.1   |
| Employment (000s)                                         | 226<br>-0.7    | 225<br>-0.8    | 221<br>-1.8    | 225<br>1.9     | 224<br>-0.2    | 223<br>-0.5   | 221<br>-1.0    | 221<br>0.3    | 221<br>0.1    | 221<br>-0.2   | 221<br>-0.2   | 220<br>-0.2   | 224<br>-3.7   | 222<br>-0.8    | 221<br>-0.7   |
| Labour force (000s)                                       | 264<br>-1.1    | 263<br>-0.4    | 260<br>-1.2    | 263<br>1.0     | 261<br>-0.8    | 262<br>0.4    | 263<br>0.3     | 262<br>-0.4   | 262<br>0.0    | 261<br>-0.4   | 260<br>-0.4   | 259<br>-0.4   | 263<br>-2.2   | 262<br>-0.4    | 260<br>-0.6   |
| Labour force participation rate (per cent)                | 59.4           | 59.1           | 58.4           | 59.1           | 58.7           | 59.0          | 59.2           | 59.1          | 59.2          | 59.1          | 59.1          | 59.0          | 59.0          | 59.0           | 59.1          |
| Unemployment rate (per cent)                              | 14.4           | 14.7           | 15.3           | 14.5           | 14.1           | 14.9          | 16.0           | 15.4          | 15.4          | 15.2          | 15.1          | 14.9          | 14.7          | 15.1           | 15.1          |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Newfoundland and Labrador, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1 | 2017<br>Q2 | 2017<br>Q3 | 2017<br>Q4 | 2018<br>Q1 | 2018<br>Q2 | 2018<br>Q3 | 2018<br>Q4 | 2019<br>Q1 | 2019<br>Q2 | 2019<br>Q3 | 2019<br>Q4 | 2017  | 2018  | 2019  |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|
| Retail sales (\$ millions)           | 9,311      | 9,069      | 9,143      | 9,384      | 9,124      | 9,040      | 9,093      | 9,124      | 9,189      | 9,211      | 9,229      | 9,247      | 9,227 | 9,095 | 9,219 |
|                                      | 3.5        | -2.6       | 0.8        | 2.6        | -2.8       | -0.9       | 0.6        | 0.3        | 0.7        | 0.2        | 0.2        | 0.2        | 2.4   | -1.4  | 1.4   |
| Housing starts (units, 000s)         | 1,001      | 1,232      | 1,498      | 1,869      | 1,972      | 941        | 1,063      | 1,086      | 1,109      | 1,111      | 1,114      | 1,117      | 1,400 | 1,266 | 1,113 |
|                                      | -15.9      | 23.0       | 21.6       | 24.7       | 5.5        | -52.3      | 13.0       | 2.1        | 2.1        | 0.2        | 0.2        | 0.2        | 0.1   | -9.6  | -12.1 |
| Net interprovincial migration (000s) | -2.1       | -2.3       | -4.8       | -2.1       | -4.4       | -6.2       | -6.1       | -5.9       | -5.8       | -5.5       | -5.3       | -5.0       | -2.8  | -5.7  | -5.4  |
| Net international migration (000s)   | 0.4        | 1.4        | 3.5        | -0.2       | 0.0        | 1.1        | 1.1        | 1.1        | 1.1        | 1.1        | 1.1        | 1.1        | 1.3   | 0.8   | 1.1   |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Newfoundland and Labrador, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1    | 2020<br>Q2    | 2020<br>Q3     | 2020<br>Q4     | 2021<br>Q1     | 2021<br>Q2     | 2021<br>Q3     | 2021<br>Q4     | 2022<br>Q1     | 2022<br>Q2     | 2022<br>Q3    | 2022<br>Q4    | 2020          | 2021           | 2022           |
|-----------------------------------------------------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 36,766<br>1.1 | 36,970<br>0.6 | 37,087<br>0.3  | 37,120<br>0.1  | 36,699<br>-1.1 | 36,650<br>-0.1 | 36,645<br>0.0  | 36,681<br>0.1  | 36,765<br>0.2  | 36,893<br>0.3  | 37,060<br>0.5 | 37,275<br>0.6 | 36,986<br>3.0 | 36,669<br>-0.9 | 36,998<br>0.9  |
| GDP at market prices (2007 \$ millions)                   | 30,173<br>0.6 | 30,190<br>0.1 | 30,133<br>-0.2 | 30,010<br>-0.4 | 29,561<br>-1.5 | 29,392<br>-0.6 | 29,257<br>-0.5 | 29,158<br>-0.3 | 29,096<br>-0.2 | 29,057<br>-0.1 | 29,047<br>0.0 | 29,071<br>0.1 | 30,126<br>1.3 | 29,342<br>-2.6 | 29,068<br>-0.9 |
| GDP at basic prices (2007 \$ millions)                    | 28,548<br>0.6 | 28,569<br>0.1 | 28,519<br>-0.2 | 28,407<br>-0.4 | 27,985<br>-1.5 | 27,830<br>-0.6 | 27,707<br>-0.4 | 27,619<br>-0.3 | 27,566<br>-0.2 | 27,535<br>-0.1 | 27,531<br>0.0 | 27,561<br>0.1 | 28,511<br>1.3 | 27,785<br>-2.5 | 27,548<br>-0.9 |
| Consumer price index (2002 = 1.0)                         | 1.420<br>0.5  | 1.427<br>0.5  | 1.434<br>0.5   | 1.441<br>0.5   | 1.448<br>0.5   | 1.455<br>0.5   | 1.463<br>0.5   | 1.469<br>0.5   | 1.477<br>0.5   | 1.484<br>0.5   | 1.491<br>0.5  | 1.499<br>0.5  | 1.431<br>1.9  | 1.459<br>2.0   | 1.488<br>2.0   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.218<br>0.5  | 1.225<br>0.5  | 1.231<br>0.5   | 1.237<br>0.5   | 1.241<br>0.4   | 1.247<br>0.4   | 1.253<br>0.4   | 1.258<br>0.4   | 1.264<br>0.4   | 1.270<br>0.5   | 1.276<br>0.5  | 1.282<br>0.5  | 1.228<br>1.7  | 1.250<br>1.8   | 1.273<br>1.8   |
| Wages and salary per employee (\$ 000s)                   | 59.5<br>0.5   | 59.8<br>0.6   | 60.2<br>0.6    | 60.5<br>0.6    | 60.8<br>0.4    | 61.1<br>0.5    | 61.3<br>0.5    | 61.7<br>0.5    | 61.9<br>0.5    | 62.2<br>0.5    | 62.5<br>0.4   | 62.8<br>0.5   | 60.0<br>2.0   | 61.2<br>2.0    | 62.4<br>1.9    |
| Primary household income (\$ millions)                    | 19,532<br>0.5 | 19,569<br>0.2 | 19,603<br>0.2  | 19,640<br>0.2  | 19,711<br>0.4  | 19,749<br>0.2  | 19,796<br>0.2  | 19,869<br>0.4  | 20,069<br>1.0  | 20,153<br>0.4  | 20,239<br>0.4 | 20,346<br>0.5 | 19,586<br>1.1 | 19,782<br>1.0  | 20,202<br>2.1  |
| Household disposable income (\$ millions)                 | 17,646<br>0.1 | 17,696<br>0.3 | 17,751<br>0.3  | 17,806<br>0.3  | 17,790<br>-0.1 | 17,832<br>0.2  | 17,884<br>0.3  | 17,951<br>0.4  | 17,993<br>0.2  | 18,077<br>0.5  | 18,161<br>0.5 | 18,261<br>0.5 | 17,725<br>0.8 | 17,864<br>0.8  | 18,123<br>1.4  |
| Household net savings rate (per cent)                     | 4.6           | 4.6           | 4.6            | 4.6            | 4.4            | 4.4            | 4.5            | 4.5            | 4.4            | 4.4            | 4.4           | 4.4           | 4.6           | 4.5            | 4.4            |
| Population (000s)                                         | 516<br>-0.2   | 515<br>-0.2   | 514<br>-0.2    | 513<br>-0.2    | 512<br>-0.2    | 511<br>-0.2    | 510<br>-0.1    | 510<br>-0.1    | 509<br>-0.1    | 509<br>-0.1    | 509<br>0.0    | 509<br>0.0    | 514<br>-1.0   | 511<br>-0.7    | 509<br>-0.3    |
| Employment (000s)                                         | 219<br>-0.4   | 218<br>-0.4   | 217<br>-0.4    | 216<br>-0.4    | 215<br>-0.7    | 214<br>-0.4    | 214<br>-0.3    | 213<br>-0.2    | 213<br>0.0     | 213<br>-0.1    | 213<br>0.0    | 213<br>0.0    | 218<br>-1.3   | 214<br>-1.8    | 213<br>-0.4    |
| Labour force (000s)                                       | 257<br>-0.5   | 256<br>-0.3   | 256<br>-0.3    | 255<br>-0.3    | 253<br>-0.6    | 252<br>-0.4    | 252<br>-0.3    | 251<br>-0.2    | 250<br>-0.3    | 250<br>-0.1    | 250<br>0.0    | 250<br>0.0    | 256<br>-1.6   | 252<br>-1.5    | 250<br>-0.8    |
| Labour force participation rate (per cent)                | 58.8          | 58.7          | 58.7           | 58.6           | 58.3           | 58.2           | 58.1           | 58.0           | 57.8           | 57.8           | 57.8          | 57.7          | 58.7          | 58.1           | 57.8           |
| Unemployment rate (per cent)                              | 14.8          | 14.9          | 15.0           | 15.1           | 15.2           | 15.2           | 15.2           | 15.1           | 14.9           | 14.9           | 14.9          | 14.8          | 14.9          | 15.2           | 14.9           |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Newfoundland and Labrador, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2          | 2020<br>Q3          | 2020<br>Q4          | 2021<br>Q1          | 2021<br>Q2          | 2021<br>Q3          | 2021<br>Q4          | 2022<br>Q1          | 2022<br>Q2          | 2022<br>Q3          | 2022<br>Q4          | 2020                | 2021                | 2022                |
|--------------------------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Retail sales (\$ millions)           | 9,283<br><i>0.4</i>  | 9,310<br><i>0.3</i> | 9,337<br><i>0.3</i> | 9,363<br><i>0.3</i> | 9,387<br><i>0.2</i> | 9,404<br><i>0.2</i> | 9,427<br><i>0.3</i> | 9,461<br><i>0.4</i> | 9,526<br><i>0.7</i> | 9,568<br><i>0.4</i> | 9,611<br><i>0.4</i> | 9,662<br><i>0.5</i> | 9,323<br><i>1.1</i> | 9,420<br><i>1.0</i> | 9,592<br><i>1.8</i> |
| Housing starts (units, 000s)         | 1,009<br><i>-9.6</i> | 902<br><i>-10.6</i> | 905<br><i>0.3</i>   | 907<br><i>0.3</i>   | 910<br><i>0.3</i>   | 913<br><i>0.3</i>   | 916<br><i>0.3</i>   | 918<br><i>0.3</i>   | 927<br><i>1.0</i>   | 936<br><i>1.0</i>   | 946<br><i>1.0</i>   | 955<br><i>1.0</i>   | 931<br><i>-16.3</i> | 914<br><i>-1.8</i>  | 941<br><i>2.9</i>   |
| Net interprovincial migration (000s) | -4.7                 | -4.3                | -3.9                | -3.4                | -2.8                | -2.3                | -1.7                | -1.1                | -0.5                | 0.1                 | 0.7                 | 1.4                 | -4.1                | -2.0                | 0.4                 |
| Net international migration (000s)   | 1.1                  | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 | 1.1                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

## PRINCE EDWARD ISLAND

# Prince Edward Island Set to Lead Canada

### Chapter Summary

- Prince Edward Island is expected to lead the nation in economic growth over the next two years.
- Thanks to solid population growth—the strongest in the country due to the success of the Atlantic Growth Strategy—demand for new housing is surging, bolstering the construction sector.
- In addition to new permanent residents, visitors continue to flock to the Island, as the province remains a hotbed for tourism with another record-breaking year anticipated.
- Strong population growth and high levels of tourism will raise demand in the wholesale and retail trade as well as provide a boost to manufacturing on the Island.
- The recent economic hot streak is maintaining solid revenue growth for the province. This improvement in provincial coffers comes at an opportune time as the Island will be facing fiscal challenges over the near term with rising interest rates and an aging population.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## PRINCE EDWARD ISLAND

### Government and Background Information

|                              |                  |
|------------------------------|------------------|
| Premier                      | Wade MacLauchlan |
| Next election                | 2019             |
| Population (2018Q2)          | 153,116          |
| Government balance (2018–19) | \$1.4 million    |

Sources: The Conference Board of Canada; P.E.I. Finance; Statistics Canada.

### Forecast Risk

**Short term**  
Weaker global growth could dampen manufacturing sector.



**Medium term**  
Tourism could reach 1.85 million annual visitors by 2021 if the Tourism Industry Association of P.E.I. can fully implement all its initiatives over the next five years.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 2.9  | 2.8  | 2.5  |
| Consumer price index            | 1.8  | 2.6  | 1.8  |
| Household disposable income     | 5.3  | 4.3  | 2.9  |
| Employment                      | 3.0  | 2.8  | 1.9  |
| Unemployment rate (level)       | 9.8  | 9.7  | 8.9  |
| Retail sales                    | 6.3  | 4.0  | 1.9  |
| Wages and salaries per employee | 1.7  | 1.7  | 2.0  |
| Population                      | 1.7  | 1.4  | 1.8  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**Positive times abound for Prince Edward Island as it is expected to lead Canada in economic growth over the next two years. Impressively, this run of solid economic growth is underpinned by sound fundamentals, including strong population gains through immigration, booming tourism prospects, and increased demand for P.E.I. products. Consequently, economic growth in P.E.I. has been strong in recent years, raising government revenues such that the province recently achieved a promised balanced budget for the first time in a decade.**

A balanced budget should allow the province some much-needed fiscal wiggle room at a time when fiscal challenges abound. These include an aging population that is increasing demand for government services and rising interest rates that add pressure to debt repayment charges. Despite the challenges, the current hot streak of economic growth on the Island should keep the province in its new-found surplus position over the near term.

One of the biggest factors behind the recent positive economic growth on the Island is international migration. The influx of these new citizens is the driving force behind the population gains seen on the Island, with the impact felt across the province. As a result, a booming housing market is leading to higher construction activity, which also has positive ramifications for retail sales. On top of this, tourism continues to contribute more and more to the Island's economy. The elevated levels of visitors will encourage further spending on local products, benefiting the food and accommodation industry. Additionally, with the great demand for P.E.I. products expected to persist, manufacturing activity on the Island will continue to flourish. Overall, real GDP on the Island is forecast to grow by 2.8 per cent in 2018 and 2.5 per cent in 2019.

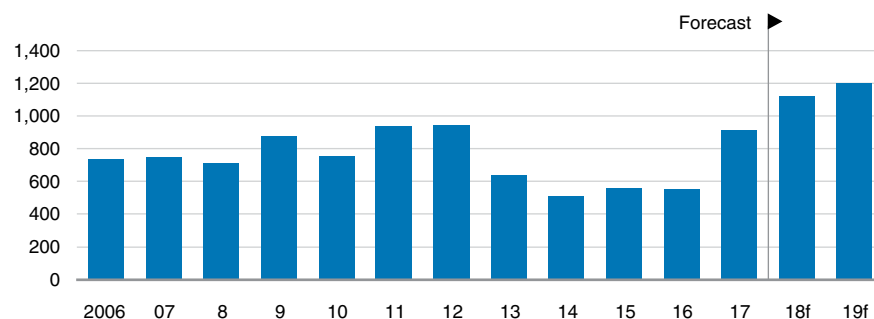
## Population Growth Leads to Boom in Construction Sector

Prince Edward Island will lead the country in population growth over the next two years with an average annual increase of 1.6 per cent. Strong population growth typically leads to more housing demand. We project that housing starts will rise by 23 per cent in 2018 and by another 7.4 per cent in 2019 before cooling in 2020. (See Chart 1.) This robust demand for residential construction is a boon for the construction industry, as it coincides perfectly with the drop-off that was anticipated when the upgrade to the electrical power interconnection line between P.E.I. and New Brunswick was completed. But, thanks to the boost in residential construction, the total construction industry will see growth of 16.1 per cent in 2018 and 12.5 per cent in 2019.

**Chart 1**

### **Strong Immigration Leads to Housing Market Boom**

(housing starts, units)



f = forecast

Sources: The Conference Board of Canada; CMHC Time Series Database.

When housing starts surge and the construction sector takes off, there is usually a knock-on effect on the finance, insurance, and real estate industries. This is true in P.E.I. where we expect to see combined growth in these sectors of 2.1 per cent in 2018 and 2.4 per cent in 2019. Overall,



the construction, finance, and real estate sectors together make up over a quarter of the provincial economy, so when these sectors prosper, the economy typically follows.

## Prince Edward Island Remains a Popular Destination for Tourists

Tourism in P.E.I. continues to set visitor records year after year, and this trend looks to persist in 2018 and 2019. Cruise ship landings are expected to have another banner year at Port Charlottetown.<sup>1</sup> As well, in response to the hit *Anne of Green Gables* show, “Anne With an E,” Britain’s most-read newspaper recently highlighted the Island province, which should increase its exposure overseas.<sup>2,3</sup> In fact, we may already be seeing gains in tourism from the United Kingdom as visits are already up by 19 per cent compared with this date last year.<sup>4</sup> The record cruise ship landings, combined with increased exposure in lucrative international markets such as the U.K., should keep the province on its five-year path to increase tourism to 1.75 million visitors by 2021—a goal set by the Tourism Industry Association of Prince Edward Island.<sup>5</sup> This goal is also in line with the Conference Board’s most recent travel market outlook for the province. (More details can be seen in the Conference Board’s [Travel Markets Outlook: National Focus—Spring 2018](#).)

Overall, solid tourism expectations, combined with impressive growth in Islanders’ disposable income, will lead to big gains in the province’s retail and wholesale trade sectors, as well as in the food, accommodation, and recreation industries in the province.

1 Charlottetown Harbour Authority Inc., “Cruise Schedule,” 2018 Schedule, updated July 23, 2018, <http://portcharlottetown.com/cruise/cruise-schedule/>.

2 The Sun, “The Sun Is Officially Britain’s Most Read Newspaper and Website with 33.3 Million Readers,” April 19, 2018, [www.thesun.co.uk/news/6087997/the-sun-britains-most-popular-paper-33million/](http://www.thesun.co.uk/news/6087997/the-sun-britains-most-popular-paper-33million/).

3 John Sturgis, “Fan of Green Gables: Discover the Beauty of Canada’s East Coast Where Netflix Drama Anne With An E Is Set,” *The Sun*, July 26, 2018, [www.thesun.co.uk/travel/6774188/discover-the-beauty-of-canadas-east-coast-where-netflix-drama-anne-with-an-e-is-set/](http://www.thesun.co.uk/travel/6774188/discover-the-beauty-of-canadas-east-coast-where-netflix-drama-anne-with-an-e-is-set/).

4 Tourism Industry Association of Prince Edward Island, “Tourism Indicators,” May 2018, [www.tiapei.pe.ca/latest-tourism-numbers/](http://www.tiapei.pe.ca/latest-tourism-numbers/).

5 —, *Prince Edward Island Strategic Plan for Tourism 2021—Final Report* (Dublin: Tourism Development International, November 24, 2016), <http://peitourismmatters.ca/wp-content/uploads/2016/11/PEI-Strategic-Plan-for-Tourism-2021-Final.pdf>.

## Balanced Budget Gives P.E.I. Some Fiscal Wiggle Room

With an estimated surplus, the province had some fiscal room to manoeuvre and announced higher spending targets as well as some minor tax reductions in its most recent budget. This is welcome news for Islanders, as it likely means less provincial tax revenue will go toward paying off debt, allowing more to be allocated to high-demand spending areas such as health care—a sector that will likely see substantial increases over the next decade as the population aged 65 and over grows. Overall, with greater spending set to occur due to the balanced fiscal position, we see real government consumption increasing at an average annual pace of 2.1 per cent over this year and next.

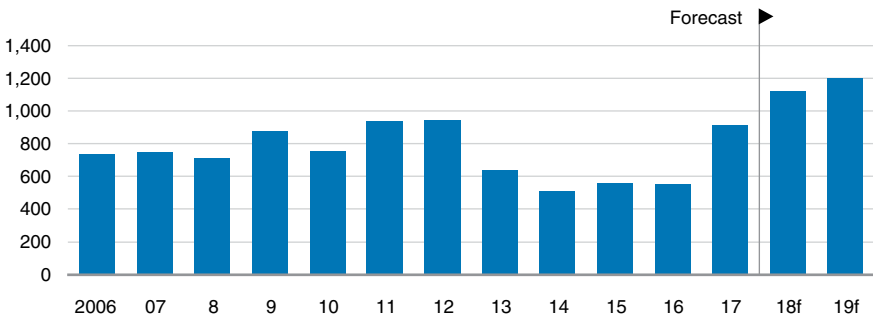
## Manufacturing Set to Continue Its Hot Streak

One of the biggest drivers of economic growth in P.E.I. is the province's manufacturing sector. Since 2011, the industry has grown at a blistering average annual pace of 5.6 per cent, far exceeding any other economic sector on the Island over that time frame. (See Chart 2.) Frozen food manufacturing continues to be the biggest player in the market, but others such as aerospace manufacturing are maintaining their strong growth. A slowdown in exports could hamper growth in manufacturing, but the robust local economy should be able to take up the slack. We expect growth in the industry to continue its hot streak, averaging 4.7 per cent growth over the next two years.

Chart 2

**Manufacturing Set to Continue its Hot Streak**

(real GDP, 2007 \$, percentage change)



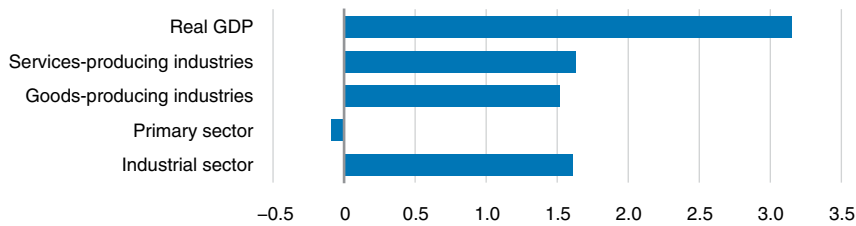
f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Chart 3

**Contributions to Prince Edward Island Real GDP Growth, 2018**

(by industry/sector, percentage points; GDP, per cent)

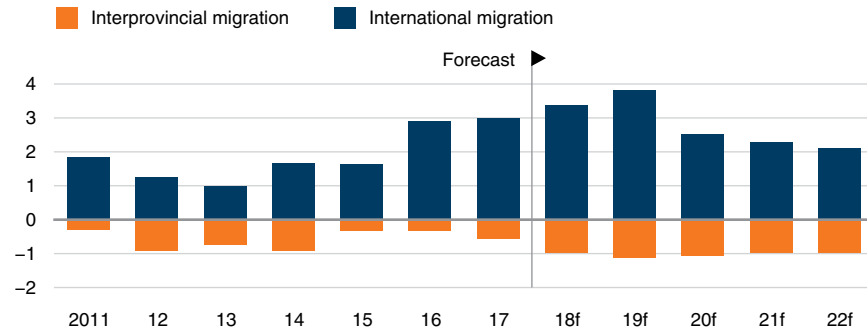


Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
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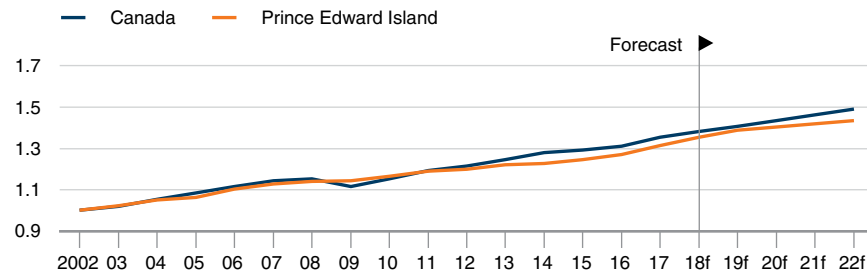
**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

### Key Economic Indicators: Prince Edward Island, 2017–19

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1    | 2017<br>Q2    | 2017<br>Q3    | 2017<br>Q4   | 2018<br>Q1    | 2018<br>Q2    | 2018<br>Q3   | 2018<br>Q4   | 2019<br>Q1   | 2019<br>Q2   | 2019<br>Q3   | 2019<br>Q4   | 2017         | 2018         | 2019         |
|-----------------------------------------------------------|---------------|---------------|---------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| GDP at market prices (\$ millions)                        | 6,623<br>-0.2 | 6,781<br>2.4  | 6,638<br>-2.1 | 6,745<br>1.6 | 6,848<br>1.5  | 6,925<br>1.1  | 7,089<br>2.4 | 7,147<br>0.8 | 7,217<br>1.0 | 7,272<br>0.8 | 7,328<br>0.8 | 7,381<br>0.7 | 6,697<br>5.9 | 7,002<br>4.6 | 7,300<br>4.2 |
| GDP at market prices (2007 \$ millions)                   | 5,333<br>1.7  | 5,466<br>2.5  | 5,377<br>-1.6 | 5,387<br>0.2 | 5,473<br>1.6  | 5,543<br>1.3  | 5,563<br>0.4 | 5,597<br>0.6 | 5,641<br>0.8 | 5,670<br>0.5 | 5,698<br>0.5 | 5,716<br>0.3 | 5,391<br>2.9 | 5,544<br>2.8 | 5,682<br>2.5 |
| GDP at basic prices (2007 \$ millions)                    | 4,821<br>1.7  | 4,946<br>2.6  | 4,874<br>-1.5 | 4,891<br>0.4 | 4,974<br>1.7  | 5,039<br>1.3  | 5,052<br>0.3 | 5,083<br>0.6 | 5,124<br>0.8 | 5,150<br>0.5 | 5,176<br>0.5 | 5,193<br>0.3 | 4,883<br>3.2 | 5,037<br>3.2 | 5,161<br>2.5 |
| Consumer price index (2002 = 1.0)                         | 1.321<br>0.4  | 1.333<br>0.9  | 1.336<br>0.2  | 1.339<br>0.2 | 1.351<br>0.9  | 1.364<br>1.0  | 1.372<br>0.5 | 1.378<br>0.5 | 1.382<br>0.3 | 1.388<br>0.4 | 1.394<br>0.4 | 1.401<br>0.5 | 1.332<br>1.8 | 1.366<br>2.6 | 1.391<br>1.8 |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.242<br>-1.8 | 1.240<br>-0.1 | 1.235<br>-0.5 | 1.252<br>1.4 | 1.251<br>-0.1 | 1.249<br>-0.1 | 1.274<br>2.0 | 1.277<br>0.2 | 1.279<br>0.2 | 1.282<br>0.2 | 1.286<br>0.3 | 1.291<br>0.4 | 1.242<br>2.9 | 1.263<br>1.7 | 1.285<br>1.7 |
| Wages and salary per employee (\$ 000s)                   | 38.6<br>-0.6  | 38.4<br>-0.5  | 39.4<br>2.6   | 39.5<br>0.4  | 39.2<br>-0.7  | 39.5<br>0.7   | 39.7<br>0.6  | 40.1<br>0.8  | 40.1<br>0.2  | 40.3<br>0.5  | 40.5<br>0.5  | 40.7<br>0.5  | 39.0<br>1.7  | 39.6<br>1.7  | 40.4<br>2.0  |
| Primary household income (\$ millions)                    | 4,613<br>-0.1 | 4,674<br>1.3  | 4,739<br>1.4  | 4,773<br>0.7 | 4,821<br>1.0  | 4,869<br>1.0  | 4,905<br>0.7 | 4,951<br>0.9 | 4,991<br>0.8 | 5,025<br>0.7 | 5,060<br>0.7 | 5,089<br>0.6 | 4,700<br>4.0 | 4,887<br>4.0 | 5,041<br>3.2 |
| Household disposable income (\$ millions)                 | 4,327<br>-0.9 | 4,394<br>1.6  | 4,483<br>2.0  | 4,502<br>0.4 | 4,556<br>1.2  | 4,601<br>1.0  | 4,633<br>0.7 | 4,680<br>1.0 | 4,701<br>0.5 | 4,736<br>0.7 | 4,769<br>0.7 | 4,802<br>0.7 | 4,427<br>5.3 | 4,617<br>4.3 | 4,752<br>2.9 |
| Household net savings rate (per cent)                     | -0.2          | 0.2           | 1.5           | 1.2          | 1.5           | 2.0           | 1.7          | 1.6          | 1.4          | 1.4          | 1.3          | 1.2          | 0.7          | 1.7          | 1.3          |
| Population (000s)                                         | 150<br>0.1    | 151<br>0.3    | 152<br>0.8    | 153<br>0.5   | 153<br>0.0    | 153<br>0.2    | 154<br>0.4   | 154<br>0.5   | 155<br>0.5   | 156<br>0.5   | 157<br>0.5   | 157<br>0.4   | 151<br>1.7   | 154<br>1.4   | 156<br>1.8   |
| Employment (000s)                                         | 73<br>1.5     | 74<br>1.8     | 74<br>-0.9    | 74<br>0.4    | 75<br>1.8     | 76<br>0.7     | 76<br>0.3    | 76<br>0.5    | 77<br>0.7    | 77<br>0.4    | 77<br>0.3    | 77<br>0.1    | 74<br>3.0    | 76<br>2.8    | 77<br>1.9    |
| Labour force (000s)                                       | 81<br>0.7     | 83<br>1.9     | 82<br>-1.2    | 82<br>0.1    | 84<br>2.6     | 84<br>0.1     | 84<br>-0.3   | 84<br>0.5    | 84<br>0.5    | 85<br>0.2    | 85<br>0.1    | 85<br>0.2    | 82<br>1.9    | 84<br>2.6    | 85<br>1.0    |
| Labour force participation rate (per cent)                | 66.0          | 66.8          | 65.8          | 65.7         | 67.2          | 67.0          | 66.7         | 66.7         | 66.7         | 66.5         | 66.3         | 66.1         | 66.1         | 66.9         | 66.4         |
| Unemployment rate (per cent)                              | 10.0          | 10.0          | 9.8           | 9.6          | 10.3          | 9.8           | 9.3          | 9.3          | 9.1          | 9.0          | 8.8          | 8.8          | 9.8          | 9.7          | 8.9          |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Prince Edward Island, 2015–17**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1   | 2017<br>Q2 | 2017<br>Q3  | 2017<br>Q4  | 2018<br>Q1  | 2018<br>Q2  | 2018<br>Q3 | 2018<br>Q4 | 2019<br>Q1  | 2019<br>Q2 | 2019<br>Q3  | 2019<br>Q4  | 2017        | 2018        | 2019       |
|--------------------------------------|--------------|------------|-------------|-------------|-------------|-------------|------------|------------|-------------|------------|-------------|-------------|-------------|-------------|------------|
| Retail sales (\$ millions)           | 2,317        | 2,317      | 2,339       | 2,424       | 2,437       | 2,428       | 2,444      | 2,464      | 2,476       | 2,487      | 2,494       | 2,503       | 2,349       | 2,443       | 2,490      |
|                                      | <i>2.5</i>   | <i>0.0</i> | <i>0.9</i>  | <i>3.6</i>  | <i>0.6</i>  | <i>-0.4</i> | <i>0.7</i> | <i>0.8</i> | <i>0.5</i>  | <i>0.4</i> | <i>0.3</i>  | <i>0.3</i>  | <i>6.3</i>  | <i>4.0</i>  | <i>1.9</i> |
| Housing starts (units, 000s)         | 885          | 925        | 918         | 916         | 832         | 1,191       | 1,230      | 1,230      | 1,220       | 1,224      | 1,200       | 1,169       | 911         | 1,121       | 1,203      |
|                                      | <i>161.8</i> | <i>4.5</i> | <i>-0.7</i> | <i>-0.3</i> | <i>-9.1</i> | <i>43.1</i> | <i>3.3</i> | <i>0.0</i> | <i>-0.8</i> | <i>0.3</i> | <i>-1.9</i> | <i>-2.6</i> | <i>63.8</i> | <i>23.0</i> | <i>7.4</i> |
| Net interprovincial migration (000s) | -0.3         | 0.4        | -1.4        | -1.0        | -0.7        | -1.0        | -1.1       | -1.1       | -1.1        | -1.1       | -1.1        | -1.1        | -0.6        | -1.0        | -1.1       |
| Net international migration (000s)   | 2.3          | 4.5        | 4.2         | 1.0         | 2.2         | 3.6         | 3.8        | 3.9        | 4.0         | 3.9        | 3.8         | 3.6         | 3.0         | 3.4         | 3.8        |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

### Key Economic Indicators: Prince Edward Island, 2020–22

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1   | 2020<br>Q2   | 2020<br>Q3   | 2020<br>Q4   | 2021<br>Q1   | 2021<br>Q2   | 2021<br>Q3   | 2021<br>Q4   | 2022<br>Q1   | 2022<br>Q2   | 2022<br>Q3   | 2022<br>Q4   | 2020         | 2021         | 2022         |
|-----------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| GDP at market prices (\$ millions)                        | 7,428<br>0.6 | 7,481<br>0.7 | 7,533<br>0.7 | 7,584<br>0.7 | 7,629<br>0.6 | 7,679<br>0.7 | 7,730<br>0.7 | 7,781<br>0.7 | 7,834<br>0.7 | 7,889<br>0.7 | 7,944<br>0.7 | 8,004<br>0.7 | 7,506<br>2.8 | 7,705<br>2.6 | 7,918<br>2.8 |
| GDP at market prices (2007 \$ millions)                   | 5,725<br>0.2 | 5,742<br>0.3 | 5,756<br>0.3 | 5,771<br>0.3 | 5,784<br>0.2 | 5,797<br>0.2 | 5,811<br>0.2 | 5,825<br>0.2 | 5,840<br>0.3 | 5,855<br>0.3 | 5,869<br>0.2 | 5,886<br>0.3 | 5,749<br>1.2 | 5,804<br>1.0 | 5,862<br>1.0 |
| GDP at basic prices (2007 \$ millions)                    | 5,202<br>0.2 | 5,218<br>0.3 | 5,232<br>0.3 | 5,246<br>0.3 | 5,258<br>0.2 | 5,271<br>0.3 | 5,285<br>0.3 | 5,298<br>0.2 | 5,313<br>0.3 | 5,328<br>0.3 | 5,343<br>0.3 | 5,359<br>0.3 | 5,225<br>1.2 | 5,278<br>1.0 | 5,336<br>1.1 |
| Consumer price index (2002 = 1.0)                         | 1.408<br>0.5 | 1.415<br>0.5 | 1.422<br>0.5 | 1.429<br>0.5 | 1.435<br>0.5 | 1.442<br>0.5 | 1.450<br>0.5 | 1.456<br>0.5 | 1.464<br>0.5 | 1.471<br>0.5 | 1.478<br>0.5 | 1.486<br>0.5 | 1.418<br>1.9 | 1.446<br>1.9 | 1.475<br>2.0 |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.297<br>0.5 | 1.303<br>0.4 | 1.309<br>0.4 | 1.314<br>0.4 | 1.319<br>0.4 | 1.325<br>0.4 | 1.330<br>0.4 | 1.336<br>0.4 | 1.341<br>0.4 | 1.347<br>0.4 | 1.354<br>0.5 | 1.360<br>0.5 | 1.306<br>1.6 | 1.327<br>1.7 | 1.351<br>1.7 |
| Wages and salary per employee (\$ 000s)                   | 41.0<br>0.6  | 41.2<br>0.5  | 41.4<br>0.6  | 41.7<br>0.6  | 41.9<br>0.5  | 42.1<br>0.6  | 42.3<br>0.5  | 42.6<br>0.5  | 42.8<br>0.5  | 43.0<br>0.5  | 43.2<br>0.5  | 43.4<br>0.5  | 41.3<br>2.2  | 42.2<br>2.2  | 43.1<br>2.1  |
| Primary household income (\$ millions)                    | 5,135<br>0.9 | 5,166<br>0.6 | 5,201<br>0.7 | 5,235<br>0.7 | 5,275<br>0.8 | 5,310<br>0.7 | 5,344<br>0.7 | 5,380<br>0.7 | 5,428<br>0.9 | 5,463<br>0.7 | 5,498<br>0.6 | 5,532<br>0.6 | 5,184<br>2.8 | 5,327<br>2.8 | 5,480<br>2.9 |
| Household disposable income (\$ millions)                 | 4,835<br>0.7 | 4,873<br>0.8 | 4,913<br>0.8 | 4,953<br>0.8 | 4,970<br>0.4 | 5,006<br>0.7 | 5,043<br>0.7 | 5,079<br>0.7 | 5,097<br>0.3 | 5,134<br>0.7 | 5,171<br>0.7 | 5,208<br>0.7 | 4,894<br>3.0 | 5,025<br>2.7 | 5,152<br>2.5 |
| Household net savings rate (per cent)                     | 1.1          | 1.1          | 1.0          | 1.0          | 0.9          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.0          | 1.1          | 1.0          | 1.0          |
| Population (000s)                                         | 158<br>0.4   | 158<br>0.3   | 159<br>0.3   | 159<br>0.2   | 160<br>0.2   | 160<br>0.2   | 160<br>0.2   | 161<br>0.2   | 161<br>0.2   | 161<br>0.2   | 161<br>0.2   | 162<br>0.2   | 159<br>1.5   | 160<br>0.9   | 161<br>0.8   |
| Employment (000s)                                         | 78<br>0.1    | 78<br>0.2    | 78<br>0.1    | 78<br>0.1    | 78<br>0.1    | 78<br>0.2    | 78<br>0.2    | 78<br>0.3    | 79<br>0.2    | 79<br>0.2    | 79<br>0.2    | 79<br>0.2    | 78<br>0.7    | 78<br>0.6    | 79<br>0.9    |
| Labour force (000s)                                       | 85<br>0.4    | 85<br>0.3    | 86<br>0.2    | 86<br>0.2    | 86<br>0.1    | 86<br>0.2    | 86<br>0.2    | 86<br>0.2    | 87<br>0.2    | 87<br>0.2    | 87<br>0.2    | 87<br>0.2    | 86<br>1.0    | 86<br>0.7    | 87<br>0.8    |
| Labour force participation rate (per cent)                | 66.1         | 66.1         | 66.0         | 66.0         | 66.0         | 65.9         | 65.9         | 65.8         | 65.8         | 65.8         | 65.8         | 65.8         | 66.0         | 65.9         | 65.8         |
| Unemployment rate (per cent)                              | 9.0          | 9.1          | 9.2          | 9.3          | 9.3          | 9.3          | 9.3          | 9.2          | 9.2          | 9.2          | 9.1          | 9.1          | 9.2          | 9.2          | 9.1          |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Prince Edward Island, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2           | 2020<br>Q3           | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2          | 2021<br>Q3          | 2021<br>Q4          | 2022<br>Q1          | 2022<br>Q2          | 2022<br>Q3          | 2022<br>Q4          | 2020                 | 2021                | 2022                |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|
| Retail sales (\$ millions)           | 2,520<br><i>0.7</i>  | 2,531<br><i>0.4</i>  | 2,543<br><i>0.5</i>  | 2,554<br><i>0.4</i>  | 2,563<br><i>0.4</i>  | 2,573<br><i>0.4</i> | 2,583<br><i>0.4</i> | 2,593<br><i>0.4</i> | 2,605<br><i>0.5</i> | 2,616<br><i>0.4</i> | 2,627<br><i>0.4</i> | 2,638<br><i>0.4</i> | 2,537<br><i>1.9</i>  | 2,578<br><i>1.6</i> | 2,622<br><i>1.7</i> |
| Housing starts (units, 000s)         | 1,141<br><i>-2.3</i> | 1,114<br><i>-2.4</i> | 1,086<br><i>-2.5</i> | 1,059<br><i>-2.5</i> | 1,019<br><i>-3.8</i> | 979<br><i>-3.9</i>  | 939<br><i>-4.1</i>  | 899<br><i>-4.3</i>  | 859<br><i>-4.4</i>  | 819<br><i>-4.6</i>  | 779<br><i>-4.9</i>  | 739<br><i>-5.1</i>  | 1,100<br><i>-8.6</i> | 959<br><i>-12.8</i> | 799<br><i>-16.7</i> |
| Net interprovincial migration (000s) | -1.1                 | -1.1                 | -1.1                 | -1.0                 | -1.0                 | -1.0                | -1.0                | -1.0                | -1.0                | -1.0                | -1.0                | -1.0                | -1.1                 | -1.0                | -1.0                |
| Net international migration (000s)   | 2.9                  | 2.6                  | 2.4                  | 2.3                  | 2.4                  | 2.3                 | 2.2                 | 2.2                 | 2.2                 | 2.1                 | 2.1                 | 2.1                 | 2.5                  | 2.3                 | 2.1                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.



NOVA SCOTIA

# Weaker Growth Ahead for Nova Scotia

## Chapter Summary

- Nova Scotia's economic growth is expected to be modest over the next year.
- Employment growth will be limited by population aging and a shortage of available labour.
- Prospects for the primary sector are weak, as both of the province's offshore natural gas operations are expected to shut down completely in the next few months.
- Mitigating the end of major investment projects is capital spending related to the plugging of the offshore natural gas wells.
- The provincial government is keeping things simple, with no major spending increases or tax cuts expected over the medium term.
- Exports are forecast to grow, thanks to CETA and high demand from Asia.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## NOVA SCOTIA

### Government and Background Information

|                              |                |
|------------------------------|----------------|
| Premier                      | Stephen McNeil |
| Next election                | 2021           |
| Population (2018Q2)          | 958,400        |
| Government balance (2018–19) | \$29.4 million |

Sources: The Conference Board of Canada; Nova Scotia Department of Finance; Statistics Canada.

### Forecast Risk

#### Short term

**Natural gas price increases**—a result of the shutdown of offshore production—could put pressure on household expenses and thereby weigh on household consumption.



#### Medium term

If recent international immigrants choose to stay in Nova Scotia, the positive impacts of the recent labour force gains could be sustained.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 1.0  | 1.1  | 0.5  |
| Consumer price index            | 1.1  | 2.5  | 2.2  |
| Household disposable income     | 4.6  | 2.2  | 1.8  |
| Employment                      | 0.7  | 1.2  | 0.0  |
| Unemployment rate (level)       | 8.4  | 7.5  | 7.6  |
| Retail sales                    | 7.8  | 3.0  | 1.7  |
| Wages and salaries per employee | 2.4  | 1.1  | 1.9  |
| Population                      | 0.6  | 0.6  | 0.5  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**Nova Scotia's economic growth will improve slightly this year. Overall, real GDP is forecast to grow by 1.1 per cent. However, economic growth will slow to just 0.5 per cent in 2019.**

Prospects in the primary sector are bleak, as both of the province's offshore natural gas operations are expected to shut down completely in the next few months. Growth in the manufacturing sector is expected to slow to 0.5 per cent next year, further weighing on GDP growth.

Nova Scotia's job market has been growing steadily over the past few months. Combined with healthy wage gains, the increase in jobs has led to strong growth in household consumption. However, going forward, labour markets will struggle as a growing number of aging workers retire from the labour force. Household consumption is forecast to remain flat this year and grow by 0.5 per cent next year.

Growth in real business investment is forecast to fall from 2.4 per cent this year to 1.2 per cent in 2019, as residential and machinery and equipment investment weakens. The lower value of the Canadian dollar and uncertain trade relations with the United States pose important risks to the business investment climate. Mitigating this uncertainty is the capital spending required to plug offshore natural gas wells.

Despite trade uncertainty with the United States, exports are forecast to increase by 1.5 per cent this year and 1.7 per cent next year thanks to the implementation of the Comprehensive Economic and Trade Agreement (CETA) with the European Union. Better conditions for the fishing sector are also expected to help on the export front.

To maintain its modest budget surplus, the Nova Scotia government is expected to avoid any significant increases in program spending or major personal or corporate tax changes. Growth in non-commercial services, which takes into account activity in the education and health care and social services sectors, is expected to remain flat as of next year, as the implementation period of the universal pre-primary education program is completed.

## Labour, Income, and Consumption Outlook

Nova Scotia's employment has been growing steadily over the past few months. The province is set to add 5,300 jobs to the economy this year, the largest gain since the Irving's shipbuilding program began in 2013. However, going forward, growth in employment will be limited by the availability of labour. Record-level immigration and positive interprovincial migration helped Nova Scotia's labour force grow over the past two years. But the workforce in Nova Scotia and the rest of Atlantic Canada is rapidly aging. As international immigration gains moderate and interprovincial migration falls back into negative territory due to the lure of tight labour markets in Central and Western Canada, there will not be enough people left to replace all the workers who leave the labour force for retirement.

Combined with stronger wage gains, household consumption is projected to grow 4.2 per cent this year. However, the underlying demographic trends influencing the employment outlook will moderate consumption. Overall, growth in household consumption is expected to fall to 0.5 per cent in 2019.

## Government Outlook

To maintain its healthy fiscal position, the Nova Scotia government is not expected to increase program spending significantly or make any major personal or corporate tax changes. The latest provincial budget, released in March, projects a surplus of \$29 million for fiscal 2018–19. The government is set on improving its long-term fiscal sustainability. Net debt as a share of GDP is forecast to fall from 34.9 per cent in 2017–18 to 32.1 per cent in 2021–22.

Areas benefiting from new spending are health care and education. An aging population and high hospital wait times are prompting the provincial government to invest more in attracting doctors to the province and retaining those that are already there. The education sector is expected to get a 2.0 per cent boost this year as the province rolls out

its universal pre-primary education program. Growth in non-commercial services is expected to remain flat as the boost from these education programs is phased out.

There are no plans for major infrastructure investments over the medium term. Overall, government investment is set to increase by 2.4 per cent this year and 1.7 per cent next year.

## Business Investment Outlook

Growth in real business investment is expected to slow from 2.0 per cent this year to 1.2 per cent in 2019, as residential and machinery and equipment investment tapers off. Housing starts are expected to reach 4,086 units this year (up from 3,985 in 2017) due to recent increases in population.

The Conference Board of Canada's latest business confidence survey, carried out in the spring, showed that business leaders are becoming more pessimistic about the state of the Canadian economy. Many businesses are delaying making investments, as they face concerns about the competitiveness of the economy in the face of U.S. tax cuts, the weak Canadian dollar, and the uncertainty surrounding the future of the North American Free Trade Agreement (NAFTA).

Mitigating some of the impact of this pessimism is the capital spending carried out to plug offshore natural gas wells. Both of the province's natural gas projects—Sable and Deep Panuke—are expected to shut down soon. And BP Canada and Encana will be making significant investments to make sure that these sites are closed in a safe and environmentally sound manner.

## Trade Outlook

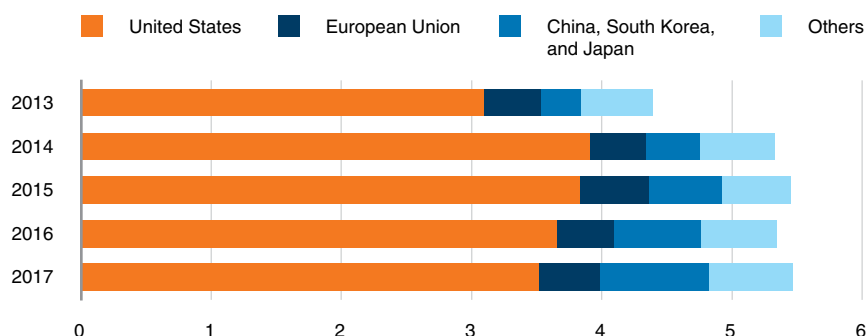
Overall, despite uncertainties surrounding the future of NAFTA, real exports are forecast to increase by 3.4 per cent this year and 2.1 per cent in 2019. These increases are attributable to the implementation of the CETA trade deal with the European Union. As well, Asia has become an increasingly popular destination for Nova Scotia's exports.

(See Chart 1.) Demand for the province's food products, especially seafood, is high. Cargo shipments from the Halifax International Airport are advancing at a rapid pace, with planes full of lobsters heading to Asia. Cargo shipments at the Port of Halifax are also accelerating. We expect the transportation and warehousing sector to advance at a pace of 3.2 per cent this year.

Chart 1

### Nova Scotia's Exports Destinations

(\$ billions)



Source: Statistics Canada

While the news from Asia and Europe is good, the United States remains Nova Scotia's largest trading partner, and forecast risks related to the U.S. weigh heavily on this forecast.

## Key Sectors

The primary sectors will weigh down economic growth in the province over the next two years. With both natural gas operations coming to an end, output in the mining sector is forecast to plunge by 19.5 per cent next year. On a positive note, gold mining has begun at Atlantic Gold's Touquoy Gold Mine. The project is part of the Moose River Consolidated Project, which contains three other potential mines.

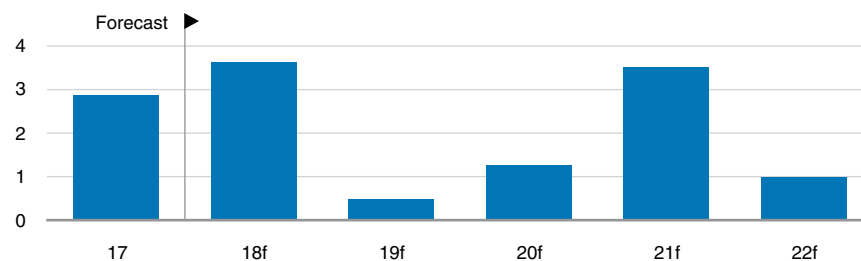
The fishing sector will also be facing some declines this year, with the impacts of shrimp quota cuts being felt again this year. However, rebounding conditions in the sector, combined with rising demand from Asia and Europe, will help the sector grow by 3.3 per cent next year.

Growth in the manufacturing sector is expected to be slower next year. However, this should be short-lived, as work on the Arctic and Offshore Patrol Ships project continues at the Irving shipbuilding facilities in Halifax. (See Chart 2.)

**Chart 2**

**Weaker Growth in Manufacturing Next Year**

(percentage change\*)



f = forecast

\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

The end of major projects and weak investment will cause the construction sector to contract by 1.8 per cent this year. With no major business or government projects on the horizon, growth in construction will be modest in 2019.

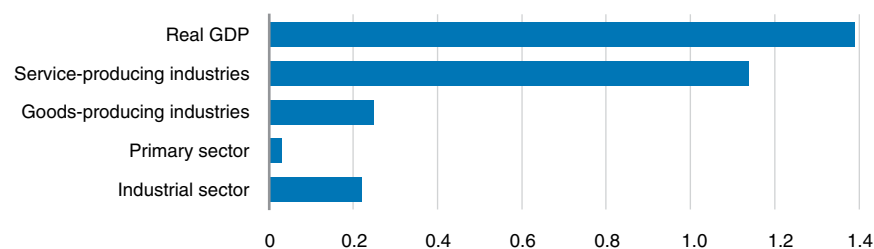
Service-producing industries will continue to be consistent contributors to economic growth. The service sector that is enjoying the largest growth this year is the transportation and warehousing sector, led by shipments of air and maritime cargo in and out of Halifax. The sector is also being aided by increased service offered by WestJet between Halifax and European destinations. Growth in the services side of the economy will slow to 0.8 per cent next year, as the implementation of the universal pre-primary education program will be completed by then.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

Chart 3

**Contributions to Nova Scotia Real GDP Growth, 2018**

(by industry/sector, percentage point; total GDP growth, per cent)



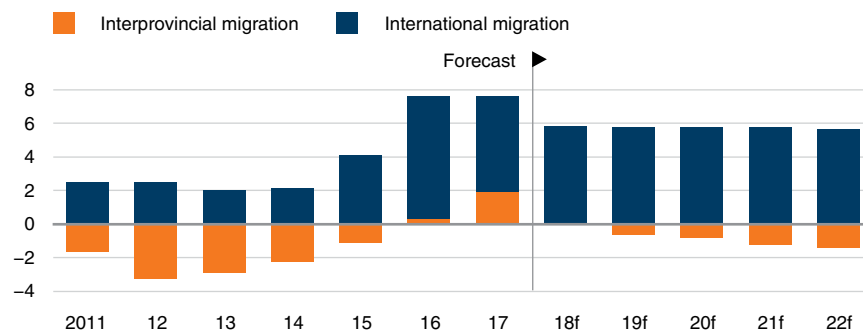
Note: "Primary" is the sum of the agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of the manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

Chart 4

**Sources of Migration**

(net migration, 000s)



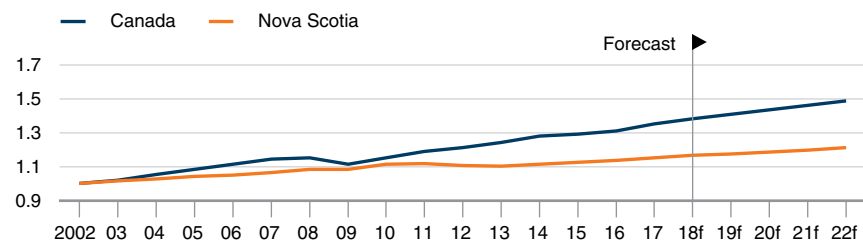
f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Chart 5

**Real GDP, 2002 to 2022**

(index, 2002 = 1.0)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.



Table 1a

**Key Economic Indicators: Nova Scotia, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2    | 2017<br>Q3     | 2017<br>Q4    | 2018<br>Q1     | 2018<br>Q2    | 2018<br>Q3     | 2018<br>Q4    | 2019<br>Q1    | 2019<br>Q2    | 2019<br>Q3    | 2019<br>Q4    | 2017          | 2018          | 2019          |
|-----------------------------------------------------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 42,581<br>-2.7 | 42,943<br>0.8 | 42,658<br>-0.7 | 43,307<br>1.5 | 43,648<br>0.8  | 43,720<br>0.2 | 44,361<br>1.5  | 44,505<br>0.3 | 44,718<br>0.5 | 44,944<br>0.5 | 45,182<br>0.5 | 45,435<br>0.6 | 42,872<br>2.7 | 44,059<br>2.8 | 45,070<br>2.3 |
| GDP at market prices (2007 \$ millions)                   | 36,589<br>-0.3 | 37,075<br>1.3 | 37,055<br>-0.1 | 37,295<br>0.6 | 37,379<br>0.2  | 37,392<br>0.0 | 37,417<br>0.1  | 37,431<br>0.0 | 37,499<br>0.2 | 37,562<br>0.2 | 37,631<br>0.2 | 37,710<br>0.2 | 37,004<br>1.0 | 37,405<br>1.1 | 37,600<br>0.5 |
| GDP at basic prices (2007 \$ millions)                    | 33,028<br>-0.3 | 33,499<br>1.4 | 33,537<br>0.1  | 33,815<br>0.8 | 33,920<br>0.3  | 33,945<br>0.1 | 33,928<br>-0.1 | 33,942<br>0.0 | 34,007<br>0.2 | 34,065<br>0.2 | 34,130<br>0.2 | 34,207<br>0.2 | 33,470<br>1.2 | 33,934<br>1.4 | 34,102<br>0.5 |
| Consumer price index (2002 = 1.0)                         | 1.316<br>0.5   | 1.322<br>0.4  | 1.328<br>0.4   | 1.329<br>0.1  | 1.343<br>1.0   | 1.352<br>0.7  | 1.362<br>0.7   | 1.371<br>0.7  | 1.378<br>0.5  | 1.384<br>0.4  | 1.390<br>0.4  | 1.397<br>0.5  | 1.324<br>1.1  | 1.357<br>2.5  | 1.387<br>2.2  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.164<br>-2.4  | 1.158<br>-0.5 | 1.151<br>-0.6  | 1.161<br>0.9  | 1.168<br>0.6   | 1.169<br>0.1  | 1.186<br>1.4   | 1.189<br>0.3  | 1.193<br>0.3  | 1.197<br>0.3  | 1.201<br>0.3  | 1.205<br>0.3  | 1.159<br>1.8  | 1.178<br>1.7  | 1.199<br>1.8  |
| Wages and salary per employee (\$ 000s)                   | 42.6<br>0.5    | 43.4<br>1.9   | 43.9<br>1.2    | 43.7<br>-0.3  | 43.4<br>-0.8   | 43.7<br>0.8   | 44.0<br>0.5    | 44.3<br>0.7   | 44.4<br>0.2   | 44.6<br>0.5   | 44.8<br>0.4   | 45.0<br>0.4   | 43.4<br>2.4   | 43.8<br>1.1   | 44.7<br>1.9   |
| Primary household income (\$ millions)                    | 31,411<br>0.3  | 32,001<br>1.9 | 32,287<br>0.9  | 32,430<br>0.4 | 32,473<br>0.1  | 32,683<br>0.6 | 32,784<br>0.3  | 32,933<br>0.5 | 33,118<br>0.6 | 33,257<br>0.4 | 33,385<br>0.4 | 33,525<br>0.4 | 32,032<br>3.4 | 32,719<br>2.1 | 33,321<br>1.8 |
| Household disposable income (\$ millions)                 | 27,665<br>-0.6 | 28,283<br>2.2 | 28,608<br>1.1  | 28,649<br>0.1 | 28,585<br>-0.2 | 28,873<br>1.0 | 29,041<br>0.6  | 29,210<br>0.6 | 29,215<br>0.0 | 29,379<br>0.6 | 29,536<br>0.5 | 29,690<br>0.5 | 28,301<br>4.6 | 28,927<br>2.2 | 29,455<br>1.8 |
| Household net savings rate (per cent)                     | -4.9           | -4.3          | -3.1           | -3.3          | -3.6           | -3.3          | -3.7           | -3.8          | -3.9          | -4.0          | -4.1          | -4.1          | -3.9          | -3.6          | -4.0          |
| Population (000s)                                         | 951<br>0.0     | 952<br>0.1    | 954<br>0.2     | 958<br>0.4    | 957<br>0.0     | 958<br>0.1    | 960<br>0.1     | 961<br>0.1    | 962<br>0.1    | 963<br>0.1    | 965<br>0.1    | 966<br>0.1    | 954<br>0.6    | 959<br>0.6    | 964<br>0.5    |
| Employment (000s)                                         | 449<br>0.4     | 449<br>0.0    | 448<br>-0.3    | 451<br>0.7    | 455<br>1.0     | 455<br>0.0    | 454<br>-0.1    | 454<br>-0.1   | 454<br>0.1    | 454<br>0.0    | 455<br>0.0    | 455<br>0.0    | 449<br>0.7    | 454<br>1.2    | 454<br>0.0    |
| Labour force (000s)                                       | 489<br>0.5     | 491<br>0.3    | 490<br>-0.1    | 493<br>0.5    | 494<br>0.2     | 490<br>-0.6   | 491<br>0.1     | 491<br>0.0    | 491<br>0.0    | 491<br>0.1    | 492<br>0.2    | 492<br>0.0    | 490<br>0.8    | 491<br>0.2    | 492<br>0.0    |
| Labour force participation rate (per cent)                | 61.8           | 62.0          | 61.8           | 62.0          | 62.0           | 61.5          | 61.5           | 61.5          | 61.4          | 61.3          | 61.4          | 61.3          | 61.9          | 61.6          | 61.4          |
| Unemployment rate (per cent)                              | 8.1            | 8.5           | 8.6            | 8.5           | 7.8            | 7.3           | 7.5            | 7.6           | 7.5           | 7.5           | 7.6           | 7.6           | 8.4           | 7.5           | 7.6           |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Nova Scotia, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1            | 2017<br>Q2           | 2017<br>Q3           | 2017<br>Q4            | 2018<br>Q1            | 2018<br>Q2           | 2018<br>Q3            | 2018<br>Q4           | 2019<br>Q1           | 2019<br>Q2           | 2019<br>Q3           | 2019<br>Q4           | 2017                 | 2018                 | 2019                  |
|--------------------------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|
| Retail sales (\$ millions)           | 15,336<br><i>1.4</i>  | 15,812<br><i>3.1</i> | 15,962<br><i>0.9</i> | 16,336<br><i>2.3</i>  | 16,181<br><i>-0.9</i> | 16,273<br><i>0.6</i> | 16,392<br><i>0.7</i>  | 16,474<br><i>0.5</i> | 16,501<br><i>0.2</i> | 16,573<br><i>0.4</i> | 16,637<br><i>0.4</i> | 16,699<br><i>0.4</i> | 15,861<br><i>7.8</i> | 16,330<br><i>3.0</i> | 16,603<br><i>1.7</i>  |
| Housing starts (units, 000s)         | 3,666<br><i>-17.3</i> | 4,614<br><i>25.9</i> | 4,327<br><i>-6.2</i> | 3,332<br><i>-23.0</i> | 4,363<br><i>30.9</i>  | 4,761<br><i>9.1</i>  | 3,608<br><i>-24.2</i> | 3,610<br><i>0.0</i>  | 3,666<br><i>1.5</i>  | 3,634<br><i>-0.9</i> | 3,602<br><i>-0.9</i> | 3,587<br><i>-0.4</i> | 3,985<br><i>5.8</i>  | 4,086<br><i>2.5</i>  | 3,622<br><i>-11.3</i> |
| Net interprovincial migration (000s) | 1.8                   | 1.2                  | 3.3                  | 1.2                   | 0.4                   | -0.1                 | -0.2                  | -0.4                 | -0.5                 | -0.6                 | -0.7                 | -0.7                 | 1.9                  | -0.1                 | -0.6                  |
| Net international migration (000s)   | 4.5                   | 7.7                  | 11.1                 | -0.4                  | 5.6                   | 6.0                  | 5.9                   | 5.8                  | 5.8                  | 5.7                  | 5.7                  | 5.7                  | 5.7                  | 5.8                  | 5.7                   |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Nova Scotia, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1    | 2020<br>Q2    | 2020<br>Q3    | 2020<br>Q4    | 2021<br>Q1    | 2021<br>Q2    | 2021<br>Q3    | 2021<br>Q4    | 2022<br>Q1    | 2022<br>Q2    | 2022<br>Q3    | 2022<br>Q4    | 2020          | 2021          | 2022          |
|-----------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 45,763<br>0.7 | 46,110<br>0.8 | 46,454<br>0.7 | 46,810<br>0.8 | 47,116<br>0.7 | 47,425<br>0.7 | 47,749<br>0.7 | 48,051<br>0.6 | 48,324<br>0.6 | 48,710<br>0.8 | 49,097<br>0.8 | 49,519<br>0.9 | 46,284<br>2.7 | 47,585<br>2.8 | 48,913<br>2.8 |
| GDP at market prices (2007 \$ millions)                   | 37,785<br>0.2 | 37,889<br>0.3 | 37,985<br>0.3 | 38,094<br>0.3 | 38,181<br>0.2 | 38,276<br>0.2 | 38,384<br>0.3 | 38,470<br>0.2 | 38,574<br>0.3 | 38,656<br>0.2 | 38,729<br>0.2 | 38,827<br>0.3 | 37,938<br>0.9 | 38,328<br>1.0 | 38,696<br>1.0 |
| GDP at basic prices (2007 \$ millions)                    | 34,280<br>0.2 | 34,381<br>0.3 | 34,474<br>0.3 | 34,578<br>0.3 | 34,660<br>0.2 | 34,752<br>0.3 | 34,856<br>0.3 | 34,941<br>0.2 | 35,043<br>0.3 | 35,124<br>0.2 | 35,199<br>0.2 | 35,297<br>0.3 | 34,428<br>1.0 | 34,802<br>1.1 | 35,166<br>1.0 |
| Consumer price index (2002 = 1.0)                         | 1.404<br>0.5  | 1.410<br>0.5  | 1.417<br>0.5  | 1.424<br>0.5  | 1.431<br>0.5  | 1.438<br>0.5  | 1.446<br>0.5  | 1.452<br>0.5  | 1.459<br>0.5  | 1.467<br>0.5  | 1.474<br>0.5  | 1.482<br>0.5  | 1.414<br>1.9  | 1.442<br>2.0  | 1.470<br>2.0  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.211<br>0.5  | 1.217<br>0.5  | 1.223<br>0.5  | 1.229<br>0.5  | 1.234<br>0.4  | 1.239<br>0.4  | 1.244<br>0.4  | 1.249<br>0.4  | 1.253<br>0.3  | 1.260<br>0.6  | 1.268<br>0.6  | 1.275<br>0.6  | 1.220<br>1.8  | 1.242<br>1.8  | 1.264<br>1.8  |
| Wages and salary per employee (\$ 000s)                   | 45.2<br>0.5   | 45.5<br>0.6   | 45.7<br>0.6   | 46.0<br>0.7   | 46.3<br>0.5   | 46.5<br>0.4   | 46.7<br>0.5   | 46.9<br>0.4   | 47.1<br>0.4   | 47.3<br>0.6   | 47.6<br>0.6   | 47.9<br>0.6   | 45.6<br>2.1   | 46.6<br>2.1   | 47.5<br>2.0   |
| Primary household income (\$ millions)                    | 33,777<br>0.8 | 33,954<br>0.5 | 34,154<br>0.6 | 34,397<br>0.7 | 34,723<br>0.9 | 34,896<br>0.5 | 35,086<br>0.5 | 35,274<br>0.5 | 35,619<br>1.0 | 35,850<br>0.6 | 36,080<br>0.6 | 36,318<br>0.7 | 34,071<br>2.2 | 34,995<br>2.7 | 35,967<br>2.8 |
| Household disposable income (\$ millions)                 | 29,783<br>0.3 | 29,975<br>0.6 | 30,187<br>0.7 | 30,421<br>0.8 | 30,540<br>0.4 | 30,721<br>0.6 | 30,916<br>0.6 | 31,104<br>0.6 | 31,191<br>0.3 | 31,410<br>0.7 | 31,627<br>0.7 | 31,852<br>0.7 | 30,092<br>2.2 | 30,820<br>2.4 | 31,520<br>2.3 |
| Household net savings rate (per cent)                     | −4.2          | −4.2          | −4.3          | −4.3          | −4.3          | −4.3          | −4.3          | −4.3          | −4.2          | −4.2          | −4.2          | −4.2          | −4.2          | −4.3          | −4.2          |
| Population (000s)                                         | 967<br>0.1    | 968<br>0.1    | 969<br>0.1    | 970<br>0.1    | 971<br>0.1    | 972<br>0.1    | 973<br>0.1    | 974<br>0.1    | 974<br>0.1    | 975<br>0.1    | 976<br>0.1    | 977<br>0.1    | 968<br>0.4    | 972<br>0.4    | 976<br>0.3    |
| Employment (000s)                                         | 455<br>0.0    | 455<br>0.0    | 455<br>0.0    | 455<br>0.1    | 455<br>0.1    | 456<br>0.0    | 456<br>0.1    | 456<br>0.0    | 457<br>0.1    | 457<br>0.1    | 457<br>0.1    | 458<br>0.1    | 455<br>0.1    | 456<br>0.2    | 457<br>0.3    |
| Labour force (000s)                                       | 492<br>0.0    | 493<br>0.0    | 493<br>0.1    | 493<br>0.0    | 493<br>0.1    | 493<br>0.0    | 494<br>0.0    | 494<br>0.0    | 493<br>0.0    | 493<br>0.0    | 493<br>0.0    | 493<br>0.0    | 493<br>0.2    | 494<br>0.2    | 493<br>0.0    |
| Labour force participation rate (per cent)                | 61.3          | 61.2          | 61.2          | 61.2          | 61.1          | 61.1          | 61.1          | 61.0          | 61.0          | 60.9          | 60.8          | 60.8          | 61.2          | 61.1          | 60.9          |
| Unemployment rate (per cent)                              | 7.6           | 7.7           | 7.7           | 7.7           | 7.7           | 7.7           | 7.7           | 7.6           | 7.5           | 7.4           | 7.3           | 7.2           | 7.7           | 7.6           | 7.3           |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Nova Scotia, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2           | 2020<br>Q3           | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2           | 2021<br>Q3           | 2021<br>Q4           | 2022<br>Q1           | 2022<br>Q2           | 2022<br>Q3           | 2022<br>Q4           | 2020                 | 2021                 | 2022                 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 16,778<br><i>0.5</i> | 16,862<br><i>0.5</i> | 16,954<br><i>0.5</i> | 17,061<br><i>0.6</i> | 17,166<br><i>0.6</i> | 17,236<br><i>0.4</i> | 17,316<br><i>0.5</i> | 17,391<br><i>0.4</i> | 17,490<br><i>0.6</i> | 17,588<br><i>0.6</i> | 17,687<br><i>0.6</i> | 17,789<br><i>0.6</i> | 16,914<br><i>1.9</i> | 17,277<br><i>2.1</i> | 17,639<br><i>2.1</i> |
| Housing starts (units, 000s)         | 3,539<br><i>-1.3</i> | 3,517<br><i>-0.6</i> | 3,483<br><i>-1.0</i> | 3,450<br><i>-0.9</i> | 3,416<br><i>-1.0</i> | 3,383<br><i>-1.0</i> | 3,351<br><i>-1.0</i> | 3,318<br><i>-1.0</i> | 3,287<br><i>-0.9</i> | 3,256<br><i>-0.9</i> | 3,225<br><i>-0.9</i> | 3,195<br><i>-0.9</i> | 3,497<br><i>-3.4</i> | 3,367<br><i>-3.7</i> | 3,241<br><i>-3.7</i> |
| Net interprovincial migration (000s) | -0.7                 | -0.8                 | -0.9                 | -0.9                 | -1.1                 | -1.2                 | -1.3                 | -1.3                 | -1.4                 | -1.4                 | -1.4                 | -1.4                 | -0.8                 | -1.2                 | -1.4                 |
| Net international migration (000s)   | 5.7                  | 5.7                  | 5.7                  | 5.7                  | 5.8                  | 5.8                  | 5.7                  | 5.7                  | 5.7                  | 5.7                  | 5.7                  | 5.6                  | 5.7                  | 5.7                  | 5.7                  |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

NEW BRUNSWICK

# Lack of Workforce Growth Will Slow Economic Growth

## Chapter Summary

- New Brunswick's economic growth is expected to slow this year.
- Despite high levels of immigration, the growing number of retirements and negative interprovincial migration will limit labour force growth.
- NB Power projects will help to offset pessimism in business investment.
- The Comprehensive Economic and Trade Agreement with the European Union will help exports grow over the next two years.
- Service-producing industries are expected to contribute the most to New Brunswick's economic gains.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## NEW BRUNSWICK

### Government and Background Information

|                              |                    |
|------------------------------|--------------------|
| Premier                      | Brian Gallant      |
| Next election                | September 24, 2018 |
| Population (2018Q2)          | 761,214            |
| Government balance (2018–19) | –\$187 million     |

Sources: The Conference Board of Canada; New Brunswick Department of Finance; Statistics Canada.

### Forecast Risk

#### Short term

Higher-than-anticipated production of refined petroleum products could provide a boost to overall real GDP growth.



#### Medium term

Shortages of skilled labour could constrain economic growth.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 1.7  | 0.6  | 1.2  |
| Consumer price index            | 2.3  | 2.3  | 1.7  |
| Household disposable income     | 4.6  | 2.6  | 1.6  |
| Employment                      | 0.4  | 0.7  | 0.4  |
| Unemployment rate (level)       | 8.1  | 7.7  | 7.2  |
| Retail sales                    | 6.8  | 0.1  | 1.5  |
| Wages and salaries per employee | 3.0  | 2.8  | 1.3  |
| Population                      | 0.3  | 0.3  | 0.2  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**Following stronger economic growth in 2017, New Brunswick's economy is expected to grow by just 0.6 per cent this year. Real GDP is forecast to advance by 1.2 per cent next year.**

The main factor behind the more modest outlook is the province's workforce. In Atlantic Canada, the population is aging faster pace than in other parts of the country. At the same time, a high number of people are leaving for job opportunities in other provinces. That combination will keep labour force growth stagnant despite strong international immigration. These demographic trends heavily influence household consumption, which is expected to remain flat over the next two years.

Public investment will take a back seat to private sector activity starting next year. Although most of the work on the Mactaquac Generating Station will occur in the next decade, spending on the project is expected to start as soon as next year. This will help to sustain activity in the construction sector.

Real exports are forecast to grow by 1.9 per cent next year. The implementation of the Comprehensive and Economic Trade Agreement (CETA) with the European Union, as well as better conditions in the fishing sector, will support export growth. However, there are significant risks to this outlook, as New Brunswick is among the provinces that are the most reliant on trade with the United States. The forestry and wood manufacturing sectors are already feeling the impacts of the trade disputes with the U.S., as they are dealing with tariffs imposed by the U.S. Department of Commerce late last year.

New Brunswick's service industries will continue to contribute positively to the province's economic outlook. Many large corporations, including TD and WestJet, are setting up business services centres in Saint John and Moncton. This is expected to translate into 3.3 per cent growth for the professional services sector this year.

## Labour, Income, and Consumption Outlook

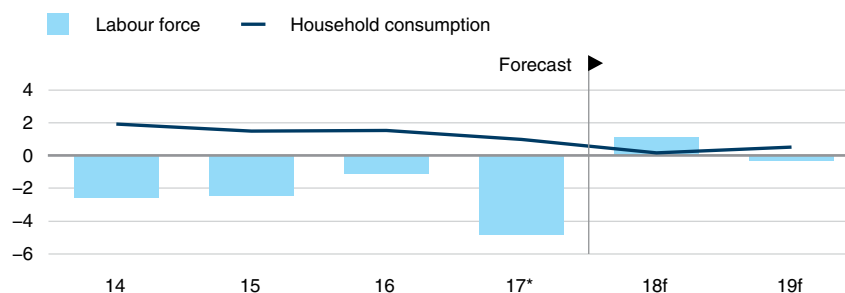
Employment has been growing steadily over the past year. Around 3,000 jobs are expected to be added to New Brunswick's economy this year. Most of these gains—around 2,500—will be in the health care sector as the provincial government provides more health care services to an aging population. The employment gains, however, will not be enough to make up for the past decade of job losses in the province.

Labour force growth will continue to constrain economic growth. While the province is seeing record-level immigration, 4,883 people left the labour force last year. Out-migration to other provinces remains a significant challenge for the province. As Alberta's economy continues to improve, many New Brunswickers will be lured out West by good job opportunities. Add to that the growing number of people retiring, and the labour force is not expected to grow over the medium term. (See Chart 1.)

Chart 1

### New Brunswick's Declining Labour Force

(change in labour force, 000s; household consumption, percentage change)



\*2017 household consumption is forecast data

Sources: The Conference Board of Canada; Statistics Canada.

These demographic trends heavily influence household consumption, which is also not expected to grow over the next two years. With hopes of slowing the number of departures from the province, the



provincial government's latest budget laid out strategies to increase youth employment. These plans include strategies to attract and retain international students to New Brunswick's post-secondary institutions.

## Government Outlook

The latest fiscal estimates were released on July 23, and they showed a \$1.3-million improvement in the deficit, relative to the figures presented in the January provincial budget. The provincial government now forecasts a deficit of \$187.4 million for the 2018–19 fiscal year. Although expenses are up due to spring flooding, revenues from the federal government are helping to offset some of those costs.

Government investment is forecast to rise by 12.3 per cent this year and 6.5 per cent in 2019, as the provincial government is making significant investments in the areas of health and education.

Creating more certainty for the province's fiscal situation over the medium term is the federal government's decision to keep the existing equalization payment formula in place until at least 2024. However, important downside risks are also present. These risks include the looming threat of the cancellation of the North American Free Trade Agreement (NAFTA) which would hurt New Brunswick's economy.

## Business Investment Outlook

Overall, real business investment is expected to grow by 6.7 per cent this year and 2.9 per cent next year. Offsetting losses in non-residential investment is activity in the residential segment. Last year's elevated immigration spurred demand for housing. Although housing starts are forecast to decline this year, residential investment is forecast to increase by 11.9 per cent this year, as projects that were begun last year have yet to be completed. Housing starts are forecast to rise from 2,135 units this year to 2,159 units in 2019.

Although most of the work on the Mactaquac Generating Station will occur in the next decade, capital spending on the project is expected to start as soon as next year. This will help to sustain activity in the

construction sector. Capital spending on this project will help to offset the negative impact on investment caused by the pessimism felt by business leaders about the state of the Canadian economy. Many businesses are delaying making investments due to concerns about the competitiveness of the economy in the face of U.S. tax cuts, the weak Canadian dollar, and the uncertainty surrounding the future of NAFTA.

## Trade Outlook

Real exports are forecast to grow by 1.9 per cent next year. The implementation of the CETA trade deal with the European Union, as well as better conditions in the fishing sector, will support export growth.

However, there are significant risks to this outlook, as New Brunswick is among the provinces that are the most reliant on trade with the United States. The forestry and wood manufacturing sectors are already feeling the impacts of the trade disputes with the U.S., as they are dealing with tariffs imposed by the U.S. Department of Commerce late last year. The outcome of the negotiations is difficult to predict given the political climate in the United States and Mexico.

## Key Sectors

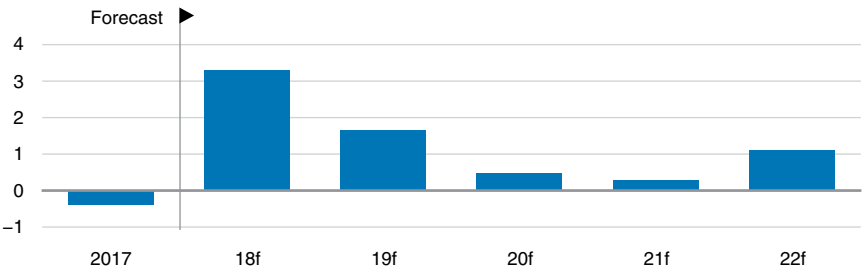
The primary sector will contribute little to economic growth this year, due to difficulties in the fishing sector. The fishing season was shortened this year as officials investigate the cause of deaths among North Atlantic right whales in the Gulf of St. Lawrence. Prompting the investigation are reports that several members of this endangered species died due to being struck by ships or entangled in fishing gear.

The manufacturing sector is forecast to grow by just 0.6 per cent this year, as the wood products segment is dealing with steep tariffs imposed by the United States. The sector is expected to post a gain of 1.5 per cent next year.

Large contributors to economic growth going forward will be the services-producing sectors. Many large companies are setting up business centres in the province. TD—one of Canada's

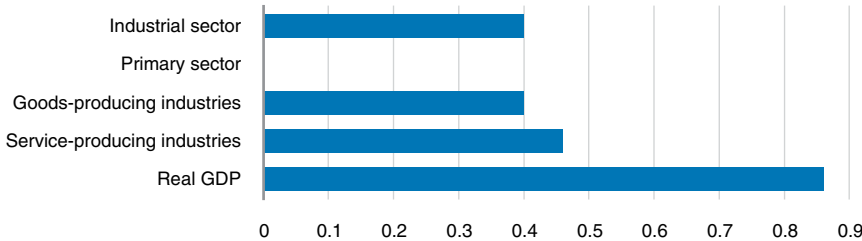
biggest banks—is becoming an important employer in the province, with call centres in Moncton and Saint John. TD will also be opening a financial centre in Dieppe in January, which will be responsible for the bank’s general accounting, reporting, and transaction processing. Other large companies with service centres in New Brunswick include Tangerine, WestJet, and Medavie. Overall, the professional and technical services industry is expected to advance by 3.3 per cent this year. (See Chart 2.) Increased spending on health care services will help non-commercial services rise 1.0 per cent this year and 0.6 per cent in 2019.

**Chart 2**  
**Business Service Centres Driving Professional and Technical Services Growth**  
(Industry growth, per cent)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

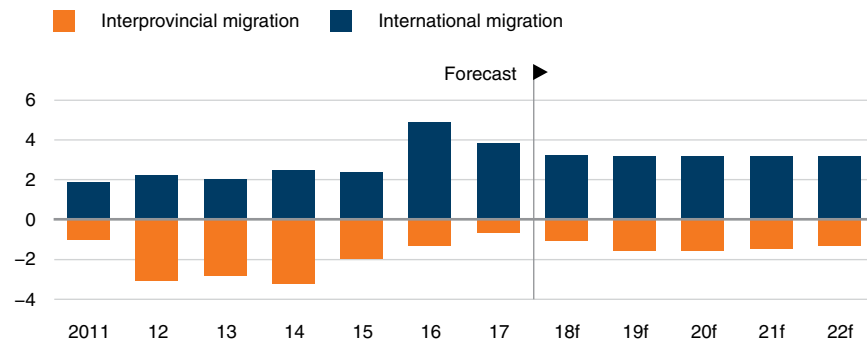
**Chart 3**  
**Contributions to New Brunswick Real GDP Growth, 2018**  
(by industry/sector, percentage point; total GDP growth, per cent)



Note: "Primary" is the sum of the agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of the manufacturing, construction, and utilities sectors.  
Sources: The Conference Board of Canada; Statistics Canada.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

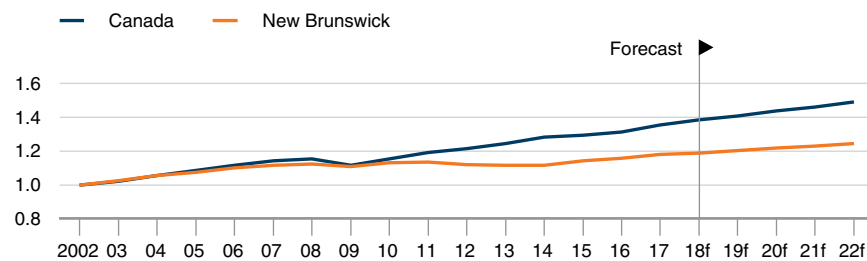
**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: New Brunswick, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2    | 2017<br>Q3    | 2017<br>Q4    | 2018<br>Q1     | 2018<br>Q2    | 2018<br>Q3    | 2018<br>Q4    | 2019<br>Q1    | 2019<br>Q2    | 2019<br>Q3    | 2019<br>Q4    | 2017          | 2018          | 2019          |
|-----------------------------------------------------------|----------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 34,973<br>-1.1 | 35,274<br>0.9 | 35,633<br>1.0 | 36,419<br>2.2 | 36,261<br>-0.4 | 36,317<br>0.2 | 36,637<br>0.9 | 36,898<br>0.7 | 37,247<br>0.9 | 37,447<br>0.5 | 37,679<br>0.6 | 37,910<br>0.6 | 35,575<br>4.0 | 36,528<br>2.7 | 37,571<br>2.9 |
| GDP at market prices (2007 \$ millions)                   | 29,563<br>1.0  | 29,822<br>0.9 | 29,964<br>0.5 | 30,099<br>0.5 | 29,951<br>-0.5 | 29,992<br>0.1 | 30,050<br>0.2 | 30,126<br>0.3 | 30,250<br>0.4 | 30,331<br>0.3 | 30,425<br>0.3 | 30,516<br>0.3 | 29,862<br>1.7 | 30,030<br>0.6 | 30,381<br>1.2 |
| GDP at basic prices (2007 \$ millions)                    | 27,034<br>1.0  | 27,298<br>1.0 | 27,473<br>0.6 | 27,647<br>0.6 | 27,535<br>-0.4 | 27,583<br>0.2 | 27,603<br>0.1 | 27,674<br>0.3 | 27,792<br>0.4 | 27,867<br>0.3 | 27,956<br>0.3 | 28,043<br>0.3 | 27,363<br>1.9 | 27,599<br>0.9 | 27,914<br>1.1 |
| Consumer price index (2002 = 1.0)                         | 1.302<br>1.0   | 1.312<br>0.7  | 1.314<br>0.2  | 1.320<br>0.5  | 1.333<br>1.0   | 1.338<br>0.4  | 1.345<br>0.5  | 1.351<br>0.5  | 1.356<br>0.3  | 1.362<br>0.4  | 1.368<br>0.4  | 1.374<br>0.4  | 1.312<br>2.3  | 1.342<br>2.3  | 1.365<br>1.7  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.183<br>-2.1  | 1.183<br>0.0  | 1.189<br>0.5  | 1.210<br>1.7  | 1.211<br>0.1   | 1.211<br>0.0  | 1.219<br>0.7  | 1.225<br>0.5  | 1.231<br>0.5  | 1.235<br>0.3  | 1.238<br>0.3  | 1.242<br>0.3  | 1.191<br>2.3  | 1.216<br>2.1  | 1.237<br>1.7  |
| Wages and salary per employee (\$ 000s)                   | 43.5<br>0.1    | 43.9<br>1.0   | 44.4<br>1.1   | 44.8<br>0.9   | 45.1<br>0.7    | 45.4<br>0.6   | 45.5<br>0.2   | 45.6<br>0.3   | 45.7<br>0.2   | 45.9<br>0.4   | 46.1<br>0.5   | 46.3<br>0.4   | 44.1<br>3.0   | 45.4<br>2.8   | 46.0<br>1.3   |
| Primary household income (\$ millions)                    | 23,976<br>-0.7 | 24,220<br>1.0 | 24,451<br>1.0 | 24,772<br>1.3 | 24,849<br>0.3  | 25,118<br>1.1 | 25,185<br>0.3 | 25,251<br>0.3 | 25,391<br>0.6 | 25,489<br>0.4 | 25,616<br>0.5 | 25,732<br>0.5 | 24,355<br>3.2 | 25,101<br>3.1 | 25,557<br>1.8 |
| Household disposable income (\$ millions)                 | 22,711<br>-1.1 | 23,010<br>1.3 | 23,257<br>1.1 | 23,419<br>0.7 | 23,431<br>0.1  | 23,691<br>1.1 | 23,776<br>0.4 | 23,866<br>0.4 | 23,880<br>0.1 | 24,004<br>0.5 | 24,132<br>0.5 | 24,243<br>0.5 | 23,099<br>4.6 | 23,691<br>2.6 | 24,065<br>1.6 |
| Household net savings rate (per cent)                     | 2.8            | 3.1           | 4.1           | 4.0           | 3.8            | 4.4           | 4.1           | 4.0           | 3.8           | 3.7           | 3.7           | 3.6           | 3.5           | 4.1           | 3.7           |
| Population (000s)                                         | 758<br>-0.1    | 758<br>0.0    | 760<br>0.2    | 761<br>0.2    | 761<br>0.0     | 761<br>0.1    | 762<br>0.0    | 762<br>0.0    | 762<br>0.0    | 763<br>0.0    | 763<br>0.0    | 763<br>0.0    | 759<br>0.3    | 761<br>0.3    | 763<br>0.2    |
| Employment (000s)                                         | 353<br>-0.3    | 352<br>0.0    | 352<br>-0.1   | 355<br>0.7    | 354<br>-0.3    | 356<br>0.7    | 356<br>0.1    | 356<br>0.0    | 357<br>0.1    | 357<br>0.0    | 357<br>0.1    | 358<br>0.1    | 353<br>0.4    | 356<br>0.7    | 357<br>0.4    |
| Labour force (000s)                                       | 386<br>-1.0    | 384<br>-0.6   | 381<br>-0.8   | 386<br>1.3    | 386<br>0.1     | 385<br>-0.2   | 385<br>-0.2   | 385<br>0.0    | 385<br>0.0    | 385<br>0.0    | 385<br>0.0    | 385<br>0.0    | 384<br>-1.3   | 385<br>0.3    | 385<br>-0.1   |
| Labour force participation rate (per cent)                | 61.8           | 61.5          | 60.9          | 61.7          | 61.6           | 61.4          | 61.3          | 61.3          | 61.2          | 61.2          | 61.2          | 61.2          | 61.5          | 61.4          | 61.2          |
| Unemployment rate (per cent)                              | 8.6            | 8.1           | 7.4           | 8.0           | 8.4            | 7.6           | 7.3           | 7.3           | 7.2           | 7.3           | 7.2           | 7.1           | 8.1           | 7.7           | 7.2           |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: New Brunswick, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1           | 2017<br>Q2           | 2017<br>Q3           | 2017<br>Q4           | 2018<br>Q1            | 2018<br>Q2            | 2018<br>Q3            | 2018<br>Q4           | 2019<br>Q1           | 2019<br>Q2           | 2019<br>Q3           | 2019<br>Q4           | 2017                 | 2018                 | 2019                 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 12,534<br><i>4.1</i> | 12,729<br><i>1.6</i> | 12,809<br><i>0.6</i> | 13,096<br><i>2.2</i> | 12,802<br><i>-2.2</i> | 12,738<br><i>-0.5</i> | 12,811<br><i>0.6</i>  | 12,858<br><i>0.4</i> | 12,901<br><i>0.3</i> | 12,964<br><i>0.5</i> | 13,027<br><i>0.5</i> | 13,078<br><i>0.4</i> | 12,792<br><i>6.8</i> | 12,802<br><i>0.1</i> | 12,993<br><i>1.5</i> |
| Housing starts (units, 000s)         | 1,992<br><i>0.8</i>  | 2,076<br><i>4.2</i>  | 2,056<br><i>-1.0</i> | 3,171<br><i>54.2</i> | 2,161<br><i>-31.9</i> | 2,251<br><i>4.2</i>   | 2,018<br><i>-10.4</i> | 2,111<br><i>4.6</i>  | 2,225<br><i>5.4</i>  | 2,152<br><i>-3.3</i> | 2,131<br><i>-1.0</i> | 2,126<br><i>-0.3</i> | 2,324<br><i>26.4</i> | 2,135<br><i>-8.1</i> | 2,159<br><i>1.1</i>  |
| Net interprovincial migration (000s) | -0.6                 | 0.1                  | -2.0                 | -0.1                 | 0.6                   | -1.6                  | -1.6                  | -1.6                 | -1.6                 | -1.6                 | -1.6                 | -1.6                 | -0.6                 | -1.1                 | -1.6                 |
| Net international migration (000s)   | 1.7                  | 6.6                  | 6.4                  | 0.8                  | 2.9                   | 3.5                   | 3.4                   | 3.3                  | 3.2                  | 3.2                  | 3.1                  | 3.1                  | 3.8                  | 3.2                  | 3.2                  |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: New Brunswick, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1    | 2020<br>Q2    | 2020<br>Q3    | 2020<br>Q4    | 2021<br>Q1    | 2021<br>Q2    | 2021<br>Q3    | 2021<br>Q4    | 2022<br>Q1    | 2022<br>Q2    | 2022<br>Q3    | 2022<br>Q4    | 2020          | 2021          | 2022          |
|-----------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 38,196<br>0.8 | 38,538<br>0.9 | 38,857<br>0.8 | 39,187<br>0.8 | 39,448<br>0.7 | 39,740<br>0.7 | 39,999<br>0.7 | 40,268<br>0.7 | 40,577<br>0.8 | 40,897<br>0.8 | 41,222<br>0.8 | 41,566<br>0.8 | 38,694<br>3.0 | 39,864<br>3.0 | 41,065<br>3.0 |
| GDP at market prices (2007 \$ millions)                   | 30,599<br>0.3 | 30,692<br>0.3 | 30,775<br>0.3 | 30,866<br>0.3 | 30,933<br>0.2 | 31,005<br>0.2 | 31,080<br>0.2 | 31,164<br>0.3 | 31,249<br>0.3 | 31,331<br>0.3 | 31,413<br>0.3 | 31,505<br>0.3 | 30,733<br>1.2 | 31,045<br>1.0 | 31,375<br>1.1 |
| GDP at basic prices (2007 \$ millions)                    | 28,123<br>0.3 | 28,214<br>0.3 | 28,295<br>0.3 | 28,383<br>0.3 | 28,447<br>0.2 | 28,518<br>0.3 | 28,592<br>0.3 | 28,675<br>0.3 | 28,759<br>0.3 | 28,841<br>0.3 | 28,923<br>0.3 | 29,015<br>0.3 | 28,254<br>1.2 | 28,558<br>1.1 | 28,885<br>1.1 |
| Consumer price index (2002 = 1.0)                         | 1.381<br>0.5  | 1.387<br>0.5  | 1.394<br>0.5  | 1.400<br>0.5  | 1.407<br>0.5  | 1.414<br>0.5  | 1.421<br>0.5  | 1.428<br>0.5  | 1.435<br>0.5  | 1.442<br>0.5  | 1.450<br>0.5  | 1.457<br>0.5  | 1.390<br>1.9  | 1.418<br>2.0  | 1.446<br>2.0  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.248<br>0.5  | 1.256<br>0.6  | 1.263<br>0.6  | 1.270<br>0.6  | 1.275<br>0.4  | 1.282<br>0.5  | 1.287<br>0.4  | 1.292<br>0.4  | 1.298<br>0.5  | 1.305<br>0.5  | 1.312<br>0.5  | 1.319<br>0.5  | 1.259<br>1.8  | 1.284<br>2.0  | 1.309<br>1.9  |
| Wages and salary per employee (\$ 000s)                   | 46.5<br>0.6   | 46.8<br>0.5   | 47.0<br>0.6   | 47.4<br>0.6   | 47.6<br>0.5   | 47.8<br>0.5   | 48.0<br>0.4   | 48.2<br>0.5   | 48.5<br>0.6   | 48.8<br>0.5   | 49.0<br>0.5   | 49.3<br>0.6   | 46.9<br>2.1   | 47.9<br>2.1   | 48.9<br>2.1   |
| Primary household income (\$ millions)                    | 25,942<br>0.8 | 26,089<br>0.6 | 26,258<br>0.6 | 26,437<br>0.7 | 26,658<br>0.8 | 26,805<br>0.6 | 26,939<br>0.5 | 27,084<br>0.5 | 27,347<br>1.0 | 27,501<br>0.6 | 27,665<br>0.6 | 27,835<br>0.6 | 26,181<br>2.4 | 26,872<br>2.6 | 27,587<br>2.7 |
| Household disposable income (\$ millions)                 | 24,311<br>0.3 | 24,457<br>0.6 | 24,623<br>0.7 | 24,803<br>0.7 | 24,871<br>0.3 | 25,032<br>0.6 | 25,175<br>0.6 | 25,334<br>0.6 | 25,402<br>0.3 | 25,550<br>0.6 | 25,704<br>0.6 | 25,863<br>0.6 | 24,548<br>2.0 | 25,103<br>2.3 | 25,630<br>2.1 |
| Household net savings rate (per cent)                     | 3.5           | 3.5           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.4           | 3.5           | 3.4           | 3.4           |
| Population (000s)                                         | 763<br>0.0    | 763<br>0.0    | 764<br>0.0    | 764<br>0.0    | 764<br>0.0    | 764<br>0.0    | 765<br>0.0    | 765<br>0.0    | 765<br>0.0    | 765<br>0.0    | 765<br>0.0    | 765<br>0.0    | 764<br>0.1    | 764<br>0.1    | 765<br>0.1    |
| Employment (000s)                                         | 358<br>0.1    | 358<br>0.1    | 359<br>0.1    | 359<br>0.1    | 359<br>0.0    | 359<br>0.0    | 360<br>0.1    | 360<br>0.1    | 360<br>0.0    | 360<br>0.1    | 360<br>0.0    | 360<br>0.0    | 358<br>0.4    | 359<br>0.3    | 360<br>0.2    |
| Labour force (000s)                                       | 385<br>0.0    | 385<br>0.0    | 385<br>0.1    | 385<br>0.1    | 386<br>0.1    | 386<br>0.1    | 386<br>0.0    | 387<br>0.1    | 387<br>0.1    | 387<br>-0.1   | 386<br>-0.1   | 386<br>-0.1   | 385<br>0.1    | 386<br>0.3    | 386<br>0.1    |
| Labour force participation rate (per cent)                | 61.1          | 61.1          | 61.1          | 61.2          | 61.2          | 61.2          | 61.2          | 61.2          | 61.2          | 61.2          | 61.1          | 61.0          | 61.1          | 61.2          | 61.1          |
| Unemployment rate (per cent)                              | 7.0           | 6.9           | 6.9           | 6.9           | 6.9           | 7.0           | 6.9           | 6.9           | 7.0           | 6.9           | 6.8           | 6.6           | 6.9           | 6.9           | 6.8           |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: New Brunswick, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2           | 2020<br>Q3           | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2           | 2021<br>Q3           | 2021<br>Q4           | 2022<br>Q1           | 2022<br>Q2           | 2022<br>Q3           | 2022<br>Q4           | 2020                 | 2021                 | 2022                 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 13,147<br><i>0.5</i> | 13,217<br><i>0.5</i> | 13,296<br><i>0.6</i> | 13,383<br><i>0.7</i> | 13,457<br><i>0.6</i> | 13,531<br><i>0.6</i> | 13,594<br><i>0.5</i> | 13,667<br><i>0.5</i> | 13,752<br><i>0.6</i> | 13,819<br><i>0.5</i> | 13,890<br><i>0.5</i> | 13,964<br><i>0.5</i> | 13,261<br><i>2.1</i> | 13,562<br><i>2.3</i> | 13,856<br><i>2.2</i> |
| Housing starts (units, 000s)         | 2,105<br><i>-1.0</i> | 2,077<br><i>-1.3</i> | 2,111<br><i>1.6</i>  | 2,122<br><i>0.5</i>  | 2,069<br><i>-2.5</i> | 2,056<br><i>-0.6</i> | 2,048<br><i>-0.4</i> | 2,053<br><i>0.3</i>  | 2,036<br><i>-0.9</i> | 2,018<br><i>-0.9</i> | 2,001<br><i>-0.9</i> | 1,984<br><i>-0.9</i> | 2,104<br><i>-2.5</i> | 2,057<br><i>-2.2</i> | 2,010<br><i>-2.3</i> |
| Net interprovincial migration (000s) | -1.6                 | -1.6                 | -1.6                 | -1.6                 | -1.5                 | -1.5                 | -1.4                 | -1.4                 | -1.4                 | -1.3                 | -1.3                 | -1.2                 | -1.6                 | -1.5                 | -1.3                 |
| Net international migration (000s)   | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.2                  | 3.1                  | 3.2                  | 3.2                  | 3.2                  |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.



QUEBEC

# Tariffs Hurt Trade Prospects

## Chapter Summary

- Overall real GDP growth will remain strong this year but will ease off to 1.6 per cent in 2019 and then average 1.4 per cent over 2020–22.
- Construction will grow by 5.1 per cent in 2018 as a number of major projects get under way.
- Unemployment will fall to 5.0 per cent by the end of this year and is not forecast to increase over the next few years.
- A shortage of skilled labour will keep the pressure on wages, which are anticipated to grow at a pace well above inflation.
- U.S. tariffs on aluminum are hurting Quebec's exports of goods internationally, which will decline by 2.2 per cent this year.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## QUEBEC

### Government and Background Information

Premier Philippe Couillard

Next election October 1, 2018

Population (2018Q2) 8,455,402

Government balance (2018–19) \$0

Sources: The Conference Board of Canada; Ministère des Finances du Québec; Statistics Canada.

### Forecast Risk

#### Short term

If the U.S. puts in place more protectionist trade policies, Quebec's exports would suffer and the provincial trade balance would worsen.



#### Medium term

If Quebec succeeds in attracting more qualified workers to the province, it could alleviate shortages of skilled labour.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 3.0  | 2.3  | 1.6  |
| Consumer price index            | 1.1  | 1.9  | 1.7  |
| Household disposable income     | 5.7  | 4.5  | 2.5  |
| Employment                      | 2.2  | 1.2  | 0.7  |
| Unemployment rate (level)       | 6.0  | 5.3  | 5.0  |
| Retail sales                    | 5.5  | 3.4  | 2.5  |
| Wages and salaries per employee | 2.5  | 3.2  | 2.2  |
| Population                      | 0.9  | 1.0  | 0.8  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**Montréal is currently home to more than \$15 billion in transit and road infrastructure projects, so it is no surprise that 2018 will be a vibrant year for the industry. Those projects make a difference: Quebec's economy is forecast to grow by 2.3 per cent in 2018, the province's second-best performance since the last recession. Moving forward, the pace of growth will slow to 1.6 per cent in 2019.**

Employment is high, wages are growing, and inflation has been subdued for some time. That has given Quebecers more money to spend, but the pace of spending will ease. The population is aging, and the number of retirees is growing. With unemployment hovering near all-time lows, there is less room for job growth. On the other hand, as inflation begins to accelerate, rising prices will eat into household disposable income.

A shortage of labour will be a problem for businesses. It will become more and more difficult to expand or even maintain production levels by hiring new workers. Businesses will have to invest in productive capital, such as new machines or more efficient tools, so more can be done with less. Quebec has not excelled in this area in recent years; that is beginning to turn around, but not in a big way. Investment spending will be only slightly more than what is needed to make up for the depreciation of existing capital.

Finally, trade continues to be a problem. Most of Canada's aluminum operations are in Quebec, and they now face 10 per cent tariffs in U.S. markets—putting a dent in their performance. Trade will detract from the bottom line again in 2018 but will begin to recover next year. However, the risk of an escalating global trade war adds uncertainty to the outlook.

## Consumption

Quebec's job market is on a hot streak. More than 61 per cent of working-age Quebecers have a job, and the number of unemployed has fallen by a fifth since the end of 2016. But this smaller pool of job

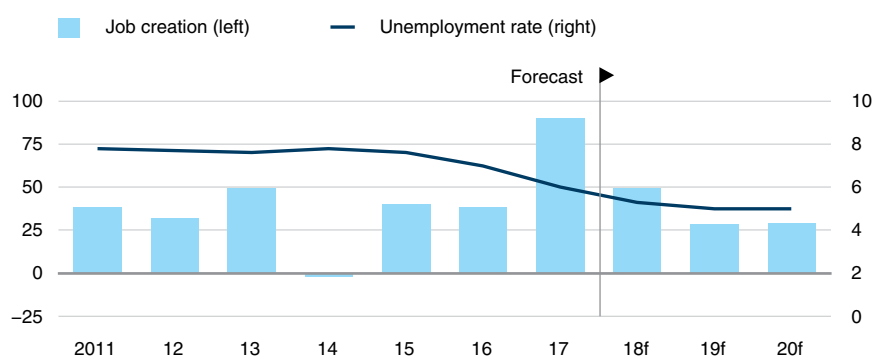
PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

searchers makes it harder for companies to hire, meaning last year's jump in employment is unlikely to be repeated. (See Chart 1.) Quebec's aging population will continue to restrain the provincial labour force and keep unemployment low, but only about 30,000 jobs will be added each year after 2018.

**Chart 1**

**Jobs Are Becoming Harder to Fill**

(jobs, 000s; unemployment rate, per cent)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Those Quebecers who do remain in the labour force can expect to find jobs more easily. As more and more Quebecers approach their retirement years, employers will compete to attract and retain talent, helping to push wage growth up to 3.2 per cent this year, 1.3 percentage points higher than inflation. In the coming years, however, inflation will begin to pick up as the economy grows closer to potential, constraining real wage gains.

With fewer jobs being created each year, total income will expand more slowly. Disposable income grew by 5.7 per cent in 2017 and will rise another 4.5 per cent in 2018. The performance in those two years was boosted by 140,000 new jobs and by tax cuts, but disposable income growth will settle to around 2.5 per cent over the next four years.

Households will spend 2.4 per cent more in 2018 than last year on consumer goods and services, but growth will ease to just 1.4 per cent in the years that follow as durable goods purchases cool.

## Investment

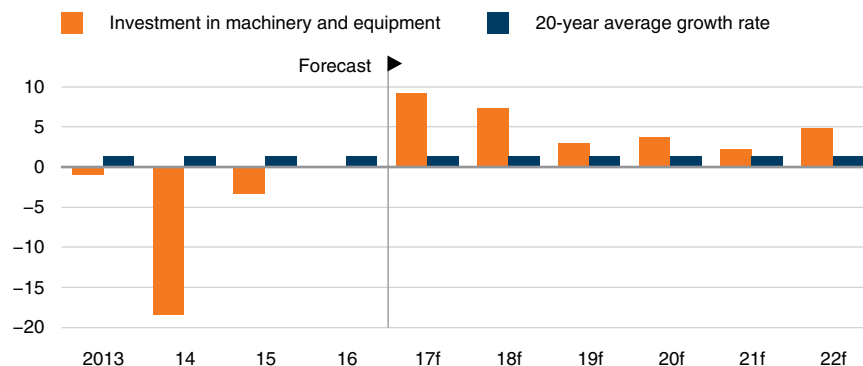
Consumers powered Quebec's economy last year, but businesses are now taking the reins. Total investment spending fell by an average 1.2 per cent annually over the last five years, but that has now turned a corner. In 2018, total investment will rise by 4.4 per cent, with growth averaging 2.0 per cent over the 2019–22 period.

The most sizable contribution to investment will come from the private sector. Businesses had been holding back on investment plans since the last recession but finally loosened the purse strings in 2017. (See Chart 2.) Going forward, the pressures from an aging workforce will persuade companies to spend more on new machines and tools. Investment spending on machinery and equipment will therefore advance 7.3 per cent in 2018 and 3.0 per cent in 2019.

Chart 2

### Businesses Are investing Again

(percentage change\*)



f = forecast

\*based on chained 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

Government-funded projects will also make a strong showing. In Montréal, construction on the Champlain Bridge is chugging along as the consortium responsible for construction aims for a December opening; road work is ongoing on the Turcot interchange; and, although considered a private initiative for investment purposes, the government-owned Caisse de dépôt et placement du Québec broke ground on its light rail network in April. Those three projects alone add up to \$14 billion.

Quebec's housing market has been on a tear lately. Just three years ago, developers had finished more than 5,600 housing units that they could not sell, but job growth and wage gains have helped whittle down that number by almost 40 per cent. Builders will break ground on another 48,716 new housing units in 2018, the most the province has seen since 2010. However, Quebec's demographic needs will not support this kind of growth forever. As fewer new buyers enter the market, the housing starts will fall back to around 40,000 per year over 2019–22. Residential investment will grow by another 3.9 per cent this year before falling to 2.2 per cent in 2019.

## Government

Quebecers will head to the polls on October 1, 2018. The provincial budget is safely balanced, and net debt will fall below 40 per cent of GDP by 2022. However, since the last election, 215,791 voters have turned 65, and that number will double by the next election in 2022. This shift will become a bigger challenge for governments over the next few years. Health care costs soar as the population ages, while retirements squeeze the tax base. As a result, governments will be forced to keep tight control over expenditures, which will rise by 2.9 per cent this year, but by an average of only 0.9 per cent per year over the following four years.

## Trade

As the domestic economy begins to cool down, Quebec's import needs will taper off. Still, at least for this year, the performance by exports will be worse. In all, that means Quebec's trade deficit will widen to 5 per

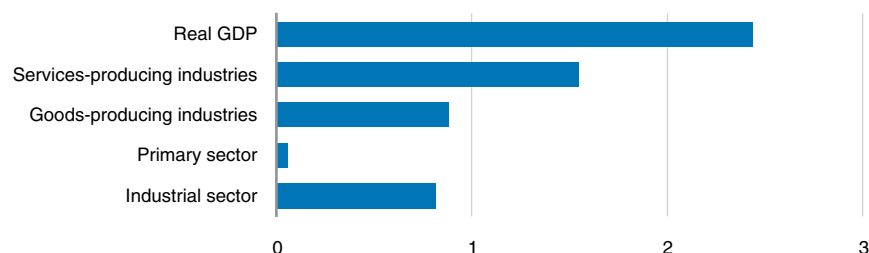
cent of total GDP by the end of 2018. Exports to other provinces will do well, so things will begin to fare better overall in 2019. However, that could be jeopardized if international trade disappoints again.

Selling aluminum products in the U.S. became 10 per cent more expensive at the end of May 2018, when President Trump announced that Canada's exemption from steel and aluminum tariffs would end. Quebec is one of the provinces hit hardest by these tariffs: almost two-thirds of Canada's aluminum exports originated in Quebec in 2017, and the province produces just over half of the country's iron ore, the most important component in steel. The situation will improve in 2019, due mainly to new mining production and electricity exports but, with the looming threat of a trade war with the province's largest export partner, the risks in the forecast are considerable.

### Chart 3

#### Contributions to Quebec Real GDP Growth, 2018

(by industry/sector, percentage points; GDP, per cent)

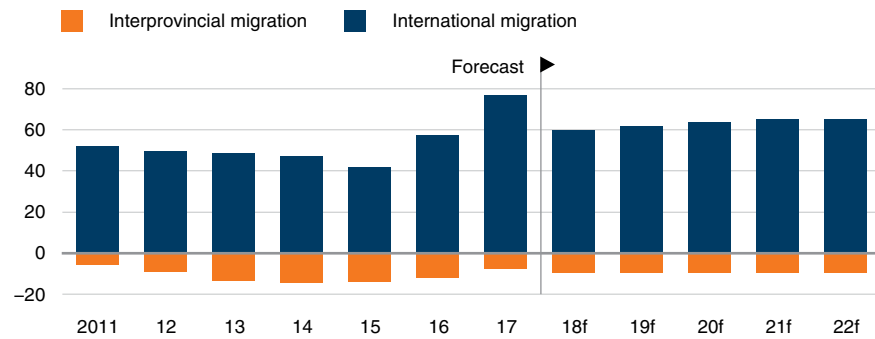


Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

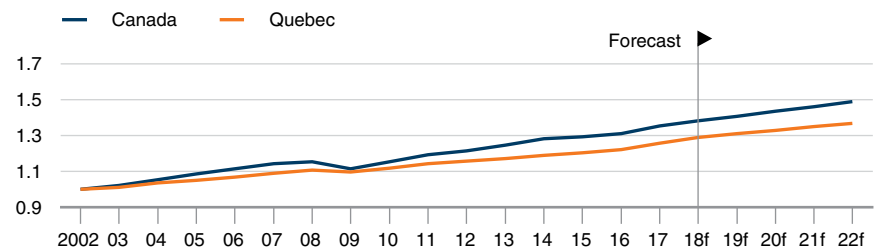
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**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.



Table 1a

**Key Economic Indicators: Quebec, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1      | 2017<br>Q2     | 2017<br>Q3     | 2017<br>Q4      | 2018<br>Q1     | 2018<br>Q2     | 2018<br>Q3     | 2018<br>Q4     | 2019<br>Q1     | 2019<br>Q2     | 2019<br>Q3     | 2019<br>Q4     | 2017           | 2018           | 2019           |
|-----------------------------------------------------------|-----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 408,951<br>1.3  | 412,545<br>0.9 | 415,843<br>0.8 | 422,067<br>1.5  | 426,146<br>1.0 | 430,766<br>1.1 | 434,194<br>0.8 | 436,655<br>0.6 | 441,175<br>1.0 | 444,386<br>0.7 | 447,724<br>0.8 | 451,289<br>0.8 | 414,852<br>5.1 | 431,940<br>4.1 | 446,143<br>3.3 |
| GDP at market prices (2007 \$ millions)                   | 348,580<br>0.8  | 351,791<br>0.9 | 355,980<br>1.2 | 357,909<br>0.5  | 359,469<br>0.4 | 361,253<br>0.5 | 362,621<br>0.4 | 364,032<br>0.4 | 365,476<br>0.4 | 366,870<br>0.4 | 368,330<br>0.4 | 369,751<br>0.4 | 353,565<br>3.0 | 361,844<br>2.3 | 367,607<br>1.6 |
| GDP at basic prices (2007 \$ millions)                    | 321,409<br>-0.3 | 327,112<br>1.8 | 333,408<br>1.9 | 332,821<br>-0.2 | 334,254<br>0.4 | 336,373<br>0.6 | 337,416<br>0.3 | 338,750<br>0.4 | 340,128<br>0.4 | 341,435<br>0.4 | 342,824<br>0.4 | 344,190<br>0.4 | 328,688<br>3.1 | 336,698<br>2.4 | 342,144<br>1.6 |
| Consumer price index (2002 = 1.0)                         | 1.265<br>0.7    | 1.269<br>0.3   | 1.268<br>-0.1  | 1.275<br>0.5    | 1.283<br>0.7   | 1.290<br>0.5   | 1.298<br>0.6   | 1.304<br>0.5   | 1.307<br>0.3   | 1.313<br>0.4   | 1.318<br>0.4   | 1.324<br>0.4   | 1.269<br>1.1   | 1.294<br>1.9   | 1.316<br>1.7   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.173<br>0.6    | 1.173<br>0.0   | 1.168<br>-0.4  | 1.179<br>0.9    | 1.185<br>0.5   | 1.192<br>0.6   | 1.197<br>0.4   | 1.199<br>0.2   | 1.207<br>0.6   | 1.211<br>0.3   | 1.216<br>0.4   | 1.221<br>0.4   | 1.173<br>2.0   | 1.194<br>1.7   | 1.214<br>1.7   |
| Wages and salary per employee (\$ 000s)                   | 42.8<br>1.1     | 43.0<br>0.5    | 43.5<br>1.4    | 43.8<br>0.7     | 44.3<br>1.1    | 44.6<br>0.6    | 44.7<br>0.2    | 45.0<br>0.6    | 45.3<br>0.7    | 45.5<br>0.5    | 45.8<br>0.5    | 46.0<br>0.6    | 43.3<br>2.5    | 44.7<br>3.2    | 45.7<br>2.2    |
| Primary household income (\$ millions)                    | 281,600<br>0.7  | 285,217<br>1.3 | 290,430<br>1.8 | 294,581<br>1.4  | 297,873<br>1.1 | 299,303<br>0.5 | 300,457<br>0.4 | 302,627<br>0.7 | 305,297<br>0.9 | 307,169<br>0.6 | 309,117<br>0.6 | 311,170<br>0.7 | 287,957<br>4.6 | 300,065<br>4.2 | 308,189<br>2.7 |
| Household disposable income (\$ millions)                 | 238,023<br>0.5  | 241,684<br>1.5 | 246,401<br>2.0 | 249,648<br>1.3  | 252,023<br>1.0 | 254,557<br>1.0 | 255,705<br>0.5 | 257,542<br>0.7 | 258,709<br>0.5 | 260,480<br>0.7 | 262,268<br>0.7 | 264,134<br>0.7 | 243,939<br>5.7 | 254,957<br>4.5 | 261,397<br>2.5 |
| Household net savings rate (per cent)                     | 5.4             | 5.8            | 7.0            | 7.1             | 7.3            | 6.8            | 6.4            | 6.3            | 6.3            | 6.2            | 6.1            | 6.0            | 6.3            | 6.7            | 6.2            |
| Population (000s)                                         | 8,352<br>0.1    | 8,366<br>0.2   | 8,394<br>0.3   | 8,426<br>0.4    | 8,440<br>0.2   | 8,455<br>0.2   | 8,473<br>0.2   | 8,489<br>0.2   | 8,504<br>0.2   | 8,521<br>0.2   | 8,538<br>0.2   | 8,555<br>0.2   | 8,384<br>0.9   | 8,464<br>1.0   | 8,529<br>0.8   |
| Employment (000s)                                         | 4,193<br>0.2    | 4,212<br>0.4   | 4,234<br>0.5   | 4,265<br>0.7    | 4,270<br>0.1   | 4,267<br>-0.1  | 4,277<br>0.3   | 4,288<br>0.3   | 4,295<br>0.1   | 4,301<br>0.2   | 4,307<br>0.1   | 4,314<br>0.2   | 4,226<br>2.2   | 4,276<br>1.2   | 4,304<br>0.7   |
| Labour force (000s)                                       | 4,477<br>0.0    | 4,486<br>0.2   | 4,500<br>0.3   | 4,512<br>0.3    | 4,519<br>0.2   | 4,509<br>-0.2  | 4,509<br>0.0   | 4,513<br>0.1   | 4,518<br>0.1   | 4,525<br>0.2   | 4,534<br>0.2   | 4,542<br>0.2   | 4,494<br>1.0   | 4,512<br>0.4   | 4,530<br>0.4   |
| Labour force participation rate (per cent)                | 64.8            | 64.8           | 64.8           | 64.9            | 64.9           | 64.6           | 64.6           | 64.6           | 64.5           | 64.5           | 64.5           | 64.5           | 64.8           | 64.7           | 64.5           |
| Unemployment rate (per cent)                              | 6.3             | 6.1            | 5.9            | 5.5             | 5.5            | 5.4            | 5.1            | 5.0            | 4.9            | 5.0            | 5.0            | 5.0            | 6.0            | 5.3            | 5.0            |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Quebec, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1  | 2017<br>Q2   | 2017<br>Q3  | 2017<br>Q4  | 2018<br>Q1  | 2018<br>Q2  | 2018<br>Q3   | 2018<br>Q4  | 2019<br>Q1  | 2019<br>Q2  | 2019<br>Q3  | 2019<br>Q4  | 2017        | 2018       | 2019         |
|--------------------------------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|--------------|
| Retail sales (\$ millions)           | 123,975     | 124,955      | 124,705     | 129,259     | 129,222     | 129,429     | 130,181      | 131,073     | 132,027     | 132,833     | 133,626     | 134,462     | 125,723     | 129,976    | 133,237      |
|                                      | <i>1.7</i>  | <i>0.8</i>   | <i>-0.2</i> | <i>3.7</i>  | <i>0.0</i>  | <i>0.2</i>  | <i>0.6</i>   | <i>0.7</i>  | <i>0.7</i>  | <i>0.6</i>  | <i>0.6</i>  | <i>0.6</i>  | <i>5.5</i>  | <i>3.4</i> | <i>2.5</i>   |
| Housing starts (units, 000s)         | 46,145      | 40,686       | 44,572      | 54,576      | 49,419      | 54,862      | 45,391       | 45,191      | 44,974      | 42,248      | 42,008      | 41,756      | 46,495      | 48,716     | 42,747       |
|                                      | <i>16.8</i> | <i>-11.8</i> | <i>9.6</i>  | <i>22.4</i> | <i>-9.4</i> | <i>11.0</i> | <i>-17.3</i> | <i>-0.4</i> | <i>-0.5</i> | <i>-6.1</i> | <i>-0.6</i> | <i>-0.6</i> | <i>19.4</i> | <i>4.8</i> | <i>-12.3</i> |
| Net interprovincial migration (000s) | -3.2        | -13.5        | -9.9        | -4.0        | -3.0        | -12.7       | -11.6        | -10.7       | -10.0       | -9.4        | -9.1        | -8.9        | -7.6        | -9.5       | -9.3         |
| Net international migration (000s)   | 53.6        | 105.6        | 106.0       | 43.1        | 63.9        | 59.4        | 57.3         | 58.8        | 60.2        | 61.4        | 62.3        | 63.0        | 77.0        | 59.9       | 61.7         |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Quebec, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1     | 2020<br>Q2     | 2020<br>Q3     | 2020<br>Q4     | 2021<br>Q1     | 2021<br>Q2     | 2021<br>Q3     | 2021<br>Q4     | 2022<br>Q1     | 2022<br>Q2     | 2022<br>Q3     | 2022<br>Q4     | 2020           | 2021           | 2022           |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 454,632<br>0.7 | 458,750<br>0.9 | 462,754<br>0.9 | 466,609<br>0.8 | 470,137<br>0.8 | 473,625<br>0.7 | 477,235<br>0.8 | 480,806<br>0.7 | 484,778<br>0.8 | 488,782<br>0.8 | 492,766<br>0.8 | 496,982<br>0.9 | 460,686<br>3.3 | 475,451<br>3.2 | 490,827<br>3.2 |
| GDP at market prices (2007 \$ millions)                   | 370,746<br>0.3 | 372,201<br>0.4 | 373,553<br>0.4 | 374,966<br>0.4 | 376,390<br>0.4 | 377,608<br>0.3 | 378,873<br>0.3 | 380,152<br>0.3 | 381,392<br>0.3 | 382,628<br>0.3 | 383,819<br>0.3 | 385,074<br>0.3 | 372,867<br>1.4 | 378,256<br>1.4 | 383,228<br>1.3 |
| GDP at basic prices (2007 \$ millions)                    | 345,167<br>0.3 | 346,584<br>0.4 | 347,902<br>0.4 | 349,272<br>0.4 | 350,636<br>0.4 | 351,825<br>0.3 | 353,070<br>0.4 | 354,327<br>0.4 | 355,554<br>0.3 | 356,785<br>0.3 | 357,977<br>0.3 | 359,240<br>0.4 | 347,231<br>1.5 | 352,465<br>1.5 | 357,389<br>1.4 |
| Consumer price index (2002 = 1.0)                         | 1.331<br>0.5   | 1.337<br>0.5   | 1.344<br>0.5   | 1.350<br>0.5   | 1.357<br>0.5   | 1.364<br>0.5   | 1.371<br>0.5   | 1.377<br>0.5   | 1.384<br>0.5   | 1.391<br>0.5   | 1.398<br>0.5   | 1.405<br>0.5   | 1.341<br>1.9   | 1.367<br>2.0   | 1.394<br>2.0   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.226<br>0.5   | 1.233<br>0.5   | 1.239<br>0.5   | 1.244<br>0.5   | 1.249<br>0.4   | 1.254<br>0.4   | 1.260<br>0.4   | 1.265<br>0.4   | 1.271<br>0.5   | 1.277<br>0.5   | 1.284<br>0.5   | 1.291<br>0.5   | 1.235<br>1.8   | 1.257<br>1.7   | 1.281<br>1.9   |
| Wages and salary per employee (\$ 000s)                   | 46.3<br>0.6    | 46.6<br>0.6    | 46.9<br>0.6    | 47.2<br>0.6    | 47.4<br>0.6    | 47.7<br>0.5    | 47.9<br>0.5    | 48.2<br>0.5    | 48.5<br>0.6    | 48.8<br>0.6    | 49.0<br>0.6    | 49.3<br>0.6    | 46.7<br>2.4    | 47.8<br>2.3    | 48.9<br>2.3    |
| Primary household income (\$ millions)                    | 313,761<br>0.8 | 316,115<br>0.8 | 318,546<br>0.8 | 320,972<br>0.8 | 323,953<br>0.9 | 326,192<br>0.7 | 328,494<br>0.7 | 330,902<br>0.7 | 334,184<br>1.0 | 336,739<br>0.8 | 339,258<br>0.7 | 341,851<br>0.8 | 317,348<br>3.0 | 327,385<br>3.2 | 338,008<br>3.2 |
| Household disposable income (\$ millions)                 | 264,629<br>0.2 | 266,676<br>0.8 | 268,806<br>0.8 | 270,960<br>0.8 | 271,396<br>0.2 | 273,404<br>0.7 | 275,461<br>0.8 | 277,592<br>0.8 | 277,842<br>0.1 | 280,097<br>0.8 | 282,324<br>0.8 | 284,612<br>0.8 | 267,768<br>2.4 | 274,463<br>2.5 | 281,219<br>2.5 |
| Household net savings rate (per cent)                     | 6.1            | 6.0            | 6.0            | 5.9            | 6.0            | 6.0            | 6.0            | 6.0            | 6.1            | 6.1            | 6.1            | 6.1            | 6.0            | 6.0            | 6.1            |
| Population (000s)                                         | 8,572<br>0.2   | 8,589<br>0.2   | 8,605<br>0.2   | 8,622<br>0.2   | 8,639<br>0.2   | 8,656<br>0.2   | 8,673<br>0.2   | 8,690<br>0.2   | 8,706<br>0.2   | 8,723<br>0.2   | 8,740<br>0.2   | 8,756<br>0.2   | 8,597<br>0.8   | 8,664<br>0.8   | 8,731<br>0.8   |
| Employment (000s)                                         | 4,320<br>0.2   | 4,330<br>0.2   | 4,338<br>0.2   | 4,345<br>0.2   | 4,352<br>0.2   | 4,359<br>0.2   | 4,367<br>0.2   | 4,375<br>0.2   | 4,384<br>0.2   | 4,392<br>0.2   | 4,401<br>0.2   | 4,409<br>0.2   | 4,333<br>0.7   | 4,363<br>0.7   | 4,396<br>0.8   |
| Labour force (000s)                                       | 4,552<br>0.2   | 4,559<br>0.2   | 4,567<br>0.2   | 4,574<br>0.2   | 4,582<br>0.2   | 4,590<br>0.2   | 4,598<br>0.2   | 4,606<br>0.2   | 4,615<br>0.2   | 4,623<br>0.2   | 4,632<br>0.2   | 4,641<br>0.2   | 4,563<br>0.7   | 4,594<br>0.7   | 4,628<br>0.7   |
| Labour force participation rate (per cent)                | 64.6           | 64.6           | 64.6           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.6           | 64.5           | 64.5           |
| Unemployment rate (per cent)                              | 5.1            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            | 5.0            |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Quebec, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1            | 2020<br>Q2            | 2020<br>Q3            | 2020<br>Q4            | 2021<br>Q1            | 2021<br>Q2            | 2021<br>Q3            | 2021<br>Q4            | 2022<br>Q1            | 2022<br>Q2            | 2022<br>Q3            | 2022<br>Q4            | 2020                  | 2021                  | 2022                  |
|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Retail sales (\$ millions)           | 134,931<br><i>0.3</i> | 135,848<br><i>0.7</i> | 136,773<br><i>0.7</i> | 137,708<br><i>0.7</i> | 138,206<br><i>0.4</i> | 139,047<br><i>0.6</i> | 139,921<br><i>0.6</i> | 140,837<br><i>0.7</i> | 141,338<br><i>0.4</i> | 142,340<br><i>0.7</i> | 143,330<br><i>0.7</i> | 144,347<br><i>0.7</i> | 136,315<br><i>2.3</i> | 139,502<br><i>2.3</i> | 142,839<br><i>2.4</i> |
| Housing starts (units, 000s)         | 41,490<br><i>-0.6</i> | 41,212<br><i>-0.7</i> | 40,922<br><i>-0.7</i> | 40,620<br><i>-0.7</i> | 40,302<br><i>-0.8</i> | 39,976<br><i>-0.8</i> | 39,640<br><i>-0.8</i> | 39,292<br><i>-0.9</i> | 38,927<br><i>-0.9</i> | 38,561<br><i>-0.9</i> | 38,186<br><i>-1.0</i> | 37,803<br><i>-1.0</i> | 41,061<br><i>-3.9</i> | 39,803<br><i>-3.1</i> | 38,369<br><i>-3.6</i> |
| Net interprovincial migration (000s) | -9.4                  | -9.4                  | -9.5                  | -9.5                  | -9.4                  | -9.4                  | -9.4                  | -9.5                  | -9.6                  | -9.6                  | -9.7                  | -9.9                  | -9.4                  | -9.4                  | -9.7                  |
| Net international migration (000s)   | 62.9                  | 63.4                  | 63.9                  | 64.3                  | 65.1                  | 65.4                  | 65.6                  | 65.6                  | 65.6                  | 65.4                  | 65.2                  | 64.7                  | 63.6                  | 65.4                  | 65.2                  |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

QUÉBEC

# L'imposition de tarifs nuit aux échanges commerciaux

## Résumé du chapitre

- Dans l'ensemble, la croissance du PIB réel restera élevée cette année, mais elle glissera à 1,6 % en 2019, puis à 1,4 % en moyenne au cours de la période de 2020-2022.
- La construction croîtra de 5,1 % en 2018 grâce au démarrage de projets majeurs.
- Le taux de chômage chutera à 5,0 % d'ici à la fin de l'année, où il restera au cours des prochaines années.
- Une pénurie de main-d'œuvre qualifiée maintiendra les pressions sur les salaires qui devraient augmenter à un rythme plus rapide que l'inflation.
- L'imposition de tarifs américains sur l'aluminium nuit aux exportations québécoises de biens à l'échelle internationale, qui subiront une baisse de 2,2 % cette année.

NOTE DE CONJONCTURE PROVINCIALE  
Été 2018

## QUÉBEC

### Renseignements généraux et sur le gouvernement

Premier ministre Philippe Couillard

Prochaines élections le 1er octobre 2018

Population (T2, 2018) 8 455 402

Solde budgétaire de l'État (2018-19) 0 \$

Sources: Le Conference Board du Canada; Ministère des Finances du Québec; Statistique Canada.

### Risques conjoncturels

#### Court terme

Si les États-Unis imposent de nouvelles politiques commerciales protectionnistes, les exportations québécoises en souffriront. La balance commerciale de la province se détériorera en conséquence.



#### Moyen terme

Si le Québec réussit à attirer davantage de travailleurs qualifiés dans la province, cela pourrait atténuer les pénuries de main-d'œuvre.



### Indicateurs économiques

(variation en %)

|                                   | 2017 | 2018 | 2019 |
|-----------------------------------|------|------|------|
| PIB réel                          | 3,1  | 2,4  | 1,6  |
| Indice des prix à la consommation | 1,1  | 1,9  | 1,7  |
| Revenu disponible des ménages     | 5,7  | 4,5  | 2,5  |
| Emploi                            | 2,2  | 1,2  | 0,7  |
| Taux de chômage                   | 6,0  | 5,3  | 5,0  |
| Ventes au détail                  | 5,5  | 3,4  | 2,5  |
| Rénumération par employé          | 2,5  | 3,2  | 2,2  |
| Population                        | 0,9  | 1,0  | 0,8  |

Les prévisions se trouvent dans la partie ombragée du tableau.  
Sources : Le Conference Board du Canada; Statistique Canada.

**À l'heure actuelle, la ville de Montréal accueille des projets d'infrastructure de transport en commun et de construction de routes évalués à plus de 15 G\$. Il va sans dire que l'industrie de la construction connaîtra une année dynamique. Ces projets font une différence : le taux de croissance de l'économie québécoise devrait s'établir à 2,3 % en 2018, soit la deuxième meilleure performance de l'économie depuis la dernière récession. L'an prochain, le taux de croissance ralentira à 1,6 %.**

Au Québec, l'emploi est élevé, les salaires augmentent et le taux d'inflation est faible depuis quelque temps. Les Québécois ont donc davantage d'argent à dépenser, mais le rythme de croissance des dépenses de consommation ralentira. En effet, la province fait face au vieillissement de sa population et à l'augmentation des départs à la retraite. Étant donné que le chômage avoisine un creux historique, cela a pour effet de limiter la création de nouveaux emplois. D'un autre côté, lorsque le taux d'inflation se mettra à grimper, la hausse des prix qui s'ensuivra grugera dans le revenu disponible des ménages.

Pour les entreprises, une pénurie de la main-d'œuvre sera problématique. Ce sera de plus en plus difficile pour celles-ci d'embaucher de nouveaux travailleurs afin de prendre de l'expansion ou même de soutenir le niveau actuel de production. Pour faire plus avec moins, ces entreprises devront investir dans le capital productif comme de nouvelles machines ou de nouveaux outils. Le Québec n'a pas fait preuve d'excellence dans ce domaine au cours des dernières années ; un virage se pointe à l'horizon, mais ce n'est pas appréciable. Les dépenses d'investissement dépasseront à peine les pertes liées à la dépréciation du capital existant.

Enfin, le commerce continue de poser problème. Au Canada, la plupart des exploitations d'aluminium sont au Québec. Celles-ci sont désormais soumises à un tarif de 10 % dans les marchés américains, ce qui porte

un dur coup à leur performance. Le commerce nuira à la croissance globale cette année, mais on prévoit une reprise l'an prochain. Cependant, les risques liés à une guerre commerciale mondiale croissante ajoutent de l'incertitude perspectives.

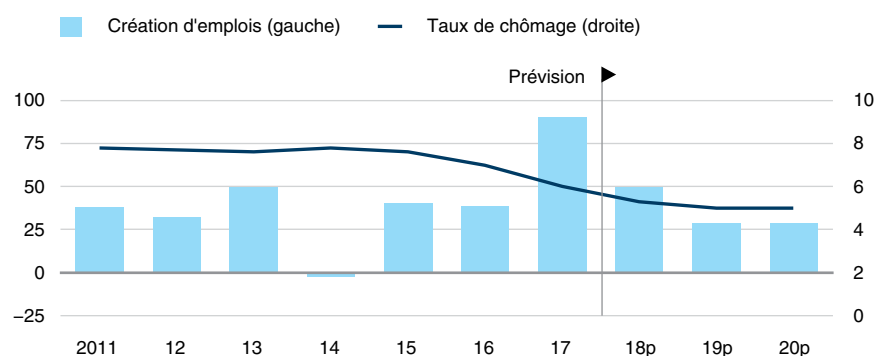
## Consommation

Le marché de l'emploi au Québec est sur une bonne lancée. Plus de 61 % des Québécois en âge de travailler occupent un emploi. Depuis la fin de 2016, le nombre de chômeurs a diminué d'un cinquième. Pour les entreprises, ce bassin réduit de gens à la recherche d'un emploi rend l'embauche plus difficile, ce qui signifie qu'il est probable que la hausse de l'emploi de l'an dernier ne se reproduise pas (voir graphique 1). En raison du vieillissement de la population, la disponibilité de la main-d'œuvre provinciale continuera d'être limitée et le taux de chômage, bas. À compter de 2019, la création d'emplois devrait se limiter à environ 30 000 emplois.

### Graphique 1

#### Les postes sont plus difficiles à combler

(emplois, milliers; taux de chômage, %)



p = prévision

Sources: Le Conference Board du Canada; Statistique Canada.



Dans ce contexte, les Québécois qui continuent à faire partie de la population active peuvent s'attendre à trouver un emploi plus facilement. Au fur et à mesure que les Québécois approcheront l'âge de la retraite, les employeurs devront se livrer à une vive concurrence pour attirer des talents et les retenir, ce qui contribuera à une croissance des salaires qui pourrait aller jusqu'à 3,2 % cette année, soit 1,3 point de pourcentage plus élevé que l'inflation.

Dans les prochaines années, toutefois, l'inflation commencera à progresser lorsque l'économie se rapprochera de sa capacité, ce qui aura pour effet de limiter les gains salariaux en termes réels.

Étant donné que la création d'emplois reculera d'année en année, le revenu total progressera plus lentement. Le revenu disponible a augmenté de 5,7 % en 2017 et croîtra de 4,5 % en 2018. La création de 140 000 nouveaux emplois de même que l'entrée en vigueur de réductions d'impôts ont contribué au bon rendement de l'économie. Or, la croissance du revenu disponible se stabilisera autour de 2,5 % au cours des quatre prochaines années. Les dépenses des ménages sur les biens et services augmenteront de 2,4 % en 2018 par rapport à l'année précédente, mais la croissance glissera à à peine 1,4 % dans les années subséquentes, car on s'attend à une baisse des achats de biens durables.

## Investissement

L'an dernier, les consommateurs étaient le moteur de l'économie québécoise, mais cette année, les entreprises prennent le relais. Les dépenses d'investissement totales ont baissé de 1,2 % par année en moyenne au cours des cinq dernières années, mais aujourd'hui, on observe un virage. En 2018, l'investissement total augmentera de 4,4 % et la croissance moyenne s'établira à 2,0 % au cours de la période de 2019-2022.

La contribution la plus importante à l'investissement viendra du secteur privé. Les entreprises ont reporté leurs projets d'investissement depuis la dernière récession, mais ont finalement desserré les cordons de leur bourse en 2017 (voir graphique 2). À l'avenir, les pressions exercées par

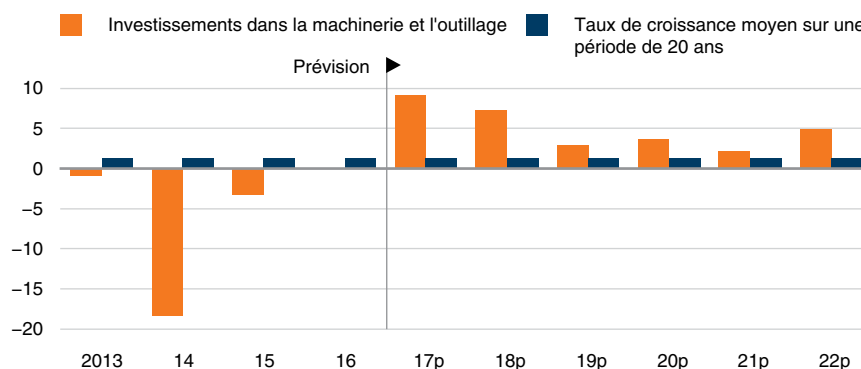
NOTE DE CONJONCTURE PROVINCIALE  
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le vieillissement de la population convaincront les entreprises à dépenser davantage pour acheter de nouvelles pièces de matériel et outillage. Les dépenses d'investissement dans ce domaine croîtront de 7,3 % en 2018 et de 3,0 % en 2019.

## Graphique 2

### Les entreprises recommencent à investir

(en variation de pourcentage\*)



p = prévision

\*basés sur des dollars chaînés de 2007

Sources: Le Conference Board du Canada; Statistique Canada.

Les projets financés par les gouvernements connaîtront également une année dynamique. À Montréal, la construction du nouveau pont Champlain avance en voie d'une ouverture espérée cet hiver, alors que les travaux se poursuivent à l'échangeur Turcot. De plus, bien que l'on considère ce projet un projet privé au titre des investissements, la Caisse de dépôt et placement du Québec (qui appartient au gouvernement) a donné le coup d'envoi à son réseau de train léger en avril. Ces trois projets totalisent 14 G\$.

Le marché du logement au Québec est en pleine effervescence dernièrement. Il y a à peine trois ans, les promoteurs immobiliers avaient construit 5 600 unités qu'ils n'arrivaient pas à vendre. Cependant, la croissance de l'emploi et la hausse des salaires ont permis de réduire cette quantité d'unités de près de 40 %. Les constructeurs lanceront 48 716 nouvelles unités de logement en 2018, soit un chiffre inégalé

depuis 2010. Or, ce type de croissance ne continuera pas indéfiniment en raison des besoins démographiques du Québec. Étant donné qu'il y aura moins de nouveaux acheteurs sur le marché, les mises en chantier chuteront à environ 40 000 par année au cours de la période de 2019 à 2022. L'investissement résidentiel progressera de 3,9 % cette année, mais glissera à 2,2 % en 2019.

## Gouvernement

Les Québécois iront aux urnes le 1er octobre 2018. Le budget provincial est équilibré. La dette nette sera inférieure à 40 % du PIB d'ici 2022. Cependant, il faut noter que 215 791 électeurs ont atteint l'âge de 65 ans depuis le dernier scrutin. Ce chiffre doublera d'ici aux prochaines élections de 2022. Ce décalage deviendra un défi de plus en plus lourd pour les gouvernements au cours des prochaines années. D'une part, les dépenses en matière de santé augmentent lorsque la population prend de l'âge. D'autre part, les départs à la retraite réduisent l'assiette fiscale. Résultat : les gouvernements n'auront d'autre choix que de comprimer les dépenses qui grimpent de 2,9 % cette année, mais de seulement 0,9 % par année au cours des quatre années subséquentes.

## Échanges commerciaux

Au fur et à mesure que l'économie intérieure ralentira, les importations du Québec diminueront. Néanmoins, au moins pour cette année, la performance des exportations québécoises dégringolera. Somme toute, le déficit commercial du Québec se creusera et s'établira à 5 % du PIB total d'ici à la fin de 2018. Les exportations destinées aux autres provinces se porteront bien, toutefois, donc, le tableau d'ensemble sera plus positif en 2019. Cela pourrait toutefois être compromis si les échanges internationaux s'avéraient décevants.

Depuis la fin mai, à la suite de l'annonce du président Trump de mettre un terme à l'exemption du Canada des tarifs sur les produits d'acier et d'aluminium, il en coûte 10 % de plus pour vendre des produits d'aluminium aux États-Unis. Le Québec est l'une des provinces les plus durement touchées par ces tarifs; en 2017, près des deux tiers

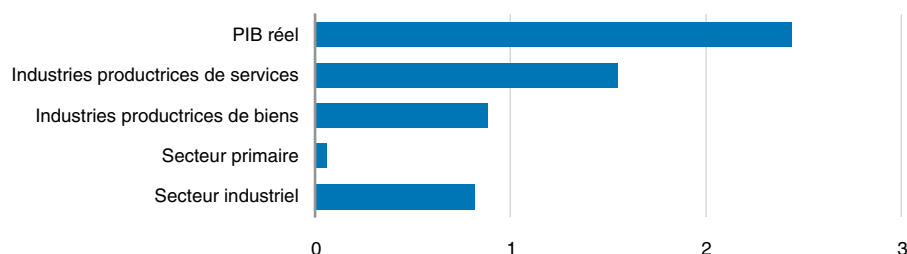
NOTE DE CONJONCTURE PROVINCIALE  
Été 2018

des exportations canadiennes d'aluminium provenaient du Québec. Qui plus est, la province produit un peu plus de la moitié du minerai de fer, la composante la plus importante de l'acier. Cette situation devrait s'améliorer en 2019, à la lumière de nouvelles exportations de produits miniers et d'électricité. Cependant, étant donné la menace imminente d'une guerre commerciale avec le principal partenaire de la province pour ses exportations, le risque conjoncturel est considérable.

### Graphique 3

#### Contribution au PIB réel du Québec, 2018

(par industrie/secteur, en points de pourcentage; PIB, %)



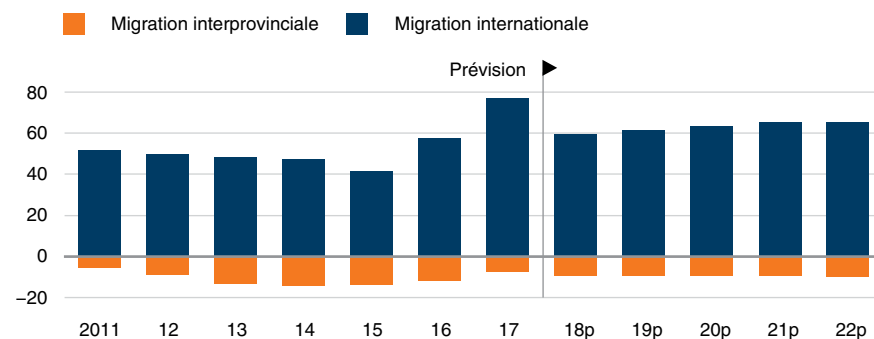
Note: " Primaire" représente la somme de l'agriculture et des secteurs de la foresterie, des pêches, du piégeage et des mines. "Industriel" représente la somme des secteurs de la fabrication, de la construction et des services publics.

Sources: Le Conference Board du Canada; Statistique Canada.

### Graphique 4

#### Sources de migration

(migration nette, milliers)



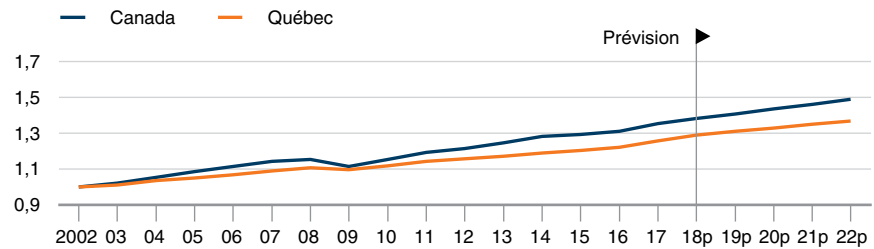
p = prévision

Sources: Le Conference Board du Canada; Statistique Canada.

### Graphique 5

#### PIB réel, de 2002 à 2022

(indice, 2002 = 1,0)



p = prévision

Sources: Le Conference Board du Canada; Statistique Canada.

Tableau 1a

**Principaux indicateurs économiques : Québec, 2017-2019**

(prévisions en date du 24 juillet 2018)

|                                                                       | 2017<br>T1      | 2017<br>T2     | 2017<br>T3     | 2017<br>T4      | 2018<br>T1     | 2018<br>T2     | 2018<br>T3     | 2018<br>T4     | 2019<br>T1     | 2019<br>T2     | 2019<br>T3     | 2019<br>T4     | 2017           | 2018           | 2019           |
|-----------------------------------------------------------------------|-----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PIB aux prix du marché (M\$)                                          | 408 951<br>1,3  | 412 545<br>0,9 | 415 843<br>0,8 | 422 067<br>1,5  | 426 146<br>1,0 | 430 766<br>1,1 | 434 194<br>0,8 | 436 655<br>0,6 | 441 175<br>1,0 | 444 386<br>0,7 | 447 724<br>0,8 | 451 289<br>0,8 | 414 852<br>5,1 | 431 940<br>4,1 | 446 143<br>3,3 |
| PIB aux prix du marché<br>(M\$ de 2007)                               | 348 580<br>0,8  | 351 791<br>0,9 | 355 980<br>1,2 | 357 909<br>0,5  | 359 469<br>0,4 | 361 253<br>0,5 | 362 621<br>0,4 | 364 032<br>0,4 | 365 476<br>0,4 | 366 870<br>0,4 | 368 330<br>0,4 | 369 751<br>0,4 | 353 565<br>3,0 | 361 844<br>2,3 | 367 607<br>1,6 |
| PIB aux prix de base<br>(M\$ de 2007)                                 | 321 409<br>-0,3 | 327 112<br>1,8 | 333 408<br>1,9 | 332 821<br>-0,2 | 334 254<br>0,4 | 336 373<br>0,6 | 337 416<br>0,3 | 338 750<br>0,4 | 340 128<br>0,4 | 341 435<br>0,4 | 342 824<br>0,4 | 344 190<br>0,4 | 328 688<br>3,1 | 336 698<br>2,4 | 342 144<br>1,6 |
| Indice des prix à la consommation<br>(2002 = 1,0)                     | 1,265<br>0,7    | 1,269<br>0,3   | 1,268<br>-0,1  | 1,275<br>0,5    | 1,283<br>0,7   | 1,290<br>0,5   | 1,298<br>0,6   | 1,304<br>0,5   | 1,307<br>0,3   | 1,313<br>0,4   | 1,318<br>0,4   | 1,324<br>0,4   | 1,269<br>1,1   | 1,294<br>1,9   | 1,316<br>1,7   |
| Déflateur implicite des prix –<br>PIB aux prix du marché (2007 = 1,0) | 1,173<br>0,6    | 1,173<br>0,0   | 1,168<br>-0,4  | 1,179<br>0,9    | 1,185<br>0,5   | 1,192<br>0,6   | 1,197<br>0,4   | 1,199<br>0,2   | 1,207<br>0,6   | 1,211<br>0,3   | 1,216<br>0,4   | 1,221<br>0,4   | 1,173<br>2,0   | 1,194<br>1,7   | 1,214<br>1,7   |
| Rémunération des employés<br>(milliers \$)                            | 42,8<br>1,1     | 43,0<br>0,5    | 43,5<br>1,4    | 43,8<br>0,7     | 44,3<br>1,1    | 44,6<br>0,6    | 44,7<br>0,2    | 45,0<br>0,6    | 45,3<br>0,7    | 45,5<br>0,5    | 45,8<br>0,5    | 46,0<br>0,6    | 43,3<br>2,5    | 44,7<br>3,2    | 45,7<br>2,2    |
| Revenu primaire des ménages (M\$)                                     | 281 600<br>0,7  | 285 217<br>1,3 | 290 430<br>1,8 | 294 581<br>1,4  | 297 873<br>1,1 | 299 303<br>0,5 | 300 457<br>0,4 | 302 627<br>0,7 | 305 297<br>0,9 | 307 169<br>0,6 | 309 117<br>0,6 | 311 170<br>0,7 | 287 957<br>4,6 | 300 065<br>4,2 | 308 189<br>2,7 |
| Revenu disponible des ménages (M\$)                                   | 238 023<br>0,5  | 241 684<br>1,5 | 246 401<br>2,0 | 249 648<br>1,3  | 252 023<br>1,0 | 254 557<br>1,0 | 255 705<br>0,5 | 257 542<br>0,7 | 258 709<br>0,5 | 260 480<br>0,7 | 262 268<br>0,7 | 264 134<br>0,7 | 243 939<br>5,7 | 254 957<br>4,5 | 261 397<br>2,5 |
| Taux d'épargne nette des ménages (%)                                  | 5,4             | 5,8            | 7,0            | 7,1             | 7,3            | 6,8            | 6,4            | 6,3            | 6,3            | 6,2            | 6,1            | 6,0            | 6,3            | 6,7            | 6,2            |
| Population (milliers)                                                 | 8 352<br>0,1    | 8 366<br>0,2   | 8 394<br>0,3   | 8 426<br>0,4    | 8 440<br>0,2   | 8 455<br>0,2   | 8 473<br>0,2   | 8 489<br>0,2   | 8 504<br>0,2   | 8 521<br>0,2   | 8 538<br>0,2   | 8 555<br>0,2   | 8 384<br>0,9   | 8 464<br>1,0   | 8 529<br>0,8   |
| Emploi (milliers)                                                     | 4 193<br>0,2    | 4 212<br>0,4   | 4 234<br>0,5   | 4 265<br>0,7    | 4 270<br>0,1   | 4 267<br>-0,1  | 4 277<br>0,3   | 4 288<br>0,3   | 4 295<br>0,1   | 4 301<br>0,2   | 4 307<br>0,1   | 4 314<br>0,2   | 4 226<br>2,2   | 4 276<br>1,2   | 4 304<br>0,7   |
| Population active (milliers)                                          | 4 477<br>0,0    | 4 486<br>0,2   | 4 500<br>0,3   | 4 512<br>0,3    | 4 519<br>0,2   | 4 509<br>-0,2  | 4 509<br>0,0   | 4 513<br>0,1   | 4 518<br>0,1   | 4 525<br>0,2   | 4 534<br>0,2   | 4 542<br>0,2   | 4 494<br>1,0   | 4 512<br>0,4   | 4 530<br>0,4   |
| Taux de participation au marché du travail (%)                        | 64,8            | 64,8           | 64,8           | 64,9            | 64,9           | 64,6           | 64,6           | 64,6           | 64,5           | 64,5           | 64,5           | 64,5           | 64,8           | 64,7           | 64,5           |
| Taux de chômage (%)                                                   | 6,3             | 6,1            | 5,9            | 5,5             | 5,5            | 5,4            | 5,1            | 5,0            | 4,9            | 5,0            | 5,0            | 5,0            | 6,0            | 5,3            | 5,0            |

(à suivre ...)

Table 1a (suite)

**Principaux indicateurs économiques : Québec, 2017-2019**

(prévisions en date du 24 juillet 2018)

|                                             | 2017<br>T1  | 2017<br>T2   | 2017<br>T3  | 2017<br>T4  | 2018<br>T1  | 2018<br>T2  | 2018<br>T3   | 2018<br>T4  | 2019<br>T1  | 2019<br>T2  | 2019<br>T3  | 2019<br>T4  | 2017        | 2018       | 2019         |
|---------------------------------------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|--------------|
| Ventes au détail (M\$)                      | 123 975     | 124 955      | 124 705     | 129 259     | 129 222     | 129 429     | 130 181      | 131 073     | 132 027     | 132 833     | 133 626     | 134 462     | 125 723     | 129 976    | 133 237      |
|                                             | <i>1,7</i>  | <i>0,8</i>   | <i>-0,2</i> | <i>3,7</i>  | <i>0,0</i>  | <i>0,2</i>  | <i>0,6</i>   | <i>0,7</i>  | <i>0,7</i>  | <i>0,6</i>  | <i>0,6</i>  | <i>0,6</i>  | <i>5,5</i>  | <i>3,4</i> | <i>2,5</i>   |
| Mises en chantier<br>(milliers d'unités)    | 46 145      | 40 686       | 44 572      | 54 576      | 49 419      | 54 862      | 45 391       | 45 191      | 44 974      | 42 248      | 42 008      | 41 756      | 46 495      | 48 716     | 42 747       |
|                                             | <i>16,8</i> | <i>-11,8</i> | <i>9,6</i>  | <i>22,4</i> | <i>-9,4</i> | <i>11,0</i> | <i>-17,3</i> | <i>-0,4</i> | <i>-0,5</i> | <i>-6,1</i> | <i>-0,6</i> | <i>-0,6</i> | <i>19,4</i> | <i>4,8</i> | <i>-12,3</i> |
| Solde migratoire interprovincial (milliers) | -3,2        | -13,5        | -9,9        | -4,0        | -3,0        | -12,7       | -11,6        | -10,7       | -10,0       | -9,4        | -9,1        | -8,9        | -7,6        | -9,5       | -9,3         |
| Solde migratoire international (milliers)   | 53,6        | 105,6        | 106,0       | 43,1        | 63,9        | 59,4        | 57,3         | 58,8        | 60,2        | 61,4        | 62,3        | 63,0        | 77,0        | 59,9       | 61,7         |

En ombré, prévisions; *en italique, variation en pourcentage.*

À moins d'indications contraires, toutes les données sont exprimées en millions de dollars, au taux annuel désaisonnalisé.

Pour chaque indicateur, la première ligne donne le niveau, la deuxième la variation en pourcentage par rapport à la période précédente.

Sources: Le Conference Board du Canada; Statistique Canada; Répertoire des séries chronologiques de la Société canadienne d'hypothèques et de logement (SCHL).

Tableau 1b

**Principaux indicateurs économiques : Québec, 2020-2022**

(prévisions en date du 24 juillet 2018)

|                                                                       | 2020<br>T1     | 2020<br>T2     | 2020<br>T3     | 2020<br>T4     | 2021<br>T1     | 2021<br>T2     | 2021<br>T3     | 2021<br>T4     | 2022<br>T1     | 2022<br>T2     | 2022<br>T3     | 2022<br>T4     | 2020           | 2021           | 2022           |
|-----------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PIB aux prix du marché (M\$)                                          | 454 632<br>0,7 | 458 750<br>0,9 | 462 754<br>0,9 | 466 609<br>0,8 | 470 137<br>0,8 | 473 625<br>0,7 | 477 235<br>0,8 | 480 806<br>0,7 | 484 778<br>0,8 | 488 782<br>0,8 | 492 766<br>0,8 | 496 982<br>0,9 | 460 686<br>3,3 | 475 451<br>3,2 | 490 827<br>3,2 |
| PIB aux prix du marché<br>(M\$ de 2007)                               | 370 746<br>0,3 | 372 201<br>0,4 | 373 553<br>0,4 | 374 966<br>0,4 | 376 390<br>0,4 | 377 608<br>0,3 | 378 873<br>0,3 | 380 152<br>0,3 | 381 392<br>0,3 | 382 628<br>0,3 | 383 819<br>0,3 | 385 074<br>0,3 | 372 867<br>1,4 | 378 256<br>1,4 | 383 228<br>1,3 |
| PIB aux prix de base<br>(M\$ de 2007)                                 | 345 167<br>0,3 | 346 584<br>0,4 | 347 902<br>0,4 | 349 272<br>0,4 | 350 636<br>0,4 | 351 825<br>0,3 | 353 070<br>0,4 | 354 327<br>0,4 | 355 554<br>0,3 | 356 785<br>0,3 | 357 977<br>0,3 | 359 240<br>0,4 | 347 231<br>1,5 | 352 465<br>1,5 | 357 389<br>1,4 |
| Indice des prix à la consommation<br>(2002 = 1,0)                     | 1,331<br>0,5   | 1,337<br>0,5   | 1,344<br>0,5   | 1,350<br>0,5   | 1,357<br>0,5   | 1,364<br>0,5   | 1,371<br>0,5   | 1,377<br>0,5   | 1,384<br>0,5   | 1,391<br>0,5   | 1,398<br>0,5   | 1,405<br>0,5   | 1,341<br>1,9   | 1,367<br>2,0   | 1,394<br>2,0   |
| Déflateur implicite des prix –<br>PIB aux prix du marché (2007 = 1,0) | 1,226<br>0,5   | 1,233<br>0,5   | 1,239<br>0,5   | 1,244<br>0,5   | 1,249<br>0,4   | 1,254<br>0,4   | 1,260<br>0,4   | 1,265<br>0,4   | 1,271<br>0,5   | 1,277<br>0,5   | 1,284<br>0,5   | 1,291<br>0,5   | 1,235<br>1,8   | 1,257<br>1,7   | 1,281<br>1,9   |
| Rémunération des employés<br>(milliers \$)                            | 46,3<br>0,6    | 46,6<br>0,6    | 46,9<br>0,6    | 47,2<br>0,6    | 47,4<br>0,6    | 47,7<br>0,5    | 47,9<br>0,5    | 48,2<br>0,5    | 48,5<br>0,6    | 48,8<br>0,6    | 49,0<br>0,6    | 49,3<br>0,6    | 46,7<br>2,4    | 47,8<br>2,3    | 48,9<br>2,3    |
| Revenu primaire des ménages (M\$)                                     | 313 761<br>0,8 | 316 115<br>0,8 | 318 546<br>0,8 | 320 972<br>0,8 | 323 953<br>0,9 | 326 192<br>0,7 | 328 494<br>0,7 | 330 902<br>0,7 | 334 184<br>1,0 | 336 739<br>0,8 | 339 258<br>0,7 | 341 851<br>0,8 | 317 348<br>3,0 | 327 385<br>3,2 | 338 008<br>3,2 |
| Revenu disponible des ménages (M\$)                                   | 264 629<br>0,2 | 266 676<br>0,8 | 268 806<br>0,8 | 270 960<br>0,8 | 271 396<br>0,2 | 273 404<br>0,7 | 275 461<br>0,8 | 277 592<br>0,8 | 277 842<br>0,1 | 280 097<br>0,8 | 282 324<br>0,8 | 284 612<br>0,8 | 267 768<br>2,4 | 274 463<br>2,5 | 281 219<br>2,5 |
| Taux d'épargne nette des ménages (%)                                  | 6,1            | 6,0            | 6,0            | 5,9            | 6,0            | 6,0            | 6,0            | 6,0            | 6,1            | 6,1            | 6,1            | 6,1            | 6,0            | 6,0            | 6,1            |
| Population (milliers)                                                 | 8 572<br>0,2   | 8 589<br>0,2   | 8 605<br>0,2   | 8 622<br>0,2   | 8 639<br>0,2   | 8 656<br>0,2   | 8 673<br>0,2   | 8 690<br>0,2   | 8 706<br>0,2   | 8 723<br>0,2   | 8 740<br>0,2   | 8 756<br>0,2   | 8 597<br>0,8   | 8 664<br>0,8   | 8 731<br>0,8   |
| Emploi (milliers)                                                     | 4 320<br>0,2   | 4 330<br>0,2   | 4 338<br>0,2   | 4 345<br>0,2   | 4 352<br>0,2   | 4 359<br>0,2   | 4 367<br>0,2   | 4 375<br>0,2   | 4 384<br>0,2   | 4 392<br>0,2   | 4 401<br>0,2   | 4 409<br>0,2   | 4 333<br>0,7   | 4 363<br>0,7   | 4 396<br>0,8   |
| Population active (milliers)                                          | 4 552<br>0,2   | 4 559<br>0,2   | 4 567<br>0,2   | 4 574<br>0,2   | 4 582<br>0,2   | 4 590<br>0,2   | 4 598<br>0,2   | 4 606<br>0,2   | 4 615<br>0,2   | 4 623<br>0,2   | 4 632<br>0,2   | 4 641<br>0,2   | 4 563<br>0,7   | 4 594<br>0,7   | 4 628<br>0,7   |
| Participation au marché du travail                                    | 64,6           | 64,6           | 64,6           | 64,5           | 64,5           | 64,5           | 64,5           | 64,5           | 64,5           | 64,5           | 64,5           | 64,5           | 64,6           | 64,5           | 64,5           |
| Taux de chômage (%)                                                   | 5,1            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            | 5,0            |

(à suivre ...)



Table 1b (suite)

**Principaux indicateurs économiques : Québec, 2020-2022**

(prévisions en date du 24 juillet 2018)

|                                             | 2020<br>T1            | 2020<br>T2            | 2020<br>T3            | 2020<br>T4            | 2021<br>T1            | 2021<br>T2            | 2021<br>T3            | 2021<br>T4            | 2022<br>T1            | 2022<br>T2            | 2022<br>T3            | 2022<br>T4            | 2020                  | 2021                  | 2022                  |
|---------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Ventes au détail (M\$)                      | 134 931<br><i>0,3</i> | 135 848<br><i>0,7</i> | 136 773<br><i>0,7</i> | 137 708<br><i>0,7</i> | 138 206<br><i>0,4</i> | 139 047<br><i>0,6</i> | 139 921<br><i>0,6</i> | 140 837<br><i>0,7</i> | 141 338<br><i>0,4</i> | 142 340<br><i>0,7</i> | 143 330<br><i>0,7</i> | 144 347<br><i>0,7</i> | 136 315<br><i>2,3</i> | 139 502<br><i>2,3</i> | 142 839<br><i>2,4</i> |
| Mises en chantier (milliers d'unités)       | 41 490<br><i>-0,6</i> | 41 212<br><i>-0,7</i> | 40 922<br><i>-0,7</i> | 40 620<br><i>-0,7</i> | 40 302<br><i>-0,8</i> | 39 976<br><i>-0,8</i> | 39 640<br><i>-0,8</i> | 39 292<br><i>-0,9</i> | 38 927<br><i>-0,9</i> | 38 561<br><i>-0,9</i> | 38 186<br><i>-1,0</i> | 37 803<br><i>-1,0</i> | 41 061<br><i>-3,9</i> | 39 803<br><i>-3,1</i> | 38 369<br><i>-3,6</i> |
| Solde migratoire interprovincial (milliers) | -9,4                  | -9,4                  | -9,5                  | -9,5                  | -9,4                  | -9,4                  | -9,4                  | -9,5                  | -9,6                  | -9,6                  | -9,7                  | -9,9                  | -9,4                  | -9,4                  | -9,7                  |
| Solde migratoire international (milliers)   | 62,9                  | 63,4                  | 63,9                  | 64,3                  | 65,1                  | 65,4                  | 65,6                  | 65,6                  | 65,6                  | 65,4                  | 65,2                  | 64,7                  | 63,6                  | 65,4                  | 65,2                  |

En ombré, prévisions; *en italique, variation en pourcentage.*

À moins d'indications contraires, toutes les données sont exprimées en millions de dollars, au taux annuel désaisonnalisé.

Pour chaque indicateur, la première ligne donne le niveau, la deuxième la variation en pourcentage par rapport à la période précédente.

Sources: Le Conference Board du Canada; Statistique Canada; Répertoire des séries chronologiques de la Société canadienne d'hypothèques et de logement (SCHL).

## ONTARIO

# Ontario's Economy Entering Period of Uncertainty

### Chapter Summary

- The Ontario economy will expand by slightly less than 2.0 per cent in both 2018 and 2019.
- Weaker household spending is a major factor behind the softer outlook.
- Housing starts will continue to decline over the near term due to the policies implemented by the provincial and federal governments to cool the Greater Toronto housing market.
- A 25.0 per cent tariff on Canada's auto exports to the U.S. would have a devastating effect on Ontario's economy.
- The elimination of the cap-and-trade program could lower gasoline prices but will reduce government revenues by \$1.9 billion annually.

## ONTARIO

Government and  
Background Information

Premier Doug Ford

Next election 2022

Population  
(2018Q2) 14,374,080Government balance  
(2018–19) –\$6.7 billionSources: The Conference Board of Canada; Ontario Ministry of Finance;  
Statistics Canada.

## Forecast Risk

## Short term

If President Trump decides to impose a 25.0 per cent tariff on auto imports, that would be a big blow to Ontario's economy.



## Medium term

A new NAFTA agreement leads to less uncertainty and higher investment spending over the medium term.



## Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 2.7  | 1.8  | 1.9  |
| Consumer price index            | 1.7  | 2.6  | 2.0  |
| Household disposable income     | 4.1  | 4.8  | 3.3  |
| Employment                      | 1.8  | 1.4  | 1.4  |
| Unemployment rate (level)       | 6.0  | 5.6  | 5.4  |
| Retail sales                    | 7.7  | 2.9  | 3.2  |
| Wages and salaries per employee | 1.9  | 3.4  | 2.4  |
| Population                      | 1.6  | 1.6  | 1.3  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**The Ontario economy will expand by 1.8 per cent in 2018 and 1.9 per cent next year. That is close to the Canada-wide averages. Rising interest rates and new policies for homebuyers have weakened the housing sector and slowed the pace of employment, income, and consumption growth. (See Chart 1.) Growth in employment will also be hurt by this year's increase in the minimum wage to \$14 per hour. Retail sales are expected to expand by 2.9 per cent this year and 3.2 per cent in 2019. In 2017, when the economy was growing at a faster clip, retail sales grew by more than 7 per cent.**

Another key factor that is having a negative impact on the province's economy—particularly on investment spending—is the ongoing uncertainty about global trade. The NAFTA negotiations have bogged down over U.S. demands that any new agreement include a sunset clause (which Mexico and Canada strongly oppose) and over the trade rules governing the auto industry. President Trump has suggested that, in order to benefit from preferential U.S. tariffs, at least 40 per cent of auto content in any vehicle sold in the U.S. would have to be sourced from high-waged economies. This has the potential to benefit Ontario's manufacturing sector.

Despite growth in the U.S. economy of better than 3 per cent and the competitively low value of the Canadian dollar, export growth will remain below the 3 per cent mark over the near term. In addition to concerns about tariffs, export growth will be restrained by weaker car sales in the U.S. and ongoing competition from China (although China's competitive advantage in the U.S. market has been hurt by tariffs).

The new provincial government in Ontario poses both upside and downside risks for the Ontario economy. Premier Ford has promised to cut government spending although few details have emerged. On the

plus side, the government has talked about cutting taxes to close the gap between U.S. and Ontario taxes and plans to eliminate the carbon tax, which could lower gasoline prices.

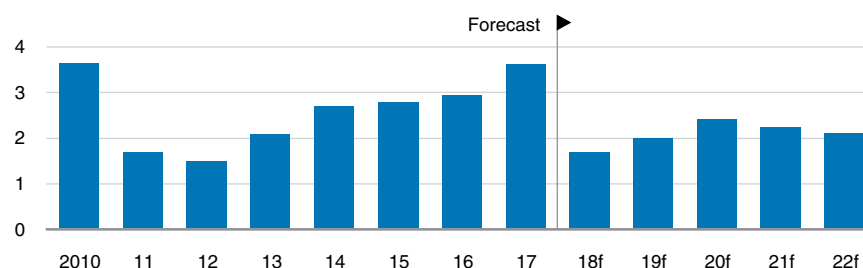
## Weaker Growth in Household Consumer Spending

One of the factors behind our view that growth will be weaker in the Ontario economy over the near term is household spending. Last year, real spending expanded by 3.6 per cent as economic growth in the province came in at 2.8 per cent, one of the highest growth rates in the country. This year, we expect consumer spending to slow to 1.7 per cent growth before picking up to 2.0 per cent in 2019. (See Chart 1.) One of the reasons for the slower growth in spending is developments in the Ontario labour and housing markets.

**Chart 1**

### **A Change of Pace for Consumer Spending**

(consumer spending, percentage change\*)



\*Based on \$ 2007

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

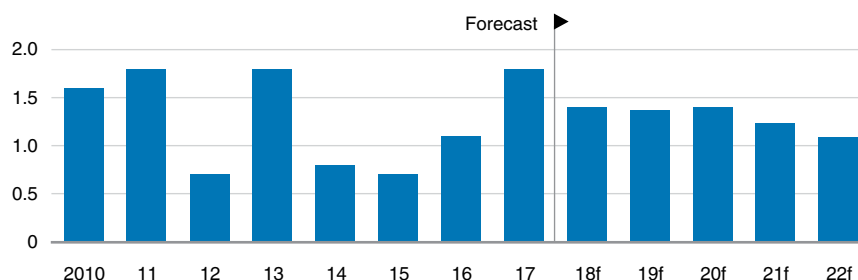
Employment is forecast to increase by 1.4 per cent in both 2018 and 2019—solid growth but down from the close to 2.0 per cent gain that transpired last year. (See Chart 2.) One of the factors behind the weaker jobs outlook is the province's decision to hike the minimum wage to \$14 per hour in January 2018. Higher provincial labour costs will affect

hiring decisions over the next few years; we estimate that the wage increase will lead to a loss of 41,000 jobs this year, mainly in the retail, accommodation, and food industries that operate with razor-thin margins.

## Chart 2

### Employment Held Back by Lower Performing Economy

(percentage change)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

It is difficult to ascertain the degree to which Ontario consumers might benefit from some of the initiatives promised by Premier Ford. He has already started the process of unwinding the province's cap-and-trade program, which attempted to lower carbon emissions. It has been estimated that the program added 4.3 cents per litre to gasoline prices in the province. The government also plans to cut several energy projects and use the savings to lower electricity prices in Ontario by 12 per cent. At this point, it is unclear if the savings from the cancelled projects would lead to such a sharp drop in electricity prices.

## NAFTA Uncertainty Hurts Investment Outlook

Real investment in Ontario is forecast to increase by only 1.3 per cent this year in the wake of a 1.6 per cent gain in 2017. Next year, the outlook is more optimistic as a gain of 2.9 per cent is anticipated. The main factor behind the slump in investment spending this year has been the

decline in residential construction spending, the largest component of total investment in the province. Measures implemented by Ontario and the federal government to cool housing markets are the main factors behind the slump in growth.

A rebound in non-residential business investment spending is expected in 2018, after a gain of 2.4 per cent in 2017. The construction of a handful of large commercial and retail complexes alongside Cadillac Fairview's \$800-million office development—which will provide some reprieve from the limited office space in downtown Toronto—will underlie the rebound. The lack of available office space in the downtown core, coupled with Toronto's booming tech and financial sectors, should fuel office development in downtown Toronto and surrounding areas over the medium term. Nonetheless, the rebound in non-residential investment in 2018 will not be enough to offset the decline in residential properties and, consequently, growth in overall investment spending will be less than stellar.

For Ontario, the NAFTA negotiations represent a key area of uncertainty for the investment outlook, given the fact that one of the most contentious issues is the North American content in autos produced in Mexico, the U.S., and Canada. The U.S. negotiators are attempting to establish new rules of origin for North American-produced cars that could potentially divert the flow of billions of dollars into the U.S., mainly from Mexico, although Canada could also be negatively impacted. The negotiations are currently stalled although the Trump administration is holding discussions with Mexico's President Obrador. President Trump prefers bilateral deals over multi-country trade deals like NAFTA, but Mexico and Canada remain opposed to this plan.

Our analysis shows that the decline in economic activity would be steepest in Ontario if NAFTA is cancelled, due to the province's high dependence on auto manufacturing. Real GDP in Ontario would drop by an estimated \$3.8 billion in the year after NAFTA dissolves. The issue is further complicated by the fact that President Trump has threatened to impose a 25 per cent tax on Canadian auto imports. This would have a devastating effect on the Ontario economy, possibly driving it into recession with thousands of jobs lost. However, the recent

announcement that the U.S. and the European Union have reached an agreement on trade provides some hope that auto tariffs may not see the light of day, but the situation remains fluid.

## Toronto Housing Market Beginning to Stabilize

Last summer, the provincial government implemented several measures to cool the housing market in the Greater Toronto region. Like the situation in Vancouver, concerns have been growing about the affordability of housing in Toronto due to the rapid appreciation in prices over the past few years. Some of the measures, including a tax on foreign buyers of property, have also been put in place in Greater Vancouver. These initiatives, combined with the federal government's steps to tighten mortgage requirements, have managed to take some of the steam out of the housing market in the Greater Toronto region.

In the first half of this year, both prices and sales generally declined, but the market started to rebound in June. Sales in Greater Toronto increased by 2.4 per cent compared with June of last year while prices remained more or less stable as the average home price increased by 2.0 per cent to \$807,871. While housing markets in Ontario will continue to stabilize in the months to come, we still expect housing starts to decline by 6.8 per cent this year with most of the drop taking place in Greater Toronto. In 2019, a slight rebound with growth of 0.8 per cent is anticipated.

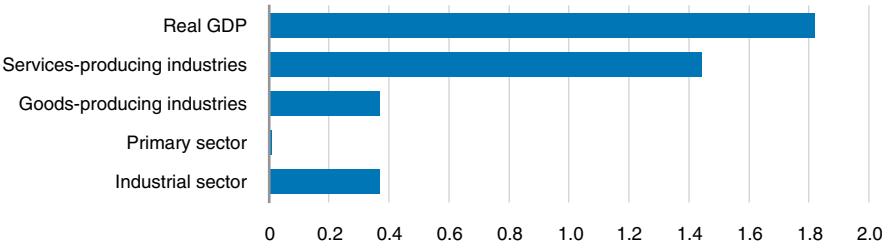
## New Government Promises to Cut Spending

Premier Ford has promised to tackle Ontario's tenuous fiscal outlook and has ordered a line-by-line review of the province's expenditures. He has already implemented cuts to some renewable energy programs. Unless expenditure cuts take place, Ontario's net debt would increase to an unsustainable \$360 billion by 2021–22. However, the Ford government has delivered mixed signals as the Premier eliminated the cap-and-trade program that had brought in close to \$2 billion in revenue annually



since the program came into effect. As has been the case with previous provincial governments, the success or failure in dealing with Ontario’s deficit will centre around health care, which consumes a large share of provincial government revenue. Major reforms will be required to address the numerous issues that affect the delivery of health care services to a rapidly aging population. Reforms will be contentious and generate much opposition, but health care is the sector where most of the potential savings can take place. The alternative—increasing revenue to help pay down the provincial debt—will be challenging because of the negative effect on economic growth attributable to an aging population and weak productivity growth.

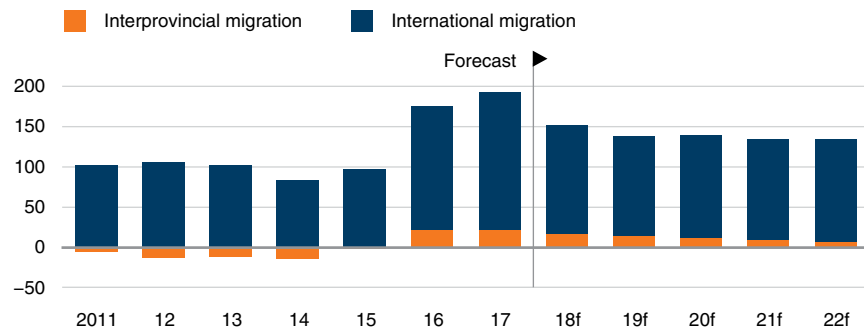
**Chart 3**  
**Contributions to Ontario Real GDP Growth, 2018**  
(by industry/sector, percentage points; GDP, per cent)



Note: “Primary” is the sum of agriculture, forestry, fishing and trapping, and mining sectors. “Industrial” is the sum of manufacturing, construction, and utilities sectors.  
Sources: The Conference Board of Canada; Statistics Canada.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

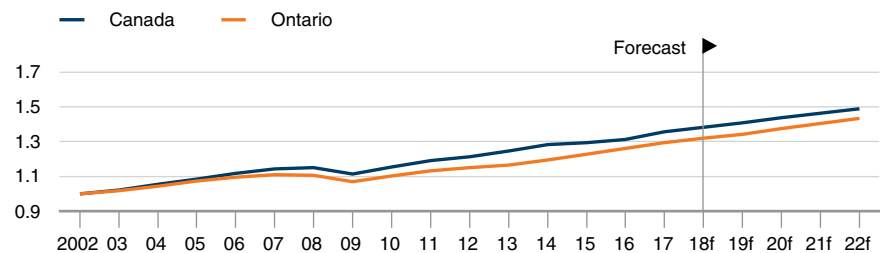
**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: Ontario, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2     | 2017<br>Q3     | 2017<br>Q4     | 2018<br>Q1     | 2018<br>Q2     | 2018<br>Q3     | 2018<br>Q4     | 2019<br>Q1     | 2019<br>Q2     | 2019<br>Q3     | 2019<br>Q4     | 2017           | 2018           | 2019           |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 822,114<br>2.0 | 828,434<br>0.8 | 829,884<br>0.2 | 841,614<br>1.4 | 847,358<br>0.7 | 858,280<br>1.3 | 864,864<br>0.8 | 870,371<br>0.6 | 878,868<br>1.0 | 886,948<br>0.9 | 895,110<br>0.9 | 904,585<br>1.1 | 830,512<br>4.5 | 860,218<br>3.6 | 891,378<br>3.6 |
| GDP at market prices (2007 \$ millions)                   | 697,849<br>1.2 | 702,468<br>0.7 | 704,646<br>0.3 | 708,976<br>0.6 | 711,447<br>0.3 | 715,428<br>0.6 | 718,086<br>0.4 | 721,023<br>0.4 | 724,072<br>0.4 | 727,946<br>0.5 | 731,831<br>0.5 | 736,074<br>0.6 | 703,485<br>2.7 | 716,496<br>1.8 | 729,981<br>1.9 |
| GDP at basic prices (2007 \$ millions)                    | 646,850<br>1.5 | 650,796<br>0.6 | 652,222<br>0.2 | 657,861<br>0.9 | 660,129<br>0.3 | 662,950<br>0.4 | 664,626<br>0.3 | 667,384<br>0.4 | 670,944<br>0.5 | 674,552<br>0.5 | 678,211<br>0.5 | 682,229<br>0.6 | 651,932<br>2.8 | 663,772<br>1.8 | 676,484<br>1.9 |
| Consumer price index (2002 = 1.0)                         | 1.311<br>0.7   | 1.320<br>0.7   | 1.320<br>0.0   | 1.323<br>0.3   | 1.339<br>1.2   | 1.350<br>0.8   | 1.357<br>0.5   | 1.364<br>0.5   | 1.371<br>0.5   | 1.376<br>0.4   | 1.382<br>0.4   | 1.389<br>0.5   | 1.319<br>1.7   | 1.353<br>2.6   | 1.379<br>2.0   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.178<br>0.8   | 1.179<br>0.1   | 1.178<br>-0.1  | 1.187<br>0.8   | 1.191<br>0.3   | 1.200<br>0.7   | 1.204<br>0.4   | 1.207<br>0.2   | 1.214<br>0.6   | 1.218<br>0.4   | 1.223<br>0.4   | 1.229<br>0.5   | 1.181<br>1.7   | 1.201<br>1.7   | 1.221<br>1.7   |
| Wages and salary per employee (\$ 000s)                   | 51.7<br>0.4    | 51.9<br>0.3    | 52.1<br>0.4    | 52.6<br>0.9    | 53.2<br>1.3    | 53.8<br>1.0    | 54.0<br>0.5    | 54.3<br>0.5    | 54.6<br>0.7    | 55.0<br>0.6    | 55.3<br>0.5    | 55.6<br>0.6    | 52.1<br>1.9    | 53.8<br>3.4    | 55.1<br>2.4    |
| Primary household income (\$ millions)                    | 538,941<br>0.7 | 543,453<br>0.8 | 550,470<br>1.3 | 559,506<br>1.6 | 564,343<br>0.9 | 570,882<br>1.2 | 574,980<br>0.7 | 578,964<br>0.7 | 585,670<br>1.2 | 590,850<br>0.9 | 595,803<br>0.8 | 601,140<br>0.9 | 548,092<br>3.7 | 572,292<br>4.4 | 593,366<br>3.7 |
| Household disposable income (\$ millions)                 | 457,844<br>0.1 | 463,340<br>1.2 | 469,693<br>1.4 | 476,155<br>1.4 | 480,878<br>1.0 | 488,491<br>1.6 | 492,176<br>0.8 | 495,876<br>0.8 | 498,837<br>0.6 | 503,458<br>0.9 | 507,850<br>0.9 | 512,502<br>0.9 | 466,758<br>4.1 | 489,355<br>4.8 | 505,662<br>3.3 |
| Household net savings rate (per cent)                     | 1.7            | 1.6            | 2.5            | 3.0            | 2.9            | 3.9            | 3.6            | 3.5            | 3.3            | 3.2            | 3.2            | 3.1            | 2.2            | 3.5            | 3.2            |
| Population (000s)                                         | 14,085<br>0.2  | 14,124<br>0.3  | 14,193<br>0.5  | 14,279<br>0.6  | 14,319<br>0.3  | 14,374<br>0.4  | 14,420<br>0.3  | 14,465<br>0.3  | 14,509<br>0.3  | 14,553<br>0.3  | 14,597<br>0.3  | 14,641<br>0.3  | 14,170<br>1.6  | 14,395<br>1.6  | 14,575<br>1.3  |
| Employment (000s)                                         | 7,071<br>0.5   | 7,082<br>0.2   | 7,149<br>0.9   | 7,207<br>0.8   | 7,187<br>-0.3  | 7,221<br>0.5   | 7,245<br>0.3   | 7,264<br>0.3   | 7,288<br>0.3   | 7,316<br>0.4   | 7,341<br>0.3   | 7,368<br>0.4   | 7,127<br>1.8   | 7,229<br>1.4   | 7,328<br>1.4   |
| Labour force (000s)                                       | 7,548<br>0.5   | 7,554<br>0.1   | 7,585<br>0.4   | 7,637<br>0.7   | 7,605<br>-0.4  | 7,661<br>0.7   | 7,665<br>0.1   | 7,690<br>0.3   | 7,714<br>0.3   | 7,738<br>0.3   | 7,762<br>0.3   | 7,786<br>0.3   | 7,581<br>1.2   | 7,655<br>1.0   | 7,750<br>1.2   |
| Labour force participation rate (per cent)                | 65.0           | 64.8           | 64.8           | 65.0           | 64.4           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.9           | 64.5           | 64.5           |
| Unemployment rate (per cent)                              | 6.3            | 6.3            | 5.7            | 5.6            | 5.5            | 5.7            | 5.5            | 5.5            | 5.5            | 5.5            | 5.4            | 5.4            | 6.0            | 5.6            | 5.4            |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Ontario, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1            | 2017<br>Q2             | 2017<br>Q3            | 2017<br>Q4             | 2018<br>Q1            | 2018<br>Q2             | 2018<br>Q3             | 2018<br>Q4            | 2019<br>Q1            | 2019<br>Q2            | 2019<br>Q3            | 2019<br>Q4            | 2017                  | 2018                  | 2019                  |
|--------------------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Retail sales (\$ millions)           | 211,656<br><i>2.4</i> | 215,742<br><i>1.9</i>  | 217,043<br><i>0.6</i> | 220,829<br><i>1.7</i>  | 220,776<br><i>0.0</i> | 221,333<br><i>0.3</i>  | 223,324<br><i>0.9</i>  | 224,842<br><i>0.7</i> | 226,783<br><i>0.9</i> | 228,744<br><i>0.9</i> | 230,538<br><i>0.8</i> | 232,457<br><i>0.8</i> | 216,318<br><i>7.7</i> | 222,569<br><i>2.9</i> | 229,631<br><i>3.2</i> |
| Housing starts (units, 000s)         | 87,590<br><i>17.1</i> | 69,477<br><i>-20.7</i> | 84,871<br><i>22.2</i> | 74,190<br><i>-12.6</i> | 87,488<br><i>17.9</i> | 76,335<br><i>-12.7</i> | 64,389<br><i>-15.6</i> | 68,472<br><i>6.3</i>  | 72,554<br><i>6.0</i>  | 75,291<br><i>3.8</i>  | 75,529<br><i>0.3</i>  | 75,767<br><i>0.3</i>  | 79,032<br><i>5.4</i>  | 74,171<br><i>-6.2</i> | 74,785<br><i>0.8</i>  |
| Net interprovincial migration (000s) | 10.8                  | 29.1                   | 31.2                  | 17.5                   | 16.1                  | 17.3                   | 16.8                   | 16.2                  | 15.6                  | 15.0                  | 14.4                  | 13.8                  | 22.1                  | 16.6                  | 14.7                  |
| Net international migration (000s)   | 121.2                 | 202.1                  | 254.3                 | 104.4                  | 179.9                 | 117.9                  | 119.3                  | 120.6                 | 121.9                 | 123.1                 | 124.1                 | 125.1                 | 170.5                 | 134.4                 | 123.6                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Ontario, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1     | 2020<br>Q2     | 2020<br>Q3     | 2020<br>Q4     | 2021<br>Q1     | 2021<br>Q2     | 2021<br>Q3     | 2021<br>Q4     | 2022<br>Q1     | 2022<br>Q2     | 2022<br>Q3       | 2022<br>Q4       | 2020           | 2021           | 2022             |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|----------------|----------------|------------------|
| GDP at market prices (\$ millions)                        | 913,683<br>1.0 | 923,270<br>1.0 | 932,644<br>1.0 | 941,709<br>1.0 | 949,705<br>0.8 | 958,584<br>0.9 | 967,878<br>1.0 | 976,991<br>0.9 | 986,088<br>0.9 | 995,758<br>1.0 | 1,005,569<br>1.0 | 1,016,119<br>1.0 | 927,826<br>4.1 | 963,290<br>3.8 | 1,000,884<br>3.9 |
| GDP at market prices (2007 \$ millions)                   | 740,349<br>0.6 | 744,695<br>0.6 | 748,756<br>0.5 | 752,655<br>0.5 | 756,132<br>0.5 | 759,815<br>0.5 | 763,661<br>0.5 | 767,411<br>0.5 | 770,986<br>0.5 | 774,856<br>0.5 | 778,777<br>0.5   | 782,878<br>0.5   | 746,614<br>2.3 | 761,754<br>2.0 | 776,874<br>2.0   |
| GDP at basic prices (2007 \$ millions)                    | 686,292<br>0.6 | 690,445<br>0.6 | 694,327<br>0.6 | 698,050<br>0.5 | 701,350<br>0.5 | 704,876<br>0.5 | 708,577<br>0.5 | 712,187<br>0.5 | 715,648<br>0.5 | 719,399<br>0.5 | 723,201<br>0.5   | 727,199<br>0.6   | 692,279<br>2.3 | 706,747<br>2.1 | 721,362<br>2.1   |
| Consumer price index (2002 = 1.0)                         | 1.396<br>0.5   | 1.402<br>0.5   | 1.409<br>0.5   | 1.417<br>0.6   | 1.424<br>0.5   | 1.431<br>0.5   | 1.439<br>0.5   | 1.447<br>0.6   | 1.454<br>0.5   | 1.461<br>0.5   | 1.468<br>0.5     | 1.476<br>0.5     | 1.406<br>1.9   | 1.435<br>2.1   | 1.465<br>2.1     |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.234<br>0.4   | 1.240<br>0.5   | 1.246<br>0.5   | 1.251<br>0.4   | 1.256<br>0.4   | 1.262<br>0.4   | 1.267<br>0.5   | 1.273<br>0.4   | 1.279<br>0.5   | 1.285<br>0.5   | 1.291<br>0.5     | 1.298<br>0.5     | 1.243<br>1.8   | 1.265<br>1.8   | 1.288<br>1.9     |
| Wages and salary per employee (\$ 000s)                   | 55.9<br>0.6    | 56.2<br>0.6    | 56.6<br>0.6    | 56.9<br>0.6    | 57.2<br>0.6    | 57.6<br>0.6    | 57.9<br>0.6    | 58.3<br>0.6    | 58.6<br>0.6    | 58.9<br>0.6    | 59.3<br>0.6      | 59.6<br>0.6      | 56.4<br>2.3    | 57.8<br>2.4    | 59.1<br>2.3      |
| Primary household income (\$ millions)                    | 608,274<br>1.2 | 613,553<br>0.9 | 619,433<br>1.0 | 624,937<br>0.9 | 632,475<br>1.2 | 638,183<br>0.9 | 643,953<br>0.9 | 649,468<br>0.9 | 657,388<br>1.2 | 663,031<br>0.9 | 668,808<br>0.9   | 674,519<br>0.9   | 616,549<br>3.9 | 641,020<br>4.0 | 665,937<br>3.9   |
| Household disposable income (\$ millions)                 | 516,060<br>0.7 | 520,781<br>0.9 | 525,925<br>1.0 | 530,843<br>0.9 | 534,341<br>0.7 | 539,444<br>1.0 | 544,595<br>1.0 | 549,608<br>0.9 | 552,840<br>0.6 | 557,951<br>0.9 | 563,176<br>0.9   | 568,379<br>0.9   | 523,402<br>3.5 | 541,997<br>3.6 | 560,587<br>3.4   |
| Household net savings rate (per cent)                     | 2.9            | 2.9            | 2.9            | 2.9            | 2.7            | 2.8            | 2.8            | 2.8            | 2.7            | 2.7            | 2.7              | 2.7              | 2.9            | 2.8            | 2.7              |
| Population (000s)                                         | 14,686<br>0.3  | 14,730<br>0.3  | 14,775<br>0.3  | 14,819<br>0.3  | 14,863<br>0.3  | 14,906<br>0.3  | 14,949<br>0.3  | 14,991<br>0.3  | 15,034<br>0.3  | 15,076<br>0.3  | 15,119<br>0.3    | 15,161<br>0.3    | 14,752<br>1.2  | 14,927<br>1.2  | 15,097<br>1.1    |
| Employment (000s)                                         | 7,395<br>0.4   | 7,418<br>0.3   | 7,445<br>0.4   | 7,466<br>0.3   | 7,491<br>0.3   | 7,513<br>0.3   | 7,535<br>0.3   | 7,553<br>0.2   | 7,574<br>0.3   | 7,594<br>0.3   | 7,615<br>0.3     | 7,635<br>0.3     | 7,431<br>1.4   | 7,523<br>1.2   | 7,604<br>1.1     |
| Labour force (000s)                                       | 7,810<br>0.3   | 7,833<br>0.3   | 7,857<br>0.3   | 7,881<br>0.3   | 7,904<br>0.3   | 7,927<br>0.3   | 7,950<br>0.3   | 7,973<br>0.3   | 7,996<br>0.3   | 8,018<br>0.3   | 8,041<br>0.3     | 8,064<br>0.3     | 7,845<br>1.2   | 7,938<br>1.2   | 8,030<br>1.2     |
| Labour force participation rate (per cent)                | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5           | 64.5             | 64.5             | 64.5           | 64.5           | 64.5             |
| Unemployment rate (per cent)                              | 5.3            | 5.3            | 5.2            | 5.3            | 5.2            | 5.2            | 5.2            | 5.3            | 5.3            | 5.3            | 5.3              | 5.3              | 5.3            | 5.2            | 5.3              |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Ontario, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1 | 2020<br>Q2 | 2020<br>Q3 | 2020<br>Q4 | 2021<br>Q1 | 2021<br>Q2 | 2021<br>Q3 | 2021<br>Q4 | 2022<br>Q1 | 2022<br>Q2 | 2022<br>Q3 | 2022<br>Q4 | 2020       | 2021       | 2022       |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Retail sales (\$ millions)           | 234,583    | 236,457    | 238,472    | 240,343    | 242,504    | 244,454    | 246,429    | 248,314    | 250,526    | 252,471    | 254,477    | 256,443    | 237,464    | 245,425    | 253,479    |
|                                      | <i>0.9</i> | <i>0.8</i> | <i>0.9</i> | <i>0.8</i> | <i>0.9</i> | <i>0.8</i> | <i>0.8</i> | <i>0.8</i> | <i>0.9</i> | <i>0.8</i> | <i>0.8</i> | <i>0.8</i> | <i>3.4</i> | <i>3.4</i> | <i>3.3</i> |
| Housing starts (units, 000s)         | 76,694     | 76,933     | 77,171     | 77,410     | 77,839     | 78,077     | 78,315     | 78,554     | 78,814     | 79,056     | 79,299     | 79,543     | 77,052     | 78,196     | 79,178     |
|                                      | <i>1.2</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>0.6</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>0.3</i> | <i>3.0</i> | <i>1.5</i> | <i>1.3</i> |
| Net interprovincial migration (000s) | 13.1       | 12.5       | 11.9       | 11.2       | 10.5       | 9.9        | 9.3        | 8.8        | 8.4        | 8.0        | 7.6        | 7.3        | 12.2       | 9.6        | 7.8        |
| Net international migration (000s)   | 126.8      | 127.3      | 127.5      | 127.3      | 125.3      | 125.0      | 124.9      | 125.1      | 125.5      | 126.2      | 127.1      | 128.2      | 127.2      | 125.0      | 126.7      |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

MANITOBA

# Key Sectors Face Mixed Growth

## Chapter Summary

- Real GDP growth will ease to 1.6 per cent this year and 1.2 per cent in 2019.
- The manufacturing and transportation sectors are points of stability in Manitoba's economic outlook, thanks to infrastructure investments and steady demand.
- The agriculture sector this year was off to a challenging start because of abnormally dry conditions.
- The slowing economic growth will be reflected in limited job growth and will constrain consumer spending.



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## MANITOBA

### Government and Background Information

Premier Brian Pallister

Next election 2020

Population (2018Q2) 1,348,809

Government balance (2018–19) –\$521 million

Sources: The Conference Board of Canada; Manitoba Department of Finance; Statistics Canada.

### Forecast Risk

#### Short term

U.S. tariffs on key agricultural exports could hurt Manitoba's farmers and food processors.



#### Medium term

Manitoba may receive higher-than-expected equalization payments in the next few years because the payments may be phased out for Ontario, given that province's relatively strong economic growth.



### Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 2.6  | 1.6  | 1.2  |
| Consumer price index            | 1.6  | 2.6  | 1.9  |
| Household disposable income     | 5.2  | 3.7  | 2.6  |
| Employment                      | 1.6  | 0.5  | 0.7  |
| Unemployment rate (level)       | 5.4  | 6.2  | 6.3  |
| Retail sales                    | 7.8  | 0.3  | 2.2  |
| Wages and salaries per employee | 2.4  | 3.2  | 1.5  |
| Population                      | 1.6  | 1.2  | 1.4  |

Shaded area represents forecast data.

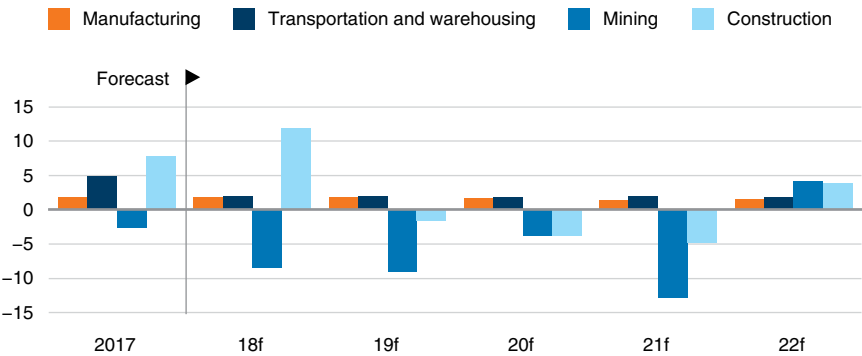
Sources: The Conference Board of Canada; Statistics Canada.



**Economic growth in Manitoba is projected to slow over the next few years because of mine closures and the completion of major construction projects, such as the Bipole III Transmission Line and the Keeyask Generating Station. Real GDP is forecast to grow by 1.6 per cent this year and 1.2 per cent in 2019.**

The province is benefiting from capacity investments in power generation and food manufacturing. As well, the expected construction of the Manitoba segment of the Enbridge Line 3 replacement will stimulate construction activity. Unique to 2018 is a boost in revenue for commercial services due to the Winnipeg Jets hockey playoff run. The positive drivers of economic growth this year will be counterbalanced by the closure of mining operations due to dwindling reserves and low prices, a slowing of the housing market, and declines in retail trade. After 2018, the economy will be supported mainly by steady growth in the manufacturing and transportation sectors, in part because of projected improvements in foreign demand for transportation vehicles and equipment. Further declines in mining production will weigh on economic growth in Manitoba over the next few years. (See Chart 1.)

**Chart 1**  
**Diverging Growth in Some Key Sectors**  
(percentage change\*)



f = forecast  
\*based on 2007 \$  
Sources: The Conference Board of Canada; Statistics Canada.

The stellar growth of Manitoba's agriculture sector in 2017 is unlikely to be repeated this year because unusually dry conditions in parts of the province have led to mixed crop development up to date; however, conditions may improve in the later half of the year. Farmers focused more on wheat, corn, and oats rather than soybeans and canola this year.

The cooling of the economy will be reflected in modest employment growth of 0.5 per cent per year, on average, over the next few years, and in slower consumption growth, particularly with respect to durable goods.

The economic outlook for Manitoba is subject to considerable risk, given the tense international trade relations and volatile weather conditions.

## Consumer Outlook

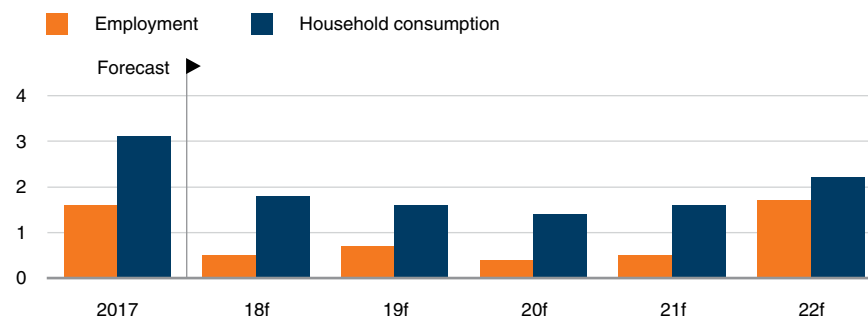
Retailers rejoiced last year when sales rose an uncharacteristic 7.8 per cent, but such a high rate of growth was unlikely to last. Retail sales in Manitoba were 0.4 per cent lower in the first two quarters of 2018 compared with last year. With provincial inflation projected to rise to 2.6 per cent, growth in real consumer spending will pull back to a more modest 1.8 per cent this year, compared with 3.1 per cent in 2017. Over the rest of the forecast, real household consumption growth will average 1.7 per cent annually.

Job losses in mining, utilities, and construction are partly to blame for slower growth in consumer spending. A modest 3,164 net jobs are forecast to be gained this year, and an average 3,552 net jobs per year are expected over the three years after. (See Chart 2.) On the bright side, the agriculture sector's success last year has led to an influx of jobs that counteracts the declines in other industries.

Chart 2

### Slower Job Growth to Drag Down Spending

(percentage change\*)



f = forecast

\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

## Investment Outlook

An exciting new project of Canadian National Railway (CN) was announced in June. As a part of CN's \$3.4-billion capital program this year, the company is spending \$130 million to improve its rail network in Manitoba, which will include an "expansion of its primary rail yard in Winnipeg."<sup>1</sup>

Manitoba's food manufacturing industry is also seeing some much-needed investment in 2018, which will continue into 2019. Roquette's new \$400-million pea processing plant will help meet the growing global demand for plant-based alternatives to traditional protein-rich foods like meat. J.R. Simplot's expansion of its potato processing facility will add \$460 million in investment to the province over 2018–19. Continued construction of Manitoba Hydro's power projects plus work on the Enbridge Line 3 replacement are forecast to push non-residential investment growth up to 23.3 per cent this year.

<sup>1</sup> Canadian National Railway, "CN Investing \$130 Million to Expand and Strengthen Manitoba's Rail Infrastructure in 2018," news release, June 8, 2018, <https://globenewswire.com/news-release/2018/06/08/1518889/0/en/CN-investing-130-million-to-expand-and-strengthen-Manitoba-s-rail-infrastructure-in-2018.html>.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

Since most projects are being completed either this year or next, and no major projects are scheduled thereafter, non-residential investment is expected to decline by 9.3 per cent in 2019 and then average 13.3 per cent a year over 2020–22.

On the other hand, residential investment is projected to remain strong throughout the forecast period, averaging 5.6 per cent annually as work on the \$400-million hotel, office, and residential complex (known as True North Square) in Winnipeg continues to 2020. Residential investment will also be supported by steady growth in housing starts.

Total business investment is forecast to rise by 10.7 per cent in 2018 and 1.8 per cent in 2019.

## Government Outlook

The government of Manitoba aims to reduce the deficit to \$521 million this year, primarily through fiscal restraint. Households will benefit from a \$1,010 rise in the basic personal tax exemption in 2019 and 2020, and businesses will profit from changes to various corporate taxes and credits. Consumers will also gain from a 1 percentage point decrease in the 8.0 per cent sales tax in 2020. However, these benefits for Manitobans will be offset by the \$25 carbon tax that will increase the price of fuel but likely increase government coffers overall.

The Conference Board of Canada projects government spending growth at 2.5 per cent this year and 0.6 per cent per year on average through the rest of the forecast.

## Trade

Farmers in Manitoba are rightfully concerned by the rise of protectionist policies in the U.S. as nearly half of revenues from provincial agricultural exports comes from the United States. All of Manitoba's major farm products, including canola, wheat, and pork products, are exported primarily to the United States.

As a result, there is great uncertainty surrounding Manitoba's trade outlook. In the first two quarters of 2018, we estimate real exports are 2.0 per cent higher than they were over the same period last year. Growth in real exports is forecast at 1.7 per cent this year and 2.5 per cent per year over 2019–22.

## Key Industries

### Agriculture

Unusually cool conditions in early spring delayed planting and crop development, and the lack of soil moisture in parts of the province has led to a slow start for Manitoba's agriculture sector. Statistics Canada's normalized vegetation growth indices, where higher positive values indicate good crop health relative to the period of 1987 to 2017, shows low crop development in most regions until early June when rainfall improved.

Overall, we expect more modest growth of 2.0 per cent in real agriculture output this year compared with 8.7 per cent in 2017.

### Manufacturing

The manufacturing industry is a point of stability in Manitoba's economic outlook. Up to the end of May, nominal food processing sales were 12.2 per cent higher than they were over the same period last year. Food processing sales made up nearly a quarter of all manufacturing sales in 2017 and will likely increase that share over the medium term, thanks to Roquette and Simplot's investments in Portage la Prairie. Growth in real manufacturing output is forecast at 1.9 per cent this year and 1.8 per cent in 2019.

### Mining

Nickel prices rose by 14.5 per cent in the first quarter of 2018 and are still rising slightly, in part because of anticipated increases in the demand for nickel in electric vehicle batteries. Despite rising prices, nickel production is unlikely to return to Thompson following Vale's permanent shutdown of its smelting and refining operations in July.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
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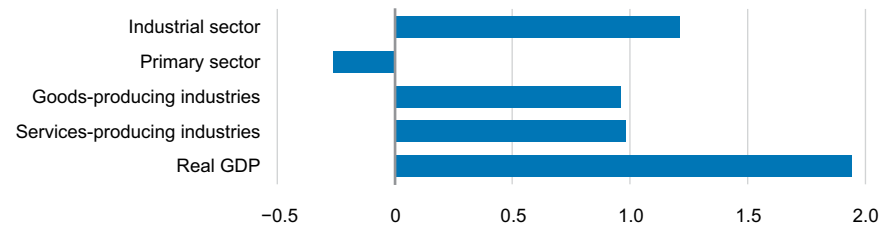
Manitoba's copper and zinc industries are not expected to fare any better than the nickel industry. Copper prices saw little growth up to the end of May, and zinc prices are coming down fast after a 5.7 per cent increase in the first quarter. Copper prices are unlikely to improve in the near term as global supply is projected to expand strongly this year. However, prices could be steadied by increased construction activity in the country that demands the most copper in the world—China.

Because of low prices and dwindling reserves, no new mining operations have been planned in Manitoba to counteract the shutdowns by Vale and Hudbay. Real mining output is projected to fall by 6.9 per cent this year and 6.2 per cent in 2019.

### Chart 3

#### Contributions to Manitoba Real GDP Growth, 2018

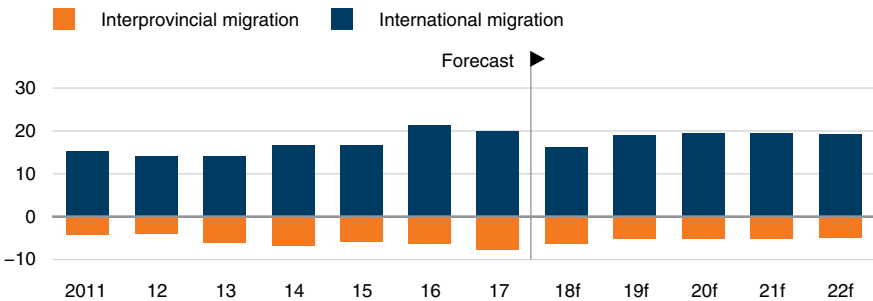
(by industry/sector, percentage points; GDP, per cent)



Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.

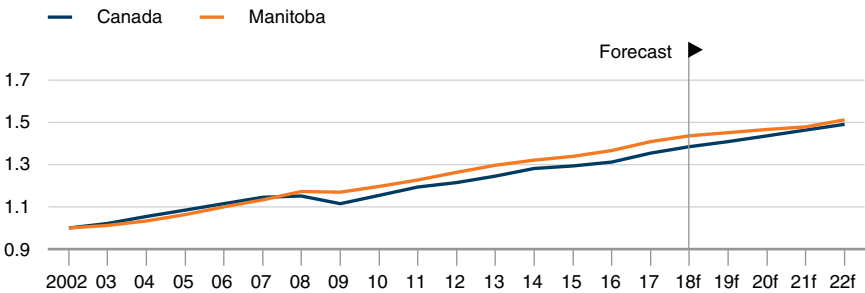
Sources: The Conference Board of Canada; Statistics Canada.

**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: Manitoba, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2    | 2017<br>Q3    | 2017<br>Q4    | 2018<br>Q1     | 2018<br>Q2    | 2018<br>Q3    | 2018<br>Q4    | 2019<br>Q1    | 2019<br>Q2    | 2019<br>Q3    | 2019<br>Q4    | 2017          | 2018          | 2019          |
|-----------------------------------------------------------|----------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 69,817<br>-0.4 | 70,685<br>1.2 | 71,150<br>0.7 | 72,172<br>1.4 | 71,914<br>-0.4 | 72,759<br>1.2 | 74,398<br>2.3 | 74,593<br>0.3 | 74,831<br>0.3 | 75,246<br>0.6 | 75,705<br>0.6 | 76,087<br>0.5 | 70,956<br>4.6 | 73,416<br>3.5 | 75,467<br>2.8 |
| GDP at market prices (2007 \$ millions)                   | 61,110<br>1.0  | 62,039<br>1.5 | 62,447<br>0.7 | 62,560<br>0.2 | 62,704<br>0.2  | 62,820<br>0.2 | 63,250<br>0.7 | 63,438<br>0.3 | 63,493<br>0.1 | 63,688<br>0.3 | 63,893<br>0.3 | 64,090<br>0.3 | 62,039<br>2.6 | 63,053<br>1.6 | 63,791<br>1.2 |
| GDP at basic prices (2007 \$ millions)                    | 56,279<br>1.0  | 57,189<br>1.6 | 57,661<br>0.8 | 57,869<br>0.4 | 58,052<br>0.3  | 58,182<br>0.2 | 58,511<br>0.6 | 58,689<br>0.3 | 58,746<br>0.1 | 58,928<br>0.3 | 59,122<br>0.3 | 59,312<br>0.3 | 57,250<br>2.9 | 58,359<br>1.9 | 59,027<br>1.1 |
| Consumer price index (2002 = 1.0)                         | 1.297<br>1.0   | 1.302<br>0.4  | 1.305<br>0.2  | 1.316<br>0.9  | 1.326<br>0.8   | 1.336<br>0.7  | 1.344<br>0.6  | 1.350<br>0.5  | 1.355<br>0.4  | 1.361<br>0.4  | 1.367<br>0.4  | 1.373<br>0.4  | 1.305<br>1.6  | 1.339<br>2.6  | 1.364<br>1.9  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.142<br>-1.3  | 1.139<br>-0.3 | 1.139<br>0.0  | 1.154<br>1.3  | 1.147<br>-0.6  | 1.158<br>1.0  | 1.176<br>1.6  | 1.176<br>0.0  | 1.179<br>0.2  | 1.181<br>0.2  | 1.185<br>0.3  | 1.187<br>0.2  | 1.144<br>1.9  | 1.164<br>1.8  | 1.183<br>1.6  |
| Wages and salary per employee (\$ 000s)                   | 46.9<br>1.2    | 46.8<br>-0.2  | 46.9<br>0.2   | 47.3<br>0.9   | 48.1<br>1.6    | 48.5<br>0.8   | 48.6<br>0.3   | 48.8<br>0.3   | 48.9<br>0.2   | 49.1<br>0.5   | 49.3<br>0.5   | 49.6<br>0.5   | 47.0<br>2.4   | 48.5<br>3.2   | 49.2<br>1.5   |
| Primary household income (\$ millions)                    | 45,563<br>1.3  | 45,985<br>0.9 | 46,491<br>1.1 | 46,796<br>0.7 | 47,157<br>0.8  | 47,763<br>1.3 | 47,959<br>0.4 | 48,156<br>0.4 | 48,507<br>0.7 | 48,808<br>0.6 | 49,124<br>0.6 | 49,460<br>0.7 | 46,209<br>4.0 | 47,759<br>3.4 | 48,975<br>2.5 |
| Household disposable income (\$ millions)                 | 39,538<br>0.2  | 40,169<br>1.6 | 40,698<br>1.3 | 40,826<br>0.3 | 41,065<br>0.6  | 41,784<br>1.8 | 42,026<br>0.6 | 42,257<br>0.5 | 42,367<br>0.3 | 42,671<br>0.7 | 42,980<br>0.7 | 43,387<br>0.9 | 40,308<br>5.2 | 41,783<br>3.7 | 42,852<br>2.6 |
| Household net savings rate (per cent)                     | 2.0            | 2.4           | 3.5           | 3.2           | 3.1            | 2.3           | 2.0           | 1.9           | 1.8           | 1.7           | 1.6           | 1.5           | 2.8           | 2.3           | 1.7           |
| Population (000s)                                         | 1,328<br>0.3   | 1,332<br>0.3  | 1,338<br>0.5  | 1,343<br>0.4  | 1,347<br>0.3   | 1,349<br>0.1  | 1,354<br>0.4  | 1,359<br>0.4  | 1,364<br>0.4  | 1,369<br>0.4  | 1,374<br>0.4  | 1,380<br>0.4  | 1,335<br>1.6  | 1,352<br>1.2  | 1,372<br>1.4  |
| Employment (000s)                                         | 638<br>0.8     | 643<br>0.7    | 648<br>0.7    | 646<br>-0.2   | 643<br>-0.5    | 648<br>0.8    | 648<br>0.1    | 649<br>0.1    | 650<br>0.2    | 651<br>0.1    | 652<br>0.2    | 653<br>0.2    | 644<br>1.6    | 647<br>0.5    | 651<br>0.7    |
| Labour force (000s)                                       | 677<br>0.3     | 679<br>0.3    | 683<br>0.6    | 683<br>0.0    | 683<br>-0.1    | 691<br>1.2    | 692<br>0.1    | 693<br>0.2    | 694<br>0.2    | 694<br>0.0    | 695<br>0.1    | 696<br>0.2    | 681<br>0.9    | 690<br>1.3    | 695<br>0.8    |
| Labour force participation rate (per cent)                | 67.2           | 67.1          | 67.3          | 67.1          | 66.9           | 67.5          | 67.5          | 67.4          | 67.2          | 67.0          | 66.8          | 66.7          | 67.2          | 67.3          | 67.0          |
| Unemployment rate (per cent)                              | 5.7            | 5.3           | 5.2           | 5.4           | 5.9            | 6.3           | 6.3           | 6.3           | 6.3           | 6.3           | 6.2           | 6.2           | 5.4           | 6.2           | 6.3           |

(continued ...)



Table 1a (cont'd)

**Key Economic Indicators: Manitoba, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1 | 2017<br>Q2 | 2017<br>Q3 | 2017<br>Q4 | 2018<br>Q1 | 2018<br>Q2 | 2018<br>Q3 | 2018<br>Q4 | 2019<br>Q1 | 2019<br>Q2 | 2019<br>Q3 | 2019<br>Q4 | 2017   | 2018   | 2019   |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|--------|--------|
| Retail sales (\$ millions)           | 20,262     | 20,423     | 20,218     | 20,543     | 20,061     | 20,445     | 20,570     | 20,639     | 20,709     | 20,810     | 20,909     | 21,062     | 20,362 | 20,429 | 20,873 |
|                                      | 6.8        | 0.8        | -1.0       | 1.6        | -2.3       | 1.9        | 0.6        | 0.3        | 0.3        | 0.5        | 0.5        | 0.7        | 7.8    | 0.3    | 2.2    |
| Housing starts (units, 000s)         | 9,604      | 7,844      | 6,019      | 6,537      | 5,967      | 6,351      | 6,392      | 6,763      | 6,925      | 7,011      | 7,098      | 7,184      | 7,501  | 6,368  | 7,054  |
|                                      | 75.5       | -18.3      | -23.3      | 8.6        | -8.7       | 6.4        | 0.6        | 5.8        | 2.4        | 1.2        | 1.2        | 1.2        | 41.0   | -15.1  | 10.8   |
| Net interprovincial migration (000s) | -5.2       | -7.6       | -11.0      | -7.4       | -9.8       | -5.4       | -5.4       | -5.3       | -5.3       | -5.3       | -5.3       | -5.3       | -7.8   | -6.5   | -5.3   |
| Net international migration (000s)   | 16.0       | 24.9       | 23.4       | 15.6       | 11.6       | 17.3       | 17.9       | 18.3       | 18.7       | 19.0       | 19.3       | 19.4       | 20.0   | 16.3   | 19.1   |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Manitoba, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1    | 2020<br>Q2    | 2020<br>Q3    | 2020<br>Q4    | 2021<br>Q1    | 2021<br>Q2    | 2021<br>Q3    | 2021<br>Q4    | 2022<br>Q1    | 2022<br>Q2    | 2022<br>Q3    | 2022<br>Q4    | 2020          | 2021          | 2022          |
|-----------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 76,579<br>0.6 | 77,142<br>0.7 | 77,701<br>0.7 | 78,164<br>0.6 | 78,553<br>0.5 | 79,105<br>0.7 | 79,757<br>0.8 | 80,478<br>0.9 | 81,254<br>1.0 | 82,122<br>1.1 | 83,062<br>1.1 | 84,094<br>1.2 | 77,396<br>2.6 | 79,473<br>2.7 | 82,633<br>4.0 |
| GDP at market prices (2007 \$ millions)                   | 64,179<br>0.1 | 64,309<br>0.2 | 64,438<br>0.2 | 64,580<br>0.2 | 64,599<br>0.0 | 64,787<br>0.3 | 65,028<br>0.4 | 65,323<br>0.5 | 65,672<br>0.5 | 66,067<br>0.6 | 66,512<br>0.7 | 67,013<br>0.8 | 64,376<br>0.9 | 64,934<br>0.9 | 66,316<br>2.1 |
| GDP at basic prices (2007 \$ millions)                    | 59,403<br>0.2 | 59,534<br>0.2 | 59,664<br>0.2 | 59,805<br>0.2 | 59,829<br>0.0 | 60,012<br>0.3 | 60,247<br>0.4 | 60,531<br>0.5 | 60,867<br>0.6 | 61,246<br>0.6 | 61,673<br>0.7 | 62,153<br>0.8 | 59,602<br>1.0 | 60,155<br>0.9 | 61,485<br>2.2 |
| Consumer price index (2002 = 1.0)                         | 1.380<br>0.5  | 1.386<br>0.5  | 1.393<br>0.5  | 1.400<br>0.5  | 1.407<br>0.5  | 1.414<br>0.5  | 1.421<br>0.5  | 1.427<br>0.5  | 1.434<br>0.5  | 1.441<br>0.5  | 1.449<br>0.5  | 1.456<br>0.5  | 1.390<br>1.9  | 1.417<br>2.0  | 1.445<br>2.0  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.193<br>0.5  | 1.200<br>0.5  | 1.206<br>0.5  | 1.210<br>0.4  | 1.216<br>0.5  | 1.221<br>0.4  | 1.226<br>0.4  | 1.232<br>0.4  | 1.237<br>0.4  | 1.243<br>0.5  | 1.249<br>0.5  | 1.255<br>0.5  | 1.202<br>1.6  | 1.224<br>1.8  | 1.246<br>1.8  |
| Wages and salary per employee (\$ 000s)                   | 49.8<br>0.4   | 49.9<br>0.3   | 50.1<br>0.4   | 50.4<br>0.5   | 50.7<br>0.6   | 51.0<br>0.6   | 51.3<br>0.5   | 51.5<br>0.5   | 51.8<br>0.6   | 52.2<br>0.6   | 52.5<br>0.6   | 52.8<br>0.6   | 50.1<br>1.7   | 51.1<br>2.1   | 52.3<br>2.3   |
| Primary household income (\$ millions)                    | 49,801<br>0.7 | 50,031<br>0.5 | 50,310<br>0.6 | 50,633<br>0.6 | 51,105<br>0.9 | 51,520<br>0.8 | 51,940<br>0.8 | 52,396<br>0.9 | 53,095<br>1.3 | 53,618<br>1.0 | 54,153<br>1.0 | 54,725<br>1.1 | 50,194<br>2.5 | 51,740<br>3.1 | 53,898<br>4.2 |
| Household disposable income (\$ millions)                 | 43,526<br>0.3 | 43,802<br>0.6 | 44,111<br>0.7 | 44,447<br>0.8 | 44,657<br>0.5 | 45,062<br>0.9 | 45,460<br>0.9 | 45,879<br>0.9 | 46,169<br>0.6 | 46,628<br>1.0 | 47,087<br>1.0 | 47,567<br>1.0 | 43,971<br>2.6 | 45,264<br>2.9 | 46,863<br>3.5 |
| Household net savings rate (per cent)                     | 1.5           | 1.4           | 1.4           | 1.4           | 1.3           | 1.3           | 1.3           | 1.4           | 1.3           | 1.3           | 1.3           | 1.4           | 1.4           | 1.3           | 1.3           |
| Population (000s)                                         | 1,385<br>0.4  | 1,390<br>0.4  | 1,396<br>0.4  | 1,401<br>0.4  | 1,407<br>0.4  | 1,412<br>0.4  | 1,418<br>0.4  | 1,423<br>0.4  | 1,429<br>0.4  | 1,434<br>0.4  | 1,440<br>0.4  | 1,445<br>0.4  | 1,393<br>1.6  | 1,415<br>1.6  | 1,437<br>1.6  |
| Employment (000s)                                         | 653<br>0.0    | 654<br>0.1    | 654<br>0.1    | 655<br>0.1    | 655<br>0.0    | 656<br>0.2    | 658<br>0.3    | 661<br>0.4    | 664<br>0.4    | 667<br>0.5    | 670<br>0.5    | 674<br>0.6    | 654<br>0.4    | 658<br>0.5    | 669<br>1.7    |
| Labour force (000s)                                       | 698<br>0.2    | 700<br>0.3    | 701<br>0.2    | 703<br>0.2    | 704<br>0.2    | 706<br>0.3    | 708<br>0.3    | 710<br>0.3    | 713<br>0.4    | 716<br>0.4    | 718<br>0.4    | 721<br>0.4    | 701<br>0.8    | 707<br>0.9    | 717<br>1.4    |
| Labour force participation rate (per cent)                | 66.7          | 66.6          | 66.5          | 66.3          | 66.2          | 66.1          | 66.1          | 66.0          | 66.1          | 66.1          | 66.0          | 66.0          | 66.5          | 66.1          | 66.0          |
| Unemployment rate (per cent)                              | 6.4           | 6.6           | 6.7           | 6.8           | 6.9           | 7.0           | 7.0           | 7.0           | 6.9           | 6.8           | 6.7           | 6.5           | 6.6           | 7.0           | 6.7           |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Manitoba, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2           | 2020<br>Q3           | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2           | 2021<br>Q3           | 2021<br>Q4           | 2022<br>Q1           | 2022<br>Q2           | 2022<br>Q3           | 2022<br>Q4           | 2020                 | 2021                 | 2022                 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 21,129<br><i>0.3</i> | 21,195<br><i>0.3</i> | 21,272<br><i>0.4</i> | 21,362<br><i>0.4</i> | 21,474<br><i>0.5</i> | 21,601<br><i>0.6</i> | 21,724<br><i>0.6</i> | 21,856<br><i>0.6</i> | 22,028<br><i>0.8</i> | 22,182<br><i>0.7</i> | 22,335<br><i>0.7</i> | 22,498<br><i>0.7</i> | 21,240<br><i>1.8</i> | 21,664<br><i>2.0</i> | 22,261<br><i>2.8</i> |
| Housing starts (units, 000s)         | 7,270<br><i>1.2</i>  | 7,357<br><i>1.2</i>  | 7,443<br><i>1.2</i>  | 7,530<br><i>1.2</i>  | 7,616<br><i>1.1</i>  | 7,702<br><i>1.1</i>  | 7,789<br><i>1.1</i>  | 7,875<br><i>1.1</i>  | 7,961<br><i>1.1</i>  | 8,048<br><i>1.1</i>  | 8,134<br><i>1.1</i>  | 8,220<br><i>1.1</i>  | 7,400<br><i>4.9</i>  | 7,745<br><i>4.7</i>  | 8,091<br><i>4.5</i>  |
| Net interprovincial migration (000s) | –5.2                 | –5.2                 | –5.2                 | –5.2                 | –5.1                 | –5.1                 | –5.1                 | –5.0                 | –5.0                 | –5.0                 | –5.0                 | –5.0                 | –5.2                 | –5.1                 | –5.0                 |
| Net international migration (000s)   | 19.3                 | 19.3                 | 19.4                 | 19.4                 | 19.5                 | 19.5                 | 19.5                 | 19.5                 | 19.5                 | 19.4                 | 19.3                 | 19.1                 | 19.3                 | 19.5                 | 19.3                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

SASKATCHEWAN

# Uranium Sector Difficulties to Hurt Economy

## Chapter Summary

- Economic growth will improve in 2019 but will be weighed down by declining business investment and difficulties in the uranium sector.
- The oil sector will benefit from capacity investments in production and transportation.
- Saskatchewan's potash industry will see solid growth throughout the forecast.
- The unemployment rate is not expected to come down until 2020.



## SASKATCHEWAN

Government and  
Background Information

Premier Scott Moe

Next election 2020

Population (2018Q2) 1,171,240

Government balance (2018–19) –\$365 million

Sources: The Conference Board of Canada; Saskatchewan Ministry of Finance; Statistics Canada.

## Forecast Risk

## Short term

The global helium shortage is attracting attention to Saskatchewan's helium wells in the southwest of the province.



## Medium term

An oversupplied market and low prices have led to an indefinite shutdown of uranium mining at McArthur River and Key Lake, which will hurt the domestic economy.



## Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 2.7  | 1.2  | 2.3  |
| Consumer price index            | 1.7  | 2.5  | 1.8  |
| Household disposable income     | 4.2  | 1.6  | 2.8  |
| Employment                      | -0.1 | -0.1 | 0.7  |
| Unemployment rate (level)       | 6.3  | 6.3  | 6.5  |
| Retail sales                    | 4.1  | 1.1  | 2.9  |
| Wages and salaries per employee | 1.9  | 1.7  | 2.1  |
| Population                      | 1.4  | 1.0  | 1.4  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**The Saskatchewan economy will benefit from solid gains in many of its key industries, including energy, manufacturing, and potash mining. However, weakness in wholesale and retail trade, significant declines in uranium production, and cuts in public infrastructure spending will moderate real GDP growth to 1.2 per cent this year.**

In 2019, real GDP is projected to expand by 2.3 per cent with the support of a 5.6 per cent gain in the mining sector. However, economic growth is at risk with the recent announcement that the shutdown of the McArthur River and Key Lake uranium mines is being extended indefinitely and that Cameco's head office in Saskatoon will lay off 150 workers. When the provincial forecast was produced, we did not know that the mine shutdowns would be extended indefinitely; thus, our forecast of real GDP growth faces new risks. Initial estimates of the direct impact of the uranium sector's difficulties indicate that real GDP growth would be around 0.6 percentage points lower in 2019.

The forecast is more upbeat in other key sectors of the economy, but it does face some uncertainty. While the discount of the Western Canadian Select (WCS) to the West Texas Intermediate (WTI) improved over much of April and May, recent pipeline and rail bottlenecks—plus insufficient pipeline capacity down the road—continue to be of concern. The July 22 deadline, which would have allowed the federal government to quickly sell the Trans Mountain pipeline, was missed, fuelling further uncertainty about oil prices. Since mid-May, the WCS–WTI price differential has widened to as much as US\$32 per barrel. However, global demand for crude oil is estimated to remain strong over the next few years, and thermal extraction technologies will allow for a steady rate of production, which is conducive to a low-price environment. Husky Energy has six thermal plants planned over the medium term, two of which are under construction.

Saskatchewan's agriculture sector, after contracting by 2.4 per cent last year, is projected to rebound on the back of rising wheat prices and steady global demand for cattle and hog products. However, a challenging winter and the unusually cool and dry conditions for much of the spring have led to mixed crop development.

Weakness in Saskatchewan's labour market is another sign of more modest economic growth in 2018. Due to lower employment and rising inflation, real household consumption growth will be capped at 0.6 per cent this year. However, employment and spending are expected to pick up starting next year. Our forecast for the domestic economy will most likely be revised downward as the economy feels the impact of the permanent layoffs in the uranium sector.

## Consumer Outlook

So far this year, the average level of employment in Saskatchewan was 0.3 per cent lower than it was in 2017. Job growth in 2018 is forecast to decline (by 0.1 per cent) for the third consecutive year with the unemployment rate edging up to just above 6.3 per cent.

Job creation has been poor in the province. Cameco recently announced that it will lay off 550 permanent employees at its uranium operations at McArthur River and Key Lake, as well as 150 employees at the head office in Saskatoon, following the company's net loss of \$76 million in the second quarter.<sup>1</sup>

Consumer spending will track labour market conditions, growing by only 0.6 per cent this year, with an overall decline of 1.6 per cent in the consumption of goods. Next year, with job creation picking up, consumer demand will be stronger. (See Chart 1.) Relatively weak consumption growth is being reflected in retail sales, which were down 1.6 per cent year-over-year in the first quarter of 2018.

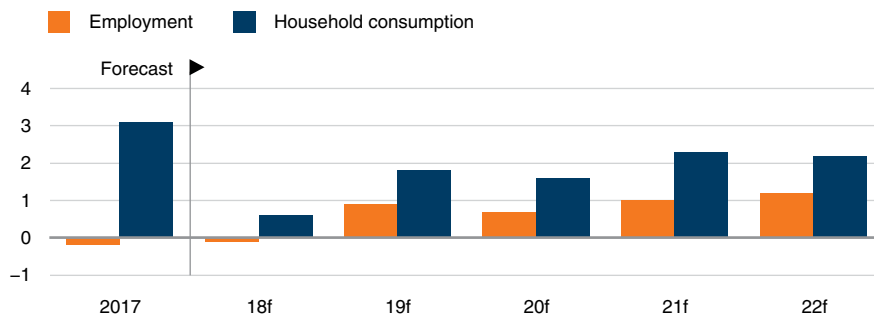
<sup>1</sup> BNN Bloomberg, "Cameco Indefinitely Extends Mine and Mill Shut-Down, Hundreds To Be Laid Off," July 26, 2018, accessed July 26, 2018, [www.bnnbloomberg.ca/cameco-indefinitely-extends-mine-and-mill-shut-down-hundreds-to-be-laid-off-1.11](http://www.bnnbloomberg.ca/cameco-indefinitely-extends-mine-and-mill-shut-down-hundreds-to-be-laid-off-1.11), 14079.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

Chart 1

**Improving Employment Growth to Help Spending in 2019**

(percentage change\*)



f = forecast

\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

## Investment Outlook

A rebound of 12.9 per cent in non-residential investment is projected for 2018, after three years of declines. Investments are mainly being made in the mining and energy sectors, notably, in construction on the Enbridge Line 3 replacement and Keystone XL, Husky Energy's thermal plants, and Mosaic's Esterhazy K3 potash project.

However, non-residential investment is forecast to decline by 0.2 per cent in 2019 and by 4.1 per cent annually over 2020–22 as two major government projects—the Chinook Power Station and the Regina Bypass—are expected to be completed late next year.

## Government Outlook

With the goal of a balanced budget in 2019–20, the Saskatchewan government plans no growth in total program spending over the next two years. In the provincial government's latest budget, released on April 10, education spending is set to fall considerably, and growth in health care spending will be limited to 0.6 per cent this fiscal year. A \$365-million deficit is set for 2018–19.



We forecast that government spending will grow by 1.3 per cent in 2018–19 and then contract by 0.1 per cent in 2019–20.

## Trade

In the first five months of the year, compared with the same period in 2017, energy product exports were up about 14 per cent, and exports of potash were up 7.0 per cent. The only major industry with a decline in exports was agriculture, which saw a 1.9 per cent decrease in exports following a drought-stricken 2017. With global demand for crude oil projected to remain strong and with still some room for prices to rise, real exports are forecast to grow by 3.8 per cent in 2018 and by 6.0 per cent in 2019.

Saskatchewan exporters will also benefit from steady demand for agriculture products over the medium term and from increased access to the Latin American fertilizer market, following Vale's exit from the industry.

## Key Industries

### Agriculture

The agriculture sector is off to a challenging start this year. Vegetation growth indices produced by Statistics Canada (where higher values represent crops that are “dense and in good health”) indicated below-normal crop development in many parts of the province throughout spring. For the Prairies, Agriculture and Agri-Food Canada reported “lower to much lower” crop development than during the droughts of 1988, 1989, 2001, and 2002.<sup>2</sup> Crop health has since improved because of increased rainfall in June.

The Conference Board of Canada forecasts 3.8 per cent growth in real agriculture output in 2018.

<sup>2</sup> Statistics Canada, “Crop Condition Assessment Program, April 9 to October 14, 2018,” June 1, 2018, accessed June 1, 2018, [www150.statcan.gc.ca/n1/daily-quotidien/180601/dq180601b-eng.htm](http://www150.statcan.gc.ca/n1/daily-quotidien/180601/dq180601b-eng.htm).

## Oil and Gas

While Saskatchewan's oil industry is unlikely to see pre-recession levels of growth over the next few years, the industry is showing signs of strength. The WTI was averaging around US\$68.71 a barrel from May to July, compared with US\$63.40 from January to the end of April.

Husky Energy is making good progress on its six thermal plants, each to produce 10,000 barrels a day. First oil at Rush Lake 2 is expected in the fourth quarter of 2018 with production ramping up to design capacity in the first quarter of next year. Construction at Dee Valley is ongoing with first oil anticipated in the first half of 2020.

There was an exciting development in Saskatchewan's natural gas industry in June. Calgary-based North American Helium acquired the rights to 1.2 million acres in southwestern Saskatchewan to extract helium from the province's deep high-pressure fields. Helium, which is critical to the function of rockets and silicon chips, is globally in short supply. The company views the piece of land as the "most economic source of new helium supply," in part thanks to the province's "favourable business climate and regulatory regime."<sup>3</sup>

Growth in mineral fuels production is expected to be 2.5 per cent this year and then to jump to 3.4 per cent in 2019.

## Metal Mining

Initial estimates of the revised metal mining outlook that take into account Cameco's permanent layoffs show a 26.8 per cent decrease in real output this year and a 12.3 per cent decrease in 2019. (See Chart 2.) To make things worse, the Trump administration is considering levying tariffs on uranium imports. Only 5.0 per cent of uranium used in the United States is produced domestically. Most uranium in the U.S. is imported from various countries, Canada being the main supplier, followed by Australia.

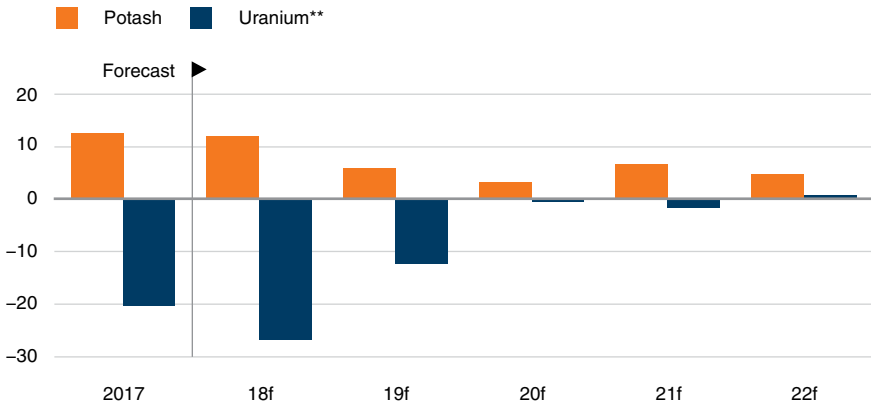
3 Trish Saywell, "North American Helium Sees Opportunity in Saskatchewan," *The Northern Miner*, June 28, 2018, accessed June 28, 2018, [www.northernminer.com/subscribe-login/?id=1003797449](http://www.northernminer.com/subscribe-login/?id=1003797449).

While uranium prices remain low, growth in inventories is slowing, and the demand for uranium is expected to increase over the medium term, particularly from China, India, and Russia. However, in the short run, mine closures will hurt Saskatchewan’s growth prospects.

Non-Metal Mining

Saskatchewan’s potash industry is showing promise. K+S Potash and Mosaic will be ramping up production throughout the forecast period. Real potash output is projected to grow by 12.1 per cent this year and by 6.0 per cent in 2019. (See Chart 2.)

Chart 2  
Dismal Performance by Uranium Sector  
(GDP, percentage change\*)



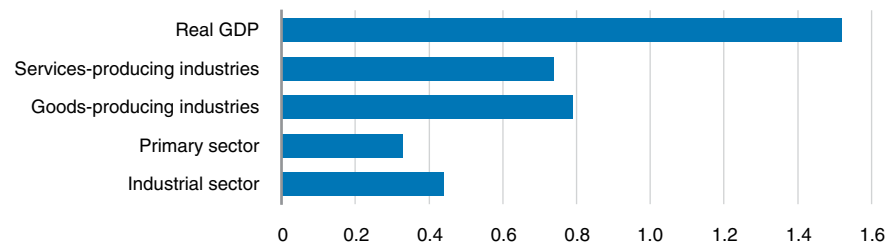
f = forecast  
\*based on 2007 \$  
\*\*revised estimate  
Sources: The Conference Board of Canada; Statistics Canada.

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

Chart 3

**Contributions to Saskatchewan Real GDP Growth, 2018**

(by industry/sector, percentage points; GDP, per cent)



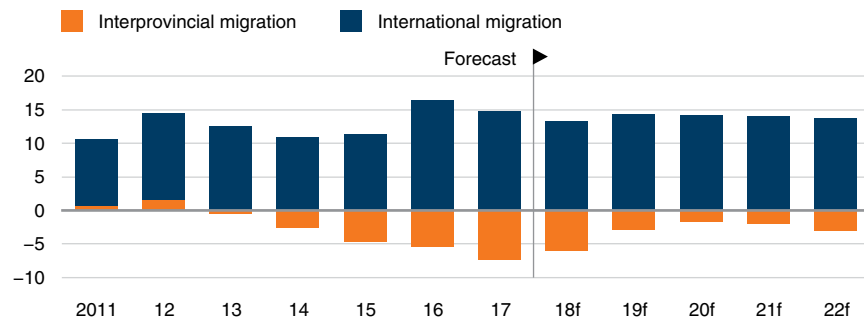
Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

Chart 4

**Sources of Migration**

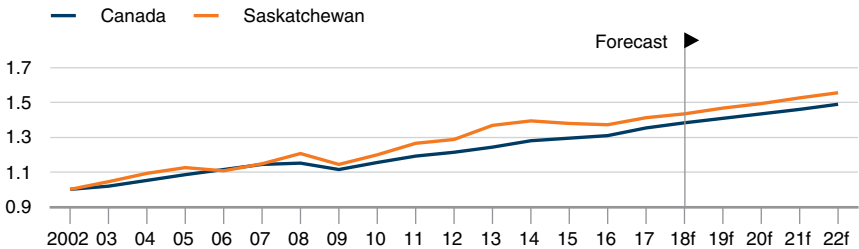
(net migration, 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Chart 5  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: Saskatchewan, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1    | 2017<br>Q2     | 2017<br>Q3    | 2017<br>Q4     | 2018<br>Q1     | 2018<br>Q2    | 2018<br>Q3    | 2018<br>Q4    | 2019<br>Q1    | 2019<br>Q2    | 2019<br>Q3    | 2019<br>Q4    | 2017          | 2018          | 2019          |
|-----------------------------------------------------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 78,479<br>2.6 | 77,837<br>-0.8 | 78,750<br>1.2 | 79,379<br>0.8  | 79,741<br>0.5  | 81,457<br>2.2 | 83,413<br>2.4 | 83,506<br>0.1 | 84,370<br>1.0 | 84,876<br>0.6 | 85,562<br>0.8 | 86,103<br>0.6 | 78,611<br>4.5 | 82,029<br>4.3 | 85,228<br>3.9 |
| GDP at market prices (2007 \$ millions)                   | 64,301<br>2.1 | 63,998<br>-0.5 | 64,456<br>0.7 | 64,138<br>-0.5 | 64,291<br>0.2  | 64,840<br>0.9 | 65,356<br>0.8 | 65,542<br>0.3 | 66,083<br>0.8 | 66,329<br>0.4 | 66,637<br>0.5 | 66,966<br>0.5 | 64,223<br>2.7 | 65,007<br>1.2 | 66,504<br>2.3 |
| GDP at basic prices (2007 \$ millions)                    | 60,543<br>2.1 | 60,317<br>-0.4 | 60,850<br>0.9 | 60,658<br>-0.3 | 60,856<br>0.3  | 61,399<br>0.9 | 61,814<br>0.7 | 61,994<br>0.3 | 62,512<br>0.8 | 62,747<br>0.4 | 63,043<br>0.5 | 63,363<br>0.5 | 60,592<br>2.9 | 61,516<br>1.5 | 62,916<br>2.3 |
| Consumer price index (2002 = 1.0)                         | 1.330<br>0.8  | 1.340<br>0.8   | 1.345<br>0.4  | 1.360<br>1.1   | 1.366<br>0.5   | 1.374<br>0.6  | 1.382<br>0.6  | 1.388<br>0.5  | 1.392<br>0.3  | 1.399<br>0.5  | 1.406<br>0.4  | 1.412<br>0.5  | 1.344<br>1.7  | 1.378<br>2.5  | 1.402<br>1.8  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.221<br>0.5  | 1.216<br>-0.4  | 1.222<br>0.5  | 1.238<br>1.3   | 1.240<br>0.2   | 1.256<br>1.3  | 1.276<br>1.6  | 1.274<br>-0.2 | 1.277<br>0.2  | 1.280<br>0.2  | 1.284<br>0.3  | 1.286<br>0.1  | 1.224<br>1.7  | 1.262<br>3.1  | 1.282<br>1.6  |
| Wages and salary per employee (\$ 000s)                   | 49.1<br>0.6   | 49.5<br>0.8    | 49.8<br>0.7   | 50.2<br>0.7    | 50.0<br>-0.4   | 50.4<br>0.8   | 50.6<br>0.3   | 51.0<br>0.8   | 51.1<br>0.3   | 51.4<br>0.5   | 51.7<br>0.5   | 52.0<br>0.6   | 49.6<br>1.9   | 50.5<br>1.7   | 51.5<br>2.1   |
| Primary household income (\$ millions)                    | 44,546<br>1.2 | 44,951<br>0.9  | 45,489<br>1.2 | 45,555<br>0.1  | 45,204<br>-0.8 | 45,361<br>0.3 | 45,524<br>0.4 | 45,926<br>0.9 | 46,358<br>0.9 | 46,709<br>0.8 | 47,066<br>0.8 | 47,445<br>0.8 | 45,135<br>2.7 | 45,504<br>0.8 | 46,895<br>3.1 |
| Household disposable income (\$ millions)                 | 38,390<br>0.2 | 39,020<br>1.6  | 39,616<br>1.5 | 39,595<br>-0.1 | 39,192<br>-1.0 | 39,599<br>1.0 | 40,004<br>1.0 | 40,382<br>0.9 | 40,520<br>0.3 | 40,691<br>0.4 | 41,037<br>0.8 | 41,396<br>0.9 | 39,155<br>4.2 | 39,794<br>1.6 | 40,911<br>2.8 |
| Household net savings rate (per cent)                     | 5.4           | 5.7            | 6.7           | 6.3            | 5.6            | 5.0           | 4.7           | 4.6           | 4.4           | 4.3           | 4.3           | 4.2           | 6.0           | 4.9           | 4.3           |
| Population (000s)                                         | 1,156<br>0.2  | 1,160<br>0.3   | 1,164<br>0.4  | 1,168<br>0.4   | 1,170<br>0.1   | 1,171<br>0.1  | 1,175<br>0.3  | 1,179<br>0.3  | 1,183<br>0.4  | 1,188<br>0.4  | 1,192<br>0.4  | 1,197<br>0.4  | 1,162<br>1.4  | 1,174<br>1.0  | 1,190<br>1.4  |
| Employment (000s)                                         | 571<br>0.5    | 568<br>-0.5    | 568<br>0.0    | 565<br>-0.5    | 569<br>0.6     | 567<br>-0.3   | 567<br>-0.1   | 568<br>0.3    | 570<br>0.3    | 571<br>0.2    | 572<br>0.2    | 574<br>0.2    | 568<br>-0.1   | 568<br>-0.1   | 572<br>0.7    |
| Labour force (000s)                                       | 608<br>-0.2   | 607<br>-0.1    | 607<br>-0.1   | 603<br>-0.6    | 603<br>0.0     | 606<br>0.6    | 607<br>0.1    | 608<br>0.2    | 610<br>0.2    | 611<br>0.2    | 612<br>0.2    | 613<br>0.2    | 606<br>-0.2   | 606<br>-0.1   | 611<br>0.9    |
| Labour force participation rate (per cent)                | 69.6          | 69.3           | 69.1          | 68.5           | 68.4           | 68.6          | 68.6          | 68.5          | 68.4          | 68.3          | 68.2          | 68.1          | 69.2          | 68.5          | 68.3          |
| Unemployment rate (per cent)                              | 6.1           | 6.4            | 6.4           | 6.2            | 5.6            | 6.4           | 6.6           | 6.6           | 6.5           | 6.5           | 6.5           | 6.5           | 6.3           | 6.3           | 6.5           |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Saskatchewan, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1 | 2017<br>Q2 | 2017<br>Q3 | 2017<br>Q4 | 2018<br>Q1 | 2018<br>Q2 | 2018<br>Q3 | 2018<br>Q4 | 2019<br>Q1 | 2019<br>Q2 | 2019<br>Q3 | 2019<br>Q4 | 2017   | 2018   | 2019   |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|--------|--------|
| Retail sales (\$ millions)           | 19,857     | 19,293     | 19,294     | 19,865     | 19,538     | 19,635     | 19,888     | 20,077     | 20,194     | 20,248     | 20,405     | 20,569     | 19,577 | 19,785 | 20,354 |
|                                      | 5.3        | -2.8       | 0.0        | 3.0        | -1.6       | 0.5        | 1.3        | 1.0        | 0.6        | 0.3        | 0.8        | 0.8        | 4.1    | 1.1    | 2.9    |
| Housing starts (units, 000s)         | 4,410      | 4,835      | 5,486      | 4,886      | 3,712      | 3,116      | 3,937      | 4,093      | 4,249      | 4,405      | 4,561      | 4,717      | 4,904  | 3,714  | 4,483  |
|                                      | -5.3       | 9.6        | 13.5       | -10.9      | -24.0      | -16.1      | 26.3       | 4.0        | 3.8        | 3.7        | 3.5        | 3.4        | 2.7    | -24.3  | 20.7   |
| Net interprovincial migration (000s) | -4.7       | -7.3       | -10.8      | -7.1       | -10.1      | -5.2       | -4.6       | -4.1       | -3.6       | -3.2       | -2.8       | -2.4       | -7.5   | -6.0   | -3.0   |
| Net international migration (000s)   | 12.4       | 17.8       | 20.0       | 9.1        | 10.9       | 14.1       | 14.2       | 14.3       | 14.4       | 14.4       | 14.4       | 14.4       | 14.8   | 13.4   | 14.4   |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Saskatchewan, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1    | 2020<br>Q2    | 2020<br>Q3    | 2020<br>Q4    | 2021<br>Q1    | 2021<br>Q2    | 2021<br>Q3    | 2021<br>Q4    | 2022<br>Q1    | 2022<br>Q2    | 2022<br>Q3    | 2022<br>Q4    | 2020          | 2021          | 2022          |
|-----------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| GDP at market prices (\$ millions)                        | 86,900<br>0.9 | 87,648<br>0.9 | 88,398<br>0.9 | 89,282<br>1.0 | 90,570<br>1.4 | 91,567<br>1.1 | 92,563<br>1.1 | 93,524<br>1.0 | 94,417<br>1.0 | 95,363<br>1.0 | 96,308<br>1.0 | 97,274<br>1.0 | 88,057<br>3.3 | 92,056<br>4.5 | 95,840<br>4.1 |
| GDP at market prices (2007 \$ millions)                   | 67,108<br>0.2 | 67,467<br>0.5 | 67,807<br>0.5 | 68,189<br>0.6 | 68,624<br>0.6 | 69,011<br>0.6 | 69,385<br>0.5 | 69,747<br>0.5 | 69,992<br>0.4 | 70,307<br>0.4 | 70,612<br>0.4 | 70,913<br>0.4 | 67,643<br>1.7 | 69,192<br>2.3 | 70,456<br>1.8 |
| GDP at basic prices (2007 \$ millions)                    | 63,506<br>0.2 | 63,858<br>0.6 | 64,190<br>0.5 | 64,562<br>0.6 | 64,981<br>0.6 | 65,357<br>0.6 | 65,723<br>0.6 | 66,079<br>0.5 | 66,325<br>0.4 | 66,638<br>0.5 | 66,941<br>0.5 | 67,244<br>0.5 | 64,029<br>1.8 | 65,535<br>2.4 | 66,787<br>1.9 |
| Consumer price index (2002 = 1.0)                         | 1.419<br>0.5  | 1.426<br>0.5  | 1.433<br>0.5  | 1.439<br>0.5  | 1.447<br>0.5  | 1.454<br>0.5  | 1.461<br>0.5  | 1.468<br>0.5  | 1.475<br>0.5  | 1.483<br>0.5  | 1.490<br>0.5  | 1.498<br>0.5  | 1.429<br>1.9  | 1.457<br>2.0  | 1.486<br>2.0  |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.295<br>0.7  | 1.299<br>0.3  | 1.304<br>0.4  | 1.309<br>0.4  | 1.320<br>0.8  | 1.327<br>0.5  | 1.334<br>0.5  | 1.341<br>0.5  | 1.349<br>0.6  | 1.356<br>0.5  | 1.364<br>0.6  | 1.372<br>0.6  | 1.302<br>1.6  | 1.330<br>2.2  | 1.360<br>2.2  |
| Wages and salary per employee (\$ 000s)                   | 52.2<br>0.5   | 52.5<br>0.6   | 52.8<br>0.5   | 53.1<br>0.5   | 53.4<br>0.6   | 53.7<br>0.6   | 54.0<br>0.6   | 54.3<br>0.5   | 54.5<br>0.5   | 54.7<br>0.3   | 55.0<br>0.5   | 55.3<br>0.5   | 52.7<br>2.1   | 53.8<br>2.2   | 54.9<br>1.9   |
| Primary household income (\$ millions)                    | 47,784<br>0.7 | 48,181<br>0.8 | 48,581<br>0.8 | 49,016<br>0.9 | 49,646<br>1.3 | 50,161<br>1.0 | 50,672<br>1.0 | 51,182<br>1.0 | 51,817<br>1.2 | 52,271<br>0.9 | 52,785<br>1.0 | 53,328<br>1.0 | 48,390<br>3.2 | 50,415<br>4.2 | 52,550<br>4.2 |
| Household disposable income (\$ millions)                 | 41,508<br>0.3 | 41,881<br>0.9 | 42,257<br>0.9 | 42,657<br>0.9 | 42,917<br>0.6 | 43,372<br>1.1 | 43,824<br>1.0 | 44,283<br>1.0 | 44,507<br>0.5 | 44,927<br>0.9 | 45,392<br>1.0 | 45,880<br>1.1 | 42,076<br>2.8 | 43,599<br>3.6 | 45,177<br>3.6 |
| Household net savings rate (per cent)                     | 4.1           | 4.0           | 4.0           | 4.0           | 3.9           | 3.9           | 3.9           | 4.0           | 3.9           | 3.9           | 3.9           | 3.9           | 4.0           | 3.9           | 3.9           |
| Population (000s)                                         | 1,202<br>0.4  | 1,206<br>0.4  | 1,211<br>0.4  | 1,216<br>0.4  | 1,221<br>0.4  | 1,226<br>0.4  | 1,230<br>0.4  | 1,235<br>0.4  | 1,240<br>0.4  | 1,244<br>0.4  | 1,249<br>0.4  | 1,253<br>0.3  | 1,209<br>1.6  | 1,228<br>1.6  | 1,246<br>1.5  |
| Employment (000s)                                         | 574<br>0.0    | 575<br>0.3    | 577<br>0.3    | 579<br>0.3    | 582<br>0.5    | 584<br>0.4    | 587<br>0.4    | 589<br>0.4    | 591<br>0.4    | 594<br>0.4    | 596<br>0.4    | 598<br>0.4    | 576<br>0.8    | 586<br>1.6    | 595<br>1.6    |
| Labour force (000s)                                       | 614<br>0.1    | 615<br>0.2    | 617<br>0.2    | 618<br>0.3    | 620<br>0.3    | 621<br>0.3    | 623<br>0.3    | 625<br>0.3    | 627<br>0.3    | 629<br>0.3    | 631<br>0.3    | 633<br>0.3    | 616<br>0.7    | 622<br>1.0    | 630<br>1.2    |
| Labour force participation rate (per cent)                | 67.9          | 67.8          | 67.7          | 67.6          | 67.5          | 67.4          | 67.3          | 67.3          | 67.2          | 67.2          | 67.2          | 67.1          | 67.7          | 67.4          | 67.2          |
| Unemployment rate (per cent)                              | 6.5           | 6.5           | 6.4           | 6.3           | 6.1           | 6.0           | 5.9           | 5.8           | 5.7           | 5.6           | 5.6           | 5.5           | 6.4           | 5.9           | 5.6           |

(continued ...)



Table 1b (cont'd)

**Key Economic Indicators: Saskatchewan, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1           | 2020<br>Q2           | 2020<br>Q3           | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2           | 2021<br>Q3           | 2021<br>Q4           | 2022<br>Q1           | 2022<br>Q2           | 2022<br>Q3           | 2022<br>Q4           | 2020                 | 2021                 | 2022                 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 20,653<br><i>0.4</i> | 20,816<br><i>0.8</i> | 20,972<br><i>0.8</i> | 21,140<br><i>0.8</i> | 21,319<br><i>0.8</i> | 21,517<br><i>0.9</i> | 21,714<br><i>0.9</i> | 21,912<br><i>0.9</i> | 22,082<br><i>0.8</i> | 22,257<br><i>0.8</i> | 22,457<br><i>0.9</i> | 22,670<br><i>0.9</i> | 20,895<br><i>2.7</i> | 21,615<br><i>3.4</i> | 22,367<br><i>3.5</i> |
| Housing starts (units, 000s)         | 4,874<br><i>3.3</i>  | 5,030<br><i>3.2</i>  | 5,186<br><i>3.1</i>  | 5,342<br><i>3.0</i>  | 5,498<br><i>2.9</i>  | 5,655<br><i>2.8</i>  | 5,811<br><i>2.8</i>  | 5,967<br><i>2.7</i>  | 6,123<br><i>2.6</i>  | 6,279<br><i>2.6</i>  | 6,436<br><i>2.5</i>  | 6,592<br><i>2.4</i>  | 5,108<br><i>13.9</i> | 5,733<br><i>12.2</i> | 6,357<br><i>10.9</i> |
| Net interprovincial migration (000s) | –1.9                 | –1.7                 | –1.6                 | –1.6                 | –1.8                 | –1.9                 | –2.0                 | –2.2                 | –2.5                 | –2.8                 | –3.2                 | –3.6                 | –1.7                 | –2.0                 | –3.0                 |
| Net international migration (000s)   | 14.3                 | 14.2                 | 14.2                 | 14.2                 | 14.2                 | 14.1                 | 14.1                 | 14.0                 | 14.0                 | 13.9                 | 13.8                 | 13.7                 | 14.2                 | 14.1                 | 13.8                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

ALBERTA

# Pipeline Expansions Good News for Investment Climate

## Chapter Summary

- Real GDP growth is on a solid path, but boom years will not be seen any time soon.
- An improving labour market will see more Albertans employed, but the unemployment rate will still remain high.
- Alberta will see the fastest growth in private sector investment among the provinces in 2019.
- Export growth will be modest next year at just 1.6 per cent.



## ALBERTA

Government and  
Background Information

Premier Rachel Notley

Next election Before June 1, 2019

Population (2018Q2) 4,334,025

Government balance (2018–19) –\$8.8 billion

Sources: The Conference Board of Canada; Alberta Treasury Board and Finance; Statistics Canada.

## Forecast Risk

## Short term

If the U.S. administration goes ahead with new tariffs, the province's agricultural sector could be hit hard.



## Medium term

If pipeline capacity expansion does not materialize, and if the business climate does not improve, Alberta's growth will disappoint, leading to fewer jobs and lower tax revenues for the government.



## Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 4.6  | 1.9  | 1.8  |
| Consumer price index            | 1.5  | 2.6  | 1.9  |
| Household disposable income     | 4.3  | 4.5  | 3.6  |
| Employment                      | 1.0  | 1.7  | 1.1  |
| Unemployment rate (level)       | 7.8  | 6.4  | 6.3  |
| Retail sales                    | 7.1  | 3.5  | 3.6  |
| Wages and salaries per employee | 1.9  | 1.9  | 2.6  |
| Population                      | 1.2  | 1.4  | 1.5  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**While the fundamentals of Alberta's economy remain strong, growth is projected to be a middling 1.9 per cent this year and 1.8 per cent next year. This will be good enough to match the Canadian average but not enough to match that of neighbouring British Columbia in 2019. Growth will pick up beginning in the 2020s but will not surpass 2.5 per cent over the forecast period.**

The uncertainty about whether the Trans Mountain Pipeline expansion project would go ahead was not good for the business environment. However, the federal government's decision to purchase the project from Kinder Morgan means that the expansion is back on track. The Enbridge Line 3 expansion also looks set to move ahead after receiving regulatory approval from the Minnesota Public Utilities Commission. Line 3 could be operational by the second half of next year. With rail exports of crude at a three-year high and with current pipelines operating close to capacity, this is excellent news for the province—the new capacity could help relieve the steep price discount Alberta's oil producers are forced to take for their product.

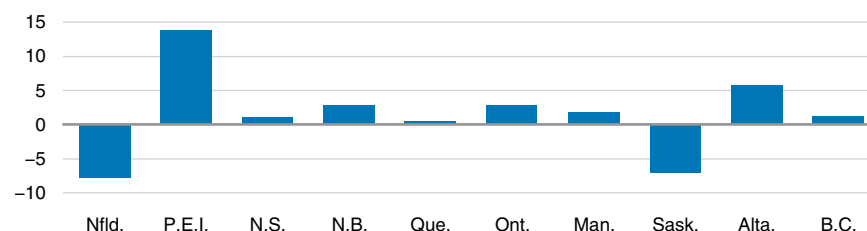
Although a cloud of uncertainty still hangs over the broader competitiveness and regulatory climate in Alberta, it appears that businesses are growing more confident about their medium-term prospects. With more pipeline capacity in the offing, new energy investments have recently been announced by Nexen Energy and Prosper Petroleum. Those, along with pipeline investments, will put Alberta in second place among provinces for growth in private sector investment in 2019. (See Chart 1.)

Outside of the energy sector, virtually all areas of the economy are showing some advances. This will cause the labour market to slowly tighten. Albertans can expect wages and household income to continue to grow in 2019 as the unemployment rate ticks down to 6.3 per cent.

Chart 1

**Strong Private Sector Investment Growth in Alberta in 2019**

(business gross fixed capital formation, 2007 \$ millions, percentage change)



Sources: The Conference Board of Canada; Statistics Canada.

## Consumer Outlook

The minimum wage is set to rise to \$15 an hour in October, an increase of \$1.40 per hour. Since the province has the highest weekly wages in the country, this increase of just over 10 per cent in the minimum wage should not be too problematic for labour markets—only 6.4 per cent of workers earn the minimum wage, which is half a per cent below the Canadian average.<sup>1</sup> The Conference Board estimates that the increase may cost the province only about 2,000 jobs. Even with the minimum wage rising, we project that more than 25,000 jobs will be created in 2019 and that the unemployment rate will continue ticking down, albeit slowly. The health care sector will see 5,000 new jobs created as will primary industries outside of agriculture.

Wages are also on the upswing. With the recession firmly in the rear-view mirror, average yearly wages look set to surpass their pre-recession peak toward the end of next year. (See Chart 2.) This will help push up household disposable income, which is set to finish the year up by a strong 4.5 per cent. That growth will continue into next year and help increase retail sales. Retail sales will see average yearly growth of about 3.5 per cent through 2022, led by sales of semi-durable goods.

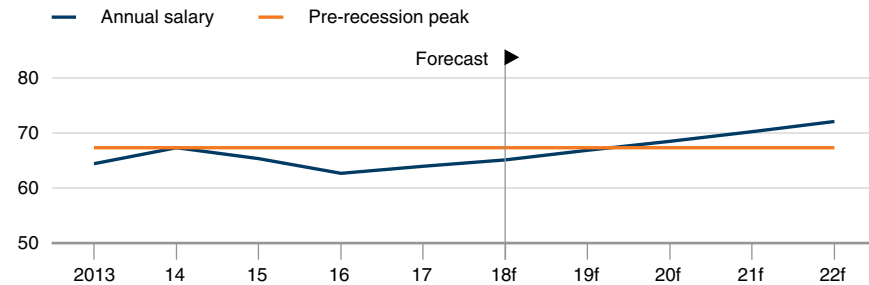
<sup>1</sup> Alberta, *Alberta Minimum Wage Profile: April 2017 – March 2018* (Edmonton, Alta.: Government of Alberta, May 2018), [work.alberta.ca/documents/alberta-minimum-wage-profile.pdf](http://work.alberta.ca/documents/alberta-minimum-wage-profile.pdf).

PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

## Chart 2

### Earnings Are Set to Surpass Their Pre-Recession Peak

(wages and salaries per employee, \$ 000s)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

## Investment Outlook

Private sector investment has returned to Alberta and is on track to grow at a rate of 2.7 per cent this year and 5.7 per cent in 2019. While the energy industry wants a more stable regulatory environment, it appears to have built new pipeline capacity into its assumptions and is ready to bring its investment dollars to the oil patch.

Nexen Energy is investing \$400 million to expand its Long Lake oil sands project, located south of Fort McMurray in Northern Alberta.<sup>2</sup> When completed, it will add 26,000 barrels per day to the company's existing production. The project has already been approved by the Alberta Energy Regulator and, with first oil anticipated toward the end of 2020, site preparation is in progress.

Prosper Petroleum is also investing in Alberta. Construction on its Rigel Project will begin in the fourth quarter of 2018 after receiving regulatory approval in June of this year. The project is expected to produce first oil in early 2020. The \$440-million investment will produce 10,000 barrels per day and generate \$1.5 billion in royalties.<sup>3</sup>

2 Nexen Energy, "Nexen Energy Announces \$400-Million Expansion of Long Lake Oilsands Project," news release, June 20, 2018, [www.cbc.ca/news/canada/edmonton/nexen-energy-announces-400-million-expansion-of-long-lake-oilsands-project-1.4715106](http://www.cbc.ca/news/canada/edmonton/nexen-energy-announces-400-million-expansion-of-long-lake-oilsands-project-1.4715106).

3 Prosper Petroleum, "AER Approves Prosper Petroleum's Rigel SAGD Project," news release, n.d., [www.prosperpetroleum.com/aer-approves-prosper-petroleums-rigel-sagd-project/](http://www.prosperpetroleum.com/aer-approves-prosper-petroleums-rigel-sagd-project/).

Overall, the province will see business investment grow by over \$4.2 billion in 2019. Investment in residential structures is projected to grow by 6.4 per cent. Although there are reasons for optimism, we have yet to see new multi-billion-dollar investments return to the energy sector. Governments at the federal and provincial levels will need to respond to private sector concerns before that level of investment occurs.

## Government Outlook

Government investment is trending downward in the province. After growing by over 6 per cent in 2017, government expenditures are expected to fall by over 5 per cent both this year and next. Likewise, the growth of the public administration sector will be held to just 0.1 per cent in 2019. Together, these developments should help the province reach its goal of eliminating the deficit in 2023–24.

## Trade and Energy Outlook

Real exports are forecast to grow by just 1.6 per cent next year. Some good news remains as exports will finish this year by posting solid 3.3 per cent growth. This is in part due to the Fort Hills project, which continues to ramp up oil production ahead of schedule. The project's third and final extraction train was put into operation during the second quarter of this year, and the plant was successfully tested at close to full design capacity during a week-long reliability test.<sup>4</sup>

The eventual expansion of pipeline capacity should help reduce the price differential that Alberta's oil producers have become accustomed to receiving for their product. As pipeline capacity comes online, the quantity and the value of Alberta's exports should rise steadily. By 2022, we project that real exports will again be growing by 3 per cent annually.

4 Suncor, "Suncor Energy Reports Second Quarter 2018 Results," news release, July 25, 2018, [www.suncor.com/newsroom/news-releases/2176304](http://www.suncor.com/newsroom/news-releases/2176304).

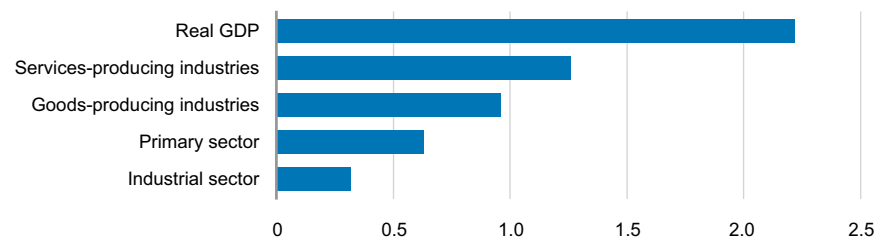
PROVINCIAL OUTLOOK ECONOMIC FORECAST  
Summer 2018

Imports are forecast to grow by over 5 per cent this year and continue similarly strong growth into 2019. With retail spending up, Albertans are increasing their purchases from other countries and other provinces.

Chart 3

**Contributions to Alberta Real GDP Growth, 2018**

(real GDP of selected sectors, 2007 \$ millions, percentage change)



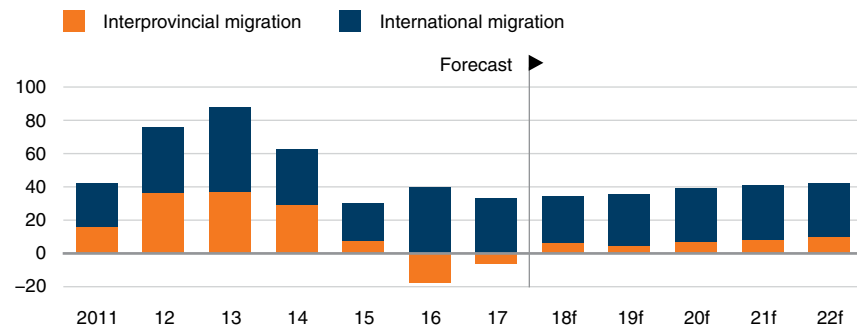
Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.

Sources: The Conference Board of Canada; Statistics Canada.

Chart 4

**Sources of Migration**

(net migration, 000s)

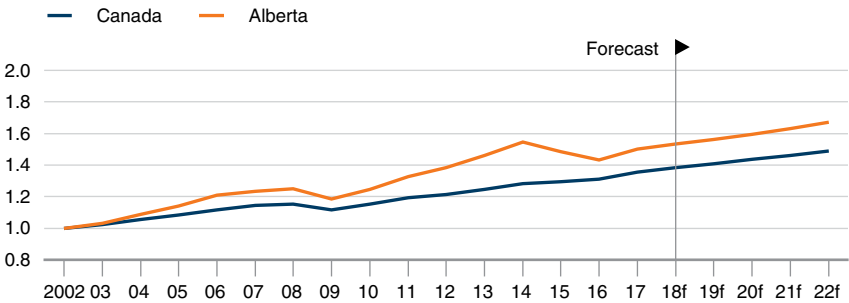


f = forecast

Sources: The Conference Board of Canada; Statistics Canada.



**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: Alberta, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1      | 2017<br>Q2     | 2017<br>Q3     | 2017<br>Q4     | 2018<br>Q1     | 2018<br>Q2     | 2018<br>Q3      | 2018<br>Q4     | 2019<br>Q1     | 2019<br>Q2     | 2019<br>Q3     | 2019<br>Q4     | 2017           | 2018           | 2019           |
|-----------------------------------------------------------|-----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 332,607<br>3.4  | 340,906<br>2.5 | 343,386<br>0.7 | 349,762<br>1.9 | 353,524<br>1.1 | 362,110<br>2.4 | 367,436<br>1.5  | 372,940<br>1.5 | 373,076<br>0.0 | 374,911<br>0.5 | 377,447<br>0.7 | 380,032<br>0.7 | 341,665<br>8.5 | 364,003<br>6.5 | 376,366<br>3.4 |
| GDP at market prices (2007 \$ millions)                   | 311,066<br>0.7  | 318,216<br>2.3 | 318,573<br>0.1 | 318,756<br>0.1 | 320,883<br>0.7 | 322,778<br>0.6 | 321,721<br>-0.3 | 325,528<br>1.2 | 326,479<br>0.3 | 327,738<br>0.4 | 329,302<br>0.5 | 330,720<br>0.4 | 316,653<br>4.6 | 322,727<br>1.9 | 328,560<br>1.8 |
| GDP at basic prices (2007 \$ millions)                    | 298,731<br>0.7  | 305,887<br>2.4 | 306,746<br>0.3 | 307,471<br>0.2 | 309,791<br>0.8 | 311,737<br>0.6 | 310,346<br>-0.4 | 314,037<br>1.2 | 314,987<br>0.3 | 316,211<br>0.4 | 317,747<br>0.5 | 319,156<br>0.4 | 304,709<br>4.9 | 311,478<br>2.2 | 317,025<br>1.8 |
| Consumer price index (2002 = 1.0)                         | 1.368<br>1.2    | 1.372<br>0.2   | 1.371<br>0.0   | 1.379<br>0.5   | 1.395<br>1.2   | 1.405<br>0.7   | 1.412<br>0.6    | 1.419<br>0.5   | 1.424<br>0.4   | 1.431<br>0.4   | 1.437<br>0.4   | 1.444<br>0.5   | 1.373<br>1.5   | 1.408<br>2.6   | 1.434<br>1.9   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.069<br>2.7    | 1.071<br>0.2   | 1.078<br>0.6   | 1.097<br>1.8   | 1.102<br>0.4   | 1.122<br>1.8   | 1.142<br>1.8    | 1.146<br>0.3   | 1.143<br>-0.3  | 1.144<br>0.1   | 1.146<br>0.2   | 1.149<br>0.3   | 1.079<br>3.7   | 1.128<br>4.5   | 1.145<br>1.6   |
| Wages and salary per employee (\$ 000s)                   | 63.0<br>0.9     | 63.6<br>0.9    | 64.4<br>1.3    | 64.4<br>0.0    | 64.4<br>0.0    | 64.9<br>0.7    | 65.2<br>0.5     | 65.8<br>0.9    | 66.1<br>0.5    | 66.6<br>0.8    | 67.0<br>0.7    | 67.4<br>0.6    | 63.9<br>1.9    | 65.1<br>1.9    | 66.8<br>2.6    |
| Primary household income (\$ millions)                    | 197,812<br>0.6  | 201,483<br>1.9 | 204,122<br>1.3 | 206,240<br>1.0 | 207,602<br>0.7 | 209,795<br>1.1 | 211,203<br>0.7  | 213,701<br>1.2 | 215,575<br>0.9 | 217,721<br>1.0 | 219,915<br>1.0 | 221,939<br>0.9 | 202,415<br>3.6 | 210,575<br>4.0 | 218,787<br>3.9 |
| Household disposable income (\$ millions)                 | 159,973<br>-0.9 | 164,125<br>2.6 | 166,839<br>1.7 | 167,982<br>0.7 | 169,160<br>0.7 | 171,600<br>1.4 | 172,869<br>0.7  | 174,920<br>1.2 | 175,683<br>0.4 | 177,500<br>1.0 | 179,314<br>1.0 | 181,000<br>0.9 | 164,730<br>4.3 | 172,137<br>4.5 | 178,374<br>3.6 |
| Household net savings rate (per cent)                     | 7.3             | 8.0            | 9.0            | 8.8            | 8.8            | 7.8            | 7.5             | 7.5            | 7.2            | 7.2            | 7.1            | 7.1            | 8.3            | 7.9            | 7.1            |
| Population (000s)                                         | 4,261<br>0.2    | 4,272<br>0.3   | 4,286<br>0.3   | 4,306<br>0.5   | 4,319<br>0.3   | 4,334<br>0.4   | 4,351<br>0.4    | 4,368<br>0.4   | 4,385<br>0.4   | 4,402<br>0.4   | 4,418<br>0.4   | 4,435<br>0.4   | 4,281<br>1.2   | 4,343<br>1.4   | 4,410<br>1.5   |
| Employment (000s)                                         | 2,275<br>0.3    | 2,290<br>0.7   | 2,285<br>-0.2  | 2,304<br>0.9   | 2,319<br>0.6   | 2,326<br>0.3   | 2,330<br>0.2    | 2,339<br>0.4   | 2,344<br>0.2   | 2,350<br>0.3   | 2,358<br>0.3   | 2,365<br>0.3   | 2,289<br>1.0   | 2,328<br>1.7   | 2,354<br>1.1   |
| Labour force (000s)                                       | 2,484<br>-0.1   | 2,482<br>-0.1  | 2,481<br>0.0   | 2,486<br>0.2   | 2,484<br>-0.1  | 2,487<br>0.1   | 2,484<br>-0.1   | 2,492<br>0.3   | 2,501<br>0.4   | 2,507<br>0.3   | 2,515<br>0.3   | 2,522<br>0.3   | 2,483<br>0.7   | 2,487<br>0.2   | 2,511<br>1.0   |
| Labour force participation rate (per cent)                | 72.7            | 72.5           | 72.2           | 72.2           | 72.0           | 71.8           | 71.7            | 71.6           | 71.6           | 71.5           | 71.5           | 71.4           | 72.4           | 71.8           | 71.5           |
| Unemployment rate (per cent)                              | 8.4             | 7.7            | 7.9            | 7.3            | 6.7            | 6.5            | 6.2             | 6.1            | 6.3            | 6.3            | 6.2            | 6.2            | 7.8            | 6.4            | 6.3            |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Alberta, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1           | 2017<br>Q2            | 2017<br>Q3            | 2017<br>Q4           | 2018<br>Q1             | 2018<br>Q2            | 2018<br>Q3            | 2018<br>Q4            | 2019<br>Q1            | 2019<br>Q2            | 2019<br>Q3            | 2019<br>Q4            | 2017                  | 2018                 | 2019                 |
|--------------------------------------|----------------------|-----------------------|-----------------------|----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|
| Retail sales (\$ millions)           | 79,387<br><i>4.2</i> | 80,467<br><i>1.4</i>  | 80,395<br><i>-0.1</i> | 81,022<br><i>0.8</i> | 81,180<br><i>0.2</i>   | 83,043<br><i>2.3</i>  | 83,687<br><i>0.8</i>  | 84,610<br><i>1.1</i>  | 85,073<br><i>0.5</i>  | 85,821<br><i>0.9</i>  | 86,544<br><i>0.8</i>  | 87,180<br><i>0.7</i>  | 80,318<br><i>7.1</i>  | 83,130<br><i>3.5</i> | 86,154<br><i>3.6</i> |
| Housing starts (units, 000s)         | 27,105<br><i>3.4</i> | 31,416<br><i>15.9</i> | 29,455<br><i>-6.2</i> | 29,852<br><i>1.3</i> | 25,304<br><i>-15.2</i> | 30,248<br><i>19.5</i> | 33,308<br><i>10.1</i> | 33,225<br><i>-0.2</i> | 33,151<br><i>-0.2</i> | 33,086<br><i>-0.2</i> | 33,031<br><i>-0.2</i> | 32,984<br><i>-0.1</i> | 29,457<br><i>20.1</i> | 30,521<br><i>3.6</i> | 33,063<br><i>8.3</i> |
| Net interprovincial migration (000s) | -11.8                | -19.7                 | 3.0                   | 1.2                  | 7.4                    | 6.7                   | 5.9                   | 5.2                   | 4.9                   | 4.7                   | 4.7                   | 5.0                   | -6.8                  | 6.3                  | 4.8                  |
| Net international migration (000s)   | 28.8                 | 41.6                  | 41.5                  | 21.2                 | 26.6                   | 27.9                  | 28.8                  | 29.5                  | 30.2                  | 30.8                  | 31.3                  | 31.6                  | 33.3                  | 28.2                 | 31.0                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Alberta, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1     | 2020<br>Q2     | 2020<br>Q3     | 2020<br>Q4     | 2021<br>Q1     | 2021<br>Q2     | 2021<br>Q3     | 2021<br>Q4     | 2022<br>Q1     | 2022<br>Q2     | 2022<br>Q3     | 2022<br>Q4     | 2020           | 2021           | 2022           |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 382,946<br>0.8 | 386,516<br>0.9 | 390,391<br>1.0 | 394,664<br>1.1 | 400,084<br>1.4 | 404,689<br>1.2 | 409,328<br>1.1 | 413,827<br>1.1 | 418,337<br>1.1 | 422,845<br>1.1 | 427,328<br>1.1 | 431,911<br>1.1 | 388,629<br>3.3 | 406,982<br>4.7 | 425,105<br>4.5 |
| GDP at market prices (2007 \$ millions)                   | 332,204<br>0.4 | 333,954<br>0.5 | 335,684<br>0.5 | 337,549<br>0.6 | 339,663<br>0.6 | 341,550<br>0.6 | 343,483<br>0.6 | 345,462<br>0.6 | 347,675<br>0.6 | 349,655<br>0.6 | 351,666<br>0.6 | 353,760<br>0.6 | 334,848<br>1.9 | 342,540<br>2.3 | 350,689<br>2.4 |
| GDP at basic prices (2007 \$ millions)                    | 320,636<br>0.5 | 322,382<br>0.5 | 324,107<br>0.5 | 325,958<br>0.6 | 328,035<br>0.6 | 329,908<br>0.6 | 331,838<br>0.6 | 333,811<br>0.6 | 336,016<br>0.7 | 338,004<br>0.6 | 340,024<br>0.6 | 342,138<br>0.6 | 323,271<br>2.0 | 330,898<br>2.4 | 339,046<br>2.5 |
| Consumer price index (2002 = 1.0)                         | 1.450<br>0.4   | 1.457<br>0.5   | 1.464<br>0.5   | 1.471<br>0.5   | 1.478<br>0.5   | 1.485<br>0.5   | 1.493<br>0.5   | 1.500<br>0.5   | 1.507<br>0.5   | 1.515<br>0.5   | 1.523<br>0.5   | 1.531<br>0.5   | 1.461<br>1.9   | 1.489<br>1.9   | 1.519<br>2.0   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.153<br>0.3   | 1.157<br>0.4   | 1.163<br>0.5   | 1.169<br>0.5   | 1.178<br>0.7   | 1.185<br>0.6   | 1.192<br>0.6   | 1.198<br>0.5   | 1.203<br>0.4   | 1.209<br>0.5   | 1.215<br>0.5   | 1.221<br>0.5   | 1.161<br>1.3   | 1.188<br>2.4   | 1.212<br>2.0   |
| Wages and salary per employee (\$ 000s)                   | 67.9<br>0.6    | 68.3<br>0.6    | 68.7<br>0.6    | 69.1<br>0.6    | 69.5<br>0.6    | 70.0<br>0.6    | 70.5<br>0.7    | 70.9<br>0.7    | 71.4<br>0.7    | 71.8<br>0.6    | 72.3<br>0.6    | 72.8<br>0.7    | 68.5<br>2.6    | 70.2<br>2.5    | 72.1<br>2.6    |
| Primary household income (\$ millions)                    | 224,430<br>1.1 | 226,727<br>1.0 | 229,012<br>1.0 | 231,524<br>1.1 | 234,627<br>1.3 | 237,248<br>1.1 | 239,767<br>1.1 | 242,307<br>1.1 | 245,378<br>1.3 | 247,781<br>1.0 | 250,377<br>1.0 | 253,073<br>1.1 | 227,923<br>4.2 | 238,487<br>4.6 | 249,152<br>4.5 |
| Household disposable income (\$ millions)                 | 182,313<br>0.7 | 184,213<br>1.0 | 186,126<br>1.0 | 188,177<br>1.1 | 189,836<br>0.9 | 191,989<br>1.1 | 194,090<br>1.1 | 196,214<br>1.1 | 197,642<br>0.7 | 199,685<br>1.0 | 201,856<br>1.1 | 204,107<br>1.1 | 185,207<br>3.8 | 193,032<br>4.2 | 200,823<br>4.0 |
| Household net savings rate (per cent)                     | 6.9            | 6.9            | 6.9            | 6.8            | 6.7            | 6.7            | 6.8            | 6.8            | 6.6            | 6.6            | 6.6            | 6.7            | 6.9            | 6.7            | 6.6            |
| Population (000s)                                         | 4,452<br>0.4   | 4,469<br>0.4   | 4,486<br>0.4   | 4,504<br>0.4   | 4,521<br>0.4   | 4,539<br>0.4   | 4,556<br>0.4   | 4,574<br>0.4   | 4,591<br>0.4   | 4,609<br>0.4   | 4,627<br>0.4   | 4,644<br>0.4   | 4,478<br>1.5   | 4,547<br>1.6   | 4,618<br>1.6   |
| Employment (000s)                                         | 2,374<br>0.4   | 2,383<br>0.4   | 2,392<br>0.4   | 2,404<br>0.5   | 2,416<br>0.5   | 2,428<br>0.5   | 2,438<br>0.4   | 2,448<br>0.4   | 2,456<br>0.4   | 2,465<br>0.4   | 2,475<br>0.4   | 2,486<br>0.4   | 2,388<br>1.5   | 2,433<br>1.8   | 2,470<br>1.6   |
| Labour force (000s)                                       | 2,530<br>0.3   | 2,539<br>0.3   | 2,548<br>0.4   | 2,558<br>0.4   | 2,573<br>0.6   | 2,584<br>0.4   | 2,594<br>0.4   | 2,605<br>0.4   | 2,616<br>0.4   | 2,626<br>0.4   | 2,637<br>0.4   | 2,649<br>0.4   | 2,544<br>1.3   | 2,589<br>1.8   | 2,632<br>1.7   |
| Labour force participation rate (per cent)                | 71.4           | 71.4           | 71.4           | 71.4           | 71.5           | 71.5           | 71.5           | 71.5           | 71.5           | 71.5           | 71.5           | 71.5           | 71.4           | 71.5           | 71.5           |
| Unemployment rate (per cent)                              | 6.2            | 6.1            | 6.1            | 6.0            | 6.1            | 6.0            | 6.0            | 6.0            | 6.1            | 6.2            | 6.2            | 6.2            | 6.1            | 6.0            | 6.1            |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Alberta, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1            | 2020<br>Q2            | 2020<br>Q3            | 2020<br>Q4           | 2021<br>Q1           | 2021<br>Q2           | 2021<br>Q3           | 2021<br>Q4           | 2022<br>Q1           | 2022<br>Q2           | 2022<br>Q3           | 2022<br>Q4           | 2020                  | 2021                  | 2022                 |
|--------------------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|
| Retail sales (\$ millions)           | 87,902<br><i>0.8</i>  | 88,631<br><i>0.8</i>  | 89,333<br><i>0.8</i>  | 90,110<br><i>0.9</i> | 91,065<br><i>1.1</i> | 91,891<br><i>0.9</i> | 92,684<br><i>0.9</i> | 93,484<br><i>0.9</i> | 94,374<br><i>1.0</i> | 95,126<br><i>0.8</i> | 95,953<br><i>0.9</i> | 96,816<br><i>0.9</i> | 88,994<br><i>3.3</i>  | 92,281<br><i>3.7</i>  | 95,567<br><i>3.6</i> |
| Housing starts (units, 000s)         | 32,949<br><i>-0.1</i> | 32,920<br><i>-0.1</i> | 32,899<br><i>-0.1</i> | 32,886<br><i>0.0</i> | 32,886<br><i>0.0</i> | 32,888<br><i>0.0</i> | 32,898<br><i>0.0</i> | 32,914<br><i>0.0</i> | 32,941<br><i>0.1</i> | 32,968<br><i>0.1</i> | 33,000<br><i>0.1</i> | 33,037<br><i>0.1</i> | 32,913<br><i>-0.5</i> | 32,896<br><i>-0.1</i> | 32,987<br><i>0.3</i> |
| Net interprovincial migration (000s) | 6.1                   | 6.5                   | 7.0                   | 7.4                  | 7.8                  | 8.3                  | 8.7                  | 9.1                  | 9.4                  | 9.8                  | 10.2                 | 10.5                 | 6.8                   | 8.5                   | 10.0                 |
| Net international migration (000s)   | 31.7                  | 31.9                  | 32.1                  | 32.3                 | 32.5                 | 32.6                 | 32.6                 | 32.6                 | 32.5                 | 32.4                 | 32.2                 | 31.9                 | 32.0                  | 32.6                  | 32.3                 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

BRITISH COLUMBIA

# Slower Growth for B.C.'s Economy

## Chapter Summary

- The B.C. economy will grow by 2.1 per cent in both 2018 and 2019—slower growth than in 2017 but still above the Canada-wide average.
- The federal government's purchase of the Trans Mountain pipeline provides some hope that the expansion project could get under way in 2019, but challenges remain.
- The LNG terminal in Kitimat might finally be approved, paving the way for exports of natural gas to markets in Asia.
- Housing starts will continue to decline over the near term due to the steps taken by the provincial and federal governments to cool down the market in Greater Vancouver.
- B.C. will continue to run budget surpluses over the near term, but they will be smaller due to rising government expenditures.

## BRITISH COLUMBIA

Government and  
Background Information

Premier John Horgan

Next election Unknown

Population  
(2018Q2) 4,862,610Government balance  
(2018–19) \$219 millionSources: The Conference Board of Canada; B.C. Ministry of Finance;  
Statistics Canada.

## Forecast Risk

## Short term

Despite the federal government's purchase of the Trans Mountain pipeline, opposition to the project could continue to delay construction.



## Medium term

A NAFTA agreement could include a solution to the softwood lumber dispute between Canada and the U.S.



## Economic Indicators

(percentage change)

|                                 | 2017 | 2018 | 2019 |
|---------------------------------|------|------|------|
| Real GDP                        | 3.7  | 2.1  | 2.1  |
| Consumer price index            | 2.1  | 2.6  | 2.0  |
| Household disposable income     | 7.0  | 4.5  | 3.3  |
| Employment                      | 3.7  | 0.5  | 1.1  |
| Unemployment rate (level)       | 5.1  | 4.8  | 4.7  |
| Retail sales                    | 9.3  | 4.2  | 3.5  |
| Wages and salaries per employee | 2.3  | 3.5  | 2.2  |
| Population                      | 1.3  | 1.3  | 1.2  |

Shaded area represents forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

**The B.C. economy expanded at a pace above the 3.0 per cent mark from 2011 to 2017, in part because of soaring housing markets and strong activity in the service sector linked to healthy gains in labour markets. We expect weaker, although still above trend, growth of 2.1 per cent in both 2018 and 2019. The slower growth is a result of tight labour markets restraining employment growth and the uncertain outlook for trade and investment attributable to an escalating global trade war and difficulties in obtaining approval for pipelines and LNG export facilities throughout the province.**

The double-digit increases in B.C. housing starts in 2015 and 2016 were linked to several factors, including rock-bottom mortgage rates, rapid population growth, and tight supply. The strength in this sector is apparent from the fact that close to one-third of B.C.'s growth over the past few years was due to residential investment. The pace of expansion was unsustainable and new, tighter mortgage rules and several housing market taxes implemented in the provincial government's Budget 2018 have resulted in a sharp slowdown in activity. We expect housing starts to decline in 2018 and 2019. The lack of housing affordability, combined with rising mortgage rates, has also hurt demand, especially in the Greater Vancouver region.

The outlook for non-residential investment is also less optimistic, although there are some pockets of ongoing strength. The wrangling between the B.C. government on one side and Alberta and the federal government on the other has jeopardized the Trans Mountain pipeline expansion, which was expected to go ahead despite the cancellation of other projects in this sector. However, this outlook assumes that the multi-billion-dollar expansion will get the go-ahead, now that the federal government has stepped in to buy the pipeline. Investment will also continue on several other projects, including the Site C



hydroelectric dam. Outside of the energy and utilities sectors, the outlook for investment spending is not optimistic due to the uncertainty surrounding the outcome of the NAFTA negotiations.

While employment growth over the near term will be weaker than the close to 4 per cent gain in 2017, labour markets will tighten and put upward pressure on wages. This factor, combined with an upcoming increase in the minimum wage, will help households deal with rising gasoline prices linked, in part, to an increase in the carbon tax.

## Ongoing Uncertainty Over Trans Mountain Hurts B.C.'s Economy

There has been some good news in B.C.'s energy sector, as it now looks like Royal Dutch Shell and its partners are close to a decision to go ahead with a \$40-billion liquefied natural gas terminal that, when up and running, could deliver natural gas to markets in Asia. However, the outlook for the Trans Mountain pipeline expansion is not as bright. The ongoing Trans Mountain saga took an unexpected twist at the end of May when the federal government announced that it would purchase the pipeline from Kinder Morgan after the company balked at funding the expansion due to the political tensions surrounding the project. The company had suspended all non-essential work on April 8 and then entered negotiations with the federal government. The resulting purchase agreement included a six-week marketing window during which the government and Kinder Morgan would work together to find a private sector buyer for the project. The deadline passed on July 22 without a buyer being found. The federal government will continue to try to find a buyer for the project, but without Kinder Morgan's help, amid concerns about legal and political delays.

Finding a buyer for the project will be challenging because the obstacles that Kinder Morgan was dealing with remain. The B.C. government remains opposed to the pipeline expansion and will likely continue to take steps to block it, and there are still court challenges to be resolved. Potential buyers may be hesitant to take on these challenges, or they

might be willing to purchase the project but only at a steep discount. This could be problematic for the federal government politically if the pipeline ends up being sold at a loss.

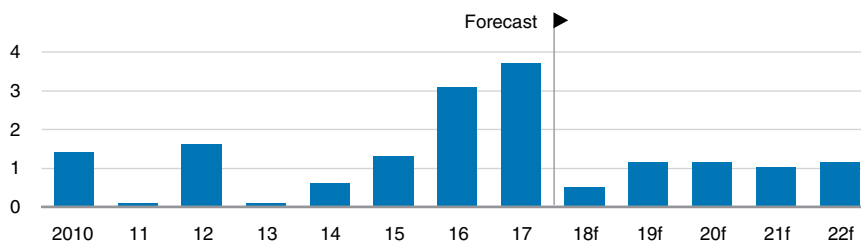
Kinder Morgan planned on spending \$7.4 billion to expand the capacity of the pipeline, and it has already spent around \$1 billion of the total. We expect the expansion to eventually go ahead, but we do not expect the work to begin until 2019. Therefore, the project will not contribute to economic growth this year. Investment in non-residential structures, which increased by close to 30 per cent last year, will drop by 1.3 per cent this year but will recover in 2019 with an anticipated gain of 14.5 per cent as the pipeline expansion kicks in. In addition to the pipeline uncertainty, investment spending in B.C. will be hurt by the increase in the corporate tax rate from 11 to 12 per cent and an increase in the tax on carbon.

The decline in growth in investment spending will feed into other key indicators of the B.C. economy and contribute to the overall decline in topline growth this year. Employment, which expanded by 3.7 per cent last year, is set to grow by just 0.5 per cent in 2018 and 1.2 per cent next year. (See Chart 1.) Slower employment growth will lead to weaker growth in disposable income. Not surprisingly, growth in household spending will be hurt by weaker employment and income growth. Real spending is forecast to increase by 2.9 per cent this year and 2.6 per cent in 2019, down from a 4.2 per cent gain in 2017. (See Chart 2.)

**Chart 1**

### **Employment Growth Weakens in B.C.**

(jobs, percentage change)

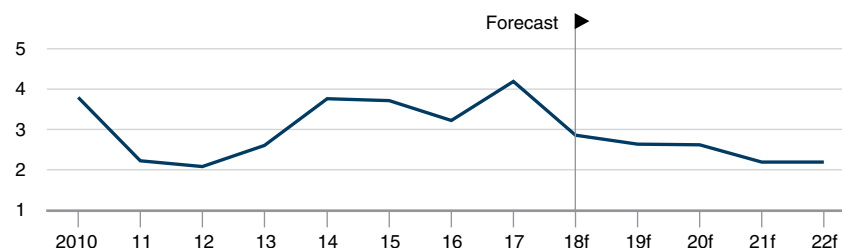


f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

**Chart 2****Real Consumer Spending Cools Off**

(percentage change\*)



f = forecast

\*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

Despite the stalling of the Trans Mountain expansion project, economic growth in the province will still be above the Canada-wide average, as B.C. continues to benefit from a strong service sector and solid growth in exports. Real exports, which dropped by 1.1 per cent last year, will expand by 3.2 per cent this year and 2.4 per cent in 2019. The Trump administration's duties on imports of Canadian softwood lumber have not been as damaging to the industry as originally feared, as U.S. demand for Canadian lumber has continued to grow despite the tariffs. The U.S. housing sector continues to expand and domestic lumber production has been unable to meet demand, making Canadian lumber imports essential to the sector.

## Measures Implemented to Cool B.C.'s Housing Sector Are Working

In addition to the negative impact of the Trans Mountain expansion problems on B.C.'s economy, the ongoing decline in housing activity is also a key contributing factor to our weaker outlook. In June, there was a slowdown in home sales even though there was increased availability of properties in some of the province's formerly red-hot housing markets. The supply of residential homes in Greater Vancouver hit a three-year high in June, while sales declined by close to 38 per cent compared with the same month last year and 28.7 per cent compared with the

10-year June average. Potential home buyers have been less active, and this has enabled the supply of homes on the market to accumulate. These two trends—rising availability and slowing sales—will lead to a drop in housing starts in B.C. of 2.0 per cent this year and 10.7 per cent in 2019.

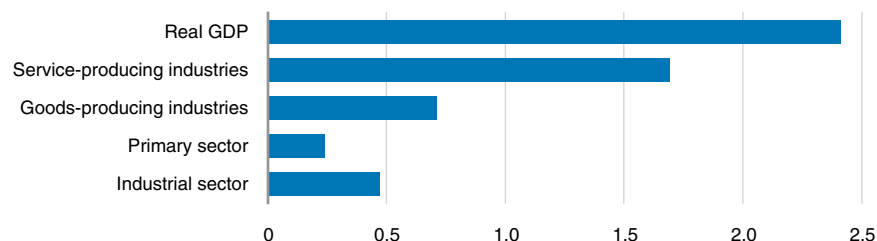
## B.C.'s Budget to Remain in the Black but Surpluses Will Be Smaller

B.C.'s fiscal position will remain in positive territory despite weaker economic growth. A surplus of \$219 million is planned for fiscal year 2018–19. However, these are modest surpluses when compared with the \$2.7-billion surplus recorded in 2016–17. Higher program and capital spending, smaller resource revenues, higher debt-servicing costs, and weaker overall economic growth underlie the projection of smaller surpluses over the forecast.

Chart 3

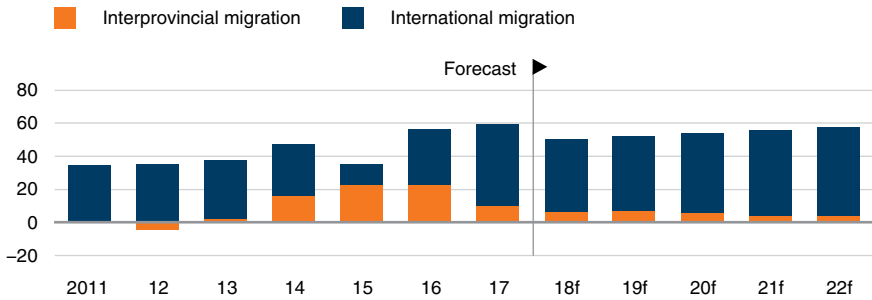
### Contributions to British Columbia Real GDP Growth, 2018

(by industry/sector, percentage point; total GDP growth, per cent)



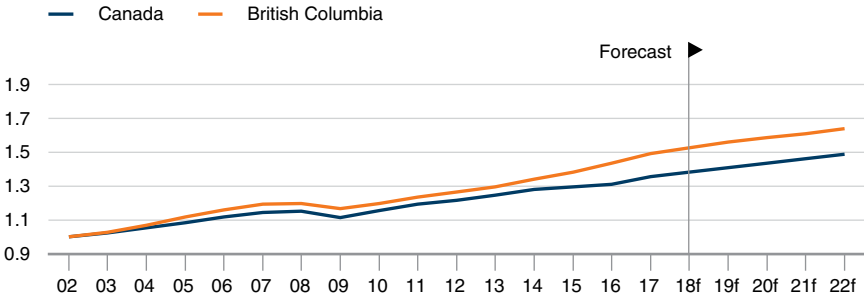
Note: "Primary" is the sum of the agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of the manufacturing, construction, and utilities sectors.

**Chart 4**  
**Sources of Migration**  
(net migration, 000s)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

**Chart 5**  
**Real GDP, 2002 to 2022**  
(index, 2002 = 1.0)



f = forecast  
Sources: The Conference Board of Canada; Statistics Canada.

Table 1a

**Key Economic Indicators: British Columbia, 2017–19**

(forecast completed July 24, 2018)

|                                                           | 2017<br>Q1     | 2017<br>Q2     | 2017<br>Q3     | 2017<br>Q4     | 2018<br>Q1      | 2018<br>Q2     | 2018<br>Q3     | 2018<br>Q4     | 2019<br>Q1     | 2019<br>Q2     | 2019<br>Q3     | 2019<br>Q4     | 2017           | 2018           | 2019           |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 275,241<br>0.5 | 279,194<br>1.4 | 279,670<br>0.2 | 284,310<br>1.7 | 283,688<br>-0.2 | 287,215<br>1.2 | 293,795<br>2.3 | 295,605<br>0.6 | 298,372<br>0.9 | 300,480<br>0.7 | 302,747<br>0.8 | 305,314<br>0.8 | 279,604<br>6.0 | 290,076<br>3.7 | 301,728<br>4.0 |
| GDP at market prices (2007 \$ millions)                   | 245,619<br>1.5 | 249,698<br>1.7 | 251,221<br>0.6 | 251,940<br>0.3 | 253,022<br>0.4  | 253,975<br>0.4 | 255,614<br>0.6 | 256,873<br>0.5 | 258,329<br>0.6 | 259,592<br>0.5 | 260,907<br>0.5 | 262,180<br>0.5 | 249,620<br>3.7 | 254,871<br>2.1 | 260,252<br>2.1 |
| GDP at basic prices (2007 \$ millions)                    | 224,086<br>1.5 | 228,025<br>1.8 | 229,800<br>0.8 | 230,868<br>0.5 | 232,061<br>0.5  | 233,024<br>0.4 | 234,251<br>0.5 | 235,418<br>0.5 | 236,777<br>0.6 | 237,941<br>0.5 | 239,168<br>0.5 | 240,365<br>0.5 | 228,195<br>3.9 | 233,688<br>2.4 | 238,563<br>2.1 |
| Consumer price index (2002 = 1.0)                         | 1.238<br>0.8   | 1.249<br>0.9   | 1.257<br>0.7   | 1.256<br>-0.1  | 1.268<br>1.0    | 1.280<br>0.9   | 1.288<br>0.6   | 1.294<br>0.5   | 1.299<br>0.4   | 1.305<br>0.5   | 1.311<br>0.4   | 1.316<br>0.4   | 1.250<br>2.1   | 1.283<br>2.6   | 1.308<br>2.0   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.121<br>-1.0  | 1.118<br>-0.2  | 1.113<br>-0.4  | 1.128<br>1.4   | 1.121<br>-0.6   | 1.131<br>0.9   | 1.149<br>1.6   | 1.151<br>0.1   | 1.155<br>0.4   | 1.158<br>0.2   | 1.160<br>0.2   | 1.165<br>0.4   | 1.120<br>2.3   | 1.138<br>1.6   | 1.159<br>1.9   |
| Wages and salary per employee (\$ 000s)                   | 47.2<br>0.5    | 47.2<br>-0.1   | 47.9<br>1.4    | 48.5<br>1.3    | 49.1<br>1.3     | 49.2<br>0.3    | 49.4<br>0.3    | 49.6<br>0.5    | 50.0<br>0.7    | 50.3<br>0.6    | 50.6<br>0.7    | 50.9<br>0.6    | 47.7<br>2.3    | 49.3<br>3.5    | 50.4<br>2.2    |
| Primary household income (\$ millions)                    | 195,791<br>1.2 | 198,819<br>1.5 | 202,231<br>1.7 | 205,164<br>1.5 | 207,529<br>1.2  | 208,039<br>0.2 | 209,572<br>0.7 | 211,353<br>0.8 | 213,669<br>1.1 | 215,583<br>0.9 | 217,738<br>1.0 | 219,716<br>0.9 | 200,501<br>6.2 | 209,123<br>4.3 | 216,677<br>3.6 |
| Household disposable income (\$ millions)                 | 170,446<br>0.4 | 173,829<br>2.0 | 177,207<br>1.9 | 179,148<br>1.1 | 181,108<br>1.1  | 182,307<br>0.7 | 183,692<br>0.8 | 185,305<br>0.9 | 186,475<br>0.6 | 188,234<br>0.9 | 190,148<br>1.0 | 191,927<br>0.9 | 175,157<br>7.0 | 183,103<br>4.5 | 189,196<br>3.3 |
| Household net savings rate (per cent)                     | -0.5           | 0.0            | 1.3            | 1.3            | 1.4             | -0.1           | -0.3           | -0.4           | -0.7           | -0.8           | -0.8           | -0.9           | 0.5            | 0.1            | -0.8           |
| Population (000s)                                         | 4,783<br>0.1   | 4,796<br>0.3   | 4,817<br>0.4   | 4,841<br>0.5   | 4,849<br>0.2    | 4,863<br>0.3   | 4,877<br>0.3   | 4,892<br>0.3   | 4,906<br>0.3   | 4,921<br>0.3   | 4,935<br>0.3   | 4,950<br>0.3   | 4,809<br>1.3   | 4,870<br>1.3   | 4,928<br>1.2   |
| Employment (000s)                                         | 2,439<br>1.4   | 2,470<br>1.3   | 2,478<br>0.3   | 2,483<br>0.2   | 2,483<br>0.0    | 2,471<br>-0.5  | 2,479<br>0.3   | 2,488<br>0.3   | 2,498<br>0.4   | 2,505<br>0.3   | 2,513<br>0.3   | 2,520<br>0.3   | 2,467<br>3.7   | 2,480<br>0.5   | 2,509<br>1.1   |
| Labour force (000s)                                       | 2,576<br>0.7   | 2,609<br>1.3   | 2,609<br>0.0   | 2,607<br>-0.1  | 2,606<br>0.0    | 2,602<br>-0.2  | 2,602<br>0.0   | 2,610<br>0.3   | 2,620<br>0.4   | 2,629<br>0.3   | 2,638<br>0.3   | 2,646<br>0.3   | 2,600<br>2.7   | 2,605<br>0.2   | 2,633<br>1.1   |
| Labour force participation rate (per cent)                | 65.1           | 65.7           | 65.4           | 65.2           | 65.0            | 64.7           | 64.6           | 64.6           | 64.7           | 64.7           | 64.7           | 64.7           | 65.3           | 64.7           | 64.7           |
| Unemployment rate (per cent)                              | 5.3            | 5.3            | 5.0            | 4.8            | 4.7             | 5.0            | 4.7            | 4.7            | 4.7            | 4.7            | 4.7            | 4.8            | 5.1            | 4.8            | 4.7            |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: British Columbia, 2017–19**

(forecast completed July 24, 2018)

|                                      | 2017<br>Q1            | 2017<br>Q2            | 2017<br>Q3           | 2017<br>Q4            | 2018<br>Q1             | 2018<br>Q2            | 2018<br>Q3           | 2018<br>Q4           | 2019<br>Q1            | 2019<br>Q2            | 2019<br>Q3            | 2019<br>Q4            | 2017                 | 2018                  | 2019                   |
|--------------------------------------|-----------------------|-----------------------|----------------------|-----------------------|------------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|------------------------|
| Retail sales (\$ millions)           | 82,306<br><i>4.3</i>  | 83,484<br><i>1.4</i>  | 84,823<br><i>1.6</i> | 86,551<br><i>2.0</i>  | 85,800<br><i>-0.9</i>  | 87,816<br><i>2.3</i>  | 88,526<br><i>0.8</i> | 89,158<br><i>0.7</i> | 89,858<br><i>0.8</i>  | 90,544<br><i>0.8</i>  | 91,309<br><i>0.8</i>  | 91,989<br><i>0.7</i>  | 84,291<br><i>9.3</i> | 87,825<br><i>4.2</i>  | 90,925<br><i>3.5</i>   |
| Housing starts (units, 000s)         | 36,453<br><i>-9.9</i> | 41,378<br><i>13.5</i> | 44,109<br><i>6.6</i> | 52,723<br><i>19.5</i> | 44,058<br><i>-16.4</i> | 39,725<br><i>-9.8</i> | 43,580<br><i>9.7</i> | 43,780<br><i>0.5</i> | 41,546<br><i>-5.1</i> | 39,311<br><i>-5.4</i> | 37,077<br><i>-5.7</i> | 34,843<br><i>-6.0</i> | 43,666<br><i>4.4</i> | 42,786<br><i>-2.0</i> | 38,194<br><i>-10.7</i> |
| Net interprovincial migration (000s) | 15.1                  | 20.1                  | 2.2                  | 3.4                   | 3.2                    | 7.6                   | 7.5                  | 7.3                  | 7.1                   | 6.9                   | 6.7                   | 6.5                   | 10.2                 | 6.4                   | 6.8                    |
| Net international migration (000s)   | 34.7                  | 56.4                  | 82.0                 | 25.3                  | 48.5                   | 38.7                  | 43.2                 | 43.8                 | 44.4                  | 45.0                  | 45.6                  | 46.3                  | 49.6                 | 43.6                  | 45.3                   |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: British Columbia, 2020–22**

(forecast completed July 24, 2018)

|                                                           | 2020<br>Q1     | 2020<br>Q2     | 2020<br>Q3     | 2020<br>Q4     | 2021<br>Q1     | 2021<br>Q2     | 2021<br>Q3     | 2021<br>Q4     | 2022<br>Q1     | 2022<br>Q2     | 2022<br>Q3     | 2022<br>Q4     | 2020           | 2021           | 2022           |
|-----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GDP at market prices (\$ millions)                        | 308,170<br>0.9 | 310,964<br>0.9 | 313,645<br>0.9 | 316,294<br>0.8 | 318,425<br>0.7 | 320,934<br>0.8 | 323,644<br>0.8 | 326,493<br>0.9 | 329,552<br>0.9 | 332,542<br>0.9 | 335,654<br>0.9 | 338,955<br>1.0 | 312,268<br>3.5 | 322,374<br>3.2 | 334,176<br>3.7 |
| GDP at market prices (2007 \$ millions)                   | 263,465<br>0.5 | 264,554<br>0.4 | 265,562<br>0.4 | 266,544<br>0.4 | 267,166<br>0.2 | 268,071<br>0.3 | 269,094<br>0.4 | 270,231<br>0.4 | 271,526<br>0.5 | 272,703<br>0.4 | 273,947<br>0.5 | 275,275<br>0.5 | 265,031<br>1.8 | 268,641<br>1.4 | 273,363<br>1.8 |
| GDP at basic prices (2007 \$ millions)                    | 241,578<br>0.5 | 242,620<br>0.4 | 243,586<br>0.4 | 244,525<br>0.4 | 245,121<br>0.2 | 245,991<br>0.4 | 246,976<br>0.4 | 248,065<br>0.4 | 249,303<br>0.5 | 250,439<br>0.5 | 251,638<br>0.5 | 252,923<br>0.5 | 243,077<br>1.9 | 246,538<br>1.4 | 251,076<br>1.8 |
| Consumer price index (2002 = 1.0)                         | 1.322<br>0.4   | 1.329<br>0.5   | 1.336<br>0.5   | 1.342<br>0.5   | 1.349<br>0.5   | 1.356<br>0.5   | 1.363<br>0.5   | 1.369<br>0.5   | 1.376<br>0.5   | 1.384<br>0.6   | 1.391<br>0.5   | 1.398<br>0.5   | 1.332<br>1.9   | 1.359<br>2.0   | 1.387<br>2.1   |
| Implicit price deflator—GDP at market prices (2007 = 1.0) | 1.170<br>0.4   | 1.175<br>0.5   | 1.181<br>0.5   | 1.187<br>0.5   | 1.192<br>0.4   | 1.197<br>0.4   | 1.203<br>0.5   | 1.208<br>0.5   | 1.214<br>0.5   | 1.219<br>0.5   | 1.225<br>0.5   | 1.231<br>0.5   | 1.178<br>1.6   | 1.200<br>1.8   | 1.222<br>1.9   |
| Wages and salary per employee (\$ 000s)                   | 51.2<br>0.6    | 51.6<br>0.6    | 51.8<br>0.5    | 52.1<br>0.5    | 52.4<br>0.6    | 52.8<br>0.6    | 53.1<br>0.6    | 53.4<br>0.6    | 53.8<br>0.6    | 54.1<br>0.6    | 54.4<br>0.6    | 54.7<br>0.6    | 51.7<br>2.5    | 52.9<br>2.4    | 54.3<br>2.5    |
| Primary household income (\$ millions)                    | 222,059<br>1.1 | 224,101<br>0.9 | 225,994<br>0.8 | 228,037<br>0.9 | 230,292<br>1.0 | 232,414<br>0.9 | 234,635<br>1.0 | 236,956<br>1.0 | 239,522<br>1.1 | 241,798<br>1.0 | 243,833<br>0.8 | 245,893<br>0.8 | 225,048<br>3.9 | 233,574<br>3.8 | 242,761<br>3.9 |
| Household disposable income (\$ millions)                 | 193,465<br>0.8 | 195,315<br>1.0 | 197,074<br>0.9 | 198,926<br>0.9 | 200,028<br>0.6 | 201,942<br>1.0 | 203,937<br>1.0 | 205,998<br>1.0 | 207,125<br>0.5 | 209,163<br>1.0 | 211,059<br>0.9 | 212,981<br>0.9 | 196,195<br>3.7 | 202,976<br>3.5 | 210,082<br>3.5 |
| Household net savings rate (per cent)                     | −1.0           | −1.1           | −1.1           | −1.1           | −1.3           | −1.2           | −1.2           | −1.2           | −1.3           | −1.3           | −1.3           | −1.3           | −1.1           | −1.2           | −1.3           |
| Population (000s)                                         | 4,965<br>0.3   | 4,980<br>0.3   | 4,995<br>0.3   | 5,010<br>0.3   | 5,025<br>0.3   | 5,041<br>0.3   | 5,056<br>0.3   | 5,071<br>0.3   | 5,087<br>0.3   | 5,102<br>0.3   | 5,118<br>0.3   | 5,133<br>0.3   | 4,988<br>1.2   | 5,048<br>1.2   | 5,110<br>1.2   |
| Employment (000s)                                         | 2,528<br>0.3   | 2,535<br>0.3   | 2,540<br>0.2   | 2,548<br>0.3   | 2,552<br>0.2   | 2,559<br>0.3   | 2,567<br>0.3   | 2,575<br>0.3   | 2,583<br>0.3   | 2,591<br>0.3   | 2,596<br>0.2   | 2,601<br>0.2   | 2,538<br>1.1   | 2,563<br>1.0   | 2,593<br>1.1   |
| Labour force (000s)                                       | 2,654<br>0.3   | 2,662<br>0.3   | 2,670<br>0.3   | 2,678<br>0.3   | 2,682<br>0.2   | 2,689<br>0.3   | 2,697<br>0.3   | 2,705<br>0.3   | 2,712<br>0.3   | 2,720<br>0.3   | 2,728<br>0.3   | 2,736<br>0.3   | 2,666<br>1.2   | 2,693<br>1.0   | 2,724<br>1.1   |
| Labour force participation rate (per cent)                | 64.7           | 64.7           | 64.7           | 64.7           | 64.7           | 64.6           | 64.6           | 64.6           | 64.6           | 64.6           | 64.6           | 64.6           | 64.7           | 64.6           | 64.6           |
| Unemployment rate (per cent)                              | 4.7            | 4.8            | 4.9            | 4.9            | 4.9            | 4.8            | 4.8            | 4.8            | 4.8            | 4.8            | 4.8            | 4.9            | 4.8            | 4.8            | 4.8            |

(continued ...)



Table 1b (cont'd)

**Key Economic Indicators: British Columbia, 2020–22**

(forecast completed July 24, 2018)

|                                      | 2020<br>Q1            | 2020<br>Q2            | 2020<br>Q3            | 2020<br>Q4            | 2021<br>Q1            | 2021<br>Q2            | 2021<br>Q3            | 2021<br>Q4            | 2022<br>Q1            | 2022<br>Q2            | 2022<br>Q3            | 2022<br>Q4            | 2020                   | 2021                  | 2022                  |
|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
| Retail sales (\$ millions)           | 92,865<br><i>1.0</i>  | 93,570<br><i>0.8</i>  | 94,192<br><i>0.7</i>  | 94,873<br><i>0.7</i>  | 95,549<br><i>0.7</i>  | 96,272<br><i>0.8</i>  | 97,048<br><i>0.8</i>  | 97,861<br><i>0.8</i>  | 98,650<br><i>0.8</i>  | 99,457<br><i>0.8</i>  | 100,180<br><i>0.7</i> | 100,910<br><i>0.7</i> | 93,875<br><i>3.2</i>   | 96,682<br><i>3.0</i>  | 99,799<br><i>3.2</i>  |
| Housing starts (units, 000s)         | 32,609<br><i>-6.4</i> | 32,188<br><i>-1.3</i> | 31,768<br><i>-1.3</i> | 31,348<br><i>-1.3</i> | 30,927<br><i>-1.3</i> | 30,506<br><i>-1.4</i> | 30,086<br><i>-1.4</i> | 29,666<br><i>-1.4</i> | 28,523<br><i>-3.9</i> | 28,379<br><i>-0.5</i> | 28,236<br><i>-0.5</i> | 28,094<br><i>-0.5</i> | 31,978<br><i>-16.3</i> | 30,296<br><i>-5.3</i> | 28,308<br><i>-6.6</i> |
| Net interprovincial migration (000s) | 6.4                   | 6.1                   | 5.8                   | 5.4                   | 4.8                   | 4.5                   | 4.3                   | 4.0                   | 3.9                   | 3.8                   | 3.8                   | 3.8                   | 5.9                    | 4.4                   | 3.8                   |
| Net international migration (000s)   | 47.0                  | 47.7                  | 48.5                  | 49.3                  | 50.3                  | 51.1                  | 51.7                  | 52.3                  | 52.8                  | 53.3                  | 53.6                  | 53.9                  | 48.1                   | 51.4                  | 53.4                  |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

## APPENDIX A

# Forecast Tables

Table 1a

### Key Economic Indicators: Canada, 2016–18

(forecast completed June 19, 2018)

|                                                                  | 2017<br>Q1       | 2017<br>Q2       | 2017<br>Q3       | 2017<br>Q4       | 2018<br>Q1       | 2018<br>Q2       | 2018<br>Q3       | 2018<br>Q4       | 2019<br>Q1       | 2019<br>Q2       | 2019<br>Q3       | 2019<br>Q4       | 2017             | 2018             | 2019             |
|------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| GDP at market prices<br>(\$ millions)                            | 2,114,792<br>1.7 | 2,138,144<br>1.1 | 2,147,420<br>0.4 | 2,180,500<br>1.5 | 2,194,484<br>0.6 | 2,225,693<br>1.4 | 2,251,618<br>1.2 | 2,269,581<br>0.8 | 2,287,988<br>0.8 | 2,305,087<br>0.7 | 2,323,511<br>0.8 | 2,343,593<br>0.9 | 2,145,214<br>5.4 | 2,235,344<br>4.2 | 2,315,045<br>3.6 |
| GDP at market prices<br>(2007 \$ millions)                       | 1,835,057<br>1.0 | 1,855,621<br>1.1 | 1,863,231<br>0.4 | 1,871,142<br>0.4 | 1,877,388<br>0.3 | 1,886,220<br>0.5 | 1,894,411<br>0.4 | 1,902,221<br>0.4 | 1,911,163<br>0.5 | 1,919,792<br>0.5 | 1,928,913<br>0.5 | 1,938,148<br>0.5 | 1,856,263<br>3.0 | 1,890,060<br>1.8 | 1,924,504<br>1.8 |
| GDP at basic prices<br>(2007 \$ millions)                        | 1,716,482<br>1.0 | 1,737,380<br>1.2 | 1,747,433<br>0.6 | 1,757,979<br>0.6 | 1,765,381<br>0.4 | 1,774,352<br>0.5 | 1,779,952<br>0.3 | 1,787,396<br>0.4 | 1,795,985<br>0.5 | 1,804,143<br>0.5 | 1,812,873<br>0.5 | 1,821,783<br>0.5 | 1,739,819<br>3.3 | 1,776,770<br>2.1 | 1,808,696<br>1.8 |
| Consumer price index<br>(2002 = 1.0)                             | 1.299<br>0.6     | 1.300<br>0.1     | 1.304<br>0.4     | 1.314<br>0.7     | 1.326<br>0.9     | 1.331<br>0.4     | 1.340<br>0.6     | 1.346<br>0.5     | 1.352<br>0.4     | 1.357<br>0.4     | 1.363<br>0.4     | 1.370<br>0.5     | 1.304<br>1.6     | 1.336<br>2.4     | 1.360<br>1.9     |
| Implicit price deflator—<br>GDP at market prices<br>(2007 = 1.0) | 1.152<br>0.7     | 1.152<br>0.0     | 1.153<br>0.0     | 1.165<br>1.1     | 1.169<br>0.3     | 1.180<br>0.9     | 1.189<br>0.7     | 1.193<br>0.4     | 1.197<br>0.3     | 1.201<br>0.3     | 1.205<br>0.3     | 1.209<br>0.4     | 1.156<br>2.3     | 1.183<br>2.3     | 1.203<br>1.7     |
| Wages and salary<br>per employee (\$ 000s)                       | 50.2<br>0.6      | 50.4<br>0.4      | 50.8<br>0.9      | 51.2<br>0.7      | 51.7<br>0.9      | 52.1<br>0.8      | 52.2<br>0.3      | 52.6<br>0.6      | 52.9<br>0.6      | 53.2<br>0.6      | 53.5<br>0.6      | 53.8<br>0.6      | 50.6<br>2.1      | 52.1<br>3.0      | 53.3<br>2.3      |
| Primary household<br>income (\$ millions)                        | 1,389,824<br>0.8 | 1,406,456<br>1.2 | 1,426,520<br>1.4 | 1,445,576<br>1.3 | 1,457,508<br>0.8 | 1,469,544<br>0.8 | 1,478,244<br>0.6 | 1,489,653<br>0.8 | 1,504,587<br>1.0 | 1,516,724<br>0.8 | 1,529,038<br>0.8 | 1,541,539<br>0.8 | 1,417,094<br>4.1 | 1,473,737<br>4.0 | 1,522,972<br>3.3 |
| Household disposable<br>income (\$ millions)                     | 1,181,540<br>0.1 | 1,200,800<br>1.6 | 1,219,692<br>1.6 | 1,232,624<br>1.1 | 1,242,592<br>0.8 | 1,258,333<br>1.3 | 1,266,822<br>0.7 | 1,277,009<br>0.8 | 1,283,418<br>0.5 | 1,294,262<br>0.8 | 1,305,220<br>0.8 | 1,316,347<br>0.9 | 1,208,664<br>4.9 | 1,261,189<br>4.3 | 1,299,812<br>3.1 |
| Household net savings<br>rate (per cent)                         | 3.0              | 3.3              | 4.3              | 4.5              | 4.4              | 4.4              | 4.1              | 4.0              | 3.8              | 3.7              | 3.7              | 3.6              | 3.8              | 4.2              | 3.7              |
| Population (000s)                                                | 36,475<br>0.2    | 36,561<br>0.2    | 36,708<br>0.4    | 36,885<br>0.5    | 36,964<br>0.2    | 37,068<br>0.3    | 37,172<br>0.3    | 37,275<br>0.3    | 37,376<br>0.3    | 37,479<br>0.3    | 37,583<br>0.3    | 37,686<br>0.3    | 36,657<br>1.2    | 37,120<br>1.3    | 37,531<br>1.1    |
| Employment (000s)                                                | 18,289<br>0.5    | 18,366<br>0.4    | 18,455<br>0.5    | 18,575<br>0.6    | 18,578<br>0.0    | 18,604<br>0.1    | 18,654<br>0.3    | 18,704<br>0.3    | 18,754<br>0.3    | 18,803<br>0.3    | 18,853<br>0.3    | 18,904<br>0.3    | 18,421<br>1.9    | 18,635<br>1.2    | 18,828<br>1.0    |

(continued ...)

Table 1a (cont'd)

**Key Economic Indicators: Canada, 2017–19**

(forecast completed June 19, 2018)

|                                               | 2017<br>Q1            | 2017<br>Q2            | 2017<br>Q3            | 2017<br>Q4            | 2018<br>Q1             | 2018<br>Q2            | 2018<br>Q3            | 2018<br>Q4            | 2019<br>Q1            | 2019<br>Q2            | 2019<br>Q3            | 2019<br>Q4            | 2017                  | 2018                  | 2019                  |
|-----------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Labour force source<br>population (000s)      | 29,766<br><i>0.2</i>  | 29,855<br><i>0.3</i>  | 29,952<br><i>0.3</i>  | 30,033<br><i>0.3</i>  | 30,124<br><i>0.3</i>   | 30,176<br><i>0.2</i>  | 30,259<br><i>0.3</i>  | 30,341<br><i>0.3</i>  | 30,422<br><i>0.3</i>  | 30,504<br><i>0.3</i>  | 30,586<br><i>0.3</i>  | 30,668<br><i>0.3</i>  | 29,902<br><i>1.1</i>  | 30,225<br><i>1.1</i>  | 30,545<br><i>1.1</i>  |
| Labour force participation<br>rate (per cent) | 65.8                  | 65.8                  | 65.7                  | 65.8                  | 65.5                   | 65.4                  | 65.4                  | 65.3                  | 65.3                  | 65.3                  | 65.3                  | 65.3                  | 65.8                  | 65.4                  | 65.3                  |
| Unemployment rate<br>(per cent)               | 6.6                   | 6.5                   | 6.2                   | 6.0                   | 5.8                    | 5.7                   | 5.7                   | 5.7                   | 5.7                   | 5.6                   | 5.6                   | 5.6                   | 6.3                   | 5.7                   | 5.6                   |
| Retail sales (\$ millions)                    | 578,937<br><i>3.1</i> | 586,267<br><i>1.3</i> | 588,719<br><i>0.4</i> | 601,389<br><i>2.2</i> | 599,207<br><i>-0.4</i> | 604,232<br><i>0.8</i> | 608,978<br><i>0.8</i> | 613,387<br><i>0.7</i> | 617,788<br><i>0.7</i> | 622,326<br><i>0.7</i> | 626,824<br><i>0.7</i> | 631,368<br><i>0.7</i> | 588,828<br><i>7.1</i> | 606,451<br><i>3.0</i> | 624,576<br><i>3.0</i> |
| Housing starts (units)                        | 219<br><i>10.0</i>    | 204<br><i>-6.6</i>    | 223<br><i>9.2</i>     | 232<br><i>3.9</i>     | 227<br><i>-2.2</i>     | 206<br><i>-9.1</i>    | 205<br><i>-0.6</i>    | 210<br><i>2.3</i>     | 212<br><i>1.0</i>     | 209<br><i>-1.0</i>    | 207<br><i>-1.0</i>    | 205<br><i>-1.0</i>    | 220<br><i>11.0</i>    | 212<br><i>-3.5</i>    | 208<br><i>-1.6</i>    |

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 1b

**Key Economic Indicators: Canada, 2020–22**

(forecast completed June 19, 2018)

|                                                                  | 2020<br>Q1       | 2020<br>Q2       | 2020<br>Q3       | 2020<br>Q4       | 2021<br>Q1       | 2021<br>Q2       | 2021<br>Q3       | 2021<br>Q4       | 2022<br>Q1       | 2022<br>Q2       | 2022<br>Q3       | 2022<br>Q4       | 2020             | 2021             | 2022             |
|------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| GDP at market prices<br>(\$ millions)                            | 2,364,304<br>0.9 | 2,386,858<br>1.0 | 2,409,180<br>0.9 | 2,431,412<br>0.9 | 2,452,846<br>0.9 | 2,474,714<br>0.9 | 2,497,429<br>0.9 | 2,519,934<br>0.9 | 2,543,016<br>0.9 | 2,566,914<br>0.9 | 2,591,093<br>0.9 | 2,616,696<br>1.0 | 2,397,939<br>3.6 | 2,486,231<br>3.7 | 2,579,430<br>3.7 |
| GDP at market prices<br>(2007 \$ millions)                       | 1,946,768<br>0.4 | 1,956,194<br>0.5 | 1,965,038<br>0.5 | 1,973,930<br>0.5 | 1,982,052<br>0.4 | 1,990,430<br>0.4 | 1,999,224<br>0.4 | 2,008,116<br>0.4 | 2,017,138<br>0.4 | 2,026,169<br>0.4 | 2,035,321<br>0.5 | 2,044,962<br>0.5 | 1,960,483<br>1.9 | 1,994,956<br>1.8 | 2,030,898<br>1.8 |
| GDP at basic prices<br>(2007 \$ millions)                        | 1,830,154<br>0.5 | 1,839,347<br>0.5 | 1,847,976<br>0.5 | 1,856,622<br>0.5 | 1,864,462<br>0.4 | 1,872,634<br>0.4 | 1,881,262<br>0.5 | 1,889,975<br>0.5 | 1,898,845<br>0.5 | 1,907,768<br>0.5 | 1,916,817<br>0.5 | 1,926,397<br>0.5 | 1,843,525<br>1.9 | 1,877,083<br>1.8 | 1,912,457<br>1.9 |
| Consumer price index<br>(2002 = 1.0)                             | 1.376<br>0.5     | 1.383<br>0.5     | 1.390<br>0.5     | 1.397<br>0.5     | 1.404<br>0.5     | 1.411<br>0.5     | 1.418<br>0.5     | 1.425<br>0.5     | 1.432<br>0.5     | 1.439<br>0.5     | 1.447<br>0.5     | 1.454<br>0.5     | 1.386<br>1.9     | 1.414<br>2.0     | 1.443<br>2.0     |
| Implicit price deflator—<br>GDP at market prices<br>(2007 = 1.0) | 1.214<br>0.4     | 1.220<br>0.5     | 1.226<br>0.5     | 1.232<br>0.5     | 1.238<br>0.5     | 1.243<br>0.5     | 1.249<br>0.5     | 1.255<br>0.5     | 1.261<br>0.5     | 1.267<br>0.5     | 1.273<br>0.5     | 1.280<br>0.5     | 1.223<br>1.7     | 1.246<br>1.9     | 1.270<br>1.9     |
| Wages and salary<br>per employee (\$ 000s)                       | 54.1<br>0.6      | 54.5<br>0.6      | 54.8<br>0.6      | 55.1<br>0.6      | 55.4<br>0.6      | 55.8<br>0.6      | 56.1<br>0.6      | 56.4<br>0.6      | 56.8<br>0.6      | 57.1<br>0.6      | 57.4<br>0.6      | 57.8<br>0.6      | 54.6<br>2.4      | 55.9<br>2.4      | 57.3<br>2.4      |
| Primary household<br>income (\$ millions)                        | 1,557,468<br>1.0 | 1,570,533<br>0.8 | 1,584,222<br>0.9 | 1,598,043<br>0.9 | 1,615,840<br>1.1 | 1,629,938<br>0.9 | 1,644,161<br>0.9 | 1,658,417<br>0.9 | 1,677,485<br>1.1 | 1,691,894<br>0.9 | 1,706,436<br>0.9 | 1,721,215<br>0.9 | 1,577,567<br>3.6 | 1,637,089<br>3.8 | 1,699,258<br>3.8 |
| Household disposable<br>income (\$ millions)                     | 1,323,731<br>0.6 | 1,335,374<br>0.9 | 1,347,535<br>0.9 | 1,359,809<br>0.9 | 1,367,227<br>0.5 | 1,379,743<br>0.9 | 1,392,374<br>0.9 | 1,405,073<br>0.9 | 1,411,813<br>0.5 | 1,424,661<br>0.9 | 1,437,631<br>0.9 | 1,450,821<br>0.9 | 1,341,612<br>3.2 | 1,386,104<br>3.3 | 1,431,232<br>3.3 |
| Household net savings<br>rate (per cent)                         | 3.5              | 3.4              | 3.4              | 3.4              | 3.3              | 3.3              | 3.3              | 3.4              | 3.3              | 3.3              | 3.3              | 3.3              | 3.4              | 3.3              | 3.3              |
| Population (000s)                                                | 37,791<br>0.3    | 37,895<br>0.3    | 37,999<br>0.3    | 38,104<br>0.3    | 38,209<br>0.3    | 38,313<br>0.3    | 38,417<br>0.3    | 38,521<br>0.3    | 38,625<br>0.3    | 38,728<br>0.3    | 38,832<br>0.3    | 38,935<br>0.3    | 37,947<br>1.1    | 38,365<br>1.1    | 38,780<br>1.1    |
| Employment (000s)                                                | 18,954<br>0.3    | 19,004<br>0.3    | 19,055<br>0.3    | 19,106<br>0.3    | 19,156<br>0.3    | 19,207<br>0.3    | 19,258<br>0.3    | 19,308<br>0.3    | 19,360<br>0.3    | 19,411<br>0.3    | 19,462<br>0.3    | 19,514<br>0.3    | 19,030<br>1.1    | 19,232<br>1.1    | 19,437<br>1.1    |
| Labour force source<br>population (000s)                         | 30,749<br>0.3    | 30,831<br>0.3    | 30,914<br>0.3    | 30,997<br>0.3    | 31,080<br>0.3    | 31,164<br>0.3    | 31,249<br>0.3    | 31,333<br>0.3    | 31,418<br>0.3    | 31,504<br>0.3    | 31,590<br>0.3    | 31,676<br>0.3    | 30,873<br>1.1    | 31,207<br>1.1    | 31,547<br>1.1    |
| Labour force participation<br>rate (per cent)                    | 65.3             | 65.3             | 65.3             | 65.3             | 65.3             | 65.3             | 65.2             | 65.2             | 65.2             | 65.2             | 65.2             | 65.2             | 65.3             | 65.2             | 65.2             |

(continued ...)

Table 1b (cont'd)

**Key Economic Indicators: Canada, 2020–22**

(forecast completed June 19, 2018)

|                                 | 2020<br>Q1            | 2020<br>Q2            | 2020<br>Q3            | 2020<br>Q4            | 2021<br>Q1            | 2021<br>Q2            | 2021<br>Q3            | 2021<br>Q4            | 2022<br>Q1            | 2022<br>Q2            | 2022<br>Q3            | 2022<br>Q4            | 2020                  | 2021                  | 2022                  |
|---------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Unemployment rate<br>(per cent) | 5.6                   | 5.6                   | 5.6                   | 5.6                   | 5.6                   | 5.5                   | 5.5                   | 5.5                   | 5.5                   | 5.5                   | 5.5                   | 5.5                   | 5.6                   | 5.5                   | 5.5                   |
| Retail sales (\$ millions)      | 635,927<br><i>0.7</i> | 640,590<br><i>0.7</i> | 645,317<br><i>0.7</i> | 650,090<br><i>0.7</i> | 654,920<br><i>0.7</i> | 659,777<br><i>0.7</i> | 664,704<br><i>0.7</i> | 669,650<br><i>0.7</i> | 674,636<br><i>0.7</i> | 679,696<br><i>0.8</i> | 684,827<br><i>0.8</i> | 690,024<br><i>0.8</i> | 642,981<br><i>2.9</i> | 662,263<br><i>3.0</i> | 682,296<br><i>3.0</i> |
| Housing starts (units)          | 204<br><i>-0.8</i>    | 203<br><i>-0.2</i>    | 203<br><i>-0.1</i>    | 203<br><i>-0.1</i>    | 202<br><i>-0.1</i>    | 202<br><i>-0.2</i>    | 202<br><i>-0.2</i>    | 201<br><i>-0.2</i>    | 200<br><i>-0.5</i>    | 200<br><i>0.0</i>     | 200<br><i>0.0</i>     | 200<br><i>0.0</i>     | 203<br><i>-2.5</i>    | 202<br><i>-0.6</i>    | 200<br><i>-0.8</i>    |

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Table 2a

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                                          | Newfoundland and Labrador |                |                | Prince Edward Island |              |              | Nova Scotia  |               |               | New Brunswick |              |              | Quebec        |               |               |
|----------------------------------------------------------|---------------------------|----------------|----------------|----------------------|--------------|--------------|--------------|---------------|---------------|---------------|--------------|--------------|---------------|---------------|---------------|
|                                                          | 2017                      | 2018           | 2019           | 2017                 | 2018         | 2019         | 2017         | 2018          | 2019          | 2017          | 2018         | 2019         | 2017          | 2018          | 2019          |
| Agriculture                                              | 89<br>-14.4               | 90<br>1.7      | 92<br>2.0      | 181<br>-3.9          | 183<br>0.6   | 184<br>1.0   | 246<br>-1.3  | 250<br>1.6    | 253<br>1.5    | 341<br>1.4    | 344<br>0.9   | 352<br>2.2   | 3,633<br>0.4  | 3,677<br>1.2  | 3,752<br>2.0  |
| Forestry                                                 | 70<br>1.8                 | 68<br>-1.9     | 69<br>0.8      | 6<br>-5.0            | 6<br>1.0     | 6<br>1.6     | 59<br>-5.0   | 58<br>-2.7    | 58<br>0.7     | 315<br>-0.2   | 322<br>2.2   | 324<br>0.6   | 1,112<br>-7.2 | 1,156<br>4.0  | 1,143<br>-1.1 |
| Fishing and trapping                                     | 155<br>-16.8              | 108<br>-30.3   | 127<br>18.2    | 74<br>3.8            | 68<br>-7.9   | 73<br>7.2    | 402<br>-3.8  | 397<br>-1.1   | 410<br>3.3    | 163<br>0.9    | 158<br>-3.0  | 167<br>5.7   | 73<br>2.1     | 64<br>-12.2   | 64<br>0.0     |
| Agriculture and forestry support services                | 21<br>-1.9                | 19<br>-8.6     | 21<br>8.2      | 16<br>-0.6           | 16<br>-0.7   | 16<br>2.6    | 52<br>0.2    | 53<br>1.9     | 54<br>2.5     | 74<br>-1.1    | 74<br>1.2    | 76<br>2.3    | 600<br>1.3    | 618<br>3.1    | 623<br>0.7    |
| Mining                                                   | 8,983<br>4.9              | 9,376<br>4.4   | 10,900<br>16.3 | 2<br>25.0            | 2<br>7.7     | 2<br>1.3     | 540<br>-20.2 | 551<br>2.0    | 444<br>-19.5  | 215<br>-0.5   | 211<br>-1.9  | 200<br>-5.0  | 4,883<br>6.3  | 5,000<br>2.4  | 5,244<br>4.9  |
| Metal ore mining                                         | 2,708<br>1.9              | 2,553<br>-5.7  | 2,539<br>-0.6  | 0<br>0.0             | 0<br>3.1     | 0<br>-1.7    | 0<br>0.8     | 41<br>n.a.    | 60<br>47.9    | 91<br>2.7     | 79<br>-12.9  | 71<br>-10.2  | 4,468<br>5.1  | 4,570<br>2.3  | 4,805<br>5.2  |
| Non-metallic mineral mining and quarrying                | 38<br>8.6                 | 45<br>17.7     | 46<br>1.9      | 2<br>14.3            | 2<br>16.8    | 2<br>0.8     | 88<br>19.4   | 97<br>9.5     | 93<br>-3.7    | 43<br>-8.3    | 47<br>10.1   | 45<br>-4.3   | 460<br>17.7   | 466<br>1.3    | 473<br>1.3    |
| Oil and gas extraction & coal mining                     | 6,077<br>5.0              | 6,610<br>8.8   | 8,128<br>23.0  | 0<br>0.0             | 0<br>0.1     | 0<br>0.0     | 288<br>-49.2 | 230<br>-20.3  | 103<br>-55.0  | 2<br>-59.6    | 3<br>12.7    | 2<br>-15.0   | 0<br>-50.0    | 0<br>86.6     | 0<br>17.6     |
| Support activities for mining and oil and gas extraction | 238<br>15.7               | 246<br>3.2     | 265<br>7.7     | 1<br>100.0           | 0<br>-19.2   | 0<br>2.8     | 55<br>5.6    | 75<br>37.7    | 78<br>4.2     | 36<br>11.7    | 39<br>8.3    | 40<br>0.2    | 103<br>-1.4   | 113<br>9.1    | 114<br>1.5    |
| Manufacturing                                            | 968<br>6.8                | 989<br>2.1     | 1,044<br>5.6   | 523<br>5.5           | 554<br>6.0   | 573<br>3.4   | 2,644<br>2.9 | 2,739<br>3.6  | 2,753<br>0.5  | 3,041<br>3.1  | 3,053<br>0.4 | 3,099<br>1.5 | 46,053<br>3.7 | 47,148<br>2.4 | 47,836<br>1.5 |
| Construction                                             | 2,540<br>5.0              | 2,248<br>-11.5 | 2,021<br>-10.1 | 262<br>18.1          | 304<br>16.1  | 342<br>12.5  | 1,905<br>2.3 | 1,871<br>-1.8 | 1,896<br>1.3  | 1,519<br>6.3  | 1,591<br>4.7 | 1,659<br>4.3 | 20,490<br>3.3 | 21,533<br>5.1 | 21,799<br>1.2 |
| Utilities                                                | 612<br>1.9                | 618<br>0.9     | 621<br>0.6     | 95<br>1.8            | 100<br>5.3   | 102<br>1.7   | 566<br>-0.2  | 578<br>2.1    | 584<br>1.1    | 1,028<br>2.3  | 1,052<br>2.4 | 1,070<br>1.6 | 13,419<br>3.6 | 13,966<br>4.1 | 14,314<br>2.5 |
| Goods-producing industries                               | 13,234<br>4.1             | 13,312<br>0.6  | 14,691<br>10.4 | 1,143<br>6.1         | 1,217<br>6.5 | 1,282<br>5.4 | 6,540<br>0.3 | 6,624<br>1.3  | 6,580<br>-0.7 | 6,659<br>3.3  | 6,769<br>1.7 | 6,910<br>2.1 | 90,594<br>3.5 | 93,495<br>3.2 | 95,107<br>1.7 |

(continued ...)

Table 2a (cont'd)

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                                                        | Newfoundland and Labrador |               |               | Prince Edward Island |               |              | Nova Scotia    |                |                | New Brunswick |               |               | Quebec         |                 |                |
|------------------------------------------------------------------------|---------------------------|---------------|---------------|----------------------|---------------|--------------|----------------|----------------|----------------|---------------|---------------|---------------|----------------|-----------------|----------------|
|                                                                        | 2017                      | 2018          | 2019          | 2017                 | 2018          | 2019         | 2017           | 2018           | 2019           | 2017          | 2018          | 2019          | 2017           | 2018            | 2019           |
| Transportation and warehousing                                         | 809<br>3.3                | 831<br>2.8    | 858<br>3.2    | 136<br>4.5           | 139<br>2.3    | 142<br>1.9   | 1,210<br>3.3   | 1,249<br>3.2   | 1,263<br>1.1   | 1,435<br>4.3  | 1,458<br>1.6  | 1,481<br>1.5  | 14,748<br>5.8  | 15,129<br>2.6   | 15,373<br>1.6  |
| Wholesale and retail trade                                             | 2,220<br>1.6              | 2,163<br>-2.6 | 2,168<br>0.2  | 483<br>5.0           | 510<br>5.6    | 510<br>0.0   | 3,893<br>4.4   | 4,011<br>3.0   | 4,023<br>0.3   | 3,418<br>5.3  | 3,366<br>-1.5 | 3,387<br>0.6  | 40,161<br>5.3  | 41,246<br>2.7   | 41,741<br>1.2  |
| Wholesale trade                                                        | 659<br>3.0                | 649<br>-1.5   | 655<br>0.8    | 118<br>4.1           | 142<br>20.1   | 141<br>-1.1  | 1,501<br>5.6   | 1,608<br>7.1   | 1,624<br>1.0   | 1,270<br>5.9  | 1,263<br>-0.6 | 1,280<br>1.4  | 20,226<br>6.3  | 21,015<br>3.9   | 21,254<br>1.1  |
| Retail trade                                                           | 1,562<br>1.0              | 1,514<br>-3.0 | 1,513<br>-0.1 | 365<br>5.2           | 368<br>0.9    | 370<br>0.5   | 2,392<br>3.7   | 2,403<br>0.5   | 2,399<br>-0.2  | 2,148<br>4.9  | 2,104<br>-2.0 | 2,107<br>0.1  | 19,935<br>4.3  | 20,231<br>1.5   | 20,487<br>1.3  |
| Information and culture                                                | 593<br>-1.4               | 580<br>-2.1   | 570<br>-1.8   | 133.5<br>0.2         | 133.4<br>-0.1 | 134.9<br>1.1 | 1041.0<br>-0.9 | 1032.2<br>-0.8 | 1030.4<br>-0.2 | 760.3<br>-1.3 | 751.6<br>-1.1 | 747.8<br>-0.5 | 10153.9<br>0.9 | 10104.9<br>-0.5 | 10113.6<br>0.1 |
| Finance, insurance, and real estate                                    | 3,423<br>1.2              | 3,409<br>-0.4 | 3,346<br>-1.9 | 1,003<br>2.5         | 1,024<br>2.1  | 1,048<br>2.4 | 7,500<br>1.5   | 7,620<br>1.6   | 7,725<br>1.4   | 5,213<br>2.1  | 5,292<br>1.5  | 5,351<br>1.1  | 61,387<br>2.2  | 62,614<br>2.0   | 63,960<br>2.2  |
| Commercial services                                                    | 1,817<br>-1.3             | 1,821<br>0.2  | 1,839<br>1.0  | 579<br>1.8           | 590<br>1.8    | 603<br>2.3   | 3,854<br>1.1   | 3,854<br>0.0   | 3,892<br>1.0   | 3,065<br>-0.1 | 3,103<br>1.2  | 3,146<br>1.4  | 44,308<br>3.4  | 45,292<br>2.2   | 46,311<br>2.3  |
| Professional, scientific, and technical services                       | 558<br>-0.9               | 552<br>-1.0   | 549<br>-0.6   | 136<br>2.2           | 141<br>3.5    | 145<br>2.7   | 1,554<br>2.5   | 1,538<br>-1.1  | 1,556<br>1.2   | 885<br>-0.4   | 914<br>3.3    | 929<br>1.7    | 18,591<br>5.1  | 19,083<br>2.7   | 19,549<br>2.4  |
| Administrative and support, waste management, and remediation services | 304<br>-5.2               | 296<br>-2.6   | 311<br>4.8    | 123<br>-2.8          | 121<br>-1.6   | 124<br>2.6   | 637<br>-0.9    | 631<br>-0.9    | 639<br>1.2     | 936<br>-0.2   | 934<br>-0.3   | 951<br>1.8    | 8,325<br>1.6   | 8,461<br>1.6    | 8,675<br>2.5   |
| Accommodation and food services                                        | 453<br>0.1                | 475<br>4.8    | 478<br>0.8    | 157<br>4.2           | 162<br>3.0    | 164<br>1.5   | 799<br>-0.5    | 814<br>1.9     | 818<br>0.4     | 570<br>-0.1   | 574<br>0.8    | 577<br>0.4    | 7,720<br>4.0   | 7,883<br>2.1    | 8,009<br>1.6   |
| Arts, entertainment, and recreation                                    | 63<br>-2.0                | 64<br>1.2     | 64<br>0.9     | 55<br>2.2            | 56<br>3.2     | 57<br>1.8    | 204<br>2.6     | 206<br>1.2     | 207<br>0.2     | 143<br>2.5    | 147<br>2.7    | 147<br>0.2    | 2,837<br>2.3   | 2,912<br>2.7    | 2,961<br>1.7   |
| Personal, laundry, and other services                                  | 440<br>-0.2               | 435<br>-1.1   | 437<br>0.6    | 109<br>2.9           | 110<br>1.4    | 113<br>2.8   | 659<br>1.5     | 664<br>0.8     | 673<br>1.3     | 532<br>-0.4   | 534<br>0.4    | 542<br>1.5    | 6,836<br>0.9   | 6,953<br>1.7    | 7,117<br>2.4   |
| Education                                                              | 1,276<br>-0.2             | 1,289<br>1.0  | 1,255<br>-2.7 | 347<br>2.0           | 356<br>2.5    | 361<br>1.4   | 2,272<br>0.9   | 2,317<br>2.0   | 2,282<br>-1.5  | 1,598<br>0.6  | 1,613<br>1.0  | 1,598<br>-1.0 | 19,044<br>1.4  | 19,373<br>1.7   | 19,473<br>0.5  |

(continued ...)

Table 2a (cont'd)

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                   | Newfoundland and Labrador |             |             | Prince Edward Island |            |            | Nova Scotia |            |            | New Brunswick |            |            | Quebec     |            |            |
|-----------------------------------|---------------------------|-------------|-------------|----------------------|------------|------------|-------------|------------|------------|---------------|------------|------------|------------|------------|------------|
|                                   | 2017                      | 2018        | 2019        | 2017                 | 2018       | 2019       | 2017        | 2018       | 2019       | 2017          | 2018       | 2019       | 2017       | 2018       | 2019       |
| Health and social assistance      | 1,864                     | 1,863       | 1,864       | 445                  | 451        | 456        | 3,318       | 3,364      | 3,422      | 2,361         | 2,384      | 2,422      | 25,672     | 26,393     | 26,851     |
|                                   | <i>0.7</i>                | <i>0.0</i>  | <i>0.0</i>  | <i>1.4</i>           | <i>1.4</i> | <i>1.2</i> | <i>1.5</i>  | <i>1.4</i> | <i>1.7</i> | <i>-0.5</i>   | <i>0.9</i> | <i>1.6</i> | <i>1.7</i> | <i>2.8</i> | <i>1.7</i> |
| Public administration and defence | 1,745                     | 1,780       | 1,759       | 624                  | 627        | 632        | 3,873       | 3,892      | 3,915      | 2,908         | 2,917      | 2,928      | 22,726     | 23,158     | 23,320     |
|                                   | <i>1.0</i>                | <i>2.0</i>  | <i>-1.2</i> | <i>1.4</i>           | <i>0.5</i> | <i>0.7</i> | <i>-0.4</i> | <i>0.5</i> | <i>0.6</i> | <i>0.3</i>    | <i>0.3</i> | <i>0.4</i> | <i>2.1</i> | <i>1.9</i> | <i>0.7</i> |
| Services-producing industries     | 13,693                    | 13,684      | 13,604      | 3,738                | 3,818      | 3,876      | 26,914      | 27,295     | 27,507     | 20,713        | 20,838     | 21,013     | 237,863    | 242,974    | 246,807    |
|                                   | <i>0.7</i>                | <i>-0.1</i> | <i>-0.6</i> | <i>2.3</i>           | <i>2.1</i> | <i>1.5</i> | <i>1.5</i>  | <i>1.4</i> | <i>0.8</i> | <i>1.5</i>    | <i>0.6</i> | <i>0.8</i> | <i>2.9</i> | <i>2.1</i> | <i>1.6</i> |
| All industries                    | 26,773                    | 26,843      | 28,142      | 4,883                | 5,037      | 5,161      | 33,470      | 33,934     | 34,102     | 27,363        | 27,599     | 27,914     | 328,688    | 336,698    | 342,144    |
|                                   | <i>2.1</i>                | <i>0.3</i>  | <i>4.8</i>  | <i>3.2</i>           | <i>3.2</i> | <i>2.5</i> | <i>1.2</i>  | <i>1.4</i> | <i>0.5</i> | <i>1.9</i>    | <i>0.9</i> | <i>1.1</i> | <i>3.1</i> | <i>2.4</i> | <i>1.6</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of 2007 dollars, seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.



Table 2b

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                                          | Newfoundland and Labrador |                |                | Prince Edward Island |              |              | Nova Scotia  |              |              | New Brunswick |              |              | Quebec        |               |               |
|----------------------------------------------------------|---------------------------|----------------|----------------|----------------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|---------------|---------------|---------------|
|                                                          | 2020                      | 2021           | 2022           | 2020                 | 2021         | 2022         | 2020         | 2021         | 2022         | 2020          | 2021         | 2022         | 2020          | 2021          | 2022          |
| Agriculture                                              | 94<br>1.7                 | 95<br>1.7      | 97<br>1.7      | 187<br>1.2           | 189<br>1.3   | 192<br>1.3   | 257<br>1.4   | 261<br>1.5   | 265<br>1.5   | 359<br>2.0    | 367<br>2.1   | 374<br>2.1   | 3,825<br>1.9  | 3,903<br>2.1  | 3,983<br>2.1  |
| Forestry                                                 | 69<br>-0.1                | 69<br>0.2      | 69<br>0.8      | 6<br>0.4             | 6<br>-0.5    | 6<br>-1.0    | 59<br>1.2    | 59<br>-0.3   | 58<br>-0.7   | 329<br>1.5    | 332<br>0.9   | 334<br>0.6   | 1,162<br>1.7  | 1,173<br>0.9  | 1,181<br>0.7  |
| Fishing and trapping                                     | 127<br>-0.4               | 128<br>0.5     | 128<br>0.6     | 72<br>-0.5           | 72<br>-1.0   | 71<br>-1.6   | 407<br>-0.7  | 403<br>-1.2  | 397<br>-1.5  | 167<br>-0.6   | 163<br>-2.0  | 159<br>-2.3  | 64<br>0.0     | 64<br>0.0     | 64<br>0.0     |
| Agriculture and forestry support services                | 21<br>0.3                 | 21<br>0.7      | 21<br>0.9      | 16<br>0.3            | 16<br>0.2    | 16<br>0.0    | 54<br>0.2    | 54<br>-0.1   | 54<br>-0.3   | 77<br>1.3     | 78<br>0.9    | 78<br>0.7    | 634<br>1.8    | 643<br>1.4    | 653<br>1.6    |
| Mining                                                   | 11,458<br>5.1             | 10,851<br>-5.3 | 10,562<br>-2.7 | 2<br>1.1             | 2<br>4.5     | 2<br>1.2     | 468<br>5.5   | 489<br>4.4   | 524<br>7.3   | 201<br>0.5    | 203<br>0.9   | 184<br>-9.5  | 5,182<br>-1.2 | 5,051<br>-2.5 | 4,791<br>-5.2 |
| Metal ore mining                                         | 2,568<br>1.2              | 2,563<br>-0.2  | 2,637<br>2.8   | 0<br>1.0             | 0<br>-1.6    | 0<br>0.7     | 60<br>0.2    | 61<br>0.5    | 61<br>0.6    | 69<br>-3.4    | 76<br>10.7   | 57<br>-24.9  | 4,734<br>-1.5 | 4,565<br>-3.6 | 4,273<br>-6.4 |
| Non-metallic mineral mining and quarrying                | 46<br>0.8                 | 48<br>5.2      | 49<br>1.7      | 2<br>-0.4            | 2<br>4.1     | 2<br>0.8     | 90<br>-3.3   | 92<br>2.3    | 92<br>0.0    | 43<br>-5.1    | 43<br>-0.5   | 41<br>-3.3   | 478<br>1.1    | 517<br>8.2    | 539<br>4.2    |
| Oil and gas extraction & coal mining                     | 8,654<br>6.5              | 8,043<br>-7.1  | 7,683<br>-4.5  | 0<br>0.0             | 0<br>0.0     | 0<br>0.0     | 124<br>20.0  | 138<br>11.1  | 171<br>23.8  | 2<br>0.0      | 2<br>-17.6   | 2<br>0.0     | 0<br>1.0      | 0<br>1.0      | 0<br>1.0      |
| Support activities for mining and oil and gas extraction | 268<br>1.0                | 273<br>2.0     | 271<br>-0.9    | 1<br>6.3             | 1<br>4.5     | 1<br>2.2     | 85<br>8.4    | 89<br>5.0    | 92<br>2.7    | 45<br>14.7    | 40<br>-10.9  | 42<br>2.9    | 119<br>3.6    | 118<br>-0.9   | 127<br>8.4    |
| Manufacturing                                            | 1,073<br>2.8              | 1,091<br>1.7   | 1,104<br>1.2   | 589<br>2.7           | 605<br>2.8   | 619<br>2.2   | 2,787<br>1.3 | 2,885<br>3.5 | 2,913<br>1.0 | 3,150<br>1.6  | 3,196<br>1.5 | 3,241<br>1.4 | 48,592<br>1.6 | 49,392<br>1.6 | 50,140<br>1.5 |
| Construction                                             | 1,813<br>-10.3            | 1,713<br>-5.5  | 1,752<br>2.2   | 335<br>-1.9          | 321<br>-4.4  | 309<br>-3.6  | 1,939<br>2.3 | 1,979<br>2.0 | 2,030<br>2.6 | 1,730<br>4.3  | 1,788<br>3.3 | 1,880<br>5.2 | 22,092<br>1.3 | 22,783<br>3.1 | 23,298<br>2.3 |
| Utilities                                                | 668<br>7.5                | 716<br>7.2     | 715<br>-0.1    | 103<br>1.0           | 104<br>1.2   | 106<br>1.2   | 588<br>0.6   | 593<br>0.9   | 596<br>0.5   | 1,078<br>0.8  | 1,085<br>0.7 | 1,094<br>0.8 | 14,507<br>1.4 | 14,669<br>1.1 | 14,806<br>0.9 |
| Goods-producing industries                               | 15,118<br>2.9             | 14,480<br>-4.2 | 14,245<br>-1.6 | 1,295<br>0.9         | 1,299<br>0.4 | 1,304<br>0.4 | 6,687<br>1.6 | 6,848<br>2.4 | 6,964<br>1.7 | 7,054<br>2.1  | 7,175<br>1.7 | 7,308<br>1.8 | 96,391<br>1.3 | 98,011<br>1.7 | 99,248<br>1.3 |

(continued ...)

Table 2b (cont'd)

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                                                        | Newfoundland and Labrador |               |               | Prince Edward Island |              |              | Nova Scotia    |                |                | New Brunswick |               |               | Quebec         |                |                |
|------------------------------------------------------------------------|---------------------------|---------------|---------------|----------------------|--------------|--------------|----------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|----------------|
|                                                                        | 2020                      | 2021          | 2022          | 2020                 | 2021         | 2022         | 2020           | 2021           | 2022           | 2020          | 2021          | 2022          | 2020           | 2021           | 2022           |
| Transportation and warehousing                                         | 871<br>1.5                | 855<br>-1.8   | 843<br>-1.4   | 142<br>0.2           | 143<br>0.6   | 144<br>1.0   | 1,270<br>0.6   | 1,277<br>0.5   | 1,290<br>1.0   | 1,501<br>1.4  | 1,521<br>1.3  | 1,544<br>1.5  | 15,617<br>1.6  | 15,839<br>1.4  | 16,017<br>1.1  |
| Wholesale and retail trade                                             | 2,163<br>-0.2             | 2,153<br>-0.5 | 2,163<br>0.5  | 515<br>0.9           | 516<br>0.3   | 519<br>0.4   | 4,047<br>0.6   | 4,076<br>0.7   | 4,107<br>0.8   | 3,417<br>0.9  | 3,445<br>0.8  | 3,473<br>0.8  | 42,202<br>1.1  | 42,608<br>1.0  | 43,084<br>1.1  |
| Wholesale trade                                                        | 653<br>-0.3               | 649<br>-0.5   | 652<br>0.4    | 143<br>1.4           | 143<br>0.3   | 144<br>0.4   | 1,633<br>0.6   | 1,644<br>0.7   | 1,655<br>0.7   | 1,293<br>1.0  | 1,303<br>0.7  | 1,312<br>0.7  | 21,483<br>1.1  | 21,679<br>0.9  | 21,906<br>1.0  |
| Retail trade                                                           | 1,510<br>-0.2             | 1,504<br>-0.4 | 1,511<br>0.5  | 372<br>0.7           | 373<br>0.3   | 375<br>0.5   | 2,414<br>0.6   | 2,432<br>0.8   | 2,452<br>0.8   | 2,124<br>0.8  | 2,143<br>0.9  | 2,162<br>0.9  | 20,719<br>1.1  | 20,929<br>1.0  | 21,178<br>1.2  |
| Information and culture                                                | 561<br>-1.5               | 554<br>-1.2   | 549<br>-0.9   | 136.2<br>1.0         | 136.8<br>0.4 | 137.1<br>0.2 | 1029.6<br>-0.1 | 1028.7<br>-0.1 | 1026.7<br>-0.2 | 744.8<br>-0.4 | 741.9<br>-0.4 | 738.7<br>-0.4 | 10140.1<br>0.3 | 10170.0<br>0.3 | 10193.3<br>0.2 |
| Finance, insurance, and real estate                                    | 3,348<br>0.1              | 3,375<br>0.8  | 3,418<br>1.3  | 1,069<br>1.9         | 1,086<br>1.6 | 1,104<br>1.6 | 7,810<br>1.1   | 7,874<br>0.8   | 7,942<br>0.9   | 5,416<br>1.2  | 5,487<br>1.3  | 5,534<br>0.9  | 65,382<br>2.2  | 66,776<br>2.1  | 68,085<br>2.0  |
| Commercial services                                                    | 1,831<br>-0.5             | 1,795<br>-1.9 | 1,783<br>-0.7 | 613<br>1.6           | 622<br>1.5   | 630<br>1.4   | 3,932<br>1.0   | 3,966<br>0.9   | 4,006<br>1.0   | 3,173<br>0.9  | 3,197<br>0.7  | 3,235<br>1.2  | 47,172<br>1.9  | 47,937<br>1.6  | 48,671<br>1.5  |
| Professional, scientific, and technical services                       | 537<br>-2.2               | 522<br>-2.7   | 520<br>-0.4   | 146<br>0.6           | 146<br>0.3   | 147<br>0.8   | 1,576<br>1.2   | 1,590<br>0.9   | 1,606<br>1.0   | 934<br>0.5    | 937<br>0.3    | 947<br>1.1    | 19,900<br>1.8  | 20,228<br>1.7  | 20,534<br>1.5  |
| Administrative and support, waste management, and remediation services | 314<br>0.9                | 303<br>-3.4   | 299<br>-1.4   | 126<br>1.6           | 128<br>1.6   | 130<br>1.7   | 647<br>1.2     | 654<br>1.1     | 662<br>1.2     | 965<br>1.5    | 977<br>1.3    | 994<br>1.8    | 8,869<br>2.2   | 9,044<br>2.0   | 9,223<br>2.0   |
| Accommodation and food services                                        | 477<br>-0.2               | 470<br>-1.6   | 465<br>-1.2   | 167<br>1.7           | 169<br>1.6   | 171<br>1.1   | 819<br>0.2     | 821<br>0.2     | 825<br>0.6     | 577<br>0.0    | 577<br>0.0    | 579<br>0.3    | 8,107<br>1.2   | 8,173<br>0.8   | 8,238<br>0.8   |
| Arts, entertainment, and recreation                                    | 64<br>-0.2                | 64<br>-1.1    | 63<br>-0.8    | 59<br>2.0            | 60<br>2.4    | 61<br>1.8    | 207<br>-0.1    | 208<br>0.4     | 209<br>0.8     | 147<br>-0.2   | 147<br>0.2    | 148<br>0.4    | 3,000<br>1.3   | 3,039<br>1.3   | 3,080<br>1.3   |
| Personal, laundry, and other services                                  | 439<br>0.3                | 436<br>-0.5   | 437<br>0.1    | 116<br>2.6           | 118<br>2.1   | 121<br>1.8   | 684<br>1.7     | 694<br>1.5     | 704<br>1.4     | 551<br>1.6    | 559<br>1.4    | 567<br>1.5    | 7,296<br>2.5   | 7,453<br>2.1   | 7,597<br>1.9   |
| Education                                                              | 1,228<br>-2.1             | 1,211<br>-1.4 | 1,207<br>-0.3 | 365<br>1.2           | 371<br>1.5   | 378<br>1.9   | 2,253<br>-1.3  | 2,241<br>-0.5  | 2,241<br>0.0   | 1,589<br>-0.6 | 1,586<br>-0.2 | 1,591<br>0.3  | 19,570<br>0.5  | 19,774<br>1.0  | 20,073<br>1.5  |

(continued ...)

Table 2b (cont'd)

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                   | Newfoundland and Labrador |             |             | Prince Edward Island |            |            | Nova Scotia |            |            | New Brunswick |            |            | Quebec     |            |            |
|-----------------------------------|---------------------------|-------------|-------------|----------------------|------------|------------|-------------|------------|------------|---------------|------------|------------|------------|------------|------------|
|                                   | 2020                      | 2021        | 2022        | 2020                 | 2021       | 2022       | 2020        | 2021       | 2022       | 2020          | 2021       | 2022       | 2020       | 2021       | 2022       |
| Health and social assistance      | 1,864                     | 1,864       | 1,866       | 463                  | 471        | 480        | 3,492       | 3,553      | 3,625      | 2,471         | 2,511      | 2,563      | 27,349     | 27,768     | 28,291     |
|                                   | <i>0.0</i>                | <i>0.0</i>  | <i>0.1</i>  | <i>1.4</i>           | <i>1.8</i> | <i>1.9</i> | <i>2.0</i>  | <i>1.8</i> | <i>2.0</i> | <i>2.0</i>    | <i>1.6</i> | <i>2.1</i> | <i>1.9</i> | <i>1.5</i> | <i>1.9</i> |
| Public administration and defence | 1,734                     | 1,706       | 1,682       | 637                  | 642        | 649        | 3,938       | 3,969      | 3,994      | 2,943         | 2,949      | 2,954      | 23,515     | 23,688     | 23,833     |
|                                   | <i>-1.4</i>               | <i>-1.6</i> | <i>-1.4</i> | <i>0.8</i>           | <i>0.9</i> | <i>1.0</i> | <i>0.6</i>  | <i>0.8</i> | <i>0.6</i> | <i>0.5</i>    | <i>0.2</i> | <i>0.1</i> | <i>0.8</i> | <i>0.7</i> | <i>0.6</i> |
| Services-producing industries     | 13,546                    | 13,459      | 13,457      | 3,928                | 3,977      | 4,029      | 27,726      | 27,939     | 28,186     | 21,208        | 21,392     | 21,586     | 250,610    | 254,223    | 257,911    |
|                                   | <i>-0.4</i>               | <i>-0.6</i> | <i>0.0</i>  | <i>1.3</i>           | <i>1.2</i> | <i>1.3</i> | <i>0.8</i>  | <i>0.8</i> | <i>0.9</i> | <i>0.9</i>    | <i>0.9</i> | <i>0.9</i> | <i>1.5</i> | <i>1.4</i> | <i>1.5</i> |
| All industries                    | 28,511                    | 27,785      | 27,548      | 5,225                | 5,278      | 5,336      | 34,428      | 34,802     | 35,166     | 28,254        | 28,558     | 28,885     | 347,231    | 352,465    | 357,389    |
|                                   | <i>1.3</i>                | <i>-2.5</i> | <i>-0.9</i> | <i>1.2</i>           | <i>1.0</i> | <i>1.1</i> | <i>1.0</i>  | <i>1.1</i> | <i>1.0</i> | <i>1.2</i>    | <i>1.1</i> | <i>1.1</i> | <i>1.5</i> | <i>1.5</i> | <i>1.4</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of 2007 dollars, seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 3a

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                                          | Ontario        |                |                | Manitoba      |               |                | Saskatchewan   |                |               | Alberta        |                |                | British Columbia |               |               |
|----------------------------------------------------------|----------------|----------------|----------------|---------------|---------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|------------------|---------------|---------------|
|                                                          | 2017           | 2018           | 2019           | 2017          | 2018          | 2019           | 2017           | 2018           | 2019          | 2017           | 2018           | 2019           | 2017             | 2018          | 2019          |
| Agriculture                                              | 4,202<br>1.7   | 4,250<br>1.2   | 4,342<br>2.2   | 2,013<br>8.7  | 2,053<br>2.0  | 2,104<br>2.5   | 3,896<br>-2.4  | 4,043<br>3.8   | 4,156<br>2.8  | 3,406<br>1.8   | 3,446<br>1.2   | 3,520<br>2.2   | 1,243<br>-2.4    | 1,269<br>2.1  | 1,296<br>2.1  |
| Forestry                                                 | 409<br>-2.8    | 419<br>2.4     | 422<br>0.7     | 25<br>-0.8    | 25<br>3.2     | 27<br>5.3      | 49<br>10.8     | 48<br>-1.6     | 50<br>4.2     | 450<br>3.1     | 441<br>-2.0    | 456<br>3.5     | 1,901<br>-4.3    | 1,895<br>-0.3 | 1,898<br>0.1  |
| Fishing and trapping                                     | 21<br>-8.7     | 20<br>-4.6     | 20<br>-1.1     | 5<br>-8.6     | 5<br>-0.2     | 5<br>-0.2      | 0<br>0.0       | 0<br>0.0       | 0<br>0.0      | 0<br>0.0       | 0<br>-44.7     | 0<br>-44.7     | 166<br>-16.6     | 164<br>-0.6   | 168<br>1.9    |
| Agriculture and forestry support services                | 455<br>1.3     | 464<br>2.1     | 471<br>1.5     | 112<br>9.3    | 113<br>1.6    | 116<br>2.5     | 187<br>4.3     | 197<br>5.6     | 202<br>2.3    | 291<br>2.5     | 296<br>1.7     | 301<br>1.8     | 788<br>-0.5      | 797<br>1.1    | 800<br>0.4    |
| Mining                                                   | 7,656<br>-1.8  | 7,640<br>-0.2  | 7,740<br>1.3   | 2,714<br>-2.2 | 2,527<br>-6.9 | 2,370<br>-6.2  | 13,002<br>7.8  | 13,054<br>0.4  | 13,785<br>5.6 | 91,864<br>13.3 | 93,757<br>2.1  | 95,350<br>1.7  | 11,589<br>-0.5   | 12,127<br>4.6 | 12,423<br>2.4 |
| Metal ore mining                                         | 5,760<br>-5.7  | 5,721<br>-0.7  | 5,874<br>2.7   | 1,419<br>-2.7 | 1,298<br>-8.5 | 1,181<br>-9.0  | 1,349<br>-20.3 | 1,029<br>-23.7 | 1,292<br>25.5 | 1<br>16.7      | 1<br>-1.0      | 1<br>3.6       | 2,715<br>-4.8    | 2,951<br>8.7  | 3,061<br>3.7  |
| Non-metallic mineral mining and quarrying                | 1,208<br>12.0  | 1,203<br>-0.4  | 1,140<br>-5.2  | 73<br>7.0     | 83<br>13.6    | 82<br>-1.3     | 1,815<br>12.5  | 2,035<br>12.1  | 2,158<br>6.0  | 559<br>3.6     | 636<br>13.7    | 628<br>-1.3    | 178<br>13.1      | 202<br>13.5   | 199<br>-1.3   |
| Oil and gas extraction & coal mining                     | 102<br>5.4     | 86<br>-15.8    | 79<br>-7.6     | 924<br>-6.1   | 844<br>-8.7   | 805<br>-4.6    | 9,154<br>5.5   | 9,380<br>2.5   | 9,702<br>3.4  | 88,323<br>7.8  | 90,267<br>2.2  | 91,690<br>1.6  | 9,425<br>0.1     | 9,669<br>2.6  | 9,837<br>1.7  |
| Support activities for mining and oil and gas extraction | 554<br>0.1     | 598<br>8.0     | 614<br>2.6     | 88<br>17.5    | 92<br>4.8     | 91<br>-0.9     | 790<br>29.7    | 716<br>-9.3    | 740<br>3.3    | 6,248<br>56.7  | 6,121<br>-2.0  | 6,299<br>2.9   | 421<br>10.2      | 455<br>8.1    | 475<br>4.4    |
| Manufacturing                                            | 82,219<br>1.5  | 83,183<br>1.2  | 84,279<br>1.3  | 5,501<br>1.8  | 5,604<br>1.9  | 5,705<br>1.8   | 4,358<br>7.8   | 4,470<br>2.6   | 4,544<br>1.7  | 17,651<br>8.1  | 18,115<br>2.6  | 18,460<br>1.9  | 16,750<br>4.5    | 17,414<br>4.0 | 17,623<br>1.2 |
| Construction                                             | 39,763<br>4.6  | 40,645<br>2.2  | 41,808<br>2.9  | 4,638<br>7.9  | 5,189<br>11.9 | 5,107<br>-1.6  | 4,043<br>-3.2  | 4,158<br>2.8   | 3,996<br>-3.9 | 26,183<br>-0.7 | 26,527<br>1.3  | 26,876<br>1.3  | 19,936<br>9.9    | 20,174<br>1.2 | 20,484<br>1.5 |
| Utilities                                                | 11,888<br>-0.3 | 12,431<br>4.6  | 12,748<br>2.6  | 1,730<br>0.4  | 1,769<br>2.3  | 1,819<br>2.8   | 1,363<br>5.2   | 1,403<br>2.9   | 1,440<br>2.7  | 4,342<br>10.1  | 4,523<br>4.2   | 4,618<br>2.1   | 4,121<br>5.3     | 4,283<br>3.9  | 4,372<br>2.1  |
| Goods-producing industries                               | 147,672<br>2.1 | 150,112<br>1.7 | 152,889<br>1.9 | 17,140<br>4.0 | 17,688<br>3.2 | 17,656<br>-0.2 | 26,648<br>3.7  | 27,124<br>1.8  | 27,923<br>2.9 | 140,606<br>7.9 | 143,524<br>2.1 | 146,000<br>1.7 | 56,795<br>5.1    | 58,426<br>2.9 | 59,366<br>1.6 |

(continued ...)

Table 3a (cont'd)

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                                                        | Ontario        |                |                | Manitoba       |                |               | Saskatchewan   |                |               | Alberta        |               |               | British Columbia |                |               |
|------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|---------------|----------------|---------------|---------------|------------------|----------------|---------------|
|                                                                        | 2017           | 2018           | 2019           | 2017           | 2018           | 2019          | 2017           | 2018           | 2019          | 2017           | 2018          | 2019          | 2017             | 2018           | 2019          |
| Transportation and warehousing                                         | 26,498<br>3.8  | 27,280<br>2.9  | 27,667<br>1.4  | 3,822<br>4.9   | 3,897<br>2.0   | 3,975<br>2.0  | 2,959<br>4.9   | 3,018<br>2.0   | 3,092<br>2.5  | 13,083<br>6.6  | 13,477<br>3.0 | 13,673<br>1.5 | 13,759<br>7.5    | 14,120<br>2.6  | 14,393<br>1.9 |
| Wholesale and retail trade                                             | 83,101<br>6.5  | 84,525<br>1.7  | 85,788<br>1.5  | 6,908<br>4.8   | 6,870<br>-0.5  | 6,963<br>1.4  | 6,549<br>3.5   | 6,471<br>-1.2  | 6,603<br>2.0  | 26,133<br>7.9  | 26,844<br>2.7 | 27,422<br>2.2 | 25,043<br>7.1    | 25,890<br>3.4  | 26,361<br>1.8 |
| Wholesale trade                                                        | 47,105<br>7.1  | 48,127<br>2.2  | 48,762<br>1.3  | 3,628<br>5.3   | 3,666<br>1.1   | 3,733<br>1.8  | 3,640<br>6.2   | 3,601<br>-1.1  | 3,688<br>2.4  | 13,052<br>10.1 | 13,691<br>4.9 | 13,976<br>2.1 | 10,487<br>8.3    | 11,017<br>5.0  | 11,184<br>1.5 |
| Retail trade                                                           | 35,995<br>5.8  | 36,398<br>1.1  | 37,026<br>1.7  | 3,280<br>4.2   | 3,204<br>-2.3  | 3,230<br>0.8  | 2,909<br>0.4   | 2,870<br>-1.4  | 2,915<br>1.6  | 13,081<br>5.8  | 13,154<br>0.6 | 13,446<br>2.2 | 14,556<br>6.3    | 14,874<br>2.2  | 15,177<br>2.0 |
| Information and culture                                                | 23334.5<br>2.8 | 23366.7<br>0.1 | 23497.4<br>0.6 | 1510.4<br>-0.4 | 1507.5<br>-0.2 | 1518.9<br>0.8 | 1113.3<br>-0.5 | 1108.7<br>-0.4 | 1116.4<br>0.7 | 6682.3<br>-0.3 | 6682.4<br>0.0 | 6739.1<br>0.8 | 7472.7<br>0.7    | 7459.6<br>-0.2 | 7497.1<br>0.5 |
| Finance, insurance, and real estate                                    | 156,796<br>2.3 | 158,828<br>1.3 | 163,334<br>2.8 | 10,707<br>2.2  | 10,878<br>1.6  | 11,177<br>2.8 | 8,882<br>2.6   | 9,017<br>1.5   | 9,257<br>2.7  | 46,529<br>2.9  | 47,572<br>2.2 | 48,893<br>2.8 | 55,686<br>3.3    | 56,689<br>1.8  | 58,383<br>3.0 |
| Commercial services                                                    | 93,336<br>2.6  | 95,678<br>2.5  | 97,945<br>2.4  | 5,252<br>1.6   | 5,423<br>3.3   | 5,517<br>1.7  | 4,635<br>0.5   | 4,730<br>2.0   | 4,822<br>1.9  | 33,192<br>0.2  | 33,919<br>2.2 | 34,537<br>1.8 | 31,944<br>2.9    | 32,716<br>2.4  | 33,584<br>2.7 |
| Professional, scientific, and technical services                       | 42,809<br>3.9  | 44,186<br>3.2  | 45,320<br>2.6  | 1,787<br>2.1   | 1,850<br>3.5   | 1,880<br>1.6  | 1,511<br>2.5   | 1,515<br>0.2   | 1,546<br>2.0  | 14,077<br>0.0  | 14,436<br>2.6 | 14,678<br>1.7 | 14,082<br>3.9    | 14,669<br>4.2  | 15,066<br>2.7 |
| Administrative and support, waste management, and remediation services | 19,723<br>0.7  | 19,877<br>0.8  | 20,379<br>2.5  | 879<br>-0.1    | 874<br>-0.6    | 895<br>2.3    | 729<br>-2.1    | 754<br>3.5     | 773<br>2.5    | 6,501<br>-0.5  | 6,686<br>2.9  | 6,822<br>2.0  | 4,640<br>-1.1    | 4,574<br>-1.4  | 4,708<br>2.9  |
| Accommodation and food services                                        | 13,343<br>2.9  | 13,737<br>3.0  | 13,952<br>1.6  | 1,119<br>2.6   | 1,187<br>6.1   | 1,208<br>1.8  | 1,029<br>-1.0  | 1,062<br>3.2   | 1,075<br>1.2  | 5,737<br>0.8   | 5,786<br>0.8  | 5,870<br>1.4  | 6,297<br>4.1     | 6,404<br>1.7   | 6,541<br>2.1  |
| Arts, entertainment, and recreation                                    | 5,421<br>3.3   | 5,641<br>4.1   | 5,730<br>1.6   | 427<br>2.7     | 454<br>6.4     | 447<br>-1.5   | 372<br>0.1     | 382<br>2.7     | 387<br>1.3    | 1,523<br>3.1   | 1,578<br>3.6  | 1,599<br>1.3  | 2,248<br>3.7     | 2,333<br>3.8   | 2,386<br>2.3  |
| Personal, laundry, and other services                                  | 12,041<br>0.8  | 12,237<br>1.6  | 12,565<br>2.7  | 1,040<br>0.7   | 1,057<br>1.7   | 1,087<br>2.8  | 995<br>1.2     | 1,018<br>2.3   | 1,042<br>2.4  | 5,354<br>0.3   | 5,432<br>1.5  | 5,568<br>2.5  | 4,676<br>2.0     | 4,734<br>1.3   | 4,882<br>3.1  |
| Education                                                              | 36,509<br>0.8  | 37,272<br>2.1  | 37,464<br>0.5  | 3,083<br>1.3   | 3,119<br>1.2   | 3,134<br>0.5  | 3,001<br>1.6   | 3,073<br>2.4   | 3,087<br>0.4  | 10,442<br>1.4  | 10,693<br>2.4 | 10,768<br>0.7 | 11,852<br>1.7    | 12,089<br>2.0  | 12,113<br>0.2 |

(continued ...)

Table 3a (cont'd)

**Gross Domestic Product by Province and Industry, 2017–19**

(forecast completed July 24, 2018)

|                                   | Ontario |         |         | Manitoba |        |        | Saskatchewan |        |        | Alberta |         |         | British Columbia |         |         |
|-----------------------------------|---------|---------|---------|----------|--------|--------|--------------|--------|--------|---------|---------|---------|------------------|---------|---------|
|                                   | 2017    | 2018    | 2019    | 2017     | 2018   | 2019   | 2017         | 2018   | 2019   | 2017    | 2018    | 2019    | 2017             | 2018    | 2019    |
| Health and social assistance      | 42,801  | 44,085  | 44,906  | 4,538    | 4,647  | 4,736  | 3,640        | 3,723  | 3,783  | 15,070  | 15,524  | 15,734  | 14,292           | 14,769  | 15,167  |
|                                   | 2.2     | 3.0     | 1.9     | 2.3      | 2.4    | 1.9    | 1.0          | 2.3    | 1.6    | 2.2     | 3.0     | 1.4     | 1.9              | 3.3     | 2.7     |
| Public administration and defence | 42,654  | 43,395  | 43,763  | 4,339    | 4,377  | 4,398  | 3,299        | 3,385  | 3,367  | 12,393  | 12,667  | 12,683  | 11,826           | 12,003  | 12,172  |
|                                   | 2.3     | 1.7     | 0.8     | 1.5      | 0.9    | 0.5    | 2.1          | 2.6    | -0.5   | 1.8     | 2.2     | 0.1     | 2.0              | 1.5     | 1.4     |
| Services-producing industries     | 503,785 | 513,185 | 523,120 | 40,068   | 40,629 | 41,329 | 34,023       | 34,471 | 35,072 | 163,710 | 167,561 | 170,632 | 171,517          | 175,379 | 179,313 |
|                                   | 3.0     | 1.9     | 1.9     | 2.5      | 1.4    | 1.7    | 2.3          | 1.3    | 1.7    | 2.9     | 2.4     | 1.8     | 3.6              | 2.3     | 2.2     |
| All industries                    | 651,932 | 663,772 | 676,484 | 57,250   | 58,359 | 59,027 | 60,592       | 61,516 | 62,916 | 304,709 | 311,478 | 317,025 | 228,195          | 233,688 | 238,563 |
|                                   | 2.8     | 1.8     | 1.9     | 2.9      | 1.9    | 1.1    | 2.9          | 1.5    | 2.3    | 4.9     | 2.2     | 1.8     | 3.9              | 2.4     | 2.1     |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of 2007 dollars, seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 3b

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                                          | Ontario        |                |                | Manitoba       |                |               | Saskatchewan  |               |               | Alberta        |                |                | British Columbia |                |               |
|----------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|------------------|----------------|---------------|
|                                                          | 2020           | 2021           | 2022           | 2020           | 2021           | 2022          | 2020          | 2021          | 2022          | 2020           | 2021           | 2022           | 2020             | 2021           | 2022          |
| Agriculture                                              | 4,427<br>2.0   | 4,520<br>2.1   | 4,615<br>2.1   | 2,151<br>2.2   | 2,202<br>2.3   | 2,254<br>2.4  | 4,246<br>2.2  | 4,343<br>2.3  | 4,442<br>2.3  | 3,592<br>2.0   | 3,669<br>2.2   | 3,749<br>2.2   | 1,320<br>1.9     | 1,346<br>2.0   | 1,373<br>2.0  |
| Forestry                                                 | 435<br>3.0     | 442<br>1.8     | 448<br>1.3     | 27<br>2.7      | 28<br>1.4      | 28<br>0.4     | 52<br>2.7     | 53<br>1.7     | 53<br>0.8     | 476<br>4.4     | 486<br>2.0     | 488<br>0.4     | 1,872<br>-1.4    | 1,862<br>-0.5  | 1,851<br>-0.6 |
| Fishing and trapping                                     | 19<br>-1.1     | 19<br>-1.1     | 19<br>-1.1     | 5<br>-0.2      | 5<br>-0.2      | 5<br>-0.2     | 0<br>0.0      | 0<br>0.0      | 0<br>0.0      | 0<br>-44.7     | 0<br>-44.7     | 0<br>-44.7     | 168<br>0.1       | 166<br>-0.9    | 167<br>0.3    |
| Agriculture and forestry support services                | 481<br>2.0     | 489<br>1.7     | 498<br>1.9     | 119<br>2.2     | 121<br>2.3     | 124<br>2.3    | 206<br>2.2    | 210<br>1.9    | 214<br>2.1    | 308<br>2.3     | 313<br>1.7     | 319<br>1.8     | 800<br>-0.1      | 800<br>0.1     | 803<br>0.4    |
| Mining                                                   | 7,722<br>-0.2  | 7,693<br>-0.4  | 7,882<br>2.5   | 2,286<br>-3.5  | 2,122<br>-7.2  | 2,124<br>0.1  | 14,227<br>3.2 | 14,607<br>2.7 | 14,773<br>1.1 | 96,667<br>1.4  | 98,824<br>2.2  | 101,116<br>2.3 | 12,723<br>2.4    | 12,793<br>0.5  | 12,971<br>1.4 |
| Metal ore mining                                         | 5,872<br>0.0   | 5,772<br>-1.7  | 5,957<br>3.2   | 1,137<br>-3.8  | 991<br>-12.8   | 1,033<br>4.2  | 1,457<br>12.8 | 1,594<br>9.4  | 1,645<br>3.2  | 1<br>0.7       | 1<br>-0.5      | 1<br>3.5       | 3,234<br>5.7     | 3,226<br>-0.3  | 3,336<br>3.4  |
| Non-metallic mineral mining and quarrying                | 1,100<br>-3.5  | 1,125<br>2.3   | 1,120<br>-0.5  | 80<br>-2.0     | 83<br>2.9      | 83<br>0.0     | 2,227<br>3.2  | 2,375<br>6.7  | 2,486<br>4.7  | 615<br>-2.0    | 633<br>2.9     | 633<br>0.0     | 195<br>-1.9      | 201<br>3.0     | 202<br>0.2    |
| Oil and gas extraction & coal mining                     | 70<br>-12.3    | 70<br>0.0      | 60<br>-14.1    | 774<br>-3.9    | 746<br>-3.7    | 712<br>-4.5   | 9,846<br>1.5  | 9,875<br>0.3  | 9,844<br>-0.3 | 92,705<br>1.1  | 94,320<br>1.7  | 96,241<br>2.0  | 9,937<br>1.0     | 9,980<br>0.4   | 10,028<br>0.5 |
| Support activities for mining and oil and gas extraction | 649<br>5.7     | 694<br>7.0     | 714<br>2.8     | 86<br>-6.3     | 93<br>8.7      | 86<br>-7.1    | 804<br>8.6    | 868<br>8.0    | 903<br>4.1    | 6,613<br>5.0   | 7,139<br>7.9   | 7,509<br>5.2   | 506<br>6.6       | 535<br>5.7     | 555<br>3.7    |
| Manufacturing                                            | 85,592<br>1.6  | 86,872<br>1.5  | 88,153<br>1.5  | 5,802<br>1.7   | 5,883<br>1.4   | 5,970<br>1.5  | 4,623<br>1.8  | 4,704<br>1.7  | 4,784<br>1.7  | 18,763<br>1.6  | 19,067<br>1.6  | 19,361<br>1.5  | 17,809<br>1.1    | 17,938<br>0.7  | 18,180<br>1.3 |
| Construction                                             | 43,968<br>5.2  | 45,636<br>3.8  | 46,742<br>2.4  | 4,906<br>-3.9  | 4,664<br>-4.9  | 4,843<br>3.9  | 3,823<br>-4.3 | 3,917<br>2.5  | 3,965<br>1.2  | 27,766<br>3.3  | 28,402<br>2.3  | 29,121<br>2.5  | 20,066<br>-2.0   | 19,465<br>-3.0 | 19,776<br>1.6 |
| Utilities                                                | 12,981<br>1.8  | 13,195<br>1.6  | 13,415<br>1.7  | 1,841<br>1.2   | 1,887<br>2.5   | 1,947<br>3.1  | 1,463<br>1.6  | 1,489<br>1.8  | 1,510<br>1.4  | 4,703<br>1.8   | 4,800<br>2.1   | 4,896<br>2.0   | 4,469<br>2.2     | 4,530<br>1.4   | 4,599<br>1.5  |
| Goods-producing industries                               | 156,685<br>2.5 | 159,926<br>2.1 | 162,832<br>1.8 | 17,541<br>-0.7 | 17,315<br>-1.3 | 17,697<br>2.2 | 28,390<br>1.7 | 29,072<br>2.4 | 29,491<br>1.4 | 148,693<br>1.8 | 151,982<br>2.2 | 155,468<br>2.3 | 59,529<br>0.3    | 59,204<br>-0.5 | 60,023<br>1.4 |

(continued ...)

Table 3b (cont'd)

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                                                        | Ontario        |                |                | Manitoba      |               |               | Saskatchewan  |               |               | Alberta       |               |               | British Columbia |                |               |
|------------------------------------------------------------------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|----------------|---------------|
|                                                                        | 2020           | 2021           | 2022           | 2020          | 2021          | 2022          | 2020          | 2021          | 2022          | 2020          | 2021          | 2022          | 2020             | 2021           | 2022          |
| Transportation and warehousing                                         | 28,196<br>1.9  | 28,736<br>1.9  | 29,207<br>1.6  | 4,052<br>1.9  | 4,132<br>2.0  | 4,210<br>1.9  | 3,164<br>2.3  | 3,278<br>3.6  | 3,347<br>2.1  | 13,933<br>1.9 | 14,087<br>1.1 | 14,545<br>3.3 | 14,727<br>2.3    | 15,068<br>2.3  | 15,216<br>1.0 |
| Wholesale and retail trade                                             | 87,678<br>2.2  | 89,336<br>1.9  | 91,093<br>2.0  | 7,014<br>0.7  | 7,060<br>0.7  | 7,166<br>1.5  | 6,698<br>1.4  | 6,837<br>2.1  | 6,988<br>2.2  | 28,017<br>2.2 | 28,688<br>2.4 | 29,357<br>2.3 | 26,912<br>2.1    | 27,348<br>1.6  | 27,879<br>1.9 |
| Wholesale trade                                                        | 49,825<br>2.2  | 50,744<br>1.8  | 51,710<br>1.9  | 3,764<br>0.8  | 3,786<br>0.6  | 3,840<br>1.4  | 3,740<br>1.4  | 3,816<br>2.0  | 3,898<br>2.1  | 14,275<br>2.1 | 14,610<br>2.3 | 14,940<br>2.3 | 11,414<br>2.1    | 11,592<br>1.6  | 11,808<br>1.9 |
| Retail trade                                                           | 37,853<br>2.2  | 38,592<br>2.0  | 39,383<br>2.1  | 3,250<br>0.6  | 3,273<br>0.7  | 3,326<br>1.6  | 2,958<br>1.5  | 3,021<br>2.1  | 3,090<br>2.3  | 13,742<br>2.2 | 14,078<br>2.5 | 14,417<br>2.4 | 15,497<br>2.1    | 15,755<br>1.7  | 16,071<br>2.0 |
| Information and culture                                                | 23656.9<br>0.7 | 23819.3<br>0.7 | 23959.5<br>0.6 | 1534.7<br>1.0 | 1551.2<br>1.1 | 1567.0<br>1.0 | 1128.0<br>1.0 | 1140.4<br>1.1 | 1151.2<br>1.0 | 6806.8<br>1.0 | 6879.0<br>1.1 | 6948.0<br>1.0 | 7547.7<br>0.7    | 7602.3<br>0.7  | 7653.8<br>0.7 |
| Finance, insurance, and real estate                                    | 168,586<br>3.2 | 173,707<br>3.0 | 178,957<br>3.0 | 11,519<br>3.1 | 11,924<br>3.5 | 12,339<br>3.5 | 9,543<br>3.1  | 9,844<br>3.2  | 10,139<br>3.0 | 50,260<br>2.8 | 52,025<br>3.5 | 53,678<br>3.2 | 60,613<br>3.8    | 62,514<br>3.1  | 64,435<br>3.1 |
| Commercial services                                                    | 100,441<br>2.5 | 102,809<br>2.4 | 105,240<br>2.4 | 5,608<br>1.6  | 5,698<br>1.6  | 5,834<br>2.4  | 4,904<br>1.7  | 5,026<br>2.5  | 5,146<br>2.4  | 35,357<br>2.4 | 36,246<br>2.5 | 37,202<br>2.6 | 34,491<br>2.7    | 35,165<br>2.0  | 35,767<br>1.7 |
| Professional, scientific, and technical services                       | 46,491<br>2.6  | 47,590<br>2.4  | 48,689<br>2.3  | 1,890<br>0.5  | 1,897<br>0.4  | 1,942<br>2.4  | 1,559<br>0.9  | 1,591<br>2.1  | 1,632<br>2.6  | 15,003<br>2.2 | 15,355<br>2.3 | 15,704<br>2.3 | 15,436<br>2.5    | 15,699<br>1.7  | 15,902<br>1.3 |
| Administrative and support, waste management, and remediation services | 20,934<br>2.7  | 21,470<br>2.6  | 22,029<br>2.6  | 913<br>2.0    | 931<br>2.1    | 956<br>2.7    | 791<br>2.4    | 814<br>3.0    | 836<br>2.7    | 6,978<br>2.3  | 7,161<br>2.6  | 7,370<br>2.9  | 4,853<br>3.1     | 4,961<br>2.2   | 5,069<br>2.2  |
| Accommodation and food services                                        | 14,212<br>1.9  | 14,455<br>1.7  | 14,724<br>1.9  | 1,231<br>1.9  | 1,255<br>1.9  | 1,278<br>1.8  | 1,089<br>1.3  | 1,113<br>2.2  | 1,131<br>1.6  | 5,990<br>2.1  | 6,118<br>2.1  | 6,273<br>2.5  | 6,699<br>2.4     | 6,807<br>1.6   | 6,912<br>1.5  |
| Arts, entertainment, and recreation                                    | 5,834<br>1.8   | 5,954<br>2.0   | 6,088<br>2.3   | 456<br>2.0    | 467<br>2.4    | 477<br>2.3    | 392<br>1.3    | 402<br>2.6    | 410<br>2.0    | 1,630<br>2.0  | 1,671<br>2.5  | 1,722<br>3.0  | 2,445<br>2.5     | 2,495<br>2.0   | 2,546<br>2.0  |
| Personal, laundry, and other services                                  | 12,969<br>3.2  | 13,341<br>2.9  | 13,709<br>2.8  | 1,119<br>2.9  | 1,148<br>2.6  | 1,180<br>2.8  | 1,073<br>3.0  | 1,106<br>3.1  | 1,136<br>2.8  | 5,755<br>3.4  | 5,942<br>3.2  | 6,132<br>3.2  | 5,058<br>3.6     | 5,204<br>2.9   | 5,339<br>2.6  |
| Education                                                              | 37,675<br>0.6  | 37,680<br>0.0  | 37,865<br>0.5  | 3,144<br>0.3  | 3,185<br>1.3  | 3,244<br>1.8  | 3,109<br>0.7  | 3,165<br>1.8  | 3,236<br>2.2  | 10,878<br>1.0 | 11,065<br>1.7 | 11,320<br>2.3 | 12,037<br>-0.6   | 11,992<br>-0.4 | 12,001<br>0.1 |

(continued ...)



Table 3b (cont'd)

**Gross Domestic Product by Province and Industry, 2020–22**

(forecast completed July 24, 2018)

|                                   | Ontario |         |         | Manitoba |        |        | Saskatchewan |        |        | Alberta |         |         | British Columbia |         |         |
|-----------------------------------|---------|---------|---------|----------|--------|--------|--------------|--------|--------|---------|---------|---------|------------------|---------|---------|
|                                   | 2020    | 2021    | 2022    | 2020     | 2021   | 2022   | 2020         | 2021   | 2022   | 2020    | 2021    | 2022    | 2020             | 2021    | 2022    |
| Health and social assistance      | 45,928  | 46,878  | 47,989  | 4,835    | 4,925  | 5,031  | 3,864        | 3,941  | 4,026  | 15,980  | 16,469  | 17,006  | 15,408           | 15,710  | 16,056  |
|                                   | 2.3     | 2.1     | 2.4     | 2.1      | 1.9    | 2.2    | 2.1          | 2.0    | 2.2    | 1.6     | 3.1     | 3.3     | 1.6              | 2.0     | 2.2     |
| Public administration and defence | 44,203  | 44,626  | 44,988  | 4,402    | 4,411  | 4,445  | 3,364        | 3,366  | 3,397  | 12,769  | 12,879  | 12,944  | 12,286           | 12,409  | 12,519  |
|                                   | 1.0     | 1.0     | 0.8     | 0.1      | 0.2    | 0.8    | -0.1         | 0.1    | 0.9    | 0.7     | 0.9     | 0.5     | 0.9              | 1.0     | 0.9     |
| Services-producing industries     | 535,118 | 546,346 | 558,054 | 42,019   | 42,798 | 43,746 | 35,718       | 36,542 | 37,375 | 174,185 | 178,523 | 183,184 | 183,665          | 187,451 | 191,170 |
|                                   | 2.3     | 2.1     | 2.1     | 1.7      | 1.9    | 2.2    | 1.8          | 2.3    | 2.3    | 2.1     | 2.5     | 2.6     | 2.4              | 2.1     | 2.0     |
| All industries                    | 692,279 | 706,747 | 721,362 | 59,602   | 60,155 | 61,485 | 64,029       | 65,535 | 66,787 | 323,271 | 330,898 | 339,046 | 243,077          | 246,538 | 251,076 |
|                                   | 2.3     | 2.1     | 2.1     | 1.0      | 0.9    | 2.2    | 1.8          | 2.4    | 1.9    | 2.0     | 2.4     | 2.5     | 1.9              | 1.4     | 1.8     |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are in millions of 2007 dollars, seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 4a

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2017–19**

(forecast completed July 24, 2018)

|                                                                           | Newfoundland and Labrador |                |                | Prince Edward Island |               |               | Nova Scotia   |                |                | New Brunswick  |                |               | Quebec         |                |                |
|---------------------------------------------------------------------------|---------------------------|----------------|----------------|----------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|
|                                                                           | 2017                      | 2018           | 2019           | 2017                 | 2018          | 2019          | 2017          | 2018           | 2019           | 2017           | 2018           | 2019          | 2017           | 2018           | 2019           |
| Final consumption expenditure                                             | 20,767<br>0.1             | 20,618<br>-0.7 | 20,528<br>-0.4 | 5,670<br>3.6         | 5,770<br>1.8  | 5,855<br>1.5  | 39,684<br>3.8 | 39,901<br>0.5  | 40,163<br>0.7  | 29,305<br>1.4  | 29,537<br>0.8  | 29,713<br>0.6 | 300,042<br>2.9 | 307,705<br>2.6 | 312,457<br>1.5 |
| Household final consumption expenditure                                   | 14,454<br>-0.1            | 14,194<br>-1.8 | 14,159<br>-0.2 | 3,965<br>3.5         | 4,003<br>1.0  | 4,076<br>1.8  | 27,248<br>4.2 | 27,233<br>-0.1 | 27,380<br>0.5  | 20,342<br>1.0  | 20,374<br>0.2  | 20,482<br>0.5 | 217,515<br>3.2 | 222,818<br>2.4 | 226,679<br>1.7 |
| Goods                                                                     | 7,511<br>-1.7             | 7,167<br>-4.6  | 7,153<br>-0.2  | 1,934<br>3.0         | 1,919<br>-0.8 | 1,927<br>0.4  | 13,086<br>4.9 | 12,793<br>-2.2 | 12,736<br>-0.4 | 10,457<br>-0.2 | 10,301<br>-1.5 | 10,308<br>0.1 | 108,965<br>3.4 | 111,485<br>2.3 | 113,025<br>1.4 |
| Services                                                                  | 6,922<br>1.7              | 7,006<br>1.2   | 6,985<br>-0.3  | 2,031<br>4.0         | 2,085<br>2.7  | 2,149<br>3.1  | 14,155<br>3.5 | 14,432<br>2.0  | 14,637<br>1.4  | 9,890<br>2.3   | 10,077<br>1.9  | 10,179<br>1.0 | 108,519<br>2.9 | 111,302<br>2.6 | 113,623<br>2.1 |
| Non-profit institutions serving households' final consumption expenditure | 227<br>-0.7               | 227<br>-0.3    | 224<br>-1.4    | 78<br>1.7            | 80<br>2.7     | 82<br>2.3     | 577<br>0.0    | 584<br>1.1     | 585<br>0.3     | 353<br>0.2     | 357<br>1.3     | 359<br>0.4    | 5,291<br>-2.2  | 5,357<br>1.2   | 5,399<br>0.8   |
| General governments final consumption expenditure                         | 6,150<br>0.5              | 6,261<br>1.8   | 6,210<br>-0.8  | 1,639<br>3.9         | 1,699<br>3.7  | 1,710<br>0.6  | 11,888<br>3.3 | 12,115<br>1.9  | 12,227<br>0.9  | 8,672<br>2.5   | 8,867<br>2.3   | 8,933<br>0.7  | 77,426<br>2.4  | 79,652<br>2.9  | 80,501<br>1.1  |
| Gross fixed capital formation                                             | 9,387<br>-16.4            | 8,817<br>-6.1  | 8,210<br>-6.9  | 1,077<br>24.0        | 1,277<br>18.5 | 1,419<br>11.2 | 7,858<br>2.7  | 8,048<br>2.4   | 8,152<br>1.3   | 5,536<br>7.2   | 5,987<br>8.1   | 6,223<br>3.9  | 67,388<br>5.4  | 70,353<br>4.4  | 71,084<br>1.0  |
| Business gross fixed capital formation                                    | 8,307<br>-16.8            | 7,632<br>-8.1  | 7,033<br>-7.9  | 850<br>24.0          | 1,024<br>20.4 | 1,165<br>13.8 | 5,901<br>2.0  | 6,045<br>2.4   | 6,117<br>1.2   | 4,024<br>5.4   | 4,292<br>6.7   | 4,418<br>2.9  | 53,569<br>5.9  | 56,202<br>4.9  | 56,491<br>0.5  |
| Residential structures                                                    | 959<br>-10.0              | 1,058<br>10.3  | 1,037<br>-2.0  | 438<br>31.9          | 600<br>37.1   | 703<br>17.1   | 2,442<br>2.3  | 2,538<br>3.9   | 2,530<br>-0.3  | 1,504<br>-2.3  | 1,684<br>11.9  | 1,745<br>3.6  | 23,167<br>7.2  | 24,076<br>3.9  | 23,535<br>-2.2 |
| Non-residential structures                                                | 5,786<br>-22.2            | 4,692<br>-18.9 | 4,006<br>-14.6 | 157<br>21.7          | 160<br>1.7    | 195<br>22.4   | 1,257<br>2.2  | 1,025<br>-18.4 | 1,117<br>8.9   | 942<br>25.7    | 914<br>-2.9    | 969<br>6.0    | 12,596<br>2.6  | 13,108<br>4.1  | 13,224<br>0.9  |
| Machinery and equipment                                                   | 1,080<br>20.8             | 1,094<br>1.3   | 1,156<br>5.7   | 221<br>18.9          | 228<br>3.2    | 229<br>0.3    | 1,759<br>6.3  | 1,939<br>10.3  | 1,905<br>-1.8  | 1,365<br>5.9   | 1,444<br>5.8   | 1,442<br>-0.1 | 10,773<br>9.2  | 11,564<br>7.3  | 11,917<br>3.0  |
| Intellectual property products                                            | 476<br>-18.1              | 781<br>64.2    | 827<br>5.8     | 38<br>-10.9          | 39<br>2.8     | 42<br>5.4     | 424<br>-14.5  | 524<br>23.4    | 546<br>4.3     | 238<br>-11.2   | 276<br>15.8    | 287<br>4.3    | 6,552<br>2.4   | 7,119<br>8.7   | 7,482<br>5.1   |
| Non-profit institutions serving households' gross fixed capital formation | 19<br>-8.9                | 19<br>-3.1     | 19<br>0.7      | 6<br>-11.1           | 6<br>-4.3     | 6<br>0.3      | 36<br>-7.3    | 36<br>-1.6     | 36<br>1.7      | 22<br>-8.9     | 21<br>-2.6     | 22<br>1.1     | 411<br>1.5     | 405<br>-1.4    | 412<br>1.8     |

(continued ...)

Table 4a (cont'd)

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2017–19**

(forecast completed July 24, 2018)

|                                                   | Newfoundland and Labrador |                |                | Prince Edward Island |               |              | Nova Scotia    |               |               | New Brunswick |               |               | Quebec         |                |                |
|---------------------------------------------------|---------------------------|----------------|----------------|----------------------|---------------|--------------|----------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
|                                                   | 2017                      | 2018           | 2019           | 2017                 | 2018          | 2019         | 2017           | 2018          | 2019          | 2017          | 2018          | 2019          | 2017           | 2018           | 2019           |
| General governments gross fixed capital formation | 1,020<br>-73.9            | 1,127<br>10.5  | 1,119<br>-0.7  | 225<br>24.8          | 251<br>11.8   | 253<br>0.5   | 1,916<br>5.4   | 1,962<br>2.4  | 1,994<br>1.7  | 1,494<br>12.8 | 1,677<br>12.3 | 1,787<br>6.5  | 13,449<br>3.6  | 13,777<br>2.4  | 14,211<br>3.1  |
| Investment in inventories                         | 172<br>240.3              | 258<br>50.2    | 242<br>-6.4    | 36<br>-22.3          | 62<br>70.2    | 58<br>-5.4   | 93<br>-27.0    | 225<br>140.5  | 232<br>3.1    | 130<br>-27.6  | 241<br>84.8   | 236<br>-1.9   | 4,395<br>143.2 | 3,373<br>-23.3 | 2,363<br>-29.9 |
| Exports of goods and services                     | 17,365<br>4.8             | 18,257<br>5.1  | 20,293<br>11.2 | 2,376<br>-0.5        | 2,395<br>0.8  | 2,437<br>1.8 | 12,891<br>-1.3 | 13,323<br>3.4 | 13,596<br>2.1 | 21,791<br>1.8 | 22,085<br>1.4 | 22,502<br>1.9 | 162,155<br>1.8 | 163,837<br>1.0 | 168,079<br>2.6 |
| Exports to other countries                        | 10,966<br>4.6             | 11,698<br>6.7  | 13,569<br>16.0 | 1,041<br>-2.4        | 1,037<br>-0.3 | 1,052<br>1.4 | 5,969<br>-3.5  | 6,214<br>4.1  | 6,359<br>2.3  | 12,757<br>3.0 | 12,841<br>0.7 | 13,137<br>2.3 | 99,834<br>2.1  | 99,021<br>-0.8 | 101,332<br>2.3 |
| Exports to other provinces                        | 6,178<br>5.3              | 6,338<br>2.6   | 6,503<br>2.6   | 1,340<br>1.0         | 1,362<br>1.7  | 1,390<br>2.0 | 6,916<br>0.7   | 7,103<br>2.7  | 7,231<br>1.8  | 8,969<br>0.2  | 9,180<br>2.3  | 9,299<br>1.3  | 61,904<br>1.2  | 64,422<br>4.1  | 66,354<br>3.0  |
| Less: imports of goods and services               | 19,114<br>-6.9            | 19,371<br>1.3  | 19,316<br>-0.3 | 3,806<br>6.5         | 3,994<br>4.9  | 4,124<br>3.2 | 23,700<br>5.1  | 24,249<br>2.3 | 24,705<br>1.9 | 26,916<br>2.5 | 27,818<br>3.4 | 28,294<br>1.7 | 179,641<br>4.0 | 182,738<br>1.7 | 185,670<br>1.6 |
| Imports from other countries                      | 11,818<br>-3.8            | 11,704<br>-1.0 | 11,411<br>-2.5 | 1,315<br>12.1        | 1,388<br>5.5  | 1,436<br>3.5 | 11,942<br>8.6  | 12,099<br>1.3 | 12,234<br>1.1 | 17,214<br>6.6 | 17,839<br>3.6 | 18,116<br>1.6 | 120,375<br>4.1 | 123,376<br>2.5 | 125,574<br>1.8 |
| Imports from other provinces                      | 7,317<br>-11.5            | 7,688<br>5.1   | 7,926<br>3.1   | 2,487<br>3.8         | 2,603<br>4.6  | 2,684<br>3.1 | 11,744<br>1.8  | 12,137<br>3.3 | 12,458<br>2.6 | 9,482<br>-4.0 | 9,760<br>2.9  | 9,960<br>2.0  | 59,267<br>3.7  | 59,327<br>0.1  | 60,061<br>1.2  |
| Statistical discrepancy                           | -7<br>-72.6               | -20<br>206.6   | -17<br>-15.1   | 6<br>279.9           | 3<br>-56.7    | 3<br>30.5    | 5<br>-122.3    | -16<br>-411.0 | -10<br>-34.8  | 25<br>1706.2  | 7<br>-72.3    | 11<br>62.8    | -290<br>29.5   | -166<br>-42.8  | -185<br>11.8   |
| Gross domestic product at market prices           | 28,382<br>1.9             | 28,371<br>0.0  | 29,753<br>4.9  | 5,391<br>2.9         | 5,544<br>2.8  | 5,682<br>2.5 | 37,004<br>1.0  | 37,405<br>1.1 | 37,600<br>0.5 | 29,862<br>1.7 | 30,030<br>0.6 | 30,381<br>1.2 | 353,565<br>3.0 | 361,844<br>2.3 | 367,607<br>1.6 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 4b

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2020–22**

(forecast completed July 24, 2018)

|                                                                           | Newfoundland and Labrador |                |                | Prince Edward Island |               |               | Nova Scotia   |               |               | New Brunswick |               |               | Quebec         |                |                |
|---------------------------------------------------------------------------|---------------------------|----------------|----------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
|                                                                           | 2020                      | 2021           | 2022           | 2020                 | 2021          | 2022          | 2020          | 2021          | 2022          | 2020          | 2021          | 2022          | 2020           | 2021           | 2022           |
| Final consumption expenditure                                             | 20,387<br>-0.7            | 20,220<br>-0.8 | 20,157<br>-0.3 | 5,943<br>1.5         | 6,017<br>1.3  | 6,086<br>1.1  | 40,699<br>1.3 | 41,289<br>1.4 | 41,682<br>1.0 | 29,978<br>0.9 | 30,235<br>0.9 | 30,469<br>0.8 | 316,397<br>1.3 | 320,088<br>1.2 | 323,676<br>1.1 |
| Household final consumption expenditure                                   | 14,094<br>-0.5            | 14,012<br>-0.6 | 14,024<br>0.1  | 4,156<br>2.0         | 4,219<br>1.5  | 4,275<br>1.3  | 27,678<br>1.1 | 28,006<br>1.2 | 28,288<br>1.0 | 20,681<br>1.0 | 20,898<br>1.0 | 21,077<br>0.9 | 229,909<br>1.4 | 232,930<br>1.3 | 235,820<br>1.2 |
| Goods                                                                     | 7,127<br>-0.4             | 7,089<br>-0.5  | 7,101<br>0.2   | 1,937<br>0.5         | 1,941<br>0.2  | 1,944<br>0.1  | 12,795<br>0.5 | 12,879<br>0.7 | 12,944<br>0.5 | 10,377<br>0.7 | 10,457<br>0.8 | 10,515<br>0.6 | 114,130<br>1.0 | 115,175<br>0.9 | 116,165<br>0.9 |
| Services                                                                  | 6,946<br>-0.6             | 6,902<br>-0.6  | 6,901<br>0.0   | 2,220<br>3.3         | 2,278<br>2.6  | 2,332<br>2.3  | 14,876<br>1.6 | 15,120<br>1.6 | 15,337<br>1.4 | 10,309<br>1.3 | 10,445<br>1.3 | 10,567<br>1.2 | 115,749<br>1.9 | 117,724<br>1.7 | 119,624<br>1.6 |
| Non-profit institutions serving households' final consumption expenditure | 221<br>-1.0               | 220<br>-0.8    | 219<br>-0.4    | 84<br>2.0            | 85<br>1.3     | 86<br>1.1     | 588<br>0.4    | 590<br>0.4    | 592<br>0.3    | 360<br>0.4    | 362<br>0.3    | 363<br>0.3    | 5,449<br>0.9   | 5,497<br>0.9   | 5,542<br>0.8   |
| General governments final consumption expenditure                         | 6,136<br>-1.2             | 6,052<br>-1.4  | 5,979<br>-1.2  | 1,715<br>0.3         | 1,726<br>0.6  | 1,738<br>0.7  | 12,463<br>1.9 | 12,723<br>2.1 | 12,832<br>0.9 | 8,998<br>0.7  | 9,037<br>0.4  | 9,090<br>0.6  | 81,159<br>0.8  | 81,782<br>0.8  | 82,435<br>0.8  |
| Gross fixed capital formation                                             | 7,664<br>-6.6             | 7,276<br>-5.1  | 7,470<br>2.7   | 1,406<br>-0.9        | 1,358<br>-3.4 | 1,335<br>-1.7 | 8,374<br>2.7  | 8,593<br>2.6  | 8,868<br>3.2  | 6,511<br>4.6  | 6,693<br>2.8  | 7,071<br>5.7  | 72,245<br>1.6  | 74,120<br>2.6  | 76,085<br>2.7  |
| Business gross fixed capital formation                                    | 6,528<br>-7.2             | 6,186<br>-5.2  | 6,429<br>3.9   | 1,156<br>-0.7        | 1,115<br>-3.6 | 1,090<br>-2.3 | 6,273<br>2.5  | 6,459<br>3.0  | 6,695<br>3.6  | 4,660<br>5.5  | 4,819<br>3.4  | 5,168<br>7.2  | 57,528<br>1.8  | 59,382<br>3.2  | 61,198<br>3.1  |
| Residential structures                                                    | 1,014<br>-2.2             | 999<br>-1.5    | 1,029<br>3.1   | 717<br>2.0           | 689<br>-3.9   | 640<br>-7.1   | 2,593<br>2.5  | 2,636<br>1.6  | 2,668<br>1.2  | 1,809<br>3.7  | 1,860<br>2.8  | 1,901<br>2.2  | 23,539<br>0.0  | 23,916<br>1.6  | 24,194<br>1.2  |
| Non-residential structures                                                | 3,381<br>-15.6            | 3,083<br>-8.8  | 3,224<br>4.6   | 158<br>-19.1         | 132<br>-16.8  | 135<br>2.4    | 1,097<br>-1.7 | 1,088<br>-0.8 | 1,156<br>6.2  | 1,055<br>8.9  | 1,103<br>4.5  | 1,278<br>15.9 | 13,477<br>1.9  | 14,226<br>5.6  | 14,789<br>4.0  |
| Machinery and equipment                                                   | 1,319<br>14.1             | 1,283<br>-2.7  | 1,357<br>5.8   | 241<br>5.4           | 252<br>4.4    | 270<br>7.2    | 1,993<br>4.6  | 2,115<br>6.1  | 2,226<br>5.3  | 1,519<br>5.3  | 1,568<br>3.3  | 1,694<br>8.0  | 12,355<br>3.7  | 12,631<br>2.2  | 13,246<br>4.9  |
| Intellectual property products                                            | 806<br>-2.5               | 814<br>1.0     | 812<br>-0.2    | 44<br>4.9            | 46<br>6.3     | 49<br>4.9     | 569<br>4.3    | 601<br>5.5    | 626<br>4.2    | 302<br>5.0    | 313<br>3.8    | 321<br>2.5    | 7,823<br>4.6   | 8,274<br>5.8   | 8,635<br>4.4   |
| Non-profit institutions serving households' gross fixed capital formation | 19<br>0.8                 | 19<br>0.9      | 19<br>1.1      | 6<br>1.0             | 6<br>1.3      | 6<br>1.7      | 37<br>1.5     | 37<br>1.3     | 38<br>1.4     | 22<br>1.3     | 22<br>1.3     | 22<br>1.4     | 420<br>1.8     | 426<br>1.5     | 433<br>1.5     |

(continued ...)

Table 4b (cont'd)

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2020–22**

(forecast completed July 24, 2018)

|                                                   | Newfoundland and Labrador |                |                | Prince Edward Island |               |              | Nova Scotia   |               |               | New Brunswick |               |               | Quebec         |                |                |
|---------------------------------------------------|---------------------------|----------------|----------------|----------------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
|                                                   | 2020                      | 2021           | 2022           | 2020                 | 2021          | 2022         | 2020          | 2021          | 2022          | 2020          | 2021          | 2022          | 2020           | 2021           | 2022           |
| General governments gross fixed capital formation | 1,078<br>-3.6             | 1,031<br>-4.4  | 982<br>-4.7    | 248<br>-1.8          | 241<br>-2.8   | 243<br>0.9   | 2,059<br>3.2  | 2,092<br>1.6  | 2,131<br>1.9  | 1,833<br>2.6  | 1,856<br>1.2  | 1,885<br>1.5  | 14,328<br>0.8  | 14,343<br>0.1  | 14,485<br>1.0  |
| Investment in inventories                         | 204<br>-15.8              | 182<br>-10.6   | 165<br>-9.2    | 49<br>-16.3          | 43<br>-11.0   | 39<br>-9.6   | 194<br>-16.4  | 172<br>-11.1  | 156<br>-9.7   | 198<br>-16.1  | 177<br>-10.9  | 160<br>-9.5   | 1,981<br>-16.1 | 1,766<br>-10.9 | 1,599<br>-9.5  |
| Exports of goods and services                     | 21,406<br>5.5             | 21,173<br>-1.1 | 21,148<br>-0.1 | 2,502<br>2.7         | 2,576<br>3.0  | 2,652<br>2.9 | 13,799<br>1.5 | 14,007<br>1.5 | 14,244<br>1.7 | 23,041<br>2.4 | 23,538<br>2.2 | 24,074<br>2.3 | 171,791<br>2.2 | 175,611<br>2.2 | 178,549<br>1.7 |
| Exports to other countries                        | 14,506<br>6.9             | 14,157<br>-2.4 | 14,020<br>-1.0 | 1,080<br>2.6         | 1,113<br>3.1  | 1,146<br>2.9 | 6,466<br>1.7  | 6,576<br>1.7  | 6,683<br>1.6  | 13,569<br>3.3 | 13,951<br>2.8 | 14,322<br>2.7 | 103,636<br>2.3 | 105,943<br>2.2 | 107,345<br>1.3 |
| Exports to other provinces                        | 6,679<br>2.7              | 6,795<br>1.7   | 6,907<br>1.7   | 1,427<br>2.6         | 1,468<br>2.9  | 1,511<br>2.9 | 7,327<br>1.3  | 7,425<br>1.3  | 7,555<br>1.8  | 9,407<br>1.2  | 9,522<br>1.2  | 9,687<br>1.7  | 67,761<br>2.1  | 69,275<br>2.2  | 70,810<br>2.2  |
| Less: imports of goods and services               | 19,328<br>0.1             | 19,301<br>-0.1 | 19,665<br>1.9  | 4,185<br>1.5         | 4,225<br>0.9  | 4,284<br>1.4 | 25,287<br>2.4 | 25,892<br>2.4 | 26,411<br>2.0 | 28,995<br>2.5 | 29,596<br>2.1 | 30,397<br>2.7 | 188,816<br>1.7 | 192,587<br>2.0 | 195,933<br>1.7 |
| Imports from other countries                      | 11,311<br>-0.9            | 11,167<br>-1.3 | 11,369<br>1.8  | 1,432<br>-0.3        | 1,419<br>-0.9 | 1,429<br>0.7 | 12,453<br>1.8 | 12,719<br>2.1 | 12,932<br>1.7 | 18,629<br>2.8 | 19,054<br>2.3 | 19,694<br>3.4 | 127,398<br>1.5 | 130,086<br>2.1 | 132,249<br>1.7 |
| Imports from other provinces                      | 8,038<br>1.4              | 8,155<br>1.5   | 8,317<br>2.0   | 2,751<br>2.5         | 2,803<br>1.9  | 2,852<br>1.8 | 12,820<br>2.9 | 13,159<br>2.6 | 13,465<br>2.3 | 10,146<br>1.9 | 10,323<br>1.7 | 10,484<br>1.6 | 61,383<br>2.2  | 62,467<br>1.8  | 63,649<br>1.9  |
| Statistical discrepancy                           | -19<br>10.8               | -20<br>4.0     | -20<br>1.6     | 3<br>-14.2           | 3<br>-6.9     | 3<br>-3.1    | -13<br>32.3   | -15<br>10.1   | -15<br>3.8    | 9<br>-23.3    | 7<br>-12.4    | 7<br>-6.0     | -211<br>13.8   | -222<br>5.0    | -226<br>2.0    |
| Gross domestic product at market prices           | 30,126<br>1.3             | 29,342<br>-2.6 | 29,068<br>-0.9 | 5,749<br>1.2         | 5,804<br>1.0  | 5,862<br>1.0 | 37,938<br>0.9 | 38,328<br>1.0 | 38,696<br>1.0 | 30,733<br>1.2 | 31,045<br>1.0 | 31,375<br>1.1 | 372,867<br>1.4 | 378,256<br>1.4 | 383,228<br>1.3 |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 5a

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2017–19**

(forecast completed July 24, 2018)

|                                                                           | Ontario        |                |                | Manitoba      |                |               | Saskatchewan  |                |                | Alberta        |                |                | British Columbia |                |                |
|---------------------------------------------------------------------------|----------------|----------------|----------------|---------------|----------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|
|                                                                           | 2017           | 2018           | 2019           | 2017          | 2018           | 2019          | 2017          | 2018           | 2019           | 2017           | 2018           | 2019           | 2017             | 2018           | 2019           |
| Final consumption expenditure                                             | 556,728<br>3.1 | 567,065<br>1.9 | 577,395<br>1.8 | 51,170<br>2.8 | 52,193<br>2.0  | 52,874<br>1.3 | 44,684<br>2.3 | 45,031<br>0.8  | 45,614<br>1.3  | 186,212<br>3.5 | 190,988<br>2.6 | 195,236<br>2.2 | 202,575<br>4.0   | 208,499<br>2.9 | 213,638<br>2.5 |
| Household final consumption expenditure                                   | 413,117<br>3.6 | 420,077<br>1.7 | 428,536<br>2.0 | 35,648<br>3.1 | 36,290<br>1.8  | 36,869<br>1.6 | 32,565<br>3.1 | 32,748<br>0.6  | 33,337<br>1.8  | 137,912<br>3.8 | 141,896<br>2.9 | 145,889<br>2.8 | 157,206<br>4.2   | 161,698<br>2.9 | 165,959<br>2.6 |
| Goods                                                                     | 186,030<br>4.7 | 187,155<br>0.6 | 189,704<br>1.4 | 16,696<br>2.9 | 16,875<br>1.1  | 17,071<br>1.2 | 15,360<br>2.1 | 15,108<br>-1.6 | 15,375<br>1.8  | 60,626<br>3.2  | 62,022<br>2.3  | 63,581<br>2.5  | 65,630<br>5.5    | 68,014<br>3.6  | 69,516<br>2.2  |
| Services                                                                  | 227,412<br>2.8 | 233,226<br>2.6 | 239,136<br>2.5 | 18,939<br>3.2 | 19,401<br>2.4  | 19,785<br>2.0 | 17,165<br>4.0 | 17,601<br>2.5  | 17,923<br>1.8  | 76,973<br>4.3  | 79,562<br>3.4  | 81,995<br>3.1  | 91,545<br>3.3    | 93,652<br>2.3  | 96,412<br>2.9  |
| Non-profit institutions serving households' final consumption expenditure | 10,530<br>-2.3 | 10,666<br>1.3  | 10,822<br>1.5  | 1,108<br>1.5  | 1,132<br>2.1   | 1,150<br>1.6  | 688<br>1.2    | 702<br>1.9     | 712<br>1.5     | 2,453<br>0.6   | 2,497<br>1.8   | 2,527<br>1.2   | 3,636<br>1.3     | 3,723<br>2.4   | 3,777<br>1.5   |
| General governments final consumption expenditure                         | 133,747<br>2.2 | 136,983<br>2.4 | 138,698<br>1.3 | 14,497<br>2.1 | 14,855<br>2.5  | 14,940<br>0.6 | 11,515<br>0.4 | 11,666<br>1.3  | 11,649<br>-0.1 | 45,732<br>2.5  | 46,480<br>1.6  | 46,705<br>0.5  | 41,948<br>3.6    | 43,294<br>3.2  | 44,117<br>1.9  |
| Gross fixed capital formation                                             | 133,930<br>2.6 | 138,057<br>3.1 | 142,941<br>3.5 | 13,904<br>6.3 | 15,381<br>10.6 | 15,789<br>2.7 | 16,600<br>2.4 | 16,615<br>0.1  | 15,226<br>-8.4 | 83,785<br>1.0  | 85,071<br>1.5  | 88,751<br>4.3  | 56,238<br>4.6    | 59,514<br>5.8  | 60,549<br>1.7  |
| Business gross fixed capital formation                                    | 107,967<br>1.6 | 109,412<br>1.3 | 112,594<br>2.9 | 11,105<br>9.2 | 12,291<br>10.7 | 12,515<br>1.8 | 13,728<br>1.3 | 13,965<br>1.7  | 12,977<br>-7.1 | 71,717<br>0.3  | 73,626<br>2.7  | 77,851<br>5.7  | 49,505<br>7.1    | 51,837<br>4.7  | 52,481<br>1.2  |
| Residential structures                                                    | 49,503<br>1.5  | 45,895<br>-7.3 | 46,255<br>0.8  | 3,085<br>3.2  | 3,205<br>3.9   | 3,408<br>6.3  | 2,618<br>-7.3 | 2,295<br>-12.3 | 2,299<br>0.2   | 18,950<br>8.6  | 19,014<br>0.3  | 20,230<br>6.4  | 25,392<br>-0.2   | 26,186<br>3.1  | 25,012<br>-4.5 |
| Non-residential structures                                                | 20,629<br>2.4  | 22,831<br>10.7 | 24,340<br>6.6  | 4,317<br>9.5  | 5,325<br>23.3  | 4,830<br>-9.3 | 6,055<br>-0.1 | 6,838<br>12.9  | 6,828<br>-0.2  | 30,641<br>-6.5 | 31,632<br>3.2  | 32,409<br>2.5  | 13,038<br>29.8   | 12,874<br>-1.3 | 14,742<br>14.5 |
| Machinery and equipment                                                   | 26,561<br>7.0  | 29,344<br>10.5 | 30,043<br>2.4  | 3,215<br>20.0 | 3,259<br>1.4   | 3,756<br>15.3 | 4,459<br>11.0 | 4,392<br>-1.5  | 3,387<br>-22.9 | 16,062<br>-0.4 | 16,736<br>4.2  | 18,931<br>13.1 | 8,919<br>7.9     | 10,289<br>15.4 | 10,114<br>-1.7 |
| Intellectual property products                                            | 11,671<br>-0.4 | 12,544<br>7.5  | 13,158<br>4.9  | 492<br>-12.7  | 506<br>3.0     | 524<br>3.5    | 713<br>-7.6   | 558<br>-21.8   | 580<br>3.9     | 6,068<br>17.6  | 6,250<br>3.0   | 6,286<br>0.6   | 2,485<br>-11.3   | 2,816<br>13.3  | 2,941<br>4.4   |
| Non-profit institutions serving households' gross fixed capital formation | 1,163<br>5.3   | 1,184<br>1.8   | 1,220<br>3.1   | 102<br>-6.1   | 102<br>-0.4    | 105<br>2.6    | 77<br>-5.5    | 77<br>-0.1     | 79<br>2.7      | 415<br>-5.2    | 416<br>0.2     | 428<br>2.9     | 438<br>-5.4      | 439<br>0.4     | 453<br>3.1     |

(continued ...)

Table 5a (cont'd)

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2017–19**

(forecast completed July 24, 2018)

|                                                   | Ontario                |                       |                       | Manitoba              |                      |                      | Saskatchewan          |                      |                       | Alberta                |                       |                       | British Columbia      |                       |                       |
|---------------------------------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|-----------------------|----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                   | 2017                   | 2018                  | 2019                  | 2017                  | 2018                 | 2019                 | 2017                  | 2018                 | 2019                  | 2017                   | 2018                  | 2019                  | 2017                  | 2018                  | 2019                  |
| General governments gross fixed capital formation | 24,823<br><i>6.8</i>   | 27,549<br><i>11.0</i> | 29,214<br><i>6.0</i>  | 2,702<br><i>-3.8</i>  | 2,993<br><i>10.8</i> | 3,175<br><i>6.1</i>  | 2,814<br><i>8.4</i>   | 2,592<br><i>-7.9</i> | 2,189<br><i>-15.5</i> | 11,606<br><i>6.4</i>   | 10,983<br><i>-5.4</i> | 10,426<br><i>-5.1</i> | 6,344<br><i>-10.9</i> | 7,286<br><i>14.9</i>  | 7,664<br><i>5.2</i>   |
| Investment in inventories                         | 5,628<br><i>-502.3</i> | 5,494<br><i>-2.4</i>  | 4,392<br><i>-20.1</i> | 185<br><i>-25.2</i>   | 357<br><i>93.0</i>   | 353<br><i>-1.0</i>   | 325<br><i>169.4</i>   | 508<br><i>56.3</i>   | 480<br><i>-5.5</i>    | 1,425<br><i>-176.9</i> | 2,170<br><i>52.3</i>  | 2,044<br><i>-5.8</i>  | 685<br><i>-12.1</i>   | 1,399<br><i>104.1</i> | 1,404<br><i>0.4</i>   |
| Exports of goods and services                     | 354,529<br><i>-1.2</i> | 360,369<br><i>1.6</i> | 369,677<br><i>2.6</i> | 32,302<br><i>1.3</i>  | 32,845<br><i>1.7</i> | 33,225<br><i>1.2</i> | 39,974<br><i>-1.2</i> | 41,496<br><i>3.8</i> | 43,985<br><i>6.0</i>  | 177,836<br><i>-1.2</i> | 184,188<br><i>3.6</i> | 187,629<br><i>1.9</i> | 93,907<br><i>-0.8</i> | 96,324<br><i>2.6</i>  | 98,591<br><i>2.4</i>  |
| Exports to other countries                        | 237,253<br><i>-3.1</i> | 238,831<br><i>0.7</i> | 244,960<br><i>2.6</i> | 16,232<br><i>-0.3</i> | 16,424<br><i>1.2</i> | 16,464<br><i>0.2</i> | 24,330<br><i>-2.5</i> | 25,170<br><i>3.5</i> | 26,904<br><i>6.9</i>  | 114,506<br><i>-3.5</i> | 118,240<br><i>3.3</i> | 120,175<br><i>1.6</i> | 55,219<br><i>-3.8</i> | 56,374<br><i>2.1</i>  | 57,329<br><i>1.7</i>  |
| Exports to other provinces                        | 117,493<br><i>2.8</i>  | 121,794<br><i>3.7</i> | 124,973<br><i>2.6</i> | 15,997<br><i>2.9</i>  | 16,348<br><i>2.2</i> | 16,688<br><i>2.1</i> | 15,307<br><i>0.9</i>  | 15,988<br><i>4.4</i> | 16,744<br><i>4.7</i>  | 63,657<br><i>3.2</i>   | 66,275<br><i>4.1</i>  | 67,781<br><i>2.3</i>  | 38,774<br><i>3.8</i>  | 40,036<br><i>3.3</i>  | 41,348<br><i>3.3</i>  |
| Less: imports of goods and services               | 347,343<br><i>1.2</i>  | 355,464<br><i>2.3</i> | 365,043<br><i>2.7</i> | 36,087<br><i>2.8</i>  | 38,260<br><i>6.0</i> | 38,994<br><i>1.9</i> | 38,218<br><i>-1.3</i> | 39,471<br><i>3.3</i> | 39,638<br><i>0.4</i>  | 130,307<br><i>-4.1</i> | 137,279<br><i>5.4</i> | 142,718<br><i>4.0</i> | 102,655<br><i>0.7</i> | 109,622<br><i>6.8</i> | 112,717<br><i>2.8</i> |
| Imports from other countries                      | 254,691<br><i>1.4</i>  | 262,751<br><i>3.2</i> | 270,278<br><i>2.9</i> | 17,377<br><i>6.9</i>  | 18,506<br><i>6.5</i> | 18,515<br><i>0.0</i> | 16,357<br><i>1.8</i>  | 16,722<br><i>2.2</i> | 16,529<br><i>-1.1</i> | 76,116<br><i>-0.8</i>  | 79,773<br><i>4.8</i>  | 82,409<br><i>3.3</i>  | 61,610<br><i>5.5</i>  | 66,037<br><i>7.2</i>  | 67,587<br><i>2.3</i>  |
| Imports from other provinces                      | 92,830<br><i>0.8</i>   | 92,742<br><i>-0.1</i> | 94,794<br><i>2.2</i>  | 18,811<br><i>-0.7</i> | 19,856<br><i>5.6</i> | 20,580<br><i>3.6</i> | 22,007<br><i>-3.5</i> | 22,897<br><i>4.0</i> | 23,256<br><i>1.6</i>  | 54,370<br><i>-8.4</i>  | 57,685<br><i>6.1</i>  | 60,488<br><i>4.9</i>  | 41,284<br><i>-5.7</i> | 43,825<br><i>6.2</i>  | 45,370<br><i>3.5</i>  |
| Statistical discrepancy                           | 203<br><i>-171.4</i>   | 1,064<br><i>424.3</i> | 708<br><i>-33.5</i>   | 42<br><i>650.1</i>    | 14<br><i>-66.6</i>   | 21<br><i>47.4</i>    | -10<br><i>-79.9</i>   | -39<br><i>309.4</i>  | -32<br><i>-17.4</i>   | -176<br><i>-45.8</i>   | -290<br><i>64.3</i>   | -262<br><i>-9.7</i>   | 36<br><i>-131.7</i>   | -75<br><i>-311.7</i>  | -46<br><i>-38.8</i>   |
| Gross domestic product at market prices           | 703,485<br><i>2.7</i>  | 716,496<br><i>1.8</i> | 729,981<br><i>1.9</i> | 62,039<br><i>2.6</i>  | 63,053<br><i>1.6</i> | 63,791<br><i>1.2</i> | 64,223<br><i>2.7</i>  | 65,007<br><i>1.2</i> | 66,504<br><i>2.3</i>  | 316,653<br><i>4.6</i>  | 322,727<br><i>1.9</i> | 328,560<br><i>1.8</i> | 249,620<br><i>3.7</i> | 254,871<br><i>2.1</i> | 260,252<br><i>2.1</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.

Table 5b

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2020–22**

(forecast completed July 24, 2018)

|                                                                           | Ontario        |                |                | Manitoba        |                |               | Saskatchewan   |               |               | Alberta        |                |                | British Columbia |                 |                |
|---------------------------------------------------------------------------|----------------|----------------|----------------|-----------------|----------------|---------------|----------------|---------------|---------------|----------------|----------------|----------------|------------------|-----------------|----------------|
|                                                                           | 2020           | 2021           | 2022           | 2020            | 2021           | 2022          | 2020           | 2021          | 2022          | 2020           | 2021           | 2022           | 2020             | 2021            | 2022           |
| Final consumption expenditure                                             | 589,583<br>2.1 | 601,304<br>2.0 | 612,428<br>1.9 | 53,460<br>1.1   | 54,138<br>1.3  | 55,148<br>1.9 | 46,173<br>1.2  | 46,982<br>1.8 | 47,892<br>1.9 | 199,554<br>2.2 | 204,430<br>2.4 | 208,914<br>2.2 | 218,549<br>2.3   | 222,936<br>2.0  | 227,360<br>2.0 |
| Household final consumption expenditure                                   | 438,861<br>2.4 | 448,734<br>2.2 | 458,261<br>2.1 | 37,393<br>1.4   | 37,986<br>1.6  | 38,807<br>2.2 | 33,875<br>1.6  | 34,640<br>2.3 | 35,416<br>2.2 | 149,783<br>2.7 | 154,129<br>2.9 | 158,257<br>2.7 | 170,314<br>2.6   | 174,042<br>2.2  | 177,866<br>2.2 |
| Goods                                                                     | 193,644<br>2.1 | 197,227<br>1.9 | 200,611<br>1.7 | 17,152<br>0.5   | 17,260<br>0.6  | 17,480<br>1.3 | 15,577<br>1.3  | 15,894<br>2.0 | 16,204<br>2.0 | 64,878<br>2.0  | 66,403<br>2.3  | 67,779<br>2.1  | 70,875<br>2.0    | 71,984<br>1.6   | 73,185<br>1.7  |
| Services                                                                  | 245,521<br>2.7 | 251,811<br>2.6 | 257,954<br>2.4 | 20,228<br>2.2   | 20,714<br>2.4  | 21,314<br>2.9 | 18,259<br>1.9  | 18,707<br>2.5 | 19,172<br>2.5 | 84,591<br>3.2  | 87,413<br>3.3  | 90,165<br>3.1  | 99,408<br>3.1    | 102,027<br>2.6  | 104,650<br>2.6 |
| Non-profit institutions serving households' final consumption expenditure | 10,988<br>1.5  | 11,142<br>1.4  | 11,285<br>1.3  | 1,170<br>1.8    | 1,190<br>1.7   | 1,210<br>1.7  | 725<br>1.8     | 738<br>1.8    | 750<br>1.6    | 2,563<br>1.4   | 2,600<br>1.4   | 2,637<br>1.4   | 3,837<br>1.6     | 3,894<br>1.5    | 3,949<br>1.4   |
| General governments final consumption expenditure                         | 140,395<br>1.2 | 142,088<br>1.2 | 143,542<br>1.0 | 14,980<br>0.3   | 15,046<br>0.4  | 15,215<br>1.1 | 11,657<br>0.1  | 11,688<br>0.3 | 11,811<br>1.0 | 47,094<br>0.8  | 47,587<br>1.0  | 47,906<br>0.7  | 44,613<br>1.1    | 45,216<br>1.4   | 45,760<br>1.2  |
| Gross fixed capital formation                                             | 149,703<br>4.7 | 153,716<br>2.7 | 158,872<br>3.4 | 14,647<br>-7.2  | 14,009<br>-4.4 | 14,628<br>4.4 | 15,080<br>-1.0 | 15,295<br>1.4 | 15,551<br>1.7 | 90,981<br>2.5  | 94,422<br>3.8  | 95,008<br>0.6  | 60,045<br>-0.8   | 57,957<br>-3.5  | 59,597<br>2.8  |
| Business gross fixed capital formation                                    | 118,163<br>4.9 | 121,439<br>2.8 | 125,755<br>3.6 | 11,237<br>-10.2 | 10,509<br>-6.5 | 11,025<br>4.9 | 13,017<br>0.3  | 13,229<br>1.6 | 13,425<br>1.5 | 79,936<br>2.7  | 83,056<br>3.9  | 84,125<br>1.3  | 51,705<br>-1.5   | 49,424<br>-4.4  | 50,840<br>2.9  |
| Residential structures                                                    | 49,250<br>6.5  | 51,252<br>4.1  | 53,010<br>3.4  | 3,652<br>7.2    | 3,861<br>5.7   | 4,056<br>5.0  | 2,567<br>11.6  | 2,845<br>10.8 | 3,124<br>9.8  | 20,951<br>3.6  | 21,579<br>3.0  | 22,177<br>2.8  | 23,327<br>-6.7   | 22,753<br>-2.5  | 22,558<br>-0.9 |
| Non-residential structures                                                | 25,299<br>3.9  | 25,740<br>1.7  | 25,414<br>-1.3 | 3,949<br>-18.2  | 2,986<br>-24.4 | 3,064<br>2.6  | 6,166<br>-9.7  | 6,058<br>-1.8 | 5,814<br>-4.0 | 33,491<br>3.3  | 33,446<br>-0.1 | 34,804<br>4.1  | 14,943<br>1.4    | 13,437<br>-10.1 | 13,991<br>4.1  |
| Machinery and equipment                                                   | 31,077<br>3.4  | 31,072<br>0.0  | 33,262<br>7.0  | 3,109<br>-17.2  | 3,103<br>-0.2  | 3,319<br>7.0  | 3,801<br>12.2  | 3,818<br>0.4  | 3,962<br>3.8  | 19,121<br>1.0  | 21,283<br>11.3 | 20,084<br>-5.6 | 10,725<br>6.0    | 10,368<br>-3.3  | 11,305<br>9.0  |
| Intellectual property products                                            | 13,740<br>4.4  | 14,578<br>6.1  | 15,272<br>4.8  | 531<br>1.3      | 563<br>6.1     | 590<br>4.8    | 600<br>3.4     | 624<br>4.1    | 642<br>2.9    | 6,377<br>1.4   | 6,752<br>5.9   | 7,064<br>4.6   | 3,039<br>3.3     | 3,194<br>5.1    | 3,316<br>3.8   |
| Non-profit institutions serving households' gross fixed capital formation | 1,246<br>2.1   | 1,267<br>1.7   | 1,288<br>1.7   | 107<br>2.2      | 109<br>1.8     | 111<br>1.8    | 81<br>2.1      | 83<br>1.7     | 84<br>1.7     | 438<br>2.3     | 446<br>1.9     | 454<br>1.8     | 464<br>2.5       | 473<br>2.0      | 482<br>1.9     |

(continued ...)



Table 5b (cont'd)

**Gross Domestic Product at Market Prices, Expenditure-Based, by Province, 2020–22**

(forecast completed July 24, 2018)

|                                                   | Ontario               |                       |                       | Manitoba              |                       |                      | Saskatchewan         |                      |                      | Alberta               |                       |                       | British Columbia      |                       |                       |
|---------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                   | 2020                  | 2021                  | 2022                  | 2020                  | 2021                  | 2022                 | 2020                 | 2021                 | 2022                 | 2020                  | 2021                  | 2022                  | 2020                  | 2021                  | 2022                  |
| General governments gross fixed capital formation | 30,381<br><i>4.0</i>  | 31,097<br><i>2.4</i>  | 31,916<br><i>2.6</i>  | 3,309<br><i>4.2</i>   | 3,396<br><i>2.6</i>   | 3,497<br><i>3.0</i>  | 2,002<br><i>-8.6</i> | 2,004<br><i>0.1</i>  | 2,063<br><i>2.9</i>  | 10,561<br><i>1.3</i>  | 10,874<br><i>3.0</i>  | 10,383<br><i>-4.5</i> | 7,924<br><i>3.4</i>   | 8,107<br><i>2.3</i>   | 8,322<br><i>2.7</i>   |
| Investment in inventories                         | 3,684<br><i>-16.1</i> | 3,283<br><i>-10.9</i> | 2,971<br><i>-9.5</i>  | 296<br><i>-16.2</i>   | 264<br><i>-10.9</i>   | 239<br><i>-9.5</i>   | 404<br><i>-15.9</i>  | 361<br><i>-10.7</i>  | 327<br><i>-9.3</i>   | 1,718<br><i>-15.9</i> | 1,533<br><i>-10.8</i> | 1,390<br><i>-9.4</i>  | 1,174<br><i>-16.4</i> | 1,045<br><i>-11.0</i> | 945<br><i>-9.6</i>    |
| Exports of goods and services                     | 378,212<br><i>2.3</i> | 386,682<br><i>2.2</i> | 394,904<br><i>2.1</i> | 34,395<br><i>3.5</i>  | 35,053<br><i>1.9</i>  | 35,785<br><i>2.1</i> | 45,612<br><i>3.7</i> | 47,050<br><i>3.2</i> | 48,153<br><i>2.3</i> | 191,997<br><i>2.3</i> | 196,747<br><i>2.5</i> | 202,475<br><i>2.9</i> | 101,754<br><i>3.2</i> | 104,635<br><i>2.8</i> | 106,866<br><i>2.1</i> |
| Exports to other countries                        | 250,843<br><i>2.4</i> | 256,721<br><i>2.3</i> | 262,471<br><i>2.2</i> | 17,015<br><i>3.3</i>  | 17,259<br><i>1.4</i>  | 17,634<br><i>2.2</i> | 28,020<br><i>4.1</i> | 29,055<br><i>3.7</i> | 29,756<br><i>2.4</i> | 122,889<br><i>2.3</i> | 126,115<br><i>2.6</i> | 129,872<br><i>3.0</i> | 58,938<br><i>2.8</i>  | 60,315<br><i>2.3</i>  | 61,372<br><i>1.8</i>  |
| Exports to other provinces                        | 127,625<br><i>2.1</i> | 130,217<br><i>2.0</i> | 132,689<br><i>1.9</i> | 17,307<br><i>3.7</i>  | 17,720<br><i>2.4</i>  | 18,078<br><i>2.0</i> | 17,255<br><i>3.1</i> | 17,657<br><i>2.3</i> | 18,059<br><i>2.3</i> | 69,436<br><i>2.4</i>  | 70,959<br><i>2.2</i>  | 72,930<br><i>2.8</i>  | 42,902<br><i>3.8</i>  | 44,406<br><i>3.5</i>  | 45,581<br><i>2.6</i>  |
| Less: imports of goods and services               | 375,144<br><i>2.8</i> | 383,788<br><i>2.3</i> | 392,852<br><i>2.4</i> | 38,961<br><i>-0.1</i> | 39,068<br><i>0.3</i>  | 40,021<br><i>2.4</i> | 40,458<br><i>2.1</i> | 41,326<br><i>2.1</i> | 42,297<br><i>2.3</i> | 147,005<br><i>3.0</i> | 152,188<br><i>3.5</i> | 154,690<br><i>1.6</i> | 115,262<br><i>2.3</i> | 116,695<br><i>1.2</i> | 120,164<br><i>3.0</i> |
| Imports from other countries                      | 277,805<br><i>2.8</i> | 284,130<br><i>2.3</i> | 290,636<br><i>2.3</i> | 18,158<br><i>-1.9</i> | 17,765<br><i>-2.2</i> | 18,142<br><i>2.1</i> | 16,776<br><i>1.5</i> | 16,991<br><i>1.3</i> | 17,316<br><i>1.9</i> | 84,516<br><i>2.6</i>  | 87,697<br><i>3.8</i>  | 88,615<br><i>1.0</i>  | 69,136<br><i>2.3</i>  | 69,706<br><i>0.8</i>  | 71,977<br><i>3.3</i>  |
| Imports from other provinces                      | 97,368<br><i>2.7</i>  | 99,687<br><i>2.4</i>  | 102,245<br><i>2.6</i> | 20,905<br><i>1.6</i>  | 21,404<br><i>2.4</i>  | 21,980<br><i>2.7</i> | 23,829<br><i>2.5</i> | 24,482<br><i>2.7</i> | 25,128<br><i>2.6</i> | 62,668<br><i>3.6</i>  | 64,670<br><i>3.2</i>  | 66,254<br><i>2.4</i>  | 46,366<br><i>2.2</i>  | 47,230<br><i>1.9</i>  | 48,427<br><i>2.5</i>  |
| Statistical discrepancy                           | 664<br><i>-6.2</i>    | 647<br><i>-2.7</i>    | 639<br><i>-1.1</i>    | 17<br><i>-19.2</i>    | 15<br><i>-9.7</i>     | 15<br><i>-4.4</i>    | -36<br><i>12.3</i>   | -38<br><i>4.5</i>    | -39<br><i>1.9</i>    | -278<br><i>6.1</i>    | -284<br><i>2.3</i>    | -286<br><i>0.9</i>    | -63<br><i>36.8</i>    | -70<br><i>11.5</i>    | -73<br><i>4.3</i>     |
| Gross domestic product at market prices           | 746,614<br><i>2.3</i> | 761,754<br><i>2.0</i> | 776,874<br><i>2.0</i> | 64,376<br><i>0.9</i>  | 64,934<br><i>0.9</i>  | 66,316<br><i>2.1</i> | 67,643<br><i>1.7</i> | 69,192<br><i>2.3</i> | 70,456<br><i>1.8</i> | 334,848<br><i>1.9</i> | 342,540<br><i>2.3</i> | 350,689<br><i>2.4</i> | 265,031<br><i>1.8</i> | 268,641<br><i>1.4</i> | 273,363<br><i>1.8</i> |

Shaded area represents forecast data, *italics indicate percentage change*.

All data are seasonally adjusted at annual rates.

For each indicator, the first line is the level and the second line is the percentage change from the previous period.

Sources: The Conference Board of Canada; Statistics Canada.



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June 29, 2018

Island Regulatory and Appeals Commission  
PO Box 577  
Charlottetown PE C1A 7L1



*hand  
delivered  
3pm lac*

Dear Commissioners:

### **2017 Depreciation Study**

Under Order UE16-04, Maritime Electric Company, Limited (the "Company") was directed by the Island Regulatory and Appeals Commission (the "Commission") to file a Depreciation Study based on financial results ending on December 31, 2017. Please find attached a copy of Maritime Electric's 2017 Depreciation Study (the "Study"). The Company retained the services of Gannett Fleming to prepare the 2017 Depreciation Study.

The Study results present a point in time determination, as at December 31, 2017, of the depreciation of the Company's various fixed capital asset groups or accounts by comparing Gannett Fleming's calculated accrued depreciation to the amounts recorded by the Company based upon the approved depreciation rates in effect. As stated by Gannett Fleming on Page I-5 of the Study:

*The calculated accrued depreciation is used as a measure to assess the adequacy of the Company's book accumulated depreciation amount. The calculated accrued depreciation should not be viewed in exact terms as the correct reserve amount. Rather it should be viewed as a benchmark or a tool used by the depreciation professional to assess the standing of the book accumulated depreciation amount based on the most recent available information.*

Similar to the 2014 Depreciation Study filed with the Commission on July 23, 2015, the results of the 2017 Study indicate that the current rates of depreciation require adjustment. Gannett Fleming has calculated the accumulated reserve variance at December 31, 2017 to be approximately \$43.973 million as compared to \$33.357 million from the 2014 Depreciation Study. The accumulated reserve variance represents the difference between the depreciation recorded by the Company to December 31, 2017 and the amount calculated by Gannett Fleming based upon their analysis of the original cost, age, estimated service life and net salvage value of the Company's fixed capital assets. The increase in the accumulated reserve variance can be attributed to changes in those factors since the previous study for 2014, in particular as related to the Charlottetown Thermal Generating Station ("CTGS") assets. The increase in the accumulated reserve variance is also due to the fact that the current depreciation rates were not implemented until 2016, resulting in 2015 depreciation being less than what was recommended in the 2014 Depreciation Study.

The 2017 Study recognizes that the Charlottetown Thermal Generating Station ("CTGS") is approaching the end of its useful life and has calculated the estimated depreciation rates required to ensure recovery of the original book value and estimated decommissioning and removal costs for the facility.

The table below provides a comparison of the results from the 2014 and 2017 Depreciation Studies as they relate to the accumulated reserve variance at each point and the resulting depreciation rates as approved since 2016 and as calculated in the 2017 Study.

| Depreciable Electrical Plant | Accumulated Reserve Variance (\$ Millions) |              |                | Depreciation Rates (%)     |                         |
|------------------------------|--------------------------------------------|--------------|----------------|----------------------------|-------------------------|
|                              | 2014                                       | 2017         | Change         | 2014 Approved <sup>1</sup> | 2017 Study <sup>2</sup> |
| Total Steam Production Plant | 14.560                                     | 18.007       | 3.447          | 7.99 <sup>3</sup>          | 13.06 <sup>3</sup>      |
| Borden Generating Station    | 3.767                                      | 3.044        | (0.723)        | 4.81                       | 4.12/5.83 <sup>4</sup>  |
| Combustion Turbine #3        | 1.113                                      | 1.834        | 0.721          | 2.28                       | 2.34/2.49 <sup>4</sup>  |
| Total Transmission Plant     | (5.978)                                    | (2.129)      | 3.849          | 2.27                       | 2.45/2.42 <sup>4</sup>  |
| Total Distribution Plant     | 16.630                                     | 22.931       | 6.301          | 3.32                       | 3.41/3.72 <sup>4</sup>  |
| General Plant                | <u>3.265</u>                               | <u>0.286</u> | <u>(2.979)</u> | 5.96                       | 5.81/6.0 <sup>4</sup>   |
|                              | 33.357                                     | 43.973       | 10.616         |                            |                         |

1 Depreciation rates effective January 1, 2016 as per Order UE16-04, Appendices 5 and 6; and 2014 Depreciation Study, Part VI, Tables 1 and 3

2 2017 Depreciation Study, Part VI, Tables 1 and 3

3 Rates for the Steam Production Plant include amortization of the accumulated reserve variance

4 The first rate excludes the amortization of the accumulated reserve variance for comparison to approved rates from the 2014 Depreciation Study whereas the second rate includes the amortization of the accumulated reserve variance

The Company's recommendations and proposals with respect to the 2017 Depreciation Study will be presented in the Company's General Application to be filed later this Fall.

If you have any questions, please do not hesitate to contact me at 902-629-3696.

Yours truly,

MARITIME ELECTRIC



Jason Roberts  
Vice President, Finance &  
Chief Financial Officer

JCR38  
Enclosure

# MARITIME ELECTRIC COMPANY

CHARLOTTETOWN, PRINCE EDWARD ISLAND

## 2017 DEPRECIATION STUDY

RECOMMENDED ANNUAL DEPRECIATION  
RATES RELATED TO ELECTRIC PLANT  
AT DECEMBER 31, 2017

*Prepared by:*



***Gannett Fleming***

*Excellence Delivered **As Promised***

MARITIME ELECTRIC COMPANY  
Charlottetown, Prince Edward Island

2017 DEPRECIATION STUDY

RECOMMENDED ANNUAL DEPRECIATION  
RATES RELATED TO ELECTRIC PLANT  
AT DECEMBER 31, 2017

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC  
Valley Forge, Pennsylvania



***Gannett Fleming***

*Excellence Delivered **As Promised***

June 28, 2018

Maritime Electric Company  
P.O. Box 1328  
180 Kent Street  
Charlottetown, PEI C1A 7N2

Attention Mr. Jason Roberts  
Vice President, Finance and Corporate Services & CFO

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the electric plant of Maritime Electric Company as of December 31, 2017. The attached report presents a description of the methods used in the estimation of depreciation, the statistical support for the life and net salvage estimates and the summary and detailed tabulations of annual and accrued depreciation.

We gratefully acknowledge the assistance of Maritime Electric Company personnel in the completion of the study, especially Mr. Rolly Young.

Respectfully submitted,

GANNETT FLEMING VALUATION  
AND RATE CONSULTANTS, LLC

JOHN F. WIEDMAYER  
Project Manager, Depreciation Studies

JFW:mle

063565.100UL

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## MARITIME ELECTRIC COMPANY

### DEPRECIATION STUDY

#### EXECUTIVE SUMMARY

Pursuant to Maritime Electric Company's ("Maritime Electric" or "Company") request, Gannett Fleming Valuation and Rate Consultants, LLC ("Gannett Fleming") conducted a depreciation study related to electric plant as of December 31, 2017. The purpose of this study was to determine the annual depreciation accrual rates and amounts for book and ratemaking purposes.

The depreciation rates are based on the straight-line method using the average service life ("ASL") procedure and whole life technique, with a separate amortization of the variance between the book depreciation reserve and the calculated accrued depreciation. The calculations were based on attained ages and estimated average service life and net salvage for each depreciable group of assets.

Gannett Fleming recommends the calculated annual depreciation accrual rates and amortization amounts set forth herein apply specifically to electric plant in service as of December 31, 2017 as summarized by Tables 1 through 3 of the study. Supporting analyses and calculations are provided within the study.

The study results set forth an annual depreciation expense of \$22.003 million, not including the amortization of the reserve variance, when applied to depreciable plant balances as of December 31, 2017. The results are summarized at the functional level as follows:

**SUMMARY OF ORIGINAL COST, PROPOSED ACCRUAL RATES AND AMOUNTS**

| <b>FUNCTION</b>        | <b>ORIGINAL<br/>COST<br/>AS OF<br/>12/31/2017</b> | <b>ACCRUAL<br/>RATE</b> | <b>ACCRUAL<br/>AMOUNT</b> | <b>RESERVE<br/>VARIANCE<br/>AMORTIZATION</b> |
|------------------------|---------------------------------------------------|-------------------------|---------------------------|----------------------------------------------|
| Steam Production Plant | 60,749,618                                        | 5.09                    | 3,089,585                 | 4,842,443                                    |
| Other Production Plant | 48,964,087                                        | 2.83                    | 1,387,444                 | 288,814                                      |
| Transmission Plant     | 124,194,604                                       | 2.45                    | 3,048,497                 | (49,133)                                     |
| Distribution Plant     | 348,681,010                                       | 3.41                    | 11,890,664                | 1,089,677                                    |
| General Plant          | 44,514,726                                        | 5.81                    | 2,586,360                 | 83,042                                       |
| <b>Total</b>           | <b>627,104,044</b>                                | <b>3.51</b>             | <b>22,002,550</b>         | <b>6,254,843</b>                             |

---

## PART I. INTRODUCTION

# **MARITIME ELECTRIC COMPANY DEPRECIATION STUDY**

## **PART I. INTRODUCTION**

### **SCOPE**

This report sets forth the results of the depreciation study for Maritime Electric Company (“Maritime” or “Company”), to determine the annual depreciation accrual rates and amounts for book purposes applicable to the original cost of electric plant as of December 31, 2017. The rates are based on the straight line whole life method of depreciation with an amortization of the variance between the book depreciation reserve and the calculated accrued depreciation. This report also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates and amounts related to electric plant in service as of December 31, 2017.

The service life and net salvage estimates resulting from the study were based on informed judgment which incorporated analyses of historical plant retirement data as recorded through 2017, a review of Company practice and outlook as they relate to plant operation and retirement, and consideration of current practice in the electric industry, including knowledge of service lives and net salvage estimates used for other electric companies.

### **PLAN OF REPORT**

Part I, Introduction, contains statements with respect to the plan of the report, and the basis of the study. Part II, Estimation of Survivor Curves, presents descriptions of the considerations and the methods used in the service life and net salvage studies. Part III, Service Life Considerations, presents the factors and judgment utilized in the average service life analysis. Part IV, Net Salvage Considerations, presents the judgment utilized for the net salvage study. Part V, Calculation of Annual and Accrued Depreciation,

describes the procedures used in the calculation of group depreciation. Part VI, Results of Study, presents summaries by depreciable group of annual depreciation accrual rates and amounts, as well as composite remaining lives. Part VII, Service Life Statistics, presents the statistical analysis of service life estimates. Part VIII, Net Salvage Statistics, sets forth the statistical indications of net salvage percents and Part IX, Detailed Depreciation Calculations, presents the detailed tabulations of annual depreciation.

## **BASIS OF THE STUDY**

### **Depreciation**

Depreciation, in public utility regulation, is the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among causes to be given consideration are wear and tear, deterioration, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and the requirements of public authorities.

Depreciation, as used in accounting, is a method of distributing fixed capital costs, less net salvage, over a period of time by allocating annual amounts to expense. Each annual amount of such depreciation expense is part of that year's total cost of providing electric utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service, that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the straight-line method of depreciation.

For most accounts, the annual depreciation was calculated by the straight-line method using the average service life procedure. For certain General Plant accounts, the annual depreciation is based on amortization accounting. Both types of calculations were

based on original cost, attained ages, and estimates of service lives and net salvage. Variances between the calculated accrued depreciation and the book accumulated depreciation are amortized over the composite remaining life of the assets. Mass plant accounts for which the composite remaining lives are less than five years, the amortization period used to minimize the reserve variance was set at five years which is the period of time between depreciation studies. This was done to reduce the annual fluctuations to depreciation expense related to the reserve variance amortization for accounts with short composite remaining lives.

The straight-line method, average service life procedure is a commonly used depreciation calculation procedure that has been widely accepted in jurisdictions throughout North America. Gannett Fleming recommends its continued use. Amortization accounting is used for certain General Plant accounts because of the disproportionate plant accounting effort required when compared to the minimal original cost of the large number of items in these accounts. An explanation of the calculation of annual and accrued amortization is presented beginning on page V-4 of the report.

In the previous depreciation study conducted for the company, based on electric plant in service as of December 31, 2014, the total book accumulated depreciation was \$187.160 million or 15% less than the calculated accrued depreciation, a.k.a., theoretical reserve. The reserve variance in the prior study was \$33.357 million. Currently the reserve variance is \$43.973 million or 16% of the theoretical reserve based on electric plant in service as of December 31, 2017. This indicates that past levels of depreciation were insufficient.

Gannett Fleming recommends that Maritime Electric maintain their accumulated depreciation reserve at the account level in order to monitor the reserve variances that develop over time. The remaining lives of the various plant accounts range from a few years to over fifty years. Variances of a specific asset group should be corrected before



the surviving assets are retired rather than effectively transferring the remaining variance at the time of retirement to other asset groups.

The calculated accrued depreciation is used as a measure to assess the adequacy of the Company's book accumulated depreciation amount. The calculated accrued depreciation should not be viewed in exact terms as the correct reserve amount. Rather it should be viewed as a benchmark or a tool used by the depreciation professional to assess the standing of the book accumulated depreciation amount based on the most recent available information. Gannett Fleming recommends that Maritime Electric amortize the reserve variance over a period equal to the composite remaining life of the assets. This is the industry's most commonly used method for adjusting depreciation. Also it decreases the probability of large fluctuations in depreciation expense that can occur with relatively short amortization periods, such as three years, and is the method that Gannett Fleming considers appropriate for Maritime Electric.

In order to implement both the maintenance and monitoring of the accumulated depreciation reserve, we have calculated reserve variance amortization amounts to correct the present variance with the calculated accrued depreciation during the remaining life of the account. This adjustment mechanism, whether determined separately as a true-up provision or incorporated in the calculation of remaining life accruals, is widely-accepted. An explanation of the monitoring of the accumulated depreciation reserve and the calculation of the reserve variance amortization amounts is presented beginning on page V-5.

### **Service Life and Net Salvage Estimates**

The service life and net salvage estimates used in the depreciation and amortization calculations were based on informed judgment which incorporated a review of management's plans, policies and outlook, a general knowledge of the electric utility industry, and comparisons of the service life and net salvage estimates from our studies

of other electric utilities. The use of survivor curves to reflect the expected dispersion of retirement provides a consistent method of estimating depreciation for electric plant. Iowa type survivor curves were used to depict the estimated survivor curves for the plant accounts not subject to amortization accounting.

The procedure for estimating service lives consisted of compiling historical data for the plant accounts or depreciable groups, analyzing this history through the use of widely accepted techniques, and forecasting the survivor characteristics for each depreciable group on the basis of interpretations of the historical data analyses and the probable future. The combination of the historical experience and the estimated future yielded estimated survivor curves from which the average service lives were derived. The estimates of net salvage are expressed as the average net salvage percent of the investment to be incurred or recovered upon its retirement.

---

## PART II. ESTIMATION OF SURVIVOR CURVES

## **PART II. ESTIMATION OF SURVIVOR CURVES**

The calculation of annual depreciation based on the straight-line method requires the estimation of survivor curves and the selection of group depreciation procedures. The estimation of survivor curves is discussed below and the development of net salvage is discussed in later sections of this report.

### **SURVIVOR CURVES**

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages.

The survivor curve graphically depicts the amount of property existing at each age throughout the life of an original group. From the survivor curve, the average life of the group, the remaining life expectancy, the probable life, and the frequency curve can be calculated. In Figure 1, a typical smooth survivor curve and the derived curves are illustrated. The average life is obtained by calculating the area under the survivor curve, from age zero to the maximum age, and dividing this area by the ordinate at age zero. The remaining life expectancy at any age can be calculated by obtaining the area under the curve, from the observation age to the maximum age, and dividing this area by the percent surviving at the observation age. For example, in Figure 1, the remaining life at age 30 is equal to the crosshatched area under the survivor curve divided by 29.5 percent surviving at age 30. The probable life at any age is developed by adding the age and remaining life. If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve presents the number of units retired in each age interval. It is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

This study has incorporated the use of Iowa curves developed from a retirement rate analysis of historical retirement history. A discussion of the concepts of survivor curves and of the development of survivor curves using the retirement rate method is presented below.

### **Iowa Type Curves**

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. There are four families in the Iowa system, labeled in accordance with the location of the modes of the retirements in relationship to the average life and the relative height of the modes. The left moded curves, presented in Figure 2, are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical moded curves, presented in Figure 3, are those in which the greatest frequency of retirement occurs at average service life. The right moded curves, presented in Figure 4, are those in which the greatest frequency occurs to the right of, or after, average service life. The origin moded curves, presented in Figure 5, are those in which the greatest frequency of retirement occurs at the origin, or immediately after age zero. The letter designation of each family of curves (L, S, R or O) represents the location of the mode of the associated frequency curve with respect to the average service life. The numbers represent the relative heights of the modes of the frequency curves within each family.

The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125.

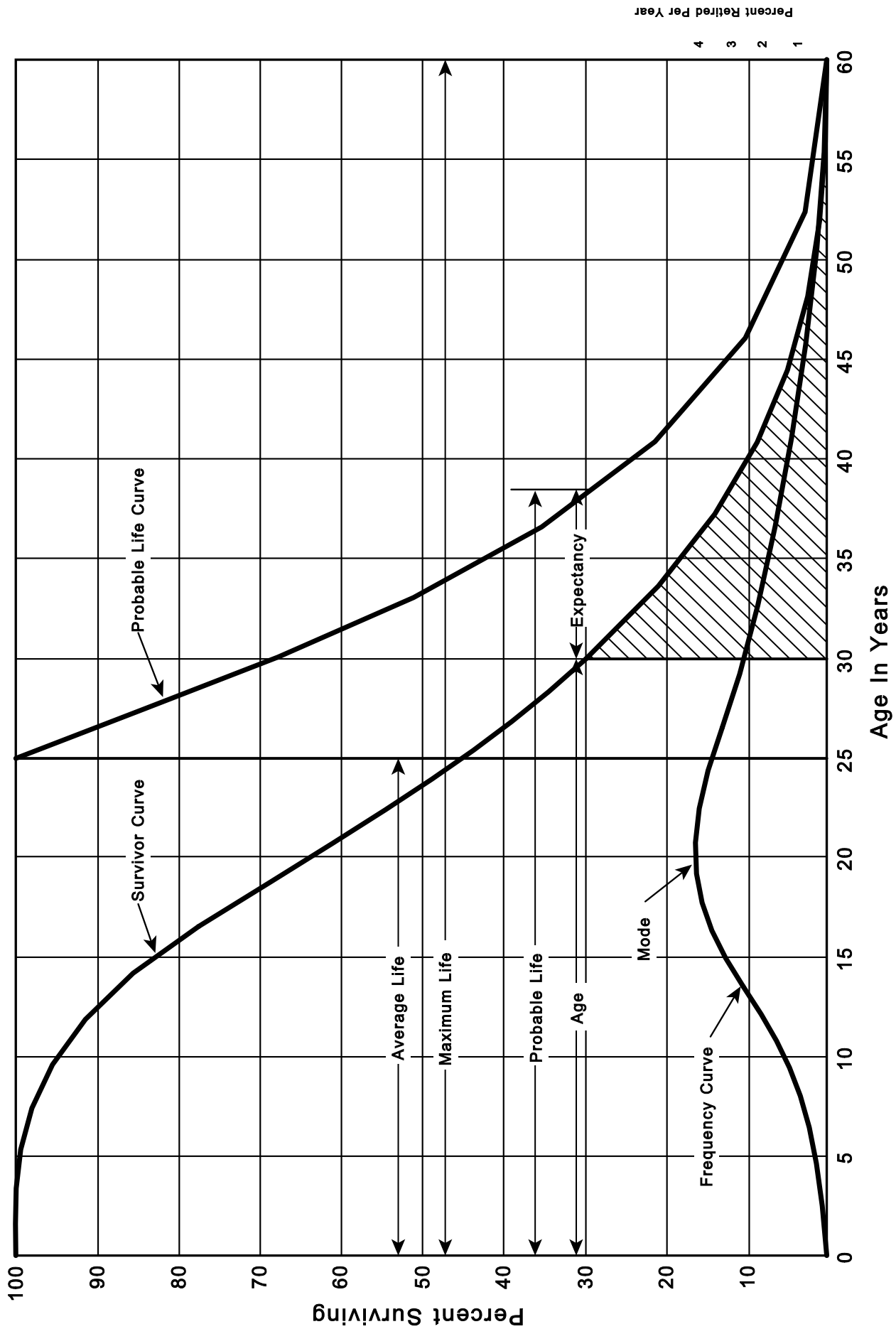


Figure 1. A Typical Survivor Curve and Derived Curves

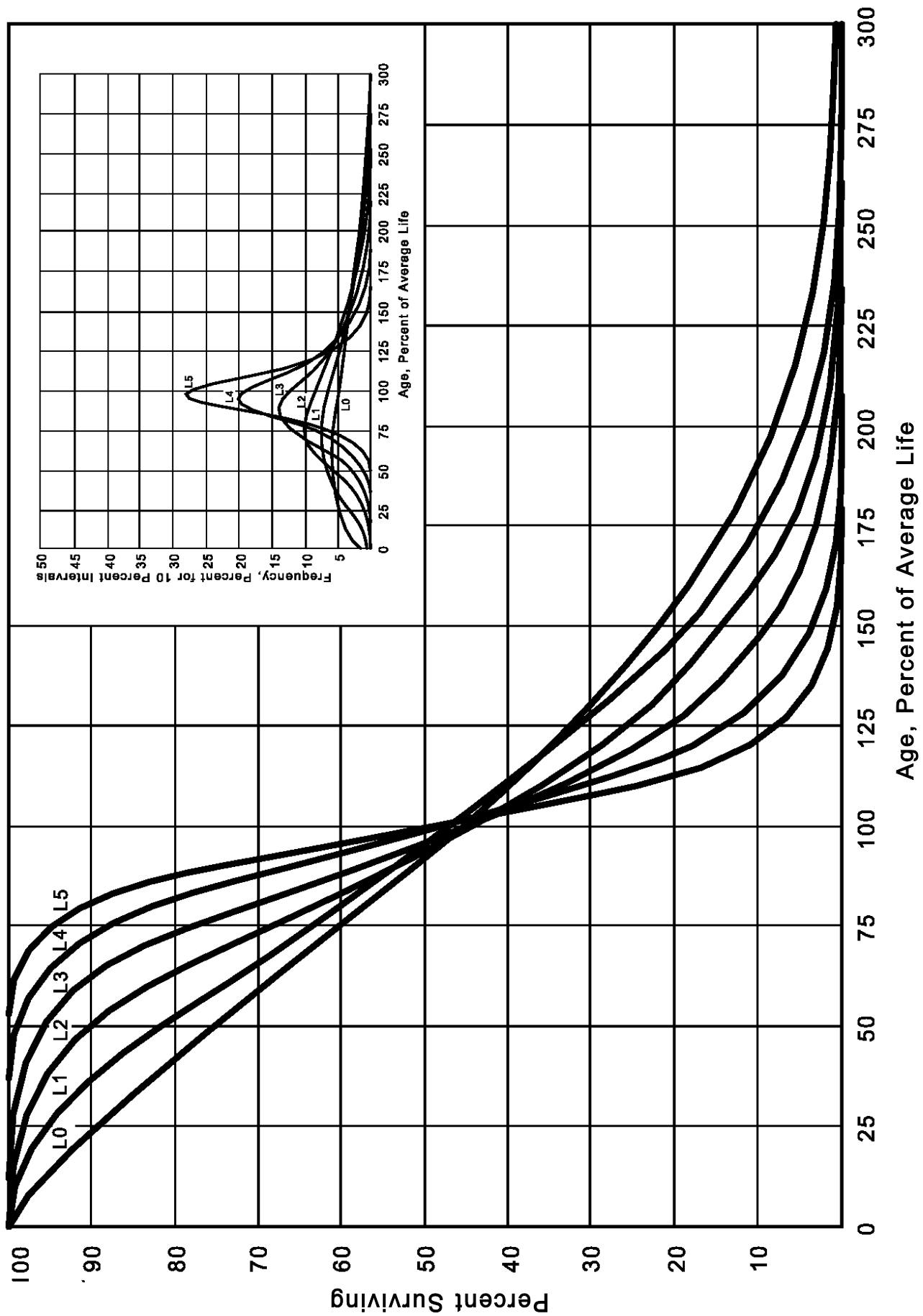


Figure 2. Left Modal or "L" Iowa Type Survivor Curves

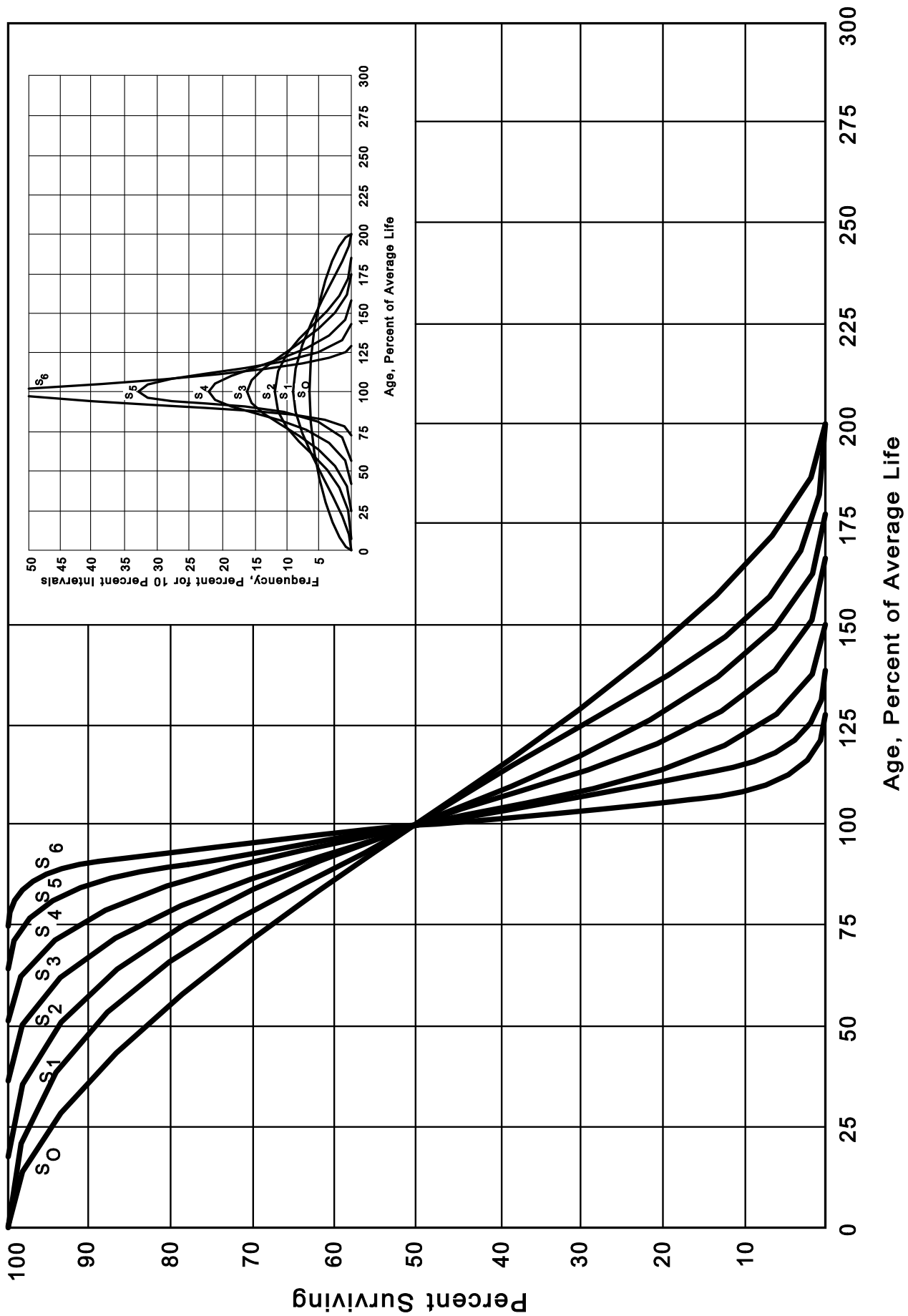


Figure 3. Symmetrical or "S" Iowa Type Survivor Curves



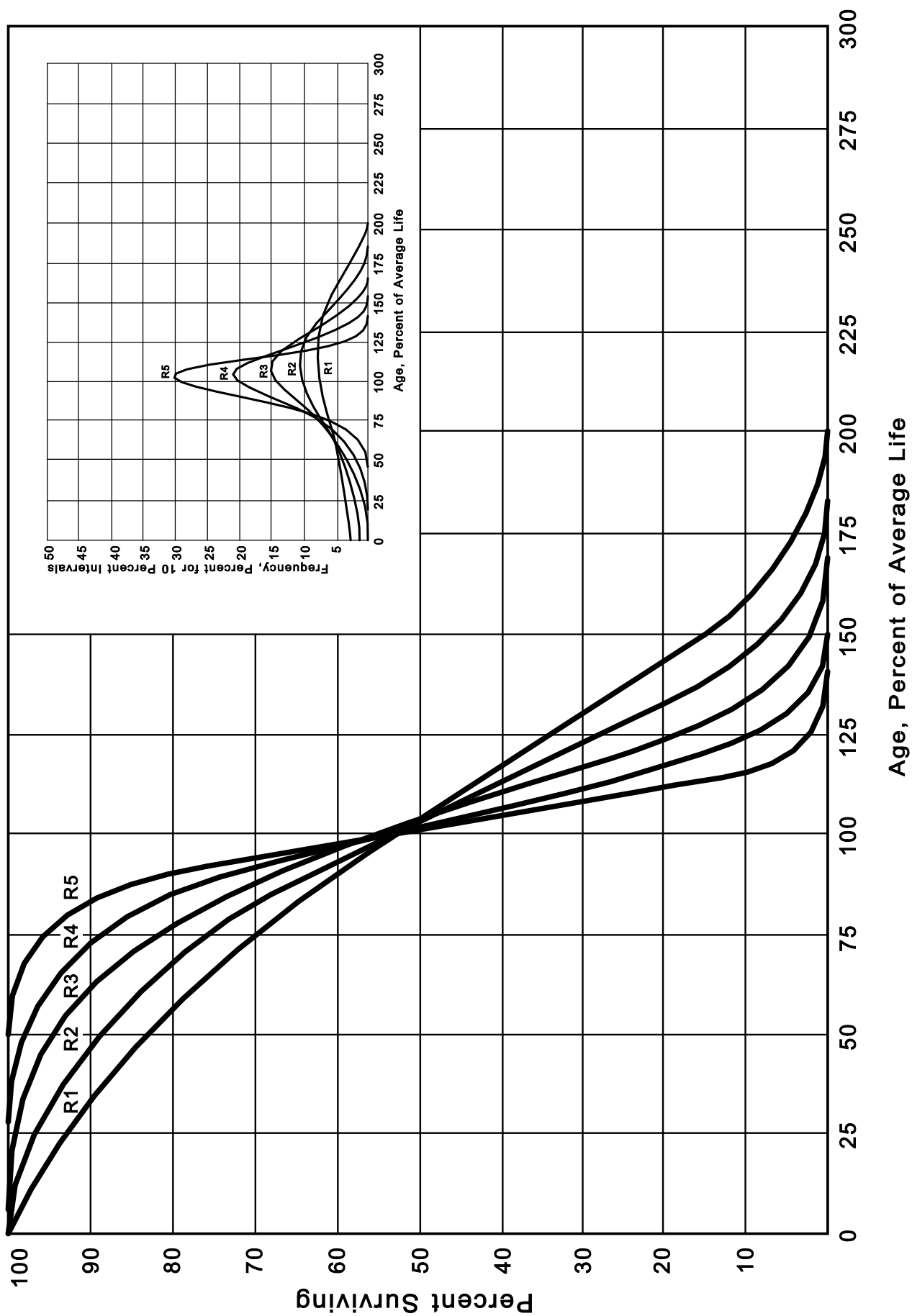


Figure 4. Right Modal or "R" Iowa Type Survivor Curves

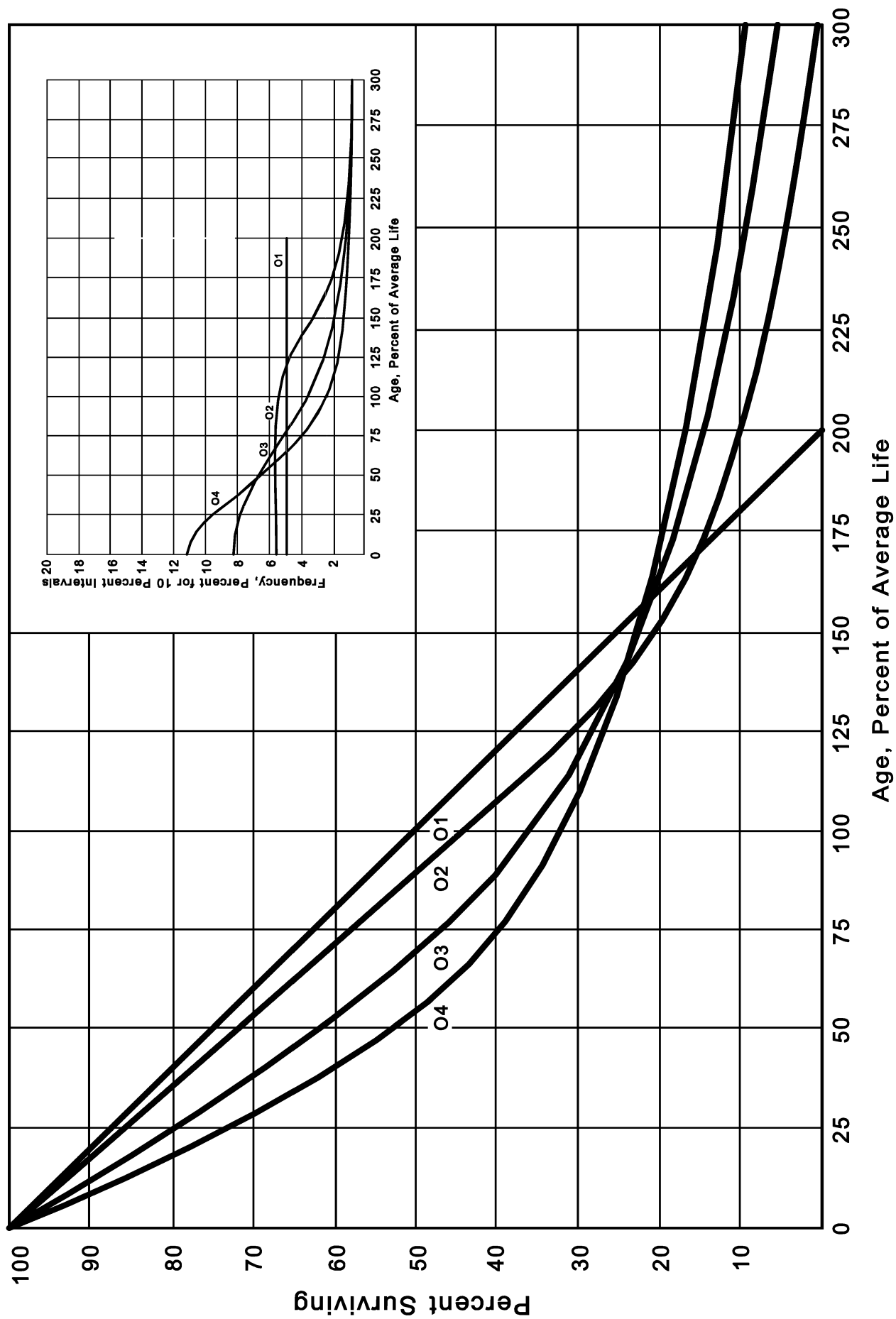


Figure 5. Origin Modal or "O" Iowa Type Survivor Curves

These curve types have also been presented in subsequent Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."<sup>1</sup> In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student submitted a thesis presenting his development of the fourth family consisting of the four O type survivor curves.

### **Retirement Rate Method of Analysis**

The retirement rate method is an actuarial method of deriving survivor curves using the average rates at which property of each age group is retired. The method relates to property groups for which aged accounting experience is available and is the method used to develop the original stub survivor curves in this study. The method (also known as the annual rate method) is illustrated through the use of an example in the following text, and is also explained in several publications, including "Statistical Analyses of Industrial Property Retirements,"<sup>2</sup> "Engineering Valuation and Depreciation,"<sup>3</sup> and "Depreciation Systems."<sup>4</sup>

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginning of the age intervals during the same period. The period of observation is referred to as the experience band, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the placement band. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

---

<sup>1</sup>Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

<sup>2</sup>Winfrey, Robley, Supra Note 1.

<sup>3</sup>Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 2.

<sup>4</sup>Wolf, Frank K. and W. Chester Fitch. Depreciation Systems. Iowa State University Press. 1994.

## **Schedules of Annual Transactions in Plant Records**

The property group used to illustrate the retirement rate method is observed for the experience band 2008-2017 during which there were placements during the years 2003-2017. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Schedules 1 and 2 on pages II-11 and II-12. In Schedule 1, the year of installation (year placed) and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the dollars invested in 2003 were retired in 2008. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2008 retirements of 2003 installations and ending with the 2017 retirements of the 2012 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

$$10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.$$



SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2008-2017  
SUMMARIZED BY AGE INTERVAL

| Experience Band 2008-2017 |                                   |             |             |             |             |             |             |             |              |              | Placement Band 2003-2017 |         |                         |
|---------------------------|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------------------|---------|-------------------------|
| Year<br>Placed<br>(1)     | Retirements, Thousands of Dollars |             |             |             |             |             |             |             |              |              | Total During             |         | Age<br>Interval<br>(13) |
|                           | During Year                       |             |             |             |             |             |             |             |              |              | Age Interval<br>(12)     |         |                         |
|                           | 2008<br>(2)                       | 2009<br>(3) | 2010<br>(4) | 2011<br>(5) | 2012<br>(6) | 2013<br>(7) | 2014<br>(8) | 2015<br>(9) | 2016<br>(10) | 2017<br>(11) |                          |         |                         |
| 2003                      | 10                                | 11          | 12          | 13          | 14          | 16          | 23          | 24          | 25           | 26           | 26                       | 13½-14½ |                         |
| 2004                      | 11                                | 12          | 13          | 15          | 16          | 18          | 20          | 21          | 22           | 19           | 44                       | 12½-13½ |                         |
| 2005                      | 11                                | 12          | 13          | 14          | 16          | 17          | 19          | 21          | 22           | 18           | 64                       | 11½-12½ |                         |
| 2006                      | 8                                 | 9           | 10          | 11          | 11          | 13          | 14          | 15          | 16           | 17           | 83                       | 10½-11½ |                         |
| 2007                      | 9                                 | 10          | 11          | 12          | 13          | 14          | 16          | 17          | 19           | 20           | 93                       | 9½-10½  |                         |
| 2008                      | 4                                 | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16           | 20           | 105                      | 8½-9½   |                         |
| 2009                      |                                   | 5           | 11          | 12          | 13          | 14          | 15          | 16          | 18           | 20           | 113                      | 7½-8½   |                         |
| 2010                      |                                   |             | 6           | 12          | 13          | 15          | 16          | 17          | 19           | 19           | 124                      | 6½-7½   |                         |
| 2011                      |                                   |             |             | 6           | 13          | 15          | 16          | 17          | 19           | 19           | 131                      | 5½-6½   |                         |
| 2012                      |                                   |             |             |             | 7           | 14          | 16          | 17          | 19           | 20           | 143                      | 4½-5½   |                         |
| 2013                      |                                   |             |             |             |             | 8           | 18          | 20          | 22           | 23           | 146                      | 3½-4½   |                         |
| 2014                      |                                   |             |             |             |             |             | 9           | 20          | 22           | 25           | 150                      | 2½-3½   |                         |
| 2015                      |                                   |             |             |             |             |             |             | 11          | 23           | 25           | 151                      | 1½-2½   |                         |
| 2016                      |                                   |             |             |             |             |             |             |             | 11           | 24           | 153                      | ½-1½    |                         |
| 2017                      |                                   |             |             |             |             |             |             |             |              | 13           | 80                       | 0-½     |                         |
| Total                     | 53                                | 68          | 86          | 106         | 128         | 157         | 196         | 231         | 273          | 308          | 1,606                    |         |                         |



SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2008-2017  
SUMMARIZED BY AGE INTERVAL

| Experience Band 2008-2017                               |                    |                    |                    |                    |                    |                    |                    |                    |                     | Placement Band 2003-2017 |                                      |                         |
|---------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------------|--------------------------------------|-------------------------|
| Acquisitions, Transfers and Sales, Thousands of Dollars |                    |                    |                    |                    |                    |                    |                    |                    |                     |                          |                                      |                         |
| Year<br>Placed<br>(1)                                   | During Year        |                    |                    |                    |                    |                    |                    |                    |                     |                          | Total During<br>Age Interval<br>(12) | Age<br>Interval<br>(13) |
|                                                         | <u>2008</u><br>(2) | <u>2009</u><br>(3) | <u>2010</u><br>(4) | <u>2011</u><br>(5) | <u>2012</u><br>(6) | <u>2013</u><br>(7) | <u>2014</u><br>(8) | <u>2015</u><br>(9) | <u>2016</u><br>(10) | <u>2017</u><br>(11)      |                                      |                         |
| 2003                                                    | -                  | -                  | -                  | -                  | -                  | -                  | 60 <sup>a</sup>    | -                  | -                   | -                        | -                                    | 13½-14½                 |
| 2004                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | 12½-13½                 |
| 2005                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | 11½-12½                 |
| 2006                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | (5) <sup>b</sup>   | -                   | -                        | 60                                   | 10½-11½                 |
| 2007                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | 6 <sup>a</sup>     | -                   | -                        | -                                    | 9½-10½                  |
| 2008                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | (5)                                  | 8½-9½                   |
| 2009                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | 6                                    | 7½-8½                   |
| 2010                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | 6½-7½                   |
| 2011                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | (12) <sup>b</sup>  | -                   | -                        | -                                    | 5½-6½                   |
| 2012                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | 22 <sup>a</sup>     | -                        | -                                    | 4½-5½                   |
| 2013                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | (19) <sup>b</sup>  | -                   | -                        | 10                                   | 3½-4½                   |
| 2014                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | 2½-3½                   |
| 2015                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | (102) <sup>c</sup>       | (121)                                | 1½-2½                   |
| 2016                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | ½-1½                    |
| 2017                                                    | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                  | -                   | -                        | -                                    | 0-½                     |
| Total                                                   | -                  | -                  | -                  | -                  | -                  | -                  | 60                 | (30)               | 22                  | (102)                    | (50)                                 |                         |

<sup>a</sup> Transfer Affecting Exposures at Beginning of Year<sup>b</sup> Transfer Affecting Exposures at End of Year<sup>c</sup> Sale with Continued Use

Parentheses Denote Credit Amount.

In Schedule 2, other transactions which affect the group are recorded in a similar manner. The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements, but are used in developing the exposures at the beginning of each age interval.

### **Schedule of Plant Exposed to Retirement**

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 on page II-14. The surviving plant at the beginning of each year from 2008 through 2017 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2013 are calculated in the following manner:

|                     |                                   |             |
|---------------------|-----------------------------------|-------------|
| Exposures at age 0  | = amount of addition              | = \$750,000 |
| Exposures at age ½  | = \$750,000 - \$ 8,000            | = \$742,000 |
| Exposures at age 1½ | = \$742,000 - \$18,000            | = \$724,000 |
| Exposures at age 2½ | = \$724,000 - \$20,000 - \$19,000 | = \$685,000 |
| Exposures at age 3½ | = \$685,000 - \$22,000            | = \$663,000 |



SCHEDULE 3. PLANT EXPOSED TO RETIREMENT  
JANUARY 1 OF EACH YEAR 2008-2017  
SUMMARIZED BY AGE INTERVAL

| Experience Band 2008-2017 |                                               |                  |                  |                  |                  |                  |                  |                  |                    |                    | Placement Band 2003-2017 |         |                                    |              |
|---------------------------|-----------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------------|---------|------------------------------------|--------------|
| Year                      | Exposures, Thousands of Dollars               |                  |                  |                  |                  |                  |                  |                  |                    |                    |                          |         | Total at Beginning of Age Interval | Age Interval |
|                           | Annual Survivors at the Beginning of the Year |                  |                  |                  |                  |                  |                  |                  |                    |                    |                          |         |                                    |              |
|                           | 2008                                          | 2009             | 2010             | 2011             | 2012             | 2013             | 2014             | 2015             | 2016               | 2017               |                          |         |                                    |              |
| Placed                    | (2)                                           | (3)              | (4)              | (5)              | (6)              | (7)              | (8)              | (9)              | (10)               | (11)               | (12)                     | (13)    |                                    |              |
| 2003                      | 255                                           | 245              | 234              | 222              | 209              | 195              | 239              | 216              | 192                | 167                | 167                      | 13½-14½ |                                    |              |
| 2004                      | 279                                           | 268              | 256              | 243              | 228              | 212              | 194              | 174              | 153                | 131                | 323                      | 12½-13½ |                                    |              |
| 2005                      | 307                                           | 296              | 284              | 271              | 257              | 241              | 224              | 205              | 184                | 162                | 531                      | 11½-12½ |                                    |              |
| 2006                      | 338                                           | 330              | 321              | 311              | 300              | 289              | 276              | 262              | 242                | 226                | 823                      | 10½-11½ |                                    |              |
| 2007                      | 376                                           | 367              | 357              | 346              | 334              | 321              | 307              | 297              | 280                | 261                | 1,097                    | 9½-10½  |                                    |              |
| 2008                      | 420 <sup>a</sup>                              | 416              | 407              | 397              | 386              | 374              | 361              | 347              | 332                | 316                | 1,503                    | 8½-9½   |                                    |              |
| 2009                      |                                               | 460 <sup>a</sup> | 455              | 444              | 432              | 419              | 405              | 390              | 374                | 356                | 1,952                    | 7½-8½   |                                    |              |
| 2010                      |                                               |                  | 510 <sup>a</sup> | 504              | 492              | 479              | 464              | 448              | 431                | 412                | 2,463                    | 6½-7½   |                                    |              |
| 2011                      |                                               |                  |                  | 580 <sup>a</sup> | 574              | 561              | 546              | 530              | 501                | 482                | 3,057                    | 5½-6½   |                                    |              |
| 2012                      |                                               |                  |                  |                  | 660 <sup>a</sup> | 653              | 639              | 623              | 628                | 609                | 3,789                    | 4½-5½   |                                    |              |
| 2013                      |                                               |                  |                  |                  |                  | 750 <sup>a</sup> | 742              | 724              | 685                | 663                | 4,332                    | 3½-4½   |                                    |              |
| 2014                      |                                               |                  |                  |                  |                  |                  | 850 <sup>a</sup> | 841              | 821                | 799                | 4,955                    | 2½-3½   |                                    |              |
| 2015                      |                                               |                  |                  |                  |                  |                  |                  | 960 <sup>a</sup> | 949                | 926                | 5,719                    | 1½-2½   |                                    |              |
| 2016                      |                                               |                  |                  |                  |                  |                  |                  |                  | 1,080 <sup>a</sup> | 1,069              | 6,579                    | ½-1½    |                                    |              |
| 2017                      |                                               |                  |                  |                  |                  |                  |                  |                  |                    | 1,220 <sup>a</sup> | 7,490                    | 0-½     |                                    |              |
| Total                     | 1,975                                         | 2,382            | 2,824            | 3,318            | 3,872            | 4,494            | 5,247            | 6,017            | 6,852              | 7,799              | 44,780                   |         |                                    |              |

<sup>a</sup>Additions during the year



For the entire experience band 2008-2017, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

$$255 + 268 + 284 + 311 + 334 + 374 + 405 + 448 + 501 + 609.$$

### **Original Life Table**

The original life table, illustrated in Schedule 4 on page II-16, is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e., one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

|                               |   |                           |          |
|-------------------------------|---|---------------------------|----------|
| Percent surviving at age 4½   | = | 88.15                     |          |
| Exposures at age 4½           | = | 3,789,000                 |          |
| Retirements from age 4½ to 5½ | = | 143,000                   |          |
| Retirement Ratio              | = | $143,000 \div 3,789,000$  | = 0.0377 |
| Survivor Ratio                | = | $1.000 - 0.0377$          | = 0.9623 |
| Percent surviving at age 5½   | = | $(88.15) \times (0.9623)$ | = 84.83  |

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless.

SCHEDULE 4. ORIGINAL LIFE TABLE  
CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2008-2017

Placement Band 2003-2017

(Exposure and Retirement Amounts are in Thousands of Dollars)

| Age at<br>Beginning of<br>Interval | Exposures at<br>Beginning of<br>Age Interval | Retirements<br>During Age<br>Interval | Retirement<br>Ratio | Survivor<br>Ratio | Percent<br>Surviving at<br>Beginning of<br>Age Interval |
|------------------------------------|----------------------------------------------|---------------------------------------|---------------------|-------------------|---------------------------------------------------------|
| (1)                                | (2)                                          | (3)                                   | (4)                 | (5)               | (6)                                                     |
| 0.0                                | 7,490                                        | 80                                    | 0.0107              | 0.9893            | 100.00                                                  |
| 0.5                                | 6,579                                        | 153                                   | 0.0233              | 0.9767            | 98.93                                                   |
| 1.5                                | 5,719                                        | 151                                   | 0.0264              | 0.9736            | 96.62                                                   |
| 2.5                                | 4,955                                        | 150                                   | 0.0303              | 0.9697            | 94.07                                                   |
| 3.5                                | 4,332                                        | 146                                   | 0.0337              | 0.9663            | 91.22                                                   |
| 4.5                                | 3,789                                        | 143                                   | 0.0377              | 0.9623            | 88.15                                                   |
| 5.5                                | 3,057                                        | 131                                   | 0.0429              | 0.9571            | 84.83                                                   |
| 6.5                                | 2,463                                        | 124                                   | 0.0503              | 0.9497            | 81.19                                                   |
| 7.5                                | 1,952                                        | 113                                   | 0.0579              | 0.9421            | 77.11                                                   |
| 8.5                                | 1,503                                        | 105                                   | 0.0699              | 0.9301            | 72.65                                                   |
| 9.5                                | 1,097                                        | 93                                    | 0.0848              | 0.9152            | 67.57                                                   |
| 10.5                               | 823                                          | 83                                    | 0.1009              | 0.8991            | 61.84                                                   |
| 11.5                               | 531                                          | 64                                    | 0.1205              | 0.8795            | 55.60                                                   |
| 12.5                               | 323                                          | 44                                    | 0.1362              | 0.8638            | 48.90                                                   |
| 13.5                               | <u>167</u>                                   | <u>26</u>                             | 0.1557              | 0.8443            | 42.24                                                   |
|                                    |                                              |                                       |                     |                   | 35.66                                                   |
| Total                              | <u>44,780</u>                                | <u>1,606</u>                          |                     |                   |                                                         |

Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement.

Column 3 from Schedule 1, Column 12, Retirements for Each Year.

Column 4 = Column 3 Divided by Column 2.

Column 5 = 1.0000 Minus Column 4.

Column 6 = Column 5 Multiplied by Column 6 as of the Preceding Age Interval.

The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

### **Smoothing the Original Survivor Curve**

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0.

In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group.

## **Simulated Plant Balance Method**

The simulated plant balance method of life analysis is a statistical procedure by which experienced average service life and survivor characteristics are inferred through a series of approximations in which several average service life and survivor curve combinations are tested. The testing procedure consists of applying survivor ratios defined by the average service life and survivor curve combinations being tested to historical plant additions and comparing the resulting calculated, or simulated, surviving balances with the actual surviving balances.

Each year-end book balance is the sum of the plant surviving from the original annual additions. Each calculated year-end balance is the sum of the simulated plant surviving from the same original annual additions. The simulated survivors are calculated for each vintage by multiplying the original additions by the percent surviving corresponding to the age of the vintage as of the date of the year-end balances being simulated. This procedure is repeated until a series of simulated balances are calculated. The balances are then compared with the book balances to determine which average service life and survivor curve combinations result in calculated balances most nearly simulating the progression of actual balances.

The simulated plant record method is presented in greater detail in the Edison Electric Institute's publication, "Methods of Estimating Utility Plant Life."<sup>5</sup>

## **Computed Mortality Method**

The computed mortality method of life analysis as used in this study is a procedure for statistically aging annual retirements of property and analyzing the statistically aged

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<sup>5</sup> A Report of the Engineering Subcommittee of the Depreciation Accounting Committee, Edison Electric Institute. Publication No. 51-23. Published 1952.

retirements by the retirement rate method. In this procedure, an aged plant balance is developed for the year prior to and for each test year during the given term of comparison. Each given balance is aged by a simulation procedure which applies a series of successive survivor curve trials using a specified Iowa type curve. The Iowa type survivor curve specified for each account is based on judgment incorporating the results of the simulated plant record analyses, a knowledge of the property, and the type curves estimated for the account in other railroad companies. Each trial consists of constructing a specific survivor curve at one-year intervals beginning with age  $\frac{1}{2}$ . From this curve, survivor ratios are computed and applied, by vintage, to the previous year's aged ending balance and the current test year's given gross addition. The resultant aged surviving balances also produce the aged retirements which are the differences between successive aged balances. The aged data are then analyzed by the retirement rate method as described above.

FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE  
ORIGINAL AND SMOOTH SURVIVOR CURVES

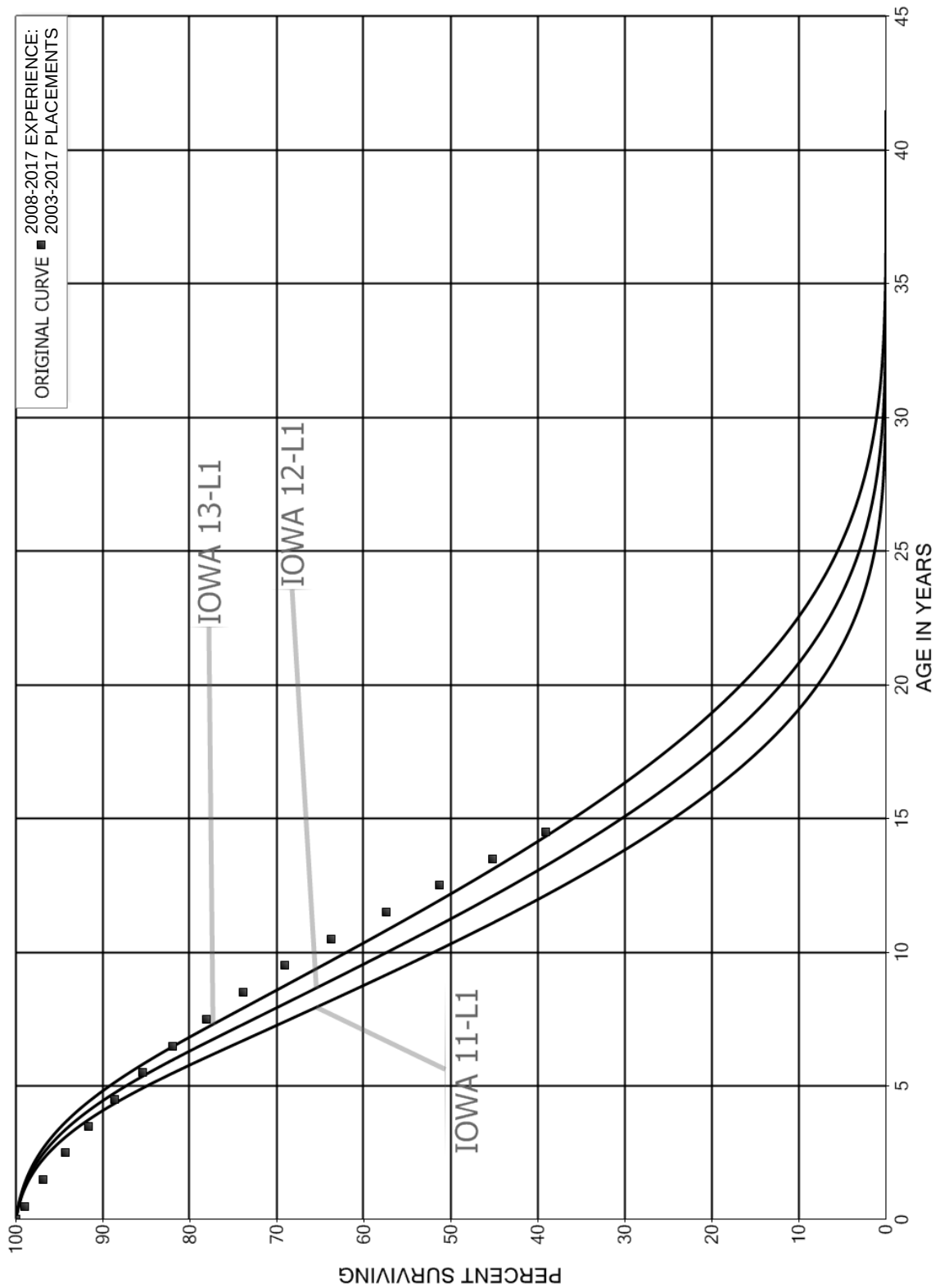


FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN S0 IOWA TYPE CURVE  
ORIGINAL AND SMOOTH SURVIVOR CURVES

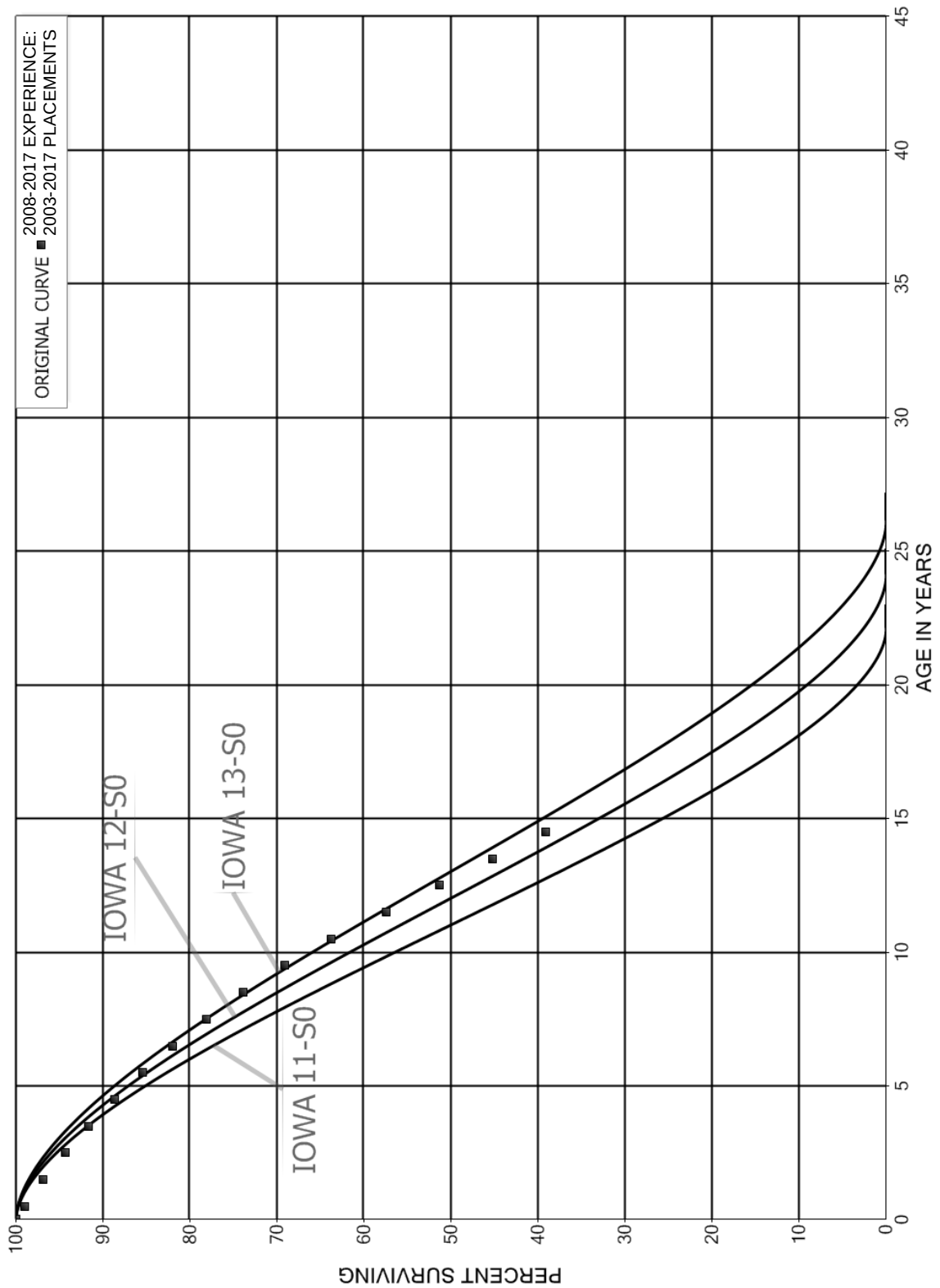


FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE  
ORIGINAL AND SMOOTH SURVIVOR CURVES

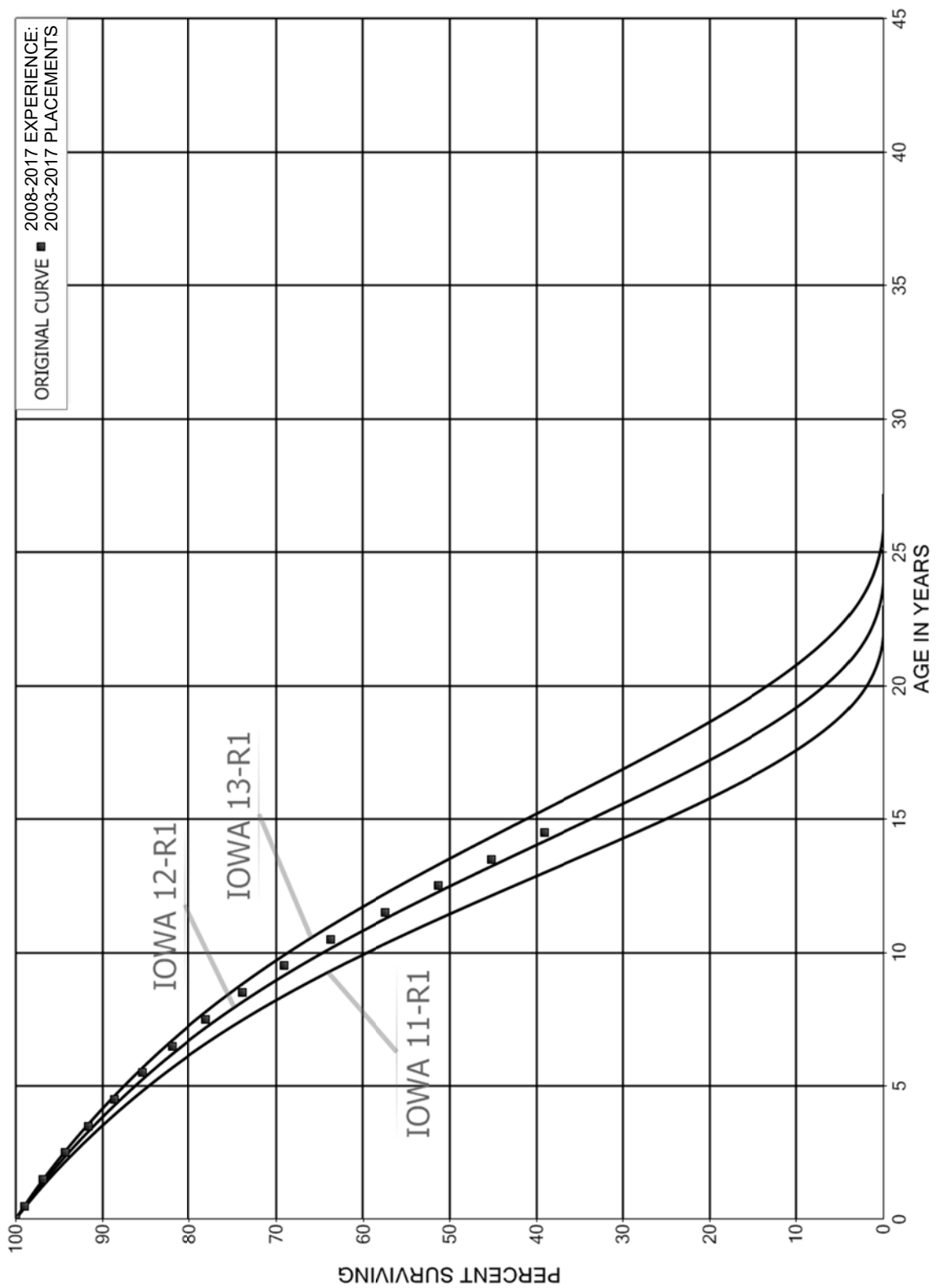
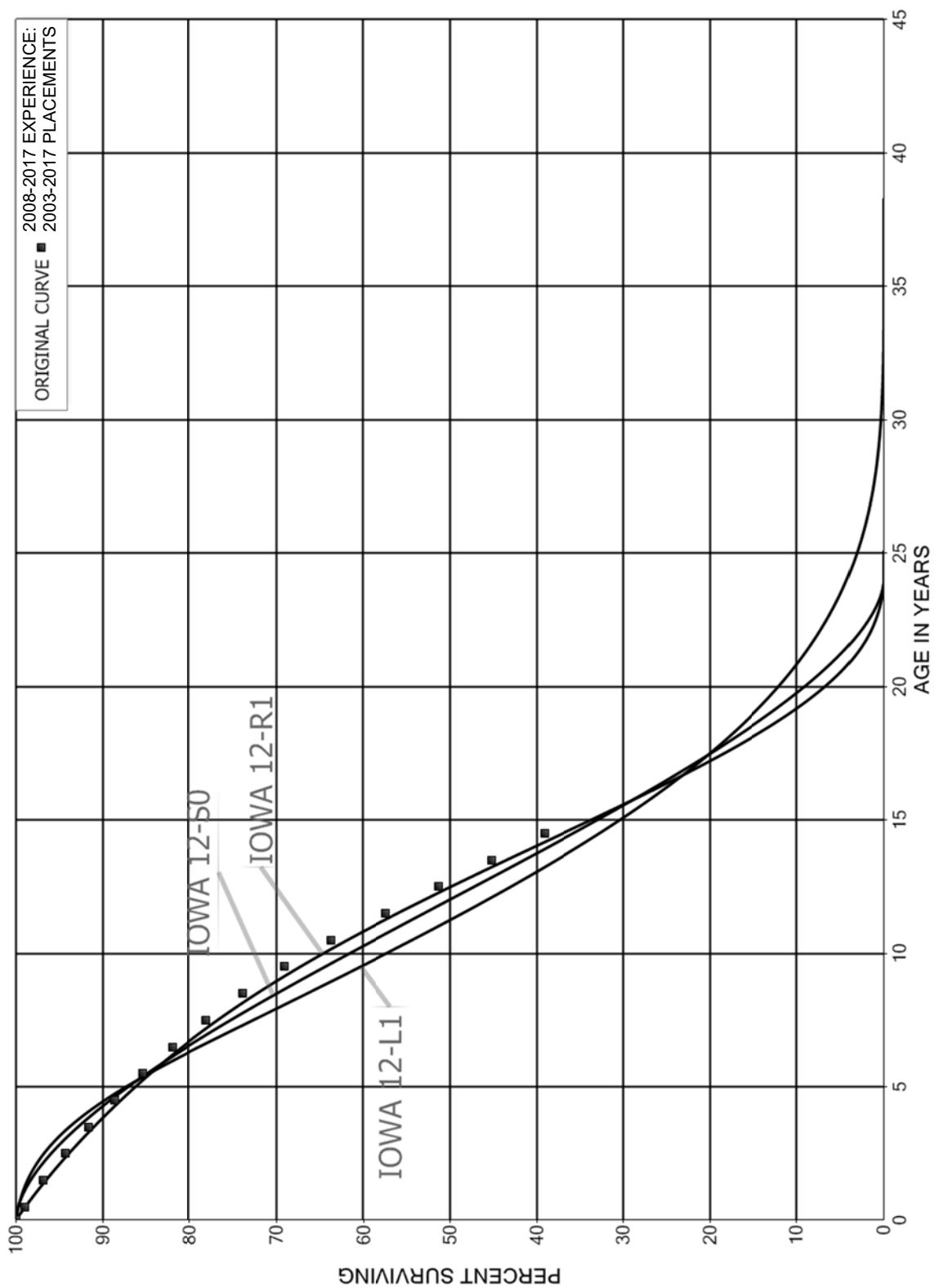




FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1, S0 AND R1 IOWA TYPE CURVE  
ORIGINAL AND SMOOTH SURVIVOR CURVES



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## PART III. SERVICE LIFE CONSIDERATIONS

## **PART III. SERVICE LIFE CONSIDERATIONS**

### **SERVICE LIFE ANALYSIS**

The service life estimates were based on informed judgment which considered a number of factors. The primary factors were the statistical analyses of data; current Company policies and outlook as determined during conversations with management; and the survivor curve estimates from previous studies of this company and other electric companies.

Amortization accounting is used for certain General Plant accounts that represent numerous units of property, but a small portion of the depreciable electric plant in service. The selected amortization periods for these General Plant accounts are described in the section “Calculation of Annual and Accrued Amortization.”

#### **Life Span Estimates**

For Steam and Other Production Plant accounts, the life span technique was employed in conjunction with the use of interim survivor curves. Interim survivor curves reflect retirements that occur prior to the ultimate retirement of the major unit or building. An interim survivor curve was estimated for each plant account, inasmuch as the rate of interim retirements differs from account to account. The life span technique is appropriate for power plants since all of the assets within the plant will be retired concurrently, regardless of the age of an asset or unit of property. Probable retirement dates were estimated for each power plant.

The mode of operation for the Charlottetown Steam Plant has changed from base load to standby since the installation of the initial submarine cables between New Brunswick and Prince Edward Island in the late 1970's. In addition, the plant has undergone a major refurbishment in the early 1990's which also has had an effect on

extending its life beyond typical industry norms for similar units. The installation of two new submarine cables across Northumberland Strait were recently completed in 2017. The new submarine cables will solidify plans to retire the Charlottetown Steam Plant.

The Borden gas turbines operate infrequently and are also in standby service. Both Borden units combined operated less than 70 hours in 2017. Based on its current and expected future mode of operation as an emergency standby unit primarily, the life span estimates for the Borden gas turbines are longer than industry norms.

The life span estimates for power generating stations were the result of considering experienced life spans of similar generating units, the age of surviving units, general operating characteristics of the units, major refurbishing, and discussions with management personnel, concerning the outlook for the units.

In order to reflect the varying probable retirement years for the generating units at the Charlottetown Steam Plant, the investment in Account 314 Turbogenerator Units was allocated to the various generating units based on their operational capacity, in MW. The Company has always depreciated the investment at the Charlottetown Steam Plant at the plant account level, and as such, does not maintain detailed property records at the generating unit level. The allocation of the investment from the account level for Account 314 to the generating units represents the best estimates of what the property records would indicate if costs had been maintained at the generating unit level.

A summary of the year in service, probable retirement year for depreciation purposes, and life span for each power production facility follows:

| <u>Depreciable Group</u> | <u>Year In<br/>Service</u> | <u>Probable<br/>Retirement<br/>Year</u> | <u>Life<br/>Span</u> |
|--------------------------|----------------------------|-----------------------------------------|----------------------|
| <u>Production Plant</u>  |                            |                                         |                      |
| Charlottetown Unit 7     | 1956                       | 2019                                    | 63                   |
| Charlottetown Unit 8     | 1960                       | 2020                                    | 60                   |
| Charlottetown Unit 9     | 1963                       | 2021                                    | 58                   |
| Charlottetown Unit 10    | 1968                       | 2021                                    | 53                   |
| Borden Unit 1            | 1971                       | 2031                                    | 60                   |
| Borden Unit 2            | 1973                       | 2031                                    | 58                   |
| Charlottetown CT3        | 2006                       | 2056                                    | 50                   |

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## PART IV. NET SALVAGE CONSIDERATIONS

## PART IV. NET SALVAGE CONSIDERATIONS

### **Net Salvage Considerations**

The estimates of future net salvage are expressed as percentages of surviving plant in service, i.e., all future retirements. In cases in which removal costs are expected to exceed salvage receipts, a negative net salvage percentage is estimated. The net salvage estimates were based on judgment which incorporated analyses of historical cost of removal and salvage data, expectations with respect to future removal requirements and markets for retired equipment and materials.

The historical data necessary to conduct a traditional net salvage study at the plant account level was limited due to previous Company practices of maintaining net salvage at the functional level. The available cost of removal at the plant account level was analyzed for the years 1998 through 2017. However, gross salvage is not maintained at the plant account level and as such could not be analyzed in the same manner. Therefore, the net salvage estimates were largely based on considerations of several factors including the net salvage characteristics of other electric utilities, a knowledge of management's plans and operating practices, current removal cost estimated by company engineers for certain mass plant accounts expressed in dollars per unit and previous net salvage estimates used by Maritime Electric. The estimates of net salvage are expressed as a percent of the cost of plant retired.

The net salvage for the Charlottetown Steam plant is expected to occur mostly in connection with the final retirement of the plant. In order to estimate terminal net salvage accurately, a site-specific decommissioning study was performed in 2017 by GHD, an engineering consulting firm with 200+ offices worldwide including Fredericton. It is generally recognized that the cost of decommissioning and dismantling a steam plant will significantly exceed the salvage received for any reusable equipment or material at the

plant. The net decommissioning and dismantlement cost of the Charlottetown Steam plant was estimated to be \$10.438 million stated in 2018 price levels. Since the decommissioning and dismantlement of the plant is estimated to occur in 2022, the \$10.438 million cost estimate, stated at a 2018 price level, was escalated to 2022 at 2 percent per annum. This results in a decommissioning cost estimate in 2022 of \$11.298 million. The net salvage estimate of negative 19% is based the net decommissioning cost estimated escalated to 2022 divided by the plant investment in service as of December 31, 2017. The table set forth on page VIII-2 in Part VIII of the report presents the calculation supporting the negative 19 percent net salvage estimate.

Amortization accounting is used for certain General Plant accounts. Future gross salvage and removal cost for these accounts will be recorded as miscellaneous revenue and expense, respectively. Typically, there is only minimal net salvage experienced by these accounts. Inasmuch as there will be no depreciation reserve entries related to salvage, the estimate of net salvage for accounts subject to amortization is zero percent.



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## **PART V. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION**

## **PART V. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION**

### **GROUP DEPRECIATION PROCEDURES**

A group procedure for depreciation is appropriate when considering more than a single item of property. Normally the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, average service life and equal life group. In the average service life procedure, the rate of annual depreciation is based on the average life or average remaining life of the group, and this rate is applied to the surviving balances of the group's cost. A characteristic of this procedure is that the cost of plant retired prior to average life is not fully recouped at the time of retirement, whereas the cost of plant retired subsequent to average life is more than fully recouped. Over the entire life cycle, the portion of cost not recouped prior to average life is balanced by the cost recouped subsequent to average life.

#### **Single Unit of Property**

The calculation of straight line depreciation for a single unit of property is straightforward. For example, if a \$1,000 unit of property attains an age of four years and has a remaining life expectancy of six years, the annual accrual over the total life is:

$$\frac{\$1,000}{(4 + 6)} = \$100 \text{ per year.}$$

The accrued depreciation is:

$$\$1,000 \left( 1 - \frac{6}{10} \right) = \$400.$$

### **Average Service Life Procedure**

When considering more than a single item of property, a group procedure for depreciation is appropriate because normally all of the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. In the average service life procedure, the rate of annual depreciation is based on the average service life of the group, and this rate is applied to the surviving balances of the group's cost. The accrued depreciation is based on the average service life of the group and the average remaining life of each vintage within the group, derived from the area under the survivor curve between the attained age of the vintage and the maximum age.

After the survivor curve and net salvage are estimated, the annual depreciation rate can be calculated. In the average service life procedure, the annual accrual rate is computed by the following equation:

$$\text{Annual Accrual Rate, \%} = \frac{(100\% - \text{Net Salvage, \%})}{\text{Average Service Life}}$$

The calculated accrued depreciation for each depreciable property group represents that portion of the depreciable cost of the group which would not be allocated to expense through future depreciation accruals if current forecasts of life characteristics are used as the basis for such accruals. The accrued depreciation calculation consists of applying an appropriate ratio to the surviving original cost of each vintage of each account based upon the attained age and service life. The straight line accrued depreciation ratios are calculated as follows for the average service life procedure:

$$\text{Ratio} = \left(1 - \frac{\text{Average Remaining Life}}{\text{Average Service Life}}\right) (1 - \text{Net Salvage, \%})$$

## CALCULATION OF ANNUAL AND ACCRUED AMORTIZATION

Amortization is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized. Normally, the distribution of the amount is in equal amounts to each year of the amortization period.

The calculation of annual and accrued amortization requires the selection of an amortization period. The amortization periods used in this report were based on judgment which incorporated a consideration of the period during which the assets will render most of their service, the amortization period and service lives used by other utilities, and the service life estimates previously used for the asset under depreciation accounting.

Amortization accounting is proposed for a number of accounts that represent numerous units of property, but a very small portion of depreciable electric plant in service. The accounts and their amortization periods are as follows:

| <u>ACCT</u> | <u>TITLE</u>                     | <u>AMORTIZATION<br/>PERIOD,<br/>YEARS</u> |
|-------------|----------------------------------|-------------------------------------------|
| 391.12,     | Office Equipment                 | 15                                        |
| 391.3,      | Computer Hardware                | 5                                         |
| 391.4,      | Computer Software                | 10                                        |
| 394,        | Tools, Shop and Garage Equipment | 20                                        |

The calculated accrued amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the original cost by the period of amortization for the account.

## **MONITORING OF BOOK ACCUMULATED DEPRECIATION**

The calculated accrued depreciation or amortization represents that portion of the depreciable cost which will not be allocated to expense through future depreciation accruals, if current forecasts of service life characteristics and net salvage materialize and are used as a basis for depreciation accounting. Thus, the calculated accrued depreciation provides a measure of the book accumulated depreciation. The use of this measure is recommended in the amortization of book accumulated depreciation variances to ensure complete recovery of capital over the life of the property. Gannett Fleming recommends that the variances be amortized over a period equal to the average remaining life for each account.

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## PART VI. RESULTS OF STUDY

## **PART VI. RESULTS OF STUDY**

### **QUALIFICATION OF RESULTS**

The calculated annual accrual rate and amounts and accrued depreciation are the principal results of the study. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate annual depreciation accrual rates. An assumption that accrual rates can remain unchanged over a long period of time implies a disregard for the inherent variability in service lives and salvage and for the change of the composition of property in service. The annual accrual rates were calculated in accordance with the straight line remaining life method of depreciation, using the average service life procedure based on estimates which reflect considerations of current historical evidence and expected future conditions.

The annual depreciation accrual rates are applicable specifically to the electric plant in service as of December 31, 2017. For most plant accounts, the application of such rates to future balances that reflect additions subsequent to December 31, 2017, is reasonable for a period of three to five years.

### **DESCRIPTION OF SUMMARY TABULATIONS**

Summaries of the results of the study, as applied to original cost of electric plant at December 31, 2017, are presented on pages VI-5 through VI-10 of this report. Table 1 presents a summary of the calculated annual and accrued depreciation based on the straight line whole life method of depreciation. Table 2 compares the calculated accrued depreciation with the book depreciation reserve and calculates amortization amounts that correct the variance. Table 3 sets forth the total annual depreciation accruals related to utility plant as of December 31, 2017, consisting of the whole life accrual from Table 1 and the amortization amounts from Table 2.

## DESCRIPTION OF DETAILED TABULATIONS

The service life estimates were based on judgment that incorporated statistical analysis of retirement data, discussions with management, the previous estimates used for Maritime Electric and consideration of estimates made for other electric utilities. The results of the statistical analysis of service life are presented in the section beginning on page VII-2, within the supporting documents of this report.

For each depreciable group analyzed by the retirement rate method, a chart is presented depicting the original and estimated survivor curves followed by a tabular presentation of the original life table(s) plotted on the chart. The survivor curves estimated for the depreciable groups are shown as dark smooth curves on the charts. Each smooth survivor curve is denoted by a numeral followed by the curve type designation. The numeral used is the average life derived from the entire curve from 100 percent to zero percent surviving. The titles of the chart indicate the group, the symbol used to plot the points of the original life table, and the experience and placement bands of the life tables which were plotted. The experience band indicates the range of years for which retirements were used to develop the stub survivor curve. The placements indicate, for the related experience band, the range of years of installations which appear in the experience.

The analyses of net salvage data are presented in the section titled, "Net Salvage Statistics". The tabulations present annual cost of removal and salvage data, three-year moving averages and the most recent five-year average. Data are shown in dollars and as percentages of original costs retired.

The tables of the calculated annual depreciation applicable to depreciable assets as of December 31, 2017 are presented in account sequence starting on page IX-2 of the supporting documents. The tables indicate the estimated survivor curve and net salvage



percent for the account and set forth, for each installation year, the original cost, the calculated annual accrual rate and amount, and the calculated accrued depreciation factor and amount.

MARITIME ELECTRIC COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVE, NET SALVAGE, ORIGINAL COST, CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017

| DEPRECIABLE GROUP<br>(1)                | PROBABLE<br>RETIREMENT<br>YEAR<br>(2) | ESTIMATED<br>SURVIVOR<br>CURVE<br>(3) | NET<br>SALVAGE<br>PERCENT<br>(4) | ORIGINAL COST<br>AT 12/31/2017<br>(5) | ANNUAL<br>ACCRUAL<br>AMOUNT<br>(6) | ANNUAL<br>ACCRUAL<br>RATE<br>(7)=(6)/(5) | CALCULATED<br>ACCRUED<br>DEPRECIATION<br>(8) |
|-----------------------------------------|---------------------------------------|---------------------------------------|----------------------------------|---------------------------------------|------------------------------------|------------------------------------------|----------------------------------------------|
| <b>DEPRECIABLE ELECTRIC PLANT</b>       |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| <b>STEAM PRODUCTION PLANT</b>           |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| <b>CHARLOTTETOWN STEAM PLANT</b>        |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 311 STRUCTURES AND IMPROVEMENTS         | 12-2021                               | 80 - S0                               | (19)                             | 9,006,038                             | 547,357                            | 6.08                                     | 8,546,939                                    |
| 312 BOILER PLANT EQUIPMENT              | 12-2021                               | 75 - R2                               | (19)                             | 26,445,980                            | 1,285,317                          | 4.86                                     | 26,377,078                                   |
| 314 TURBOGENERATOR UNITS                |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| UNIT 7                                  | 12-2019                               | 100 - S0                              | (19)                             | 1,954,691                             | 113,005                            | 5.78                                     | 2,100,717                                    |
| UNIT 8                                  | 12-2020                               | 100 - S0                              | (19)                             | 3,909,382                             | 209,582                            | 5.36                                     | 4,026,569                                    |
| UNITS 9 AND 10                          | 12-2021                               | 100 - S0                              | (19)                             | 15,637,528                            | 796,856                            | 5.10                                     | 15,442,475                                   |
| TOTAL TURBOGENERATOR UNITS              |                                       |                                       |                                  | 21,501,600                            | 1,119,443                          | 5.21                                     | 21,569,761                                   |
| 315 ACCESSORY ELECTRICAL EQUIPMENT      | 12-2021                               | 80 - R2                               | (19)                             | 2,283,113                             | 68,942                             | 3.02                                     | 2,444,835                                    |
| 316 MISCELLANEOUS POWER PLANT EQUIPMENT | 12-2021                               | 70 - L0                               | (19)                             | 1,512,887                             | 68,526                             | 4.53                                     | 1,531,750                                    |
| <b>TOTAL STEAM PRODUCTION PLANT</b>     |                                       |                                       |                                  | <b>60,749,618</b>                     | <b>3,089,585</b>                   | <b>5.09</b>                              | <b>60,470,363</b>                            |
| <b>OTHER PRODUCTION PLANT</b>           |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| <b>BORDEN</b>                           |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 341 STRUCTURES AND IMPROVEMENTS         | 06-2031                               | 70 - S0                               | (3)                              | 481,306                               | 14,050                             | 2.92                                     | 316,843                                      |
| 344 GENERATORS                          | 06-2031                               | 65 - S0.5                             | (3)                              | 12,865,545                            | 535,707                            | 4.16                                     | 6,266,803                                    |
| 346 MISCELLANEOUS POWER PLANT EQUIPMENT | 06-2031                               | 30 - L3                               | (3)                              | 320,116                               | 13,054                             | 4.08                                     | 187,125                                      |
| SUBTOTAL BORDEN                         |                                       |                                       |                                  | 13,666,966                            | 562,811                            | 4.12                                     | 6,770,771                                    |
| <b>CHARLOTTETOWN - CT3</b>              |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 344 GENERATORS                          | 06-2056                               | 65 - S0.5                             | (3)                              | 35,297,121                            | 824,633                            | 2.34                                     | 8,505,193                                    |
| <b>TOTAL OTHER PRODUCTION PLANT</b>     |                                       |                                       |                                  | <b>48,964,087</b>                     | <b>1,387,444</b>                   | <b>2.83</b>                              | <b>15,275,964</b>                            |
| <b>TRANSMISSION PLANT</b>               |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 350.2 RIGHTS OF WAY AND EASEMENTS       |                                       | 70 - R5                               | 0                                | 4,462,985                             | 63,821                             | 1.43                                     | 1,066,585                                    |
| 353 SUBSTATION EQUIPMENT                |                                       | 57 - R3                               | (5)                              | 50,295,933                            | 924,188                            | 1.84                                     | 13,293,620                                   |
| 354 TOWERS AND FIXTURES                 |                                       | 60 - R4                               | (20)                             | 878,834                               | 17,612                             | 2.00                                     | 642,774                                      |
| 355 POLES AND FIXTURES                  |                                       | 52 - R2.5                             | (70)                             | 22,861,634                            | 746,204                            | 3.26                                     | 8,531,641                                    |
| 356 OVERHEAD CONDUCTORS                 |                                       | 60 - R3                               | (70)                             | 45,621,955                            | 1,295,207                          | 2.84                                     | 13,823,101                                   |
| 359 ROADS AND TRAILS                    |                                       | 50 - S2                               | 0                                | 73,263                                | 1,465                              | 2.00                                     | 12,411                                       |
| <b>TOTAL TRANSMISSION PLANT</b>         |                                       |                                       |                                  | <b>124,194,604</b>                    | <b>3,048,497</b>                   | <b>2.45</b>                              | <b>37,370,132</b>                            |





## MARITIME ELECTRIC COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVE, NET SALVAGE, ORIGINAL COST, CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017

| DEPRECIABLE GROUP<br>(1)                                         | PROBABLE<br>RETIREMENT<br>YEAR<br>(2) | ESTIMATED<br>SURVIVOR<br>CURVE<br>(3) | NET<br>SALVAGE<br>PERCENT<br>(4) | ORIGINAL COST<br>AT 12/31/2017<br>(5) | ANNUAL<br>ACCRUAL<br>AMOUNT<br>(6) | ANNUAL<br>ACCRUAL<br>RATE<br>(7)=(6)/(5) | CALCULATED<br>ACCRUED<br>DEPRECIATION<br>(8) |
|------------------------------------------------------------------|---------------------------------------|---------------------------------------|----------------------------------|---------------------------------------|------------------------------------|------------------------------------------|----------------------------------------------|
| <b>DISTRIBUTION PLANT</b>                                        |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 360.2 RIGHT OF WAY                                               |                                       | 70 - R5                               | 0                                | 282,000                               | 4,033                              | 1.43                                     | 56,490                                       |
| 362 SUBSTATION EQUIPMENT                                         |                                       | 47 - R3                               | (5)                              | 3,289,859                             | 73,578                             | 2.24                                     | 1,021,848                                    |
| 364 POLES, TOWERS AND FIXTURES                                   |                                       | 47 - R1.5                             | (60)                             | 75,601,860                            | 2,576,511                          | 3.41                                     | 29,150,175                                   |
| 365 OVERHEAD CONDUCTORS                                          |                                       | 52 - R2.5                             | (60)                             | 93,875,166                            | 2,883,845                          | 3.07                                     | 31,574,543                                   |
| 367 UNDERGROUND CONDUCTORS                                       |                                       | 50 - R3                               | (10)                             | 3,097,194                             | 68,138                             | 2.20                                     | 1,238,516                                    |
| 368.1 LINE TRANSFORMERS                                          |                                       | 34 - R2.5                             | (20)                             | 69,024,150                            | 2,435,172                          | 3.53                                     | 26,297,861                                   |
| 368.2 LINE TRANSFORMER INSTALLATIONS                             |                                       | 34 - R2.5                             | (20)                             | 12,591,274                            | 444,220                            | 3.53                                     | 3,802,327                                    |
| 369.01 SERVICES - OVERHEAD                                       |                                       | 46 - R3                               | (60)                             | 67,238,249                            | 2,334,512                          | 3.47                                     | 33,734,931                                   |
| 369.02 SERVICES - UNDERGROUND                                    |                                       | 45 - R3                               | (10)                             | 2,076,695                             | 50,713                             | 2.44                                     | 1,021,271                                    |
| 370.1 METERS                                                     |                                       | 21 - S2                               | (2)                              | 14,245,974                            | 691,671                            | 4.86                                     | 6,207,289                                    |
| 370.2 METER INSTALLATIONS                                        |                                       | 30 - L3                               | 0                                | 651,341                               | 21,690                             | 3.33                                     | 72,818                                       |
| 373 STREET LIGHTING AND SIGNAL SYSTEMS                           |                                       | 27 - R2                               | (25)                             | 6,053,459                             | 279,972                            | 4.62                                     | 2,324,282                                    |
| 373.2 STREET LIGHTING & SIGNAL SYSTEMS - UNDERGROUND             |                                       | 27 - R2                               | (10)                             | 653,789                               | 26,609                             | 4.07                                     | 551,668                                      |
| <b>TOTAL DISTRIBUTION PLANT</b>                                  |                                       |                                       |                                  | <b>348,681,010</b>                    | <b>11,890,664</b>                  | <b>3.41</b>                              | <b>137,054,019</b>                           |
| <b>GENERAL PLANT</b>                                             |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 390 STRUCTURES & IMPROVEMENTS - ENERGY CONTROL CTR.              |                                       | 40 - R1                               | 0                                | 903,406                               | 22,585                             | 2.50                                     | 436,181                                      |
| 390.11 STRUCTURES & IMPROVEMENTS - OFFICE                        |                                       | 40 - R1                               | 0                                | 4,981,390                             | 124,535                            | 2.50                                     | 1,899,606                                    |
| 390.12 STRUCTURES & IMPROVEMENTS - DISTRICTS                     |                                       | 40 - R1                               | 0                                | 6,358,301                             | 158,958                            | 2.50                                     | 2,271,342                                    |
| 391.12 OFFICE FURNITURE & EQUIP. - EQUIPMENT                     |                                       | 15 - SQ                               | 0                                | 77,037                                | 5,138                              | 6.67                                     | 33,465                                       |
| 391.3 OFFICE FURNITURE & EQUIP. - COMPUTER HARDWARE              |                                       | 5 - SQ                                | 0                                | 1,127,561                             | 225,512                            | 20.00                                    | 496,829                                      |
| 391.4 OFFICE FURNITURE & EQUIP. - COMPUTER SOFTWARE <sup>a</sup> |                                       | 10 - SQ                               | 0                                | 5,977,486                             | 597,749                            | 10.00                                    | 2,735,085                                    |
| 392 TRANSPORTATION EQUIPMENT                                     |                                       | 13 - S2                               | 10                               | 11,944,126                            | 799,747                            | 6.70                                     | 5,068,505                                    |
| 394 TOOLS, SHOP AND GARAGE EQUIPMENT                             |                                       | 20 - SQ                               | 0                                | 1,115,936                             | 55,797                             | 5.00                                     | 376,109                                      |
| 397 COMMUNICATION EQUIPMENT                                      |                                       | 20 - S4                               | (5)                              | 10,214,242                            | 489,939                            | 4.80                                     | 5,919,193                                    |
| 397.5 COMMUNICATION EQUIPMENT - SCADA                            |                                       | 15 - S2                               | 0                                | 1,815,241                             | 106,400                            | 5.86                                     | 1,152,993                                    |
| <b>TOTAL GENERAL PLANT</b>                                       |                                       |                                       |                                  | <b>44,514,726</b>                     | <b>2,586,360</b>                   | <b>5.81</b>                              | <b>20,389,308</b>                            |
| <b>TOTAL DEPRECIABLE ELECTRIC PLANT</b>                          |                                       |                                       |                                  | <b>627,104,044</b>                    | <b>22,002,550</b>                  | <b>3.51</b>                              | <b>270,559,786</b>                           |
| <b>NONDEPRECIABLE PLANT</b>                                      |                                       |                                       |                                  |                                       |                                    |                                          |                                              |
| 310 LAND AND LAND RIGHTS                                         |                                       |                                       |                                  | 2,261,810                             |                                    |                                          |                                              |
| 340 LAND AND LAND RIGHTS                                         |                                       |                                       |                                  | 43,567                                |                                    |                                          |                                              |
| 350 LAND AND LAND RIGHTS                                         |                                       |                                       |                                  | 1,101,484                             |                                    |                                          |                                              |
| 360 LAND AND LAND RIGHTS                                         |                                       |                                       |                                  | 9,973                                 |                                    |                                          |                                              |
| 389 LAND AND LAND RIGHTS                                         |                                       |                                       |                                  | 350,201                               |                                    |                                          |                                              |
| <b>TOTAL NONDEPRECIABLE PLANT</b>                                |                                       |                                       |                                  | <b>3,767,035</b>                      |                                    |                                          |                                              |
| <b>TOTAL ELECTRIC PLANT IN SERVICE</b>                           |                                       |                                       |                                  | <b>630,871,079</b>                    |                                    |                                          |                                              |

<sup>a</sup> Intangible Developed Software is included in Account 391.4 for depreciation purposes.



## MARITIME ELECTRIC COMPANY

TABLE 2. CALCULATED ACCRUED DEPRECIATION, BOOK ACCUMULATED DEPRECIATION AND DETERMINATION OF RESERVE  
VARIANCE AMORTIZATIONS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017

| DEPRECIABLE GROUP            | ORIGINAL COST<br>AT 12/31/2017 | CALCULATED<br>ACCRUED<br>DEPRECIATION | BOOK<br>ACCUMULATED<br>DEPRECIATION | RESERVE VARIANCE |             | REM. LIFE<br>AMORTIZATION<br>PERIOD | RESERVE<br>VARIANCE<br>AMORTIZATION |
|------------------------------|--------------------------------|---------------------------------------|-------------------------------------|------------------|-------------|-------------------------------------|-------------------------------------|
|                              |                                |                                       |                                     | AMOUNT           | PERCENT     |                                     |                                     |
| (1)                          | (2)                            | (3)                                   | (4)                                 | (5)=(3)-(4)      | (6)=(5)/(3) | (7)                                 | (8)=(5)/(7)                         |
| DEPRECIABLE ELECTRIC PLANT   |                                |                                       |                                     |                  |             |                                     |                                     |
| STEAM PRODUCTION PLANT       |                                |                                       |                                     |                  |             |                                     |                                     |
| CHARLOTTETOWN STEAM PLANT    |                                |                                       |                                     |                  |             |                                     |                                     |
| 311                          | 9,006,038                      | 8,546,939                             | 5,576,582                           | 2,970,357        | 35%         | 3.96                                | 750,090                             |
| 312                          | 26,445,980                     | 26,377,078                            | 19,588,953                          | 6,788,125        | 26%         | 3.96                                | 1,714,173                           |
| 314                          |                                |                                       |                                     |                  |             |                                     |                                     |
|                              | 1,954,691                      | 2,100,717                             | 1,373,687                           | 727,030          | 35%         | 1.99                                | 365,342                             |
|                              | 3,909,382                      | 4,026,569                             | 2,633,028                           | 1,393,541        | 35%         | 2.98                                | 467,631                             |
|                              | 15,637,528                     | 15,442,475                            | 10,098,042                          | 5,344,433        | 35%         | 3.97                                | 1,346,205                           |
|                              | 21,501,600                     | 21,569,761                            | 14,104,757                          | 7,465,004        | 35%         |                                     | 2,179,178                           |
| 315                          | 2,283,113                      | 2,444,835                             | 1,996,684                           | 448,151          | 18%         | 3.95                                | 113,456                             |
| 316                          | 1,512,887                      | 1,531,750                             | 1,196,410                           | 335,340          | 22%         | 3.92                                | 85,546                              |
|                              |                                |                                       |                                     |                  |             |                                     |                                     |
|                              | 60,749,618                     | 60,470,363                            | 42,463,386                          | 18,006,977       | 30%         |                                     | 4,842,443                           |
| TOTAL STEAM PRODUCTION PLANT |                                |                                       |                                     |                  |             |                                     |                                     |
| OTHER PRODUCTION PLANT       |                                |                                       |                                     |                  |             |                                     |                                     |
| BORDEN                       |                                |                                       |                                     |                  |             |                                     |                                     |
| 341                          | 481,306                        | 316,843                               | 212,391                             | 104,452          | 33%         | 12.73                               | 8,205                               |
| 344                          | 12,865,545                     | 6,266,803                             | 3,388,934                           | 2,877,869        | 46%         | 13.04                               | 220,695                             |
| 346                          | 320,116                        | 187,125                               | 125,928                             | 61,197           | 33%         | 10.92                               | 5,604                               |
|                              | 13,666,966                     | 6,770,771                             | 3,727,253                           | 3,043,518        | 45%         |                                     | 234,504                             |
|                              |                                |                                       |                                     |                  |             |                                     |                                     |
|                              | 35,297,121                     | 8,505,193                             | 6,671,148                           | 1,834,045        | 22%         | 33.77                               | 54,310                              |
|                              | 48,964,087                     | 15,275,964                            | 10,398,401                          | 4,877,563        | 32%         |                                     | 288,814                             |
| TOTAL OTHER PRODUCTION PLANT |                                |                                       |                                     |                  |             |                                     |                                     |
| TRANSMISSION PLANT           |                                |                                       |                                     |                  |             |                                     |                                     |
| 350.2                        | 4,462,985                      | 1,066,585                             | 1,410,494                           | (343,909)        | -32%        | 53.22                               | (6,462)                             |
| 353                          | 50,295,933                     | 13,293,620                            | 17,490,414                          | (4,196,794)      | -32%        | 42.76                               | (98,148)                            |
| 354                          | 878,834                        | 642,774                               | 727,879                             | (85,105)         | -13%        | 23.38                               | (3,640)                             |
| 355                          | 22,861,634                     | 8,531,641                             | 6,574,086                           | 1,957,555        | 23%         | 40.65                               | 48,156                              |
| 356                          | 45,621,955                     | 13,823,101                            | 13,281,996                          | 541,105          | 4%          | 49.21                               | 10,996                              |
| 359                          | 73,263                         | 12,411                                | 13,867                              | (1,456)          | -12%        | 41.53                               | (35)                                |
|                              |                                |                                       |                                     |                  |             |                                     |                                     |
|                              | 124,194,604                    | 37,370,132                            | 39,498,736                          | (2,128,604)      | -6%         |                                     | (49,133)                            |
| TOTAL TRANSMISSION PLANT     |                                |                                       |                                     |                  |             |                                     |                                     |



## MARITIME ELECTRIC COMPANY

TABLE 2. CALCULATED ACCRUED DEPRECIATION, BOOK ACCUMULATED DEPRECIATION AND DETERMINATION OF RESERVE  
VARIANCE AMORTIZATIONS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017

| DEPRECIABLE GROUP<br>(1)                                         | ORIGINAL COST<br>AT 12/31/2017<br>(2) | CALCULATED<br>ACCURED<br>DEPRECIATION<br>(3) | BOOK<br>ACCUMULATED<br>DEPRECIATION<br>(4) | RESERVE VARIANCE<br>PERCENT<br>(6)=(5)/(3) |       | REM. LIFE<br>AMORTIZATION<br>PERIOD<br>(7) | RESERVE<br>VARIANCE<br>AMORTIZATION<br>(8)=(5)/(7) |
|------------------------------------------------------------------|---------------------------------------|----------------------------------------------|--------------------------------------------|--------------------------------------------|-------|--------------------------------------------|----------------------------------------------------|
|                                                                  |                                       |                                              |                                            | AMOUNT<br>(5)=(3)-(4)                      |       |                                            |                                                    |
| DISTRIBUTION PLANT                                               |                                       |                                              |                                            |                                            |       |                                            |                                                    |
| 360.2 RIGHT OF WAY                                               | 282,000                               | 56,490                                       | 62,209                                     | (5,719)                                    | -10%  | 55.92                                      | (102)                                              |
| 362 SUBSTATION EQUIPMENT                                         | 3,289,859                             | 1,021,848                                    | 778,876                                    | 242,972                                    | 24%   | 33.06                                      | 7,349                                              |
| 364 POLES, TOWERS AND FIXTURES                                   | 75,601,860                            | 29,150,175                                   | 32,224,334                                 | (3,074,159)                                | -11%  | 35.63                                      | (86,280)                                           |
| 365 OVERHEAD CONDUCTORS                                          | 93,875,166                            | 31,574,543                                   | 27,300,129                                 | 4,274,414                                  | 14%   | 41.13                                      | 103,924                                            |
| 367 UNDERGROUND CONDUCTORS                                       | 3,097,194                             | 1,238,516                                    | 1,339,416                                  | (100,900)                                  | -8%   | 31.82                                      | (3,171)                                            |
| 368.1 LINE TRANSFORMERS                                          | 69,024,150                            | 26,297,861                                   | 16,616,504                                 | 9,681,357                                  | 37%   | 23.21                                      | 417,120                                            |
| 368.2 LINE TRANSFORMER INSTALLATIONS                             | 12,591,274                            | 3,802,327                                    | 2,136,492                                  | 1,665,835                                  | 44%   | 25.45                                      | 65,455                                             |
| 369.01 SERVICES - OVERHEAD                                       | 67,238,249                            | 33,734,931                                   | 30,225,357                                 | 3,509,574                                  | 10%   | 31.63                                      | 110,957                                            |
| 369.02 SERVICES - UNDERGROUND                                    | 2,076,695                             | 1,021,271                                    | 1,033,873                                  | (12,602)                                   | -1%   | 24.91                                      | (506)                                              |
| 370.1 METERS                                                     | 14,245,974                            | 6,207,289                                    | 1,555,741                                  | 4,651,548                                  | 75%   | 12.03                                      | 386,662                                            |
| 370.2 METER INSTALLATIONS                                        | 651,341                               | 72,818                                       | (1,216,851)                                | 1,289,669                                  | 1771% | 26.67                                      | 48,357                                             |
| 373 STREET LIGHTING AND SIGNAL SYSTEMS                           | 6,053,459                             | 2,324,282                                    | 1,484,641                                  | 839,641                                    | 36%   | 18.73                                      | 44,829                                             |
| 373.2 STREET LIGHTING & SIGNAL SYSTEMS - UNDERGROUND             | 653,789                               | 551,668                                      | 582,596                                    | (30,928)                                   | -6%   | 6.29                                       | (4,917)                                            |
| TOTAL DISTRIBUTION PLANT                                         | 348,681,010                           | 137,054,019                                  | 114,123,316                                | 22,930,703                                 | 17%   |                                            | 1,089,677                                          |
| GENERAL PLANT                                                    |                                       |                                              |                                            |                                            |       |                                            |                                                    |
| 390 STRUCTURES & IMPROVEMENTS - ENERGY CONTROL CTR.              | 903,406                               | 436,181                                      | 420,757                                    | 15,424                                     | 4%    | 20.69                                      | 745                                                |
| 390.11 STRUCTURES & IMPROVEMENTS - OFFICE                        | 4,981,390                             | 1,899,606                                    | 2,214,718                                  | (315,112)                                  | -17%  | 24.75                                      | (12,732)                                           |
| 390.12 STRUCTURES & IMPROVEMENTS - DISTRICTS                     | 6,358,301                             | 2,271,342                                    | 2,537,901                                  | (266,559)                                  | -12%  | 25.71                                      | (10,368)                                           |
| 391.12 OFFICE FURNITURE & EQUIP. - EQUIPMENT                     | 77,037                                | 33,465                                       | (182,855)                                  | 216,320                                    | 646%  | 8.48                                       | 25,509                                             |
| 391.3 OFFICE FURNITURE & EQUIP. - COMPUTER HARDWARE              | 1,127,561                             | 496,829                                      | (150,809)                                  | 647,638                                    | 130%  | 5.00 b                                     | 129,528                                            |
| 391.4 OFFICE FURNITURE & EQUIP. - COMPUTER SOFTWARE <sup>a</sup> | 5,977,486                             | 2,735,085                                    | 3,324,011                                  | (588,926)                                  | -22%  | 5.42                                       | (108,658)                                          |
| 392 TRANSPORTATION EQUIPMENT                                     | 11,944,126                            | 5,068,505                                    | 4,716,477                                  | 352,028                                    | 7%    | 7.10                                       | 49,581                                             |
| 394 TOOLS, SHOP & GARAGE EQUIPMENT                               | 1,115,936                             | 376,109                                      | 18,027                                     | 358,082                                    | 95%   | 13.26                                      | 27,005                                             |
| 397 COMMUNICATION EQUIPMENT                                      | 10,214,242                            | 5,919,193                                    | 5,982,950                                  | (63,757)                                   | -1%   | 9.81                                       | (6,499)                                            |
| 397.5 COMMUNICATION EQUIPMENT - SCADA                            | 1,815,241                             | 1,152,993                                    | 1,221,849                                  | (68,849)                                   | -6%   | 6.22                                       | (11,069)                                           |
| TOTAL GENERAL PLANT                                              | 44,514,726                            | 20,389,308                                   | 20,103,018                                 | 286,290                                    | 1%    |                                            | 83,042                                             |
| TOTAL DEPRECIABLE ELECTRIC PLANT                                 | 627,104,044                           | 270,559,786                                  | 226,586,858                                | 43,972,928                                 | 16%   |                                            | 6,254,843                                          |

<sup>a</sup> Intangible Developed Software is included in Account 391.4 for depreciation purposes.<sup>b</sup> Mass Plant Accounts with a remaining life of less than 5 years were given an amortization period of 5 years.

MARITIME ELECTRIC COMPANY

**TABLE 3. CALCULATION OF TOTAL ANNUAL DEPRECIATION INCLUDING AMORTIZATIONS OF THE RESERVE VARIANCE  
RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017**

| DEPRECIABLE GROUP<br>(1)                | ORIGINAL COST<br>AT 12/31/2017<br>(2) | ANNUAL<br>ACCRUAL<br>AMOUNT<br>(3) | RESERVE<br>VARIANCE<br>AMORTIZATION<br>(4) | TOTAL<br>ANNUAL<br>DEPRECIATION<br>(5) | ANNUAL<br>RATE % INCL<br>TRUE-UP<br>(6) |
|-----------------------------------------|---------------------------------------|------------------------------------|--------------------------------------------|----------------------------------------|-----------------------------------------|
| <b>DEPRECIABLE ELECTRIC PLANT</b>       |                                       |                                    |                                            |                                        |                                         |
| <b>STEAM PRODUCTION PLANT</b>           |                                       |                                    |                                            |                                        |                                         |
| <u>CHARLOTTETOWN STEAM PLANT</u>        |                                       |                                    |                                            |                                        |                                         |
| 311 STRUCTURES & IMPROVEMENTS           | 9,006,038                             | 547,357                            | 750,090                                    | 1,297,447                              | 14.41                                   |
| 312 BOILER PLANT EQUIPMENT              | 26,445,980                            | 1,285,317                          | 1,714,173                                  | 2,999,490                              | 11.34                                   |
| 314 TURBOGENERATOR UNITS                |                                       |                                    |                                            |                                        |                                         |
| UNIT 7                                  | 1,954,691                             | 113,005                            | 365,342                                    | 478,347                                | 24.47                                   |
| UNIT 8                                  | 3,909,382                             | 209,582                            | 467,631                                    | 677,213                                | 17.32                                   |
| UNITS 9 AND 10                          | 15,637,528                            | 796,856                            | 1,346,205                                  | 2,143,061                              | 13.70                                   |
| TOTAL TURBOGENERATOR UNITS              | 21,501,600                            | 1,119,443                          | 2,179,178                                  | 3,298,621                              | 15.34                                   |
| 315 ACCESSORY ELECTRICAL EQUIPMENT      | 2,283,113                             | 68,942                             | 113,456                                    | 182,398                                | 7.99                                    |
| 316 MISCELLANEOUS POWER PLANT EQUIPMENT | 1,512,887                             | 68,526                             | 85,546                                     | 154,072                                | 10.18                                   |
| <b>TOTAL STEAM PRODUCTION PLANT</b>     | <b>60,749,618</b>                     | <b>3,089,585</b>                   | <b>4,842,443</b>                           | <b>7,932,028</b>                       | <b>13.06</b>                            |
| <b>OTHER PRODUCTION PLANT</b>           |                                       |                                    |                                            |                                        |                                         |
| <u>BORDEN</u>                           |                                       |                                    |                                            |                                        |                                         |
| 341 STRUCTURES AND IMPROVEMENTS         | 481,306                               | 14,050                             | 8,205                                      | 22,255                                 | 4.62                                    |
| 344 GENERATORS                          | 12,865,545                            | 535,707                            | 220,695                                    | 756,402                                | 5.88                                    |
| 346 MISCELLANEOUS POWER PLANT EQUIPMENT | 320,116                               | 13,054                             | 5,604                                      | 18,658                                 | 5.83                                    |
| SUBTOTAL BORDEN                         | 13,666,966                            | 562,811                            | 234,504                                    | 797,315                                | 5.83                                    |
| <u>CHARLOTTETOWN - CT3</u>              |                                       |                                    |                                            |                                        |                                         |
| 344 GENERATORS                          | 35,297,121                            | 824,633                            | 54,310                                     | 878,943                                | 2.49                                    |
| <b>TOTAL OTHER PRODUCTION PLANT</b>     | <b>48,964,087</b>                     | <b>1,387,444</b>                   | <b>288,814</b>                             | <b>1,676,258</b>                       | <b>3.42</b>                             |
| <b>TRANSMISSION PLANT</b>               |                                       |                                    |                                            |                                        |                                         |
| 350.2 RIGHTS OF WAY AND EASEMENTS       | 4,462,985                             | 63,821                             | (6,462)                                    | 57,359                                 | 1.29                                    |
| 353 SUBSTATION EQUIPMENT                | 50,295,933                            | 924,188                            | (98,148)                                   | 826,040                                | 1.64                                    |
| 354 TOWERS AND FIXTURES                 | 878,834                               | 17,612                             | (3,640)                                    | 13,972                                 | 1.59                                    |
| 355 POLES AND FIXTURES                  | 22,861,634                            | 746,204                            | 48,156                                     | 794,360                                | 3.47                                    |
| 356 OVERHEAD CONDUCTORS                 | 45,621,955                            | 1,295,207                          | 10,996                                     | 1,306,203                              | 2.86                                    |
| 359 ROAD & TRAILS                       | 73,263                                | 1,465                              | (35)                                       | 1,430                                  | 1.95                                    |
| <b>TOTAL TRANSMISSION PLANT</b>         | <b>124,194,604</b>                    | <b>3,048,497</b>                   | <b>(49,133)</b>                            | <b>2,999,364</b>                       | <b>2.42</b>                             |





## MARITIME ELECTRIC COMPANY

TABLE 3. CALCULATION OF TOTAL ANNUAL DEPRECIATION INCLUDING AMORTIZATIONS OF THE RESERVE VARIANCE  
RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2017

| DEPRECIABLE GROUP<br>(1)                                         | ORIGINAL COST<br>AT 12/31/2017<br>(2) | ANNUAL<br>ACCRUAL<br>AMOUNT<br>(3) | RESERVE<br>VARIANCE<br>AMORTIZATION<br>(4) | TOTAL<br>ANNUAL<br>DEPRECIATION<br>(5) | ANNUAL<br>RATE % INCL<br>TRUE-UP<br>(6) |
|------------------------------------------------------------------|---------------------------------------|------------------------------------|--------------------------------------------|----------------------------------------|-----------------------------------------|
| <b>DISTRIBUTION PLANT</b>                                        |                                       |                                    |                                            |                                        |                                         |
| 360.2 RIGHT OF WAY                                               | 282,000                               | 4,033                              | (102)                                      | 3,931                                  | 1.39                                    |
| 362 SUBSTATION EQUIPMENT                                         | 3,289,859                             | 73,578                             | 7,349                                      | 80,927                                 | 2.46                                    |
| 364 POLES, TOWERS AND FIXTURES                                   | 75,601,860                            | 2,576,511                          | (86,280)                                   | 2,490,231                              | 3.29                                    |
| 365 OVERHEAD CONDUCTORS                                          | 93,875,166                            | 2,883,845                          | 103,924                                    | 2,987,769                              | 3.18                                    |
| 367 UNDERGROUND CONDUCTORS                                       | 3,097,194                             | 68,138                             | (3,171)                                    | 64,967                                 | 2.10                                    |
| 368.1 LINE TRANSFORMERS                                          | 69,024,150                            | 2,435,172                          | 417,120                                    | 2,852,292                              | 4.13                                    |
| 368.2 LINE TRANSFORMER INSTALLATIONS                             | 12,591,274                            | 444,220                            | 65,455                                     | 509,675                                | 4.05                                    |
| 369.01 SERVICES - OVERHEAD                                       | 67,238,249                            | 2,334,512                          | 110,957                                    | 2,445,469                              | 3.64                                    |
| 369.02 SERVICES - UNDERGROUND                                    | 2,076,695                             | 50,713                             | (506)                                      | 50,207                                 | 2.42                                    |
| 370.1 METERS                                                     | 14,245,974                            | 691,671                            | 386,662                                    | 1,078,333                              | 7.57                                    |
| 370.2 METER INSTALLATIONS                                        | 651,341                               | 21,690                             | 48,357                                     | 70,047                                 | 10.75                                   |
| 373 STREET LIGHTING AND SIGNAL SYSTEMS                           | 6,053,459                             | 279,972                            | 44,829                                     | 324,801                                | 5.37                                    |
| 373.2 STREET LIGHTING & SIGNAL SYSTEMS - UNDERGROUND             | 653,789                               | 26,609                             | (4,917)                                    | 21,692                                 | 3.32                                    |
| <b>TOTAL DISTRIBUTION PLANT</b>                                  | <b>348,681,010</b>                    | <b>11,890,664</b>                  | <b>1,089,677</b>                           | <b>12,980,341</b>                      | <b>3.72</b>                             |
| <b>GENERAL PLANT</b>                                             |                                       |                                    |                                            |                                        |                                         |
| 390 STRUCTURES & IMPROVEMENTS - ENERGY CONTROL CTR.              | 903,406                               | 22,585                             | 745                                        | 23,330                                 | 2.58                                    |
| 390.11 STRUCTURES & IMPROVEMENTS - OFFICE                        | 4,981,390                             | 124,535                            | (12,732)                                   | 111,803                                | 2.24                                    |
| 390.12 STRUCTURES & IMPROVEMENTS - DISTRICTS                     | 6,358,301                             | 158,958                            | (10,368)                                   | 148,590                                | 2.34                                    |
| 391.12 OFFICE FURNITURE & EQUIP. - EQUIPMENT                     | 77,037                                | 5,138                              | 25,509                                     | 30,647                                 | 39.78                                   |
| 391.3 OFFICE FURNITURE & EQUIP. - COMPUTER HARDWARE              | 1,127,561                             | 225,512                            | 129,528                                    | 355,040                                | 31.49                                   |
| 391.4 OFFICE FURNITURE & EQUIP. - COMPUTER SOFTWARE <sup>a</sup> | 5,977,486                             | 597,749                            | (108,658)                                  | 489,091                                | 8.18                                    |
| 392 TRANSPORTATION EQUIPMENT                                     | 11,944,126                            | 799,747                            | 49,581                                     | 849,328                                | 7.11                                    |
| 394 TOOLS, SHOP & GARAGE EQUIPMENT                               | 1,115,936                             | 55,797                             | 27,005                                     | 82,802                                 | 7.42                                    |
| 397 COMMUNICATION EQUIPMENT                                      | 10,214,242                            | 489,939                            | (6,499)                                    | 483,440                                | 4.73                                    |
| 397.5 COMMUNICATION EQUIPMENT - SCADA                            | 1,815,241                             | 106,400                            | (11,069)                                   | 95,331                                 | 5.25                                    |
| <b>TOTAL GENERAL PLANT</b>                                       | <b>44,514,726</b>                     | <b>2,586,360</b>                   | <b>83,042</b>                              | <b>2,669,402</b>                       | <b>6.00</b>                             |
| <b>TOTAL DEPRECIABLE ELECTRIC PLANT</b>                          | <b>627,104,044</b>                    | <b>22,002,550</b>                  | <b>6,254,843</b>                           | <b>28,257,393</b>                      | <b>4.51</b>                             |

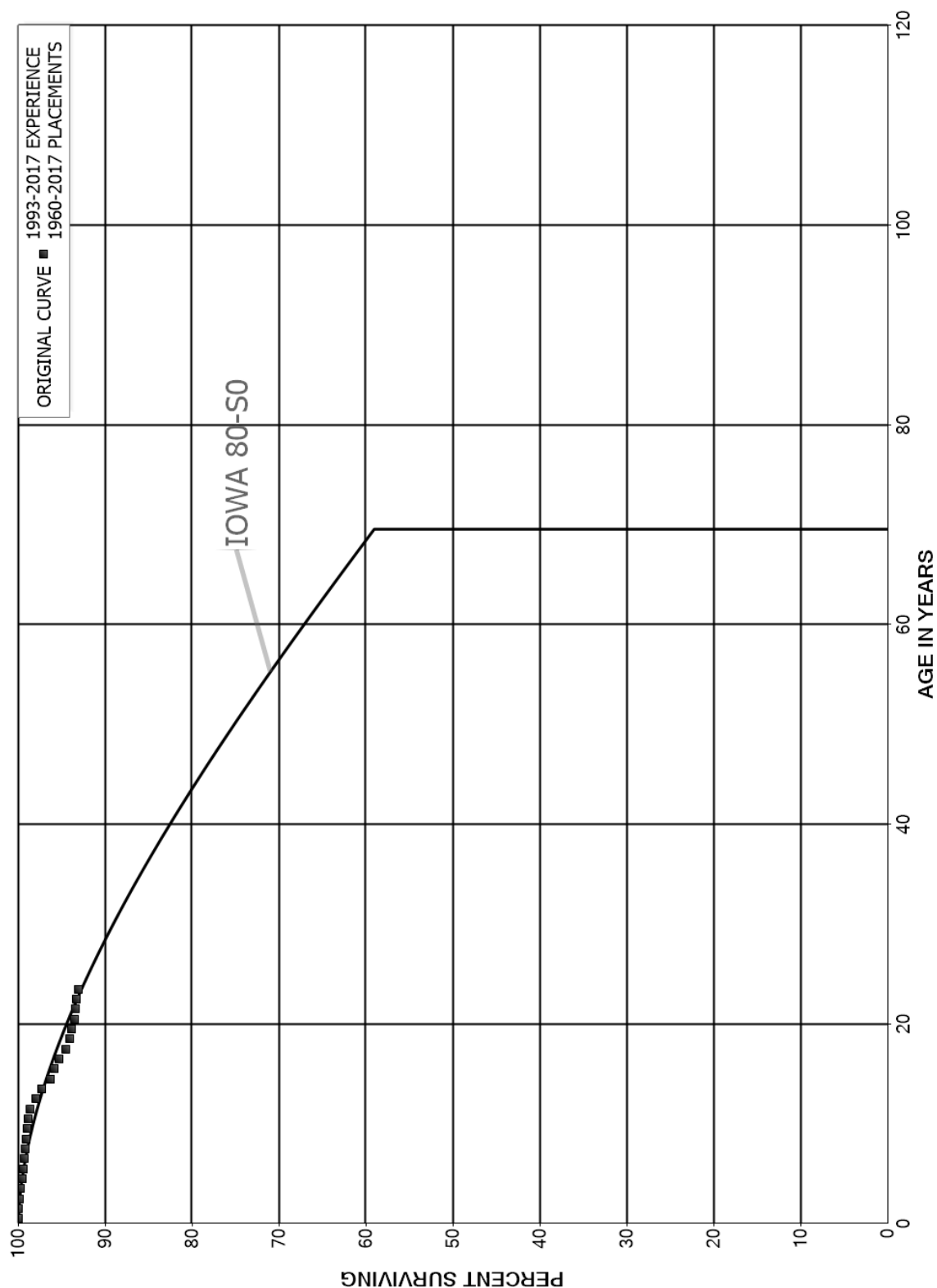
<sup>a</sup> Intangible Developed Software is included in Account 391.4 for depreciation purposes.

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## PART VII. SERVICE LIFE STATISTICS



MARITIME ELECTRIC COMPANY  
ACCOUNT 311 STRUCTURES AND IMPROVEMENTS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 311 STRUCTURES AND IMPROVEMENTS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1960-2017

## EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 6,425,096                                    | 822                                   | 0.0001         | 0.9999        | 100.00                           |
| 0.5                            | 6,420,442                                    | 4,287                                 | 0.0007         | 0.9993        | 99.99                            |
| 1.5                            | 6,297,135                                    | 5,526                                 | 0.0009         | 0.9991        | 99.92                            |
| 2.5                            | 6,272,886                                    | 7,840                                 | 0.0012         | 0.9988        | 99.83                            |
| 3.5                            | 5,970,591                                    | 8,963                                 | 0.0015         | 0.9985        | 99.71                            |
| 4.5                            | 5,744,422                                    | 6,555                                 | 0.0011         | 0.9989        | 99.56                            |
| 5.5                            | 5,476,336                                    | 6,849                                 | 0.0013         | 0.9987        | 99.44                            |
| 6.5                            | 5,258,374                                    | 7,024                                 | 0.0013         | 0.9987        | 99.32                            |
| 7.5                            | 4,686,532                                    | 5,168                                 | 0.0011         | 0.9989        | 99.19                            |
| 8.5                            | 4,101,783                                    | 6,312                                 | 0.0015         | 0.9985        | 99.08                            |
| 9.5                            | 3,659,848                                    | 4,856                                 | 0.0013         | 0.9987        | 98.93                            |
| 10.5                           | 3,262,405                                    | 6,439                                 | 0.0020         | 0.9980        | 98.79                            |
| 11.5                           | 2,919,578                                    | 17,501                                | 0.0060         | 0.9940        | 98.60                            |
| 12.5                           | 2,782,468                                    | 21,908                                | 0.0079         | 0.9921        | 98.01                            |
| 13.5                           | 2,655,306                                    | 27,316                                | 0.0103         | 0.9897        | 97.24                            |
| 14.5                           | 2,591,800                                    | 11,256                                | 0.0043         | 0.9957        | 96.24                            |
| 15.5                           | 2,525,672                                    | 14,817                                | 0.0059         | 0.9941        | 95.82                            |
| 16.5                           | 2,445,667                                    | 19,804                                | 0.0081         | 0.9919        | 95.26                            |
| 17.5                           | 2,359,233                                    | 10,459                                | 0.0044         | 0.9956        | 94.49                            |
| 18.5                           | 2,278,723                                    | 5,424                                 | 0.0024         | 0.9976        | 94.07                            |
| 19.5                           | 2,229,255                                    | 7,698                                 | 0.0035         | 0.9965        | 93.84                            |
| 20.5                           | 1,866,407                                    | 1,567                                 | 0.0008         | 0.9992        | 93.52                            |
| 21.5                           | 281,423                                      | 420                                   | 0.0015         | 0.9985        | 93.44                            |
| 22.5                           | 110,662                                      | 218                                   | 0.0020         | 0.9980        | 93.30                            |
| 23.5                           | 42,757                                       | 15                                    | 0.0003         | 0.9997        | 93.12                            |
| 24.5                           |                                              |                                       |                |               | 93.09                            |
| 25.5                           |                                              |                                       |                |               |                                  |
| 26.5                           |                                              |                                       |                |               |                                  |
| 27.5                           |                                              |                                       |                |               |                                  |
| 28.5                           |                                              |                                       |                |               |                                  |
| 29.5                           |                                              |                                       |                |               |                                  |
| 30.5                           |                                              |                                       |                |               |                                  |
| 31.5                           |                                              |                                       |                |               |                                  |
| 32.5                           | 3,517,423                                    | 23,813                                | 0.0068         |               |                                  |
| 33.5                           | 3,493,610                                    |                                       | 0.0000         |               |                                  |
| 34.5                           | 3,493,610                                    | 29,851                                | 0.0085         |               |                                  |
| 35.5                           | 3,463,760                                    | 4,884                                 | 0.0014         |               |                                  |
| 36.5                           | 3,458,876                                    | 34,327                                | 0.0099         |               |                                  |
| 37.5                           | 3,424,549                                    |                                       | 0.0000         |               |                                  |
| 38.5                           | 3,424,549                                    | 10,668                                | 0.0031         |               |                                  |

MARITIME ELECTRIC COMPANY

ACCOUNT 311 STRUCTURES AND IMPROVEMENTS

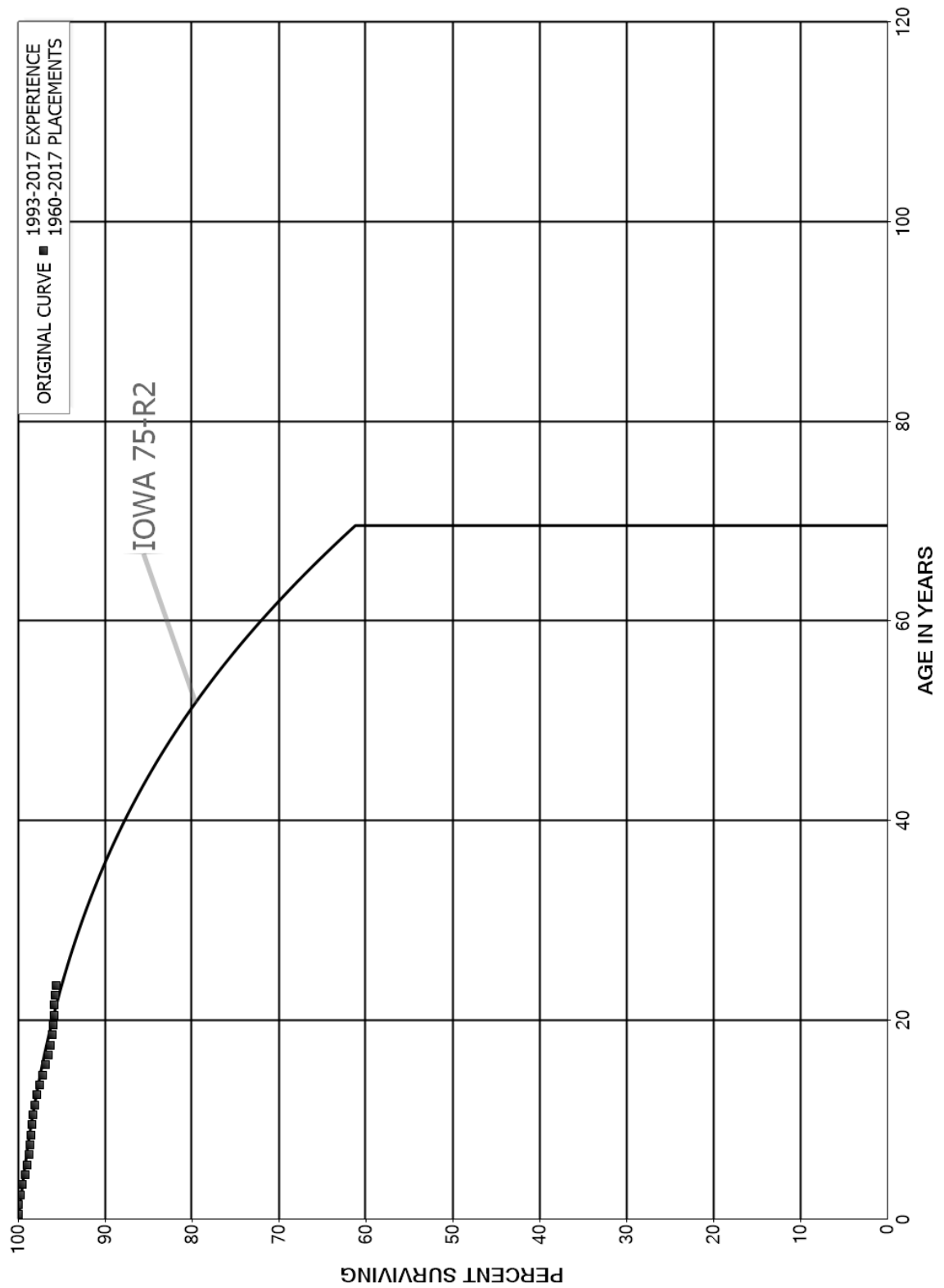
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2017

EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 3,413,880                                    | 14,709                                | 0.0043         |               |                                  |
| 40.5                           | 3,399,171                                    |                                       | 0.0000         |               |                                  |
| 41.5                           | 3,399,171                                    | 0                                     | 0.0000         |               |                                  |
| 42.5                           | 3,399,171                                    | 9,392                                 | 0.0028         |               |                                  |
| 43.5                           | 3,389,779                                    |                                       | 0.0000         |               |                                  |
| 44.5                           | 3,389,779                                    | 13,138                                | 0.0039         |               |                                  |
| 45.5                           | 3,376,641                                    | 5,602                                 | 0.0017         |               |                                  |
| 46.5                           | 3,371,039                                    | 6,077                                 | 0.0018         |               |                                  |
| 47.5                           | 3,364,962                                    | 81,416                                | 0.0242         |               |                                  |
| 48.5                           | 3,283,547                                    | 93,249                                | 0.0284         |               |                                  |
| 49.5                           | 3,190,297                                    | 180,145                               | 0.0565         |               |                                  |
| 50.5                           | 3,010,153                                    | 22,069                                | 0.0073         |               |                                  |
| 51.5                           | 2,988,083                                    | 42,784                                | 0.0143         |               |                                  |
| 52.5                           | 2,945,300                                    | 86,781                                | 0.0295         |               |                                  |
| 53.5                           | 2,858,518                                    | 32,177                                | 0.0113         |               |                                  |
| 54.5                           | 2,826,341                                    | 8,351                                 | 0.0030         |               |                                  |
| 55.5                           | 2,817,991                                    | 26,159                                | 0.0093         |               |                                  |
| 56.5                           | 2,791,831                                    | 1,843                                 | 0.0007         |               |                                  |
| 57.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 312 BOILER PLANT EQUIPMENT  
ORIGINAL AND SMOOTH SURVIVOR CURVES



MARITIME ELECTRIC COMPANY  
ACCOUNT 312 BOILER PLANT EQUIPMENT  
ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2017

EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 18,191,577                                   | 4,399                                 | 0.0002         | 0.9998        | 100.00                           |
| 0.5                            | 18,166,619                                   | 14,048                                | 0.0008         | 0.9992        | 99.98                            |
| 1.5                            | 18,016,303                                   | 36,612                                | 0.0020         | 0.9980        | 99.90                            |
| 2.5                            | 17,941,606                                   | 39,514                                | 0.0022         | 0.9978        | 99.70                            |
| 3.5                            | 17,746,640                                   | 54,338                                | 0.0031         | 0.9969        | 99.48                            |
| 4.5                            | 17,318,124                                   | 29,519                                | 0.0017         | 0.9983        | 99.17                            |
| 5.5                            | 17,049,450                                   | 53,830                                | 0.0032         | 0.9968        | 99.00                            |
| 6.5                            | 16,444,554                                   | 11,683                                | 0.0007         | 0.9993        | 98.69                            |
| 7.5                            | 16,159,176                                   | 13,292                                | 0.0008         | 0.9992        | 98.62                            |
| 8.5                            | 15,949,005                                   | 16,609                                | 0.0010         | 0.9990        | 98.54                            |
| 9.5                            | 14,933,635                                   | 27,004                                | 0.0018         | 0.9982        | 98.44                            |
| 10.5                           | 13,974,772                                   | 20,920                                | 0.0015         | 0.9985        | 98.26                            |
| 11.5                           | 13,269,535                                   | 36,522                                | 0.0028         | 0.9972        | 98.11                            |
| 12.5                           | 12,876,824                                   | 40,422                                | 0.0031         | 0.9969        | 97.84                            |
| 13.5                           | 12,579,359                                   | 45,213                                | 0.0036         | 0.9964        | 97.53                            |
| 14.5                           | 12,065,604                                   | 42,281                                | 0.0035         | 0.9965        | 97.18                            |
| 15.5                           | 11,508,783                                   | 38,872                                | 0.0034         | 0.9966        | 96.84                            |
| 16.5                           | 11,253,676                                   | 27,972                                | 0.0025         | 0.9975        | 96.52                            |
| 17.5                           | 10,990,006                                   | 17,785                                | 0.0016         | 0.9984        | 96.28                            |
| 18.5                           | 10,765,301                                   | 17,847                                | 0.0017         | 0.9983        | 96.12                            |
| 19.5                           | 10,290,208                                   | 9,940                                 | 0.0010         | 0.9990        | 95.96                            |
| 20.5                           | 9,687,957                                    | 5,275                                 | 0.0005         | 0.9995        | 95.87                            |
| 21.5                           | 8,814,321                                    | 5,974                                 | 0.0007         | 0.9993        | 95.82                            |
| 22.5                           | 7,398,902                                    | 11,196                                | 0.0015         | 0.9985        | 95.75                            |
| 23.5                           | 4,760,105                                    | 1,842                                 | 0.0004         | 0.9996        | 95.61                            |
| 24.5                           |                                              |                                       |                |               | 95.57                            |
| 25.5                           |                                              |                                       |                |               |                                  |
| 26.5                           |                                              |                                       |                |               |                                  |
| 27.5                           |                                              |                                       |                |               |                                  |
| 28.5                           |                                              |                                       |                |               |                                  |
| 29.5                           |                                              |                                       |                |               |                                  |
| 30.5                           |                                              |                                       |                |               |                                  |
| 31.5                           |                                              |                                       |                |               |                                  |
| 32.5                           | 11,947,427                                   | 526,796                               | 0.0441         |               |                                  |
| 33.5                           | 11,420,630                                   | 13,840                                | 0.0012         |               |                                  |
| 34.5                           | 11,406,790                                   | 411,350                               | 0.0361         |               |                                  |
| 35.5                           | 10,995,440                                   | 176,290                               | 0.0160         |               |                                  |
| 36.5                           | 10,819,150                                   | 597,067                               | 0.0552         |               |                                  |
| 37.5                           | 10,222,083                                   |                                       | 0.0000         |               |                                  |
| 38.5                           | 10,222,083                                   | 509,672                               | 0.0499         |               |                                  |

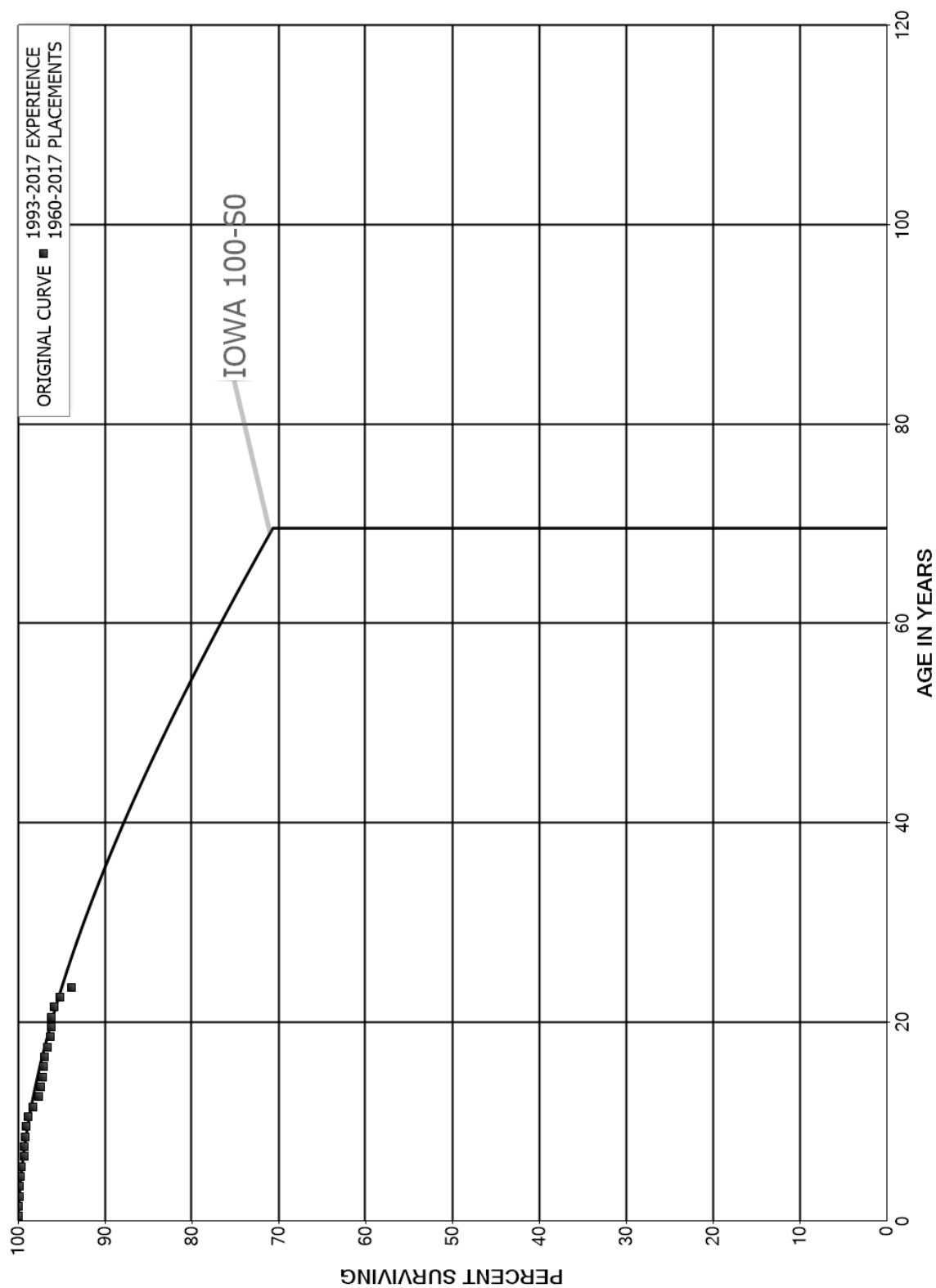
MARITIME ELECTRIC COMPANY  
ACCOUNT 312 BOILER PLANT EQUIPMENT  
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2017

EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 9,712,411                                    | 14,586                                | 0.0015         |               |                                  |
| 40.5                           | 9,697,825                                    | 15,295                                | 0.0016         |               |                                  |
| 41.5                           | 9,682,530                                    |                                       | 0.0000         |               |                                  |
| 42.5                           | 9,682,530                                    | 79,397                                | 0.0082         |               |                                  |
| 43.5                           | 9,603,133                                    |                                       | 0.0000         |               |                                  |
| 44.5                           | 9,603,133                                    | 74,389                                | 0.0077         |               |                                  |
| 45.5                           | 9,528,744                                    | 79,746                                | 0.0084         |               |                                  |
| 46.5                           | 9,448,998                                    | 110,289                               | 0.0117         |               |                                  |
| 47.5                           | 9,338,709                                    | 101,589                               | 0.0109         |               |                                  |
| 48.5                           | 9,237,120                                    | 109,700                               | 0.0119         |               |                                  |
| 49.5                           | 9,127,420                                    | 80,880                                | 0.0089         |               |                                  |
| 50.5                           | 9,046,539                                    | 33,077                                | 0.0037         |               |                                  |
| 51.5                           | 9,013,463                                    | 49,915                                | 0.0055         |               |                                  |
| 52.5                           | 8,963,547                                    | 26,469                                | 0.0030         |               |                                  |
| 53.5                           | 8,937,078                                    | 7,821                                 | 0.0009         |               |                                  |
| 54.5                           | 8,929,258                                    | 8,400                                 | 0.0009         |               |                                  |
| 55.5                           | 8,920,858                                    | 37,317                                | 0.0042         |               |                                  |
| 56.5                           | 8,883,541                                    | 6,229                                 | 0.0007         |               |                                  |
| 57.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 314 TURBO GENERATOR UNITS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 314 TURBO GENERATOR UNITS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1960-2017

## EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 15,549,629                                   | 2,963                                 | 0.0002         | 0.9998        | 100.00                           |
| 0.5                            | 15,433,371                                   | 6,909                                 | 0.0004         | 0.9996        | 99.98                            |
| 1.5                            | 15,311,140                                   | 10,630                                | 0.0007         | 0.9993        | 99.94                            |
| 2.5                            | 15,208,457                                   | 6,292                                 | 0.0004         | 0.9996        | 99.87                            |
| 3.5                            | 15,106,562                                   | 15,532                                | 0.0010         | 0.9990        | 99.83                            |
| 4.5                            | 15,044,477                                   | 22,886                                | 0.0015         | 0.9985        | 99.72                            |
| 5.5                            | 14,767,339                                   | 39,344                                | 0.0027         | 0.9973        | 99.57                            |
| 6.5                            | 14,564,588                                   | 7,797                                 | 0.0005         | 0.9995        | 99.31                            |
| 7.5                            | 14,403,002                                   | 9,188                                 | 0.0006         | 0.9994        | 99.25                            |
| 8.5                            | 14,284,445                                   | 11,052                                | 0.0008         | 0.9992        | 99.19                            |
| 9.5                            | 13,993,688                                   | 45,193                                | 0.0032         | 0.9968        | 99.11                            |
| 10.5                           | 13,679,467                                   | 67,702                                | 0.0049         | 0.9951        | 98.79                            |
| 11.5                           | 11,857,939                                   | 84,311                                | 0.0071         | 0.9929        | 98.30                            |
| 12.5                           | 9,527,043                                    | 25,756                                | 0.0027         | 0.9973        | 97.60                            |
| 13.5                           | 8,598,276                                    | 12,681                                | 0.0015         | 0.9985        | 97.34                            |
| 14.5                           | 8,216,592                                    | 13,227                                | 0.0016         | 0.9984        | 97.20                            |
| 15.5                           | 7,395,727                                    | 11,459                                | 0.0015         | 0.9985        | 97.04                            |
| 16.5                           | 7,265,436                                    | 19,931                                | 0.0027         | 0.9973        | 96.89                            |
| 17.5                           | 7,134,481                                    | 21,175                                | 0.0030         | 0.9970        | 96.62                            |
| 18.5                           | 6,847,943                                    | 7,799                                 | 0.0011         | 0.9989        | 96.34                            |
| 19.5                           | 6,799,805                                    | 1,396                                 | 0.0002         | 0.9998        | 96.23                            |
| 20.5                           | 6,768,184                                    | 22,438                                | 0.0033         | 0.9967        | 96.21                            |
| 21.5                           | 6,745,746                                    | 51,602                                | 0.0076         | 0.9924        | 95.89                            |
| 22.5                           | 5,145,161                                    | 74,032                                | 0.0144         | 0.9856        | 95.16                            |
| 23.5                           | 3,139,718                                    | 47,311                                | 0.0151         | 0.9849        | 93.79                            |
| 24.5                           |                                              |                                       |                |               | 92.37                            |
| 25.5                           |                                              |                                       |                |               |                                  |
| 26.5                           |                                              |                                       |                |               |                                  |
| 27.5                           |                                              |                                       |                |               |                                  |
| 28.5                           |                                              |                                       |                |               |                                  |
| 29.5                           |                                              |                                       |                |               |                                  |
| 30.5                           |                                              |                                       |                |               |                                  |
| 31.5                           |                                              |                                       |                |               |                                  |
| 32.5                           | 8,687,417                                    | 226,977                               | 0.0261         |               |                                  |
| 33.5                           | 8,460,440                                    |                                       | 0.0000         |               |                                  |
| 34.5                           | 8,460,440                                    | 163,620                               | 0.0193         |               |                                  |
| 35.5                           | 8,296,820                                    |                                       | 0.0000         |               |                                  |
| 36.5                           | 8,296,820                                    | 1,211                                 | 0.0001         |               |                                  |
| 37.5                           | 8,295,609                                    |                                       | 0.0000         |               |                                  |
| 38.5                           | 8,295,609                                    | 371,854                               | 0.0448         |               |                                  |



MARITIME ELECTRIC COMPANY

ACCOUNT 314 TURBO GENERATOR UNITS

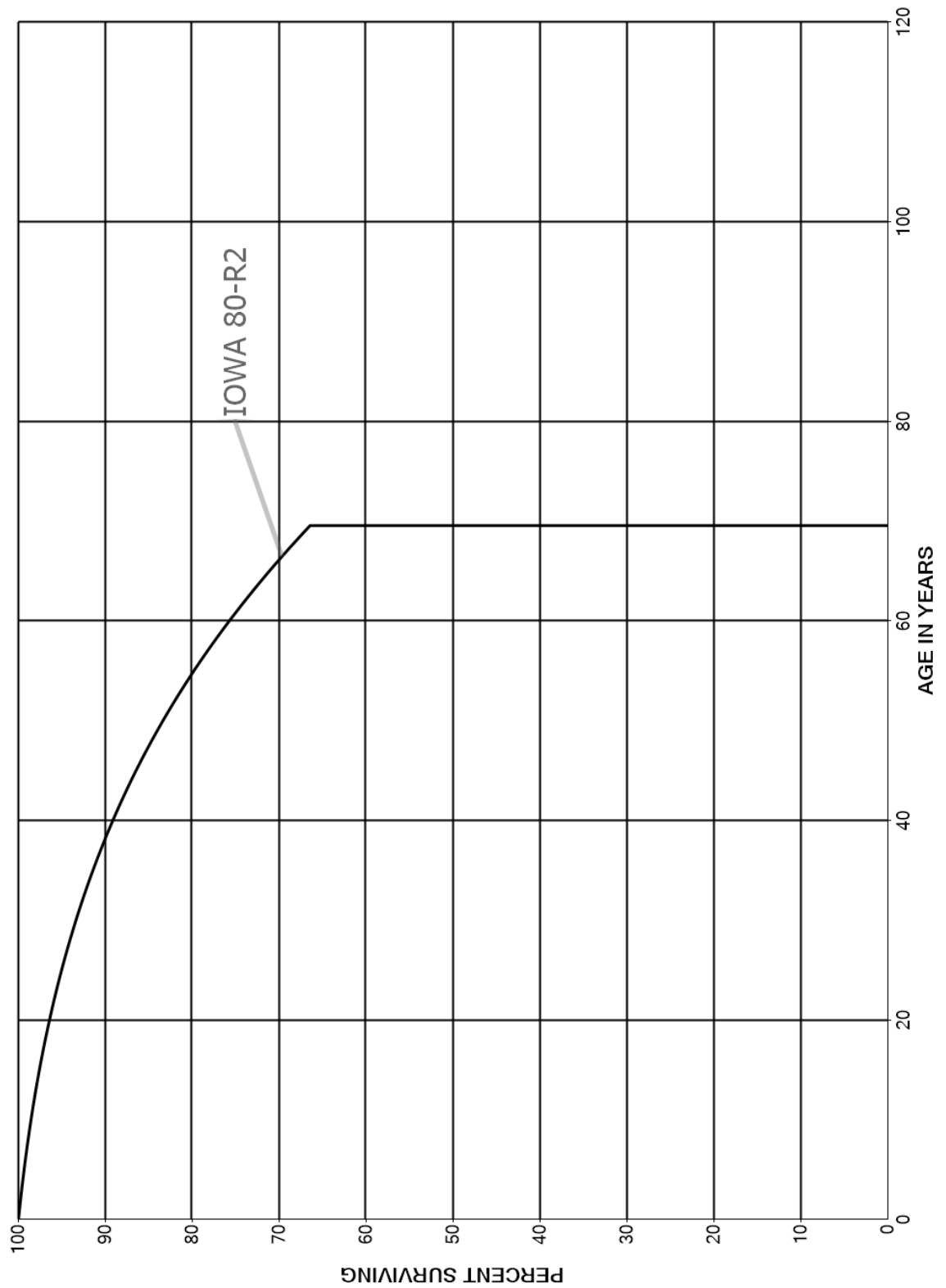
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2017

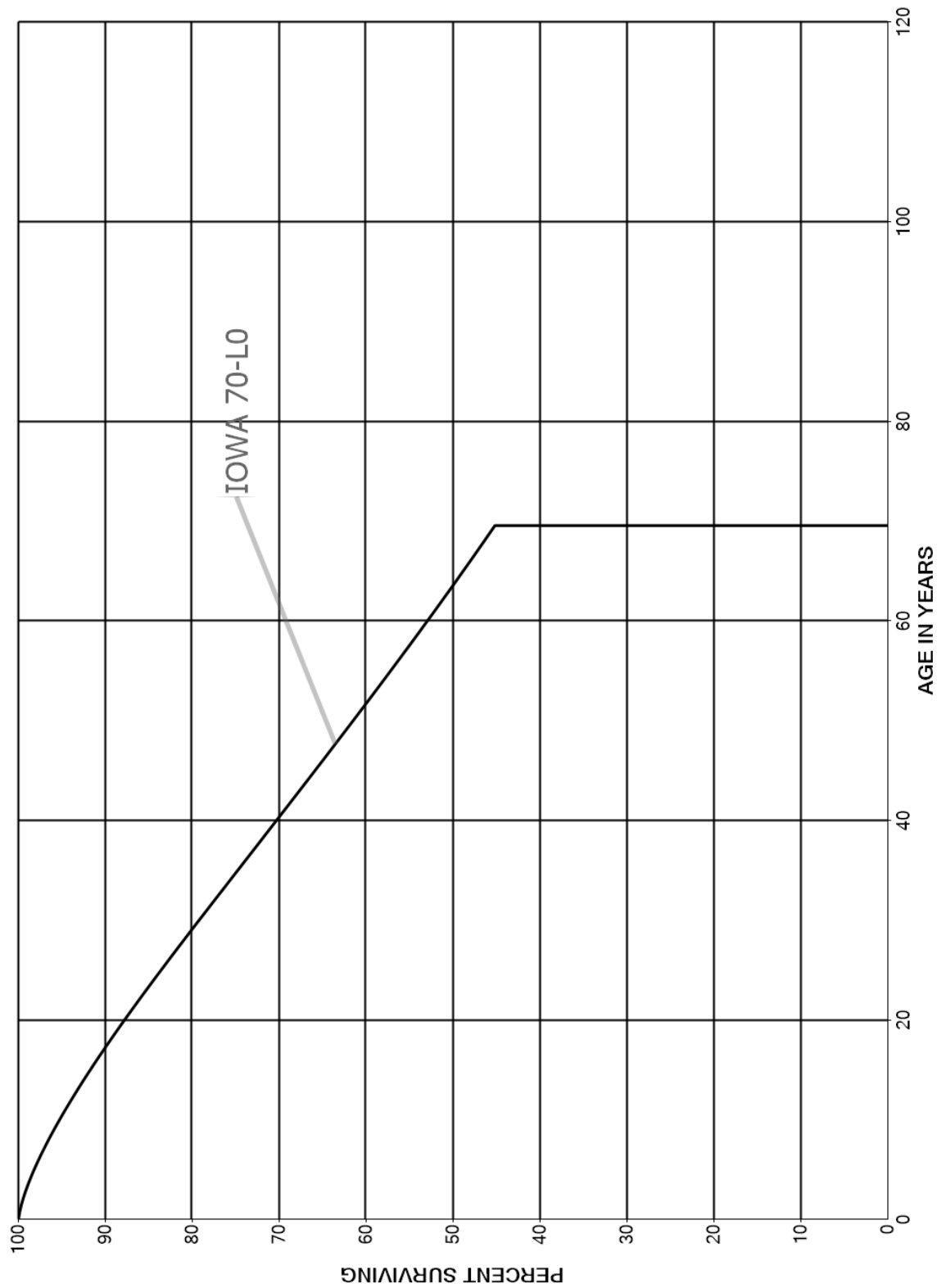
EXPERIENCE BAND 1993-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 7,923,754                                    |                                       | 0.0000         |               |                                  |
| 40.5                           | 7,923,754                                    | 6,512                                 | 0.0008         |               |                                  |
| 41.5                           | 7,917,242                                    |                                       | 0.0000         |               |                                  |
| 42.5                           | 7,917,242                                    | 45,239                                | 0.0057         |               |                                  |
| 43.5                           | 7,872,003                                    |                                       | 0.0000         |               |                                  |
| 44.5                           | 7,872,003                                    | 491,265                               | 0.0624         |               |                                  |
| 45.5                           | 7,380,738                                    | 73,732                                | 0.0100         |               |                                  |
| 46.5                           | 7,307,006                                    |                                       | 0.0000         |               |                                  |
| 47.5                           | 7,307,006                                    | 7,253                                 | 0.0010         |               |                                  |
| 48.5                           | 7,299,753                                    |                                       | 0.0000         |               |                                  |
| 49.5                           | 7,299,753                                    | 22,266                                | 0.0031         |               |                                  |
| 50.5                           | 7,277,487                                    | 68,444                                | 0.0094         |               |                                  |
| 51.5                           | 7,209,043                                    | 33,053                                | 0.0046         |               |                                  |
| 52.5                           | 7,175,990                                    | 3,700                                 | 0.0005         |               |                                  |
| 53.5                           | 7,172,290                                    | 5,500                                 | 0.0008         |               |                                  |
| 54.5                           | 7,166,790                                    | 9,486                                 | 0.0013         |               |                                  |
| 55.5                           | 7,157,304                                    | 280,597                               | 0.0392         |               |                                  |
| 56.5                           | 6,876,707                                    | 286,132                               | 0.0416         |               |                                  |
| 57.5                           |                                              |                                       |                |               |                                  |

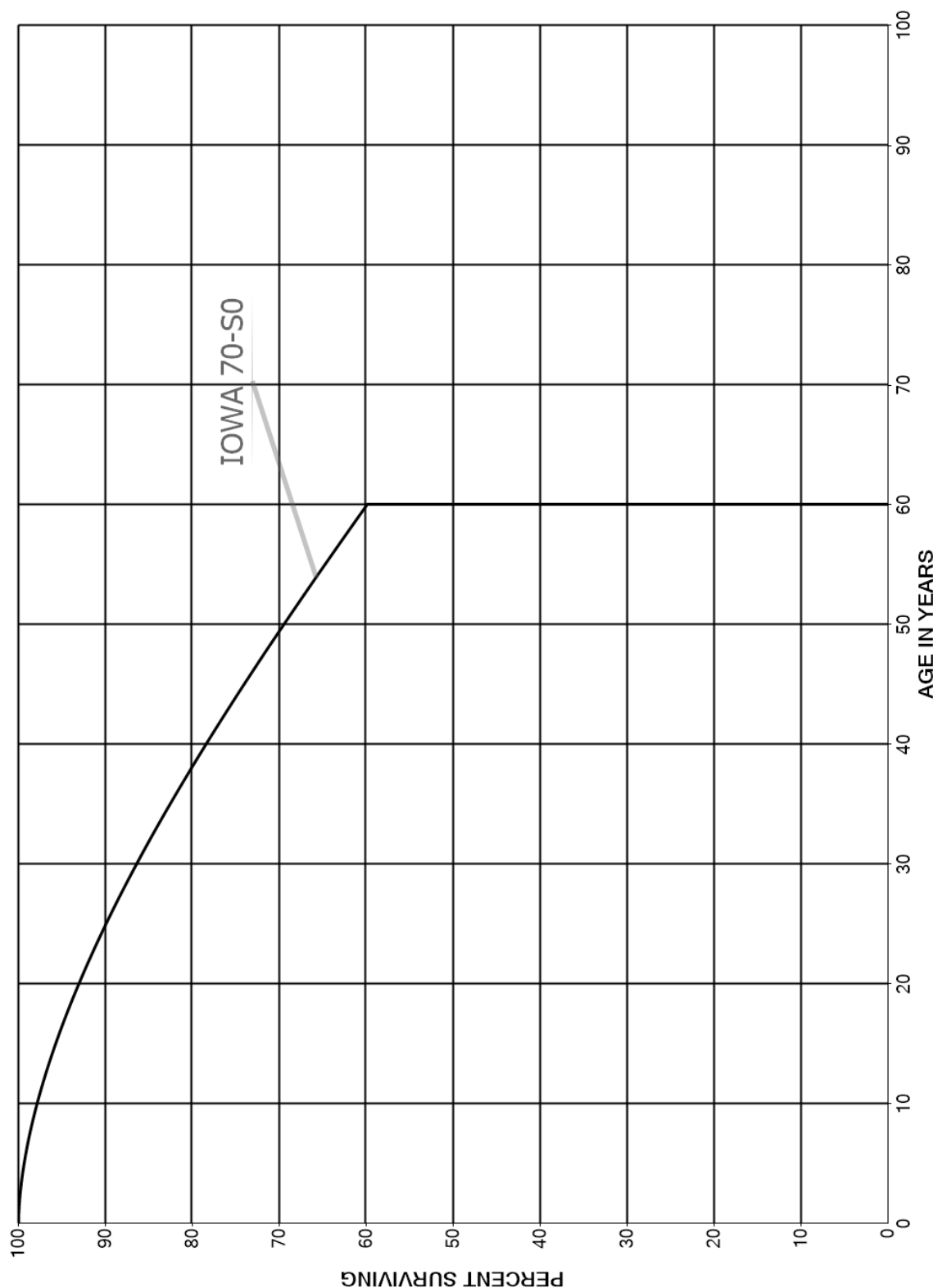
MARITIME ELECTRIC COMPANY  
ACCOUNT 315 ACCESSORY ELECTRIC EQUIPMENT  
SMOOTH SURVIVOR CURVE



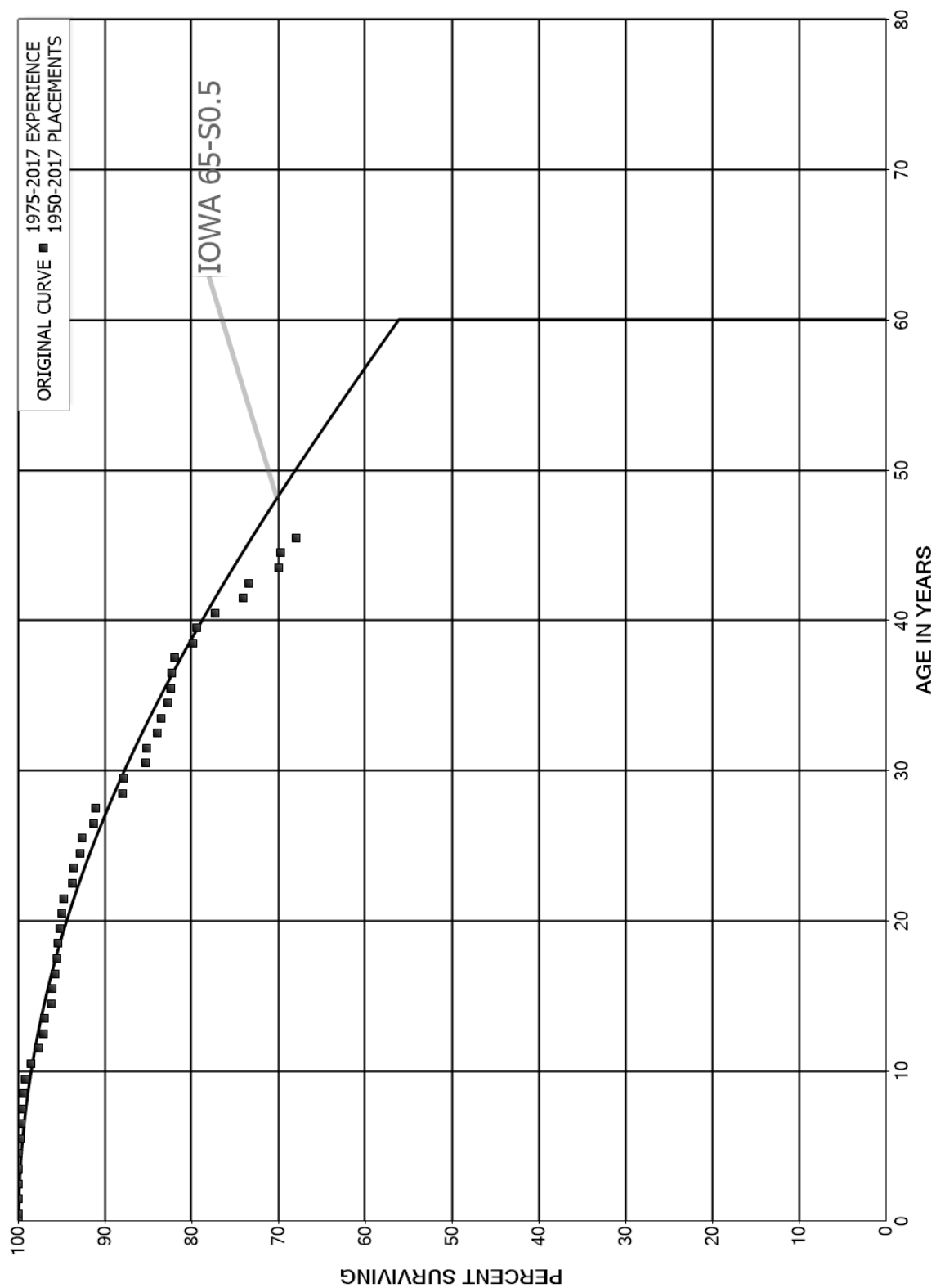
MARITIME ELECTRIC COMPANY  
ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 341 STRUCTURES AND IMPROVEMENTS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 344 GENERATORS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 344 GENERATORS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1950-2017

## EXPERIENCE BAND 1975-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 46,595,267                                   | 369                                   | 0.0000         | 1.0000        | 100.00                           |
| 0.5                            | 45,690,099                                   | 1,394                                 | 0.0000         | 1.0000        | 100.00                           |
| 1.5                            | 47,132,373                                   | 8,511                                 | 0.0002         | 0.9998        | 100.00                           |
| 2.5                            | 46,658,688                                   | 4,274                                 | 0.0001         | 0.9999        | 99.98                            |
| 3.5                            | 46,692,020                                   | 14,430                                | 0.0003         | 0.9997        | 99.97                            |
| 4.5                            | 45,656,553                                   | 105,972                               | 0.0023         | 0.9977        | 99.94                            |
| 5.5                            | 45,435,441                                   | 29,161                                | 0.0006         | 0.9994        | 99.71                            |
| 6.5                            | 44,572,556                                   | 78,914                                | 0.0018         | 0.9982        | 99.64                            |
| 7.5                            | 44,268,435                                   | 47,509                                | 0.0011         | 0.9989        | 99.47                            |
| 8.5                            | 42,950,989                                   | 58,840                                | 0.0014         | 0.9986        | 99.36                            |
| 9.5                            | 42,697,961                                   | 325,646                               | 0.0076         | 0.9924        | 99.22                            |
| 10.5                           | 41,813,292                                   | 377,786                               | 0.0090         | 0.9910        | 98.47                            |
| 11.5                           | 8,009,326                                    | 41,943                                | 0.0052         | 0.9948        | 97.58                            |
| 12.5                           | 7,543,159                                    | 11,477                                | 0.0015         | 0.9985        | 97.07                            |
| 13.5                           | 7,425,227                                    | 54,995                                | 0.0074         | 0.9926        | 96.92                            |
| 14.5                           | 7,071,270                                    | 11,447                                | 0.0016         | 0.9984        | 96.20                            |
| 15.5                           | 6,372,354                                    | 24,780                                | 0.0039         | 0.9961        | 96.04                            |
| 16.5                           | 6,049,277                                    | 7,061                                 | 0.0012         | 0.9988        | 95.67                            |
| 17.5                           | 5,916,048                                    | 12,938                                | 0.0022         | 0.9978        | 95.56                            |
| 18.5                           | 5,598,340                                    | 7,107                                 | 0.0013         | 0.9987        | 95.35                            |
| 19.5                           | 5,384,900                                    | 19,151                                | 0.0036         | 0.9964        | 95.23                            |
| 20.5                           | 5,247,072                                    | 8,663                                 | 0.0017         | 0.9983        | 94.89                            |
| 21.5                           | 5,172,689                                    | 55,837                                | 0.0108         | 0.9892        | 94.73                            |
| 22.5                           | 5,116,851                                    | 4,562                                 | 0.0009         | 0.9991        | 93.71                            |
| 23.5                           | 5,047,155                                    | 43,435                                | 0.0086         | 0.9914        | 93.63                            |
| 24.5                           | 4,931,210                                    | 11,003                                | 0.0022         | 0.9978        | 92.82                            |
| 25.5                           | 4,765,947                                    | 70,297                                | 0.0147         | 0.9853        | 92.61                            |
| 26.5                           | 4,683,157                                    | 7,284                                 | 0.0016         | 0.9984        | 91.25                            |
| 27.5                           | 4,675,873                                    | 162,592                               | 0.0348         | 0.9652        | 91.11                            |
| 28.5                           | 4,296,090                                    | 5,742                                 | 0.0013         | 0.9987        | 87.94                            |
| 29.5                           | 4,283,314                                    | 122,900                               | 0.0287         | 0.9713        | 87.82                            |
| 30.5                           | 4,158,981                                    | 6,909                                 | 0.0017         | 0.9983        | 85.30                            |
| 31.5                           | 4,146,737                                    | 56,238                                | 0.0136         | 0.9864        | 85.16                            |
| 32.5                           | 4,087,116                                    | 26,590                                | 0.0065         | 0.9935        | 84.00                            |
| 33.5                           | 4,052,308                                    | 36,973                                | 0.0091         | 0.9909        | 83.46                            |
| 34.5                           | 4,011,314                                    | 12,995                                | 0.0032         | 0.9968        | 82.70                            |
| 35.5                           | 3,998,319                                    | 9,265                                 | 0.0023         | 0.9977        | 82.43                            |
| 36.5                           | 3,706,075                                    | 12,286                                | 0.0033         | 0.9967        | 82.24                            |
| 37.5                           | 3,570,235                                    | 94,422                                | 0.0264         | 0.9736        | 81.97                            |
| 38.5                           | 3,475,813                                    | 16,317                                | 0.0047         | 0.9953        | 79.80                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 344 GENERATORS

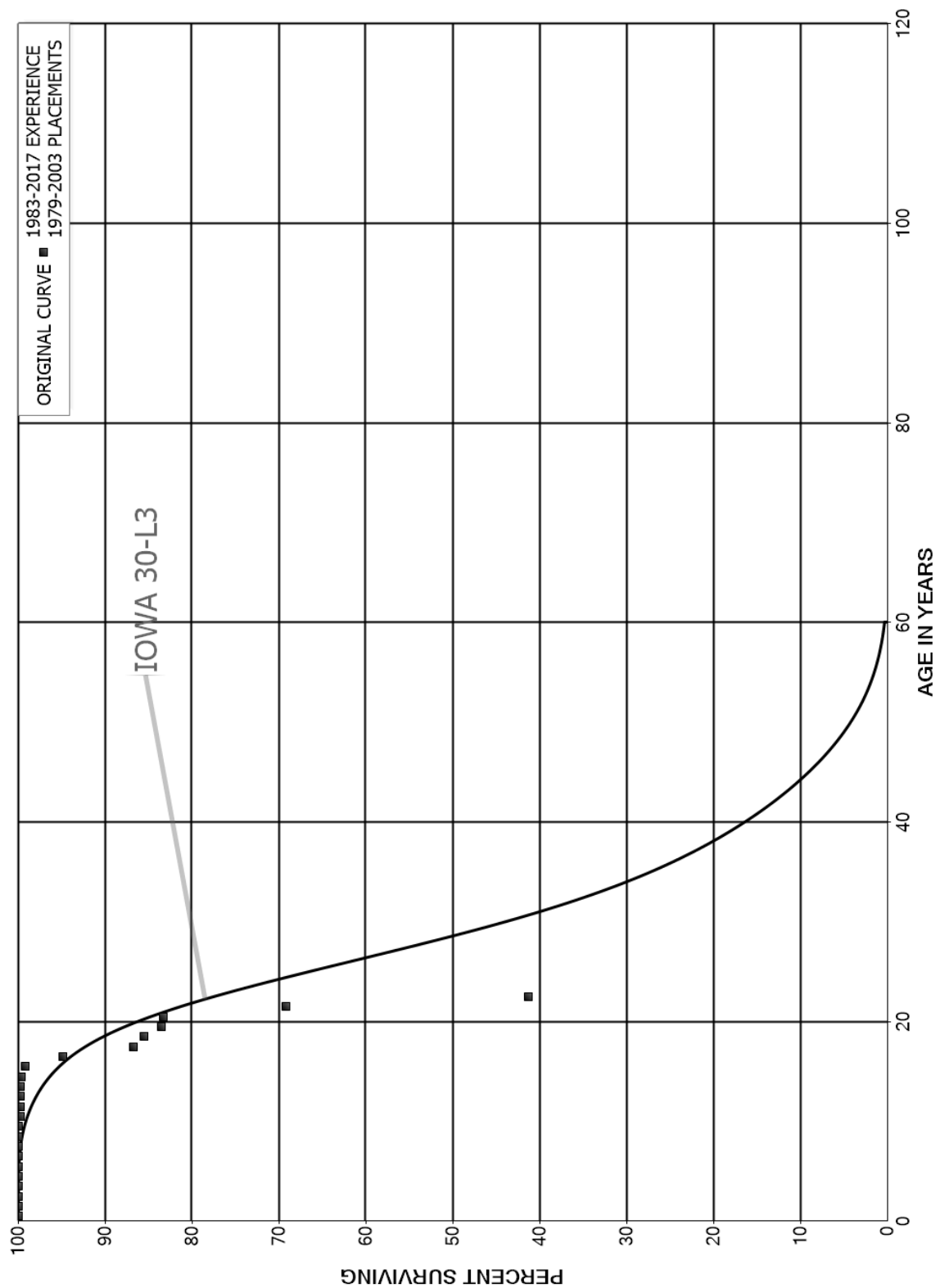
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2017

EXPERIENCE BAND 1975-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 3,459,496                                    | 91,834                                | 0.0265         | 0.9735        | 79.42                            |
| 40.5                           | 3,272,528                                    | 135,308                               | 0.0413         | 0.9587        | 77.31                            |
| 41.5                           | 3,136,732                                    | 31,876                                | 0.0102         | 0.9898        | 74.12                            |
| 42.5                           | 3,002,159                                    | 137,326                               | 0.0457         | 0.9543        | 73.36                            |
| 43.5                           | 2,838,541                                    | 12,361                                | 0.0044         | 0.9956        | 70.01                            |
| 44.5                           | 1,155,547                                    | 29,015                                | 0.0251         | 0.9749        | 69.70                            |
| 45.5                           | 1,069,622                                    | 2,693                                 | 0.0025         | 0.9975        | 67.95                            |
| 46.5                           |                                              |                                       |                |               | 67.78                            |

MARITIME ELECTRIC COMPANY  
ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT  
ORIGINAL AND SMOOTH SURVIVOR CURVES





## MARITIME ELECTRIC COMPANY

## ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

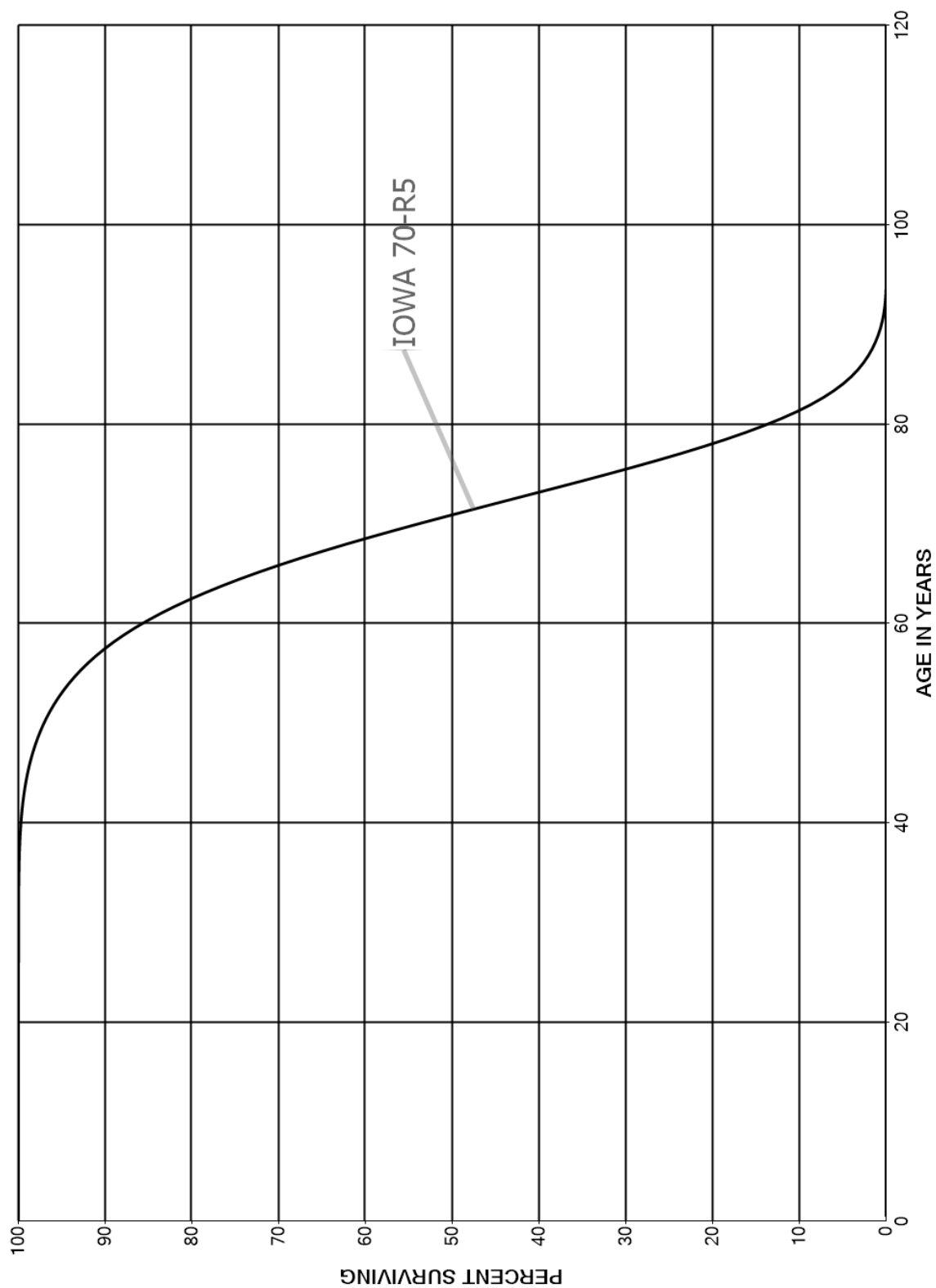
## ORIGINAL LIFE TABLE

PLACEMENT BAND 1979-2003

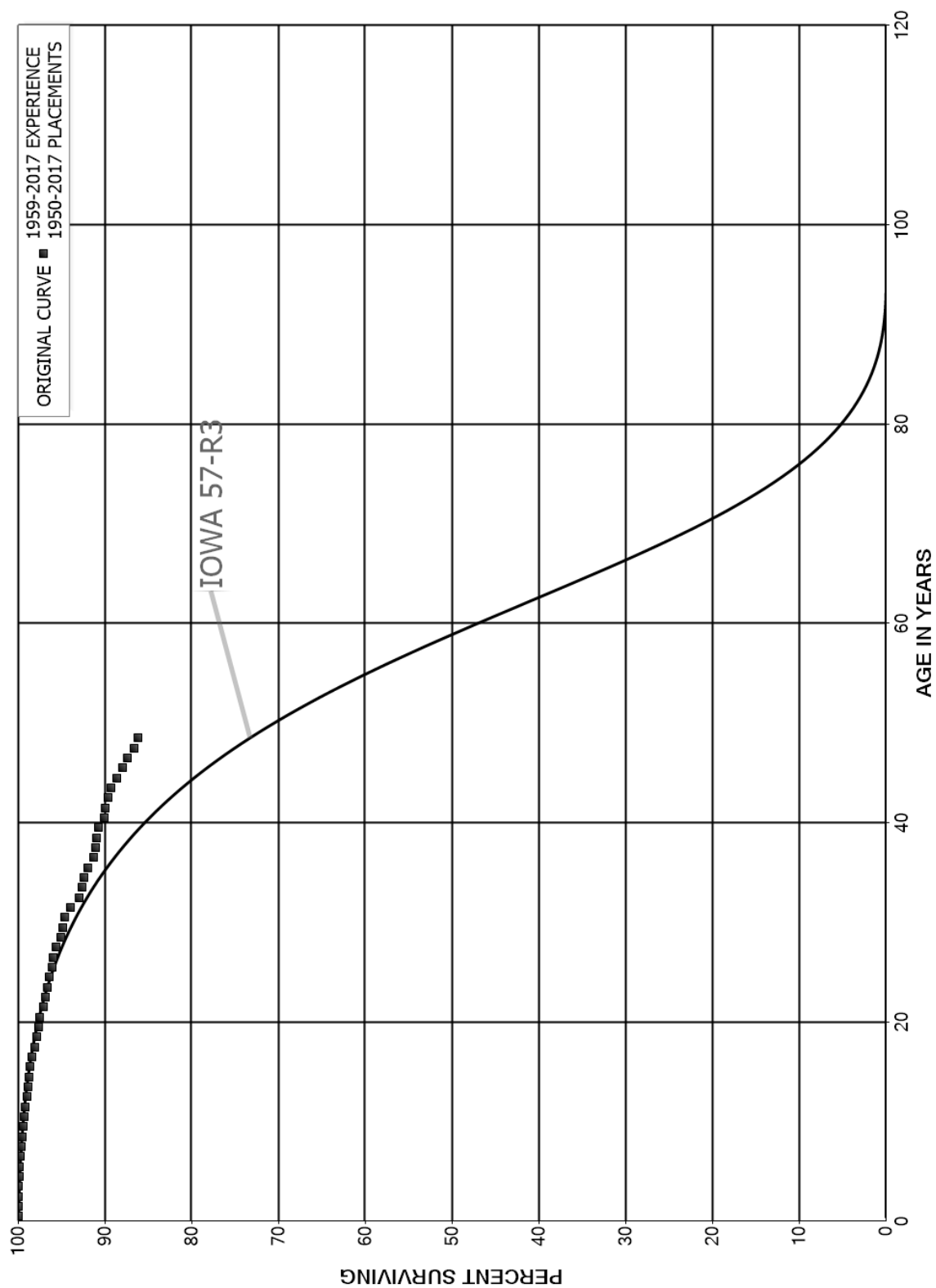
EXPERIENCE BAND 1983-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 327,106                                      | 0                                     | 0.0000         | 1.0000        | 100.00                           |
| 0.5                            | 327,331                                      |                                       | 0.0000         | 1.0000        | 100.00                           |
| 1.5                            | 327,331                                      |                                       | 0.0000         | 1.0000        | 100.00                           |
| 2.5                            | 345,340                                      | 25                                    | 0.0001         | 0.9999        | 100.00                           |
| 3.5                            | 346,562                                      | 8                                     | 0.0000         | 1.0000        | 99.99                            |
| 4.5                            | 346,554                                      |                                       | 0.0000         | 1.0000        | 99.99                            |
| 5.5                            | 346,554                                      | 1                                     | 0.0000         | 1.0000        | 99.99                            |
| 6.5                            | 346,553                                      | 9                                     | 0.0000         | 1.0000        | 99.99                            |
| 7.5                            | 346,544                                      |                                       | 0.0000         | 1.0000        | 99.99                            |
| 8.5                            | 346,544                                      | 261                                   | 0.0008         | 0.9992        | 99.99                            |
| 9.5                            | 346,283                                      | 573                                   | 0.0017         | 0.9983        | 99.91                            |
| 10.5                           | 345,709                                      | 1                                     | 0.0000         | 1.0000        | 99.75                            |
| 11.5                           | 345,708                                      | 36                                    | 0.0001         | 0.9999        | 99.75                            |
| 12.5                           | 345,672                                      | 221                                   | 0.0006         | 0.9994        | 99.74                            |
| 13.5                           | 345,450                                      | 351                                   | 0.0010         | 0.9990        | 99.67                            |
| 14.5                           | 41,730                                       | 153                                   | 0.0037         | 0.9963        | 99.57                            |
| 15.5                           | 41,519                                       | 1,832                                 | 0.0441         | 0.9559        | 99.21                            |
| 16.5                           | 39,687                                       | 3,409                                 | 0.0859         | 0.9141        | 94.83                            |
| 17.5                           | 36,278                                       | 508                                   | 0.0140         | 0.9860        | 86.68                            |
| 18.5                           | 35,770                                       | 823                                   | 0.0230         | 0.9770        | 85.47                            |
| 19.5                           | 34,564                                       | 95                                    | 0.0028         | 0.9972        | 83.50                            |
| 20.5                           | 34,469                                       | 5,825                                 | 0.1690         | 0.8310        | 83.27                            |
| 21.5                           | 28,644                                       | 11,577                                | 0.4042         | 0.5958        | 69.20                            |
| 22.5                           | 17,067                                       | 761                                   | 0.0446         | 0.9554        | 41.23                            |
| 23.5                           | 16,306                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 24.5                           | 16,306                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 25.5                           | 10,642                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 26.5                           | 10,642                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 27.5                           | 10,642                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 28.5                           | 10,401                                       |                                       | 0.0000         | 1.0000        | 39.39                            |
| 29.5                           | 8,918                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 30.5                           | 8,918                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 31.5                           | 8,918                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 32.5                           | 2,009                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 33.5                           | 1,904                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 34.5                           | 1,003                                        |                                       | 0.0000         | 1.0000        | 39.39                            |
| 35.5                           | 929                                          |                                       | 0.0000         | 1.0000        | 39.39                            |
| 36.5                           | 929                                          |                                       | 0.0000         | 1.0000        | 39.39                            |
| 37.5                           |                                              |                                       |                |               | 39.39                            |

MARITIME ELECTRIC COMPANY  
ACCOUNT 350.2 RIGHTS OF WAY AND EASEMENTS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 353 SUBSTATION EQUIPMENT  
ORIGINAL AND SMOOTH SURVIVOR CURVES



MARITIME ELECTRIC COMPANY  
ACCOUNT 353 SUBSTATION EQUIPMENT  
ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2017

EXPERIENCE BAND 1959-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 51,663,938                                   | 4,277                                 | 0.0001         | 0.9999        | 100.00                           |
| 0.5                            | 47,266,450                                   | 7,419                                 | 0.0002         | 0.9998        | 99.99                            |
| 1.5                            | 44,405,579                                   | 9,222                                 | 0.0002         | 0.9998        | 99.98                            |
| 2.5                            | 40,906,837                                   | 13,444                                | 0.0003         | 0.9997        | 99.96                            |
| 3.5                            | 37,644,104                                   | 19,917                                | 0.0005         | 0.9995        | 99.92                            |
| 4.5                            | 33,608,466                                   | 22,651                                | 0.0007         | 0.9993        | 99.87                            |
| 5.5                            | 32,320,077                                   | 21,847                                | 0.0007         | 0.9993        | 99.80                            |
| 6.5                            | 31,120,812                                   | 29,315                                | 0.0009         | 0.9991        | 99.73                            |
| 7.5                            | 29,674,670                                   | 29,688                                | 0.0010         | 0.9990        | 99.64                            |
| 8.5                            | 29,108,055                                   | 36,886                                | 0.0013         | 0.9987        | 99.54                            |
| 9.5                            | 28,002,109                                   | 42,497                                | 0.0015         | 0.9985        | 99.42                            |
| 10.5                           | 26,271,197                                   | 27,069                                | 0.0010         | 0.9990        | 99.26                            |
| 11.5                           | 25,256,219                                   | 39,786                                | 0.0016         | 0.9984        | 99.16                            |
| 12.5                           | 24,856,631                                   | 37,076                                | 0.0015         | 0.9985        | 99.01                            |
| 13.5                           | 22,283,082                                   | 40,582                                | 0.0018         | 0.9982        | 98.86                            |
| 14.5                           | 21,831,887                                   | 22,556                                | 0.0010         | 0.9990        | 98.68                            |
| 15.5                           | 21,032,182                                   | 37,740                                | 0.0018         | 0.9982        | 98.58                            |
| 16.5                           | 18,835,106                                   | 62,672                                | 0.0033         | 0.9967        | 98.40                            |
| 17.5                           | 18,328,507                                   | 42,477                                | 0.0023         | 0.9977        | 98.07                            |
| 18.5                           | 18,121,033                                   | 35,386                                | 0.0020         | 0.9980        | 97.84                            |
| 19.5                           | 17,531,788                                   | 25,553                                | 0.0015         | 0.9985        | 97.65                            |
| 20.5                           | 17,425,658                                   | 79,602                                | 0.0046         | 0.9954        | 97.51                            |
| 21.5                           | 17,306,347                                   | 47,048                                | 0.0027         | 0.9973        | 97.07                            |
| 22.5                           | 16,824,054                                   | 38,068                                | 0.0023         | 0.9977        | 96.80                            |
| 23.5                           | 16,240,988                                   | 30,690                                | 0.0019         | 0.9981        | 96.58                            |
| 24.5                           | 16,129,832                                   | 50,743                                | 0.0031         | 0.9969        | 96.40                            |
| 25.5                           | 15,826,700                                   | 32,368                                | 0.0020         | 0.9980        | 96.10                            |
| 26.5                           | 11,439,505                                   | 29,441                                | 0.0026         | 0.9974        | 95.90                            |
| 27.5                           | 11,101,718                                   | 63,484                                | 0.0057         | 0.9943        | 95.65                            |
| 28.5                           | 10,847,125                                   | 30,956                                | 0.0029         | 0.9971        | 95.11                            |
| 29.5                           | 10,789,467                                   | 27,487                                | 0.0025         | 0.9975        | 94.84                            |
| 30.5                           | 8,252,180                                    | 53,932                                | 0.0065         | 0.9935        | 94.59                            |
| 31.5                           | 8,137,110                                    | 84,611                                | 0.0104         | 0.9896        | 93.98                            |
| 32.5                           | 8,045,376                                    | 33,775                                | 0.0042         | 0.9958        | 93.00                            |
| 33.5                           | 7,987,725                                    | 20,960                                | 0.0026         | 0.9974        | 92.61                            |
| 34.5                           | 7,905,132                                    | 37,001                                | 0.0047         | 0.9953        | 92.36                            |
| 35.5                           | 7,484,257                                    | 52,634                                | 0.0070         | 0.9930        | 91.93                            |
| 36.5                           | 7,100,528                                    | 16,546                                | 0.0023         | 0.9977        | 91.29                            |
| 37.5                           | 5,394,312                                    | 9,048                                 | 0.0017         | 0.9983        | 91.07                            |
| 38.5                           | 5,242,112                                    | 9,903                                 | 0.0019         | 0.9981        | 90.92                            |

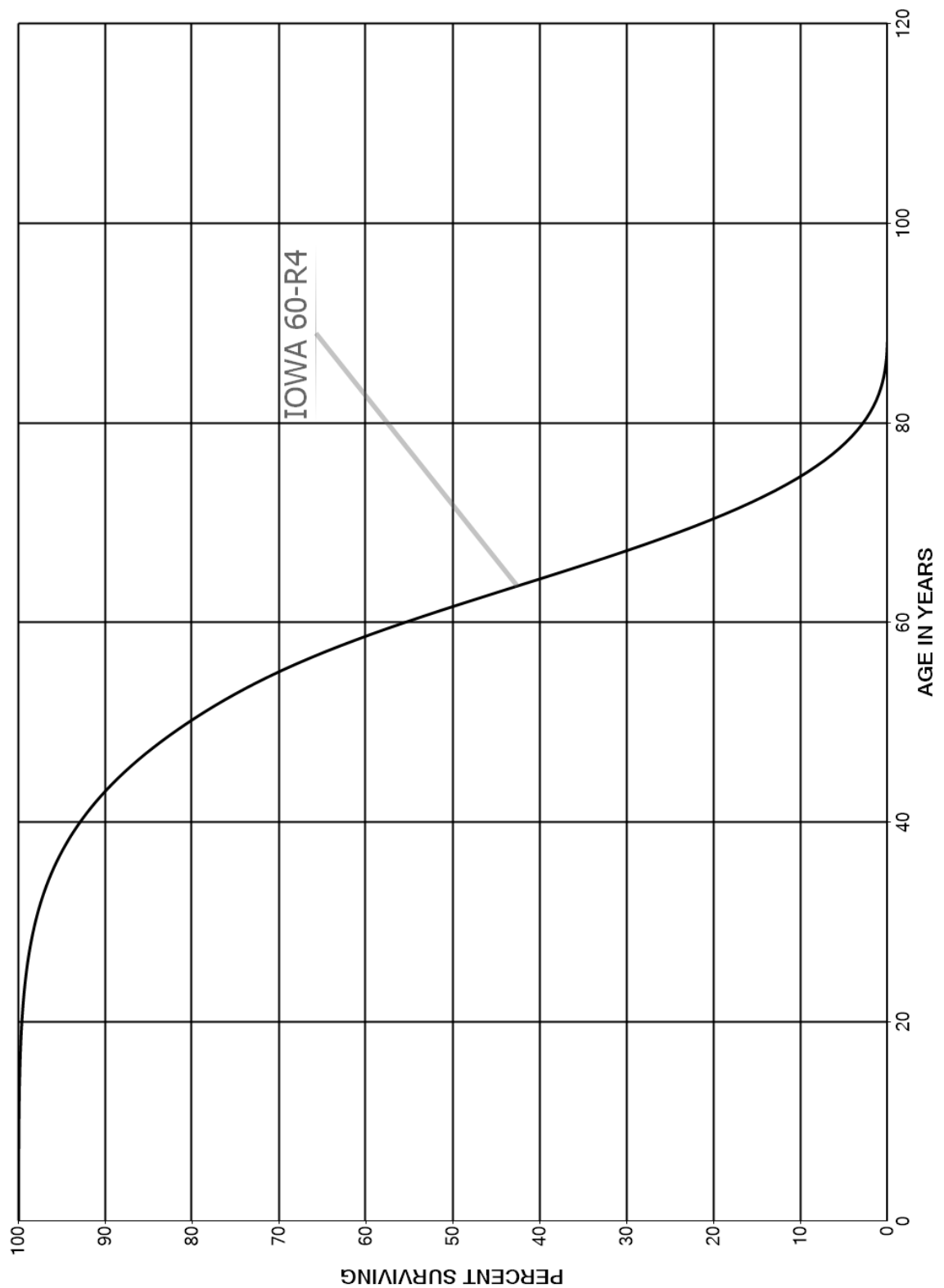
MARITIME ELECTRIC COMPANY  
ACCOUNT 353 SUBSTATION EQUIPMENT  
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2017

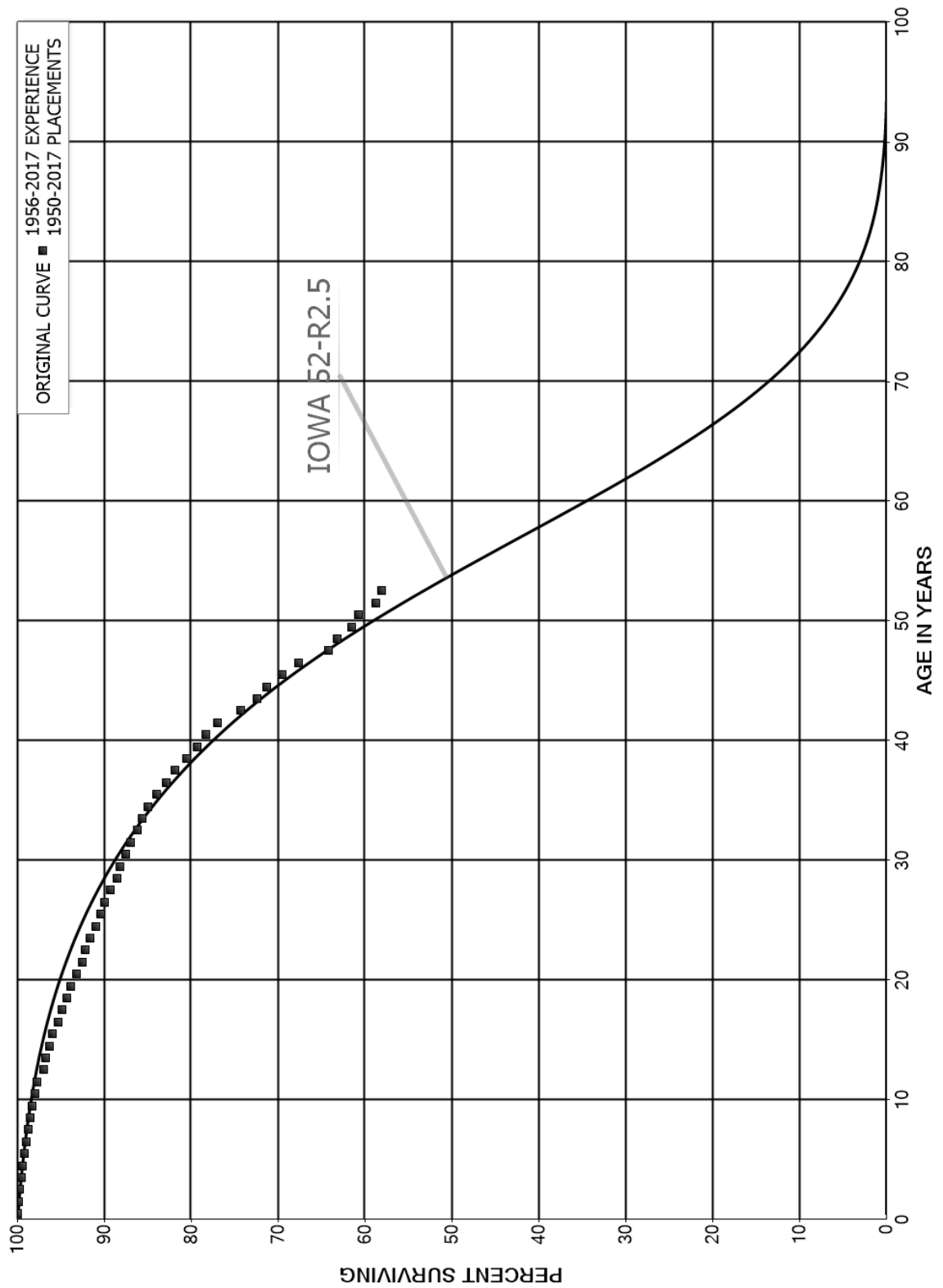
EXPERIENCE BAND 1959-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 4,960,768                                    | 36,077                                | 0.0073         | 0.9927        | 90.75                            |
| 40.5                           | 3,860,217                                    | 7,114                                 | 0.0018         | 0.9982        | 90.09                            |
| 41.5                           | 2,128,279                                    | 7,494                                 | 0.0035         | 0.9965        | 89.92                            |
| 42.5                           | 1,897,527                                    | 7,351                                 | 0.0039         | 0.9961        | 89.61                            |
| 43.5                           | 1,720,880                                    | 13,072                                | 0.0076         | 0.9924        | 89.26                            |
| 44.5                           | 1,297,232                                    | 8,774                                 | 0.0068         | 0.9932        | 88.58                            |
| 45.5                           | 677,683                                      | 4,208                                 | 0.0062         | 0.9938        | 87.98                            |
| 46.5                           | 605,647                                      | 5,811                                 | 0.0096         | 0.9904        | 87.44                            |
| 47.5                           | 596,783                                      | 2,925                                 | 0.0049         | 0.9951        | 86.60                            |
| 48.5                           | 557,937                                      | 3,812                                 | 0.0068         | 0.9932        | 86.17                            |
| 49.5                           | 284,374                                      | 3,176                                 | 0.0112         | 0.9888        | 85.58                            |
| 50.5                           | 251,547                                      | 980                                   | 0.0039         | 0.9961        | 84.63                            |
| 51.5                           | 220,243                                      | 127                                   | 0.0006         | 0.9994        | 84.30                            |
| 52.5                           | 189,512                                      | 158                                   | 0.0008         | 0.9992        | 84.25                            |
| 53.5                           | 121,629                                      | 78                                    | 0.0006         | 0.9994        | 84.18                            |
| 54.5                           | 75,845                                       | 26                                    | 0.0003         | 0.9997        | 84.12                            |
| 55.5                           | 58,920                                       | 43                                    | 0.0007         | 0.9993        | 84.10                            |
| 56.5                           | 34,269                                       |                                       | 0.0000         | 1.0000        | 84.03                            |
| 57.5                           | 24,532                                       |                                       | 0.0000         | 1.0000        | 84.03                            |
| 58.5                           | 12,252                                       |                                       | 0.0000         | 1.0000        | 84.03                            |
| 59.5                           | 1,824                                        |                                       | 0.0000         | 1.0000        | 84.03                            |
| 60.5                           |                                              |                                       |                |               | 84.03                            |

MARITIME ELECTRIC COMPANY  
ACCOUNT 354 TOWERS AND FIXTURES  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 355 POLES AND FIXTURES  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 355 POLES AND FIXTURES

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1950-2017

## EXPERIENCE BAND 1956-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 24,144,560                                   | 16,485                                | 0.0007         | 0.9993        | 100.00                           |
| 0.5                            | 22,279,377                                   | 26,296                                | 0.0012         | 0.9988        | 99.93                            |
| 1.5                            | 20,848,377                                   | 28,424                                | 0.0014         | 0.9986        | 99.81                            |
| 2.5                            | 19,101,867                                   | 32,701                                | 0.0017         | 0.9983        | 99.68                            |
| 3.5                            | 17,240,322                                   | 26,333                                | 0.0015         | 0.9985        | 99.51                            |
| 4.5                            | 16,636,877                                   | 23,576                                | 0.0014         | 0.9986        | 99.36                            |
| 5.5                            | 16,388,617                                   | 39,457                                | 0.0024         | 0.9976        | 99.21                            |
| 6.5                            | 15,814,992                                   | 31,430                                | 0.0020         | 0.9980        | 98.98                            |
| 7.5                            | 15,037,510                                   | 46,753                                | 0.0031         | 0.9969        | 98.78                            |
| 8.5                            | 13,501,628                                   | 30,153                                | 0.0022         | 0.9978        | 98.47                            |
| 9.5                            | 10,261,295                                   | 37,412                                | 0.0036         | 0.9964        | 98.25                            |
| 10.5                           | 9,821,239                                    | 20,228                                | 0.0021         | 0.9979        | 97.89                            |
| 11.5                           | 8,651,160                                    | 67,413                                | 0.0078         | 0.9922        | 97.69                            |
| 12.5                           | 8,351,290                                    | 19,169                                | 0.0023         | 0.9977        | 96.93                            |
| 13.5                           | 7,932,351                                    | 35,416                                | 0.0045         | 0.9955        | 96.71                            |
| 14.5                           | 7,480,039                                    | 23,600                                | 0.0032         | 0.9968        | 96.28                            |
| 15.5                           | 7,174,896                                    | 51,255                                | 0.0071         | 0.9929        | 95.97                            |
| 16.5                           | 6,965,877                                    | 32,922                                | 0.0047         | 0.9953        | 95.29                            |
| 17.5                           | 6,874,530                                    | 40,064                                | 0.0058         | 0.9942        | 94.84                            |
| 18.5                           | 6,368,670                                    | 29,907                                | 0.0047         | 0.9953        | 94.28                            |
| 19.5                           | 6,227,876                                    | 43,271                                | 0.0069         | 0.9931        | 93.84                            |
| 20.5                           | 6,085,053                                    | 44,126                                | 0.0073         | 0.9927        | 93.19                            |
| 21.5                           | 5,810,882                                    | 22,446                                | 0.0039         | 0.9961        | 92.51                            |
| 22.5                           | 5,754,971                                    | 35,566                                | 0.0062         | 0.9938        | 92.16                            |
| 23.5                           | 5,533,710                                    | 35,714                                | 0.0065         | 0.9935        | 91.59                            |
| 24.5                           | 5,449,497                                    | 37,313                                | 0.0068         | 0.9932        | 91.00                            |
| 25.5                           | 5,365,800                                    | 21,751                                | 0.0041         | 0.9959        | 90.37                            |
| 26.5                           | 4,384,131                                    | 35,346                                | 0.0081         | 0.9919        | 90.01                            |
| 27.5                           | 4,325,827                                    | 36,573                                | 0.0085         | 0.9915        | 89.28                            |
| 28.5                           | 3,656,951                                    | 15,712                                | 0.0043         | 0.9957        | 88.53                            |
| 29.5                           | 3,633,465                                    | 24,159                                | 0.0066         | 0.9934        | 88.15                            |
| 30.5                           | 2,632,352                                    | 18,315                                | 0.0070         | 0.9930        | 87.56                            |
| 31.5                           | 2,334,212                                    | 21,238                                | 0.0091         | 0.9909        | 86.95                            |
| 32.5                           | 2,308,172                                    | 14,655                                | 0.0063         | 0.9937        | 86.16                            |
| 33.5                           | 1,996,180                                    | 15,646                                | 0.0078         | 0.9922        | 85.61                            |
| 34.5                           | 1,608,488                                    | 19,168                                | 0.0119         | 0.9881        | 84.94                            |
| 35.5                           | 1,562,965                                    | 21,282                                | 0.0136         | 0.9864        | 83.93                            |
| 36.5                           | 1,523,231                                    | 17,400                                | 0.0114         | 0.9886        | 82.79                            |
| 37.5                           | 946,194                                      | 15,053                                | 0.0159         | 0.9841        | 81.84                            |
| 38.5                           | 926,274                                      | 14,366                                | 0.0155         | 0.9845        | 80.54                            |



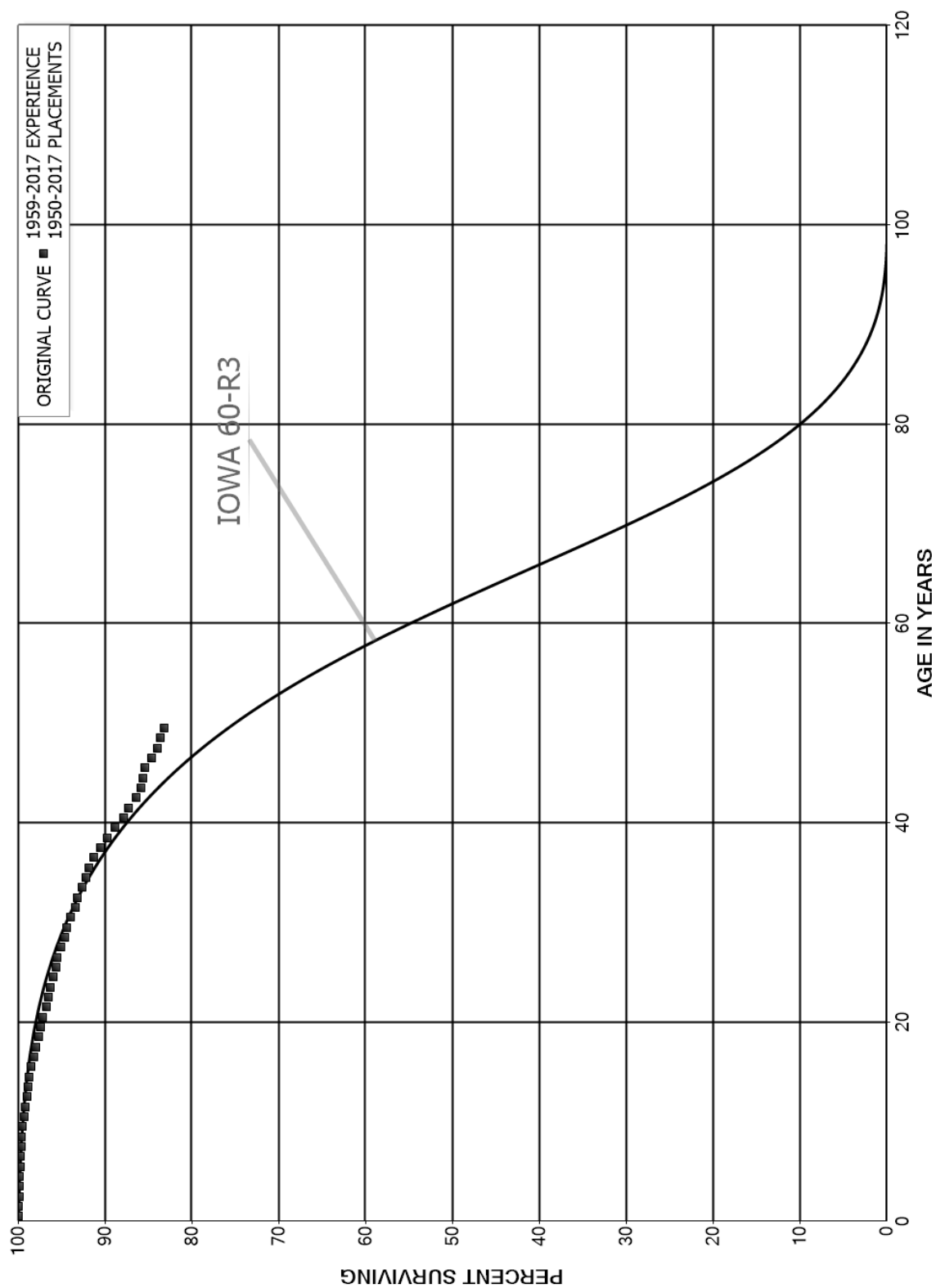
MARITIME ELECTRIC COMPANY  
ACCOUNT 355 POLES AND FIXTURES  
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2017

EXPERIENCE BAND 1956-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 893,382                                      | 11,443                                | 0.0128         | 0.9872        | 79.29                            |
| 40.5                           | 844,655                                      | 14,651                                | 0.0173         | 0.9827        | 78.27                            |
| 41.5                           | 787,491                                      | 26,655                                | 0.0338         | 0.9662        | 76.92                            |
| 42.5                           | 749,055                                      | 19,751                                | 0.0264         | 0.9736        | 74.31                            |
| 43.5                           | 725,197                                      | 10,522                                | 0.0145         | 0.9855        | 72.35                            |
| 44.5                           | 655,836                                      | 16,327                                | 0.0249         | 0.9751        | 71.30                            |
| 45.5                           | 587,700                                      | 16,251                                | 0.0277         | 0.9723        | 69.53                            |
| 46.5                           | 425,156                                      | 21,870                                | 0.0514         | 0.9486        | 67.61                            |
| 47.5                           | 402,900                                      | 6,284                                 | 0.0156         | 0.9844        | 64.13                            |
| 48.5                           | 393,848                                      | 10,124                                | 0.0257         | 0.9743        | 63.13                            |
| 49.5                           | 339,092                                      | 4,157                                 | 0.0123         | 0.9877        | 61.50                            |
| 50.5                           | 333,407                                      | 11,081                                | 0.0332         | 0.9668        | 60.75                            |
| 51.5                           | 296,311                                      | 3,445                                 | 0.0116         | 0.9884        | 58.73                            |
| 52.5                           | 219,619                                      | 1,448                                 | 0.0066         | 0.9934        | 58.05                            |
| 53.5                           | 196,778                                      | 1,641                                 | 0.0083         | 0.9917        | 57.67                            |
| 54.5                           | 192,829                                      | 2,985                                 | 0.0155         | 0.9845        | 57.19                            |
| 55.5                           | 163,876                                      | 1,068                                 | 0.0065         | 0.9935        | 56.30                            |
| 56.5                           | 97,884                                       | 714                                   | 0.0073         | 0.9927        | 55.93                            |
| 57.5                           | 68,216                                       | 131                                   | 0.0019         | 0.9981        | 55.52                            |
| 58.5                           | 55,509                                       | 798                                   | 0.0144         | 0.9856        | 55.42                            |
| 59.5                           | 32,125                                       | 62                                    | 0.0019         | 0.9981        | 54.62                            |
| 60.5                           | 30,884                                       | 115                                   | 0.0037         | 0.9963        | 54.52                            |
| 61.5                           | 4,795                                        | 9                                     | 0.0020         | 0.9980        | 54.31                            |
| 62.5                           | 3,918                                        | 130                                   | 0.0331         | 0.9669        | 54.21                            |
| 63.5                           | 3,341                                        | 4                                     | 0.0012         | 0.9988        | 52.41                            |
| 64.5                           | 3,304                                        | 14                                    | 0.0041         | 0.9959        | 52.35                            |
| 65.5                           |                                              |                                       |                |               | 52.13                            |

MARITIME ELECTRIC COMPANY  
ACCOUNT 356 OVERHEAD CONDUCTORS AND DEVICES  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 356 OVERHEAD CONDUCTORS AND DEVICES

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1950-2017

## EXPERIENCE BAND 1959-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 46,296,231                                   | 11,622                                | 0.0003         | 0.9997        | 100.00                           |
| 0.5                            | 41,934,829                                   | 14,512                                | 0.0003         | 0.9997        | 99.97                            |
| 1.5                            | 37,439,783                                   | 19,329                                | 0.0005         | 0.9995        | 99.94                            |
| 2.5                            | 34,176,593                                   | 18,270                                | 0.0005         | 0.9995        | 99.89                            |
| 3.5                            | 31,713,102                                   | 11,939                                | 0.0004         | 0.9996        | 99.84                            |
| 4.5                            | 30,200,159                                   | 14,238                                | 0.0005         | 0.9995        | 99.80                            |
| 5.5                            | 29,698,732                                   | 17,654                                | 0.0006         | 0.9994        | 99.75                            |
| 6.5                            | 28,581,481                                   | 16,382                                | 0.0006         | 0.9994        | 99.69                            |
| 7.5                            | 27,431,426                                   | 17,576                                | 0.0006         | 0.9994        | 99.63                            |
| 8.5                            | 23,747,728                                   | 26,388                                | 0.0011         | 0.9989        | 99.57                            |
| 9.5                            | 18,405,032                                   | 24,821                                | 0.0013         | 0.9987        | 99.46                            |
| 10.5                           | 16,169,731                                   | 16,735                                | 0.0010         | 0.9990        | 99.33                            |
| 11.5                           | 13,099,235                                   | 33,370                                | 0.0025         | 0.9975        | 99.22                            |
| 12.5                           | 12,462,923                                   | 11,949                                | 0.0010         | 0.9990        | 98.97                            |
| 13.5                           | 11,701,744                                   | 18,566                                | 0.0016         | 0.9984        | 98.88                            |
| 14.5                           | 10,843,370                                   | 23,557                                | 0.0022         | 0.9978        | 98.72                            |
| 15.5                           | 10,323,148                                   | 31,235                                | 0.0030         | 0.9970        | 98.50                            |
| 16.5                           | 10,088,483                                   | 20,934                                | 0.0021         | 0.9979        | 98.21                            |
| 17.5                           | 9,976,084                                    | 44,134                                | 0.0044         | 0.9956        | 98.00                            |
| 18.5                           | 9,323,745                                    | 19,849                                | 0.0021         | 0.9979        | 97.57                            |
| 19.5                           | 9,078,795                                    | 18,456                                | 0.0020         | 0.9980        | 97.36                            |
| 20.5                           | 8,883,340                                    | 38,119                                | 0.0043         | 0.9957        | 97.16                            |
| 21.5                           | 8,623,720                                    | 16,990                                | 0.0020         | 0.9980        | 96.75                            |
| 22.5                           | 8,363,809                                    | 20,907                                | 0.0025         | 0.9975        | 96.56                            |
| 23.5                           | 8,082,277                                    | 30,593                                | 0.0038         | 0.9962        | 96.31                            |
| 24.5                           | 8,007,390                                    | 25,058                                | 0.0031         | 0.9969        | 95.95                            |
| 25.5                           | 7,966,724                                    | 13,283                                | 0.0017         | 0.9983        | 95.65                            |
| 26.5                           | 7,057,875                                    | 29,796                                | 0.0042         | 0.9958        | 95.49                            |
| 27.5                           | 7,025,806                                    | 33,995                                | 0.0048         | 0.9952        | 95.09                            |
| 28.5                           | 4,937,159                                    | 12,748                                | 0.0026         | 0.9974        | 94.63                            |
| 29.5                           | 4,916,096                                    | 20,189                                | 0.0041         | 0.9959        | 94.38                            |
| 30.5                           | 3,372,843                                    | 21,744                                | 0.0064         | 0.9936        | 93.99                            |
| 31.5                           | 3,187,623                                    | 6,783                                 | 0.0021         | 0.9979        | 93.39                            |
| 32.5                           | 3,157,188                                    | 19,096                                | 0.0060         | 0.9940        | 93.19                            |
| 33.5                           | 2,401,825                                    | 11,418                                | 0.0048         | 0.9952        | 92.63                            |
| 34.5                           | 2,004,901                                    | 6,897                                 | 0.0034         | 0.9966        | 92.19                            |
| 35.5                           | 1,982,203                                    | 12,535                                | 0.0063         | 0.9937        | 91.87                            |
| 36.5                           | 1,960,157                                    | 16,887                                | 0.0086         | 0.9914        | 91.29                            |
| 37.5                           | 1,079,356                                    | 8,849                                 | 0.0082         | 0.9918        | 90.50                            |
| 38.5                           | 1,066,807                                    | 11,628                                | 0.0109         | 0.9891        | 89.76                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 356 OVERHEAD CONDUCTORS AND DEVICES

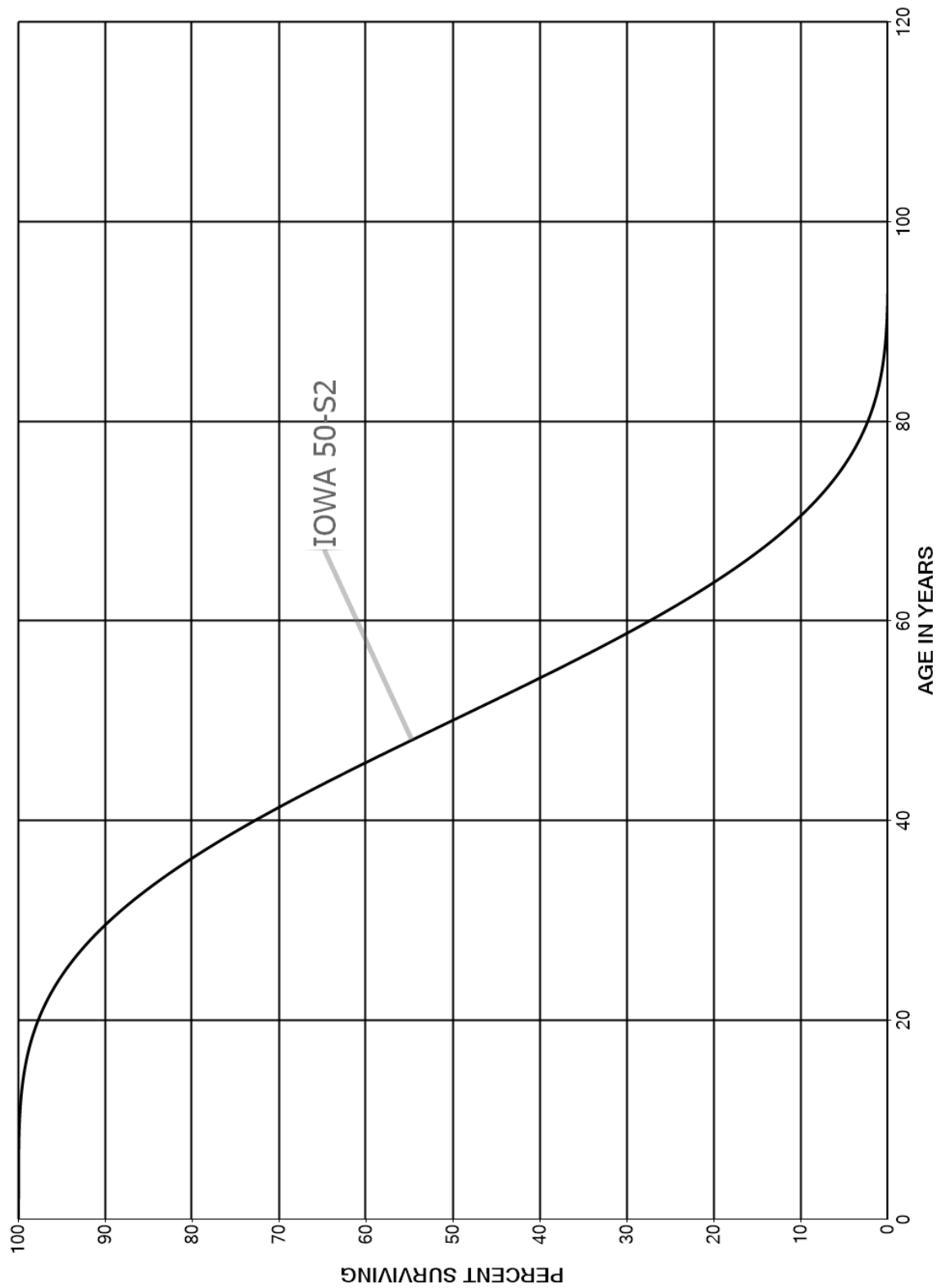
## ORIGINAL LIFE TABLE, CONT.

## PLACEMENT BAND 1950-2017

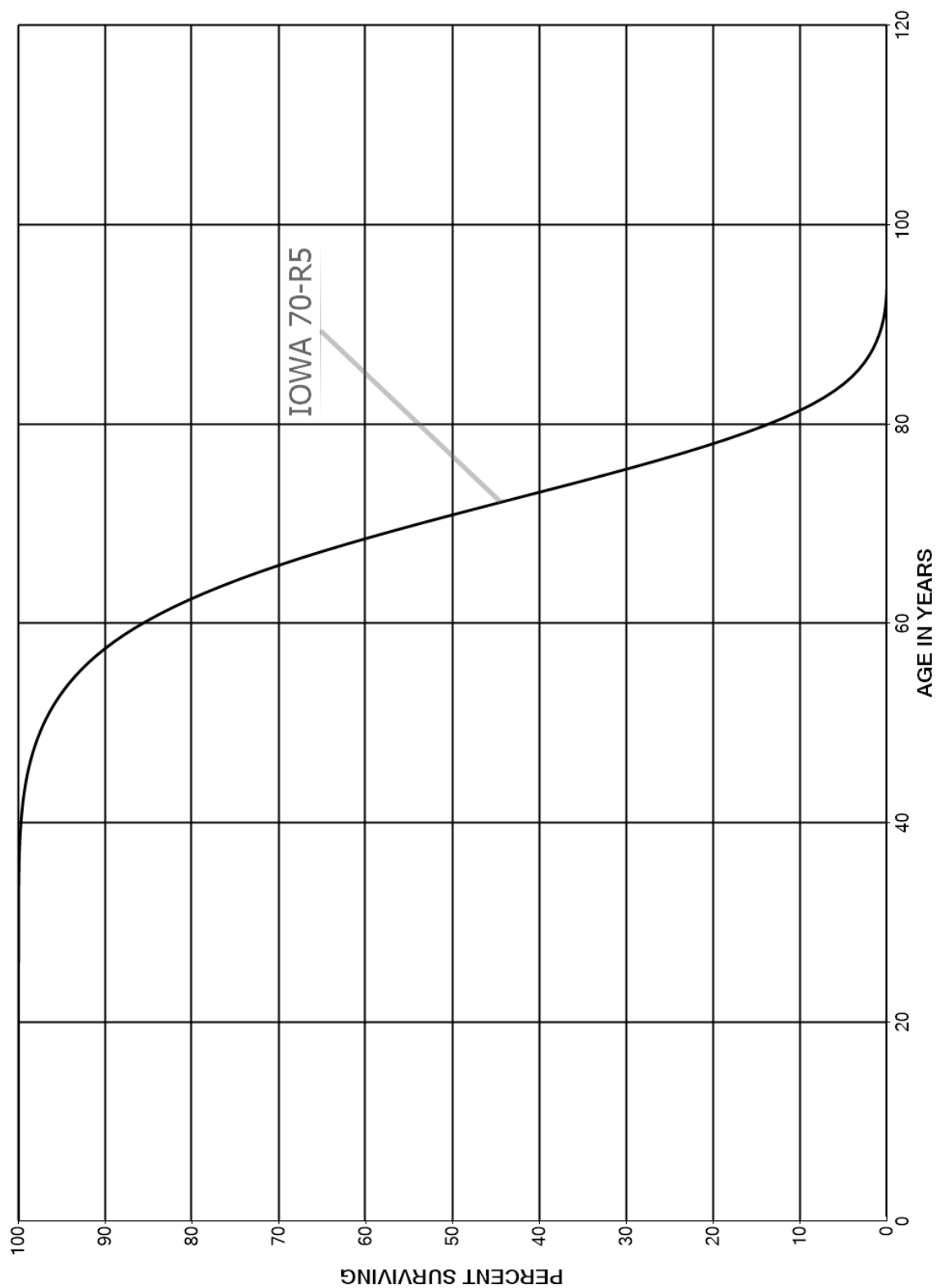
## EXPERIENCE BAND 1959-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 1,040,388                                    | 10,946                                | 0.0105         | 0.9895        | 88.78                            |
| 40.5                           | 988,731                                      | 6,903                                 | 0.0070         | 0.9930        | 87.85                            |
| 41.5                           | 930,499                                      | 8,548                                 | 0.0092         | 0.9908        | 87.23                            |
| 42.5                           | 915,717                                      | 6,610                                 | 0.0072         | 0.9928        | 86.43                            |
| 43.5                           | 903,881                                      | 1,476                                 | 0.0016         | 0.9984        | 85.81                            |
| 44.5                           | 828,849                                      | 3,097                                 | 0.0037         | 0.9963        | 85.67                            |
| 45.5                           | 728,626                                      | 6,705                                 | 0.0092         | 0.9908        | 85.35                            |
| 46.5                           | 578,952                                      | 4,413                                 | 0.0076         | 0.9924        | 84.56                            |
| 47.5                           | 574,381                                      | 2,193                                 | 0.0038         | 0.9962        | 83.92                            |
| 48.5                           | 567,816                                      | 3,068                                 | 0.0054         | 0.9946        | 83.60                            |
| 49.5                           | 391,387                                      | 908                                   | 0.0023         | 0.9977        | 83.15                            |
| 50.5                           | 386,336                                      | 1,375                                 | 0.0036         | 0.9964        | 82.95                            |
| 51.5                           | 338,939                                      | 618                                   | 0.0018         | 0.9982        | 82.66                            |
| 52.5                           | 236,929                                      | 122                                   | 0.0005         | 0.9995        | 82.51                            |
| 53.5                           | 209,703                                      | 48                                    | 0.0002         | 0.9998        | 82.46                            |
| 54.5                           | 199,623                                      | 773                                   | 0.0039         | 0.9961        | 82.45                            |
| 55.5                           | 175,634                                      | 265                                   | 0.0015         | 0.9985        | 82.13                            |
| 56.5                           | 96,748                                       | 18                                    | 0.0002         | 0.9998        | 82.00                            |
| 57.5                           | 67,488                                       | 6                                     | 0.0001         | 0.9999        | 81.99                            |
| 58.5                           | 47,577                                       | 17                                    | 0.0003         | 0.9997        | 81.98                            |
| 59.5                           | 23,369                                       | 2                                     | 0.0001         | 0.9999        | 81.95                            |
| 60.5                           | 21,978                                       | 96                                    | 0.0044         | 0.9956        | 81.94                            |
| 61.5                           | 7,026                                        | 3                                     | 0.0004         | 0.9996        | 81.59                            |
| 62.5                           | 6,077                                        | 3                                     | 0.0004         | 0.9996        | 81.56                            |
| 63.5                           | 6,074                                        | 2,100                                 | 0.3457         | 0.6543        | 81.52                            |
| 64.5                           | 3,974                                        |                                       | 0.0000         | 1.0000        | 53.34                            |
| 65.5                           |                                              |                                       |                |               | 53.34                            |

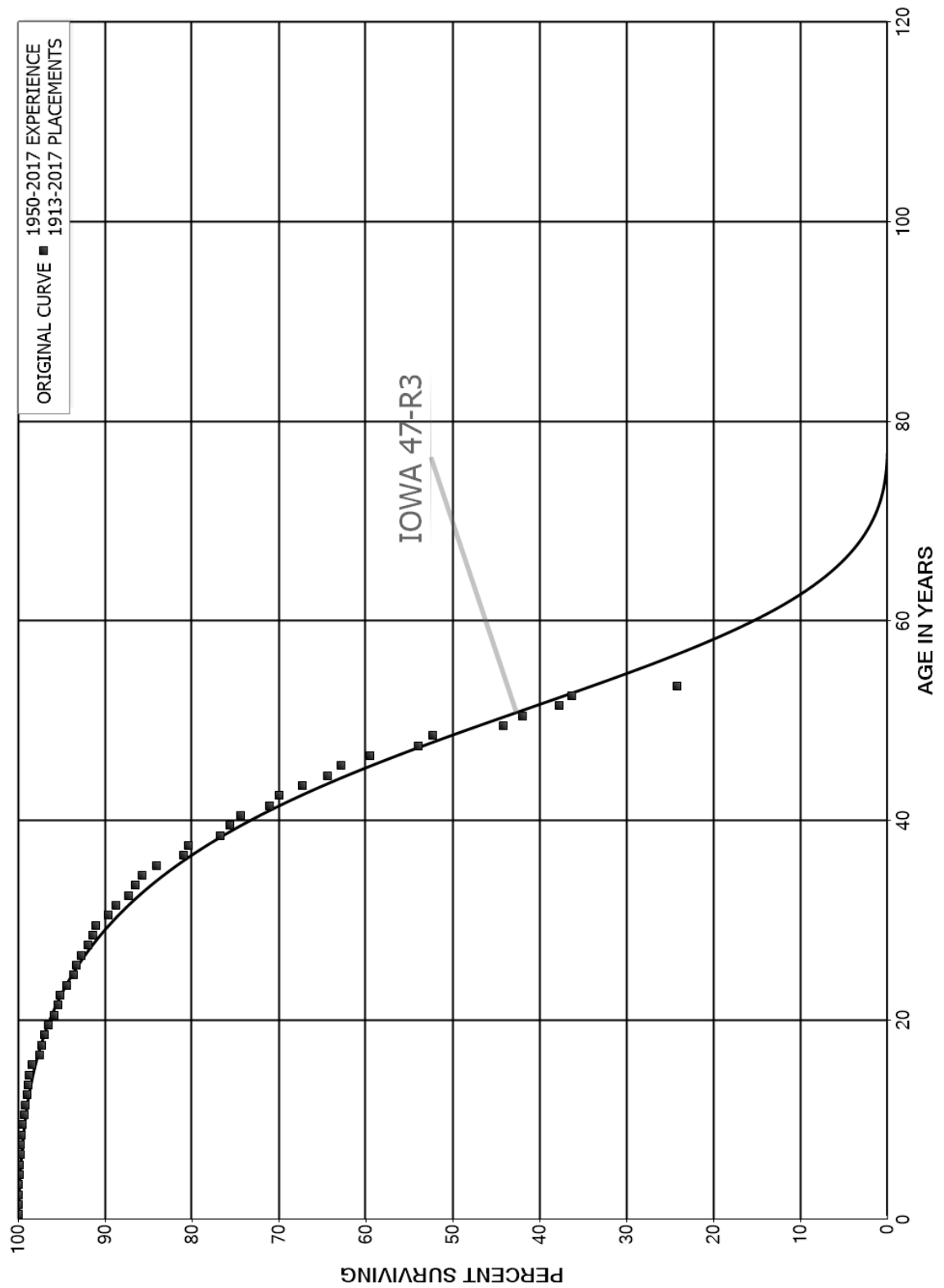
MARITIME ELECTRIC COMPANY  
ACCOUNT 359 ROADS AND TRAILS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 360.2 RIGHTS OF WAY AND EASEMENTS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 362 SUBSTATION EQUIPMENT  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 362 SUBSTATION EQUIPMENT

## ORIGINAL LIFE TABLE

PLACEMENT BAND 1913-2017

EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 3,645,186                                    | 278                                   | 0.0001         | 0.9999        | 100.00                           |
| 0.5                            | 3,501,906                                    | 444                                   | 0.0001         | 0.9999        | 99.99                            |
| 1.5                            | 3,332,988                                    | 852                                   | 0.0003         | 0.9997        | 99.98                            |
| 2.5                            | 3,232,607                                    | 888                                   | 0.0003         | 0.9997        | 99.95                            |
| 3.5                            | 3,127,835                                    | 1,647                                 | 0.0005         | 0.9995        | 99.93                            |
| 4.5                            | 2,945,937                                    | 1,398                                 | 0.0005         | 0.9995        | 99.87                            |
| 5.5                            | 2,865,312                                    | 1,936                                 | 0.0007         | 0.9993        | 99.83                            |
| 6.5                            | 2,760,376                                    | 1,068                                 | 0.0004         | 0.9996        | 99.76                            |
| 7.5                            | 2,720,835                                    | 3,355                                 | 0.0012         | 0.9988        | 99.72                            |
| 8.5                            | 2,611,597                                    | 2,302                                 | 0.0009         | 0.9991        | 99.60                            |
| 9.5                            | 2,574,938                                    | 5,234                                 | 0.0020         | 0.9980        | 99.51                            |
| 10.5                           | 2,479,726                                    | 4,139                                 | 0.0017         | 0.9983        | 99.31                            |
| 11.5                           | 2,411,431                                    | 4,656                                 | 0.0019         | 0.9981        | 99.14                            |
| 12.5                           | 1,935,176                                    | 2,485                                 | 0.0013         | 0.9987        | 98.95                            |
| 13.5                           | 1,628,012                                    | 2,125                                 | 0.0013         | 0.9987        | 98.82                            |
| 14.5                           | 1,391,405                                    | 4,110                                 | 0.0030         | 0.9970        | 98.69                            |
| 15.5                           | 1,129,235                                    | 9,975                                 | 0.0088         | 0.9912        | 98.40                            |
| 16.5                           | 1,109,613                                    | 2,967                                 | 0.0027         | 0.9973        | 97.53                            |
| 17.5                           | 1,093,062                                    | 3,451                                 | 0.0032         | 0.9968        | 97.27                            |
| 18.5                           | 1,068,436                                    | 4,892                                 | 0.0046         | 0.9954        | 96.97                            |
| 19.5                           | 1,024,996                                    | 7,048                                 | 0.0069         | 0.9931        | 96.52                            |
| 20.5                           | 979,869                                      | 4,991                                 | 0.0051         | 0.9949        | 95.86                            |
| 21.5                           | 962,747                                      | 2,204                                 | 0.0023         | 0.9977        | 95.37                            |
| 22.5                           | 960,544                                      | 7,883                                 | 0.0082         | 0.9918        | 95.15                            |
| 23.5                           | 952,661                                      | 7,551                                 | 0.0079         | 0.9921        | 94.37                            |
| 24.5                           | 945,111                                      | 3,191                                 | 0.0034         | 0.9966        | 93.62                            |
| 25.5                           | 938,190                                      | 6,339                                 | 0.0068         | 0.9932        | 93.31                            |
| 26.5                           | 933,139                                      | 7,448                                 | 0.0080         | 0.9920        | 92.68                            |
| 27.5                           | 916,826                                      | 5,552                                 | 0.0061         | 0.9939        | 91.94                            |
| 28.5                           | 911,275                                      | 3,509                                 | 0.0039         | 0.9961        | 91.38                            |
| 29.5                           | 907,580                                      | 14,090                                | 0.0155         | 0.9845        | 91.03                            |
| 30.5                           | 820,024                                      | 7,793                                 | 0.0095         | 0.9905        | 89.61                            |
| 31.5                           | 812,231                                      | 13,980                                | 0.0172         | 0.9828        | 88.76                            |
| 32.5                           | 783,751                                      | 6,262                                 | 0.0080         | 0.9920        | 87.24                            |
| 33.5                           | 771,022                                      | 7,582                                 | 0.0098         | 0.9902        | 86.54                            |
| 34.5                           | 656,046                                      | 12,332                                | 0.0188         | 0.9812        | 85.69                            |
| 35.5                           | 617,464                                      | 22,967                                | 0.0372         | 0.9628        | 84.08                            |
| 36.5                           | 521,332                                      | 3,271                                 | 0.0063         | 0.9937        | 80.95                            |
| 37.5                           | 513,224                                      | 23,411                                | 0.0456         | 0.9544        | 80.44                            |
| 38.5                           | 485,953                                      | 7,458                                 | 0.0153         | 0.9847        | 76.77                            |



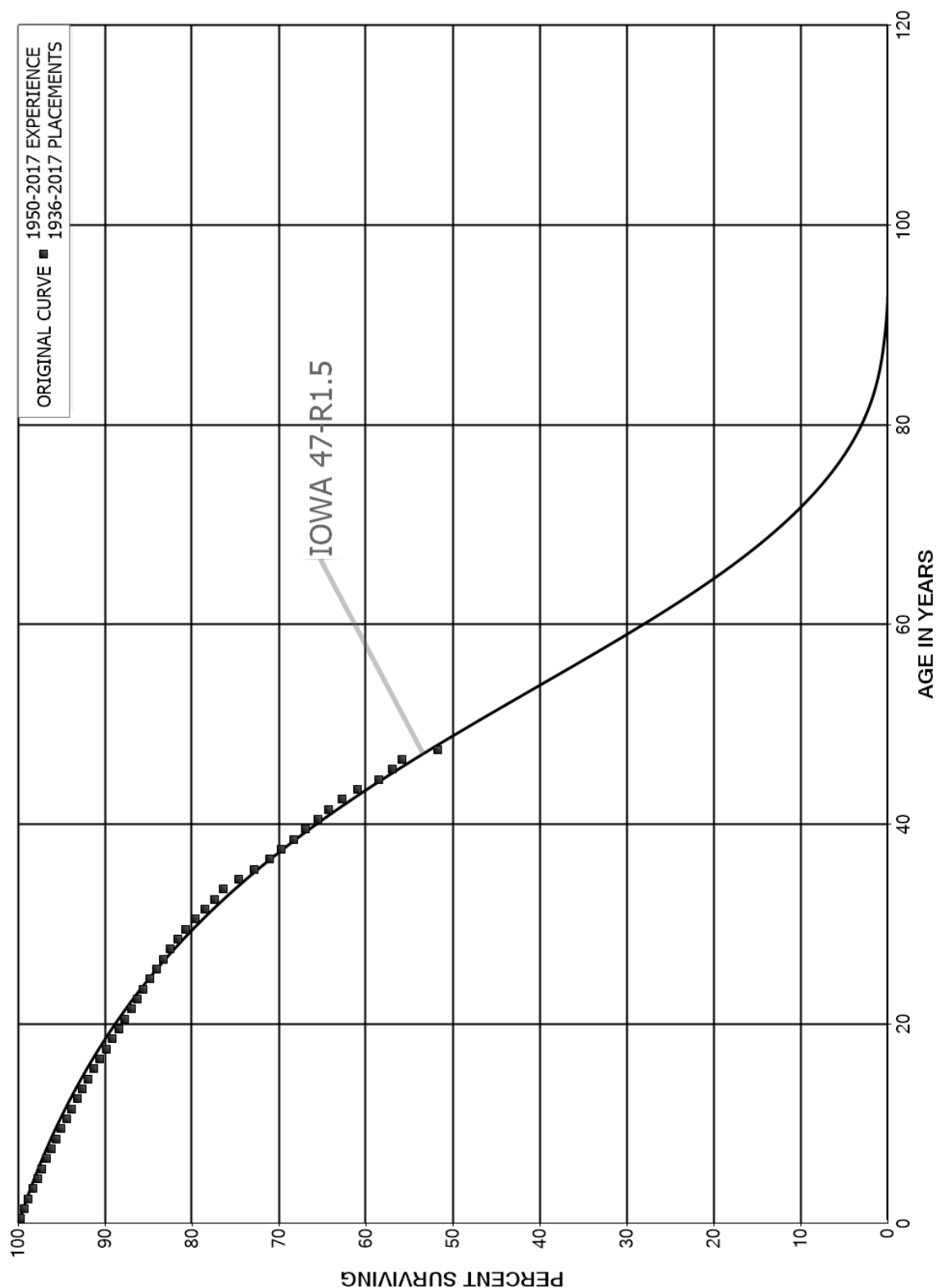
MARITIME ELECTRIC COMPANY  
ACCOUNT 362 SUBSTATION EQUIPMENT  
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1913-2017

EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 470,861                                      | 7,404                                 | 0.0157         | 0.9843        | 75.59                            |
| 40.5                           | 327,862                                      | 14,692                                | 0.0448         | 0.9552        | 74.41                            |
| 41.5                           | 309,645                                      | 4,775                                 | 0.0154         | 0.9846        | 71.07                            |
| 42.5                           | 266,645                                      | 10,047                                | 0.0377         | 0.9623        | 69.97                            |
| 43.5                           | 256,596                                      | 11,167                                | 0.0435         | 0.9565        | 67.34                            |
| 44.5                           | 242,438                                      | 5,963                                 | 0.0246         | 0.9754        | 64.41                            |
| 45.5                           | 200,464                                      | 10,460                                | 0.0522         | 0.9478        | 62.82                            |
| 46.5                           | 180,409                                      | 16,893                                | 0.0936         | 0.9064        | 59.55                            |
| 47.5                           | 158,792                                      | 4,918                                 | 0.0310         | 0.9690        | 53.97                            |
| 48.5                           | 136,045                                      | 21,064                                | 0.1548         | 0.8452        | 52.30                            |
| 49.5                           | 105,887                                      | 5,352                                 | 0.0505         | 0.9495        | 44.20                            |
| 50.5                           | 89,253                                       | 9,047                                 | 0.1014         | 0.8986        | 41.97                            |
| 51.5                           | 60,732                                       | 2,294                                 | 0.0378         | 0.9622        | 37.71                            |
| 52.5                           | 57,348                                       | 19,062                                | 0.3324         | 0.6676        | 36.29                            |
| 53.5                           | 23,275                                       | 642                                   | 0.0276         | 0.9724        | 24.23                            |
| 54.5                           | 19,385                                       | 1,843                                 | 0.0951         | 0.9049        | 23.56                            |
| 55.5                           | 16,014                                       | 2,947                                 | 0.1840         | 0.8160        | 21.32                            |
| 56.5                           | 12,882                                       | 2,129                                 | 0.1652         | 0.8348        | 17.40                            |
| 57.5                           | 9,197                                        | 437                                   | 0.0475         | 0.9525        | 14.52                            |
| 58.5                           | 8,760                                        | 3,550                                 | 0.4052         | 0.5948        | 13.83                            |
| 59.5                           | 5,210                                        | 120                                   | 0.0229         | 0.9771        | 8.23                             |
| 60.5                           | 5,090                                        | 3,719                                 | 0.7306         | 0.2694        | 8.04                             |
| 61.5                           | 1,371                                        | 15                                    | 0.0109         | 0.9891        | 2.16                             |
| 62.5                           | 1,356                                        | 222                                   | 0.1638         | 0.8362        | 2.14                             |
| 63.5                           | 1,134                                        | 389                                   | 0.3427         | 0.6573        | 1.79                             |
| 64.5                           | 745                                          | 745                                   | 1.0000         |               | 1.18                             |
| 65.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 364 POLES AND FIXTURES  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 364 POLES AND FIXTURES

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 85,198,984                                   | 206,563                               | 0.0024         | 0.9976        | 100.00                           |
| 0.5                            | 82,546,825                                   | 402,309                               | 0.0049         | 0.9951        | 99.76                            |
| 1.5                            | 79,305,168                                   | 391,915                               | 0.0049         | 0.9951        | 99.27                            |
| 2.5                            | 76,568,642                                   | 382,355                               | 0.0050         | 0.9950        | 98.78                            |
| 3.5                            | 73,685,900                                   | 381,008                               | 0.0052         | 0.9948        | 98.29                            |
| 4.5                            | 70,422,293                                   | 370,455                               | 0.0053         | 0.9947        | 97.78                            |
| 5.5                            | 66,905,004                                   | 378,940                               | 0.0057         | 0.9943        | 97.26                            |
| 6.5                            | 62,538,480                                   | 352,446                               | 0.0056         | 0.9944        | 96.71                            |
| 7.5                            | 58,962,874                                   | 346,793                               | 0.0059         | 0.9941        | 96.17                            |
| 8.5                            | 56,246,013                                   | 338,066                               | 0.0060         | 0.9940        | 95.60                            |
| 9.5                            | 53,179,319                                   | 332,589                               | 0.0063         | 0.9937        | 95.03                            |
| 10.5                           | 49,995,446                                   | 316,306                               | 0.0063         | 0.9937        | 94.43                            |
| 11.5                           | 47,652,008                                   | 308,627                               | 0.0065         | 0.9935        | 93.84                            |
| 12.5                           | 45,394,104                                   | 302,658                               | 0.0067         | 0.9933        | 93.23                            |
| 13.5                           | 43,085,259                                   | 302,500                               | 0.0070         | 0.9930        | 92.61                            |
| 14.5                           | 41,234,983                                   | 309,307                               | 0.0075         | 0.9925        | 91.96                            |
| 15.5                           | 38,784,921                                   | 287,769                               | 0.0074         | 0.9926        | 91.27                            |
| 16.5                           | 36,587,288                                   | 291,041                               | 0.0080         | 0.9920        | 90.59                            |
| 17.5                           | 34,493,094                                   | 280,775                               | 0.0081         | 0.9919        | 89.87                            |
| 18.5                           | 32,076,932                                   | 271,291                               | 0.0085         | 0.9915        | 89.14                            |
| 19.5                           | 30,613,817                                   | 247,391                               | 0.0081         | 0.9919        | 88.38                            |
| 20.5                           | 28,340,824                                   | 220,052                               | 0.0078         | 0.9922        | 87.67                            |
| 21.5                           | 26,456,999                                   | 211,358                               | 0.0080         | 0.9920        | 86.99                            |
| 22.5                           | 24,266,162                                   | 198,482                               | 0.0082         | 0.9918        | 86.29                            |
| 23.5                           | 22,056,809                                   | 187,171                               | 0.0085         | 0.9915        | 85.59                            |
| 24.5                           | 19,956,655                                   | 179,280                               | 0.0090         | 0.9910        | 84.86                            |
| 25.5                           | 18,145,969                                   | 169,475                               | 0.0093         | 0.9907        | 84.10                            |
| 26.5                           | 16,504,543                                   | 163,150                               | 0.0099         | 0.9901        | 83.31                            |
| 27.5                           | 14,817,534                                   | 163,842                               | 0.0111         | 0.9889        | 82.49                            |
| 28.5                           | 12,792,663                                   | 136,301                               | 0.0107         | 0.9893        | 81.58                            |
| 29.5                           | 10,541,375                                   | 141,649                               | 0.0134         | 0.9866        | 80.71                            |
| 30.5                           | 8,882,115                                    | 124,798                               | 0.0141         | 0.9859        | 79.63                            |
| 31.5                           | 7,342,214                                    | 102,332                               | 0.0139         | 0.9861        | 78.51                            |
| 32.5                           | 6,275,914                                    | 85,072                                | 0.0136         | 0.9864        | 77.41                            |
| 33.5                           | 5,362,973                                    | 121,585                               | 0.0227         | 0.9773        | 76.36                            |
| 34.5                           | 4,595,760                                    | 109,211                               | 0.0238         | 0.9762        | 74.63                            |
| 35.5                           | 4,045,663                                    | 101,019                               | 0.0250         | 0.9750        | 72.86                            |
| 36.5                           | 3,496,377                                    | 63,041                                | 0.0180         | 0.9820        | 71.04                            |
| 37.5                           | 3,084,461                                    | 63,677                                | 0.0206         | 0.9794        | 69.76                            |
| 38.5                           | 2,772,324                                    | 54,797                                | 0.0198         | 0.9802        | 68.32                            |

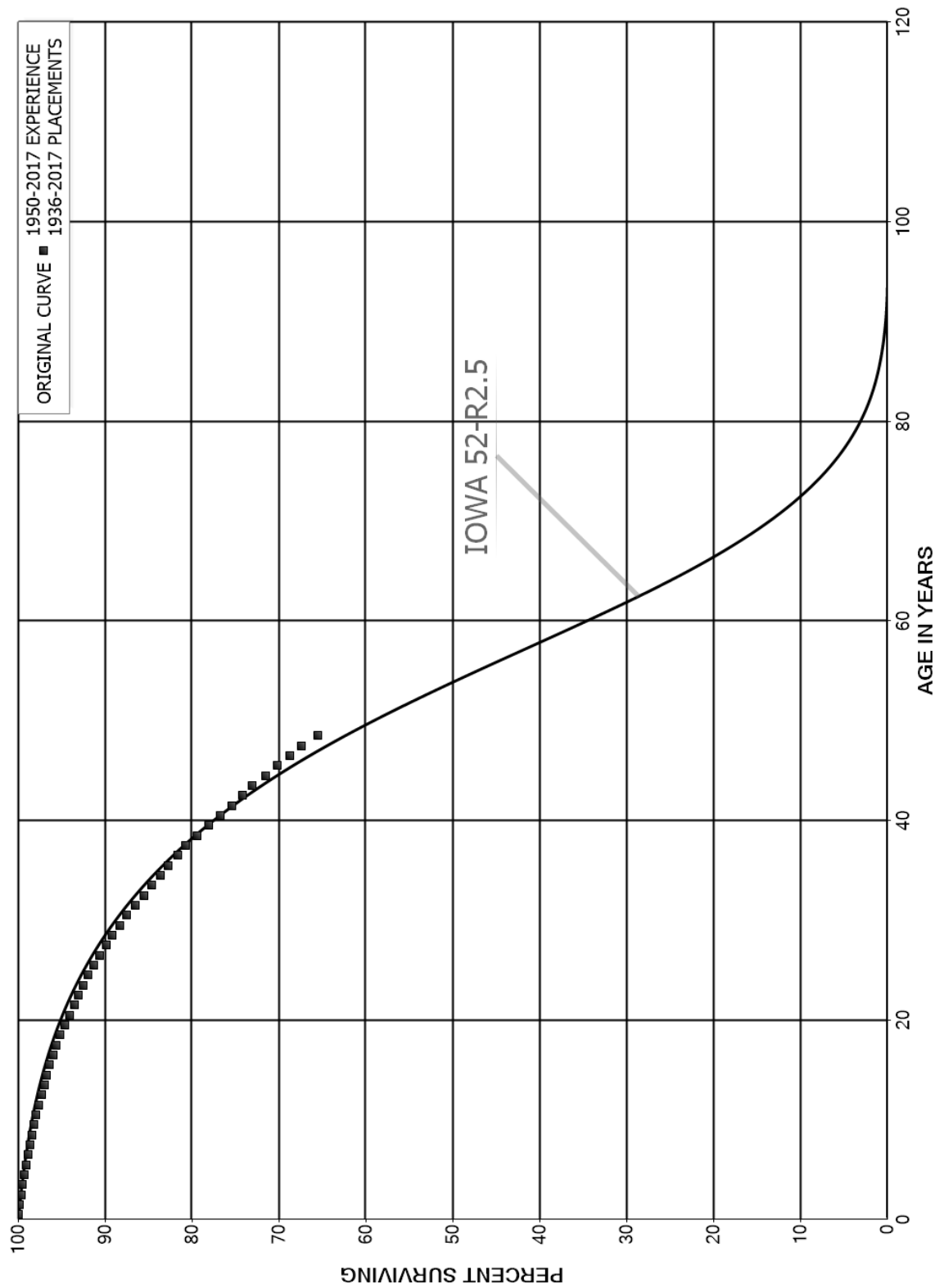
MARITIME ELECTRIC COMPANY  
ACCOUNT 364 POLES AND FIXTURES  
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1936-2017

EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 2,433,903                                    | 52,144                                | 0.0214         | 0.9786        | 66.97                            |
| 40.5                           | 2,172,893                                    | 40,896                                | 0.0188         | 0.9812        | 65.53                            |
| 41.5                           | 1,892,218                                    | 45,369                                | 0.0240         | 0.9760        | 64.30                            |
| 42.5                           | 1,570,500                                    | 46,004                                | 0.0293         | 0.9707        | 62.76                            |
| 43.5                           | 1,433,190                                    | 56,011                                | 0.0391         | 0.9609        | 60.92                            |
| 44.5                           | 1,160,261                                    | 31,329                                | 0.0270         | 0.9730        | 58.54                            |
| 45.5                           | 979,091                                      | 19,549                                | 0.0200         | 0.9800        | 56.96                            |
| 46.5                           | 869,720                                      | 63,063                                | 0.0725         | 0.9275        | 55.82                            |
| 47.5                           | 763,127                                      | 19,519                                | 0.0256         | 0.9744        | 51.77                            |
| 48.5                           | 519,146                                      | 16,743                                | 0.0323         | 0.9677        | 50.45                            |
| 49.5                           | 318,189                                      | 16,743                                | 0.0526         | 0.9474        | 48.82                            |
| 50.5                           | 153,054                                      | 9,312                                 | 0.0608         | 0.9392        | 46.25                            |
| 51.5                           | 99,870                                       | 6,865                                 | 0.0687         | 0.9313        | 43.44                            |
| 52.5                           | 69,245                                       | 8,302                                 | 0.1199         | 0.8801        | 40.45                            |
| 53.5                           | 44,092                                       | 4,776                                 | 0.1083         | 0.8917        | 35.60                            |
| 54.5                           | 20,410                                       | 1,692                                 | 0.0829         | 0.9171        | 31.75                            |
| 55.5                           | 10,490                                       | 1,345                                 | 0.1282         | 0.8718        | 29.11                            |
| 56.5                           | 1,747                                        | 1,033                                 | 0.5910         | 0.4090        | 25.38                            |
| 57.5                           | 405                                          | 405                                   | 1.0000         |               | 10.38                            |
| 58.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 98,294,174                                   | 69,115                                | 0.0007         | 0.9993        | 100.00                           |
| 0.5                            | 92,094,990                                   | 135,205                               | 0.0015         | 0.9985        | 99.93                            |
| 1.5                            | 86,051,368                                   | 133,912                               | 0.0016         | 0.9984        | 99.78                            |
| 2.5                            | 81,154,086                                   | 134,233                               | 0.0017         | 0.9983        | 99.63                            |
| 3.5                            | 76,385,783                                   | 134,371                               | 0.0018         | 0.9982        | 99.46                            |
| 4.5                            | 71,792,927                                   | 138,363                               | 0.0019         | 0.9981        | 99.29                            |
| 5.5                            | 67,153,766                                   | 143,680                               | 0.0021         | 0.9979        | 99.10                            |
| 6.5                            | 62,240,176                                   | 141,811                               | 0.0023         | 0.9977        | 98.88                            |
| 7.5                            | 57,536,521                                   | 136,003                               | 0.0024         | 0.9976        | 98.66                            |
| 8.5                            | 53,256,625                                   | 136,452                               | 0.0026         | 0.9974        | 98.43                            |
| 9.5                            | 48,662,695                                   | 134,796                               | 0.0028         | 0.9972        | 98.17                            |
| 10.5                           | 44,249,071                                   | 132,140                               | 0.0030         | 0.9970        | 97.90                            |
| 11.5                           | 41,297,592                                   | 126,461                               | 0.0031         | 0.9969        | 97.61                            |
| 12.5                           | 39,021,539                                   | 125,248                               | 0.0032         | 0.9968        | 97.31                            |
| 13.5                           | 36,421,365                                   | 118,049                               | 0.0032         | 0.9968        | 97.00                            |
| 14.5                           | 34,091,646                                   | 119,552                               | 0.0035         | 0.9965        | 96.68                            |
| 15.5                           | 31,986,538                                   | 125,620                               | 0.0039         | 0.9961        | 96.34                            |
| 16.5                           | 29,599,649                                   | 124,483                               | 0.0042         | 0.9958        | 95.97                            |
| 17.5                           | 27,698,164                                   | 123,966                               | 0.0045         | 0.9955        | 95.56                            |
| 18.5                           | 25,972,437                                   | 137,985                               | 0.0053         | 0.9947        | 95.14                            |
| 19.5                           | 23,539,829                                   | 131,527                               | 0.0056         | 0.9944        | 94.63                            |
| 20.5                           | 21,031,486                                   | 122,864                               | 0.0058         | 0.9942        | 94.10                            |
| 21.5                           | 18,817,929                                   | 103,702                               | 0.0055         | 0.9945        | 93.55                            |
| 22.5                           | 17,446,984                                   | 104,079                               | 0.0060         | 0.9940        | 93.04                            |
| 23.5                           | 15,982,722                                   | 99,044                                | 0.0062         | 0.9938        | 92.48                            |
| 24.5                           | 14,695,797                                   | 101,239                               | 0.0069         | 0.9931        | 91.91                            |
| 25.5                           | 13,552,851                                   | 103,719                               | 0.0077         | 0.9923        | 91.27                            |
| 26.5                           | 12,432,572                                   | 98,797                                | 0.0079         | 0.9921        | 90.58                            |
| 27.5                           | 11,545,740                                   | 94,006                                | 0.0081         | 0.9919        | 89.86                            |
| 28.5                           | 10,325,038                                   | 98,009                                | 0.0095         | 0.9905        | 89.12                            |
| 29.5                           | 8,695,411                                    | 81,278                                | 0.0093         | 0.9907        | 88.28                            |
| 30.5                           | 7,547,500                                    | 78,775                                | 0.0104         | 0.9896        | 87.45                            |
| 31.5                           | 6,615,863                                    | 75,251                                | 0.0114         | 0.9886        | 86.54                            |
| 32.5                           | 6,069,308                                    | 69,238                                | 0.0114         | 0.9886        | 85.56                            |
| 33.5                           | 5,390,018                                    | 60,107                                | 0.0112         | 0.9888        | 84.58                            |
| 34.5                           | 4,849,272                                    | 55,855                                | 0.0115         | 0.9885        | 83.64                            |
| 35.5                           | 4,348,607                                    | 54,008                                | 0.0124         | 0.9876        | 82.67                            |
| 36.5                           | 3,923,968                                    | 46,952                                | 0.0120         | 0.9880        | 81.65                            |
| 37.5                           | 3,480,675                                    | 52,745                                | 0.0152         | 0.9848        | 80.67                            |
| 38.5                           | 3,159,784                                    | 54,603                                | 0.0173         | 0.9827        | 79.45                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

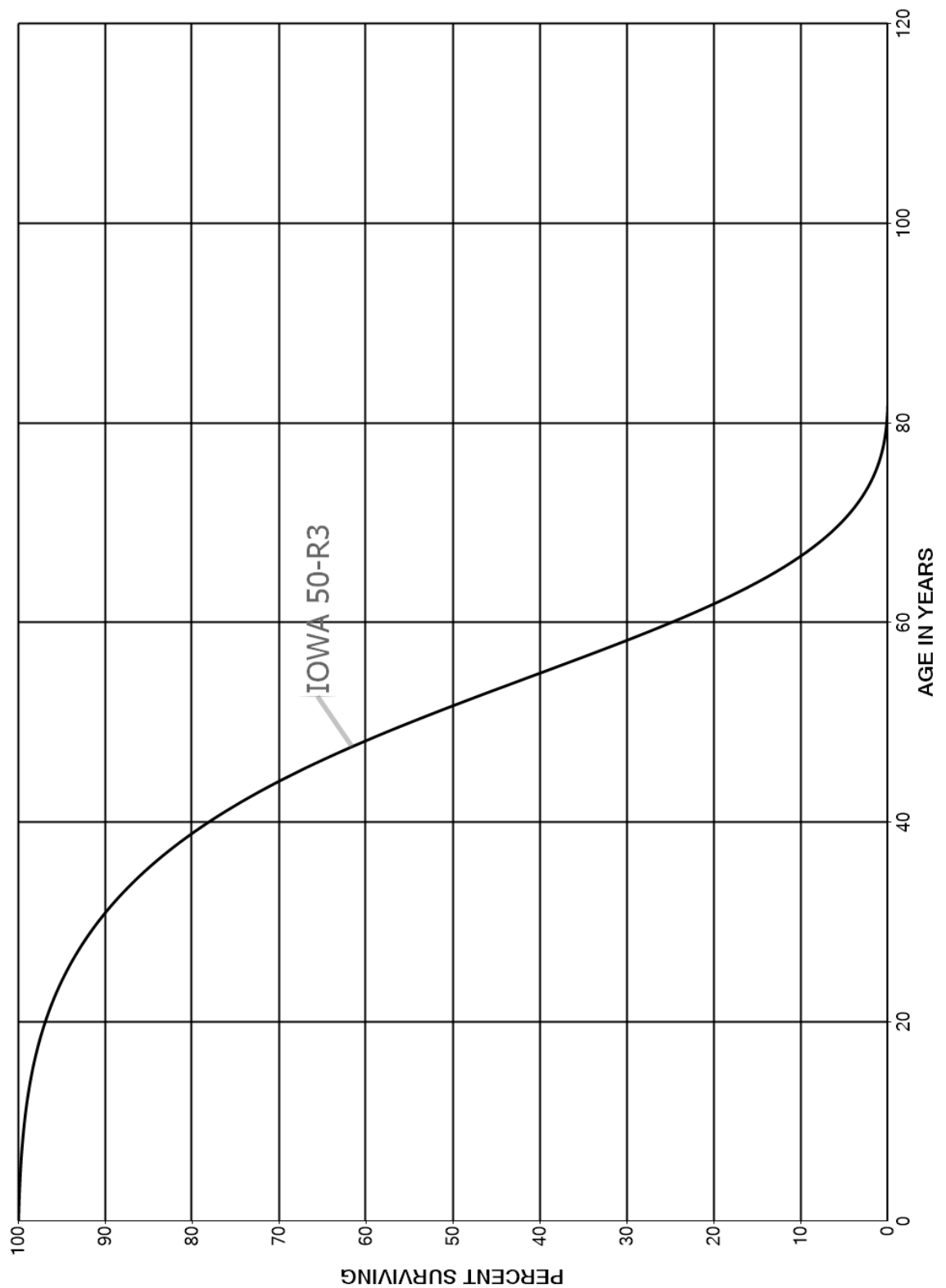
## ORIGINAL LIFE TABLE, CONT.

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

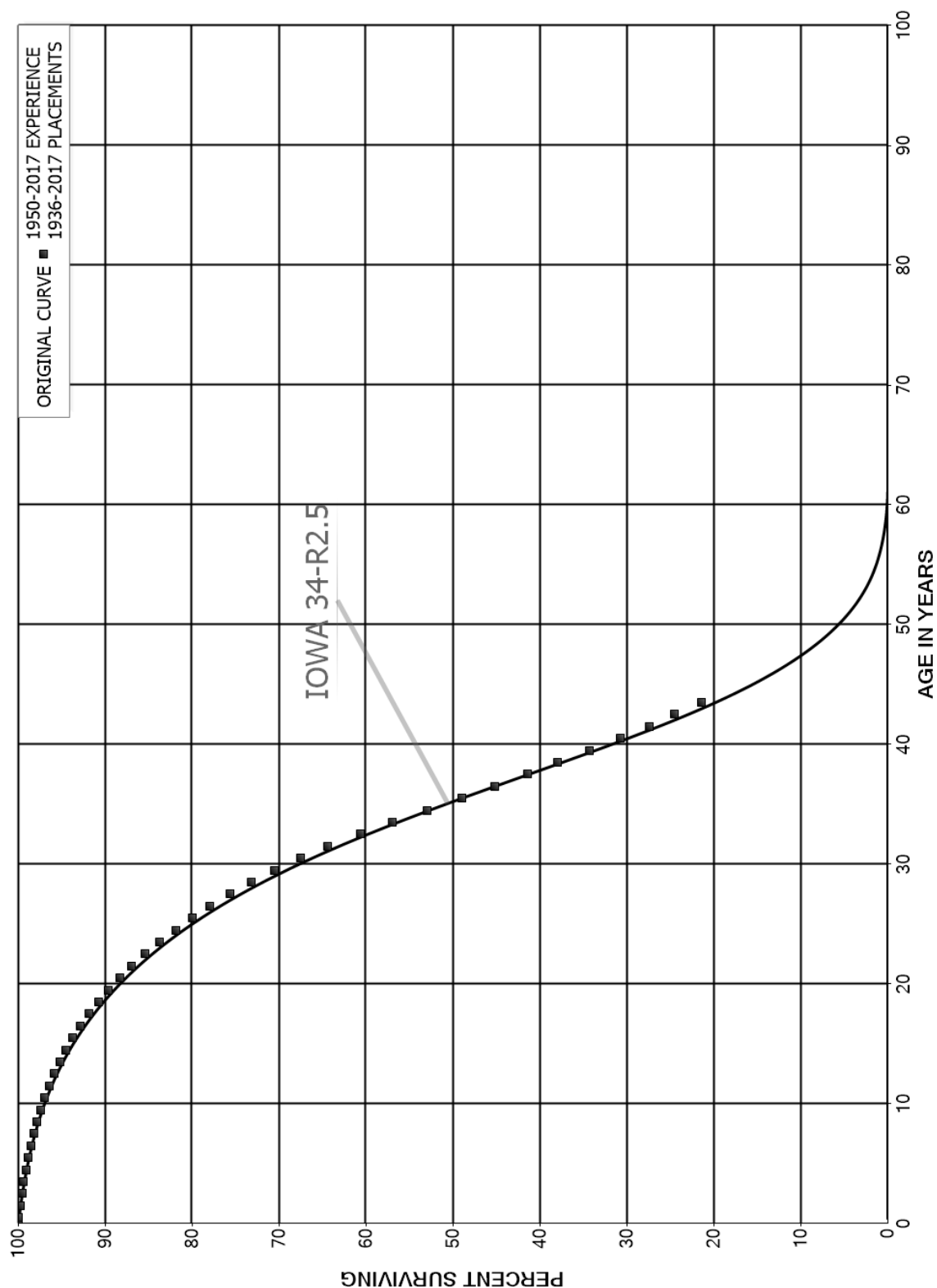
| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 2,622,504                                    | 46,813                                | 0.0179         | 0.9821        | 78.07                            |
| 40.5                           | 2,317,997                                    | 38,914                                | 0.0168         | 0.9832        | 76.68                            |
| 41.5                           | 2,018,784                                    | 33,741                                | 0.0167         | 0.9833        | 75.39                            |
| 42.5                           | 1,738,605                                    | 24,583                                | 0.0141         | 0.9859        | 74.13                            |
| 43.5                           | 1,621,933                                    | 34,110                                | 0.0210         | 0.9790        | 73.09                            |
| 44.5                           | 1,357,664                                    | 26,810                                | 0.0197         | 0.9803        | 71.55                            |
| 45.5                           | 1,163,420                                    | 22,761                                | 0.0196         | 0.9804        | 70.14                            |
| 46.5                           | 1,053,638                                    | 20,788                                | 0.0197         | 0.9803        | 68.76                            |
| 47.5                           | 992,018                                      | 28,456                                | 0.0287         | 0.9713        | 67.41                            |
| 48.5                           | 741,560                                      | 26,615                                | 0.0359         | 0.9641        | 65.47                            |
| 49.5                           | 519,354                                      | 19,739                                | 0.0380         | 0.9620        | 63.12                            |
| 50.5                           | 338,036                                      | 11,978                                | 0.0354         | 0.9646        | 60.72                            |
| 51.5                           | 261,761                                      | 6,451                                 | 0.0246         | 0.9754        | 58.57                            |
| 52.5                           | 223,134                                      | 9,026                                 | 0.0405         | 0.9595        | 57.13                            |
| 53.5                           | 184,570                                      | 7,737                                 | 0.0419         | 0.9581        | 54.82                            |
| 54.5                           | 154,905                                      | 5,345                                 | 0.0345         | 0.9655        | 52.52                            |
| 55.5                           | 131,933                                      | 5,829                                 | 0.0442         | 0.9558        | 50.71                            |
| 56.5                           | 104,086                                      | 4,560                                 | 0.0438         | 0.9562        | 48.47                            |
| 57.5                           | 78,858                                       | 3,763                                 | 0.0477         | 0.9523        | 46.34                            |
| 58.5                           | 53,037                                       | 8,295                                 | 0.1564         | 0.8436        | 44.13                            |
| 59.5                           | 33,150                                       | 6,843                                 | 0.2064         | 0.7936        | 37.23                            |
| 60.5                           | 23,674                                       | 2,489                                 | 0.1051         | 0.8949        | 29.55                            |
| 61.5                           | 6,504                                        | 411                                   | 0.0632         | 0.9368        | 26.44                            |
| 62.5                           | 4,036                                        | 500                                   | 0.1240         | 0.8760        | 24.77                            |
| 63.5                           | 640                                          | 444                                   | 0.6938         | 0.3062        | 21.70                            |
| 64.5                           |                                              |                                       |                |               | 6.64                             |

MARITIME ELECTRIC COMPANY  
ACCOUNT 367 UNDERGROUND CONDUCTOR AND DEVICES  
SMOOTH SURVIVOR CURVE





MARITIME ELECTRIC COMPANY  
ACCOUNT 368.1 LINE TRANSFORMERS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.1 LINE TRANSFORMERS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 79,972,876                                   | 62,913                                | 0.0008         | 0.9992        | 100.00                           |
| 0.5                            | 76,444,605                                   | 130,897                               | 0.0017         | 0.9983        | 99.92                            |
| 1.5                            | 73,629,195                                   | 141,078                               | 0.0019         | 0.9981        | 99.75                            |
| 2.5                            | 70,675,160                                   | 152,909                               | 0.0022         | 0.9978        | 99.56                            |
| 3.5                            | 67,146,457                                   | 161,064                               | 0.0024         | 0.9976        | 99.34                            |
| 4.5                            | 64,347,137                                   | 176,215                               | 0.0027         | 0.9973        | 99.11                            |
| 5.5                            | 61,003,266                                   | 185,851                               | 0.0030         | 0.9970        | 98.83                            |
| 6.5                            | 57,919,428                                   | 196,682                               | 0.0034         | 0.9966        | 98.53                            |
| 7.5                            | 54,299,418                                   | 206,736                               | 0.0038         | 0.9962        | 98.20                            |
| 8.5                            | 49,630,700                                   | 209,528                               | 0.0042         | 0.9958        | 97.82                            |
| 9.5                            | 45,655,868                                   | 218,514                               | 0.0048         | 0.9952        | 97.41                            |
| 10.5                           | 40,940,825                                   | 225,066                               | 0.0055         | 0.9945        | 96.95                            |
| 11.5                           | 37,753,874                                   | 230,346                               | 0.0061         | 0.9939        | 96.41                            |
| 12.5                           | 35,234,888                                   | 240,559                               | 0.0068         | 0.9932        | 95.82                            |
| 13.5                           | 32,989,723                                   | 245,400                               | 0.0074         | 0.9926        | 95.17                            |
| 14.5                           | 30,884,816                                   | 256,078                               | 0.0083         | 0.9917        | 94.46                            |
| 15.5                           | 28,625,757                                   | 272,975                               | 0.0095         | 0.9905        | 93.68                            |
| 16.5                           | 26,558,829                                   | 278,246                               | 0.0105         | 0.9895        | 92.79                            |
| 17.5                           | 24,808,367                                   | 293,082                               | 0.0118         | 0.9882        | 91.81                            |
| 18.5                           | 23,043,726                                   | 292,791                               | 0.0127         | 0.9873        | 90.73                            |
| 19.5                           | 21,369,231                                   | 302,706                               | 0.0142         | 0.9858        | 89.58                            |
| 20.5                           | 19,353,699                                   | 300,725                               | 0.0155         | 0.9845        | 88.31                            |
| 21.5                           | 16,875,050                                   | 293,422                               | 0.0174         | 0.9826        | 86.93                            |
| 22.5                           | 15,279,047                                   | 306,612                               | 0.0201         | 0.9799        | 85.42                            |
| 23.5                           | 13,807,068                                   | 303,454                               | 0.0220         | 0.9780        | 83.71                            |
| 24.5                           | 12,770,747                                   | 298,980                               | 0.0234         | 0.9766        | 81.87                            |
| 25.5                           | 11,695,255                                   | 287,040                               | 0.0245         | 0.9755        | 79.95                            |
| 26.5                           | 10,594,724                                   | 316,756                               | 0.0299         | 0.9701        | 77.99                            |
| 27.5                           | 9,577,651                                    | 313,153                               | 0.0327         | 0.9673        | 75.66                            |
| 28.5                           | 8,329,129                                    | 309,253                               | 0.0371         | 0.9629        | 73.18                            |
| 29.5                           | 7,287,914                                    | 303,131                               | 0.0416         | 0.9584        | 70.47                            |
| 30.5                           | 6,403,578                                    | 297,574                               | 0.0465         | 0.9535        | 67.54                            |
| 31.5                           | 5,857,681                                    | 341,731                               | 0.0583         | 0.9417        | 64.40                            |
| 32.5                           | 5,148,987                                    | 316,000                               | 0.0614         | 0.9386        | 60.64                            |
| 33.5                           | 4,608,839                                    | 321,277                               | 0.0697         | 0.9303        | 56.92                            |
| 34.5                           | 4,213,623                                    | 322,717                               | 0.0766         | 0.9234        | 52.95                            |
| 35.5                           | 3,849,855                                    | 292,008                               | 0.0758         | 0.9242        | 48.90                            |
| 36.5                           | 3,397,852                                    | 282,638                               | 0.0832         | 0.9168        | 45.19                            |
| 37.5                           | 2,793,204                                    | 237,546                               | 0.0850         | 0.9150        | 41.43                            |
| 38.5                           | 2,343,004                                    | 225,463                               | 0.0962         | 0.9038        | 37.91                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.1 LINE TRANSFORMERS

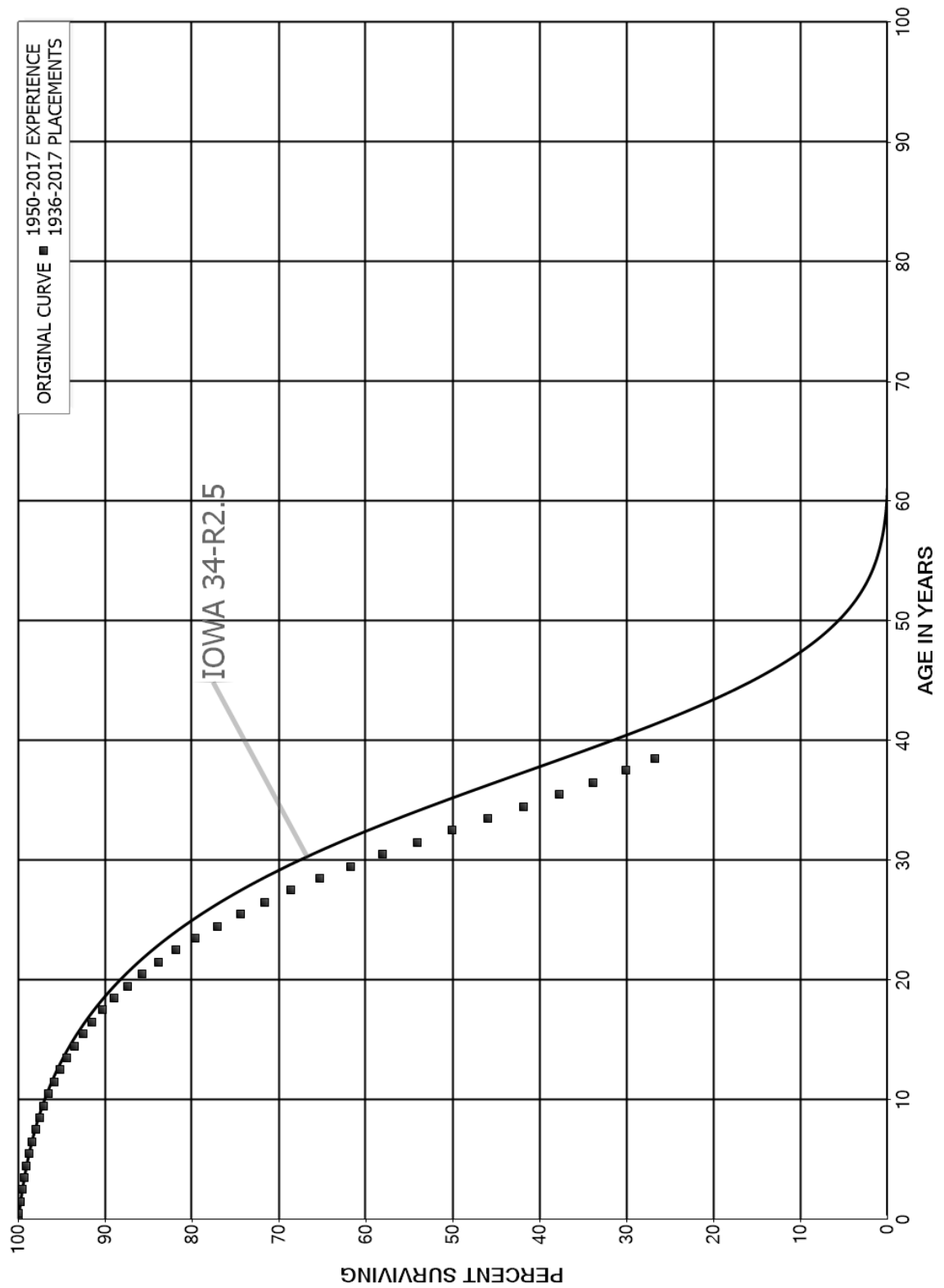
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1936-2017

EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 1,911,673                                    | 198,795                               | 0.1040         | 0.8960        | 34.26                            |
| 40.5                           | 1,534,238                                    | 164,960                               | 0.1075         | 0.8925        | 30.70                            |
| 41.5                           | 1,215,263                                    | 128,408                               | 0.1057         | 0.8943        | 27.40                            |
| 42.5                           | 918,070                                      | 115,878                               | 0.1262         | 0.8738        | 24.50                            |
| 43.5                           | 718,870                                      | 88,541                                | 0.1232         | 0.8768        | 21.41                            |
| 44.5                           | 536,226                                      | 83,307                                | 0.1554         | 0.8446        | 18.77                            |
| 45.5                           | 387,068                                      | 60,668                                | 0.1567         | 0.8433        | 15.85                            |
| 46.5                           | 296,621                                      | 51,948                                | 0.1751         | 0.8249        | 13.37                            |
| 47.5                           | 227,007                                      | 39,227                                | 0.1728         | 0.8272        | 11.03                            |
| 48.5                           | 153,616                                      | 28,605                                | 0.1862         | 0.8138        | 9.12                             |
| 49.5                           | 106,473                                      | 31,828                                | 0.2989         | 0.7011        | 7.42                             |
| 50.5                           | 59,946                                       | 17,222                                | 0.2873         | 0.7127        | 5.20                             |
| 51.5                           | 38,246                                       | 13,049                                | 0.3412         | 0.6588        | 3.71                             |
| 52.5                           | 23,216                                       | 7,550                                 | 0.3252         | 0.6748        | 2.44                             |
| 53.5                           | 15,666                                       | 5,505                                 | 0.3514         | 0.6486        | 1.65                             |
| 54.5                           | 10,162                                       | 4,266                                 | 0.4198         | 0.5802        | 1.07                             |
| 55.5                           | 5,896                                        | 3,378                                 | 0.5730         | 0.4270        | 0.62                             |
| 56.5                           | 2,518                                        | 2,340                                 | 0.9293         | 0.0707        | 0.27                             |
| 57.5                           | 178                                          | 178                                   | 1.0000         |               | 0.02                             |
| 58.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 14,142,370                                   | 11,758                                | 0.0008         | 0.9992        | 100.00                           |
| 0.5                            | 13,288,749                                   | 24,606                                | 0.0019         | 0.9981        | 99.92                            |
| 1.5                            | 12,326,467                                   | 25,491                                | 0.0021         | 0.9979        | 99.73                            |
| 2.5                            | 11,422,758                                   | 26,882                                | 0.0024         | 0.9976        | 99.53                            |
| 3.5                            | 10,542,065                                   | 28,497                                | 0.0027         | 0.9973        | 99.29                            |
| 4.5                            | 9,716,535                                    | 30,213                                | 0.0031         | 0.9969        | 99.02                            |
| 5.5                            | 8,896,018                                    | 30,599                                | 0.0034         | 0.9966        | 98.72                            |
| 6.5                            | 7,971,433                                    | 31,139                                | 0.0039         | 0.9961        | 98.38                            |
| 7.5                            | 7,369,835                                    | 32,464                                | 0.0044         | 0.9956        | 97.99                            |
| 8.5                            | 6,793,617                                    | 35,001                                | 0.0052         | 0.9948        | 97.56                            |
| 9.5                            | 6,203,818                                    | 35,943                                | 0.0058         | 0.9942        | 97.06                            |
| 10.5                           | 5,573,765                                    | 36,286                                | 0.0065         | 0.9935        | 96.49                            |
| 11.5                           | 5,079,369                                    | 36,247                                | 0.0071         | 0.9929        | 95.87                            |
| 12.5                           | 4,618,653                                    | 38,914                                | 0.0084         | 0.9916        | 95.18                            |
| 13.5                           | 4,175,167                                    | 39,473                                | 0.0095         | 0.9905        | 94.38                            |
| 14.5                           | 3,767,610                                    | 40,216                                | 0.0107         | 0.9893        | 93.49                            |
| 15.5                           | 3,516,179                                    | 39,390                                | 0.0112         | 0.9888        | 92.49                            |
| 16.5                           | 3,287,749                                    | 42,779                                | 0.0130         | 0.9870        | 91.45                            |
| 17.5                           | 3,113,092                                    | 46,953                                | 0.0151         | 0.9849        | 90.26                            |
| 18.5                           | 2,784,521                                    | 47,797                                | 0.0172         | 0.9828        | 88.90                            |
| 19.5                           | 2,391,988                                    | 45,174                                | 0.0189         | 0.9811        | 87.38                            |
| 20.5                           | 2,108,471                                    | 46,929                                | 0.0223         | 0.9777        | 85.73                            |
| 21.5                           | 1,985,907                                    | 47,311                                | 0.0238         | 0.9762        | 83.82                            |
| 22.5                           | 1,803,653                                    | 49,793                                | 0.0276         | 0.9724        | 81.82                            |
| 23.5                           | 1,623,874                                    | 51,695                                | 0.0318         | 0.9682        | 79.56                            |
| 24.5                           | 1,481,202                                    | 49,914                                | 0.0337         | 0.9663        | 77.03                            |
| 25.5                           | 1,331,043                                    | 50,363                                | 0.0378         | 0.9622        | 74.43                            |
| 26.5                           | 1,173,749                                    | 49,674                                | 0.0423         | 0.9577        | 71.62                            |
| 27.5                           | 1,057,779                                    | 50,775                                | 0.0480         | 0.9520        | 68.59                            |
| 28.5                           | 902,624                                      | 49,485                                | 0.0548         | 0.9452        | 65.29                            |
| 29.5                           | 752,066                                      | 44,920                                | 0.0597         | 0.9403        | 61.71                            |
| 30.5                           | 650,016                                      | 43,900                                | 0.0675         | 0.9325        | 58.03                            |
| 31.5                           | 550,723                                      | 41,479                                | 0.0753         | 0.9247        | 54.11                            |
| 32.5                           | 469,370                                      | 38,741                                | 0.0825         | 0.9175        | 50.03                            |
| 33.5                           | 397,784                                      | 35,531                                | 0.0893         | 0.9107        | 45.90                            |
| 34.5                           | 332,308                                      | 32,092                                | 0.0966         | 0.9034        | 41.80                            |
| 35.5                           | 280,318                                      | 28,896                                | 0.1031         | 0.8969        | 37.77                            |
| 36.5                           | 229,057                                      | 25,462                                | 0.1112         | 0.8888        | 33.87                            |
| 37.5                           | 181,043                                      | 20,548                                | 0.1135         | 0.8865        | 30.11                            |
| 38.5                           | 138,179                                      | 17,419                                | 0.1261         | 0.8739        | 26.69                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

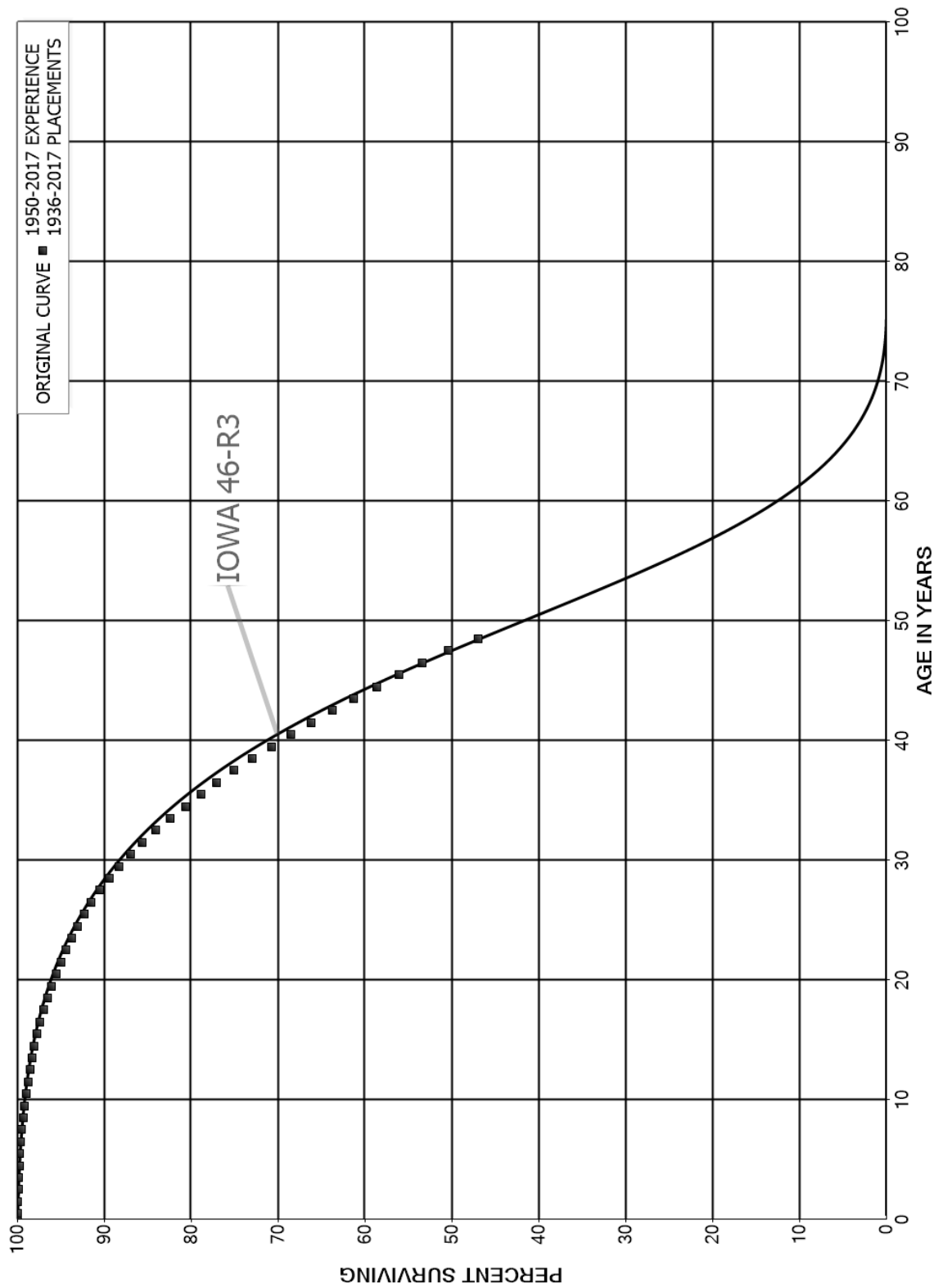
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1936-2017

EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 102,754                                      | 13,491                                | 0.1313         | 0.8687        | 23.33                            |
| 40.5                           | 77,754                                       | 11,487                                | 0.1477         | 0.8523        | 20.26                            |
| 41.5                           | 56,930                                       | 8,517                                 | 0.1496         | 0.8504        | 17.27                            |
| 42.5                           | 41,762                                       | 6,741                                 | 0.1614         | 0.8386        | 14.69                            |
| 43.5                           | 31,077                                       | 5,724                                 | 0.1842         | 0.8158        | 12.32                            |
| 44.5                           | 21,539                                       | 4,706                                 | 0.2185         | 0.7815        | 10.05                            |
| 45.5                           | 14,779                                       | 3,359                                 | 0.2272         | 0.7728        | 7.85                             |
| 46.5                           | 10,162                                       | 2,619                                 | 0.2577         | 0.7423        | 6.07                             |
| 47.5                           | 6,982                                        | 2,117                                 | 0.3032         | 0.6968        | 4.50                             |
| 48.5                           | 4,665                                        | 1,427                                 | 0.3060         | 0.6940        | 3.14                             |
| 49.5                           | 3,237                                        | 1,418                                 | 0.4379         | 0.5621        | 2.18                             |
| 50.5                           | 1,820                                        | 630                                   | 0.3464         | 0.6536        | 1.22                             |
| 51.5                           | 1,189                                        | 309                                   | 0.2596         | 0.7404        | 0.80                             |
| 52.5                           | 881                                          | 242                                   | 0.2745         | 0.7255        | 0.59                             |
| 53.5                           | 639                                          | 243                                   | 0.3802         | 0.6198        | 0.43                             |
| 54.5                           | 396                                          | 142                                   | 0.3588         | 0.6412        | 0.27                             |
| 55.5                           | 254                                          | 219                                   | 0.8642         | 0.1358        | 0.17                             |
| 56.5                           | 34                                           | 34                                    | 1.0000         |               | 0.02                             |
| 57.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 369.01 SERVICES - OVERHEAD  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 369.01 SERVICES - OVERHEAD

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1936-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 72,419,220                                   | 13,682                                | 0.0002         | 0.9998        | 100.00                           |
| 0.5                            | 68,845,765                                   | 29,444                                | 0.0004         | 0.9996        | 99.98                            |
| 1.5                            | 65,970,812                                   | 33,655                                | 0.0005         | 0.9995        | 99.94                            |
| 2.5                            | 63,136,172                                   | 38,052                                | 0.0006         | 0.9994        | 99.89                            |
| 3.5                            | 60,633,330                                   | 43,549                                | 0.0007         | 0.9993        | 99.83                            |
| 4.5                            | 58,167,601                                   | 49,695                                | 0.0009         | 0.9991        | 99.76                            |
| 5.5                            | 55,399,895                                   | 55,462                                | 0.0010         | 0.9990        | 99.67                            |
| 6.5                            | 52,266,237                                   | 61,260                                | 0.0012         | 0.9988        | 99.57                            |
| 7.5                            | 49,790,103                                   | 68,883                                | 0.0014         | 0.9986        | 99.45                            |
| 8.5                            | 47,235,463                                   | 76,180                                | 0.0016         | 0.9984        | 99.32                            |
| 9.5                            | 44,303,596                                   | 81,389                                | 0.0018         | 0.9982        | 99.16                            |
| 10.5                           | 42,291,512                                   | 86,400                                | 0.0020         | 0.9980        | 98.97                            |
| 11.5                           | 40,204,274                                   | 90,550                                | 0.0023         | 0.9977        | 98.77                            |
| 12.5                           | 38,637,175                                   | 97,832                                | 0.0025         | 0.9975        | 98.55                            |
| 13.5                           | 37,072,254                                   | 104,923                               | 0.0028         | 0.9972        | 98.30                            |
| 14.5                           | 35,414,588                                   | 111,862                               | 0.0032         | 0.9968        | 98.02                            |
| 15.5                           | 33,500,325                                   | 116,532                               | 0.0035         | 0.9965        | 97.71                            |
| 16.5                           | 31,757,773                                   | 125,284                               | 0.0039         | 0.9961        | 97.37                            |
| 17.5                           | 29,660,842                                   | 132,910                               | 0.0045         | 0.9955        | 96.99                            |
| 18.5                           | 27,387,279                                   | 135,897                               | 0.0050         | 0.9950        | 96.55                            |
| 19.5                           | 25,242,804                                   | 136,771                               | 0.0054         | 0.9946        | 96.07                            |
| 20.5                           | 23,019,324                                   | 131,116                               | 0.0057         | 0.9943        | 95.55                            |
| 21.5                           | 21,640,989                                   | 136,644                               | 0.0063         | 0.9937        | 95.01                            |
| 22.5                           | 20,040,659                                   | 140,110                               | 0.0070         | 0.9930        | 94.41                            |
| 23.5                           | 18,552,647                                   | 141,350                               | 0.0076         | 0.9924        | 93.75                            |
| 24.5                           | 17,189,954                                   | 139,174                               | 0.0081         | 0.9919        | 93.04                            |
| 25.5                           | 15,869,212                                   | 142,828                               | 0.0090         | 0.9910        | 92.28                            |
| 26.5                           | 14,569,573                                   | 151,312                               | 0.0104         | 0.9896        | 91.45                            |
| 27.5                           | 13,212,575                                   | 155,611                               | 0.0118         | 0.9882        | 90.50                            |
| 28.5                           | 11,849,128                                   | 155,074                               | 0.0131         | 0.9869        | 89.44                            |
| 29.5                           | 10,690,500                                   | 154,398                               | 0.0144         | 0.9856        | 88.27                            |
| 30.5                           | 9,662,708                                    | 153,326                               | 0.0159         | 0.9841        | 86.99                            |
| 31.5                           | 8,744,982                                    | 154,199                               | 0.0176         | 0.9824        | 85.61                            |
| 32.5                           | 7,848,757                                    | 155,591                               | 0.0198         | 0.9802        | 84.10                            |
| 33.5                           | 6,881,383                                    | 149,348                               | 0.0217         | 0.9783        | 82.43                            |
| 34.5                           | 6,036,849                                    | 131,696                               | 0.0218         | 0.9782        | 80.64                            |
| 35.5                           | 5,445,671                                    | 127,658                               | 0.0234         | 0.9766        | 78.88                            |
| 36.5                           | 4,824,836                                    | 123,981                               | 0.0257         | 0.9743        | 77.04                            |
| 37.5                           | 4,197,449                                    | 118,845                               | 0.0283         | 0.9717        | 75.06                            |
| 38.5                           | 3,636,292                                    | 108,618                               | 0.0299         | 0.9701        | 72.93                            |



## MARITIME ELECTRIC COMPANY

## ACCOUNT 369.01 SERVICES - OVERHEAD

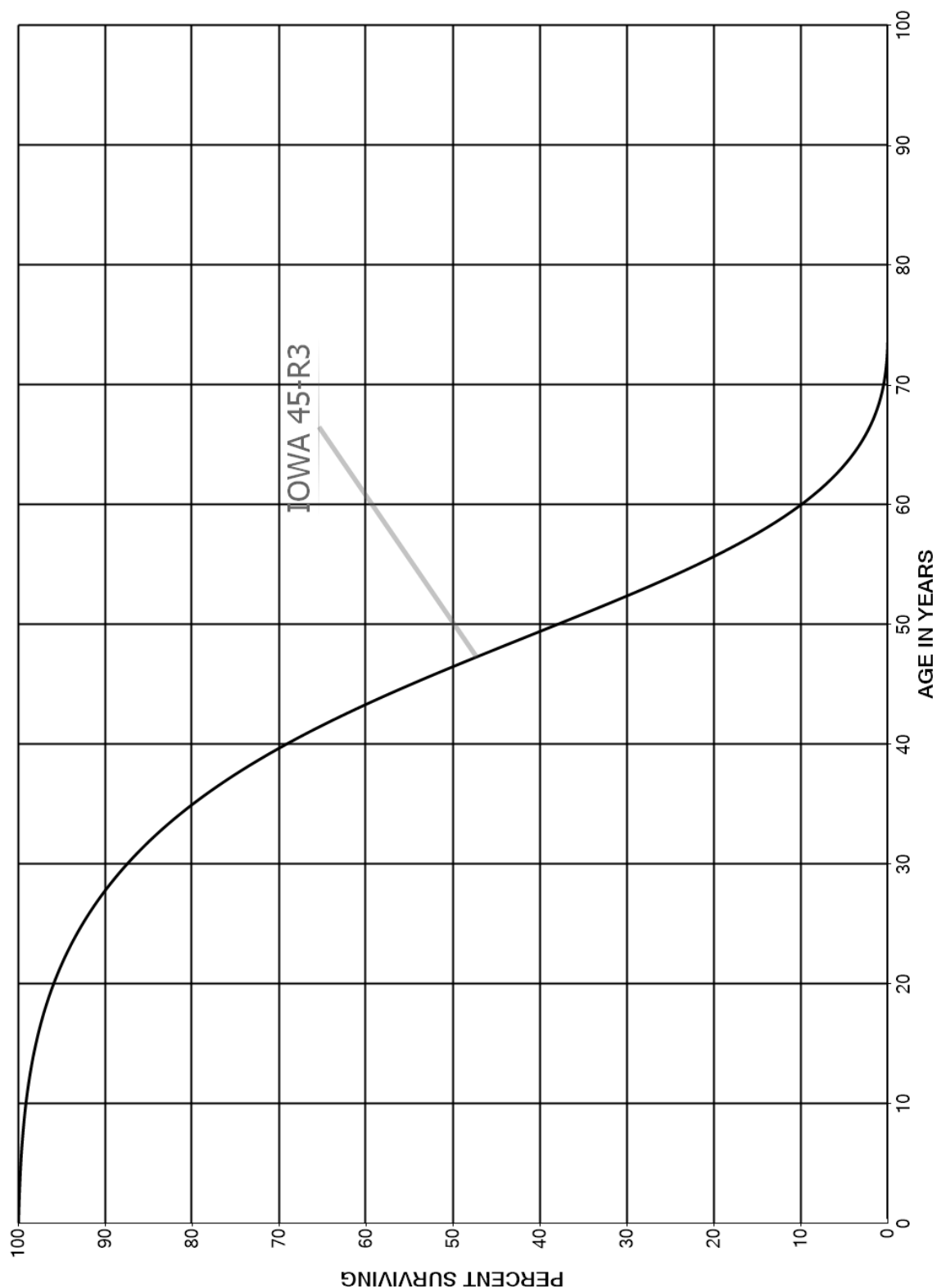
## ORIGINAL LIFE TABLE, CONT.

## PLACEMENT BAND 1936-2017

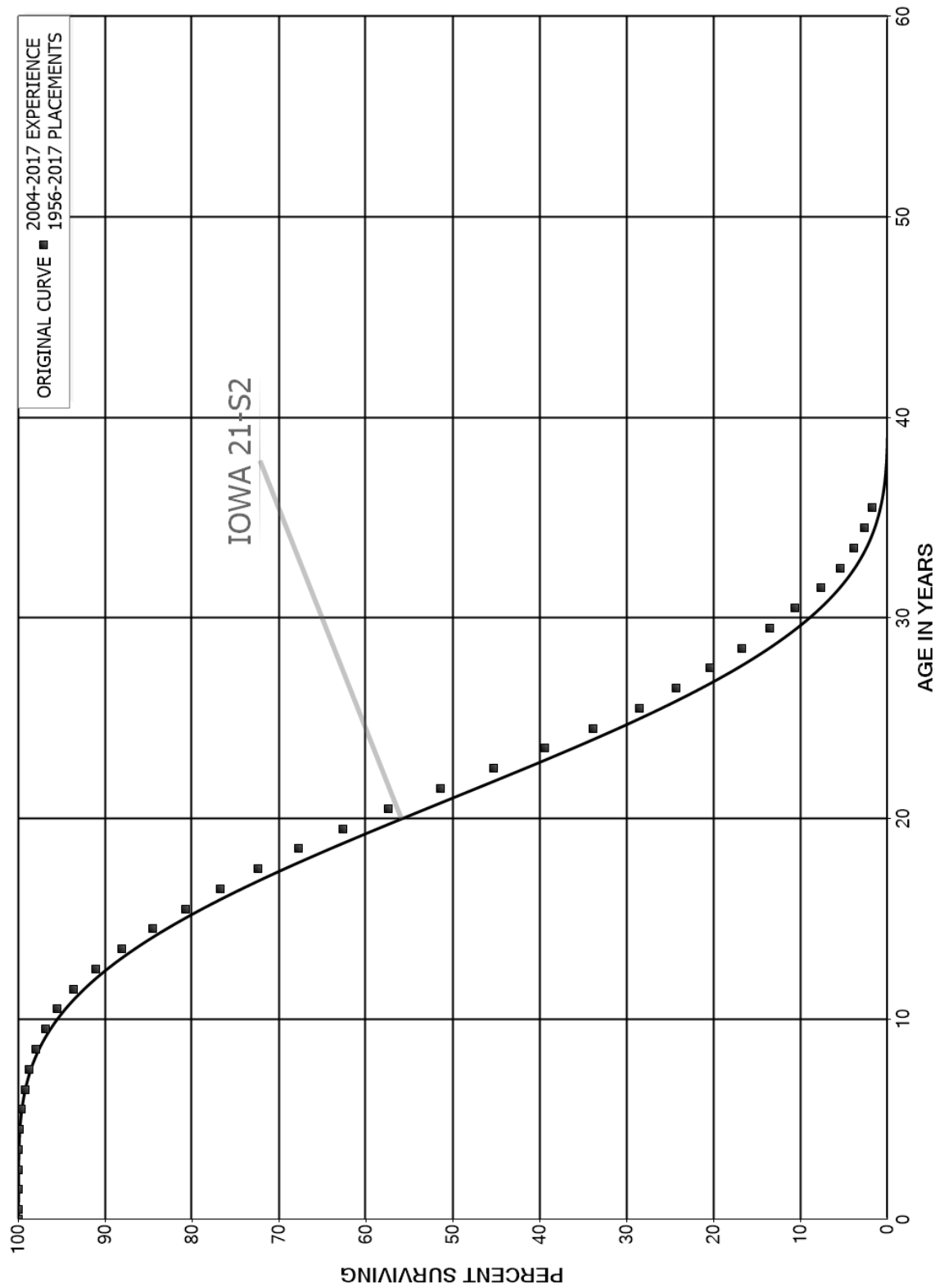
## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 3,124,725                                    | 96,927                                | 0.0310         | 0.9690        | 70.75                            |
| 40.5                           | 2,693,329                                    | 93,596                                | 0.0348         | 0.9652        | 68.56                            |
| 41.5                           | 2,258,406                                    | 83,707                                | 0.0371         | 0.9629        | 66.18                            |
| 42.5                           | 1,890,204                                    | 73,743                                | 0.0390         | 0.9610        | 63.72                            |
| 43.5                           | 1,599,131                                    | 67,427                                | 0.0422         | 0.9578        | 61.24                            |
| 44.5                           | 1,334,584                                    | 59,232                                | 0.0444         | 0.9556        | 58.65                            |
| 45.5                           | 1,116,782                                    | 53,058                                | 0.0475         | 0.9525        | 56.05                            |
| 46.5                           | 944,667                                      | 52,154                                | 0.0552         | 0.9448        | 53.39                            |
| 47.5                           | 800,156                                      | 55,637                                | 0.0695         | 0.9305        | 50.44                            |
| 48.5                           | 646,588                                      | 43,789                                | 0.0677         | 0.9323        | 46.93                            |
| 49.5                           | 535,441                                      | 36,415                                | 0.0680         | 0.9320        | 43.76                            |
| 50.5                           | 444,271                                      | 32,143                                | 0.0724         | 0.9276        | 40.78                            |
| 51.5                           | 368,859                                      | 24,402                                | 0.0662         | 0.9338        | 37.83                            |
| 52.5                           | 313,581                                      | 20,210                                | 0.0644         | 0.9356        | 35.33                            |
| 53.5                           | 267,003                                      | 15,261                                | 0.0572         | 0.9428        | 33.05                            |
| 54.5                           | 235,300                                      | 16,792                                | 0.0714         | 0.9286        | 31.16                            |
| 55.5                           | 201,452                                      | 19,493                                | 0.0968         | 0.9032        | 28.94                            |
| 56.5                           | 165,138                                      | 26,787                                | 0.1622         | 0.8378        | 26.14                            |
| 57.5                           | 119,511                                      | 29,832                                | 0.2496         | 0.7504        | 21.90                            |
| 58.5                           | 74,236                                       | 20,034                                | 0.2699         | 0.7301        | 16.43                            |
| 59.5                           | 48,639                                       | 16,699                                | 0.3433         | 0.6567        | 12.00                            |
| 60.5                           | 31,542                                       | 15,703                                | 0.4979         | 0.5021        | 7.88                             |
| 61.5                           | 15,838                                       | 6,668                                 | 0.4210         | 0.5790        | 3.96                             |
| 62.5                           | 9,170                                        | 3,882                                 | 0.4234         | 0.5766        | 2.29                             |
| 63.5                           | 5,288                                        | 1,770                                 | 0.3347         | 0.6653        | 1.32                             |
| 64.5                           | 3,518                                        | 1,458                                 | 0.4144         | 0.5856        | 0.88                             |
| 65.5                           | 2,060                                        | 968                                   | 0.4700         | 0.5300        | 0.51                             |
| 66.5                           | 1,092                                        | 1,026                                 | 0.9400         | 0.0600        | 0.27                             |
| 67.5                           | 66                                           | 66                                    | 1.0000         |               | 0.02                             |
| 68.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 369.02 SERVICES - UNDERGROUND  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 370.1 METERS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 370.1 METERS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1956-2017

## EXPERIENCE BAND 2004-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 11,546,874                                   | 1                                     | 0.0000         | 1.0000        | 100.00                           |
| 0.5                            | 11,477,962                                   | 181                                   | 0.0000         | 1.0000        | 100.00                           |
| 1.5                            | 11,454,699                                   | 1,632                                 | 0.0001         | 0.9999        | 100.00                           |
| 2.5                            | 11,520,116                                   | 6,017                                 | 0.0005         | 0.9995        | 99.98                            |
| 3.5                            | 11,175,670                                   | 13,772                                | 0.0012         | 0.9988        | 99.93                            |
| 4.5                            | 10,734,116                                   | 24,088                                | 0.0022         | 0.9978        | 99.81                            |
| 5.5                            | 9,874,293                                    | 36,629                                | 0.0037         | 0.9963        | 99.58                            |
| 6.5                            | 9,085,325                                    | 49,179                                | 0.0054         | 0.9946        | 99.22                            |
| 7.5                            | 8,044,941                                    | 61,336                                | 0.0076         | 0.9924        | 98.68                            |
| 8.5                            | 7,098,423                                    | 75,463                                | 0.0106         | 0.9894        | 97.93                            |
| 9.5                            | 6,205,838                                    | 91,065                                | 0.0147         | 0.9853        | 96.88                            |
| 10.5                           | 5,631,063                                    | 111,909                               | 0.0199         | 0.9801        | 95.46                            |
| 11.5                           | 4,970,423                                    | 132,029                               | 0.0266         | 0.9734        | 93.57                            |
| 12.5                           | 4,709,992                                    | 155,080                               | 0.0329         | 0.9671        | 91.08                            |
| 13.5                           | 4,331,141                                    | 173,195                               | 0.0400         | 0.9600        | 88.08                            |
| 14.5                           | 4,176,472                                    | 188,406                               | 0.0451         | 0.9549        | 84.56                            |
| 15.5                           | 3,885,498                                    | 192,871                               | 0.0496         | 0.9504        | 80.74                            |
| 16.5                           | 3,699,117                                    | 211,414                               | 0.0572         | 0.9428        | 76.74                            |
| 17.5                           | 3,357,167                                    | 214,492                               | 0.0639         | 0.9361        | 72.35                            |
| 18.5                           | 2,925,043                                    | 218,892                               | 0.0748         | 0.9252        | 67.73                            |
| 19.5                           | 2,632,176                                    | 223,299                               | 0.0848         | 0.9152        | 62.66                            |
| 20.5                           | 2,257,599                                    | 233,310                               | 0.1033         | 0.8967        | 57.34                            |
| 21.5                           | 1,912,428                                    | 227,854                               | 0.1191         | 0.8809        | 51.42                            |
| 22.5                           | 1,654,729                                    | 216,117                               | 0.1306         | 0.8694        | 45.29                            |
| 23.5                           | 1,454,731                                    | 204,368                               | 0.1405         | 0.8595        | 39.38                            |
| 24.5                           | 1,288,741                                    | 201,339                               | 0.1562         | 0.8438        | 33.84                            |
| 25.5                           | 1,101,808                                    | 165,260                               | 0.1500         | 0.8500        | 28.56                            |
| 26.5                           | 916,275                                      | 147,001                               | 0.1604         | 0.8396        | 24.27                            |
| 27.5                           | 765,974                                      | 136,317                               | 0.1780         | 0.8220        | 20.38                            |
| 28.5                           | 627,136                                      | 119,617                               | 0.1907         | 0.8093        | 16.75                            |
| 29.5                           | 527,297                                      | 114,471                               | 0.2171         | 0.7829        | 13.56                            |
| 30.5                           | 420,904                                      | 120,297                               | 0.2858         | 0.7142        | 10.61                            |
| 31.5                           | 328,044                                      | 95,095                                | 0.2899         | 0.7101        | 7.58                             |
| 32.5                           | 256,547                                      | 75,614                                | 0.2947         | 0.7053        | 5.38                             |
| 33.5                           | 197,940                                      | 64,313                                | 0.3249         | 0.6751        | 3.80                             |
| 34.5                           | 149,548                                      | 47,962                                | 0.3207         | 0.6793        | 2.56                             |
| 35.5                           | 110,378                                      | 40,479                                | 0.3667         | 0.6333        | 1.74                             |
| 36.5                           | 81,377                                       | 32,781                                | 0.4028         | 0.5972        | 1.10                             |
| 37.5                           | 59,476                                       | 23,734                                | 0.3991         | 0.6009        | 0.66                             |
| 38.5                           | 47,596                                       | 18,480                                | 0.3883         | 0.6117        | 0.40                             |

MARITIME ELECTRIC COMPANY

ACCOUNT 370.1 METERS

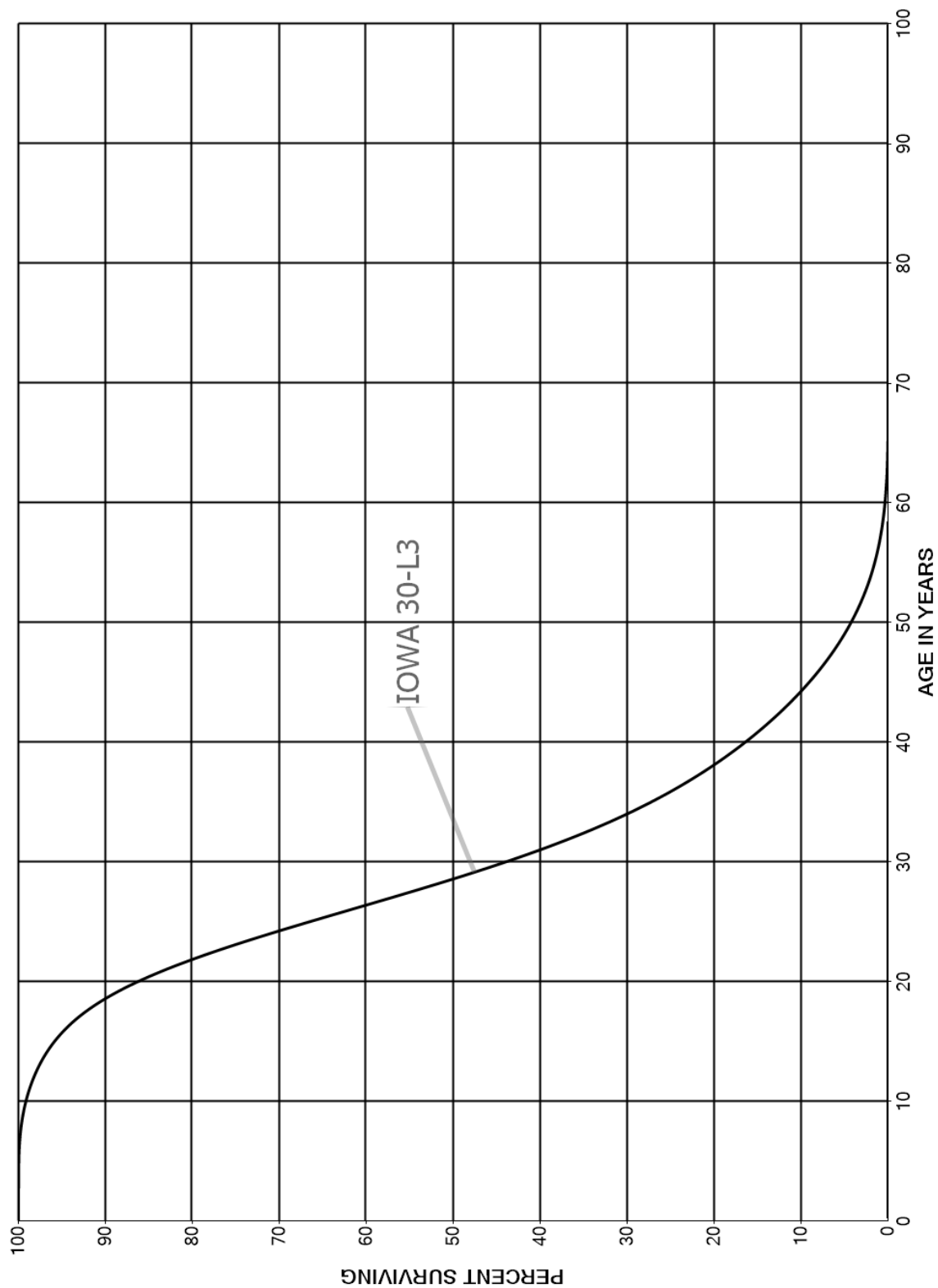
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1956-2017

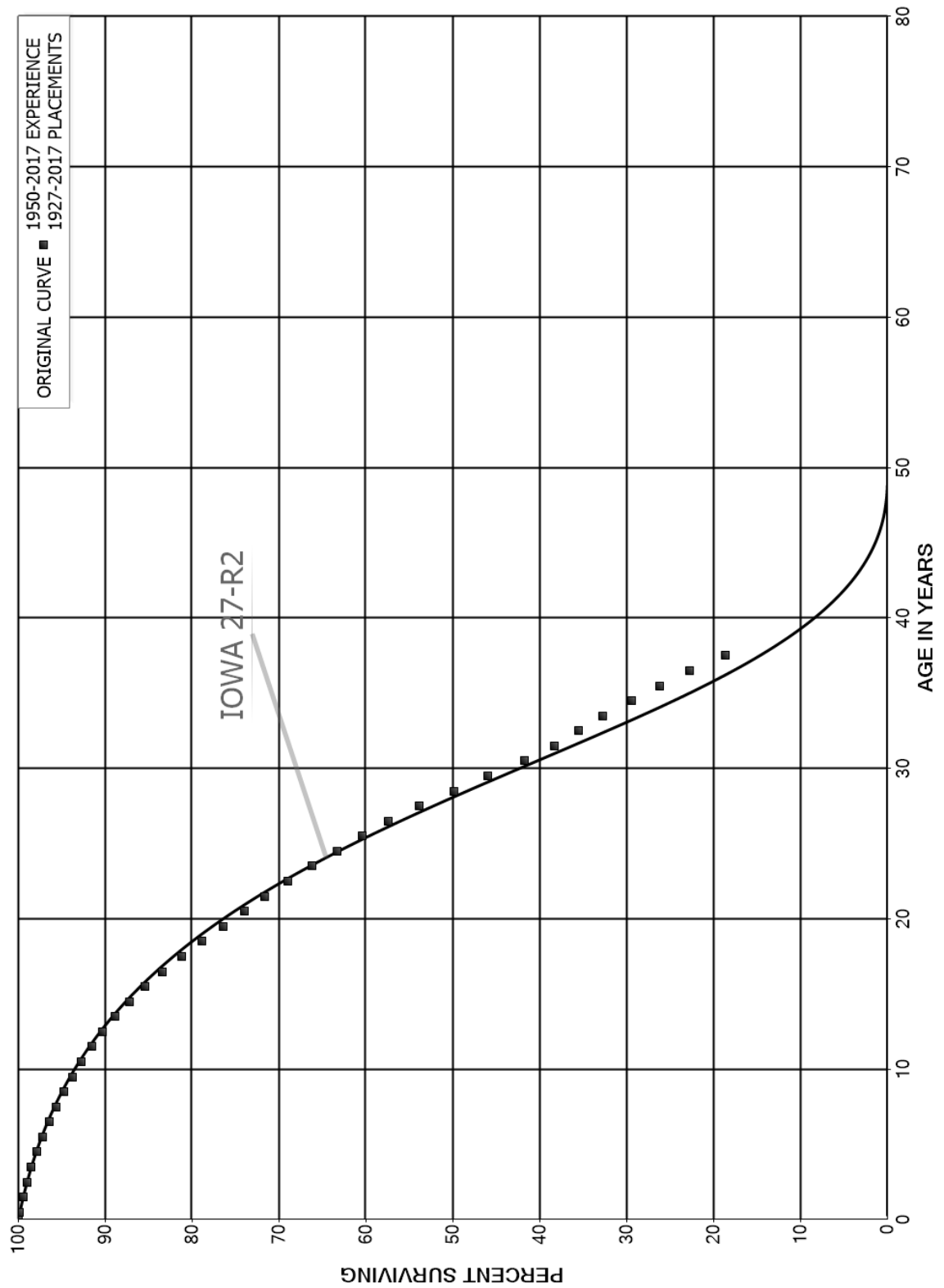
EXPERIENCE BAND 2004-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 37,642                                       | 13,646                                | 0.3625         | 0.6375        | 0.24                             |
| 40.5                           | 31,790                                       | 12,554                                | 0.3949         | 0.6051        | 0.15                             |
| 41.5                           | 23,307                                       | 11,044                                | 0.4738         | 0.5262        | 0.09                             |
| 42.5                           | 16,386                                       | 9,019                                 | 0.5504         | 0.4496        | 0.05                             |
| 43.5                           | 12,010                                       | 5,490                                 | 0.4571         | 0.5429        | 0.02                             |
| 44.5                           | 9,177                                        | 4,417                                 | 0.4813         | 0.5187        | 0.01                             |
| 45.5                           | 6,901                                        | 3,772                                 | 0.5465         | 0.4535        | 0.01                             |
| 46.5                           | 4,198                                        | 2,388                                 | 0.5690         | 0.4310        | 0.00                             |
| 47.5                           | 2,309                                        | 1,525                                 | 0.6607         | 0.3393        | 0.00                             |
| 48.5                           | 783                                          | 781                                   | 0.9968         | 0.0032        | 0.00                             |
| 49.5                           | 3                                            | 3                                     | 1.0000         |               | 0.00                             |
| 50.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 370.2 METER INSTALLATIONS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS  
ORIGINAL AND SMOOTH SURVIVOR CURVES



## MARITIME ELECTRIC COMPANY

## ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS

## ORIGINAL LIFE TABLE

## PLACEMENT BAND 1927-2017

## EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 7,943,252                                    | 12,943                                | 0.0016         | 0.9984        | 100.00                           |
| 0.5                            | 7,436,293                                    | 29,618                                | 0.0040         | 0.9960        | 99.84                            |
| 1.5                            | 6,533,726                                    | 30,315                                | 0.0046         | 0.9954        | 99.44                            |
| 2.5                            | 5,682,152                                    | 29,870                                | 0.0053         | 0.9947        | 98.98                            |
| 3.5                            | 5,329,633                                    | 32,204                                | 0.0060         | 0.9940        | 98.46                            |
| 4.5                            | 5,129,679                                    | 36,142                                | 0.0070         | 0.9930        | 97.86                            |
| 5.5                            | 4,976,023                                    | 39,031                                | 0.0078         | 0.9922        | 97.17                            |
| 6.5                            | 4,817,614                                    | 40,404                                | 0.0084         | 0.9916        | 96.41                            |
| 7.5                            | 4,653,313                                    | 43,500                                | 0.0093         | 0.9907        | 95.60                            |
| 8.5                            | 4,462,033                                    | 44,750                                | 0.0100         | 0.9900        | 94.71                            |
| 9.5                            | 4,255,486                                    | 47,040                                | 0.0111         | 0.9889        | 93.76                            |
| 10.5                           | 4,096,491                                    | 51,649                                | 0.0126         | 0.9874        | 92.72                            |
| 11.5                           | 3,893,537                                    | 55,670                                | 0.0143         | 0.9857        | 91.55                            |
| 12.5                           | 3,706,743                                    | 59,742                                | 0.0161         | 0.9839        | 90.24                            |
| 13.5                           | 3,535,743                                    | 65,797                                | 0.0186         | 0.9814        | 88.79                            |
| 14.5                           | 3,356,561                                    | 68,194                                | 0.0203         | 0.9797        | 87.14                            |
| 15.5                           | 3,090,062                                    | 72,770                                | 0.0235         | 0.9765        | 85.37                            |
| 16.5                           | 2,907,063                                    | 76,708                                | 0.0264         | 0.9736        | 83.36                            |
| 17.5                           | 2,686,214                                    | 77,314                                | 0.0288         | 0.9712        | 81.16                            |
| 18.5                           | 2,467,835                                    | 75,318                                | 0.0305         | 0.9695        | 78.82                            |
| 19.5                           | 2,257,228                                    | 71,458                                | 0.0317         | 0.9683        | 76.42                            |
| 20.5                           | 2,110,455                                    | 67,720                                | 0.0321         | 0.9679        | 74.00                            |
| 21.5                           | 1,964,674                                    | 74,861                                | 0.0381         | 0.9619        | 71.62                            |
| 22.5                           | 1,784,414                                    | 71,551                                | 0.0401         | 0.9599        | 68.89                            |
| 23.5                           | 1,517,306                                    | 65,344                                | 0.0431         | 0.9569        | 66.13                            |
| 24.5                           | 1,319,441                                    | 59,417                                | 0.0450         | 0.9550        | 63.28                            |
| 25.5                           | 1,147,233                                    | 58,579                                | 0.0511         | 0.9489        | 60.43                            |
| 26.5                           | 994,032                                      | 60,158                                | 0.0605         | 0.9395        | 57.35                            |
| 27.5                           | 828,796                                      | 62,151                                | 0.0750         | 0.9250        | 53.88                            |
| 28.5                           | 658,663                                      | 50,958                                | 0.0774         | 0.9226        | 49.84                            |
| 29.5                           | 506,258                                      | 46,399                                | 0.0917         | 0.9083        | 45.98                            |
| 30.5                           | 388,992                                      | 32,016                                | 0.0823         | 0.9177        | 41.77                            |
| 31.5                           | 290,376                                      | 21,463                                | 0.0739         | 0.9261        | 38.33                            |
| 32.5                           | 241,949                                      | 19,109                                | 0.0790         | 0.9210        | 35.50                            |
| 33.5                           | 202,371                                      | 20,425                                | 0.1009         | 0.8991        | 32.69                            |
| 34.5                           | 167,272                                      | 18,194                                | 0.1088         | 0.8912        | 29.39                            |
| 35.5                           | 136,781                                      | 18,349                                | 0.1341         | 0.8659        | 26.20                            |
| 36.5                           | 110,699                                      | 20,034                                | 0.1810         | 0.8190        | 22.68                            |
| 37.5                           | 85,194                                       | 24,434                                | 0.2868         | 0.7132        | 18.58                            |
| 38.5                           | 58,073                                       | 16,429                                | 0.2829         | 0.7171        | 13.25                            |



MARITIME ELECTRIC COMPANY

ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS

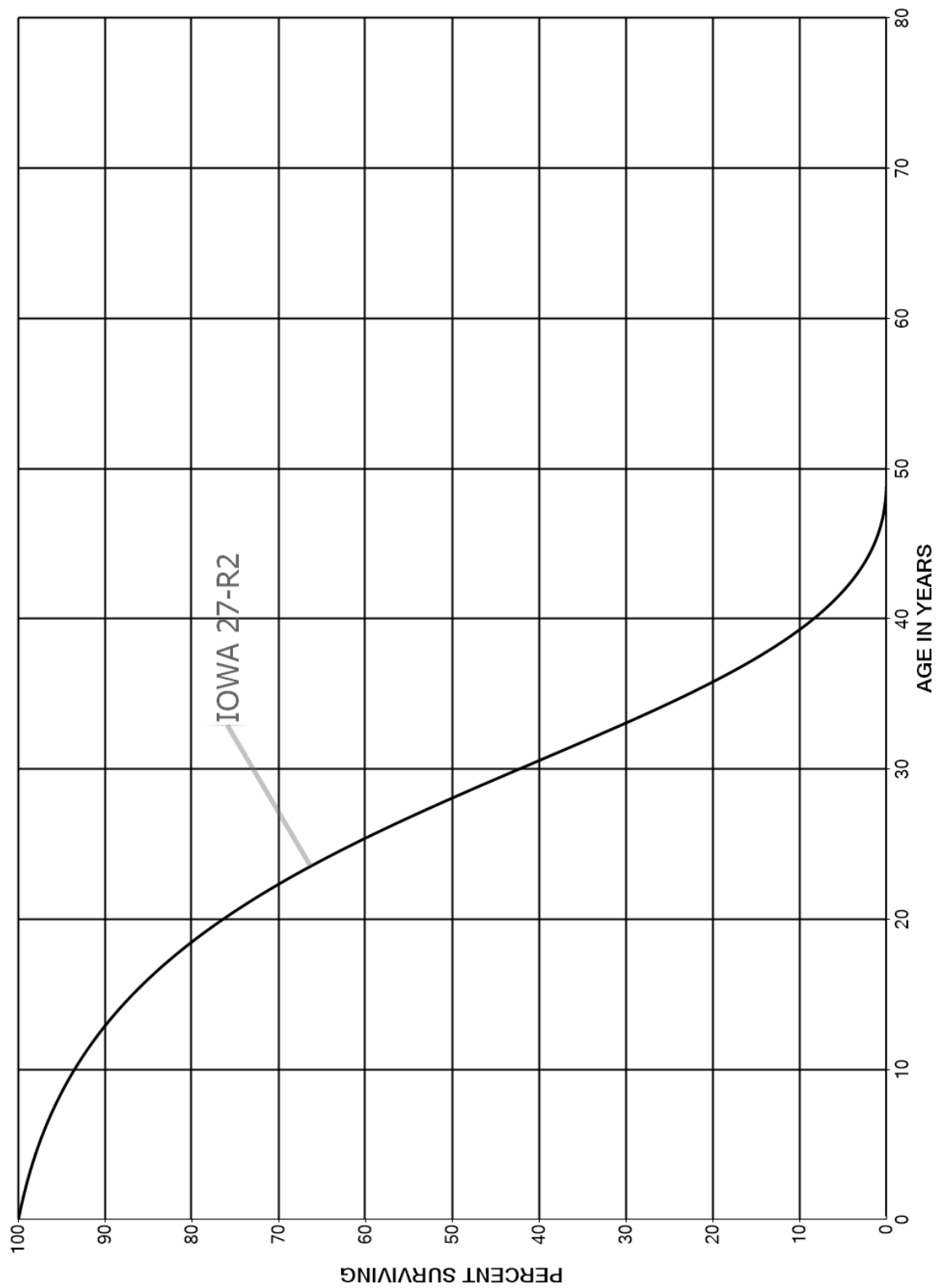
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1927-2017

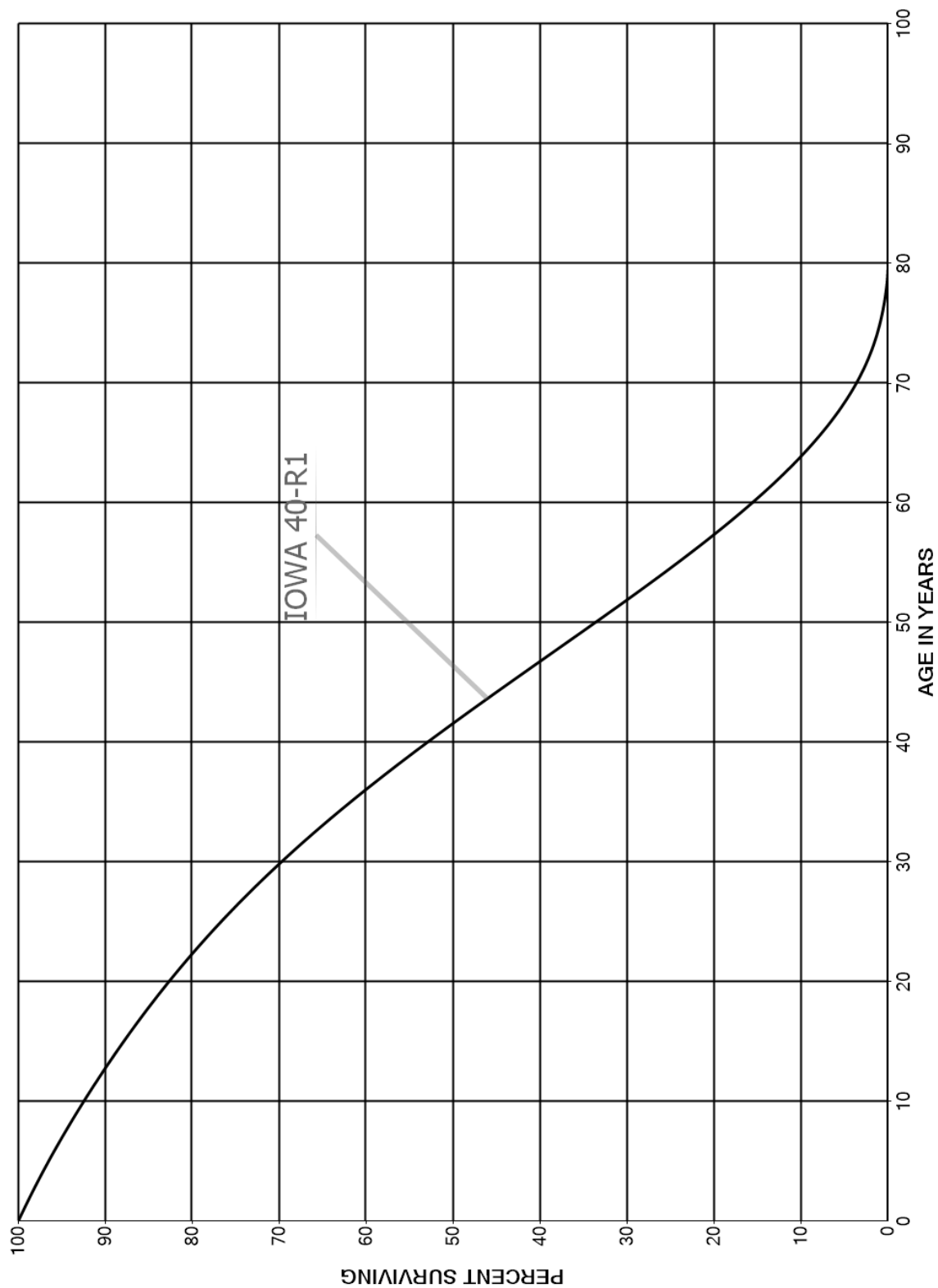
EXPERIENCE BAND 1950-2017

| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 39.5                           | 41,399                                       | 11,029                                | 0.2664         | 0.7336        | 9.50                             |
| 40.5                           | 30,371                                       | 12,696                                | 0.4180         | 0.5820        | 6.97                             |
| 41.5                           | 17,675                                       | 8,855                                 | 0.5010         | 0.4990        | 4.06                             |
| 42.5                           | 8,819                                        | 5,748                                 | 0.6518         | 0.3482        | 2.02                             |
| 43.5                           | 3,071                                        | 2,623                                 | 0.8539         | 0.1461        | 0.70                             |
| 44.5                           | 449                                          | 449                                   | 1.0000         |               | 0.10                             |
| 45.5                           |                                              |                                       |                |               |                                  |

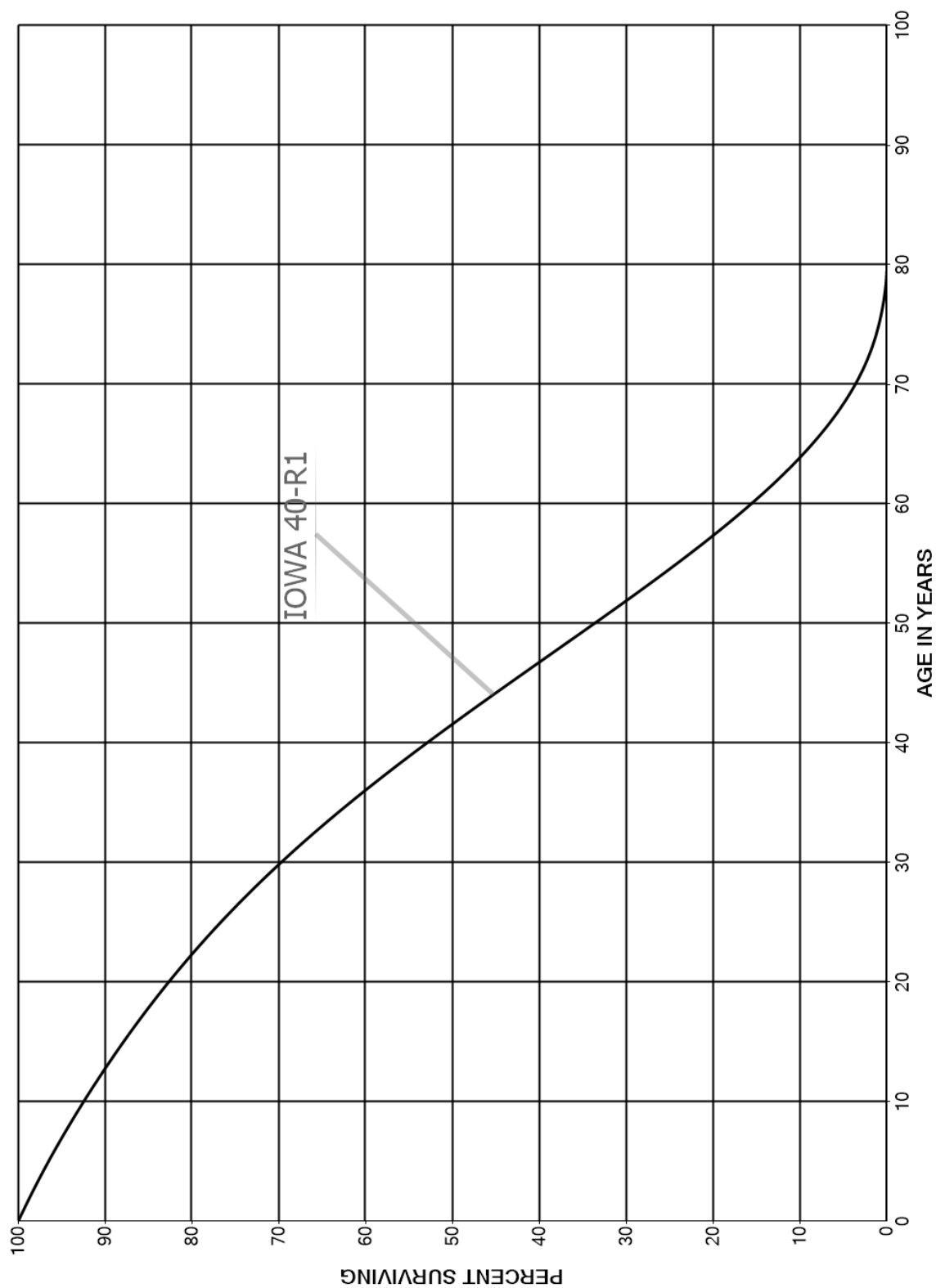
MARITIME ELECTRIC COMPANY  
ACCOUNT 373.2 STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND  
SMOOTH SURVIVOR CURVE



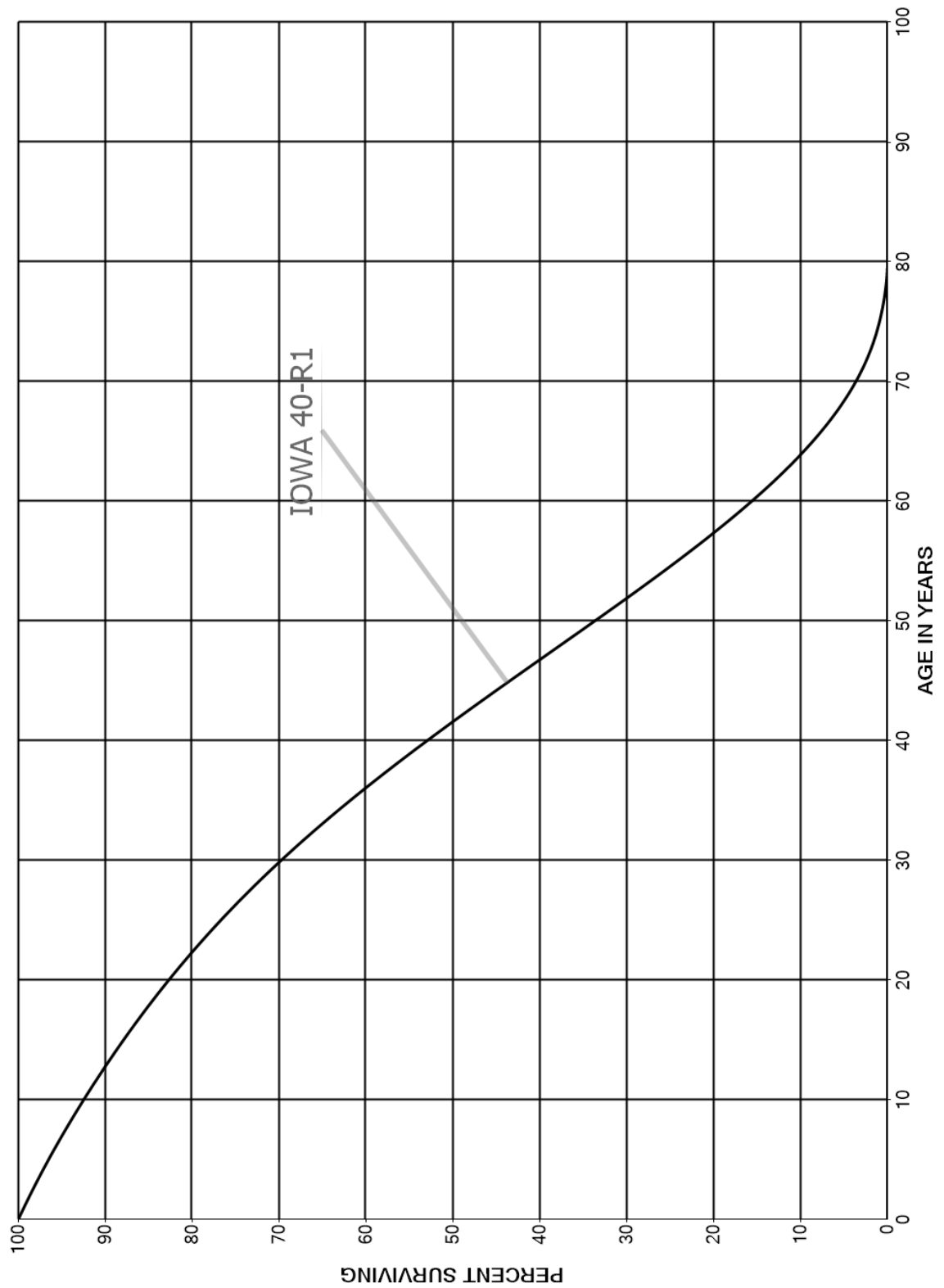
MARITIME ELECTRIC COMPANY  
ACCOUNT 390 STRUCTURES AND IMPROVEMENTS - ENERGY CONTROL CENTER  
SMOOTH SURVIVOR CURVE



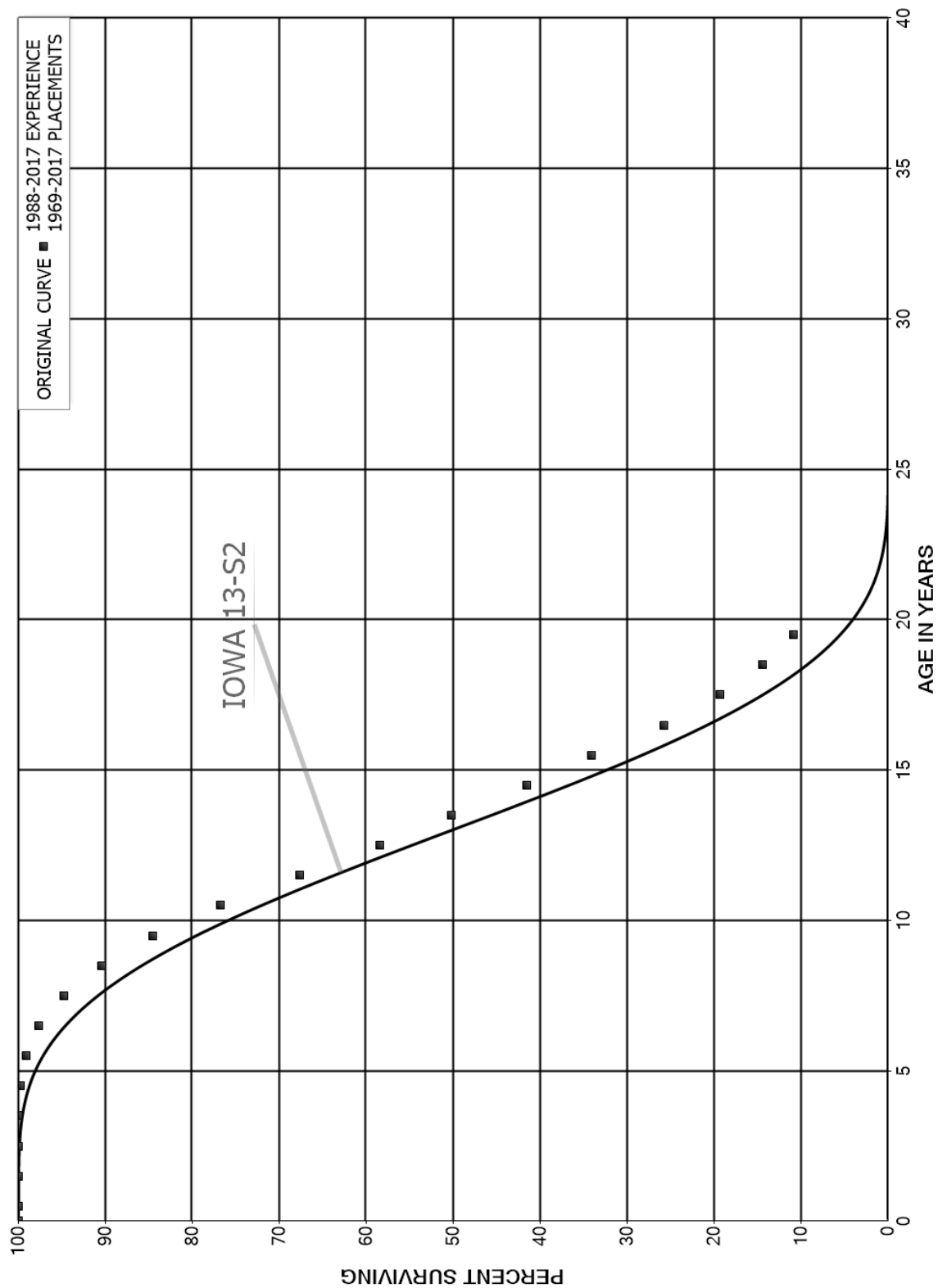
MARITIME ELECTRIC COMPANY  
ACCOUNT 390.11 STRUCTURES AND IMPROVEMENTS - OFFICE  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 390.12 STRUCTURES AND IMPROVEMENTS - DISTRICTS  
SMOOTH SURVIVOR CURVE



MARITIME ELECTRIC COMPANY  
ACCOUNT 392 TRANSPORTATION EQUIPMENT  
ORIGINAL AND SMOOTH SURVIVOR CURVES



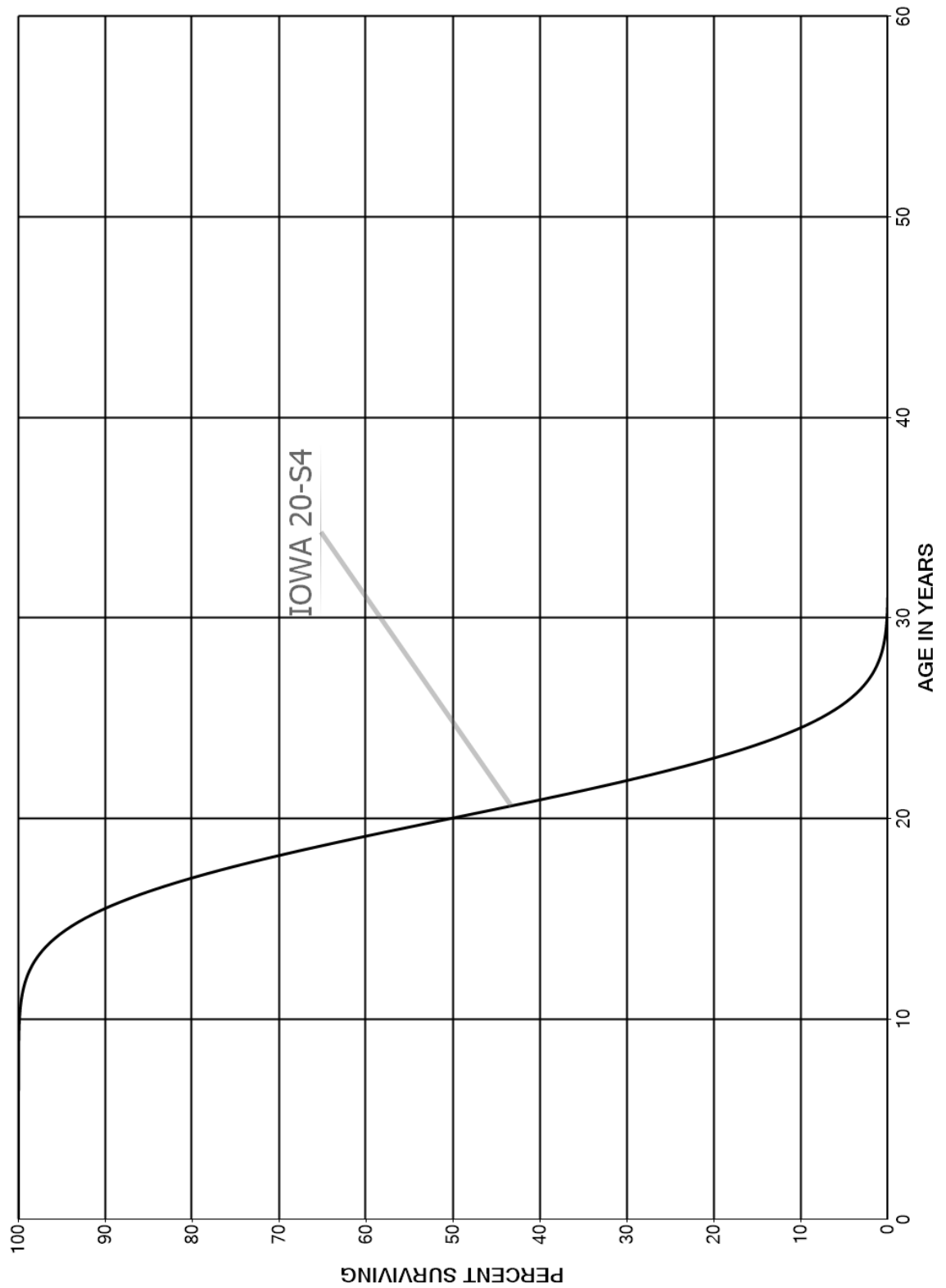
MARITIME ELECTRIC COMPANY  
ACCOUNT 392 TRANSPORTATION EQUIPMENT  
ORIGINAL LIFE TABLE

PLACEMENT BAND 1969-2017

EXPERIENCE BAND 1988-2017

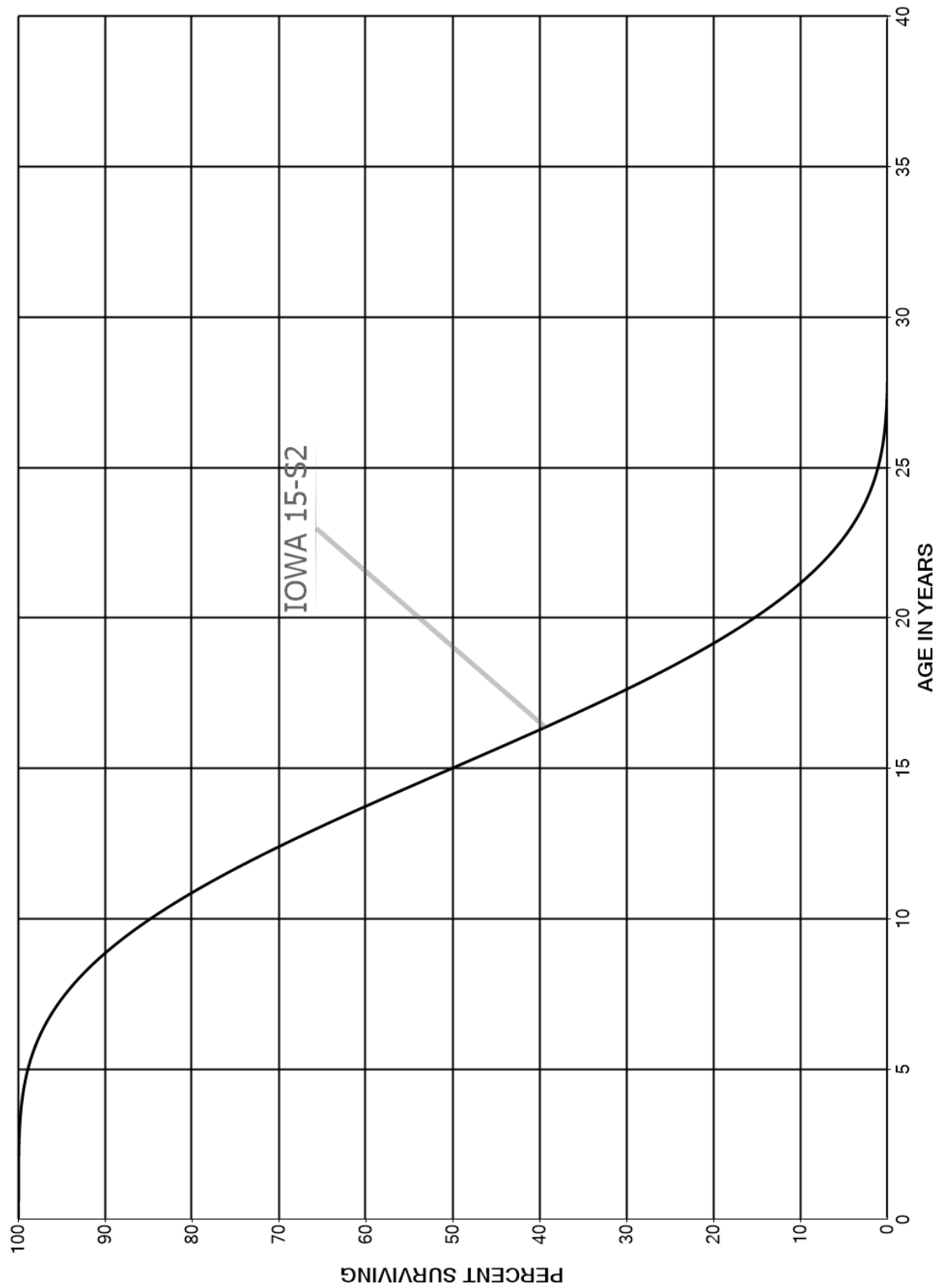
| AGE AT<br>BEGIN OF<br>INTERVAL | EXPOSURES AT<br>BEGINNING OF<br>AGE INTERVAL | RETIREMENTS<br>DURING AGE<br>INTERVAL | RETMT<br>RATIO | SURV<br>RATIO | PCT SURV<br>BEGIN OF<br>INTERVAL |
|--------------------------------|----------------------------------------------|---------------------------------------|----------------|---------------|----------------------------------|
| 0.0                            | 16,676,996                                   |                                       | 0.0000         | 1.0000        | 100.00                           |
| 0.5                            | 15,386,094                                   | 20                                    | 0.0000         | 1.0000        | 100.00                           |
| 1.5                            | 14,617,230                                   | 682                                   | 0.0000         | 1.0000        | 100.00                           |
| 2.5                            | 14,448,691                                   | 7,072                                 | 0.0005         | 0.9995        | 100.00                           |
| 3.5                            | 13,177,423                                   | 26,768                                | 0.0020         | 0.9980        | 99.95                            |
| 4.5                            | 12,781,340                                   | 81,802                                | 0.0064         | 0.9936        | 99.74                            |
| 5.5                            | 11,909,201                                   | 172,583                               | 0.0145         | 0.9855        | 99.10                            |
| 6.5                            | 11,068,846                                   | 332,632                               | 0.0301         | 0.9699        | 97.67                            |
| 7.5                            | 9,944,153                                    | 450,659                               | 0.0453         | 0.9547        | 94.73                            |
| 8.5                            | 8,730,249                                    | 572,873                               | 0.0656         | 0.9344        | 90.44                            |
| 9.5                            | 7,732,217                                    | 708,791                               | 0.0917         | 0.9083        | 84.51                            |
| 10.5                           | 6,543,247                                    | 775,344                               | 0.1185         | 0.8815        | 76.76                            |
| 11.5                           | 5,107,327                                    | 703,042                               | 0.1377         | 0.8623        | 67.66                            |
| 12.5                           | 4,043,741                                    | 568,325                               | 0.1405         | 0.8595        | 58.35                            |
| 13.5                           | 3,032,367                                    | 525,838                               | 0.1734         | 0.8266        | 50.15                            |
| 14.5                           | 2,189,292                                    | 389,614                               | 0.1780         | 0.8220        | 41.45                            |
| 15.5                           | 1,446,640                                    | 355,748                               | 0.2459         | 0.7541        | 34.08                            |
| 16.5                           | 691,410                                      | 172,456                               | 0.2494         | 0.7506        | 25.70                            |
| 17.5                           | 394,190                                      | 100,943                               | 0.2561         | 0.7439        | 19.29                            |
| 18.5                           | 233,282                                      | 56,557                                | 0.2424         | 0.7576        | 14.35                            |
| 19.5                           | 130,938                                      | 33,739                                | 0.2577         | 0.7423        | 10.87                            |
| 20.5                           | 67,986                                       | 15,616                                | 0.2297         | 0.7703        | 8.07                             |
| 21.5                           | 41,801                                       | 16,216                                | 0.3879         | 0.6121        | 6.22                             |
| 22.5                           | 16,489                                       | 11,440                                | 0.6938         | 0.3062        | 3.80                             |
| 23.5                           | 1,672                                        | 1,672                                 | 1.0000         |               | 1.16                             |
| 24.5                           |                                              |                                       |                |               |                                  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 397 COMMUNICATION EQUIPMENT  
SMOOTH SURVIVOR CURVE





MARITIME ELECTRIC COMPANY  
 ACCOUNT 397.5 COMMUNICATION EQUIPMENT - SCADA  
 SMOOTH SURVIVOR CURVE



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## PART VIII. NET SALVAGE STATISTICS



## MARITIME ELECTRIC COMPANY

CALCULATION OF WEIGHTED NET SALVAGE PERCENT FOR PRODUCTION PLANT<sup>1</sup>

| ACCOUNT<br>(1)                           | TERMINAL RETIREMENTS        |                               |                                              | INTERIM RETIREMENTS         |                                       |                                      | TOTAL      | ORIGINAL<br>COST<br>(9) | ESTIMATED<br>NET SALVAGE<br>PERCENT<br>(10)=(8)/(9) |
|------------------------------------------|-----------------------------|-------------------------------|----------------------------------------------|-----------------------------|---------------------------------------|--------------------------------------|------------|-------------------------|-----------------------------------------------------|
|                                          | RETIREMENT<br>AMOUNT<br>(2) | NET SALVAGE<br>AMOUNT*<br>(3) | NET SALVAGE<br>PERCENT<br>(4)=(3)/(2)<br>(6) | RETIREMENT<br>AMOUNT<br>(5) | NET SALVAGE<br>PERCENT<br>(7)=(5)/(6) | NET SALVAGE<br>AMOUNT<br>(8)=(3)+(7) |            |                         |                                                     |
| CHARLOTTETOWN STEAM PLANT                |                             |                               |                                              |                             |                                       |                                      |            |                         |                                                     |
| 3311 STRUCTURES & IMPROVEMENTS           | 8,816,774                   |                               |                                              | 189,264                     | (10)                                  | 18,926                               |            | 9,006,038               |                                                     |
| 3312 BOILER PLANT EQUIPMENT              | 25,915,197                  |                               |                                              | 530,783                     | (10)                                  | 53,078                               |            | 26,445,980              |                                                     |
| 3314 TURBOGENERATOR UNITS                | 21,191,657                  |                               |                                              | 309,944                     | (10)                                  | 30,994                               |            | 21,501,600              |                                                     |
| 3315 ACCESSORY ELECTRICAL EQUIPMENT      | 2,221,085                   |                               |                                              | 62,028                      | (10)                                  | 6,203                                |            | 2,283,113               |                                                     |
| 3316 MISCELLANEOUS POWER PLANT EQUIPMENT | 1,460,536                   |                               |                                              | 52,350                      | (10)                                  | 5,235                                |            | 1,512,887               |                                                     |
| TOTAL                                    | 59,605,250                  | 11,298,469                    | (19)                                         | 1,144,368                   | (10)                                  | 114,437                              | 11,412,906 | 60,749,618              | (19)                                                |

<sup>1</sup>Per Decommissioning Study, stated in estimated 2022 Canadian dollar.

MARITIME ELECTRIC COMPANY

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2000  | 13,776                 |                              | 0   |                            | 0   |                          | 0   |
| 2001  |                        |                              |     |                            |     |                          |     |
| 2002  |                        |                              |     |                            |     |                          |     |
| 2003  |                        |                              |     |                            |     |                          |     |
| 2004  |                        |                              |     |                            |     |                          |     |
| 2005  |                        |                              |     |                            |     |                          |     |
| 2006  | 2,900                  |                              | 0   |                            | 0   |                          | 0   |
| 2007  |                        |                              |     |                            |     |                          |     |
| 2008  |                        |                              |     |                            |     |                          |     |
| 2009  |                        |                              |     |                            |     |                          |     |
| 2010  |                        |                              |     |                            |     |                          |     |
| 2011  |                        |                              |     |                            |     |                          |     |
| 2012  |                        |                              |     |                            |     |                          |     |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        |                              |     |                            |     |                          |     |
| 2015  |                        |                              |     |                            |     |                          |     |
| 2016  |                        |                              |     |                            |     |                          |     |
| 2017  |                        |                              |     |                            |     |                          |     |
| TOTAL | 16,676                 |                              | 0   |                            | 0   |                          | 0   |

THREE-YEAR MOVING AVERAGES

|       |       |  |   |  |   |  |   |
|-------|-------|--|---|--|---|--|---|
| 00-02 | 4,592 |  | 0 |  | 0 |  | 0 |
| 01-03 |       |  |   |  |   |  |   |
| 02-04 |       |  |   |  |   |  |   |
| 03-05 |       |  |   |  |   |  |   |
| 04-06 | 967   |  | 0 |  | 0 |  | 0 |
| 05-07 | 967   |  | 0 |  | 0 |  | 0 |
| 06-08 | 967   |  | 0 |  | 0 |  | 0 |
| 07-09 |       |  |   |  |   |  |   |
| 08-10 |       |  |   |  |   |  |   |
| 09-11 |       |  |   |  |   |  |   |
| 10-12 |       |  |   |  |   |  |   |
| 11-13 |       |  |   |  |   |  |   |
| 12-14 |       |  |   |  |   |  |   |
| 13-15 |       |  |   |  |   |  |   |
| 14-16 |       |  |   |  |   |  |   |
| 15-17 |       |  |   |  |   |  |   |

FIVE-YEAR AVERAGE

13-17

## MARITIME ELECTRIC COMPANY

## ACCOUNT 344 GENERATORS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1999  | 127,955                | 14,497                       | 11  |                            | 0   | 14,497-                  | 11-  |
| 2000  |                        | 363                          |     |                            |     | 363-                     |      |
| 2001  | 238,340                | 6,641                        | 3   |                            | 0   | 6,641-                   | 3-   |
| 2002  |                        | 476                          |     |                            |     | 476-                     |      |
| 2003  | 56,300                 |                              | 0   |                            | 0   |                          | 0    |
| 2004  |                        |                              |     |                            |     |                          |      |
| 2005  | 74,000                 | 1,761                        | 2   |                            | 0   | 1,761-                   | 2-   |
| 2006  | 20,500                 | 142,503                      | 695 |                            | 0   | 142,503-                 | 695- |
| 2007  |                        | 58,366                       |     |                            |     | 58,366-                  |      |
| 2008  |                        | 1,173                        |     |                            |     | 1,173-                   |      |
| 2009  |                        |                              |     |                            |     |                          |      |
| 2010  | 10,527                 |                              | 0   |                            | 0   |                          | 0    |
| 2011  | 313,668                |                              | 0   |                            | 0   |                          | 0    |
| 2012  | 43,916                 |                              | 0   |                            | 0   |                          | 0    |
| 2013  | 123,500                |                              | 0   |                            | 0   |                          | 0    |
| 2014  | 343,100                |                              | 0   |                            | 0   |                          | 0    |
| 2015  | 77,900                 |                              | 0   |                            | 0   |                          | 0    |
| 2016  | 427,172                |                              | 0   |                            | 0   |                          | 0    |
| 2017  | 387,698                |                              | 0   |                            | 0   |                          | 0    |
| TOTAL | 2,244,577              | 225,779                      | 10  |                            | 0   | 225,779-                 | 10-  |

## THREE-YEAR MOVING AVERAGES

|       |         |        |     |  |   |         |      |
|-------|---------|--------|-----|--|---|---------|------|
| 99-01 | 122,098 | 7,167  | 6   |  | 0 | 7,167-  | 6-   |
| 00-02 | 79,447  | 2,493  | 3   |  | 0 | 2,493-  | 3-   |
| 01-03 | 98,213  | 2,372  | 2   |  | 0 | 2,372-  | 2-   |
| 02-04 | 18,767  | 159    | 1   |  | 0 | 159-    | 1-   |
| 03-05 | 43,433  | 587    | 1   |  | 0 | 587-    | 1-   |
| 04-06 | 31,500  | 48,088 | 153 |  | 0 | 48,088- | 153- |
| 05-07 | 31,500  | 67,543 | 214 |  | 0 | 67,543- | 214- |
| 06-08 | 6,833   | 67,347 | 986 |  | 0 | 67,347- | 986- |
| 07-09 |         | 19,846 |     |  |   | 19,846- |      |
| 08-10 | 3,509   | 391    | 11  |  | 0 | 391-    | 11-  |
| 09-11 | 108,065 |        | 0   |  | 0 |         | 0    |
| 10-12 | 122,704 |        | 0   |  | 0 |         | 0    |
| 11-13 | 160,361 |        | 0   |  | 0 |         | 0    |
| 12-14 | 170,172 |        | 0   |  | 0 |         | 0    |
| 13-15 | 181,500 |        | 0   |  | 0 |         | 0    |

MARITIME ELECTRIC COMPANY

ACCOUNT 344 GENERATORS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 282,724                |                              | 0   |                            | 0   |                          | 0   |
| 15-17                      | 297,590                |                              | 0   |                            | 0   |                          | 0   |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 271,874                |                              | 0   |                            | 0   |                          | 0   |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2001  | 9,117                  |                              | 0   |                            | 0   |                          | 0   |
| 2002  | 17,073                 |                              | 0   |                            | 0   |                          | 0   |
| 2003  |                        |                              |     |                            |     |                          |     |
| 2004  |                        |                              |     |                            |     |                          |     |
| 2005  |                        |                              |     |                            |     |                          |     |
| 2006  |                        |                              |     |                            |     |                          |     |
| 2007  |                        |                              |     |                            |     |                          |     |
| 2008  |                        |                              |     |                            |     |                          |     |
| 2009  |                        |                              |     |                            |     |                          |     |
| 2010  |                        |                              |     |                            |     |                          |     |
| 2011  |                        |                              |     |                            |     |                          |     |
| 2012  |                        |                              |     |                            |     |                          |     |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        |                              |     |                            |     |                          |     |
| 2015  |                        |                              |     |                            |     |                          |     |
| 2016  |                        |                              |     |                            |     |                          |     |
| 2017  |                        |                              |     |                            |     |                          |     |
| TOTAL | 26,190                 |                              | 0   |                            | 0   |                          | 0   |

## THREE-YEAR MOVING AVERAGES

|       |       |  |   |  |   |  |   |
|-------|-------|--|---|--|---|--|---|
| 01-03 | 8,730 |  | 0 |  | 0 |  | 0 |
| 02-04 | 5,691 |  | 0 |  | 0 |  | 0 |
| 03-05 |       |  |   |  |   |  |   |
| 04-06 |       |  |   |  |   |  |   |
| 05-07 |       |  |   |  |   |  |   |
| 06-08 |       |  |   |  |   |  |   |
| 07-09 |       |  |   |  |   |  |   |
| 08-10 |       |  |   |  |   |  |   |
| 09-11 |       |  |   |  |   |  |   |
| 10-12 |       |  |   |  |   |  |   |
| 11-13 |       |  |   |  |   |  |   |
| 12-14 |       |  |   |  |   |  |   |
| 13-15 |       |  |   |  |   |  |   |
| 14-16 |       |  |   |  |   |  |   |
| 15-17 |       |  |   |  |   |  |   |

## FIVE-YEAR AVERAGE

13-17

MARITIME ELECTRIC COMPANY  
ACCOUNT 353 SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 1998  | 96,777                 | 1,030                        | 1   |                            | 0   | 1,030-                   | 1-  |
| 1999  | 73,279                 |                              | 0   |                            | 0   |                          | 0   |
| 2000  | 17,217                 |                              | 0   |                            | 0   |                          | 0   |
| 2001  | 204,285                |                              | 0   |                            | 0   |                          | 0   |
| 2002  |                        |                              |     |                            |     |                          |     |
| 2003  |                        |                              |     |                            |     |                          |     |
| 2004  |                        |                              |     |                            |     |                          |     |
| 2005  |                        |                              |     |                            |     |                          |     |
| 2006  |                        |                              |     |                            |     |                          |     |
| 2007  | 38,131                 |                              | 0   |                            | 0   |                          | 0   |
| 2008  | 447,662                | 22,143                       | 5   |                            | 0   | 22,143-                  | 5-  |
| 2009  | 23,282                 | 4,123                        | 18  |                            | 0   | 4,123-                   | 18- |
| 2010  | 27,938                 | 398                          | 1   |                            | 0   | 398-                     | 1-  |
| 2011  |                        | 6,230                        |     |                            |     | 6,230-                   |     |
| 2012  | 34,560                 |                              | 0   |                            | 0   |                          | 0   |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        | 9,744                        |     |                            |     | 9,744-                   |     |
| 2015  |                        |                              |     |                            |     |                          |     |
| 2016  |                        |                              |     |                            |     |                          |     |
| 2017  |                        |                              |     |                            |     |                          |     |
| TOTAL | 963,131                | 43,668                       | 5   |                            | 0   | 43,668-                  | 5-  |

THREE-YEAR MOVING AVERAGES

|       |         |       |    |  |   |        |     |
|-------|---------|-------|----|--|---|--------|-----|
| 98-00 | 62,425  | 343   | 1  |  | 0 | 343-   | 1-  |
| 99-01 | 98,260  |       | 0  |  | 0 |        | 0   |
| 00-02 | 73,834  |       | 0  |  | 0 |        | 0   |
| 01-03 | 68,095  |       | 0  |  | 0 |        | 0   |
| 02-04 |         |       |    |  |   |        |     |
| 03-05 |         |       |    |  |   |        |     |
| 04-06 |         |       |    |  |   |        |     |
| 05-07 | 12,710  |       | 0  |  | 0 |        | 0   |
| 06-08 | 161,931 | 7,381 | 5  |  | 0 | 7,381- | 5-  |
| 07-09 | 169,692 | 8,755 | 5  |  | 0 | 8,755- | 5-  |
| 08-10 | 166,294 | 8,888 | 5  |  | 0 | 8,888- | 5-  |
| 09-11 | 17,073  | 3,584 | 21 |  | 0 | 3,584- | 21- |
| 10-12 | 20,833  | 2,209 | 11 |  | 0 | 2,209- | 11- |
| 11-13 | 11,520  | 2,077 | 18 |  | 0 | 2,077- | 18- |
| 12-14 | 11,520  | 3,248 | 28 |  | 0 | 3,248- | 28- |
| 13-15 |         | 3,248 |    |  |   | 3,248- |     |



MARITIME ELECTRIC COMPANY  
ACCOUNT 353 SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      |                        | 3,248                        |     |                            |     | 3,248-                   |     |
| 15-17                      |                        |                              |     |                            |     |                          |     |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      |                        | 1,949                        |     |                            |     | 1,949-                   |     |

## MARITIME ELECTRIC COMPANY

## ACCOUNTS 355 AND 356 POLES AND FIXTURES AND OVERHEAD CONDUCTORS AND DEVICES

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT  | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|------|----------------------------|-----|--------------------------|------|
| 1998  | 109,986                | 9,099-                       | 8-   |                            | 0   | 9,099                    | 8    |
| 1999  | 107,811                | 46,426                       | 43   |                            | 0   | 46,426-                  | 43-  |
| 2000  |                        | 60,847                       |      |                            |     | 60,847-                  |      |
| 2001  | 137,006                |                              | 0    |                            | 0   |                          | 0    |
| 2002  |                        |                              |      |                            |     |                          |      |
| 2003  | 159,216                | 94,294                       | 59   |                            | 0   | 94,294-                  | 59-  |
| 2004  | 36,184                 | 48,742                       | 135  |                            | 0   | 48,742-                  | 135- |
| 2005  | 60,972                 | 99,700                       | 164  |                            | 0   | 99,700-                  | 164- |
| 2006  | 18,481                 | 72,783                       | 394  |                            | 0   | 72,783-                  | 394- |
| 2007  | 289,761                | 49,690                       | 17   |                            | 0   | 49,690-                  | 17-  |
| 2008  | 164,252                | 8,844                        | 5    |                            | 0   | 8,844-                   | 5-   |
| 2009  | 20,178                 | 29,987-                      | 149- |                            | 0   | 29,987                   | 149  |
| 2010  | 5,131                  | 126,902                      |      |                            | 0   | 126,902-                 |      |
| 2011  | 24,190                 | 55,904                       | 231  |                            | 0   | 55,904-                  | 231- |
| 2012  | 21,176                 | 5,386                        | 25   |                            | 0   | 5,386-                   | 25-  |
| 2013  | 10,096                 | 22,672                       | 225  |                            | 0   | 22,672-                  | 225- |
| 2014  | 16,809                 | 57,298                       | 341  |                            | 0   | 57,298-                  | 341- |
| 2015  | 77,921                 | 212,598                      | 273  | 11,069                     | 14  | 201,529-                 | 259- |
| 2016  | 12,841                 | 18,487                       | 144  |                            | 0   | 18,487-                  | 144- |
| 2017  | 25,507                 | 26,504                       | 104  |                            | 0   | 26,504-                  | 104- |
| TOTAL | 1,297,518              | 967,993                      | 75   | 11,069                     | 1   | 956,924-                 | 74-  |

## THREE-YEAR MOVING AVERAGES

|       |         |        |     |       |    |         |      |
|-------|---------|--------|-----|-------|----|---------|------|
| 98-00 | 72,599  | 32,725 | 45  |       | 0  | 32,725- | 45-  |
| 99-01 | 81,606  | 35,758 | 44  |       | 0  | 35,758- | 44-  |
| 00-02 | 45,669  | 20,282 | 44  |       | 0  | 20,282- | 44-  |
| 01-03 | 98,741  | 31,431 | 32  |       | 0  | 31,431- | 32-  |
| 02-04 | 65,133  | 47,679 | 73  |       | 0  | 47,679- | 73-  |
| 03-05 | 85,457  | 80,912 | 95  |       | 0  | 80,912- | 95-  |
| 04-06 | 38,546  | 73,742 | 191 |       | 0  | 73,742- | 191- |
| 05-07 | 123,071 | 74,058 | 60  |       | 0  | 74,058- | 60-  |
| 06-08 | 157,498 | 43,772 | 28  |       | 0  | 43,772- | 28-  |
| 07-09 | 158,064 | 9,516  | 6   |       | 0  | 9,516-  | 6-   |
| 08-10 | 63,187  | 35,253 | 56  |       | 0  | 35,253- | 56-  |
| 09-11 | 16,500  | 50,940 | 309 |       | 0  | 50,940- | 309- |
| 10-12 | 16,832  | 62,731 | 373 |       | 0  | 62,731- | 373- |
| 11-13 | 18,488  | 27,988 | 151 |       | 0  | 27,988- | 151- |
| 12-14 | 16,027  | 28,452 | 178 |       | 0  | 28,452- | 178- |
| 13-15 | 34,942  | 97,523 | 279 | 3,690 | 11 | 93,833- | 269- |

MARITIME ELECTRIC COMPANY

ACCOUNTS 355 AND 356 POLES AND FIXTURES AND OVERHEAD CONDUCTORS AND DEVICES

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |      |
| 14-16                      | 35,857                 | 96,128                       | 268 | 3,690                      | 10  | 92,438-                  | 258- |
| 15-17                      | 38,756                 | 85,863                       | 222 | 3,690                      | 10  | 82,173-                  | 212- |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |      |
| 13-17                      | 28,635                 | 67,512                       | 236 | 2,214                      | 8   | 65,298-                  | 228- |

MARITIME ELECTRIC COMPANY  
ACCOUNT 362 SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1998  | 1,420                  | 630                          | 44  |                            | 0   | 630-                     | 44-  |
| 1999  | 161                    | 547                          | 339 |                            | 0   | 547-                     | 339- |
| 2000  | 1,862                  |                              | 0   |                            | 0   |                          | 0    |
| 2001  | 8,299                  | 690                          | 8   |                            | 0   | 690-                     | 8-   |
| 2002  |                        |                              |     |                            |     |                          |      |
| 2003  |                        |                              |     |                            |     |                          |      |
| 2004  |                        |                              |     |                            |     |                          |      |
| 2005  |                        |                              |     |                            |     |                          |      |
| 2006  |                        |                              |     |                            |     |                          |      |
| 2007  | 23,892                 |                              | 0   |                            | 0   |                          | 0    |
| 2008  | 12,738                 |                              | 0   |                            | 0   |                          | 0    |
| 2009  |                        |                              |     |                            |     |                          |      |
| 2010  | 3,344                  |                              | 0   |                            | 0   |                          | 0    |
| 2011  | 93                     |                              | 0   |                            | 0   |                          | 0    |
| 2012  | 1,562                  |                              | 0   |                            | 0   |                          | 0    |
| 2013  | 155,749                | 12,518                       | 8   |                            | 0   | 12,518-                  | 8-   |
| 2014  |                        |                              |     |                            |     |                          |      |
| 2015  | 71,458                 |                              | 0   |                            | 0   |                          | 0    |
| 2016  |                        | 1,313                        |     |                            |     | 1,313-                   |      |
| 2017  |                        | 4,646                        |     |                            |     | 4,646-                   |      |
| TOTAL | 280,578                | 20,345                       | 7   |                            | 0   | 20,345-                  | 7-   |

THREE-YEAR MOVING AVERAGES

|       |        |       |    |  |   |        |     |
|-------|--------|-------|----|--|---|--------|-----|
| 98-00 | 1,148  | 392   | 34 |  | 0 | 392-   | 34- |
| 99-01 | 3,441  | 412   | 12 |  | 0 | 412-   | 12- |
| 00-02 | 3,387  | 230   | 7  |  | 0 | 230-   | 7-  |
| 01-03 | 2,766  | 230   | 8  |  | 0 | 230-   | 8-  |
| 02-04 |        |       |    |  |   |        |     |
| 03-05 |        |       |    |  |   |        |     |
| 04-06 |        |       |    |  |   |        |     |
| 05-07 | 7,964  |       | 0  |  | 0 |        | 0   |
| 06-08 | 12,210 |       | 0  |  | 0 |        | 0   |
| 07-09 | 12,210 |       | 0  |  | 0 |        | 0   |
| 08-10 | 5,361  |       | 0  |  | 0 |        | 0   |
| 09-11 | 1,145  |       | 0  |  | 0 |        | 0   |
| 10-12 | 1,666  |       | 0  |  | 0 |        | 0   |
| 11-13 | 52,468 | 4,173 | 8  |  | 0 | 4,173- | 8-  |
| 12-14 | 52,437 | 4,173 | 8  |  | 0 | 4,173- | 8-  |
| 13-15 | 75,736 | 4,173 | 6  |  | 0 | 4,173- | 6-  |

MARITIME ELECTRIC COMPANY  
ACCOUNT 362 SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 23,819                 | 438                          | 2   |                            | 0   | 438-                     | 2-  |
| 15-17                      | 23,819                 | 1,987                        | 8   |                            | 0   | 1,987-                   | 8-  |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 45,442                 | 3,696                        | 8   |                            | 0   | 3,696-                   | 8-  |

## MARITIME ELECTRIC COMPANY

ACCOUNTS 364, 365 AND 369.01 POLES, TOWERS AND FIXTURES, OVERHEAD CONDUCTORS  
AND OVERHEAD SERVICES

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1998  | 304,281                | 774,576                      | 255 |                            | 0   | 774,576-                 | 255- |
| 1999  | 383,194                | 1,150,499                    | 300 |                            | 0   | 1,150,499-               | 300- |
| 2000  | 155,787                | 89,150                       | 57  |                            | 0   | 89,150-                  | 57-  |
| 2001  | 231,053                | 109,012                      | 47  |                            | 0   | 109,012-                 | 47-  |
| 2002  | 274,113                | 112,719                      | 41  |                            | 0   | 112,719-                 | 41-  |
| 2003  | 1,533,438              | 67,871                       | 4   |                            | 0   | 67,871-                  | 4-   |
| 2004  | 174,946                | 108,298                      | 62  |                            | 0   | 108,298-                 | 62-  |
| 2005  | 244,640                | 312,058                      | 128 |                            | 0   | 312,058-                 | 128- |
| 2006  | 324,367                | 200,035                      | 62  |                            | 0   | 200,035-                 | 62-  |
| 2007  | 1,614,413              | 348,967                      | 22  |                            | 0   | 348,967-                 | 22-  |
| 2008  | 481,517                | 279,516                      | 58  |                            | 0   | 279,516-                 | 58-  |
| 2009  | 429,748                | 347,239                      | 81  |                            | 0   | 347,239-                 | 81-  |
| 2010  | 329,022                | 534,349                      | 162 |                            | 0   | 534,349-                 | 162- |
| 2011  | 392,179                | 403,444                      | 103 |                            | 0   | 403,444-                 | 103- |
| 2012  | 372,469                | 494,967                      | 133 |                            | 0   | 494,967-                 | 133- |
| 2013  | 636,455                | 206,654                      | 32  |                            | 0   | 206,654-                 | 32-  |
| 2014  | 502,160                | 377,646                      | 75  | 4,682                      | 1   | 372,963-                 | 74-  |
| 2015  | 280,358                | 447,945                      | 160 | 11,069                     | 4   | 436,876-                 | 156- |
| 2016  | 880,891                | 713,124                      | 81  | 720                        | 0   | 712,404-                 | 81-  |
| 2017  | 2,753,822              | 478,587                      | 17  | 1,951                      | 0   | 476,636-                 | 17-  |
| TOTAL | 12,298,853             | 7,556,654                    | 61  | 18,422                     | 0   | 7,538,232-               | 61-  |

## THREE-YEAR MOVING AVERAGES

|       |         |         |     |       |   |          |      |
|-------|---------|---------|-----|-------|---|----------|------|
| 98-00 | 281,087 | 671,408 | 239 |       | 0 | 671,408- | 239- |
| 99-01 | 256,678 | 449,554 | 175 |       | 0 | 449,554- | 175- |
| 00-02 | 220,318 | 103,627 | 47  |       | 0 | 103,627- | 47-  |
| 01-03 | 679,535 | 96,534  | 14  |       | 0 | 96,534-  | 14-  |
| 02-04 | 660,832 | 96,296  | 15  |       | 0 | 96,296-  | 15-  |
| 03-05 | 651,008 | 162,742 | 25  |       | 0 | 162,742- | 25-  |
| 04-06 | 247,984 | 206,797 | 83  |       | 0 | 206,797- | 83-  |
| 05-07 | 727,807 | 287,020 | 39  |       | 0 | 287,020- | 39-  |
| 06-08 | 806,766 | 276,173 | 34  |       | 0 | 276,173- | 34-  |
| 07-09 | 841,893 | 325,241 | 39  |       | 0 | 325,241- | 39-  |
| 08-10 | 413,429 | 387,034 | 94  |       | 0 | 387,034- | 94-  |
| 09-11 | 383,650 | 428,344 | 112 |       | 0 | 428,344- | 112- |
| 10-12 | 364,557 | 477,587 | 131 |       | 0 | 477,587- | 131- |
| 11-13 | 467,034 | 368,355 | 79  |       | 0 | 368,355- | 79-  |
| 12-14 | 503,694 | 359,756 | 71  | 1,561 | 0 | 358,195- | 71-  |
| 13-15 | 472,991 | 344,082 | 73  | 5,251 | 1 | 338,831- | 72-  |

MARITIME ELECTRIC COMPANY

ACCOUNTS 364, 365 AND 369.01 POLES, TOWERS AND FIXTURES, OVERHEAD CONDUCTORS  
AND OVERHEAD SERVICES

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 554,470                | 512,905                      | 93  | 5,490                      | 1   | 507,414-                 | 92- |
| 15-17                      | 1,305,024              | 546,552                      | 42  | 4,580                      | 0   | 541,972-                 | 42- |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 1,010,737              | 444,791                      | 44  | 3,684                      | 0   | 441,107-                 | 44- |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 367 UNDERGROUND CONDUCTORS AND DEVICES

## SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 2005                       |                        | 4,200                        |     |                            |     | 4,200-                   |      |
| 2006                       |                        |                              |     |                            |     |                          |      |
| 2007                       | 8,547                  |                              | 0   |                            | 0   |                          | 0    |
| 2008                       | 14,142                 |                              | 0   |                            | 0   |                          | 0    |
| 2009                       |                        |                              |     |                            |     |                          |      |
| 2010                       |                        |                              |     |                            |     |                          |      |
| 2011                       |                        |                              |     |                            |     |                          |      |
| 2012                       |                        | 1,704                        |     |                            |     | 1,704-                   |      |
| 2013                       | 959                    |                              | 0   |                            | 0   |                          | 0    |
| 2014                       | 577                    | 1,436                        | 249 |                            | 0   | 1,436-                   | 249- |
| 2015                       | 100                    |                              | 0   |                            | 0   |                          | 0    |
| 2016                       | 383                    |                              | 0   |                            | 0   |                          | 0    |
| 2017                       |                        |                              |     |                            |     |                          |      |
| TOTAL                      | 24,709                 | 7,339                        | 30  |                            | 0   | 7,339-                   | 30-  |
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |      |
| 05-07                      | 2,849                  | 1,400                        | 49  |                            | 0   | 1,400-                   | 49-  |
| 06-08                      | 7,563                  |                              | 0   |                            | 0   |                          | 0    |
| 07-09                      | 7,563                  |                              | 0   |                            | 0   |                          | 0    |
| 08-10                      | 4,714                  |                              | 0   |                            | 0   |                          | 0    |
| 09-11                      |                        |                              |     |                            |     |                          |      |
| 10-12                      |                        | 568                          |     |                            |     | 568-                     |      |
| 11-13                      | 320                    | 568                          | 178 |                            | 0   | 568-                     | 178- |
| 12-14                      | 512                    | 1,046                        | 204 |                            | 0   | 1,046-                   | 204- |
| 13-15                      | 546                    | 479                          | 88  |                            | 0   | 479-                     | 88-  |
| 14-16                      | 354                    | 479                          | 135 |                            | 0   | 479-                     | 135- |
| 15-17                      | 161                    |                              | 0   |                            | 0   |                          | 0    |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |      |
| 13-17                      | 404                    | 287                          | 71  |                            | 0   | 287-                     | 71-  |





## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.1 LINE TRANSFORMERS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 1998  | 188,675                | 119,169                      | 63  |                            | 0   | 119,169-                 | 63- |
| 1999  | 294,453                | 74,822                       | 25  |                            | 0   | 74,822-                  | 25- |
| 2000  | 154,494                | 19,359                       | 13  |                            | 0   | 19,359-                  | 13- |
| 2001  | 210,853                | 30,495                       | 14  |                            | 0   | 30,495-                  | 14- |
| 2002  | 372,756                | 83,644                       | 22  |                            | 0   | 83,644-                  | 22- |
| 2003  | 284,616                | 94,087                       | 33  |                            | 0   | 94,087-                  | 33- |
| 2004  | 381,476                | 42,539                       | 11  |                            | 0   | 42,539-                  | 11- |
| 2005  | 296,847                | 54,927                       | 19  |                            | 0   | 54,927-                  | 19- |
| 2006  | 223,996                | 79,758                       | 36  |                            | 0   | 79,758-                  | 36- |
| 2007  | 879,798                | 125,555                      | 14  |                            | 0   | 125,555-                 | 14- |
| 2008  | 651,917                | 127,862                      | 20  |                            | 0   | 127,862-                 | 20- |
| 2009  | 560,983                | 137,798                      | 25  |                            | 0   | 137,798-                 | 25- |
| 2010  | 605,775                | 97,799                       | 16  |                            | 0   | 97,799-                  | 16- |
| 2011  | 181,190                | 120,540                      | 67  |                            | 0   | 120,540-                 | 67- |
| 2012  | 1,326,288              | 76,987                       | 6   |                            | 0   | 76,987-                  | 6-  |
| 2013  | 449,038                | 91,529                       | 20  |                            | 0   | 91,529-                  | 20- |
| 2014  | 680,415                | 120,718                      | 18  | 2,441                      | 0   | 118,277-                 | 17- |
| 2015  | 310,613                | 170,067                      | 55  |                            | 0   | 170,067-                 | 55- |
| 2016  | 454,843                | 151,419                      | 33  |                            | 0   | 151,419-                 | 33- |
| 2017  | 465,690                | 138,550                      | 30  |                            | 0   | 138,550-                 | 30- |
| TOTAL | 8,974,715              | 1,957,622                    | 22  | 2,441                      | 0   | 1,955,181-               | 22- |

## THREE-YEAR MOVING AVERAGES

|       |         |         |    |     |   |          |     |
|-------|---------|---------|----|-----|---|----------|-----|
| 98-00 | 212,541 | 71,117  | 33 |     | 0 | 71,117-  | 33- |
| 99-01 | 219,933 | 41,559  | 19 |     | 0 | 41,559-  | 19- |
| 00-02 | 246,034 | 44,499  | 18 |     | 0 | 44,499-  | 18- |
| 01-03 | 289,408 | 69,409  | 24 |     | 0 | 69,409-  | 24- |
| 02-04 | 346,282 | 73,423  | 21 |     | 0 | 73,423-  | 21- |
| 03-05 | 320,980 | 63,851  | 20 |     | 0 | 63,851-  | 20- |
| 04-06 | 300,773 | 59,074  | 20 |     | 0 | 59,074-  | 20- |
| 05-07 | 466,880 | 86,746  | 19 |     | 0 | 86,746-  | 19- |
| 06-08 | 585,237 | 111,058 | 19 |     | 0 | 111,058- | 19- |
| 07-09 | 697,566 | 130,405 | 19 |     | 0 | 130,405- | 19- |
| 08-10 | 606,225 | 121,153 | 20 |     | 0 | 121,153- | 20- |
| 09-11 | 449,316 | 118,712 | 26 |     | 0 | 118,712- | 26- |
| 10-12 | 704,418 | 98,442  | 14 |     | 0 | 98,442-  | 14- |
| 11-13 | 652,172 | 96,352  | 15 |     | 0 | 96,352-  | 15- |
| 12-14 | 818,580 | 96,411  | 12 | 814 | 0 | 95,598-  | 12- |
| 13-15 | 480,022 | 127,438 | 27 | 814 | 0 | 126,624- | 26- |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.1 LINE TRANSFORMERS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 481,957                | 147,401                      | 31  | 814                        | 0   | 146,587-                 | 30- |
| 15-17                      | 410,382                | 153,345                      | 37  |                            | 0   | 153,345-                 | 37- |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 472,120                | 134,456                      | 28  | 488                        | 0   | 133,968-                 | 28- |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT      | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|----------|--------------------------|-----|
| 1998  | 29,780                 | 74,338                       | 250 | 0                          | 74,338-  | 250-                     |     |
| 1999  | 47,401                 | 57,906                       | 122 | 0                          | 57,906-  | 122-                     |     |
| 2000  | 25,695                 | 213                          | 1   | 0                          | 213-     | 1-                       |     |
| 2001  | 31,864                 |                              | 0   | 0                          |          | 0                        |     |
| 2002  | 53,492                 | 1,880                        | 4   | 0                          | 1,880-   | 4-                       |     |
| 2003  | 40,067                 |                              | 0   | 0                          |          | 0                        |     |
| 2004  | 55,358                 |                              | 0   | 0                          |          | 0                        |     |
| 2005  | 39,692                 | 3,424                        | 9   | 0                          | 3,424-   | 9-                       |     |
| 2006  | 29,841                 |                              | 0   | 0                          |          | 0                        |     |
| 2007  | 93,490                 | 27,870                       | 30  | 0                          | 27,870-  | 30-                      |     |
| 2008  | 96,112                 |                              | 0   | 0                          |          | 0                        |     |
| 2009  | 66,099                 | 7,406                        | 11  | 0                          | 7,406-   | 11-                      |     |
| 2010  | 100,905                | 57,896                       | 57  | 0                          | 57,896-  | 57-                      |     |
| 2011  | 26,076                 | 52,863                       | 203 | 0                          | 52,863-  | 203-                     |     |
| 2012  | 197,686                | 29,537                       | 15  | 0                          | 29,537-  | 15-                      |     |
| 2013  | 56,034                 | 23,455                       | 42  | 0                          | 23,455-  | 42-                      |     |
| 2014  | 74,985                 | 8,782                        | 12  | 0                          | 8,782-   | 12-                      |     |
| 2015  | 56,339                 | 8,203                        | 15  | 0                          | 8,203-   | 15-                      |     |
| 2016  | 156,416                | 27,224                       | 17  | 0                          | 27,224-  | 17-                      |     |
| 2017  | 100,440                | 4,126                        | 4   | 0                          | 4,126-   | 4-                       |     |
| TOTAL | 1,377,774              | 385,123                      | 28  | 0                          | 385,123- | 28-                      |     |

## THREE-YEAR MOVING AVERAGES

|       |         |        |     |   |         |      |
|-------|---------|--------|-----|---|---------|------|
| 98-00 | 34,292  | 44,152 | 129 | 0 | 44,152- | 129- |
| 99-01 | 34,987  | 19,373 | 55  | 0 | 19,373- | 55-  |
| 00-02 | 37,017  | 698    | 2   | 0 | 698-    | 2-   |
| 01-03 | 41,808  | 627    | 1   | 0 | 627-    | 1-   |
| 02-04 | 49,639  | 627    | 1   | 0 | 627-    | 1-   |
| 03-05 | 45,039  | 1,141  | 3   | 0 | 1,141-  | 3-   |
| 04-06 | 41,630  | 1,141  | 3   | 0 | 1,141-  | 3-   |
| 05-07 | 54,341  | 10,431 | 19  | 0 | 10,431- | 19-  |
| 06-08 | 73,148  | 9,290  | 13  | 0 | 9,290-  | 13-  |
| 07-09 | 85,234  | 11,759 | 14  | 0 | 11,759- | 14-  |
| 08-10 | 87,705  | 21,767 | 25  | 0 | 21,767- | 25-  |
| 09-11 | 64,360  | 39,388 | 61  | 0 | 39,388- | 61-  |
| 10-12 | 108,222 | 46,765 | 43  | 0 | 46,765- | 43-  |
| 11-13 | 93,266  | 35,285 | 38  | 0 | 35,285- | 38-  |
| 12-14 | 109,569 | 20,591 | 19  | 0 | 20,591- | 19-  |
| 13-15 | 62,453  | 13,480 | 22  | 0 | 13,480- | 22-  |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 95,914                 | 14,736                       | 15  |                            | 0   | 14,736-                  | 15- |
| 15-17                      | 104,399                | 13,184                       | 13  |                            | 0   | 13,184-                  | 13- |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 88,843                 | 14,358                       | 16  |                            | 0   | 14,358-                  | 16- |

MARITIME ELECTRIC COMPANY

ACCOUNT 369.02 SERVICES - UNDERGROUND

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2005                       |                        | 810                          |     |                            |     | 810-                     |     |
| 2006                       |                        |                              |     |                            |     |                          |     |
| 2007                       |                        |                              |     |                            |     |                          |     |
| 2008                       |                        |                              |     |                            |     |                          |     |
| 2009                       |                        | 73                           |     |                            |     | 73-                      |     |
| 2010                       |                        |                              |     |                            |     |                          |     |
| 2011                       |                        |                              |     |                            |     |                          |     |
| 2012                       |                        |                              |     |                            |     |                          |     |
| 2013                       |                        |                              |     |                            |     |                          |     |
| 2014                       |                        | 1,872                        |     |                            |     | 1,872-                   |     |
| 2015                       |                        |                              |     |                            |     |                          |     |
| 2016                       |                        |                              |     |                            |     |                          |     |
| 2017                       |                        |                              |     |                            |     |                          |     |
| TOTAL                      |                        | 2,755                        |     |                            |     | 2,755-                   |     |
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 05-07                      |                        | 270                          |     |                            |     | 270-                     |     |
| 06-08                      |                        |                              |     |                            |     |                          |     |
| 07-09                      |                        | 24                           |     |                            |     | 24-                      |     |
| 08-10                      |                        | 24                           |     |                            |     | 24-                      |     |
| 09-11                      |                        | 24                           |     |                            |     | 24-                      |     |
| 10-12                      |                        |                              |     |                            |     |                          |     |
| 11-13                      |                        |                              |     |                            |     |                          |     |
| 12-14                      |                        | 624                          |     |                            |     | 624-                     |     |
| 13-15                      |                        | 624                          |     |                            |     | 624-                     |     |
| 14-16                      |                        | 624                          |     |                            |     | 624-                     |     |
| 15-17                      |                        |                              |     |                            |     |                          |     |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      |                        | 374                          |     |                            |     | 374-                     |     |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 370.1 METERS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 1998  | 87,562                 | 7,386                        | 8   |                            | 0   | 7,386-                   | 8-  |
| 1999  | 248,369                | 36,267                       | 15  |                            | 0   | 36,267-                  | 15- |
| 2000  | 229,301                | 28,309                       | 12  |                            | 0   | 28,309-                  | 12- |
| 2001  | 92,113                 | 3,676                        | 4   |                            | 0   | 3,676-                   | 4-  |
| 2002  | 112,868                | 649                          | 1   |                            | 0   | 649-                     | 1-  |
| 2003  | 71,734                 |                              | 0   |                            | 0   |                          | 0   |
| 2004  | 59,439                 |                              | 0   |                            | 0   |                          | 0   |
| 2005  | 190,986                | 430                          | 0   |                            | 0   | 430-                     | 0   |
| 2006  | 341,055                | 4,681                        | 1   |                            | 0   | 4,681-                   | 1-  |
| 2007  | 103,716                |                              | 0   |                            | 0   |                          | 0   |
| 2008  | 364,501                |                              | 0   |                            | 0   |                          | 0   |
| 2009  | 498,786                |                              | 0   |                            | 0   |                          | 0   |
| 2010  | 431,556                |                              | 0   |                            | 0   |                          | 0   |
| 2011  | 659,677                |                              | 0   |                            | 0   |                          | 0   |
| 2012  | 807,214                | 1,221                        | 0   |                            | 0   | 1,221-                   | 0   |
| 2013  | 463,255                |                              | 0   |                            | 0   |                          | 0   |
| 2014  | 316,392                | 723                          | 0   | 2,677                      | 1   | 1,954                    | 1   |
| 2015  | 181,226                |                              | 0   |                            | 0   |                          | 0   |
| 2016  | 67,743                 |                              | 0   |                            | 0   |                          | 0   |
| 2017  | 44,452                 |                              | 0   |                            | 0   |                          | 0   |
| TOTAL | 5,371,948              | 83,342                       | 2   | 2,677                      | 0   | 80,665-                  | 2-  |

## THREE-YEAR MOVING AVERAGES

|       |         |        |    |     |   |         |     |
|-------|---------|--------|----|-----|---|---------|-----|
| 98-00 | 188,411 | 23,987 | 13 |     | 0 | 23,987- | 13- |
| 99-01 | 189,928 | 22,751 | 12 |     | 0 | 22,751- | 12- |
| 00-02 | 144,761 | 10,878 | 8  |     | 0 | 10,878- | 8-  |
| 01-03 | 92,238  | 1,442  | 2  |     | 0 | 1,442-  | 2-  |
| 02-04 | 81,347  | 216    | 0  |     | 0 | 216-    | 0   |
| 03-05 | 107,387 | 143    | 0  |     | 0 | 143-    | 0   |
| 04-06 | 197,160 | 1,704  | 1  |     | 0 | 1,704-  | 1-  |
| 05-07 | 211,919 | 1,704  | 1  |     | 0 | 1,704-  | 1-  |
| 06-08 | 269,758 | 1,560  | 1  |     | 0 | 1,560-  | 1-  |
| 07-09 | 322,335 |        | 0  |     | 0 |         | 0   |
| 08-10 | 431,615 |        | 0  |     | 0 |         | 0   |
| 09-11 | 530,006 |        | 0  |     | 0 |         | 0   |
| 10-12 | 632,816 | 407    | 0  |     | 0 | 407-    | 0   |
| 11-13 | 643,382 | 407    | 0  |     | 0 | 407-    | 0   |
| 12-14 | 528,954 | 648    | 0  | 892 | 0 | 244     | 0   |
| 13-15 | 320,291 | 241    | 0  | 892 | 0 | 651     | 0   |

MARITIME ELECTRIC COMPANY

ACCOUNT 370.1 METERS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 188,454                | 241                          | 0   | 892                        | 0   | 651                      | 0   |
| 15-17                      | 97,807                 |                              | 0   |                            | 0   |                          | 0   |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 214,614                | 145                          | 0   | 535                        | 0   | 391                      | 0   |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 370.2 METER INSTALLATIONS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1998  | 10,648                 | 44,655                       | 419 |                            | 0   | 44,655-                  | 419- |
| 1999  | 18,078                 | 31,399                       | 174 |                            | 0   | 31,399-                  | 174- |
| 2000  | 16,387                 | 566                          | 3   |                            | 0   | 566-                     | 3-   |
| 2001  | 7,635                  |                              | 0   |                            | 0   |                          | 0    |
| 2002  | 11,554                 |                              | 0   |                            | 0   |                          | 0    |
| 2003  | 9,203                  |                              | 0   |                            | 0   |                          | 0    |
| 2004  | 13,680                 |                              | 0   |                            | 0   |                          | 0    |
| 2005  | 30,815                 | 344                          | 1   |                            | 0   | 344-                     | 1-   |
| 2006  | 81,337                 | 18,326                       | 23  |                            | 0   | 18,326-                  | 23-  |
| 2007  | 22,792                 | 200                          | 1   |                            | 0   | 200-                     | 1-   |
| 2008  | 169,676                |                              | 0   |                            | 0   |                          | 0    |
| 2009  | 162,871                | 46,648                       | 29  |                            | 0   | 46,648-                  | 29-  |
| 2010  | 202,721                | 24,881                       | 12  |                            | 0   | 24,881-                  | 12-  |
| 2011  | 307,339                | 6,378                        | 2   |                            | 0   | 6,378-                   | 2-   |
| 2012  | 220,410                | 45,107                       | 20  |                            | 0   | 45,107-                  | 20-  |
| 2013  | 95,980                 |                              | 0   |                            | 0   |                          | 0    |
| 2014  | 55,345                 |                              | 0   |                            | 0   |                          | 0    |
| 2015  | 42,017                 |                              | 0   |                            | 0   |                          | 0    |
| 2016  | 2,284                  |                              | 0   |                            | 0   |                          | 0    |
| 2017  | 24,215                 |                              | 0   |                            | 0   |                          | 0    |
| TOTAL | 1,504,988              | 218,503                      | 15  |                            | 0   | 218,503-                 | 15-  |

## THREE-YEAR MOVING AVERAGES

|       |         |        |     |  |   |         |      |
|-------|---------|--------|-----|--|---|---------|------|
| 98-00 | 15,038  | 25,540 | 170 |  | 0 | 25,540- | 170- |
| 99-01 | 14,033  | 10,655 | 76  |  | 0 | 10,655- | 76-  |
| 00-02 | 11,859  | 189    | 2   |  | 0 | 189-    | 2-   |
| 01-03 | 9,464   |        | 0   |  | 0 |         | 0    |
| 02-04 | 11,479  |        | 0   |  | 0 |         | 0    |
| 03-05 | 17,899  | 115    | 1   |  | 0 | 115-    | 1-   |
| 04-06 | 41,944  | 6,223  | 15  |  | 0 | 6,223-  | 15-  |
| 05-07 | 44,981  | 6,290  | 14  |  | 0 | 6,290-  | 14-  |
| 06-08 | 91,269  | 6,175  | 7   |  | 0 | 6,175-  | 7-   |
| 07-09 | 118,446 | 15,616 | 13  |  | 0 | 15,616- | 13-  |
| 08-10 | 178,423 | 23,843 | 13  |  | 0 | 23,843- | 13-  |
| 09-11 | 224,310 | 25,969 | 12  |  | 0 | 25,969- | 12-  |
| 10-12 | 243,490 | 25,455 | 10  |  | 0 | 25,455- | 10-  |
| 11-13 | 207,910 | 17,161 | 8   |  | 0 | 17,161- | 8-   |
| 12-14 | 123,912 | 15,036 | 12  |  | 0 | 15,036- | 12-  |
| 13-15 | 64,447  |        | 0   |  | 0 |         | 0    |



MARITIME ELECTRIC COMPANY

ACCOUNT 370.2 METER INSTALLATIONS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 33,216                 |                              | 0   |                            | 0   |                          | 0   |
| 15-17                      | 22,839                 |                              | 0   |                            | 0   |                          | 0   |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 43,968                 |                              | 0   |                            | 0   |                          | 0   |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1998  | 23,088                 | 1,496                        | 6   |                            | 0   | 1,496-                   | 6-   |
| 1999  | 54,524                 | 199-                         | 0   |                            | 0   | 199                      | 0    |
| 2000  | 30,000                 |                              | 0   |                            | 0   |                          | 0    |
| 2001  |                        | 3,004                        |     |                            |     | 3,004-                   |      |
| 2002  |                        |                              |     |                            |     |                          |      |
| 2003  |                        |                              |     |                            |     |                          |      |
| 2004  | 29,393                 | 2,678                        | 9   |                            | 0   | 2,678-                   | 9-   |
| 2005  | 15,535                 | 550                          | 4   |                            | 0   | 550-                     | 4-   |
| 2006  | 1,242                  |                              | 0   |                            | 0   |                          | 0    |
| 2007  | 18,663                 | 4,225                        | 23  |                            | 0   | 4,225-                   | 23-  |
| 2008  | 5,190                  | 3,149                        | 61  |                            | 0   | 3,149-                   | 61-  |
| 2009  | 38                     | 5,379                        |     |                            | 0   | 5,379-                   |      |
| 2010  | 52                     |                              | 0   |                            | 0   |                          | 0    |
| 2011  |                        | 3,164                        |     |                            |     | 3,164-                   |      |
| 2012  | 534                    | 1,823                        | 341 |                            | 0   | 1,823-                   | 341- |
| 2013  | 35                     | 250                          | 706 |                            | 0   | 250-                     | 706- |
| 2014  | 58,436                 | 3,002                        | 5   | 6,400                      | 11  | 3,398                    | 6    |
| 2015  | 152                    | 25,571                       |     |                            | 0   | 25,571-                  |      |
| 2016  | 454,579                | 122,983                      | 27  |                            | 0   | 122,983-                 | 27-  |
| 2017  | 241,739                | 46,966                       | 19  |                            | 0   | 46,966-                  | 19-  |
| TOTAL | 933,202                | 224,042                      | 24  | 6,400                      | 1   | 217,642-                 | 23-  |

## THREE-YEAR MOVING AVERAGES

|       |        |       |     |       |    |        |      |
|-------|--------|-------|-----|-------|----|--------|------|
| 98-00 | 35,871 | 432   | 1   |       | 0  | 432-   | 1-   |
| 99-01 | 28,175 | 935   | 3   |       | 0  | 935-   | 3-   |
| 00-02 | 10,000 | 1,001 | 10  |       | 0  | 1,001- | 10-  |
| 01-03 |        | 1,001 |     |       |    | 1,001- |      |
| 02-04 | 9,798  | 892   | 9   |       | 0  | 892-   | 9-   |
| 03-05 | 14,976 | 1,076 | 7   |       | 0  | 1,076- | 7-   |
| 04-06 | 15,390 | 1,076 | 7   |       | 0  | 1,076- | 7-   |
| 05-07 | 11,813 | 1,592 | 13  |       | 0  | 1,592- | 13-  |
| 06-08 | 8,365  | 2,458 | 29  |       | 0  | 2,458- | 29-  |
| 07-09 | 7,964  | 4,251 | 53  |       | 0  | 4,251- | 53-  |
| 08-10 | 1,760  | 2,843 | 162 |       | 0  | 2,843- | 162- |
| 09-11 | 30     | 2,848 |     |       | 0  | 2,848- |      |
| 10-12 | 195    | 1,663 | 851 |       | 0  | 1,663- | 851- |
| 11-13 | 190    | 1,746 | 919 |       | 0  | 1,746- | 919- |
| 12-14 | 19,669 | 1,692 | 9   | 2,133 | 11 | 442    | 2    |
| 13-15 | 19,541 | 9,608 | 49  | 2,133 | 11 | 7,474- | 38-  |

MARITIME ELECTRIC COMPANY

ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      | 171,056                | 50,519                       | 30  | 2,133                      | 1   | 48,385-                  | 28- |
| 15-17                      | 232,156                | 65,173                       | 28  |                            | 0   | 65,173-                  | 28- |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 150,988                | 39,754                       | 26  | 1,280                      | 1   | 38,474-                  | 25- |

MARITIME ELECTRIC COMPANY

ACCOUNT 390 STRUCTURES AND IMPROVEMENTS - ENERGY CONTROL CENTER

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2000  | 6,296                  |                              | 0   |                            | 0   |                          | 0   |
| 2001  |                        |                              |     |                            |     |                          |     |
| 2002  |                        |                              |     |                            |     |                          |     |
| 2003  |                        |                              |     |                            |     |                          |     |
| 2004  |                        |                              |     |                            |     |                          |     |
| 2005  |                        |                              |     |                            |     |                          |     |
| 2006  |                        |                              |     |                            |     |                          |     |
| 2007  |                        |                              |     |                            |     |                          |     |
| 2008  |                        |                              |     |                            |     |                          |     |
| 2009  |                        |                              |     |                            |     |                          |     |
| 2010  |                        |                              |     |                            |     |                          |     |
| 2011  |                        |                              |     |                            |     |                          |     |
| 2012  |                        |                              |     |                            |     |                          |     |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        |                              |     |                            |     |                          |     |
| 2015  |                        |                              |     |                            |     |                          |     |
| 2016  |                        |                              |     |                            |     |                          |     |
| 2017  | 807                    |                              | 0   |                            | 0   |                          | 0   |
| TOTAL | 7,103                  |                              | 0   |                            | 0   |                          | 0   |

THREE-YEAR MOVING AVERAGES

|       |       |  |   |  |   |  |   |
|-------|-------|--|---|--|---|--|---|
| 00-02 | 2,099 |  | 0 |  | 0 |  | 0 |
| 01-03 |       |  |   |  |   |  |   |
| 02-04 |       |  |   |  |   |  |   |
| 03-05 |       |  |   |  |   |  |   |
| 04-06 |       |  |   |  |   |  |   |
| 05-07 |       |  |   |  |   |  |   |
| 06-08 |       |  |   |  |   |  |   |
| 07-09 |       |  |   |  |   |  |   |
| 08-10 |       |  |   |  |   |  |   |
| 09-11 |       |  |   |  |   |  |   |
| 10-12 |       |  |   |  |   |  |   |
| 11-13 |       |  |   |  |   |  |   |
| 12-14 |       |  |   |  |   |  |   |
| 13-15 |       |  |   |  |   |  |   |

MARITIME ELECTRIC COMPANY

ACCOUNT 390 STRUCTURES AND IMPROVEMENTS - ENERGY CONTROL CENTER

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      |                        |                              |     |                            |     |                          |     |
| 15-17                      | 269                    |                              | 0   |                            | 0   |                          | 0   |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      | 161                    |                              | 0   |                            | 0   |                          | 0   |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 390.11 STRUCTURES AND IMPROVEMENTS - OFFICE

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 1999  | 9,000                  |                              | 0   |                            | 0   |                          | 0   |
| 2000  | 16,397                 |                              | 0   |                            | 0   |                          | 0   |
| 2001  |                        |                              |     |                            |     |                          |     |
| 2002  |                        |                              |     |                            |     |                          |     |
| 2003  | 63,640                 |                              | 0   |                            | 0   |                          | 0   |
| 2004  | 34,294                 |                              | 0   |                            | 0   |                          | 0   |
| 2005  | 58,985                 | 25,677                       | 44  |                            | 0   | 25,677-                  | 44- |
| 2006  |                        | 8,864                        |     |                            |     | 8,864-                   |     |
| 2007  |                        | 14,500                       |     |                            |     | 14,500-                  |     |
| 2008  |                        | 8,000                        |     |                            |     | 8,000-                   |     |
| 2009  |                        | 10,542                       |     |                            |     | 10,542-                  |     |
| 2010  |                        |                              |     |                            |     |                          |     |
| 2011  |                        |                              |     |                            |     |                          |     |
| 2012  |                        | 23,000                       |     |                            |     | 23,000-                  |     |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        | 9,000                        |     |                            |     | 9,000-                   |     |
| 2015  |                        | 9,000                        |     |                            |     | 9,000-                   |     |
| 2016  |                        | 1,864                        |     |                            |     | 1,864-                   |     |
| 2017  |                        |                              |     |                            |     |                          |     |
| TOTAL | 182,316                | 110,447                      | 61  |                            | 0   | 110,447-                 | 61- |

## THREE-YEAR MOVING AVERAGES

|       |        |        |    |  |   |         |     |
|-------|--------|--------|----|--|---|---------|-----|
| 99-01 | 8,466  |        | 0  |  | 0 |         | 0   |
| 00-02 | 5,466  |        | 0  |  | 0 |         | 0   |
| 01-03 | 21,213 |        | 0  |  | 0 |         | 0   |
| 02-04 | 32,645 |        | 0  |  | 0 |         | 0   |
| 03-05 | 52,306 | 8,559  | 16 |  | 0 | 8,559-  | 16- |
| 04-06 | 31,093 | 11,514 | 37 |  | 0 | 11,514- | 37- |
| 05-07 | 19,662 | 16,347 | 83 |  | 0 | 16,347- | 83- |
| 06-08 |        | 10,455 |    |  |   | 10,455- |     |
| 07-09 |        | 11,014 |    |  |   | 11,014- |     |
| 08-10 |        | 6,181  |    |  |   | 6,181-  |     |
| 09-11 |        | 3,514  |    |  |   | 3,514-  |     |
| 10-12 |        | 7,667  |    |  |   | 7,667-  |     |
| 11-13 |        | 7,667  |    |  |   | 7,667-  |     |
| 12-14 |        | 10,667 |    |  |   | 10,667- |     |
| 13-15 |        | 6,000  |    |  |   | 6,000-  |     |

MARITIME ELECTRIC COMPANY

ACCOUNT 390.11 STRUCTURES AND IMPROVEMENTS - OFFICE

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      |                        | 6,621                        |     |                            |     | 6,621-                   |     |
| 15-17                      |                        | 3,621                        |     |                            |     | 3,621-                   |     |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      |                        | 3,973                        |     |                            |     | 3,973-                   |     |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 390.12 STRUCTURES AND IMPROVEMENTS - DISTRICTS

## SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT  |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|------|
| 1998  |                        | 720                          |     |                            |     | 720-                     |      |
| 1999  |                        |                              |     |                            |     |                          |      |
| 2000  |                        |                              |     |                            |     |                          |      |
| 2001  |                        | 89,320                       |     |                            |     | 89,320-                  |      |
| 2002  |                        |                              |     |                            |     |                          |      |
| 2003  |                        |                              |     |                            |     |                          |      |
| 2004  | 5,000                  | 5,289                        | 106 |                            | 0   | 5,289-                   | 106- |
| 2005  | 41,629                 | 1,682                        | 4   |                            | 0   | 1,682-                   | 4-   |
| 2006  |                        | 19,424                       |     |                            |     | 19,424-                  |      |
| 2007  |                        | 15,985                       |     |                            |     | 15,985-                  |      |
| 2008  |                        | 5,280                        |     |                            |     | 5,280-                   |      |
| 2009  |                        | 10,871                       |     |                            |     | 10,871-                  |      |
| 2010  | 5,165                  | 11,430                       | 221 |                            | 0   | 11,430-                  | 221- |
| 2011  | 9,450                  | 10,148                       | 107 |                            | 0   | 10,148-                  | 107- |
| 2012  |                        | 33,288                       |     |                            |     | 33,288-                  |      |
| 2013  |                        |                              |     |                            |     |                          |      |
| 2014  |                        | 3,148                        |     |                            |     | 3,148-                   |      |
| 2015  |                        | 10,000                       |     |                            |     | 10,000-                  |      |
| 2016  |                        | 9,440                        |     |                            |     | 9,440-                   |      |
| 2017  |                        | 32,683                       |     |                            |     | 32,683-                  |      |
| TOTAL | 61,244                 | 258,707                      | 422 |                            | 0   | 258,707-                 | 422- |

## THREE-YEAR MOVING AVERAGES

|       |        |        |     |  |   |         |      |
|-------|--------|--------|-----|--|---|---------|------|
| 98-00 |        | 240    |     |  |   | 240-    |      |
| 99-01 |        | 29,773 |     |  |   | 29,773- |      |
| 00-02 |        | 29,773 |     |  |   | 29,773- |      |
| 01-03 |        | 29,773 |     |  |   | 29,773- |      |
| 02-04 | 1,667  | 1,763  | 106 |  | 0 | 1,763-  | 106- |
| 03-05 | 15,543 | 2,324  | 15  |  | 0 | 2,324-  | 15-  |
| 04-06 | 15,543 | 8,798  | 57  |  | 0 | 8,798-  | 57-  |
| 05-07 | 13,876 | 12,364 | 89  |  | 0 | 12,364- | 89-  |
| 06-08 |        | 13,563 |     |  |   | 13,563- |      |
| 07-09 |        | 10,712 |     |  |   | 10,712- |      |
| 08-10 | 1,722  | 9,193  | 534 |  | 0 | 9,193-  | 534- |
| 09-11 | 4,872  | 10,816 | 222 |  | 0 | 10,816- | 222- |
| 10-12 | 4,872  | 18,289 | 375 |  | 0 | 18,289- | 375- |
| 11-13 | 3,150  | 14,479 | 460 |  | 0 | 14,479- | 460- |
| 12-14 |        | 12,145 |     |  |   | 12,145- |      |
| 13-15 |        | 4,383  |     |  |   | 4,383-  |      |



MARITIME ELECTRIC COMPANY

ACCOUNT 390.12 STRUCTURES AND IMPROVEMENTS - DISTRICTS

SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 14-16                      |                        | 7,529                        |     |                            |     | 7,529-                   |     |
| 15-17                      |                        | 17,374                       |     |                            |     | 17,374-                  |     |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      |                        | 11,054                       |     |                            |     | 11,054-                  |     |

MARITIME ELECTRIC COMPANY  
ACCOUNT 392 TRANSPORTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2004  | 497,363                |                              | 0   | 11,100-                    | 2-  | 11,100-                  | 2-  |
| 2005  | 278,227                |                              | 0   | 70,900                     | 25  | 70,900                   | 25  |
| 2006  | 531,307                |                              | 0   | 32,650                     | 6   | 32,650                   | 6   |
| 2007  | 66,743                 |                              | 0   | 25,500                     | 38  | 25,500                   | 38  |
| 2008  | 127,434                |                              | 0   | 1,000                      | 1   | 1,000                    | 1   |
| 2009  | 116,970                |                              | 0   | 4,500                      | 4   | 4,500                    | 4   |
| 2010  | 293,651                |                              | 0   | 9,875                      | 3   | 9,875                    | 3   |
| 2011  | 90,253                 | 4,990                        | 6   | 2,500                      | 3   | 2,490-                   | 3-  |
| 2012  | 560,414                |                              | 0   | 43,785                     | 8   | 43,785                   | 8   |
| 2013  | 244,411                |                              | 0   |                            | 0   |                          | 0   |
| 2014  | 22,375                 |                              | 0   | 10,403                     | 46  | 10,403                   | 46  |
| 2015  |                        |                              |     | 16,720                     |     | 16,720                   |     |
| 2016  | 74,914                 |                              | 0   | 45,012                     | 60  | 45,012                   | 60  |
| 2017  | 805,882                | 838                          | 0   | 75,826                     | 9   | 74,988                   | 9   |
| TOTAL | 3,709,943              | 5,828                        | 0   | 327,571                    | 9   | 321,743                  | 9   |

THREE-YEAR MOVING AVERAGES

|       |         |       |   |        |    |        |    |
|-------|---------|-------|---|--------|----|--------|----|
| 04-06 | 435,632 |       | 0 | 30,817 | 7  | 30,817 | 7  |
| 05-07 | 292,092 |       | 0 | 43,017 | 15 | 43,017 | 15 |
| 06-08 | 241,828 |       | 0 | 19,717 | 8  | 19,717 | 8  |
| 07-09 | 103,716 |       | 0 | 10,333 | 10 | 10,333 | 10 |
| 08-10 | 179,352 |       | 0 | 5,125  | 3  | 5,125  | 3  |
| 09-11 | 166,958 | 1,663 | 1 | 5,625  | 3  | 3,962  | 2  |
| 10-12 | 314,773 | 1,663 | 1 | 18,720 | 6  | 17,057 | 5  |
| 11-13 | 298,359 | 1,663 | 1 | 15,428 | 5  | 13,765 | 5  |
| 12-14 | 275,733 |       | 0 | 18,063 | 7  | 18,063 | 7  |
| 13-15 | 88,929  |       | 0 | 9,041  | 10 | 9,041  | 10 |
| 14-16 | 32,430  |       | 0 | 24,045 | 74 | 24,045 | 74 |
| 15-17 | 293,598 | 279   | 0 | 45,853 | 16 | 45,574 | 16 |

FIVE-YEAR AVERAGE

|       |         |     |   |        |    |        |    |
|-------|---------|-----|---|--------|----|--------|----|
| 13-17 | 229,516 | 168 | 0 | 29,592 | 13 | 29,425 | 13 |
|-------|---------|-----|---|--------|----|--------|----|

MARITIME ELECTRIC COMPANY  
ACCOUNT 397 COMMUNICATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

| YEAR  | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|-------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 2002  |                        | 137                          |     |                            |     | 137 -                    |     |
| 2003  | 1,838,360              |                              | 0   |                            | 0   |                          | 0   |
| 2004  |                        |                              |     |                            |     |                          |     |
| 2005  |                        |                              |     |                            |     |                          |     |
| 2006  |                        |                              |     |                            |     |                          |     |
| 2007  |                        |                              |     |                            |     |                          |     |
| 2008  |                        |                              |     |                            |     |                          |     |
| 2009  |                        |                              |     |                            |     |                          |     |
| 2010  |                        | 2,209                        |     |                            |     | 2,209 -                  |     |
| 2011  |                        |                              |     |                            |     |                          |     |
| 2012  |                        |                              |     |                            |     |                          |     |
| 2013  |                        |                              |     |                            |     |                          |     |
| 2014  |                        |                              |     |                            |     |                          |     |
| 2015  |                        |                              |     |                            |     |                          |     |
| 2016  |                        |                              |     |                            |     |                          |     |
| 2017  |                        | 4,987                        |     |                            |     | 4,987 -                  |     |
| TOTAL | 1,838,360              | 7,333                        | 0   |                            | 0   | 7,333 -                  | 0   |

THREE-YEAR MOVING AVERAGES

|       |         |       |   |  |   |         |   |
|-------|---------|-------|---|--|---|---------|---|
| 02-04 | 612,786 | 46    | 0 |  | 0 | 46 -    | 0 |
| 03-05 | 612,786 |       | 0 |  | 0 |         | 0 |
| 04-06 |         |       |   |  |   |         |   |
| 05-07 |         |       |   |  |   |         |   |
| 06-08 |         |       |   |  |   |         |   |
| 07-09 |         |       |   |  |   |         |   |
| 08-10 |         | 736   |   |  |   | 736 -   |   |
| 09-11 |         | 736   |   |  |   | 736 -   |   |
| 10-12 |         | 736   |   |  |   | 736 -   |   |
| 11-13 |         |       |   |  |   |         |   |
| 12-14 |         |       |   |  |   |         |   |
| 13-15 |         |       |   |  |   |         |   |
| 14-16 |         |       |   |  |   |         |   |
| 15-17 |         | 1,662 |   |  |   | 1,662 - |   |

FIVE-YEAR AVERAGE

|       |     |  |  |  |  |       |  |
|-------|-----|--|--|--|--|-------|--|
| 13-17 | 997 |  |  |  |  | 997 - |  |
|-------|-----|--|--|--|--|-------|--|

## MARITIME ELECTRIC COMPANY

## ACCOUNT 397.5 COMMUNICATION EQUIPMENT - SCADA

## SUMMARY OF BOOK SALVAGE

| YEAR                       | REGULAR<br>RETIREMENTS | COST OF<br>REMOVAL<br>AMOUNT | PCT | GROSS<br>SALVAGE<br>AMOUNT | PCT | NET<br>SALVAGE<br>AMOUNT | PCT |
|----------------------------|------------------------|------------------------------|-----|----------------------------|-----|--------------------------|-----|
| 1999                       | 603,975                | 31,200                       | 5   |                            | 0   | 31,200-                  | 5-  |
| 2000                       | 111                    |                              | 0   |                            | 0   |                          | 0   |
| 2001                       |                        |                              |     |                            |     |                          |     |
| 2002                       |                        |                              |     |                            |     |                          |     |
| 2003                       |                        |                              |     |                            |     |                          |     |
| 2004                       |                        |                              |     |                            |     |                          |     |
| 2005                       |                        |                              |     |                            |     |                          |     |
| 2006                       |                        |                              |     |                            |     |                          |     |
| 2007                       |                        |                              |     |                            |     |                          |     |
| 2008                       | 208,011                |                              | 0   |                            | 0   |                          | 0   |
| 2009                       |                        |                              |     |                            |     |                          |     |
| 2010                       |                        |                              |     |                            |     |                          |     |
| 2011                       |                        |                              |     |                            |     |                          |     |
| 2012                       |                        |                              |     |                            |     |                          |     |
| 2013                       |                        |                              |     |                            |     |                          |     |
| 2014                       |                        |                              |     |                            |     |                          |     |
| 2015                       |                        |                              |     |                            |     |                          |     |
| 2016                       |                        |                              |     |                            |     |                          |     |
| 2017                       |                        |                              |     |                            |     |                          |     |
| TOTAL                      | 812,097                | 31,200                       | 4   |                            | 0   | 31,200-                  | 4-  |
| THREE-YEAR MOVING AVERAGES |                        |                              |     |                            |     |                          |     |
| 99-01                      | 201,362                | 10,400                       | 5   |                            | 0   | 10,400-                  | 5-  |
| 00-02                      | 37                     |                              | 0   |                            | 0   |                          | 0   |
| 01-03                      |                        |                              |     |                            |     |                          |     |
| 02-04                      |                        |                              |     |                            |     |                          |     |
| 03-05                      |                        |                              |     |                            |     |                          |     |
| 04-06                      |                        |                              |     |                            |     |                          |     |
| 05-07                      |                        |                              |     |                            |     |                          |     |
| 06-08                      | 69,337                 |                              | 0   |                            | 0   |                          | 0   |
| 07-09                      | 69,337                 |                              | 0   |                            | 0   |                          | 0   |
| 08-10                      | 69,337                 |                              | 0   |                            | 0   |                          | 0   |
| 09-11                      |                        |                              |     |                            |     |                          |     |
| 10-12                      |                        |                              |     |                            |     |                          |     |
| 11-13                      |                        |                              |     |                            |     |                          |     |
| 12-14                      |                        |                              |     |                            |     |                          |     |
| 13-15                      |                        |                              |     |                            |     |                          |     |
| 14-16                      |                        |                              |     |                            |     |                          |     |
| 15-17                      |                        |                              |     |                            |     |                          |     |
| FIVE-YEAR AVERAGE          |                        |                              |     |                            |     |                          |     |
| 13-17                      |                        |                              |     |                            |     |                          |     |

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## **PART IX. DETAILED DEPRECIATION CALCULATIONS**

## MARITIME ELECTRIC COMPANY

## ACCOUNT 311 STRUCTURES AND IMPROVEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 80-S0            |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2021             |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19                      |                         |                     |                         |                            |             |                            |                            |
| 1960                                           | 3,591,192.43            | 53.37               | 1.87                    | 79,914.81                  | 3.90        | 0.9269                     | 3,961,253                  |
| 1993                                           | 44,502.68               | 27.43               | 3.65                    | 1,932.97                   | 3.95        | 0.8560                     | 45,332                     |
| 1994                                           | 86,262.51               | 26.53               | 3.77                    | 3,869.99                   | 3.95        | 0.8511                     | 87,368                     |
| 1995                                           | 180,812.41              | 25.62               | 3.90                    | 8,391.50                   | 3.96        | 0.8454                     | 181,908                    |
| 1996                                           | 982,815.98              | 24.71               | 4.05                    | 47,366.82                  | 3.96        | 0.8397                     | 982,119                    |
| 1997                                           | 412,894.08              | 23.79               | 4.20                    | 20,636.45                  | 3.96        | 0.8335                     | 409,555                    |
| 1998                                           | 55,923.55               | 22.86               | 4.37                    | 2,908.19                   | 3.96        | 0.8268                     | 55,021                     |
| 1999                                           | 68,755.56               | 21.93               | 4.56                    | 3,730.95                   | 3.96        | 0.8194                     | 67,045                     |
| 2000                                           | 77,815.87               | 21.00               | 4.76                    | 4,407.80                   | 3.96        | 0.8114                     | 75,139                     |
| 2001                                           | 43,439.26               | 20.06               | 4.99                    | 2,579.47                   | 3.96        | 0.8026                     | 41,488                     |
| 2002                                           | 58,616.09               | 19.12               | 5.23                    | 3,648.09                   | 3.97        | 0.7924                     | 55,270                     |
| 2003                                           | 26,467.63               | 18.17               | 5.50                    | 1,732.31                   | 3.97        | 0.7815                     | 24,615                     |
| 2004                                           | 100,935.17              | 17.21               | 5.81                    | 6,978.56                   | 3.97        | 0.7693                     | 92,405                     |
| 2005                                           | 4,187.82                | 16.26               | 6.15                    | 306.49                     | 3.97        | 0.7558                     | 3,767                      |
| 2006                                           | 312,650.53              | 15.29               | 6.54                    | 24,332.34                  | 3.97        | 0.7404                     | 275,450                    |
| 2007                                           | 399,767.96              | 14.33               | 6.98                    | 33,205.53                  | 3.97        | 0.7230                     | 343,929                    |
| 2008                                           | 424,476.47              | 13.36               | 7.49                    | 37,834.01                  | 3.97        | 0.7028                     | 355,023                    |
| 2009                                           | 479,970.14              | 12.38               | 8.08                    | 46,150.09                  | 3.98        | 0.6785                     | 387,541                    |
| 2010                                           | 560,567.20              | 11.41               | 8.76                    | 58,435.77                  | 3.98        | 0.6512                     | 434,386                    |
| 2011                                           | 199,704.05              | 10.43               | 9.59                    | 22,790.43                  | 3.98        | 0.6184                     | 146,964                    |
| 2012                                           | 260,041.83              | 9.45                | 10.58                   | 32,739.79                  | 3.98        | 0.5788                     | 179,122                    |
| 2013                                           | 218,179.03              | 8.46                | 11.82                   | 30,688.63                  | 3.98        | 0.5296                     | 137,489                    |
| 2014                                           | 295,464.92              | 7.47                | 13.39                   | 47,079.68                  | 3.99        | 0.4659                     | 163,798                    |
| 2015                                           | 18,777.67               | 6.48                | 15.43                   | 3,447.90                   | 3.99        | 0.3843                     | 8,586                      |
| 2016                                           | 97,984.71               | 5.49                | 18.21                   | 21,233.19                  | 3.99        | 0.2732                     | 31,858                     |
| 2017                                           | 3,832.53                | 4.49                | 22.27                   | 1,015.67                   | 3.99        | 0.1114                     | 508                        |
|                                                | 9,006,038.08            |                     |                         | 547,357.43                 |             |                            | 8,546,939                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.08 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                         | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 75-R2 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2021  |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19           |                         |                     |                         |                            |             |                            |                            |
| 1960                                | 9,426,670.63            | 55.34               | 1.81                    | 203,041.06                 | 3.89        | 0.9297                     | 10,429,243                 |
| 1962                                | 6,387.48                | 53.91               | 1.85                    | 140.62                     | 3.90        | 0.9277                     | 7,051                      |
| 1993                                | 3,865,710.23            | 27.71               | 3.61                    | 166,067.05                 | 3.97        | 0.8567                     | 3,941,125                  |
| 1994                                | 2,279,669.69            | 26.78               | 3.73                    | 101,187.70                 | 3.97        | 0.8518                     | 2,310,660                  |
| 1995                                | 1,367,809.76            | 25.84               | 3.87                    | 62,991.74                  | 3.97        | 0.8464                     | 1,377,615                  |
| 1996                                | 1,826,475.35            | 24.90               | 4.02                    | 87,374.93                  | 3.97        | 0.8406                     | 1,826,962                  |
| 1997                                | 513,471.24              | 23.95               | 4.18                    | 25,541.09                  | 3.97        | 0.8342                     | 509,746                    |
| 1998                                | 439,931.35              | 23.01               | 4.35                    | 22,773.05                  | 3.98        | 0.8270                     | 432,965                    |
| 1999                                | 103,897.74              | 22.05               | 4.54                    | 5,613.18                   | 3.98        | 0.8195                     | 101,322                    |
| 2000                                | 228,761.62              | 21.10               | 4.74                    | 12,903.53                  | 3.98        | 0.8114                     | 220,876                    |
| 2001                                | 195,982.13              | 20.14               | 4.97                    | 11,590.97                  | 3.98        | 0.8024                     | 187,130                    |
| 2002                                | 512,859.34              | 19.18               | 5.21                    | 31,796.77                  | 3.98        | 0.7925                     | 483,659                    |
| 2003                                | 465,940.96              | 18.22               | 5.49                    | 30,440.39                  | 3.98        | 0.7816                     | 433,351                    |
| 2004                                | 251,444.21              | 17.25               | 5.80                    | 17,354.68                  | 3.98        | 0.7693                     | 230,183                    |
| 2005                                | 341,650.57              | 16.28               | 6.14                    | 24,963.04                  | 3.98        | 0.7555                     | 307,171                    |
| 2006                                | 683,785.60              | 15.31               | 6.53                    | 53,134.93                  | 3.98        | 0.7400                     | 602,174                    |
| 2007                                | 936,227.80              | 14.34               | 6.97                    | 77,653.54                  | 3.98        | 0.7225                     | 804,890                    |
| 2008                                | 1,003,088.34            | 13.36               | 7.49                    | 89,406.27                  | 3.98        | 0.7021                     | 838,079                    |
| 2009                                | 197,463.77              | 12.38               | 8.08                    | 18,986.54                  | 3.98        | 0.6785                     | 159,438                    |
| 2010                                | 274,209.99              | 11.40               | 8.77                    | 28,617.38                  | 3.99        | 0.6500                     | 212,101                    |
| 2011                                | 560,234.96              | 10.42               | 9.60                    | 64,001.24                  | 3.99        | 0.6171                     | 411,395                    |
| 2012                                | 239,395.56              | 9.44                | 10.59                   | 30,168.87                  | 3.99        | 0.5773                     | 164,470                    |
| 2013                                | 374,448.87              | 8.45                | 11.83                   | 52,713.79                  | 3.99        | 0.5278                     | 235,189                    |
| 2014                                | 155,522.91              | 7.46                | 13.40                   | 24,799.68                  | 3.99        | 0.4652                     | 86,086                     |
| 2015                                | 38,093.78               | 6.47                | 15.46                   | 7,008.27                   | 3.99        | 0.3833                     | 17,376                     |
| 2016                                | 136,286.93              | 5.48                | 18.25                   | 29,598.11                  | 3.99        | 0.2719                     | 44,097                     |
| 2017                                | 20,559.00               | 4.49                | 22.27                   | 5,448.40                   | 3.99        | 0.1114                     | 2,724                      |
|                                     | 26,445,979.81           |                     |                         | 1,285,316.82               |             |                            | 26,377,078                 |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.86

## MARITIME ELECTRIC COMPANY

## ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                          | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|--------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| CHARLOTTETOWN UNIT 7                 |                         |                     |                         |                            |             |                            |                            |
| INTERIM SURVIVOR CURVE.. IOWA 100-S0 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2019   |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19            |                         |                     |                         |                            |             |                            |                            |
| 1960                                 | 729,578.01              | 54.29               | 1.84                    | 15,974.84                  | 1.98        | 0.9635                     | 836,535                    |
| 1993                                 | 205,167.32              | 25.90               | 3.86                    | 9,424.16                   | 1.99        | 0.9232                     | 225,391                    |
| 1994                                 | 157,546.11              | 24.96               | 4.01                    | 7,517.94                   | 1.99        | 0.9203                     | 172,532                    |
| 1995                                 | 112,632.30              | 24.01               | 4.16                    | 5,575.75                   | 1.99        | 0.9171                     | 122,924                    |
| 1997                                 | 2,900.02                | 22.11               | 4.52                    | 155.99                     | 1.99        | 0.9100                     | 3,140                      |
| 1998                                 | 3,853.27                | 21.16               | 4.73                    | 216.89                     | 1.99        | 0.9060                     | 4,154                      |
| 1999                                 | 19,142.81               | 20.20               | 4.95                    | 1,127.61                   | 1.99        | 0.9015                     | 20,536                     |
| 2000                                 | 10,518.82               | 19.24               | 5.20                    | 650.90                     | 1.99        | 0.8966                     | 11,223                     |
| 2001                                 | 10,810.88               | 18.27               | 5.47                    | 703.71                     | 1.99        | 0.8911                     | 11,464                     |
| 2002                                 | 75,808.26               | 17.30               | 5.78                    | 5,214.24                   | 1.99        | 0.8850                     | 79,835                     |
| 2003                                 | 34,545.93               | 16.33               | 6.12                    | 2,515.91                   | 1.99        | 0.8781                     | 36,100                     |
| 2004                                 | 84,243.54               | 15.36               | 6.51                    | 6,526.26                   | 1.99        | 0.8704                     | 87,261                     |
| 2005                                 | 188,033.60              | 14.38               | 6.95                    | 15,551.32                  | 2.00        | 0.8609                     | 192,639                    |
| 2006                                 | 173,266.49              | 13.40               | 7.46                    | 15,381.56                  | 2.00        | 0.8508                     | 175,414                    |
| 2007                                 | 17,862.14               | 12.42               | 8.05                    | 1,711.10                   | 2.00        | 0.8390                     | 17,833                     |
| 2008                                 | 22,180.95               | 11.44               | 8.74                    | 2,306.95                   | 2.00        | 0.8252                     | 21,781                     |
| 2009                                 | 10,085.25               | 10.45               | 9.57                    | 1,148.54                   | 2.00        | 0.8086                     | 9,704                      |
| 2010                                 | 14,154.46               | 9.46                | 10.57                   | 1,780.39                   | 2.00        | 0.7886                     | 13,283                     |
| 2011                                 | 12,843.88               | 8.47                | 11.81                   | 1,805.07                   | 2.00        | 0.7639                     | 11,675                     |
| 2012                                 | 27,310.23               | 7.48                | 13.37                   | 4,345.14                   | 2.00        | 0.7326                     | 23,810                     |
| 2013                                 | 4,262.61                | 6.49                | 15.41                   | 781.67                     | 2.00        | 0.6918                     | 3,509                      |
| 2014                                 | 8,740.09                | 5.49                | 18.21                   | 1,893.97                   | 2.00        | 0.6357                     | 6,612                      |
| 2015                                 | 8,400.43                | 4.50                | 22.22                   | 2,221.22                   | 2.00        | 0.5556                     | 5,554                      |
| 2016                                 | 10,501.39               | 3.50                | 28.57                   | 3,570.29                   | 2.00        | 0.4286                     | 5,356                      |
| 2017                                 | 10,302.16               | 2.50                | 40.00                   | 4,903.83                   | 2.00        | 0.2000                     | 2,452                      |
|                                      | 1,954,690.95            |                     |                         | 113,005.25                 |             |                            | 2,100,717                  |

CHARLOTTETOWN UNIT 8  
INTERIM SURVIVOR CURVE.. IOWA 100-S0  
PROBABLE RETIREMENT YEAR.. 12-2020  
NET SALVAGE PERCENT.. -19

|      |              |       |      |           |      |        |           |
|------|--------------|-------|------|-----------|------|--------|-----------|
| 1960 | 1,459,156.02 | 55.05 | 1.82 | 31,602.40 | 2.97 | 0.9461 | 1,642,717 |
| 1993 | 410,334.64   | 26.83 | 3.73 | 18,213.52 | 2.98 | 0.8889 | 434,063   |
| 1994 | 315,092.22   | 25.90 | 3.86 | 14,473.45 | 2.98 | 0.8849 | 331,817   |
| 1995 | 225,264.60   | 24.96 | 4.01 | 10,749.40 | 2.98 | 0.8806 | 236,061   |
| 1997 | 5,800.05     | 23.06 | 4.34 | 299.55    | 2.98 | 0.8708 | 6,010     |
| 1998 | 7,706.54     | 22.11 | 4.52 | 414.52    | 2.98 | 0.8652 | 7,935     |
| 1999 | 38,285.61    | 21.16 | 4.73 | 2,154.98  | 2.99 | 0.8587 | 39,122    |



## MARITIME ELECTRIC COMPANY

## ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                          | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|--------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| CHARLOTTETOWN UNIT 8                 |                         |                     |                         |                            |             |                            |                            |
| INTERIM SURVIVOR CURVE.. IOWA 100-S0 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2020   |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19            |                         |                     |                         |                            |             |                            |                            |
| 2000                                 | 21,037.64               | 20.20               | 4.95                    | 1,239.22                   | 2.99        | 0.8520                     | 21,329                     |
| 2001                                 | 21,621.77               | 19.24               | 5.20                    | 1,337.96                   | 2.99        | 0.8446                     | 21,731                     |
| 2002                                 | 151,616.51              | 18.27               | 5.47                    | 9,869.17                   | 2.99        | 0.8363                     | 150,896                    |
| 2003                                 | 69,091.87               | 17.30               | 5.78                    | 4,752.28                   | 2.99        | 0.8272                     | 68,009                     |
| 2004                                 | 168,487.08              | 16.33               | 6.12                    | 12,270.58                  | 2.99        | 0.8169                     | 163,788                    |
| 2005                                 | 376,067.19              | 15.36               | 6.51                    | 29,133.55                  | 2.99        | 0.8053                     | 360,406                    |
| 2006                                 | 346,532.97              | 14.38               | 6.95                    | 28,660.01                  | 2.99        | 0.7921                     | 326,629                    |
| 2007                                 | 35,724.28               | 13.40               | 7.46                    | 3,171.39                   | 2.99        | 0.7769                     | 33,026                     |
| 2008                                 | 44,361.90               | 12.42               | 8.05                    | 4,249.65                   | 2.99        | 0.7593                     | 40,082                     |
| 2009                                 | 20,170.50               | 11.44               | 8.74                    | 2,097.85                   | 2.99        | 0.7386                     | 17,729                     |
| 2010                                 | 28,308.92               | 10.45               | 9.57                    | 3,223.90                   | 2.99        | 0.7139                     | 24,049                     |
| 2011                                 | 25,687.76               | 9.46                | 10.57                   | 3,231.08                   | 2.99        | 0.6839                     | 20,907                     |
| 2012                                 | 54,620.46               | 8.47                | 11.81                   | 7,676.30                   | 2.99        | 0.6470                     | 42,053                     |
| 2013                                 | 8,525.22                | 7.48                | 13.37                   | 1,356.39                   | 2.99        | 0.6003                     | 6,090                      |
| 2014                                 | 17,480.18               | 6.49                | 15.41                   | 3,205.50                   | 2.99        | 0.5393                     | 11,218                     |
| 2015                                 | 16,800.87               | 5.49                | 18.21                   | 3,640.73                   | 3.00        | 0.4536                     | 9,068                      |
| 2016                                 | 21,002.77               | 4.50                | 22.22                   | 5,553.51                   | 3.00        | 0.3333                     | 8,331                      |
| 2017                                 | 20,604.33               | 3.50                | 28.57                   | 7,005.12                   | 3.00        | 0.1429                     | 3,503                      |
|                                      | 3,909,381.90            |                     |                         | 209,582.01                 |             |                            | 4,026,569                  |

CHARLOTTETOWN UNITS 9 AND 10  
INTERIM SURVIVOR CURVE.. IOWA 100-S0  
PROBABLE RETIREMENT YEAR.. 12-2021  
NET SALVAGE PERCENT.. -19

|      |              |       |      |            |      |        |           |
|------|--------------|-------|------|------------|------|--------|-----------|
| 1963 | 2,918,312.04 | 53.51 | 1.87 | 64,941.20  | 3.94 | 0.9264 | 3,217,090 |
| 1968 | 2,918,312.04 | 49.56 | 2.02 | 70,150.38  | 3.95 | 0.9203 | 3,196,010 |
| 1993 | 1,641,338.58 | 27.77 | 3.60 | 70,314.94  | 3.97 | 0.8570 | 1,673,964 |
| 1994 | 1,260,368.88 | 26.83 | 3.73 | 55,943.99  | 3.97 | 0.8520 | 1,277,908 |
| 1995 | 901,058.40   | 25.90 | 3.86 | 41,389.22  | 3.97 | 0.8467 | 907,904   |
| 1997 | 23,200.18    | 24.01 | 4.16 | 1,148.50   | 3.97 | 0.8347 | 23,043    |
| 1998 | 30,826.14    | 23.06 | 4.34 | 1,592.05   | 3.97 | 0.8278 | 30,368    |
| 1999 | 153,142.46   | 22.11 | 4.52 | 8,237.23   | 3.97 | 0.8204 | 149,517   |
| 2000 | 84,150.58    | 21.16 | 4.73 | 4,736.58   | 3.97 | 0.8124 | 81,351    |
| 2001 | 86,487.08    | 20.20 | 4.95 | 5,094.52   | 3.98 | 0.8030 | 82,641    |
| 2002 | 606,466.04   | 19.24 | 5.20 | 37,528.12  | 3.98 | 0.7931 | 572,405   |
| 2003 | 276,367.48   | 18.27 | 5.47 | 17,989.59  | 3.98 | 0.7822 | 257,235   |
| 2004 | 673,948.32   | 17.30 | 5.78 | 46,355.51  | 3.98 | 0.7699 | 617,491   |
| 2005 | 1,504,268.76 | 16.33 | 6.12 | 109,552.89 | 3.98 | 0.7563 | 1,353,802 |

MARITIME ELECTRIC COMPANY

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                                                                                                             | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| CHARLOTTETOWN UNITS 9 AND 10<br>INTERIM SURVIVOR CURVE.. IOWA 100-S0<br>PROBABLE RETIREMENT YEAR.. 12-2021<br>NET SALVAGE PERCENT.. -19 |                         |                     |                         |                            |             |                            |                            |
| 2006                                                                                                                                    | 1,386,131.90            | 15.36               | 6.51                    | 107,382.25                 | 3.98        | 0.7409                     | 1,222,096                  |
| 2007                                                                                                                                    | 142,897.14              | 14.38               | 6.95                    | 11,818.31                  | 3.98        | 0.7232                     | 122,984                    |
| 2008                                                                                                                                    | 177,447.60              | 13.40               | 7.46                    | 15,752.73                  | 3.98        | 0.7030                     | 148,445                    |
| 2009                                                                                                                                    | 80,682.00               | 12.42               | 8.05                    | 7,728.93                   | 3.98        | 0.6796                     | 65,245                     |
| 2010                                                                                                                                    | 113,235.68              | 11.44               | 8.74                    | 11,777.19                  | 3.99        | 0.6512                     | 87,752                     |
| 2011                                                                                                                                    | 102,751.04              | 10.45               | 9.57                    | 11,701.60                  | 3.99        | 0.6182                     | 75,587                     |
| 2012                                                                                                                                    | 218,481.84              | 9.46                | 10.57                   | 27,481.30                  | 3.99        | 0.5782                     | 150,333                    |
| 2013                                                                                                                                    | 34,100.88               | 8.47                | 11.81                   | 4,792.50                   | 3.99        | 0.5289                     | 21,464                     |
| 2014                                                                                                                                    | 69,920.72               | 7.48                | 13.37                   | 11,124.60                  | 3.99        | 0.4666                     | 38,822                     |
| 2015                                                                                                                                    | 67,203.46               | 6.49                | 15.41                   | 12,323.70                  | 3.99        | 0.3852                     | 30,806                     |
| 2016                                                                                                                                    | 84,011.10               | 5.49                | 18.21                   | 18,205.12                  | 3.99        | 0.2732                     | 27,315                     |
| 2017                                                                                                                                    | 82,417.30               | 4.50                | 22.22                   | 21,792.62                  | 4.00        | 0.1111                     | 10,897                     |
|                                                                                                                                         | 15,637,527.64           |                     |                         | 796,855.57                 |             |                            | 15,442,475                 |
|                                                                                                                                         | 21,501,600.49           |                     |                         | 1,119,442.83               |             |                            | 21,569,761                 |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.21                                                                                          |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 315 ACCESSORY ELECTRICAL EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 80-R2            |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2021             |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19                      |                         |                     |                         |                            |             |                            |                            |
| 1960                                           | 1,785,594.20            | 56.06               | 1.78                    | 37,822.46                  | 3.91        | 0.9303                     | 1,976,648                  |
| 1993                                           | 68,121.26               | 27.78               | 3.60                    | 2,918.31                   | 3.97        | 0.8571                     | 69,479                     |
| 1994                                           | 11,902.52               | 26.84               | 3.73                    | 528.32                     | 3.97        | 0.8521                     | 12,069                     |
| 1995                                           | 67,775.82               | 25.90               | 3.86                    | 3,113.21                   | 3.98        | 0.8463                     | 68,259                     |
| 1996                                           | 333.86                  | 24.95               | 4.01                    | 15.93                      | 3.98        | 0.8405                     | 334                        |
| 1999                                           | 1,968.45                | 22.09               | 4.53                    | 106.11                     | 3.98        | 0.8198                     | 1,920                      |
| 2000                                           | 9,998.38                | 21.13               | 4.73                    | 562.78                     | 3.98        | 0.8116                     | 9,657                      |
| 2001                                           | 10,025.11               | 20.17               | 4.96                    | 591.72                     | 3.98        | 0.8027                     | 9,576                      |
| 2003                                           | 8,877.13                | 18.24               | 5.48                    | 578.90                     | 3.98        | 0.7818                     | 8,259                      |
| 2004                                           | 277,551.41              | 17.27               | 5.79                    | 19,123.57                  | 3.98        | 0.7695                     | 254,168                    |
| 2005                                           | 2,127.66                | 16.30               | 6.13                    | 155.21                     | 3.98        | 0.7558                     | 1,914                      |
| 2006                                           | 2,780.71                | 15.32               | 6.53                    | 216.08                     | 3.98        | 0.7402                     | 2,449                      |
| 2008                                           | 36,056.74               | 13.37               | 7.48                    | 3,209.48                   | 3.99        | 0.7016                     | 30,103                     |
|                                                | 2,283,113.25            |                     |                         | 68,942.08                  |             |                            | 2,444,835                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.02 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 70-L0            |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 12-2021             |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -19                      |                         |                     |                         |                            |             |                            |                            |
| 1942                                           | 4,654.88                | 55.89               | 1.79                    | 99.15                      | 3.85        | 0.9311                     | 5,158                      |
| 1952                                           | 591.91                  | 51.76               | 1.93                    | 13.59                      | 3.87        | 0.9252                     | 652                        |
| 1953                                           | 128.27                  | 51.30               | 1.95                    | 2.98                       | 3.87        | 0.9246                     | 141                        |
| 1954                                           | 258.60                  | 50.84               | 1.97                    | 6.06                       | 3.87        | 0.9239                     | 284                        |
| 1955                                           | 497.90                  | 50.36               | 1.99                    | 11.79                      | 3.87        | 0.9232                     | 547                        |
| 1960                                           | 578,981.91              | 47.88               | 2.09                    | 14,399.86                  | 3.88        | 0.9190                     | 633,153                    |
| 1977                                           | 1,603.33                | 37.87               | 2.64                    | 50.37                      | 3.90        | 0.8970                     | 1,711                      |
| 1987                                           | 2,548.35                | 30.79               | 3.25                    | 98.56                      | 3.91        | 0.8730                     | 2,647                      |
| 1988                                           | 498.69                  | 30.04               | 3.33                    | 19.76                      | 3.91        | 0.8698                     | 516                        |
| 1989                                           | 2,924.29                | 29.27               | 3.42                    | 119.01                     | 3.91        | 0.8664                     | 3,015                      |
| 1990                                           | 5,043.51                | 28.50               | 3.51                    | 210.66                     | 3.91        | 0.8628                     | 5,178                      |
| 1991                                           | 25,169.71               | 27.71               | 3.61                    | 1,081.27                   | 3.92        | 0.8585                     | 25,715                     |
| 1992                                           | 70,310.68               | 26.92               | 3.71                    | 3,104.15                   | 3.92        | 0.8544                     | 71,486                     |
| 1993                                           | 12,608.07               | 26.12               | 3.83                    | 574.64                     | 3.92        | 0.8499                     | 12,752                     |
| 1994                                           | 6,659.22                | 25.31               | 3.95                    | 313.02                     | 3.92        | 0.8451                     | 6,697                      |
| 1995                                           | 3,465.20                | 24.49               | 4.08                    | 168.24                     | 3.92        | 0.8399                     | 3,464                      |
| 1996                                           | 182,770.48              | 23.67               | 4.22                    | 9,178.37                   | 3.92        | 0.8344                     | 181,477                    |
| 1997                                           | 62,411.44               | 22.83               | 4.38                    | 3,253.01                   | 3.92        | 0.8283                     | 61,518                     |
| 2000                                           | 4,441.07                | 20.27               | 4.93                    | 260.54                     | 3.93        | 0.8061                     | 4,260                      |
| 2001                                           | 464,970.95              | 19.40               | 5.15                    | 28,495.74                  | 3.93        | 0.7974                     | 441,225                    |
| 2002                                           | 20,923.07               | 18.53               | 5.40                    | 1,344.52                   | 3.93        | 0.7879                     | 19,618                     |
| 2003                                           | 19,345.10               | 17.64               | 5.67                    | 1,305.27                   | 3.93        | 0.7772                     | 17,892                     |
| 2005                                           | 7,119.14                | 15.84               | 6.31                    | 534.57                     | 3.94        | 0.7513                     | 6,365                      |
| 2006                                           | 7,488.66                | 14.94               | 6.69                    | 596.18                     | 3.94        | 0.7363                     | 6,561                      |
| 2011                                           | 18,712.31               | 10.28               | 9.73                    | 2,166.64                   | 3.95        | 0.6158                     | 13,712                     |
| 2012                                           | 8,759.77                | 9.32                | 10.73                   | 1,118.51                   | 3.95        | 0.5762                     | 6,006                      |
|                                                | 1,512,886.51            |                     |                         | 68,526.46                  |             |                            | 1,531,750                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.53 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                         | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 70-S0 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 6-2031   |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -3            |                         |                     |                         |                            |             |                            |                            |
| 1969                                | 30.00                   | 51.77               | 1.93                    | 0.60                       | 12.28       | 0.7628                     | 24                         |
| 1971                                | 105,081.36              | 50.59               | 1.98                    | 2,143.03                   | 12.33       | 0.7563                     | 81,855                     |
| 1972                                | 7,900.30                | 49.99               | 2.00                    | 162.75                     | 12.35       | 0.7530                     | 6,127                      |
| 1973                                | 103,021.30              | 49.37               | 2.03                    | 2,154.07                   | 12.37       | 0.7494                     | 79,525                     |
| 1975                                | 25,717.71               | 48.12               | 2.08                    | 550.98                     | 12.41       | 0.7421                     | 19,658                     |
| 1980                                | 1,408.08                | 44.81               | 2.23                    | 32.34                      | 12.52       | 0.7206                     | 1,045                      |
| 1981                                | 1,399.66                | 44.12               | 2.27                    | 32.73                      | 12.54       | 0.7158                     | 1,032                      |
| 1984                                | 1,820.35                | 41.99               | 2.38                    | 44.62                      | 12.60       | 0.6999                     | 1,312                      |
| 1990                                | 53,813.45               | 37.50               | 2.67                    | 1,479.92                   | 12.71       | 0.6611                     | 36,642                     |
| 1994                                | 11,015.58               | 34.33               | 2.91                    | 330.17                     | 12.79       | 0.6274                     | 7,119                      |
| 1996                                | 721.18                  | 32.69               | 3.06                    | 22.73                      | 12.83       | 0.6075                     | 451                        |
| 1997                                | 23,804.16               | 31.86               | 3.14                    | 769.87                     | 12.85       | 0.5967                     | 14,629                     |
| 1999                                | 335.09                  | 30.18               | 3.31                    | 11.42                      | 12.89       | 0.5729                     | 198                        |
| 2000                                | 13,776.00               | 29.33               | 3.41                    | 483.85                     | 12.91       | 0.5598                     | 7,944                      |
| 2001                                | 46,321.62               | 28.47               | 3.51                    | 1,674.67                   | 12.93       | 0.5458                     | 26,043                     |
| 2002                                | 894.19                  | 27.60               | 3.62                    | 33.34                      | 12.95       | 0.5308                     | 489                        |
| 2004                                | 8,223.50                | 25.84               | 3.87                    | 327.80                     | 12.99       | 0.4973                     | 4,212                      |
| 2005                                | 1,342.72                | 24.96               | 4.01                    | 55.46                      | 13.01       | 0.4788                     | 662                        |
| 2006                                | 11,839.72               | 24.06               | 4.16                    | 507.31                     | 13.03       | 0.4584                     | 5,591                      |
| 2008                                | 38.98                   | 22.25               | 4.49                    | 1.80                       | 13.07       | 0.4126                     | 17                         |
| 2010                                | 55,159.81               | 20.41               | 4.90                    | 2,783.92                   | 13.12       | 0.3572                     | 20,293                     |
| 2013                                | 7,641.05                | 17.61               | 5.68                    | 447.03                     | 13.19       | 0.2510                     | 1,975                      |
|                                     | 481,305.81              |                     |                         | 14,050.41                  |             |                            | 316,843                    |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.92

## MARITIME ELECTRIC COMPANY

## ACCOUNT 344 GENERATORS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                           | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|---------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| BORDEN                                |                         |                     |                         |                            |             |                            |                            |
| INTERIM SURVIVOR CURVE.. IOWA 65-S0.5 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 6-2031     |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -3              |                         |                     |                         |                            |             |                            |                            |
| 1971                                  | 761,663.66              | 50.67               | 1.97                    | 15,454.92                  | 12.04       | 0.7624                     | 598,097                    |
| 1972                                  | 80,705.17               | 50.10               | 2.00                    | 1,662.53                   | 12.08       | 0.7589                     | 63,083                     |
| 1973                                  | 1,770,335.86            | 49.52               | 2.02                    | 36,833.61                  | 12.11       | 0.7555                     | 1,377,522                  |
| 1974                                  | 2,473.68                | 48.93               | 2.04                    | 51.98                      | 12.15       | 0.7517                     | 1,915                      |
| 1975                                  | 143,691.48              | 48.32               | 2.07                    | 3,063.65                   | 12.18       | 0.7479                     | 110,695                    |
| 1976                                  | 264.27                  | 47.71               | 2.10                    | 5.72                       | 12.22       | 0.7439                     | 202                        |
| 1977                                  | 242.13                  | 47.08               | 2.12                    | 5.29                       | 12.25       | 0.7398                     | 185                        |
| 1980                                  | 153,029.81              | 45.13               | 2.22                    | 3,499.18                   | 12.35       | 0.7264                     | 114,488                    |
| 1981                                  | 368,399.52              | 44.45               | 2.25                    | 8,537.66                   | 12.38       | 0.7215                     | 273,767                    |
| 1983                                  | 2,450.59                | 43.07               | 2.32                    | 58.56                      | 12.44       | 0.7112                     | 1,795                      |
| 1984                                  | 41,841.39               | 42.36               | 2.36                    | 1,017.08                   | 12.47       | 0.7056                     | 30,410                     |
| 1985                                  | 7,226.80                | 41.64               | 2.40                    | 178.65                     | 12.51       | 0.6996                     | 5,207                      |
| 1986                                  | 6,180.59                | 40.91               | 2.44                    | 155.33                     | 12.54       | 0.6935                     | 4,415                      |
| 1988                                  | 7,987.48                | 39.41               | 2.54                    | 208.97                     | 12.60       | 0.6803                     | 5,597                      |
| 1989                                  | 244,324.24              | 38.65               | 2.59                    | 6,517.84                   | 12.63       | 0.6732                     | 169,418                    |
| 1991                                  | 13,805.06               | 37.10               | 2.70                    | 383.92                     | 12.69       | 0.6580                     | 9,356                      |
| 1992                                  | 169,060.48              | 36.30               | 2.75                    | 4,788.64                   | 12.71       | 0.6499                     | 113,162                    |
| 1993                                  | 78,843.03               | 35.50               | 2.82                    | 2,290.07                   | 12.74       | 0.6411                     | 52,065                     |
| 1994                                  | 49,993.50               | 34.69               | 2.88                    | 1,483.01                   | 12.77       | 0.6319                     | 32,538                     |
| 1996                                  | 69,978.29               | 33.03               | 3.03                    | 2,183.95                   | 12.83       | 0.6116                     | 44,081                     |
| 1997                                  | 125,588.84              | 32.19               | 3.11                    | 4,022.99                   | 12.86       | 0.6005                     | 77,679                     |
| 1998                                  | 217,136.75              | 31.35               | 3.19                    | 7,134.46                   | 12.88       | 0.5892                     | 131,764                    |
| 1999                                  | 319,095.67              | 30.49               | 3.28                    | 10,780.33                  | 12.91       | 0.5766                     | 189,504                    |
| 2000                                  | 131,503.20              | 29.62               | 3.38                    | 4,578.15                   | 12.94       | 0.5631                     | 76,275                     |
| 2001                                  | 306,848.14              | 28.75               | 3.48                    | 10,998.66                  | 12.96       | 0.5492                     | 173,583                    |
| 2002                                  | 710,752.75              | 27.87               | 3.59                    | 26,281.50                  | 12.99       | 0.5339                     | 390,862                    |
| 2003                                  | 308,054.22              | 26.98               | 3.71                    | 11,771.68                  | 13.02       | 0.5174                     | 164,175                    |
| 2004                                  | 109,353.68              | 26.08               | 3.83                    | 4,313.89                   | 13.04       | 0.5000                     | 56,317                     |
| 2005                                  | 434,522.38              | 25.18               | 3.97                    | 17,768.05                  | 13.07       | 0.4809                     | 215,249                    |
| 2006                                  | 134,992.88              | 24.27               | 4.12                    | 5,728.56                   | 13.10       | 0.4602                     | 63,993                     |
| 2007                                  | 569,684.41              | 23.35               | 4.28                    | 25,113.97                  | 13.12       | 0.4381                     | 257,078                    |
| 2008                                  | 182,924.25              | 22.43               | 4.46                    | 8,403.17                   | 13.15       | 0.4137                     | 77,952                     |
| 2009                                  | 1,288,701.79            | 21.50               | 4.65                    | 61,722.37                  | 13.17       | 0.3874                     | 514,273                    |
| 2010                                  | 21,583.57               | 20.56               | 4.86                    | 1,080.43                   | 13.20       | 0.3580                     | 7,958                      |
| 2011                                  | 552,311.09              | 19.62               | 5.10                    | 29,012.90                  | 13.22       | 0.3262                     | 185,569                    |
| 2013                                  | 948,552.47              | 17.72               | 5.64                    | 55,103.31                  | 13.27       | 0.2511                     | 245,356                    |
| 2014                                  | 1,465,599.42            | 16.76               | 5.97                    | 90,121.17                  | 13.29       | 0.2070                     | 312,541                    |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 344 GENERATORS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                           | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|---------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| BORDEN                                |                         |                     |                         |                            |             |                            |                            |
| INTERIM SURVIVOR CURVE.. IOWA 65-S0.5 |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 6-2031     |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -3              |                         |                     |                         |                            |             |                            |                            |
| 2015                                  | 239,110.89              | 15.80               | 6.33                    | 15,589.79                  | 13.32       | 0.1570                     | 38,657                     |
| 2016                                  | 744,242.71              | 14.83               | 6.74                    | 51,666.82                  | 13.34       | 0.1005                     | 77,017                     |
| 2017                                  | 82,488.66               | 13.86               | 7.22                    | 6,134.35                   | 13.37       | 0.0354                     | 3,003                      |
|                                       | 12,865,544.80           |                     |                         | 535,707.11                 |             |                            | 6,266,803                  |

CHARLOTTETOWN - GAS TURBINE #3  
INTERIM SURVIVOR CURVE.. IOWA 65-S0.5  
PROBABLE RETIREMENT YEAR.. 6-2056  
NET SALVAGE PERCENT.. -3

|      |               |       |      |              |       |        |            |
|------|---------------|-------|------|--------------|-------|--------|------------|
| 2006 | 33,441,268.40 | 44.45 | 2.25 | 775,001.40   | 33.68 | 0.2423 | 8,345,559  |
| 2007 | 90,574.64     | 43.77 | 2.28 | 2,127.05     | 33.87 | 0.2262 | 21,101     |
| 2008 | 101,832.07    | 43.07 | 2.32 | 2,433.38     | 34.07 | 0.2090 | 21,917     |
| 2010 | 204,401.87    | 41.64 | 2.40 | 5,052.81     | 34.46 | 0.1724 | 36,302     |
| 2011 | 244,754.79    | 40.91 | 2.44 | 6,151.18     | 34.65 | 0.1530 | 38,576     |
| 2012 | 72,292.99     | 40.17 | 2.49 | 1,854.10     | 34.85 | 0.1324 | 9,862      |
| 2013 | 75,934.19     | 39.41 | 2.54 | 1,986.59     | 35.04 | 0.1109 | 8,673      |
| 2014 | 22,412.05     | 38.65 | 2.59 | 597.89       | 35.23 | 0.0885 | 2,043      |
| 2015 | 61,217.29     | 37.88 | 2.64 | 1,664.62     | 35.42 | 0.0649 | 4,095      |
| 2016 | 123,964.41    | 37.10 | 2.70 | 3,447.45     | 35.61 | 0.0402 | 5,128      |
| 2017 | 858,467.80    | 36.30 | 2.75 | 24,316.10    | 35.81 | 0.0135 | 11,937     |
|      | 35,297,120.50 |       |      | 824,632.57   |       |        | 8,505,193  |
|      | 48,162,665.30 |       |      | 1,360,339.68 |       |        | 14,771,996 |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.82

MARITIME ELECTRIC COMPANY

ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| INTERIM SURVIVOR CURVE.. IOWA 30-L3            |                         |                     |                         |                            |             |                            |                            |
| PROBABLE RETIREMENT YEAR.. 6-2031              |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -3                       |                         |                     |                         |                            |             |                            |                            |
| 1980                                           | 11,493.28               | 29.85               | 3.35                    | 396.58                     | 6.85        | 0.7705                     | 9,121                      |
| 1981                                           | 80.26                   | 29.81               | 3.35                    | 2.77                       | 6.99        | 0.7655                     | 63                         |
| 1984                                           | 104.40                  | 29.65               | 3.37                    | 3.62                       | 7.29        | 0.7541                     | 81                         |
| 1985                                           | 20.82                   | 29.58               | 3.38                    | 0.72                       | 7.36        | 0.7512                     | 16                         |
| 1992                                           | 4,701.34                | 28.69               | 3.49                    | 169.00                     | 7.90        | 0.7246                     | 3,509                      |
| 1998                                           | 288.42                  | 27.20               | 3.68                    | 10.93                      | 9.33        | 0.6570                     | 195                        |
| 2002                                           | 58.30                   | 25.59               | 3.91                    | 2.35                       | 10.75       | 0.5799                     | 35                         |
| 2003                                           | 303,368.91              | 25.09               | 3.99                    | 12,467.55                  | 11.11       | 0.5572                     | 174,105                    |
|                                                | 320,115.73              |                     |                         | 13,053.52                  |             |                            | 187,125                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.08 |                         |                     |                         |                            |             |                            |                            |



## MARITIME ELECTRIC COMPANY

## ACCOUNT 350.2 RIGHTS OF WAY AND EASEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 70-R5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0     |                         |                     |                         |                            |             |                            |                            |
| 1950                        | 400.00                  | 70.00               | 1.43                    | 5.72                       | 8.15        | 0.8836                     | 353                        |
| 1952                        | 4,462.94                | 70.00               | 1.43                    | 63.82                      | 9.23        | 0.8681                     | 3,874                      |
| 1953                        | 3,281.74                | 70.00               | 1.43                    | 46.93                      | 9.80        | 0.8600                     | 2,822                      |
| 1954                        | 1,230.84                | 70.00               | 1.43                    | 17.60                      | 10.41       | 0.8513                     | 1,048                      |
| 1955                        | 332.03                  | 70.00               | 1.43                    | 4.75                       | 11.04       | 0.8423                     | 280                        |
| 1956                        | 15.79                   | 70.00               | 1.43                    | 0.23                       | 11.69       | 0.8330                     | 13                         |
| 1957                        | 490.09                  | 70.00               | 1.43                    | 7.01                       | 12.37       | 0.8233                     | 403                        |
| 1958                        | 2,860.99                | 70.00               | 1.43                    | 40.91                      | 13.07       | 0.8133                     | 2,327                      |
| 1959                        | 3,704.01                | 70.00               | 1.43                    | 52.97                      | 13.80       | 0.8029                     | 2,974                      |
| 1960                        | 1,183.14                | 70.00               | 1.43                    | 16.92                      | 14.55       | 0.7921                     | 937                        |
| 1961                        | 12,280.69               | 70.00               | 1.43                    | 175.61                     | 15.32       | 0.7811                     | 9,593                      |
| 1962                        | 1,469.46                | 70.00               | 1.43                    | 21.01                      | 16.11       | 0.7699                     | 1,131                      |
| 1963                        | 30.00                   | 70.00               | 1.43                    | 0.43                       | 16.92       | 0.7583                     | 23                         |
| 1964                        | 180.00                  | 70.00               | 1.43                    | 2.57                       | 17.74       | 0.7466                     | 134                        |
| 1965                        | 9,218.60                | 70.00               | 1.43                    | 131.83                     | 18.58       | 0.7346                     | 6,772                      |
| 1966                        | 7,390.73                | 70.00               | 1.43                    | 105.69                     | 19.44       | 0.7223                     | 5,338                      |
| 1968                        | 226.86                  | 70.00               | 1.43                    | 3.24                       | 21.19       | 0.6973                     | 158                        |
| 1969                        | 536.41                  | 70.00               | 1.43                    | 7.67                       | 22.09       | 0.6844                     | 367                        |
| 1971                        | 21,036.65               | 70.00               | 1.43                    | 300.82                     | 23.91       | 0.6584                     | 13,851                     |
| 1972                        | 4,302.61                | 70.00               | 1.43                    | 61.53                      | 24.84       | 0.6451                     | 2,776                      |
| 1973                        | 3,713.77                | 70.00               | 1.43                    | 53.11                      | 25.78       | 0.6317                     | 2,346                      |
| 1975                        | 125.00                  | 70.00               | 1.43                    | 1.79                       | 27.68       | 0.6046                     | 76                         |
| 1976                        | 66.99                   | 70.00               | 1.43                    | 0.96                       | 28.64       | 0.5909                     | 40                         |
| 1980                        | 569,180.92              | 70.00               | 1.43                    | 8,139.29                   | 32.54       | 0.5351                     | 304,591                    |
| 1981                        | 13,930.98               | 70.00               | 1.43                    | 199.21                     | 33.53       | 0.5210                     | 7,258                      |
| 1984                        | 2,114.45                | 70.00               | 1.43                    | 30.24                      | 36.51       | 0.4784                     | 1,012                      |
| 1986                        | 235.01                  | 70.00               | 1.43                    | 3.36                       | 38.50       | 0.4500                     | 106                        |
| 1989                        | 1,011.52                | 70.00               | 1.43                    | 14.46                      | 41.50       | 0.4071                     | 412                        |
| 1991                        | 771,271.30              | 70.00               | 1.43                    | 11,029.18                  | 43.50       | 0.3786                     | 291,980                    |
| 1996                        | 593.61                  | 70.00               | 1.43                    | 8.49                       | 48.50       | 0.3071                     | 182                        |
| 1998                        | 13,998.99               | 70.00               | 1.43                    | 200.19                     | 50.50       | 0.2786                     | 3,900                      |
| 1999                        | 9,833.45                | 70.00               | 1.43                    | 140.62                     | 51.50       | 0.2643                     | 2,599                      |
| 2000                        | 359.31                  | 70.00               | 1.43                    | 5.14                       | 52.50       | 0.2500                     | 90                         |
| 2001                        | 2,028.14                | 70.00               | 1.43                    | 29.00                      | 53.50       | 0.2357                     | 478                        |
| 2005                        | 1,753.80                | 70.00               | 1.43                    | 25.08                      | 57.50       | 0.1786                     | 313                        |
| 2006                        | 78,075.24               | 70.00               | 1.43                    | 1,116.48                   | 58.50       | 0.1643                     | 12,827                     |
| 2007                        | 54,675.30               | 70.00               | 1.43                    | 781.86                     | 59.50       | 0.1500                     | 8,201                      |
| 2008                        | 2,188,129.52            | 70.00               | 1.43                    | 31,290.25                  | 60.50       | 0.1357                     | 296,951                    |
| 2009                        | 557,785.71              | 70.00               | 1.43                    | 7,976.34                   | 61.50       | 0.1214                     | 67,732                     |
| 2010                        | 73,533.31               | 70.00               | 1.43                    | 1,051.53                   | 62.50       | 0.1071                     | 7,878                      |
| 2011                        | 8,030.90                | 70.00               | 1.43                    | 114.84                     | 63.50       | 0.0929                     | 746                        |
| 2012                        | 13,565.37               | 70.00               | 1.43                    | 193.98                     | 64.50       | 0.0786                     | 1,066                      |

MARITIME ELECTRIC COMPANY

ACCOUNT 350.2 RIGHTS OF WAY AND EASEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 70-R5                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 15,580.09               | 70.00               | 1.43                    | 222.80                     | 67.50       | 0.0357                     | 556                        |
| 2016                                           | 600.00                  | 70.00               | 1.43                    | 8.58                       | 68.50       | 0.0214                     | 13                         |
| 2017                                           | 8,158.60                | 70.00               | 1.43                    | 116.67                     | 69.50       | 0.0071                     | 58                         |
|                                                | 4,462,984.86            |                     |                         | 63,820.71                  |             |                            | 1,066,585                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 353 SUBSTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 57-R3 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5    |                         |                     |                         |                            |             |                            |                            |
| 1959                        | 331.39                  | 57.00               | 1.75                    | 6.09                       | 10.81       | 0.8104                     | 282                        |
| 1961                        | 1,073.72                | 57.00               | 1.75                    | 19.73                      | 11.74       | 0.7940                     | 895                        |
| 1962                        | 14,304.63               | 57.00               | 1.75                    | 262.85                     | 12.22       | 0.7856                     | 11,800                     |
| 1964                        | 37,737.36               | 57.00               | 1.75                    | 693.42                     | 13.25       | 0.7675                     | 30,413                     |
| 1965                        | 7,635.68                | 57.00               | 1.75                    | 140.31                     | 13.78       | 0.7583                     | 6,079                      |
| 1967                        | 47,793.32               | 57.00               | 1.75                    | 878.20                     | 14.90       | 0.7386                     | 37,065                     |
| 1968                        | 351,290.45              | 57.00               | 1.75                    | 6,454.96                   | 15.49       | 0.7283                     | 268,619                    |
| 1969                        | 28,789.25               | 57.00               | 1.75                    | 529.00                     | 16.09       | 0.7177                     | 21,696                     |
| 1971                        | 60,413.78               | 57.00               | 1.75                    | 1,110.10                   | 17.33       | 0.6960                     | 44,148                     |
| 1972                        | 505,538.54              | 57.00               | 1.75                    | 9,289.27                   | 17.97       | 0.6847                     | 363,471                    |
| 1973                        | 477,226.83              | 57.00               | 1.75                    | 8,769.04                   | 18.63       | 0.6732                     | 337,313                    |
| 1974                        | 189,760.01              | 57.00               | 1.75                    | 3,486.84                   | 19.30       | 0.6614                     | 131,783                    |
| 1975                        | 155,032.12              | 57.00               | 1.75                    | 2,848.72                   | 19.98       | 0.6495                     | 105,723                    |
| 1976                        | 1,877,967.37            | 57.00               | 1.75                    | 34,507.65                  | 20.67       | 0.6374                     | 1,256,808                  |
| 1977                        | 1,100,231.21            | 57.00               | 1.75                    | 20,216.75                  | 21.38       | 0.6249                     | 721,923                    |
| 1978                        | 230,498.98              | 57.00               | 1.75                    | 4,235.42                   | 22.10       | 0.6123                     | 148,186                    |
| 1980                        | 1,740,678.88            | 57.00               | 1.75                    | 31,984.97                  | 23.57       | 0.5865                     | 1,071,935                  |
| 1981                        | 355,538.88              | 57.00               | 1.75                    | 6,533.03                   | 24.31       | 0.5735                     | 214,100                    |
| 1982                        | 465,990.24              | 57.00               | 1.75                    | 8,562.57                   | 25.07       | 0.5602                     | 274,090                    |
| 1983                        | 29,255.43               | 57.00               | 1.75                    | 537.57                     | 25.84       | 0.5467                     | 16,793                     |
| 1984                        | 23,969.81               | 57.00               | 1.75                    | 440.45                     | 26.62       | 0.5330                     | 13,414                     |
| 1985                        | 7,851.80                | 57.00               | 1.75                    | 144.28                     | 27.41       | 0.5191                     | 4,280                      |
| 1986                        | 65,135.33               | 57.00               | 1.75                    | 1,196.86                   | 28.21       | 0.5051                     | 34,544                     |
| 1987                        | 2,607,059.62            | 57.00               | 1.75                    | 47,904.72                  | 29.02       | 0.4909                     | 1,343,741                  |
| 1988                        | 188.58                  | 57.00               | 1.75                    | 3.47                       | 29.84       | 0.4765                     | 94                         |
| 1989                        | 203,912.40              | 57.00               | 1.75                    | 3,746.89                   | 30.66       | 0.4621                     | 98,941                     |
| 1990                        | 318,427.18              | 57.00               | 1.75                    | 5,851.10                   | 31.50       | 0.4474                     | 149,578                    |
| 1991                        | 4,397,021.64            | 57.00               | 1.75                    | 80,795.27                  | 32.34       | 0.4326                     | 1,997,398                  |
| 1992                        | 254,524.14              | 57.00               | 1.75                    | 4,676.88                   | 33.19       | 0.4177                     | 111,636                    |
| 1993                        | 19,108.90               | 57.00               | 1.75                    | 351.13                     | 34.05       | 0.4026                     | 8,079                      |
| 1994                        | 549,664.83              | 57.00               | 1.75                    | 10,100.09                  | 34.92       | 0.3874                     | 223,570                    |
| 1995                        | 438,742.91              | 57.00               | 1.75                    | 8,061.90                   | 35.79       | 0.3721                     | 171,424                    |
| 1996                        | 39,937.38               | 57.00               | 1.75                    | 733.85                     | 36.67       | 0.3567                     | 14,957                     |
| 1997                        | 14,153.00               | 57.00               | 1.75                    | 260.06                     | 37.56       | 0.3411                     | 5,068                      |
| 1998                        | 521,183.91              | 57.00               | 1.75                    | 9,576.75                   | 38.46       | 0.3253                     | 177,996                    |
| 1999                        | 165,384.41              | 57.00               | 1.75                    | 3,038.94                   | 39.36       | 0.3095                     | 53,741                     |
| 2000                        | 441,456.79              | 57.00               | 1.75                    | 8,111.77                   | 40.27       | 0.2935                     | 136,051                    |
| 2001                        | 2,163,969.04            | 57.00               | 1.75                    | 39,762.93                  | 41.19       | 0.2774                     | 630,231                    |
| 2002                        | 777,212.26              | 57.00               | 1.75                    | 14,281.28                  | 42.11       | 0.2612                     | 213,183                    |
| 2003                        | 410,495.12              | 57.00               | 1.75                    | 7,542.85                   | 43.04       | 0.2449                     | 105,561                    |
| 2004                        | 2,534,935.47            | 57.00               | 1.75                    | 46,579.44                  | 43.97       | 0.2286                     | 608,461                    |
| 2005                        | 359,485.29              | 57.00               | 1.75                    | 6,605.54                   | 44.91       | 0.2121                     | 80,063                     |
| 2006                        | 986,793.29              | 57.00               | 1.75                    | 18,132.33                  | 45.86       | 0.1954                     | 202,502                    |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 353 SUBSTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 57-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5                       |                         |                     |                         |                            |             |                            |                            |
| 2007                                           | 1,685,978.48            | 57.00               | 1.75                    | 30,979.85                  | 46.81       | 0.1788                     | 316,472                    |
| 2008                                           | 1,067,029.12            | 57.00               | 1.75                    | 19,606.66                  | 47.76       | 0.1621                     | 181,625                    |
| 2009                                           | 536,270.14              | 57.00               | 1.75                    | 9,853.96                   | 48.72       | 0.1453                     | 81,794                     |
| 2010                                           | 1,413,350.05            | 57.00               | 1.75                    | 25,970.31                  | 49.68       | 0.1284                     | 190,578                    |
| 2011                                           | 1,206,882.08            | 57.00               | 1.75                    | 22,176.46                  | 50.65       | 0.1114                     | 141,169                    |
| 2012                                           | 1,262,516.19            | 57.00               | 1.75                    | 23,198.73                  | 51.62       | 0.0944                     | 125,127                    |
| 2013                                           | 4,004,833.23            | 57.00               | 1.75                    | 73,588.81                  | 52.59       | 0.0774                     | 325,347                    |
| 2014                                           | 3,240,927.87            | 57.00               | 1.75                    | 59,552.05                  | 53.57       | 0.0602                     | 204,791                    |
| 2015                                           | 3,479,918.91            | 57.00               | 1.75                    | 63,943.51                  | 54.54       | 0.0432                     | 157,703                    |
| 2016                                           | 2,982,879.04            | 57.00               | 1.75                    | 54,810.40                  | 55.52       | 0.0260                     | 81,307                     |
| 2017                                           | 4,437,646.57            | 57.00               | 1.75                    | 81,541.76                  | 56.51       | 0.0086                     | 40,072                     |
| 50,295,932.85                                  |                         |                     |                         | 924,187.77                 | 13,293,620  |                            |                            |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.84 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 354 TOWERS AND FIXTURES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 60-R4                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -20                      |                         |                     |                         |                            |             |                            |                            |
| 1973                                           | 115,579.15              | 60.00               | 1.67                    | 2,316.21                   | 18.61       | 0.6898                     | 95,676                     |
| 1980                                           | 763,255.11              | 60.00               | 1.67                    | 15,295.63                  | 24.16       | 0.5973                     | 547,098                    |
|                                                | 878,834.26              |                     |                         | 17,611.84                  |             |                            | 642,774                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.00 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 355 POLES AND FIXTURES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                   | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 52-R2.5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -70     |                         |                     |                         |                            |             |                            |                            |
| 1961                          | 45,791.87               | 52.00               | 1.92                    | 1,494.65                   | 10.53       | 0.7975                     | 62,082                     |
| 1962                          | 2,227.76                | 52.00               | 1.92                    | 72.71                      | 10.92       | 0.7900                     | 2,992                      |
| 1964                          | 1,147.80                | 52.00               | 1.92                    | 37.46                      | 11.76       | 0.7739                     | 1,510                      |
| 1965                          | 53,385.35               | 52.00               | 1.92                    | 1,742.50                   | 12.20       | 0.7654                     | 69,462                     |
| 1966                          | 51,635.48               | 52.00               | 1.92                    | 1,685.38                   | 12.66       | 0.7565                     | 66,409                     |
| 1968                          | 28,022.60               | 52.00               | 1.92                    | 914.66                     | 13.63       | 0.7379                     | 35,151                     |
| 1969                          | 1,301.30                | 52.00               | 1.92                    | 42.47                      | 14.13       | 0.7283                     | 1,611                      |
| 1971                          | 141,223.30              | 52.00               | 1.92                    | 4,609.53                   | 15.20       | 0.7077                     | 169,902                    |
| 1972                          | 74,022.16               | 52.00               | 1.92                    | 2,416.08                   | 15.76       | 0.6969                     | 87,699                     |
| 1973                          | 83,327.30               | 52.00               | 1.92                    | 2,719.80                   | 16.33       | 0.6860                     | 97,171                     |
| 1974                          | 5,171.05                | 52.00               | 1.92                    | 168.78                     | 16.92       | 0.6746                     | 5,930                      |
| 1975                          | 9,928.65                | 52.00               | 1.92                    | 324.07                     | 17.52       | 0.6631                     | 11,192                     |
| 1976                          | 42,519.11               | 52.00               | 1.92                    | 1,387.82                   | 18.13       | 0.6514                     | 47,081                     |
| 1977                          | 43,717.12               | 52.00               | 1.92                    | 1,426.93                   | 18.76       | 0.6392                     | 47,507                     |
| 1978                          | 22,339.09               | 52.00               | 1.92                    | 729.15                     | 19.40       | 0.6269                     | 23,808                     |
| 1979                          | 5,445.82                | 52.00               | 1.92                    | 177.75                     | 20.06       | 0.6142                     | 5,686                      |
| 1980                          | 837,374.23              | 52.00               | 1.92                    | 27,331.89                  | 20.72       | 0.6015                     | 856,314                    |
| 1981                          | 20,262.66               | 52.00               | 1.92                    | 661.37                     | 21.40       | 0.5885                     | 20,270                     |
| 1982                          | 29,110.12               | 52.00               | 1.92                    | 950.15                     | 22.09       | 0.5752                     | 28,465                     |
| 1983                          | 410,947.66              | 52.00               | 1.92                    | 13,413.33                  | 22.79       | 0.5617                     | 392,431                    |
| 1984                          | 301,608.24              | 52.00               | 1.92                    | 9,844.49                   | 23.50       | 0.5481                     | 281,019                    |
| 1985                          | 3,117.81                | 52.00               | 1.92                    | 101.77                     | 24.22       | 0.5342                     | 2,832                      |
| 1986                          | 384,811.93              | 52.00               | 1.92                    | 12,560.26                  | 24.95       | 0.5202                     | 340,298                    |
| 1987                          | 690,533.26              | 52.00               | 1.92                    | 22,539.01                  | 25.70       | 0.5058                     | 593,727                    |
| 1988                          | 3,401.82                | 52.00               | 1.92                    | 111.04                     | 26.45       | 0.4914                     | 2,842                      |
| 1989                          | 737,708.38              | 52.00               | 1.92                    | 24,078.80                  | 27.21       | 0.4767                     | 597,869                    |
| 1990                          | 1,971.87                | 52.00               | 1.92                    | 64.36                      | 27.98       | 0.4619                     | 1,548                      |
| 1991                          | 762,758.19              | 52.00               | 1.92                    | 24,896.43                  | 28.76       | 0.4469                     | 579,516                    |
| 1992                          | 45,391.50               | 52.00               | 1.92                    | 1,481.58                   | 29.54       | 0.4319                     | 33,329                     |
| 1993                          | 16,186.37               | 52.00               | 1.92                    | 528.32                     | 30.34       | 0.4165                     | 11,462                     |
| 1994                          | 196,531.48              | 52.00               | 1.92                    | 6,414.79                   | 31.14       | 0.4012                     | 134,026                    |
| 1995                          | 35,270.08               | 52.00               | 1.92                    | 1,151.22                   | 31.96       | 0.3854                     | 23,107                     |
| 1996                          | 235,445.23              | 52.00               | 1.92                    | 7,684.93                   | 32.78       | 0.3696                     | 147,943                    |
| 1997                          | 104,122.19              | 52.00               | 1.92                    | 3,398.55                   | 33.61       | 0.3537                     | 62,599                     |
| 1998                          | 115,449.07              | 52.00               | 1.92                    | 3,768.26                   | 34.45       | 0.3375                     | 66,239                     |
| 1999                          | 482,891.56              | 52.00               | 1.92                    | 15,761.58                  | 35.29       | 0.3214                     | 263,801                    |
| 2000                          | 60,377.98               | 52.00               | 1.92                    | 1,970.74                   | 36.14       | 0.3050                     | 31,306                     |
| 2001                          | 162,534.32              | 52.00               | 1.92                    | 5,305.12                   | 37.00       | 0.2885                     | 79,704                     |
| 2002                          | 289,237.16              | 52.00               | 1.92                    | 9,440.70                   | 37.87       | 0.2717                     | 133,611                    |
| 2003                          | 427,021.43              | 52.00               | 1.92                    | 13,937.98                  | 38.74       | 0.2550                     | 185,114                    |
| 2004                          | 408,153.70              | 52.00               | 1.92                    | 13,322.14                  | 39.62       | 0.2381                     | 165,194                    |
| 2005                          | 236,707.44              | 52.00               | 1.92                    | 7,726.13                   | 40.50       | 0.2212                     | 88,991                     |
| 2006                          | 1,167,975.45            | 52.00               | 1.92                    | 38,122.72                  | 41.39       | 0.2040                     | 405,133                    |

MARITIME ELECTRIC COMPANY

ACCOUNT 355 POLES AND FIXTURES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 52-R2.5                  |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -70                      |                         |                     |                         |                            |             |                            |                            |
| 2007                                           | 407,917.33              | 52.00               | 1.92                    | 13,314.42                  | 42.29       | 0.1867                     | 129,490                    |
| 2008                                           | 3,214,643.50            | 52.00               | 1.92                    | 104,925.96                 | 43.19       | 0.1694                     | 925,862                    |
| 2009                                           | 1,498,420.41            | 52.00               | 1.92                    | 48,908.44                  | 44.10       | 0.1519                     | 386,988                    |
| 2010                                           | 750,225.15              | 52.00               | 1.92                    | 24,487.35                  | 45.01       | 0.1344                     | 171,437                    |
| 2011                                           | 536,848.33              | 52.00               | 1.92                    | 17,522.73                  | 45.93       | 0.1167                     | 106,533                    |
| 2012                                           | 227,795.52              | 52.00               | 1.92                    | 7,435.25                   | 46.85       | 0.0990                     | 38,353                     |
| 2013                                           | 579,251.29              | 52.00               | 1.92                    | 18,906.76                  | 47.78       | 0.0812                     | 79,911                     |
| 2014                                           | 1,890,453.98            | 52.00               | 1.92                    | 61,704.42                  | 48.71       | 0.0633                     | 203,335                    |
| 2015                                           | 1,721,879.47            | 52.00               | 1.92                    | 56,202.15                  | 49.65       | 0.0452                     | 132,280                    |
| 2016                                           | 1,401,512.41            | 52.00               | 1.92                    | 45,745.37                  | 50.58       | 0.0273                     | 65,068                     |
| 2017                                           | 1,854,579.43            | 52.00               | 1.92                    | 60,533.47                  | 51.53       | 0.0090                     | 28,501                     |
|                                                | 22,861,633.71           |                     |                         | 746,203.72                 |             |                            | 8,531,641                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.26 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 356 OVERHEAD CONDUCTOR AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 60-R3 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -70   |                         |                     |                         |                            |             |                            |                            |
| 1959                        | 144.41                  | 60.00               | 1.67                    | 4.10                       | 12.83       | 0.7862                     | 193                        |
| 1960                        | 1,197.96                | 60.00               | 1.67                    | 34.01                      | 13.33       | 0.7778                     | 1,584                      |
| 1961                        | 8,897.93                | 60.00               | 1.67                    | 252.61                     | 13.85       | 0.7692                     | 11,635                     |
| 1962                        | 11,472.53               | 60.00               | 1.67                    | 325.71                     | 14.38       | 0.7603                     | 14,829                     |
| 1963                        | 9,168.81                | 60.00               | 1.67                    | 260.30                     | 14.93       | 0.7512                     | 11,708                     |
| 1964                        | 3,806.60                | 60.00               | 1.67                    | 108.07                     | 15.49       | 0.7418                     | 4,801                      |
| 1965                        | 165,495.51              | 60.00               | 1.67                    | 4,698.42                   | 16.07       | 0.7322                     | 205,990                    |
| 1966                        | 79,737.44               | 60.00               | 1.67                    | 2,263.75                   | 16.66       | 0.7223                     | 97,914                     |
| 1967                        | 2,012.08                | 60.00               | 1.67                    | 57.12                      | 17.27       | 0.7122                     | 2,436                      |
| 1968                        | 78,426.44               | 60.00               | 1.67                    | 2,226.53                   | 17.89       | 0.7018                     | 93,571                     |
| 1969                        | 5,130.27                | 60.00               | 1.67                    | 145.65                     | 18.53       | 0.6912                     | 6,028                      |
| 1970                        | 249.51                  | 60.00               | 1.67                    | 7.08                       | 19.18       | 0.6803                     | 289                        |
| 1971                        | 173,425.45              | 60.00               | 1.67                    | 4,923.55                   | 19.84       | 0.6693                     | 197,334                    |
| 1972                        | 126,406.37              | 60.00               | 1.67                    | 3,588.68                   | 20.51       | 0.6582                     | 141,435                    |
| 1973                        | 59,396.96               | 60.00               | 1.67                    | 1,686.28                   | 21.19       | 0.6468                     | 65,314                     |
| 1974                        | 5,588.47                | 60.00               | 1.67                    | 158.66                     | 21.89       | 0.6352                     | 6,034                      |
| 1975                        | 6,243.66                | 60.00               | 1.67                    | 177.26                     | 22.60       | 0.6233                     | 6,616                      |
| 1976                        | 44,437.67               | 60.00               | 1.67                    | 1,261.59                   | 23.32       | 0.6113                     | 46,182                     |
| 1977                        | 41,211.78               | 60.00               | 1.67                    | 1,170.00                   | 24.05       | 0.5992                     | 41,978                     |
| 1978                        | 16,311.18               | 60.00               | 1.67                    | 463.07                     | 24.79       | 0.5868                     | 16,272                     |
| 1980                        | 1,186,952.77            | 60.00               | 1.67                    | 33,697.59                  | 26.29       | 0.5618                     | 1,133,672                  |
| 1981                        | 9,270.55                | 60.00               | 1.67                    | 263.19                     | 27.06       | 0.5490                     | 8,652                      |
| 1982                        | 15,692.99               | 60.00               | 1.67                    | 445.52                     | 27.84       | 0.5360                     | 14,299                     |
| 1983                        | 381,949.83              | 60.00               | 1.67                    | 10,843.56                  | 28.63       | 0.5228                     | 339,481                    |
| 1984                        | 692,496.59              | 60.00               | 1.67                    | 19,659.98                  | 29.42       | 0.5097                     | 600,006                    |
| 1985                        | 23,143.25               | 60.00               | 1.67                    | 657.04                     | 30.23       | 0.4962                     | 19,521                     |
| 1986                        | 206,451.77              | 60.00               | 1.67                    | 5,861.17                   | 31.04       | 0.4827                     | 169,402                    |
| 1987                        | 1,415,300.09            | 60.00               | 1.67                    | 40,180.37                  | 31.86       | 0.4690                     | 1,128,419                  |
| 1988                        | 5,623.66                | 60.00               | 1.67                    | 159.66                     | 32.69       | 0.4552                     | 4,352                      |
| 1989                        | 1,797,665.58            | 60.00               | 1.67                    | 51,035.73                  | 33.53       | 0.4412                     | 1,348,229                  |
| 1990                        | 2,092.27                | 60.00               | 1.67                    | 59.40                      | 34.38       | 0.4270                     | 1,519                      |
| 1991                        | 823,159.09              | 60.00               | 1.67                    | 23,369.49                  | 35.23       | 0.4128                     | 577,702                    |
| 1992                        | 14,168.32               | 60.00               | 1.67                    | 402.24                     | 36.09       | 0.3985                     | 9,598                      |
| 1993                        | 9,467.26                | 60.00               | 1.67                    | 268.78                     | 36.96       | 0.3840                     | 6,180                      |
| 1994                        | 256,340.49              | 60.00               | 1.67                    | 7,277.51                   | 37.84       | 0.3693                     | 160,946                    |
| 1995                        | 238,585.92              | 60.00               | 1.67                    | 6,773.45                   | 38.72       | 0.3547                     | 143,853                    |
| 1996                        | 217,271.52              | 60.00               | 1.67                    | 6,168.34                   | 39.61       | 0.3398                     | 125,520                    |
| 1997                        | 173,329.90              | 60.00               | 1.67                    | 4,920.84                   | 40.51       | 0.3248                     | 95,715                     |
| 1998                        | 219,943.76              | 60.00               | 1.67                    | 6,244.20                   | 41.41       | 0.3098                     | 115,847                    |
| 1999                        | 592,989.73              | 60.00               | 1.67                    | 16,834.98                  | 42.32       | 0.2947                     | 297,052                    |
| 2000                        | 89,067.83               | 60.00               | 1.67                    | 2,528.64                   | 43.24       | 0.2793                     | 42,295                     |
| 2001                        | 196,634.65              | 60.00               | 1.67                    | 5,582.46                   | 44.16       | 0.2640                     | 88,250                     |
| 2002                        | 482,564.85              | 60.00               | 1.67                    | 13,700.02                  | 45.08       | 0.2487                     | 203,999                    |



## MARITIME ELECTRIC COMPANY

## ACCOUNT 356 OVERHEAD CONDUCTOR AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 60-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -70                      |                         |                     |                         |                            |             |                            |                            |
| 2003                                           | 815,698.73              | 60.00               | 1.67                    | 23,157.69                  | 46.02       | 0.2330                     | 323,098                    |
| 2004                                           | 727,270.34              | 60.00               | 1.67                    | 20,647.20                  | 46.96       | 0.2173                     | 268,698                    |
| 2005                                           | 584,934.30              | 60.00               | 1.67                    | 16,606.28                  | 47.90       | 0.2017                     | 200,538                    |
| 2006                                           | 3,569,619.48            | 60.00               | 1.67                    | 101,341.50                 | 48.85       | 0.1858                     | 1,127,682                  |
| 2007                                           | 2,142,144.90            | 60.00               | 1.67                    | 60,815.49                  | 49.80       | 0.1700                     | 619,080                    |
| 2008                                           | 5,323,371.56            | 60.00               | 1.67                    | 151,130.52                 | 50.75       | 0.1542                     | 1,395,197                  |
| 2009                                           | 3,671,924.30            | 60.00               | 1.67                    | 104,245.93                 | 51.71       | 0.1382                     | 862,495                    |
| 2010                                           | 1,134,925.14            | 60.00               | 1.67                    | 32,220.52                  | 52.68       | 0.1220                     | 235,383                    |
| 2011                                           | 1,140,239.34            | 60.00               | 1.67                    | 32,371.39                  | 53.64       | 0.1060                     | 205,471                    |
| 2012                                           | 487,513.10              | 60.00               | 1.67                    | 13,840.50                  | 54.62       | 0.0897                     | 74,316                     |
| 2013                                           | 1,494,844.95            | 60.00               | 1.67                    | 42,438.65                  | 55.59       | 0.0735                     | 186,781                    |
| 2014                                           | 2,449,640.62            | 60.00               | 1.67                    | 69,545.30                  | 56.56       | 0.0573                     | 238,744                    |
| 2015                                           | 3,294,213.46            | 60.00               | 1.67                    | 93,522.72                  | 57.54       | 0.0410                     | 229,607                    |
| 2016                                           | 4,484,586.19            | 60.00               | 1.67                    | 127,317.40                 | 58.52       | 0.0247                     | 188,079                    |
| 2017                                           | 4,412,104.82            | 60.00               | 1.67                    | 125,259.66                 | 59.51       | 0.0082                     | 61,280                     |
| 45,621,954.93                                  |                         |                     |                         | 1,295,207.35               |             | 13,823,101                 |                            |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.84 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 359 ROADS AND TRAILS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 50-S2                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 2009                                           | 73,263.00               | 50.00               | 2.00                    | 1,465.26                   | 41.53       | 0.1694                     | 12,411                     |
|                                                | 73,263.00               |                     |                         | 1,465.26                   |             |                            | 12,411                     |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.00 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 360.2 RIGHTS OF WAY AND EASEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 70-R5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0     |                         |                     |                         |                            |             |                            |                            |
| 1930                        | 794.00                  | 70.00               | 1.43                    | 11.35                      | 2.04        | 0.9709                     | 771                        |
| 1943                        | 2,250.00                | 70.00               | 1.43                    | 32.18                      | 5.18        | 0.9260                     | 2,084                      |
| 1950                        | 430.00                  | 70.00               | 1.43                    | 6.15                       | 8.15        | 0.8836                     | 380                        |
| 1951                        | 274.45                  | 70.00               | 1.43                    | 3.92                       | 8.67        | 0.8761                     | 240                        |
| 1952                        | 193.77                  | 70.00               | 1.43                    | 2.77                       | 9.23        | 0.8681                     | 168                        |
| 1953                        | 65.03                   | 70.00               | 1.43                    | 0.93                       | 9.80        | 0.8600                     | 56                         |
| 1954                        | 447.29                  | 70.00               | 1.43                    | 6.40                       | 10.41       | 0.8513                     | 381                        |
| 1955                        | 44.82                   | 70.00               | 1.43                    | 0.64                       | 11.04       | 0.8423                     | 38                         |
| 1957                        | 43.85                   | 70.00               | 1.43                    | 0.63                       | 12.37       | 0.8233                     | 36                         |
| 1958                        | 431.60                  | 70.00               | 1.43                    | 6.17                       | 13.07       | 0.8133                     | 351                        |
| 1959                        | 543.07                  | 70.00               | 1.43                    | 7.77                       | 13.80       | 0.8029                     | 436                        |
| 1960                        | 2,153.84                | 70.00               | 1.43                    | 30.80                      | 14.55       | 0.7921                     | 1,706                      |
| 1961                        | 3.25                    | 70.00               | 1.43                    | 0.05                       | 15.32       | 0.7811                     | 3                          |
| 1962                        | 1,161.02                | 70.00               | 1.43                    | 16.60                      | 16.11       | 0.7699                     | 894                        |
| 1963                        | 1,892.88                | 70.00               | 1.43                    | 27.07                      | 16.92       | 0.7583                     | 1,435                      |
| 1964                        | 575.81                  | 70.00               | 1.43                    | 8.23                       | 17.74       | 0.7466                     | 430                        |
| 1965                        | 305.93                  | 70.00               | 1.43                    | 4.37                       | 18.58       | 0.7346                     | 225                        |
| 1966                        | 319.00                  | 70.00               | 1.43                    | 4.56                       | 19.44       | 0.7223                     | 230                        |
| 1968                        | 288.54                  | 70.00               | 1.43                    | 4.13                       | 21.19       | 0.6973                     | 201                        |
| 1971                        | 261.84                  | 70.00               | 1.43                    | 3.74                       | 23.91       | 0.6584                     | 172                        |
| 1972                        | 428.85                  | 70.00               | 1.43                    | 6.13                       | 24.84       | 0.6451                     | 277                        |
| 1974                        | 5.14                    | 70.00               | 1.43                    | 0.07                       | 26.72       | 0.6183                     | 3                          |
| 1976                        | 100.00                  | 70.00               | 1.43                    | 1.43                       | 28.64       | 0.5909                     | 59                         |
| 1977                        | 15.00                   | 70.00               | 1.43                    | 0.21                       | 29.61       | 0.5770                     | 9                          |
| 1979                        | 133.70                  | 70.00               | 1.43                    | 1.91                       | 31.56       | 0.5491                     | 73                         |
| 1987                        | 0.05                    | 70.00               |                         |                            |             | 0.4357                     |                            |
| 1988                        | 5,400.63                | 70.00               | 1.43                    | 77.23                      | 40.50       | 0.4214                     | 2,276                      |
| 1989                        | 987.37                  | 70.00               | 1.43                    | 14.12                      | 41.50       | 0.4071                     | 402                        |
| 1990                        | 3,735.10                | 70.00               | 1.43                    | 53.41                      | 42.50       | 0.3929                     | 1,467                      |
| 1991                        | 947.75                  | 70.00               | 1.43                    | 13.55                      | 43.50       | 0.3786                     | 359                        |
| 1992                        | 1,717.81                | 70.00               | 1.43                    | 24.56                      | 44.50       | 0.3643                     | 626                        |
| 1993                        | 2,439.01                | 70.00               | 1.43                    | 34.88                      | 45.50       | 0.3500                     | 854                        |
| 1994                        | 385.10                  | 70.00               | 1.43                    | 5.51                       | 46.50       | 0.3357                     | 129                        |
| 1995                        | 1,005.64                | 70.00               | 1.43                    | 14.38                      | 47.50       | 0.3214                     | 323                        |
| 1998                        | 2,079.44                | 70.00               | 1.43                    | 29.74                      | 50.50       | 0.2786                     | 579                        |
| 2001                        | 15,435.38               | 70.00               | 1.43                    | 220.73                     | 53.50       | 0.2357                     | 3,638                      |
| 2002                        | 17,761.91               | 70.00               | 1.43                    | 254.00                     | 54.50       | 0.2214                     | 3,933                      |
| 2003                        | 3,012.91                | 70.00               | 1.43                    | 43.08                      | 55.50       | 0.2071                     | 624                        |
| 2005                        | 384.61                  | 70.00               | 1.43                    | 5.50                       | 57.50       | 0.1786                     | 69                         |

MARITIME ELECTRIC COMPANY

ACCOUNT 360.2 RIGHTS OF WAY AND EASEMENTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 70-R5                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 2006                                           | 22,996.37               | 70.00               | 1.43                    | 328.85                     | 58.50       | 0.1643                     | 3,778                      |
| 2007                                           | 64,071.73               | 70.00               | 1.43                    | 916.23                     | 59.50       | 0.1500                     | 9,611                      |
| 2008                                           | 126,476.51              | 70.00               | 1.43                    | 1,808.61                   | 60.50       | 0.1357                     | 17,164                     |
|                                                | 282,000.00              |                     |                         | 4,032.59                   |             |                            | 56,490                     |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 362 SUBSTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 47-R3 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5    |                         |                     |                         |                            |             |                            |                            |
| 1966                        | 24,551.39               | 47.00               | 2.13                    | 549.09                     | 7.57        | 0.8389                     | 21,627                     |
| 1967                        | 18,757.12               | 47.00               | 2.13                    | 419.50                     | 7.96        | 0.8306                     | 16,359                     |
| 1970                        | 551.32                  | 47.00               | 2.13                    | 12.33                      | 9.25        | 0.8032                     | 465                        |
| 1971                        | 10,863.83               | 47.00               | 2.13                    | 242.97                     | 9.72        | 0.7932                     | 9,048                      |
| 1972                        | 44,944.58               | 47.00               | 2.13                    | 1,005.19                   | 10.21       | 0.7828                     | 36,940                     |
| 1973                        | 2,269.81                | 47.00               | 2.13                    | 50.76                      | 10.72       | 0.7719                     | 1,840                      |
| 1974                        | 3.73                    | 47.00               | 2.13                    | 0.08                       | 11.25       | 0.7606                     | 3                          |
| 1975                        | 54,647.60               | 47.00               | 2.13                    | 1,222.19                   | 11.80       | 0.7489                     | 42,974                     |
| 1976                        | 4,830.95                | 47.00               | 2.13                    | 108.04                     | 12.37       | 0.7368                     | 3,737                      |
| 1977                        | 122,668.74              | 47.00               | 2.13                    | 2,743.49                   | 12.96       | 0.7243                     | 93,286                     |
| 1978                        | 5,074.68                | 47.00               | 2.13                    | 113.50                     | 13.57       | 0.7113                     | 3,790                      |
| 1979                        | 4,748.52                | 47.00               | 2.13                    | 106.20                     | 14.19       | 0.6981                     | 3,481                      |
| 1980                        | 5,929.34                | 47.00               | 2.13                    | 132.61                     | 14.83       | 0.6845                     | 4,261                      |
| 1981                        | 83,389.74               | 47.00               | 2.13                    | 1,865.01                   | 15.49       | 0.6704                     | 58,702                     |
| 1982                        | 32,789.44               | 47.00               | 2.13                    | 733.34                     | 16.16       | 0.6562                     | 22,591                     |
| 1983                        | 121,224.56              | 47.00               | 2.13                    | 2,711.19                   | 16.85       | 0.6415                     | 81,653                     |
| 1984                        | 5,711.89                | 47.00               | 2.13                    | 127.75                     | 17.55       | 0.6266                     | 3,758                      |
| 1985                        | 18,255.63               | 47.00               | 2.13                    | 408.29                     | 18.27       | 0.6113                     | 11,717                     |
| 1987                        | 65,044.56               | 47.00               | 2.13                    | 1,454.72                   | 19.75       | 0.5798                     | 39,598                     |
| 1988                        | 214.53                  | 47.00               | 2.13                    | 4.80                       | 20.50       | 0.5638                     | 127                        |
| 1992                        | 2,636.89                | 47.00               | 2.13                    | 58.97                      | 23.64       | 0.4970                     | 1,376                      |
| 1996                        | 12,244.00               | 47.00               | 2.13                    | 273.84                     | 26.96       | 0.4264                     | 5,482                      |
| 1997                        | 40,704.49               | 47.00               | 2.13                    | 910.36                     | 27.82       | 0.4081                     | 17,442                     |
| 1998                        | 39,784.11               | 47.00               | 2.13                    | 889.77                     | 28.68       | 0.3898                     | 16,283                     |
| 1999                        | 19,523.32               | 47.00               | 2.13                    | 436.64                     | 29.56       | 0.3711                     | 7,607                      |
| 2000                        | 13,729.31               | 47.00               | 2.13                    | 307.06                     | 30.44       | 0.3523                     | 5,079                      |
| 2001                        | 9,586.78                | 47.00               | 2.13                    | 214.41                     | 31.33       | 0.3334                     | 3,356                      |
| 2002                        | 262,519.06              | 47.00               | 2.13                    | 5,871.24                   | 32.23       | 0.3143                     | 86,624                     |
| 2003                        | 237,068.71              | 47.00               | 2.13                    | 5,302.04                   | 33.14       | 0.2949                     | 73,405                     |
| 2004                        | 307,236.14              | 47.00               | 2.13                    | 6,871.34                   | 34.06       | 0.2753                     | 88,818                     |
| 2005                        | 474,960.34              | 47.00               | 2.13                    | 10,622.49                  | 34.98       | 0.2557                     | 127,540                    |
| 2006                        | 64,972.65               | 47.00               | 2.13                    | 1,453.11                   | 35.91       | 0.2360                     | 16,097                     |
| 2007                        | 90,419.37               | 47.00               | 2.13                    | 2,022.23                   | 36.85       | 0.2160                     | 20,503                     |
| 2008                        | 34,489.00               | 47.00               | 2.13                    | 771.35                     | 37.80       | 0.1957                     | 7,088                      |
| 2009                        | 106,204.44              | 47.00               | 2.13                    | 2,375.26                   | 38.75       | 0.1755                     | 19,574                     |
| 2010                        | 38,565.82               | 47.00               | 2.13                    | 862.52                     | 39.70       | 0.1553                     | 6,290                      |
| 2011                        | 103,194.64              | 47.00               | 2.13                    | 2,307.95                   | 40.66       | 0.1349                     | 14,616                     |
| 2012                        | 79,344.14               | 47.00               | 2.13                    | 1,774.53                   | 41.63       | 0.1143                     | 9,519                      |
| 2013                        | 180,412.15              | 47.00               | 2.13                    | 4,034.92                   | 42.60       | 0.0936                     | 17,735                     |
| 2014                        | 104,118.55              | 47.00               | 2.13                    | 2,328.61                   | 43.57       | 0.0730                     | 7,979                      |

MARITIME ELECTRIC COMPANY

ACCOUNT 362 SUBSTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 47-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5                       |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 101,146.13              | 47.00               | 2.13                    | 2,262.13                   | 44.55       | 0.0521                     | 5,536                      |
| 2016                                           | 192,438.71              | 47.00               | 2.13                    | 4,303.89                   | 45.53       | 0.0313                     | 6,320                      |
| 2017                                           | 148,088.09              | 47.00               | 2.13                    | 3,311.99                   | 46.51       | 0.0104                     | 1,622                      |
|                                                | 3,289,858.80            |                     |                         | 73,577.70                  |             |                            | 1,021,848                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.24 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 364 POLES AND FIXTURES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                   | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 47-R1.5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -60     |                         |                     |                         |                            |             |                            |                            |
| 1980                          | 4,823.22                | 47.00               | 2.13                    | 164.38                     | 20.07       | 0.5730                     | 4,422                      |
| 1983                          | 482,100.83              | 47.00               | 2.13                    | 16,430.00                  | 21.83       | 0.5355                     | 413,087                    |
| 1984                          | 975,023.84              | 47.00               | 2.13                    | 33,228.81                  | 22.44       | 0.5226                     | 815,198                    |
| 1985                          | 991,830.13              | 47.00               | 2.13                    | 33,801.57                  | 23.06       | 0.5094                     | 808,318                    |
| 1986                          | 1,500,737.24            | 47.00               | 2.13                    | 51,145.13                  | 23.69       | 0.4960                     | 1,190,889                  |
| 1987                          | 1,657,617.62            | 47.00               | 2.13                    | 56,491.61                  | 24.32       | 0.4826                     | 1,279,813                  |
| 1988                          | 1,859,551.60            | 47.00               | 2.13                    | 63,373.52                  | 24.97       | 0.4687                     | 1,394,574                  |
| 1989                          | 1,160,599.46            | 47.00               | 2.13                    | 39,553.23                  | 25.62       | 0.4549                     | 844,712                    |
| 1990                          | 1,463,139.65            | 47.00               | 2.13                    | 49,863.80                  | 26.28       | 0.4409                     | 1,032,040                  |
| 1991                          | 1,216,573.35            | 47.00               | 2.13                    | 41,460.82                  | 26.96       | 0.4264                     | 829,956                    |
| 1992                          | 1,381,548.97            | 47.00               | 2.13                    | 47,083.19                  | 27.63       | 0.4121                     | 911,004                    |
| 1993                          | 1,712,915.84            | 47.00               | 2.13                    | 58,376.17                  | 28.32       | 0.3975                     | 1,089,277                  |
| 1994                          | 1,779,151.08            | 47.00               | 2.13                    | 60,633.47                  | 29.01       | 0.3828                     | 1,089,609                  |
| 1995                          | 2,757,108.21            | 47.00               | 2.13                    | 93,962.25                  | 29.71       | 0.3679                     | 1,622,812                  |
| 1996                          | 2,364,374.70            | 47.00               | 2.13                    | 80,577.89                  | 30.42       | 0.3528                     | 1,334,529                  |
| 1997                          | 2,884,569.47            | 47.00               | 2.13                    | 98,306.13                  | 31.14       | 0.3375                     | 1,557,437                  |
| 1998                          | 1,712,663.62            | 47.00               | 2.13                    | 58,367.58                  | 31.86       | 0.3221                     | 882,721                    |
| 1999                          | 2,575,978.58            | 47.00               | 2.13                    | 87,789.35                  | 32.59       | 0.3066                     | 1,263,672                  |
| 2000                          | 1,868,661.17            | 47.00               | 2.13                    | 63,683.97                  | 33.32       | 0.2911                     | 870,228                    |
| 2001                          | 2,248,826.00            | 47.00               | 2.13                    | 76,639.99                  | 34.06       | 0.2753                     | 990,635                    |
| 2002                          | 2,418,898.03            | 47.00               | 2.13                    | 82,436.04                  | 34.80       | 0.2596                     | 1,004,597                  |
| 2003                          | 1,864,600.77            | 47.00               | 2.13                    | 63,545.59                  | 35.55       | 0.2436                     | 726,806                    |
| 2004                          | 2,308,968.56            | 47.00               | 2.13                    | 78,689.65                  | 36.31       | 0.2275                     | 840,280                    |
| 2005                          | 2,132,246.02            | 47.00               | 2.13                    | 72,666.94                  | 37.07       | 0.2113                     | 720,802                    |
| 2006                          | 2,263,158.88            | 47.00               | 2.13                    | 77,128.45                  | 37.84       | 0.1949                     | 705,707                    |
| 2007                          | 2,938,640.86            | 47.00               | 2.13                    | 100,148.88                 | 38.61       | 0.1785                     | 839,323                    |
| 2008                          | 2,906,507.10            | 47.00               | 2.13                    | 99,053.76                  | 39.38       | 0.1621                     | 753,971                    |
| 2009                          | 2,456,130.93            | 47.00               | 2.13                    | 83,704.94                  | 40.16       | 0.1455                     | 571,905                    |
| 2010                          | 3,257,381.99            | 47.00               | 2.13                    | 111,011.58                 | 40.95       | 0.1287                     | 670,864                    |
| 2011                          | 3,969,172.04            | 47.00               | 2.13                    | 135,269.38                 | 41.74       | 0.1119                     | 710,704                    |
| 2012                          | 3,013,979.59            | 47.00               | 2.13                    | 102,716.42                 | 42.54       | 0.0949                     | 457,594                    |
| 2013                          | 2,872,028.85            | 47.00               | 2.13                    | 97,878.74                  | 43.34       | 0.0779                     | 357,832                    |
| 2014                          | 2,501,635.10            | 47.00               | 2.13                    | 85,255.72                  | 44.14       | 0.0609                     | 243,559                    |
| 2015                          | 2,318,690.58            | 47.00               | 2.13                    | 79,020.97                  | 44.95       | 0.0436                     | 161,826                    |
| 2016                          | 2,822,382.68            | 47.00               | 2.13                    | 96,186.80                  | 45.77       | 0.0262                     | 118,179                    |
| 2017                          | 2,959,643.88            | 47.00               | 2.13                    | 100,864.66                 | 46.59       | 0.0087                     | 41,293                     |
|                               | 75,601,860.44           |                     |                         | 2,576,511.38               |             |                            | 29,150,175                 |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.41

## MARITIME ELECTRIC COMPANY

## ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                   | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 52-R2.5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -60     |                         |                     |                         |                            |             |                            |                            |
| 1976                          | 48,467.60               | 52.00               | 1.92                    | 1,488.92                   | 18.13       | 0.6514                     | 50,511                     |
| 1977                          | 144,263.04              | 52.00               | 1.92                    | 4,431.76                   | 18.76       | 0.6392                     | 147,548                    |
| 1978                          | 529,848.17              | 52.00               | 1.92                    | 16,276.94                  | 19.40       | 0.6269                     | 531,476                    |
| 1979                          | 278,659.87              | 52.00               | 1.92                    | 8,560.43                   | 20.06       | 0.6142                     | 273,858                    |
| 1980                          | 483,924.49              | 52.00               | 1.92                    | 14,866.16                  | 20.72       | 0.6015                     | 465,760                    |
| 1981                          | 441,353.42              | 52.00               | 1.92                    | 13,558.38                  | 21.40       | 0.5885                     | 415,550                    |
| 1982                          | 479,019.64              | 52.00               | 1.92                    | 14,715.48                  | 22.09       | 0.5752                     | 440,844                    |
| 1983                          | 522,140.02              | 52.00               | 1.92                    | 16,040.14                  | 22.79       | 0.5617                     | 469,283                    |
| 1984                          | 685,523.46              | 52.00               | 1.92                    | 21,059.28                  | 23.50       | 0.5481                     | 601,155                    |
| 1985                          | 509,380.61              | 52.00               | 1.92                    | 15,648.17                  | 24.22       | 0.5342                     | 435,402                    |
| 1986                          | 967,148.59              | 52.00               | 1.92                    | 29,710.80                  | 24.95       | 0.5202                     | 804,962                    |
| 1987                          | 1,187,761.48            | 52.00               | 1.92                    | 36,488.03                  | 25.70       | 0.5058                     | 961,175                    |
| 1988                          | 1,710,075.58            | 52.00               | 1.92                    | 52,533.52                  | 26.45       | 0.4914                     | 1,344,393                  |
| 1989                          | 1,027,003.06            | 52.00               | 1.92                    | 31,549.53                  | 27.21       | 0.4767                     | 783,365                    |
| 1990                          | 844,755.91              | 52.00               | 1.92                    | 25,950.90                  | 27.98       | 0.4619                     | 624,335                    |
| 1991                          | 1,065,183.12            | 52.00               | 1.92                    | 32,722.43                  | 28.76       | 0.4469                     | 761,683                    |
| 1992                          | 1,079,115.07            | 52.00               | 1.92                    | 33,150.41                  | 29.54       | 0.4319                     | 745,746                    |
| 1993                          | 1,238,610.75            | 52.00               | 1.92                    | 38,050.12                  | 30.34       | 0.4165                     | 825,489                    |
| 1994                          | 1,307,307.25            | 52.00               | 1.92                    | 40,160.48                  | 31.14       | 0.4012                     | 839,082                    |
| 1995                          | 1,325,550.83            | 52.00               | 1.92                    | 40,720.92                  | 31.96       | 0.3854                     | 817,345                    |
| 1996                          | 2,183,543.73            | 52.00               | 1.92                    | 67,078.46                  | 32.78       | 0.3696                     | 1,291,330                  |
| 1997                          | 2,475,374.50            | 52.00               | 1.92                    | 76,043.50                  | 33.61       | 0.3537                     | 1,400,666                  |
| 1998                          | 2,380,788.99            | 52.00               | 1.92                    | 73,137.84                  | 34.45       | 0.3375                     | 1,285,626                  |
| 1999                          | 1,660,104.65            | 52.00               | 1.92                    | 50,998.41                  | 35.29       | 0.3214                     | 853,559                    |
| 2000                          | 1,831,557.68            | 52.00               | 1.92                    | 56,265.45                  | 36.14       | 0.3050                     | 893,800                    |
| 2001                          | 2,320,183.56            | 52.00               | 1.92                    | 71,276.04                  | 37.00       | 0.2885                     | 1,070,848                  |
| 2002                          | 2,036,548.20            | 52.00               | 1.92                    | 62,562.76                  | 37.87       | 0.2717                     | 885,426                    |
| 2003                          | 2,265,209.26            | 52.00               | 1.92                    | 69,587.23                  | 38.74       | 0.2550                     | 924,205                    |
| 2004                          | 2,595,533.45            | 52.00               | 1.92                    | 79,734.79                  | 39.62       | 0.2381                     | 988,711                    |
| 2005                          | 2,207,973.41            | 52.00               | 1.92                    | 67,828.94                  | 40.50       | 0.2212                     | 781,269                    |
| 2006                          | 2,890,122.37            | 52.00               | 1.92                    | 88,784.56                  | 41.39       | 0.2040                     | 943,521                    |
| 2007                          | 4,369,593.01            | 52.00               | 1.92                    | 134,233.90                 | 42.29       | 0.1867                     | 1,305,495                  |
| 2008                          | 4,484,583.64            | 52.00               | 1.92                    | 137,766.41                 | 43.19       | 0.1694                     | 1,215,645                  |
| 2009                          | 4,208,486.95            | 52.00               | 1.92                    | 129,284.72                 | 44.10       | 0.1519                     | 1,022,965                  |
| 2010                          | 4,623,798.84            | 52.00               | 1.92                    | 142,043.10                 | 45.01       | 0.1344                     | 994,450                    |
| 2011                          | 4,830,232.36            | 52.00               | 1.92                    | 148,384.74                 | 45.93       | 0.1167                     | 902,133                    |
| 2012                          | 4,555,777.08            | 52.00               | 1.92                    | 139,953.47                 | 46.85       | 0.0990                     | 721,927                    |
| 2013                          | 4,507,323.37            | 52.00               | 1.92                    | 138,464.97                 | 47.78       | 0.0812                     | 585,231                    |
| 2014                          | 4,675,118.04            | 52.00               | 1.92                    | 143,619.63                 | 48.71       | 0.0633                     | 473,272                    |



MARITIME ELECTRIC COMPANY

ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 52-R2.5                  |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -60                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 4,797,465.62            | 52.00               | 1.92                    | 147,378.14                 | 49.65       | 0.0452                     | 346,876                    |
| 2016                                           | 5,938,717.63            | 52.00               | 1.92                    | 182,437.41                 | 50.58       | 0.0273                     | 259,498                    |
| 2017                                           | 6,162,037.59            | 52.00               | 1.92                    | 189,297.79                 | 51.53       | 0.0090                     | 89,128                     |
|                                                | 93,875,165.89           |                     |                         | 2,883,845.06               |             |                            | 31,574,543                 |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.07 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 367 UNDERGROUND CONDUCTOR AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL RATE<br>(4) | ACCRUAL --<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED FACTOR<br>(7) | DEPREC. --<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|----------------------|-----------------------------|-------------|-------------------------|-----------------------------|
| SURVIVOR CURVE.. IOWA 50-R3 |                         |                     |                      |                             |             |                         |                             |
| NET SALVAGE PERCENT.. -10   |                         |                     |                      |                             |             |                         |                             |
| 1957                        | 25,089.65               | 50.00               | 2.00                 | 551.97                      | 6.13        | 0.8774                  | 24,215                      |
| 1959                        | 92.84                   | 50.00               | 2.00                 | 2.04                        | 6.75        | 0.8650                  | 88                          |
| 1964                        | 14,124.85               | 50.00               | 2.00                 | 310.75                      | 8.56        | 0.8288                  | 12,877                      |
| 1965                        | 2,437.76                | 50.00               | 2.00                 | 53.63                       | 8.97        | 0.8206                  | 2,200                       |
| 1966                        | 1,769.00                | 50.00               | 2.00                 | 38.92                       | 9.40        | 0.8120                  | 1,580                       |
| 1968                        | 3,824.12                | 50.00               | 2.00                 | 84.13                       | 10.32       | 0.7936                  | 3,338                       |
| 1970                        | 274.93                  | 50.00               | 2.00                 | 6.05                        | 11.32       | 0.7736                  | 234                         |
| 1971                        | 3,623.92                | 50.00               | 2.00                 | 79.73                       | 11.85       | 0.7630                  | 3,042                       |
| 1972                        | 16,745.89               | 50.00               | 2.00                 | 368.41                      | 12.39       | 0.7522                  | 13,856                      |
| 1973                        | 41.68                   | 50.00               | 2.00                 | 0.92                        | 12.96       | 0.7408                  | 34                          |
| 1974                        | 5,275.16                | 50.00               | 2.00                 | 116.05                      | 13.54       | 0.7292                  | 4,231                       |
| 1975                        | 4,192.72                | 50.00               | 2.00                 | 92.24                       | 14.14       | 0.7172                  | 3,308                       |
| 1977                        | 37,713.25               | 50.00               | 2.00                 | 829.69                      | 15.39       | 0.6922                  | 28,716                      |
| 1978                        | 99,824.87               | 50.00               | 2.00                 | 2,196.15                    | 16.03       | 0.6794                  | 74,603                      |
| 1979                        | 14,587.42               | 50.00               | 2.00                 | 320.92                      | 16.70       | 0.6660                  | 10,687                      |
| 1980                        | 45,641.64               | 50.00               | 2.00                 | 1,004.12                    | 17.38       | 0.6524                  | 32,754                      |
| 1981                        | 54,143.08               | 50.00               | 2.00                 | 1,191.15                    | 18.07       | 0.6386                  | 38,033                      |
| 1982                        | 57,071.73               | 50.00               | 2.00                 | 1,255.58                    | 18.77       | 0.6246                  | 39,212                      |
| 1983                        | 45,658.60               | 50.00               | 2.00                 | 1,004.49                    | 19.49       | 0.6102                  | 30,647                      |
| 1984                        | 71,003.24               | 50.00               | 2.00                 | 1,562.07                    | 20.22       | 0.5956                  | 46,518                      |
| 1985                        | 2,457.73                | 50.00               | 2.00                 | 54.07                       | 20.97       | 0.5806                  | 1,570                       |
| 1986                        | 24,597.91               | 50.00               | 2.00                 | 541.15                      | 21.72       | 0.5656                  | 15,304                      |
| 1987                        | 62,562.26               | 50.00               | 2.00                 | 1,376.37                    | 22.49       | 0.5502                  | 37,864                      |
| 1988                        | 149,396.60              | 50.00               | 2.00                 | 3,286.73                    | 23.26       | 0.5348                  | 87,887                      |
| 1989                        | 420,819.79              | 50.00               | 2.00                 | 9,258.04                    | 24.05       | 0.5190                  | 240,246                     |
| 1990                        | 46,497.36               | 50.00               | 2.00                 | 1,022.94                    | 24.85       | 0.5030                  | 25,727                      |
| 1991                        | 70,074.07               | 50.00               | 2.00                 | 1,541.63                    | 25.66       | 0.4868                  | 37,523                      |
| 1992                        | 22,820.95               | 50.00               | 2.00                 | 502.06                      | 26.48       | 0.4704                  | 11,808                      |
| 1993                        | 62,462.15               | 50.00               | 2.00                 | 1,374.17                    | 27.31       | 0.4538                  | 31,180                      |
| 1994                        | 92,337.80               | 50.00               | 2.00                 | 2,031.43                    | 28.15       | 0.4370                  | 44,387                      |
| 1995                        | 2,870.23                | 50.00               | 2.00                 | 63.15                       | 29.00       | 0.4200                  | 1,326                       |
| 1996                        | 29.02                   | 50.00               | 2.00                 | 0.64                        | 29.86       | 0.4028                  | 13                          |
| 1997                        | 15,247.97               | 50.00               | 2.00                 | 335.46                      | 30.73       | 0.3854                  | 6,464                       |
| 1998                        | 8,399.59                | 50.00               | 2.00                 | 184.79                      | 31.60       | 0.3680                  | 3,400                       |
| 1999                        | 81,192.06               | 50.00               | 2.00                 | 1,786.23                    | 32.49       | 0.3502                  | 31,277                      |
| 2000                        | 75,460.73               | 50.00               | 2.00                 | 1,660.14                    | 33.38       | 0.3324                  | 27,591                      |
| 2001                        | 52,306.26               | 50.00               | 2.00                 | 1,150.74                    | 34.28       | 0.3144                  | 18,090                      |
| 2002                        | 81,054.69               | 50.00               | 2.00                 | 1,783.20                    | 35.19       | 0.2962                  | 26,409                      |
| 2003                        | 53,453.66               | 50.00               | 2.00                 | 1,175.98                    | 36.11       | 0.2778                  | 16,334                      |
| 2004                        | 48,020.01               | 50.00               | 2.00                 | 1,056.44                    | 37.03       | 0.2594                  | 13,702                      |
| 2005                        | 67,385.04               | 50.00               | 2.00                 | 1,482.47                    | 37.96       | 0.2408                  | 17,849                      |
| 2006                        | 157,528.65              | 50.00               | 2.00                 | 3,465.63                    | 38.89       | 0.2222                  | 38,503                      |
| 2007                        | 86,657.63               | 50.00               | 2.00                 | 1,906.47                    | 39.84       | 0.2032                  | 19,370                      |

MARITIME ELECTRIC COMPANY

ACCOUNT 367 UNDERGROUND CONDUCTOR AND DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 50-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -10                      |                         |                     |                         |                            |             |                            |                            |
| 2008                                           | 155,817.43              | 50.00               | 2.00                    | 3,427.98                   | 40.78       | 0.1844                     | 31,606                     |
| 2009                                           | 131,927.80              | 50.00               | 2.00                    | 2,902.41                   | 41.74       | 0.1652                     | 23,974                     |
| 2010                                           | 61,632.54               | 50.00               | 2.00                    | 1,355.92                   | 42.69       | 0.1462                     | 9,912                      |
| 2011                                           | 81,981.22               | 50.00               | 2.00                    | 1,803.59                   | 43.66       | 0.1268                     | 11,435                     |
| 2012                                           | 172,104.39              | 50.00               | 2.00                    | 3,786.30                   | 44.62       | 0.1076                     | 20,370                     |
| 2013                                           | 82,970.80               | 50.00               | 2.00                    | 1,825.36                   | 45.59       | 0.0882                     | 8,050                      |
| 2014                                           | 62,457.75               | 50.00               | 2.00                    | 1,374.07                   | 46.57       | 0.0686                     | 4,713                      |
| 2015                                           | 34,435.76               | 50.00               | 2.00                    | 757.59                     | 47.54       | 0.0492                     | 1,864                      |
| 2016                                           | 56,248.64               | 50.00               | 2.00                    | 1,237.47                   | 48.52       | 0.0296                     | 1,831                      |
| 2017                                           | 70,849.10               | 50.00               | 2.00                    | 1,558.68                   | 49.51       | 0.0098                     | 764                        |
|                                                | 3,097,193.94            |                     |                         | 68,138.31                  |             |                            | 1,238,516                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.20 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.1 LINE TRANSFORMERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                   | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 34-R2.5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -20     |                         |                     |                         |                            |             |                            |                            |
| 1972                          | 21,066.47               | 34.00               | 2.94                    | 743.23                     | 4.31        | 0.8732                     | 22,075                     |
| 1973                          | 243,772.38              | 34.00               | 2.94                    | 8,600.29                   | 4.56        | 0.8659                     | 253,293                    |
| 1974                          | 151,215.09              | 34.00               | 2.94                    | 5,334.87                   | 4.81        | 0.8585                     | 155,787                    |
| 1975                          | 296,088.53              | 34.00               | 2.94                    | 10,446.00                  | 5.08        | 0.8506                     | 302,220                    |
| 1976                          | 294,507.85              | 34.00               | 2.94                    | 10,390.24                  | 5.36        | 0.8424                     | 297,694                    |
| 1977                          | 214,897.56              | 34.00               | 2.94                    | 7,581.59                   | 5.66        | 0.8335                     | 214,948                    |
| 1978                          | 301,269.96              | 34.00               | 2.94                    | 10,628.80                  | 5.98        | 0.8241                     | 297,939                    |
| 1979                          | 262,847.07              | 34.00               | 2.94                    | 9,273.24                   | 6.31        | 0.8144                     | 256,878                    |
| 1980                          | 263,018.01              | 34.00               | 2.94                    | 9,279.28                   | 6.67        | 0.8038                     | 253,703                    |
| 1981                          | 189,403.58              | 34.00               | 2.94                    | 6,682.16                   | 7.06        | 0.7924                     | 180,089                    |
| 1982                          | 39,497.84               | 34.00               | 2.94                    | 1,393.48                   | 7.46        | 0.7806                     | 36,998                     |
| 1983                          | 72,926.82               | 34.00               | 2.94                    | 2,572.86                   | 7.90        | 0.7677                     | 67,179                     |
| 1984                          | 181,157.04              | 34.00               | 2.94                    | 6,391.22                   | 8.36        | 0.7541                     | 163,937                    |
| 1985                          | 380,364.90              | 34.00               | 2.94                    | 13,419.27                  | 8.84        | 0.7400                     | 337,764                    |
| 1986                          | 193,034.66              | 34.00               | 2.94                    | 6,810.26                   | 9.35        | 0.7250                     | 167,940                    |
| 1987                          | 615,856.38              | 34.00               | 2.94                    | 21,727.41                  | 9.89        | 0.7091                     | 524,059                    |
| 1988                          | 682,614.58              | 34.00               | 2.94                    | 24,082.64                  | 10.44       | 0.6929                     | 567,613                    |
| 1989                          | 877,741.85              | 34.00               | 2.94                    | 30,966.73                  | 11.03       | 0.6756                     | 711,592                    |
| 1990                          | 550,616.97              | 34.00               | 2.94                    | 19,425.77                  | 11.63       | 0.6579                     | 434,728                    |
| 1991                          | 826,902.51              | 34.00               | 2.94                    | 29,173.12                  | 12.25       | 0.6397                     | 634,773                    |
| 1992                          | 802,475.55              | 34.00               | 2.94                    | 28,311.34                  | 12.90       | 0.6206                     | 597,610                    |
| 1993                          | 678,226.44              | 34.00               | 2.94                    | 23,927.83                  | 13.56       | 0.6012                     | 489,283                    |
| 1994                          | 1,084,821.89            | 34.00               | 2.94                    | 38,272.52                  | 14.24       | 0.5812                     | 756,572                    |
| 1995                          | 1,081,148.42            | 34.00               | 2.94                    | 38,142.92                  | 14.94       | 0.5606                     | 727,297                    |
| 1996                          | 2,044,547.98            | 34.00               | 2.94                    | 72,131.65                  | 15.66       | 0.5394                     | 1,323,420                  |
| 1997                          | 1,686,545.82            | 34.00               | 2.94                    | 59,501.34                  | 16.39       | 0.5179                     | 1,048,235                  |
| 1998                          | 1,410,615.00            | 34.00               | 2.94                    | 49,766.50                  | 17.13       | 0.4962                     | 839,903                    |
| 1999                          | 1,496,044.51            | 34.00               | 2.94                    | 52,780.45                  | 17.89       | 0.4738                     | 850,627                    |
| 2000                          | 1,524,563.58            | 34.00               | 2.94                    | 53,786.60                  | 18.67       | 0.4509                     | 824,874                    |
| 2001                          | 1,890,581.26            | 34.00               | 2.94                    | 66,699.71                  | 19.45       | 0.4279                     | 970,866                    |
| 2002                          | 1,972,308.60            | 34.00               | 2.94                    | 69,583.05                  | 20.26       | 0.4041                     | 956,459                    |
| 2003                          | 1,920,529.87            | 34.00               | 2.94                    | 67,756.29                  | 21.07       | 0.3803                     | 876,430                    |
| 2004                          | 2,125,162.35            | 34.00               | 2.94                    | 74,975.73                  | 21.89       | 0.3562                     | 908,328                    |
| 2005                          | 2,373,968.35            | 34.00               | 2.94                    | 83,753.60                  | 22.73       | 0.3315                     | 944,279                    |
| 2006                          | 3,003,262.19            | 34.00               | 2.94                    | 105,955.09                 | 23.58       | 0.3065                     | 1,104,492                  |
| 2007                          | 4,556,409.19            | 34.00               | 2.94                    | 160,750.12                 | 24.44       | 0.2812                     | 1,537,405                  |
| 2008                          | 3,782,052.59            | 34.00               | 2.94                    | 133,430.82                 | 25.31       | 0.2556                     | 1,159,986                  |
| 2009                          | 4,520,213.07            | 34.00               | 2.94                    | 159,473.12                 | 26.19       | 0.2297                     | 1,246,006                  |
| 2010                          | 3,470,814.24            | 34.00               | 2.94                    | 122,450.33                 | 27.08       | 0.2035                     | 847,698                    |
| 2011                          | 2,955,967.56            | 34.00               | 2.94                    | 104,286.54                 | 27.98       | 0.1771                     | 628,060                    |
| 2012                          | 3,161,988.51            | 34.00               | 2.94                    | 111,554.95                 | 28.89       | 0.1503                     | 570,258                    |
| 2013                          | 2,677,635.88            | 34.00               | 2.94                    | 94,466.99                  | 29.80       | 0.1235                     | 396,922                    |
| 2014                          | 3,406,366.62            | 34.00               | 2.94                    | 120,176.61                 | 30.72       | 0.0965                     | 394,335                    |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.1 LINE TRANSFORMERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 34-R2.5                  |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -20                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 2,814,863.94            | 34.00               | 2.94                    | 99,308.40                  | 31.65       | 0.0691                     | 233,476                    |
| 2016                                           | 2,579,369.42            | 34.00               | 2.94                    | 91,000.15                  | 32.59       | 0.0415                     | 128,360                    |
| 2017                                           | 3,344,866.77            | 34.00               | 2.94                    | 118,006.90                 | 33.53       | 0.0138                     | 55,471                     |
|                                                | 69,024,149.65           |                     |                         | 2,435,172.01               |             |                            | 26,297,861                 |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.53 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                   | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 34-R2.5 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -20     |                         |                     |                         |                            |             |                            |                            |
| 1977                          | 7,547.87                | 34.00               | 2.94                    | 266.29                     | 5.66        | 0.8335                     | 7,550                      |
| 1978                          | 19,338.08               | 34.00               | 2.94                    | 682.25                     | 5.98        | 0.8241                     | 19,124                     |
| 1979                          | 21,186.78               | 34.00               | 2.94                    | 747.47                     | 6.31        | 0.8144                     | 20,706                     |
| 1980                          | 21,740.22               | 34.00               | 2.94                    | 766.99                     | 6.67        | 0.8038                     | 20,970                     |
| 1981                          | 24,607.70               | 34.00               | 2.94                    | 868.16                     | 7.06        | 0.7924                     | 23,397                     |
| 1982                          | 27,185.93               | 34.00               | 2.94                    | 959.12                     | 7.46        | 0.7806                     | 25,465                     |
| 1983                          | 27,173.64               | 34.00               | 2.94                    | 958.69                     | 7.90        | 0.7677                     | 25,032                     |
| 1984                          | 35,904.33               | 34.00               | 2.94                    | 1,266.70                   | 8.36        | 0.7541                     | 32,491                     |
| 1985                          | 37,147.80               | 34.00               | 2.94                    | 1,310.57                   | 8.84        | 0.7400                     | 32,987                     |
| 1986                          | 74,210.77               | 34.00               | 2.94                    | 2,618.16                   | 9.35        | 0.7250                     | 64,563                     |
| 1987                          | 66,116.11               | 34.00               | 2.94                    | 2,332.58                   | 9.89        | 0.7091                     | 56,261                     |
| 1988                          | 112,334.23              | 34.00               | 2.94                    | 3,963.15                   | 10.44       | 0.6929                     | 93,409                     |
| 1989                          | 128,500.52              | 34.00               | 2.94                    | 4,533.50                   | 11.03       | 0.6756                     | 104,176                    |
| 1990                          | 83,400.04               | 34.00               | 2.94                    | 2,942.35                   | 11.63       | 0.6579                     | 65,847                     |
| 1991                          | 115,870.39              | 34.00               | 2.94                    | 4,087.91                   | 12.25       | 0.6397                     | 88,948                     |
| 1992                          | 99,934.10               | 34.00               | 2.94                    | 3,525.68                   | 12.90       | 0.6206                     | 74,422                     |
| 1993                          | 79,970.15               | 34.00               | 2.94                    | 2,821.35                   | 13.56       | 0.6012                     | 57,692                     |
| 1994                          | 105,269.82              | 34.00               | 2.94                    | 3,713.92                   | 14.24       | 0.5812                     | 73,417                     |
| 1995                          | 97,386.11               | 34.00               | 2.94                    | 3,435.78                   | 14.94       | 0.5606                     | 65,512                     |
| 1996                          | 46,304.59               | 34.00               | 2.94                    | 1,633.63                   | 15.66       | 0.5394                     | 29,973                     |
| 1997                          | 229,088.79              | 34.00               | 2.94                    | 8,082.25                   | 16.39       | 0.5179                     | 142,385                    |
| 1998                          | 340,749.45              | 34.00               | 2.94                    | 12,021.64                  | 17.13       | 0.4962                     | 202,888                    |
| 1999                          | 284,572.38              | 34.00               | 2.94                    | 10,039.71                  | 17.89       | 0.4738                     | 161,803                    |
| 2000                          | 134,134.74              | 34.00               | 2.94                    | 4,732.27                   | 18.67       | 0.4509                     | 72,574                     |
| 2001                          | 196,110.43              | 34.00               | 2.94                    | 6,918.78                   | 19.45       | 0.4279                     | 100,708                    |
| 2002                          | 213,726.17              | 34.00               | 2.94                    | 7,540.26                   | 20.26       | 0.4041                     | 103,645                    |
| 2003                          | 378,514.26              | 34.00               | 2.94                    | 13,353.98                  | 21.07       | 0.3803                     | 172,734                    |
| 2004                          | 421,245.71              | 34.00               | 2.94                    | 14,861.55                  | 21.89       | 0.3562                     | 180,047                    |
| 2005                          | 435,256.40              | 34.00               | 2.94                    | 15,355.85                  | 22.73       | 0.3315                     | 173,129                    |
| 2006                          | 457,999.50              | 34.00               | 2.94                    | 16,158.22                  | 23.58       | 0.3065                     | 168,436                    |
| 2007                          | 586,648.89              | 34.00               | 2.94                    | 20,696.97                  | 24.44       | 0.2812                     | 197,945                    |
| 2008                          | 549,645.52              | 34.00               | 2.94                    | 19,391.49                  | 25.31       | 0.2556                     | 168,581                    |
| 2009                          | 540,209.50              | 34.00               | 2.94                    | 19,058.59                  | 26.19       | 0.2297                     | 148,910                    |
| 2010                          | 574,641.20              | 34.00               | 2.94                    | 20,273.34                  | 27.08       | 0.2035                     | 140,348                    |
| 2011                          | 906,332.46              | 34.00               | 2.94                    | 31,975.41                  | 27.98       | 0.1771                     | 192,570                    |
| 2012                          | 781,997.51              | 34.00               | 2.94                    | 27,588.87                  | 28.89       | 0.1503                     | 141,032                    |
| 2013                          | 804,752.32              | 34.00               | 2.94                    | 28,391.66                  | 29.80       | 0.1235                     | 119,293                    |
| 2014                          | 859,369.51              | 34.00               | 2.94                    | 30,318.56                  | 30.72       | 0.0965                     | 99,484                     |

MARITIME ELECTRIC COMPANY

ACCOUNT 368.2 LINE TRANSFORMER INSTALLATIONS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 34-R2.5                  |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -20                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 880,762.52              | 34.00               | 2.94                    | 31,073.30                  | 31.65       | 0.0691                     | 73,054                     |
| 2016                                           | 941,139.68              | 34.00               | 2.94                    | 33,203.41                  | 32.59       | 0.0415                     | 46,835                     |
| 2017                                           | 843,247.71              | 34.00               | 2.94                    | 29,749.78                  | 33.53       | 0.0138                     | 13,984                     |
|                                                | 12,591,273.83           |                     |                         | 444,220.14                 |             |                            | 3,802,327                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.53 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 369.01 OVERHEAD SERVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 46-R3 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -60   |                         |                     |                         |                            |             |                            |                            |
| 1972                        | 6,450.84                | 46.00               | 2.17                    | 223.97                     | 9.52        | 0.7930                     | 8,185                      |
| 1974                        | 73,800.91               | 46.00               | 2.17                    | 2,562.37                   | 10.52       | 0.7713                     | 91,076                     |
| 1975                        | 465,860.20              | 46.00               | 2.17                    | 16,174.67                  | 11.05       | 0.7598                     | 566,322                    |
| 1976                        | 582,510.68              | 46.00               | 2.17                    | 20,224.77                  | 11.60       | 0.7478                     | 696,990                    |
| 1977                        | 469,043.64              | 46.00               | 2.17                    | 16,285.20                  | 12.17       | 0.7354                     | 551,918                    |
| 1978                        | 634,241.01              | 46.00               | 2.17                    | 22,020.85                  | 12.77       | 0.7224                     | 733,071                    |
| 1979                        | 672,663.50              | 46.00               | 2.17                    | 23,354.88                  | 13.38       | 0.7091                     | 763,209                    |
| 1980                        | 704,856.59              | 46.00               | 2.17                    | 24,472.62                  | 14.00       | 0.6957                     | 784,534                    |
| 1981                        | 703,113.32              | 46.00               | 2.17                    | 24,412.09                  | 14.65       | 0.6815                     | 766,697                    |
| 1982                        | 499,849.96              | 46.00               | 2.17                    | 17,354.79                  | 15.31       | 0.6672                     | 533,576                    |
| 1983                        | 943,006.06              | 46.00               | 2.17                    | 32,741.17                  | 15.99       | 0.6524                     | 984,332                    |
| 1984                        | 1,084,425.15            | 46.00               | 2.17                    | 37,651.24                  | 16.68       | 0.6374                     | 1,105,923                  |
| 1985                        | 968,366.95              | 46.00               | 2.17                    | 33,621.70                  | 17.39       | 0.6220                     | 963,657                    |
| 1986                        | 983,986.43              | 46.00               | 2.17                    | 34,164.01                  | 18.11       | 0.6063                     | 954,546                    |
| 1987                        | 1,086,878.70            | 46.00               | 2.17                    | 37,736.43                  | 18.84       | 0.5904                     | 1,026,761                  |
| 1988                        | 973,338.85              | 46.00               | 2.17                    | 33,794.32                  | 19.59       | 0.5741                     | 894,117                    |
| 1989                        | 1,419,338.95            | 46.00               | 2.17                    | 49,279.45                  | 20.35       | 0.5576                     | 1,266,300                  |
| 1990                        | 1,445,436.94            | 46.00               | 2.17                    | 50,185.57                  | 21.12       | 0.5409                     | 1,250,870                  |
| 1991                        | 1,405,844.89            | 46.00               | 2.17                    | 48,810.93                  | 21.91       | 0.5237                     | 1,177,986                  |
| 1992                        | 1,363,669.69            | 46.00               | 2.17                    | 47,346.61                  | 22.70       | 0.5065                     | 1,105,162                  |
| 1993                        | 1,454,879.07            | 46.00               | 2.17                    | 50,513.40                  | 23.51       | 0.4889                     | 1,138,088                  |
| 1994                        | 1,633,783.13            | 46.00               | 2.17                    | 56,724.95                  | 24.33       | 0.4711                     | 1,231,454                  |
| 1995                        | 860,434.59              | 46.00               | 2.17                    | 29,874.29                  | 25.16       | 0.4530                     | 623,698                    |
| 1996                        | 666,941.00              | 46.00               | 2.17                    | 23,156.19                  | 26.00       | 0.4348                     | 463,956                    |
| 1997                        | 1,490,609.80            | 46.00               | 2.17                    | 51,753.97                  | 26.85       | 0.4163                     | 992,865                    |
| 1998                        | 1,822,790.98            | 46.00               | 2.17                    | 63,287.30                  | 27.71       | 0.3976                     | 1,159,616                  |
| 1999                        | 1,979,391.74            | 46.00               | 2.17                    | 68,724.48                  | 28.58       | 0.3787                     | 1,199,353                  |
| 2000                        | 2,155,559.67            | 46.00               | 2.17                    | 74,841.03                  | 29.46       | 0.3596                     | 1,240,119                  |
| 2001                        | 1,439,256.64            | 46.00               | 2.17                    | 49,970.99                  | 30.35       | 0.3402                     | 783,462                    |
| 2002                        | 1,657,616.33            | 46.00               | 2.17                    | 57,552.44                  | 31.25       | 0.3207                     | 850,423                    |
| 2003                        | 1,375,377.29            | 46.00               | 2.17                    | 47,753.10                  | 32.16       | 0.3009                     | 662,096                    |
| 2004                        | 1,303,840.60            | 46.00               | 2.17                    | 45,269.35                  | 33.07       | 0.2811                     | 586,394                    |
| 2005                        | 1,366,110.07            | 46.00               | 2.17                    | 47,431.34                  | 33.99       | 0.2611                     | 570,684                    |
| 2006                        | 1,907,608.14            | 46.00               | 2.17                    | 66,232.15                  | 34.92       | 0.2409                     | 735,177                    |
| 2007                        | 1,810,058.85            | 46.00               | 2.17                    | 62,845.24                  | 35.86       | 0.2204                     | 638,386                    |
| 2008                        | 2,880,984.48            | 46.00               | 2.17                    | 100,027.78                 | 36.80       | 0.2000                     | 921,915                    |
| 2009                        | 2,569,931.67            | 46.00               | 2.17                    | 89,228.03                  | 37.75       | 0.1794                     | 737,468                    |
| 2010                        | 2,422,062.29            | 46.00               | 2.17                    | 84,094.00                  | 38.70       | 0.1587                     | 615,010                    |
| 2011                        | 3,113,806.63            | 46.00               | 2.17                    | 108,111.37                 | 39.66       | 0.1378                     | 686,682                    |
| 2012                        | 2,885,316.29            | 46.00               | 2.17                    | 100,178.18                 | 40.63       | 0.1167                     | 538,931                    |
| 2013                        | 2,454,677.29            | 46.00               | 2.17                    | 85,226.40                  | 41.60       | 0.0957                     | 375,664                    |
| 2014                        | 2,547,255.77            | 46.00               | 2.17                    | 88,440.72                  | 42.57       | 0.0746                     | 303,918                    |



MARITIME ELECTRIC COMPANY

ACCOUNT 369.01 OVERHEAD SERVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 46-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -60                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 2,971,061.95            | 46.00               | 2.17                    | 103,155.27                 | 43.55       | 0.0533                     | 253,182                    |
| 2016                                           | 2,910,045.05            | 46.00               | 2.17                    | 101,036.76                 | 44.53       | 0.0320                     | 148,808                    |
| 2017                                           | 3,072,166.48            | 46.00               | 2.17                    | 106,665.62                 | 45.51       | 0.0107                     | 52,350                     |
|                                                | 67,238,249.06           |                     |                         | 2,334,511.99               |             |                            | 33,734,931                 |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.47 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 369.02 UNDERGROUND SERVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 45-R3 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -10   |                         |                     |                         |                            |             |                            |                            |
| 1957                        | 22,949.00               | 45.00               | 2.22                    | 560.41                     | 3.86        | 0.9142                     | 23,078                     |
| 1966                        | 36.00                   | 45.00               | 2.22                    | 0.88                       | 6.46        | 0.8564                     | 34                         |
| 1975                        | 13,534.00               | 45.00               | 2.22                    | 330.50                     | 10.32       | 0.7707                     | 11,473                     |
| 1978                        | 55,693.77               | 45.00               | 2.22                    | 1,360.04                   | 11.98       | 0.7338                     | 44,954                     |
| 1979                        | 980.40                  | 45.00               | 2.22                    | 23.94                      | 12.57       | 0.7207                     | 777                        |
| 1980                        | 10,056.51               | 45.00               | 2.22                    | 245.58                     | 13.19       | 0.7069                     | 7,820                      |
| 1981                        | 7,073.03                | 45.00               | 2.22                    | 172.72                     | 13.82       | 0.6929                     | 5,391                      |
| 1983                        | 5,820.41                | 45.00               | 2.22                    | 142.13                     | 15.13       | 0.6638                     | 4,250                      |
| 1984                        | 32,725.89               | 45.00               | 2.22                    | 799.17                     | 15.81       | 0.6487                     | 23,351                     |
| 1985                        | 20,597.38               | 45.00               | 2.22                    | 502.99                     | 16.51       | 0.6331                     | 14,344                     |
| 1986                        | 64,245.06               | 45.00               | 2.22                    | 1,568.86                   | 17.22       | 0.6173                     | 43,626                     |
| 1987                        | 79,368.93               | 45.00               | 2.22                    | 1,938.19                   | 17.94       | 0.6013                     | 52,500                     |
| 1988                        | 49,039.93               | 45.00               | 2.22                    | 1,197.56                   | 18.68       | 0.5849                     | 31,551                     |
| 1989                        | 224,684.17              | 45.00               | 2.22                    | 5,486.79                   | 19.44       | 0.5680                     | 140,383                    |
| 1990                        | 47,831.53               | 45.00               | 2.22                    | 1,168.05                   | 20.20       | 0.5511                     | 28,996                     |
| 1991                        | 129,003.55              | 45.00               | 2.22                    | 3,150.27                   | 20.98       | 0.5338                     | 75,745                     |
| 1992                        | 121,997.56              | 45.00               | 2.22                    | 2,979.18                   | 21.77       | 0.5162                     | 69,275                     |
| 1993                        | 76,870.96               | 45.00               | 2.22                    | 1,877.19                   | 22.57       | 0.4984                     | 42,147                     |
| 1994                        | 23,077.12               | 45.00               | 2.22                    | 563.54                     | 23.38       | 0.4804                     | 12,196                     |
| 1995                        | 55,968.59               | 45.00               | 2.22                    | 1,366.75                   | 24.21       | 0.4620                     | 28,443                     |
| 1996                        | 52,876.23               | 45.00               | 2.22                    | 1,291.24                   | 25.04       | 0.4436                     | 25,799                     |
| 1997                        | 116,987.55              | 45.00               | 2.22                    | 2,856.84                   | 25.89       | 0.4247                     | 54,649                     |
| 1998                        | 71,900.79               | 45.00               | 2.22                    | 1,755.82                   | 26.74       | 0.4058                     | 32,093                     |
| 1999                        | 308,710.42              | 45.00               | 2.22                    | 7,538.71                   | 27.61       | 0.3864                     | 131,228                    |
| 2000                        | 102,877.33              | 45.00               | 2.22                    | 2,512.26                   | 28.49       | 0.3669                     | 41,519                     |
| 2001                        | 20,456.54               | 45.00               | 2.22                    | 499.55                     | 29.37       | 0.3473                     | 7,816                      |
| 2002                        | 13,957.44               | 45.00               | 2.22                    | 340.84                     | 30.27       | 0.3273                     | 5,026                      |
| 2003                        | 24,803.09               | 45.00               | 2.22                    | 605.69                     | 31.17       | 0.3073                     | 8,385                      |
| 2004                        | 21,604.93               | 45.00               | 2.22                    | 527.59                     | 32.08       | 0.2871                     | 6,823                      |
| 2005                        | 32,114.31               | 45.00               | 2.22                    | 784.23                     | 33.00       | 0.2667                     | 9,420                      |
| 2006                        | 37,694.48               | 45.00               | 2.22                    | 920.50                     | 33.93       | 0.2460                     | 10,200                     |
| 2007                        | 17,005.67               | 45.00               | 2.22                    | 415.28                     | 34.86       | 0.2253                     | 4,215                      |
| 2008                        | 19,201.38               | 45.00               | 2.22                    | 468.90                     | 35.81       | 0.2042                     | 4,313                      |
| 2009                        | 22,361.64               | 45.00               | 2.22                    | 546.07                     | 36.75       | 0.1833                     | 4,510                      |
| 2010                        | 15,056.91               | 45.00               | 2.22                    | 367.69                     | 37.71       | 0.1620                     | 2,683                      |
| 2011                        | 19,121.17               | 45.00               | 2.22                    | 466.94                     | 38.67       | 0.1407                     | 2,959                      |
| 2012                        | 18,126.93               | 45.00               | 2.22                    | 442.66                     | 39.63       | 0.1193                     | 2,379                      |
| 2013                        | 38,228.76               | 45.00               | 2.22                    | 933.55                     | 40.60       | 0.0978                     | 4,112                      |
| 2014                        | 14,514.33               | 45.00               | 2.22                    | 354.44                     | 41.57       | 0.0762                     | 1,217                      |

MARITIME ELECTRIC COMPANY

ACCOUNT 369.02 UNDERGROUND SERVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 45-R3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -10                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 12,272.28               | 45.00               | 2.22                    | 299.69                     | 42.55       | 0.0544                     | 735                        |
| 2016                                           | 8,104.89                | 45.00               | 2.22                    | 197.92                     | 43.53       | 0.0327                     | 291                        |
| 2017                                           | 47,164.12               | 45.00               | 2.22                    | 1,151.75                   | 44.51       | 0.0109                     | 565                        |
|                                                | 2,076,694.98            |                     |                         | 50,712.90                  |             |                            | 1,021,271                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.44 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 370.1 METERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 21-S2 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -2    |                         |                     |                         |                            |             |                            |                            |
| 1977                        | 27,657.39               | 21.00               | 4.76                    | 1,342.82                   | 0.27        | 0.9871                     | 27,848                     |
| 1978                        | 17,392.66               | 21.00               | 4.76                    | 844.45                     | 0.46        | 0.9781                     | 17,352                     |
| 1979                        | 59,390.77               | 21.00               | 4.76                    | 2,883.54                   | 0.64        | 0.9695                     | 58,732                     |
| 1980                        | 72,450.70               | 21.00               | 4.76                    | 3,517.63                   | 0.83        | 0.9605                     | 70,979                     |
| 1981                        | 62,000.52               | 21.00               | 4.76                    | 3,010.25                   | 1.03        | 0.9510                     | 60,139                     |
| 1982                        | 3,750.82                | 21.00               | 4.76                    | 182.11                     | 1.24        | 0.9410                     | 3,600                      |
| 1983                        | 38,166.98               | 21.00               | 4.76                    | 1,853.08                   | 1.45        | 0.9310                     | 36,242                     |
| 1984                        | 37,280.30               | 21.00               | 4.76                    | 1,810.03                   | 1.67        | 0.9205                     | 35,002                     |
| 1985                        | 74,683.01               | 21.00               | 4.76                    | 3,626.01                   | 1.89        | 0.9100                     | 69,321                     |
| 1986                        | 66,698.05               | 21.00               | 4.76                    | 3,238.32                   | 2.13        | 0.8986                     | 61,132                     |
| 1987                        | 195,291.56              | 21.00               | 4.76                    | 9,481.80                   | 2.37        | 0.8871                     | 176,716                    |
| 1988                        | 96,055.34               | 21.00               | 4.76                    | 4,663.68                   | 2.62        | 0.8752                     | 85,753                     |
| 1989                        | 136,263.05              | 21.00               | 4.76                    | 6,615.84                   | 2.88        | 0.8629                     | 119,927                    |
| 1990                        | 119,476.63              | 21.00               | 4.76                    | 5,800.83                   | 3.16        | 0.8495                     | 103,528                    |
| 1991                        | 121,915.38              | 21.00               | 4.76                    | 5,919.24                   | 3.45        | 0.8357                     | 103,924                    |
| 1992                        | 61,783.97               | 21.00               | 4.76                    | 2,999.74                   | 3.75        | 0.8214                     | 51,766                     |
| 1993                        | 157,911.38              | 21.00               | 4.76                    | 7,666.91                   | 4.07        | 0.8062                     | 129,853                    |
| 1994                        | 79,191.39               | 21.00               | 4.76                    | 3,844.90                   | 4.40        | 0.7905                     | 63,851                     |
| 1995                        | 139,768.81              | 21.00               | 4.76                    | 6,786.06                   | 4.75        | 0.7738                     | 110,318                    |
| 1996                        | 105,861.40              | 21.00               | 4.76                    | 5,139.78                   | 5.13        | 0.7557                     | 81,601                     |
| 1997                        | 165,835.16              | 21.00               | 4.76                    | 8,051.63                   | 5.52        | 0.7371                     | 124,689                    |
| 1998                        | 167,499.32              | 21.00               | 4.76                    | 8,132.43                   | 5.94        | 0.7171                     | 122,523                    |
| 1999                        | 314,471.29              | 21.00               | 4.76                    | 15,268.21                  | 6.39        | 0.6957                     | 223,156                    |
| 2000                        | 208,974.96              | 21.00               | 4.76                    | 10,146.15                  | 6.87        | 0.6729                     | 143,423                    |
| 2001                        | 191,825.00              | 21.00               | 4.76                    | 9,313.49                   | 7.38        | 0.6486                     | 126,900                    |
| 2002                        | 209,607.74              | 21.00               | 4.76                    | 10,176.87                  | 7.92        | 0.6229                     | 133,167                    |
| 2003                        | 245,056.22              | 21.00               | 4.76                    | 11,897.97                  | 8.50        | 0.5952                     | 148,785                    |
| 2004                        | 498,742.92              | 21.00               | 4.76                    | 24,214.97                  | 9.12        | 0.5657                     | 287,787                    |
| 2005                        | 529,773.93              | 21.00               | 4.76                    | 25,721.58                  | 9.78        | 0.5343                     | 288,714                    |
| 2006                        | 751,533.98              | 21.00               | 4.76                    | 36,488.48                  | 10.48       | 0.5010                     | 384,011                    |
| 2007                        | 676,127.71              | 21.00               | 4.76                    | 32,827.35                  | 11.23       | 0.4652                     | 320,853                    |
| 2008                        | 1,007,131.94            | 21.00               | 4.76                    | 48,898.27                  | 12.02       | 0.4276                     | 439,283                    |
| 2009                        | 1,276,297.65            | 21.00               | 4.76                    | 61,966.80                  | 12.85       | 0.3881                     | 505,238                    |
| 2010                        | 1,208,654.91            | 21.00               | 4.76                    | 58,682.61                  | 13.72       | 0.3467                     | 427,384                    |
| 2011                        | 1,111,269.56            | 21.00               | 4.76                    | 53,954.36                  | 14.63       | 0.3033                     | 343,823                    |
| 2012                        | 1,147,683.37            | 21.00               | 4.76                    | 55,722.32                  | 15.57       | 0.2586                     | 302,692                    |
| 2013                        | 966,355.17              | 21.00               | 4.76                    | 46,918.48                  | 16.53       | 0.2129                     | 209,812                    |
| 2014                        | 757,606.34              | 21.00               | 4.76                    | 36,783.30                  | 17.51       | 0.1662                     | 128,425                    |

MARITIME ELECTRIC COMPANY

ACCOUNT 370.1 METERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 21-S2                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -2                       |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 324,941.18              | 21.00               | 4.76                    | 15,776.54                  | 18.50       | 0.1191                     | 39,458                     |
| 2016                                           | 408,106.83              | 21.00               | 4.76                    | 19,814.40                  | 19.50       | 0.0714                     | 29,734                     |
| 2017                                           | 405,489.10              | 21.00               | 4.76                    | 19,687.31                  | 20.50       | 0.0238                     | 9,848                      |
| 14,245,974.39                                  |                         |                     |                         | 691,670.54                 |             |                            | 6,207,289                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.86 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 370.2 METER INSTALLATIONS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 30-L3                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 2011                                           | 15,603.15               | 30.00               | 3.33                    | 519.58                     | 23.53       | 0.2157                     | 3,365                      |
| 2012                                           | 155,356.39              | 30.00               | 3.33                    | 5,173.37                   | 24.51       | 0.1830                     | 28,430                     |
| 2013                                           | 90,555.57               | 30.00               | 3.33                    | 3,015.50                   | 25.50       | 0.1500                     | 13,583                     |
| 2014                                           | 95,912.11               | 30.00               | 3.33                    | 3,193.87                   | 26.50       | 0.1167                     | 11,190                     |
| 2015                                           | 122,182.63              | 30.00               | 3.33                    | 4,068.68                   | 27.50       | 0.0833                     | 10,181                     |
| 2016                                           | 96,172.93               | 30.00               | 3.33                    | 3,202.56                   | 28.50       | 0.0500                     | 4,809                      |
| 2017                                           | 75,558.69               | 30.00               | 3.33                    | 2,516.10                   | 29.50       | 0.0167                     | 1,260                      |
|                                                | 651,341.47              |                     |                         | 21,689.66                  |             |                            | 72,818                     |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.33 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 373 STREET LIGHTING AND SIGNAL SYSTEMS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 27-R2 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -25   |                         |                     |                         |                            |             |                            |                            |
| 1978                        | 373.97                  | 27.00               | 3.70                    | 17.30                      | 2.95        | 0.8907                     | 416                        |
| 1979                        | 1,154.74                | 27.00               | 3.70                    | 53.41                      | 3.24        | 0.8800                     | 1,270                      |
| 1980                        | 600.60                  | 27.00               | 3.70                    | 27.78                      | 3.54        | 0.8689                     | 652                        |
| 1981                        | 2,132.62                | 27.00               | 3.70                    | 98.63                      | 3.84        | 0.8578                     | 2,287                      |
| 1982                        | 2,999.12                | 27.00               | 3.70                    | 138.71                     | 4.16        | 0.8459                     | 3,171                      |
| 1983                        | 3,027.30                | 27.00               | 3.70                    | 140.01                     | 4.48        | 0.8341                     | 3,156                      |
| 1984                        | 5,860.70                | 27.00               | 3.70                    | 271.06                     | 4.82        | 0.8215                     | 6,018                      |
| 1985                        | 1,209.70                | 27.00               | 3.70                    | 55.95                      | 5.17        | 0.8085                     | 1,223                      |
| 1987                        | 18,158.56               | 27.00               | 3.70                    | 839.83                     | 5.94        | 0.7800                     | 17,705                     |
| 1988                        | 27,328.04               | 27.00               | 3.70                    | 1,263.92                   | 6.35        | 0.7648                     | 26,126                     |
| 1989                        | 30,977.39               | 27.00               | 3.70                    | 1,432.70                   | 6.78        | 0.7489                     | 28,998                     |
| 1990                        | 135,776.54              | 27.00               | 3.70                    | 6,279.66                   | 7.23        | 0.7322                     | 124,273                    |
| 1991                        | 138,859.35              | 27.00               | 3.70                    | 6,422.24                   | 7.71        | 0.7144                     | 124,008                    |
| 1992                        | 153,144.33              | 27.00               | 3.70                    | 7,082.93                   | 8.21        | 0.6959                     | 133,222                    |
| 1993                        | 159,279.39              | 27.00               | 3.70                    | 7,366.67                   | 8.73        | 0.6767                     | 134,724                    |
| 1994                        | 241,143.15              | 27.00               | 3.70                    | 11,152.87                  | 9.27        | 0.6567                     | 197,939                    |
| 1995                        | 131,055.92              | 27.00               | 3.70                    | 6,061.34                   | 9.83        | 0.6359                     | 104,178                    |
| 1996                        | 94,804.49               | 27.00               | 3.70                    | 4,384.71                   | 10.42       | 0.6141                     | 72,771                     |
| 1997                        | 88,846.35               | 27.00               | 3.70                    | 4,109.14                   | 11.02       | 0.5919                     | 65,730                     |
| 1998                        | 156,382.90              | 27.00               | 3.70                    | 7,232.71                   | 11.65       | 0.5685                     | 111,134                    |
| 1999                        | 159,731.90              | 27.00               | 3.70                    | 7,387.60                   | 12.29       | 0.5448                     | 108,779                    |
| 2000                        | 160,299.73              | 27.00               | 3.70                    | 7,413.86                   | 12.95       | 0.5204                     | 104,269                    |
| 2001                        | 120,915.67              | 27.00               | 3.70                    | 5,592.35                   | 13.64       | 0.4948                     | 74,788                     |
| 2002                        | 215,243.57              | 27.00               | 3.70                    | 9,955.02                   | 14.33       | 0.4693                     | 126,256                    |
| 2003                        | 121,934.80              | 27.00               | 3.70                    | 5,639.48                   | 15.05       | 0.4426                     | 67,459                     |
| 2004                        | 128,080.28              | 27.00               | 3.70                    | 5,923.71                   | 15.78       | 0.4156                     | 66,531                     |
| 2005                        | 138,922.55              | 27.00               | 3.70                    | 6,425.17                   | 16.53       | 0.3878                     | 67,339                     |
| 2006                        | 159,062.64              | 27.00               | 3.70                    | 7,356.65                   | 17.29       | 0.3596                     | 71,505                     |
| 2007                        | 117,078.15              | 27.00               | 3.70                    | 5,414.86                   | 18.07       | 0.3307                     | 48,403                     |
| 2008                        | 167,922.96              | 27.00               | 3.70                    | 7,766.44                   | 18.86       | 0.3015                     | 63,282                     |
| 2009                        | 152,733.99              | 27.00               | 3.70                    | 7,063.95                   | 19.67       | 0.2715                     | 51,830                     |
| 2010                        | 127,683.56              | 27.00               | 3.70                    | 5,905.36                   | 20.49       | 0.2411                     | 38,482                     |
| 2011                        | 122,654.46              | 27.00               | 3.70                    | 5,672.77                   | 21.32       | 0.2104                     | 32,254                     |
| 2012                        | 62,104.57               | 27.00               | 3.70                    | 2,872.34                   | 22.16       | 0.1793                     | 13,916                     |
| 2013                        | 171,214.72              | 27.00               | 3.70                    | 7,918.68                   | 23.02       | 0.1474                     | 31,548                     |
| 2014                        | 327,652.19              | 27.00               | 3.70                    | 15,153.91                  | 23.89       | 0.1152                     | 47,178                     |
| 2015                        | 830,590.87              | 27.00               | 3.70                    | 38,414.83                  | 24.76       | 0.0830                     | 86,132                     |
| 2016                        | 879,623.43              | 27.00               | 3.70                    | 40,682.58                  | 25.65       | 0.0500                     | 54,976                     |
| 2017                        | 496,893.38              | 27.00               | 3.70                    | 22,981.32                  | 26.55       | 0.0167                     | 10,354                     |
| 6,053,458.58                |                         |                     |                         | 279,972.45                 | 2,324,282   |                            |                            |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.62

## MARITIME ELECTRIC COMPANY

## ACCOUNT 373.2 STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 27-R2                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -10                      |                         |                     |                         |                            |             |                            |                            |
| 1978                                           | 43,068.96               | 27.00               | 3.70                    | 1,752.91                   | 2.95        | 0.8907                     | 42,200                     |
| 1979                                           | 46,415.93               | 27.00               | 3.70                    | 1,889.13                   | 3.24        | 0.8800                     | 44,931                     |
| 1980                                           | 533.88                  | 27.00               | 3.70                    | 21.73                      | 3.54        | 0.8689                     | 510                        |
| 1985                                           | 529.66                  | 27.00               | 3.70                    | 21.56                      | 5.17        | 0.8085                     | 471                        |
| 1986                                           | 86,269.87               | 27.00               | 3.70                    | 3,511.18                   | 5.55        | 0.7944                     | 75,390                     |
| 1987                                           | 46,545.84               | 27.00               | 3.70                    | 1,894.42                   | 5.94        | 0.7800                     | 39,936                     |
| 1988                                           | 124,167.92              | 27.00               | 3.70                    | 5,053.63                   | 6.35        | 0.7648                     | 104,461                    |
| 1989                                           | 83,080.59               | 27.00               | 3.70                    | 3,381.38                   | 6.78        | 0.7489                     | 68,440                     |
| 1990                                           | 115,709.96              | 27.00               | 3.70                    | 4,709.40                   | 7.23        | 0.7322                     | 93,198                     |
| 1991                                           | 55,571.97               | 27.00               | 3.70                    | 2,261.78                   | 7.71        | 0.7144                     | 43,673                     |
| 1992                                           | 23,638.35               | 27.00               | 3.70                    | 962.08                     | 8.21        | 0.6959                     | 18,096                     |
| 1993                                           | 16,501.12               | 27.00               | 3.70                    | 671.60                     | 8.73        | 0.6767                     | 12,282                     |
| 1994                                           | 10,288.86               | 27.00               | 3.70                    | 418.76                     | 9.27        | 0.6567                     | 7,432                      |
| 1997                                           | 66.24                   | 27.00               | 3.70                    | 2.70                       | 11.02       | 0.5919                     | 43                         |
| 2002                                           | 80.62                   | 27.00               | 3.70                    | 3.28                       | 14.33       | 0.4693                     | 42                         |
| 2005                                           | 1,318.84                | 27.00               | 3.70                    | 53.68                      | 16.53       | 0.3878                     | 563                        |
|                                                | 653,788.61              |                     |                         | 26,609.22                  |             |                            | 551,668                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.07 |                         |                     |                         |                            |             |                            |                            |



## MARITIME ELECTRIC COMPANY

## ACCOUNT 390 STRUCTURES AND IMPROVEMENTS - ENERGY CONTROL CENTER

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 40-R1                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 1976                                           | 412,506.15              | 40.00               | 2.50                    | 10,312.65                  | 13.97       | 0.6508                     | 268,438                    |
| 1979                                           | 26,038.20               | 40.00               | 2.50                    | 650.96                     | 15.43       | 0.6143                     | 15,994                     |
| 1980                                           | 821.43                  | 40.00               | 2.50                    | 20.54                      | 15.93       | 0.6018                     | 494                        |
| 1981                                           | 8,845.01                | 40.00               | 2.50                    | 221.13                     | 16.44       | 0.5890                     | 5,210                      |
| 1982                                           | 66,944.02               | 40.00               | 2.50                    | 1,673.60                   | 16.96       | 0.5760                     | 38,560                     |
| 1983                                           | 60,084.87               | 40.00               | 2.50                    | 1,502.12                   | 17.49       | 0.5628                     | 33,813                     |
| 1991                                           | 31,909.58               | 40.00               | 2.50                    | 797.74                     | 22.04       | 0.4490                     | 14,327                     |
| 1992                                           | 332.10                  | 40.00               | 2.50                    | 8.30                       | 22.64       | 0.4340                     | 144                        |
| 1993                                           | 37,358.36               | 40.00               | 2.50                    | 933.96                     | 23.26       | 0.4185                     | 15,634                     |
| 1996                                           | 20,104.26               | 40.00               | 2.50                    | 502.61                     | 25.14       | 0.3715                     | 7,469                      |
| 1998                                           | 297.10                  | 40.00               | 2.50                    | 7.43                       | 26.43       | 0.3393                     | 101                        |
| 2000                                           | 5,488.60                | 40.00               | 2.50                    | 137.22                     | 27.75       | 0.3063                     | 1,681                      |
| 2006                                           | 31,201.16               | 40.00               | 2.50                    | 780.03                     | 31.80       | 0.2050                     | 6,396                      |
| 2008                                           | 40,344.24               | 40.00               | 2.50                    | 1,008.61                   | 33.18       | 0.1705                     | 6,879                      |
| 2009                                           | 134,944.03              | 40.00               | 2.50                    | 3,373.60                   | 33.88       | 0.1530                     | 20,646                     |
| 2016                                           | 8,241.62                | 40.00               | 2.50                    | 206.04                     | 38.89       | 0.0278                     | 229                        |
| 2017                                           | 17,945.66               | 40.00               | 2.50                    | 448.64                     | 39.63       | 0.0093                     | 166                        |
|                                                | 903,406.39              |                     |                         | 22,585.18                  |             |                            | 436,181                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.50 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 390.11 STRUCTURES AND IMPROVEMENTS - OFFICE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 40-R1 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0     |                         |                     |                         |                            |             |                            |                            |
| 1989                        | 1,497,121.23            | 40.00               | 2.50                    | 37,428.03                  | 20.85       | 0.4788                     | 716,747                    |
| 1990                        | 15,767.80               | 40.00               | 2.50                    | 394.20                     | 21.44       | 0.4640                     | 7,316                      |
| 1991                        | 1,208,731.37            | 40.00               | 2.50                    | 30,218.28                  | 22.04       | 0.4490                     | 542,720                    |
| 1992                        | 46,216.08               | 40.00               | 2.50                    | 1,155.40                   | 22.64       | 0.4340                     | 20,058                     |
| 1993                        | 46,196.15               | 40.00               | 2.50                    | 1,154.90                   | 23.26       | 0.4185                     | 19,333                     |
| 1994                        | 721,385.95              | 40.00               | 2.50                    | 18,034.65                  | 23.88       | 0.4030                     | 290,719                    |
| 1995                        | 59,750.20               | 40.00               | 2.50                    | 1,493.76                   | 24.51       | 0.3873                     | 23,138                     |
| 1996                        | 71,594.43               | 40.00               | 2.50                    | 1,789.86                   | 25.14       | 0.3715                     | 26,597                     |
| 1997                        | 110,622.84              | 40.00               | 2.50                    | 2,765.57                   | 25.78       | 0.3555                     | 39,326                     |
| 1998                        | 84,612.90               | 40.00               | 2.50                    | 2,115.32                   | 26.43       | 0.3393                     | 28,705                     |
| 2000                        | 59,814.16               | 40.00               | 2.50                    | 1,495.35                   | 27.75       | 0.3063                     | 18,318                     |
| 2001                        | 9,131.93                | 40.00               | 2.50                    | 228.30                     | 28.41       | 0.2898                     | 2,646                      |
| 2002                        | 1,765.04                | 40.00               | 2.50                    | 44.13                      | 29.08       | 0.2730                     | 482                        |
| 2003                        | 121,956.72              | 40.00               | 2.50                    | 3,048.92                   | 29.75       | 0.2563                     | 31,251                     |
| 2004                        | 154,854.93              | 40.00               | 2.50                    | 3,871.37                   | 30.43       | 0.2393                     | 37,049                     |
| 2005                        | 84,839.75               | 40.00               | 2.50                    | 2,120.99                   | 31.11       | 0.2223                     | 18,856                     |
| 2006                        | 96,640.88               | 40.00               | 2.50                    | 2,416.02                   | 31.80       | 0.2050                     | 19,811                     |
| 2007                        | 73,515.06               | 40.00               | 2.50                    | 1,837.88                   | 32.49       | 0.1878                     | 13,802                     |
| 2008                        | 25,687.48               | 40.00               | 2.50                    | 642.19                     | 33.18       | 0.1705                     | 4,380                      |
| 2009                        | 40,759.40               | 40.00               | 2.50                    | 1,018.98                   | 33.88       | 0.1530                     | 6,236                      |
| 2010                        | 2,278.81                | 40.00               | 2.50                    | 56.97                      | 34.58       | 0.1355                     | 309                        |
| 2011                        | 20,221.12               | 40.00               | 2.50                    | 505.53                     | 35.28       | 0.1180                     | 2,386                      |
| 2012                        | 101,525.54              | 40.00               | 2.50                    | 2,538.14                   | 36.00       | 0.1000                     | 10,153                     |
| 2013                        | 13,608.54               | 40.00               | 2.50                    | 340.21                     | 36.71       | 0.0823                     | 1,119                      |
| 2014                        | 231,962.40              | 40.00               | 2.50                    | 5,799.06                   | 37.43       | 0.0643                     | 14,904                     |
| 2015                        | 66,945.44               | 40.00               | 2.50                    | 1,673.64                   | 38.16       | 0.0460                     | 3,079                      |
| 2016                        | 2,067.67                | 40.00               | 2.50                    | 51.69                      | 38.89       | 0.0278                     | 57                         |
| 2017                        | 11,815.84               | 40.00               | 2.50                    | 295.40                     | 39.63       | 0.0093                     | 109                        |
|                             | 4,981,389.66            |                     |                         | 124,534.74                 |             |                            | 1,899,606                  |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.50

## MARITIME ELECTRIC COMPANY

## ACCOUNT 390.12 STRUCTURES AND IMPROVEMENTS - DISTRICTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 40-R1 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0     |                         |                     |                         |                            |             |                            |                            |
| 1954                        | 33,672.36               | 40.00               | 2.50                    | 841.81                     | 5.34        | 0.8665                     | 29,177                     |
| 1955                        | 28,384.94               | 40.00               | 2.50                    | 709.62                     | 5.66        | 0.8585                     | 24,368                     |
| 1956                        | 96.48                   | 40.00               | 2.50                    | 2.41                       | 5.99        | 0.8503                     | 82                         |
| 1958                        | 25,424.03               | 40.00               | 2.50                    | 635.60                     | 6.67        | 0.8333                     | 21,185                     |
| 1959                        | 192.86                  | 40.00               | 2.50                    | 4.82                       | 7.02        | 0.8245                     | 159                        |
| 1962                        | 1,088.55                | 40.00               | 2.50                    | 27.21                      | 8.10        | 0.7975                     | 868                        |
| 1963                        | 895.46                  | 40.00               | 2.50                    | 22.39                      | 8.47        | 0.7883                     | 706                        |
| 1966                        | 2,058.78                | 40.00               | 2.50                    | 51.47                      | 9.63        | 0.7593                     | 1,563                      |
| 1968                        | 7,160.70                | 40.00               | 2.50                    | 179.02                     | 10.44       | 0.7390                     | 5,292                      |
| 1971                        | 411.99                  | 40.00               | 2.50                    | 10.30                      | 11.70       | 0.7075                     | 291                        |
| 1972                        | 2,920.07                | 40.00               | 2.50                    | 73.00                      | 12.14       | 0.6965                     | 2,034                      |
| 1973                        | 12.14                   | 40.00               | 2.50                    | 0.30                       | 12.59       | 0.6853                     | 8                          |
| 1976                        | 1,323.07                | 40.00               | 2.50                    | 33.08                      | 13.97       | 0.6508                     | 861                        |
| 1977                        | 15,478.94               | 40.00               | 2.50                    | 386.97                     | 14.45       | 0.6388                     | 9,887                      |
| 1978                        | 11,365.41               | 40.00               | 2.50                    | 284.14                     | 14.93       | 0.6268                     | 7,123                      |
| 1979                        | 5,892.56                | 40.00               | 2.50                    | 147.31                     | 15.43       | 0.6143                     | 3,620                      |
| 1981                        | 13,583.52               | 40.00               | 2.50                    | 339.59                     | 16.44       | 0.5890                     | 8,001                      |
| 1982                        | 1,368.72                | 40.00               | 2.50                    | 34.22                      | 16.96       | 0.5760                     | 788                        |
| 1983                        | 11,254.06               | 40.00               | 2.50                    | 281.35                     | 17.49       | 0.5628                     | 6,333                      |
| 1984                        | 4,133.73                | 40.00               | 2.50                    | 103.34                     | 18.03       | 0.5493                     | 2,270                      |
| 1986                        | 20,942.00               | 40.00               | 2.50                    | 523.55                     | 19.13       | 0.5218                     | 10,926                     |
| 1987                        | 79,822.80               | 40.00               | 2.50                    | 1,995.57                   | 19.70       | 0.5075                     | 40,510                     |
| 1988                        | 8,559.08                | 40.00               | 2.50                    | 213.98                     | 20.27       | 0.4933                     | 4,222                      |
| 1991                        | 3,656,887.62            | 40.00               | 2.50                    | 91,422.19                  | 22.04       | 0.4490                     | 1,641,943                  |
| 1992                        | 4,359.91                | 40.00               | 2.50                    | 109.00                     | 22.64       | 0.4340                     | 1,892                      |
| 1993                        | 405,653.42              | 40.00               | 2.50                    | 10,141.34                  | 23.26       | 0.4185                     | 169,766                    |
| 1994                        | 38,546.35               | 40.00               | 2.50                    | 963.66                     | 23.88       | 0.4030                     | 15,534                     |
| 1996                        | 86,398.05               | 40.00               | 2.50                    | 2,159.95                   | 25.14       | 0.3715                     | 32,097                     |
| 1998                        | 19,249.07               | 40.00               | 2.50                    | 481.23                     | 26.43       | 0.3393                     | 6,530                      |
| 1999                        | 40,650.87               | 40.00               | 2.50                    | 1,016.27                   | 27.09       | 0.3228                     | 13,120                     |
| 2000                        | 9,927.55                | 40.00               | 2.50                    | 248.19                     | 27.75       | 0.3063                     | 3,040                      |
| 2001                        | 870.45                  | 40.00               | 2.50                    | 21.76                      | 28.41       | 0.2898                     | 252                        |
| 2002                        | 7,868.54                | 40.00               | 2.50                    | 196.71                     | 29.08       | 0.2730                     | 2,148                      |
| 2003                        | 2,392.27                | 40.00               | 2.50                    | 59.81                      | 29.75       | 0.2563                     | 613                        |
| 2004                        | 8,951.16                | 40.00               | 2.50                    | 223.78                     | 30.43       | 0.2393                     | 2,142                      |
| 2005                        | 107,174.42              | 40.00               | 2.50                    | 2,679.36                   | 31.11       | 0.2223                     | 23,820                     |
| 2006                        | 240,682.64              | 40.00               | 2.50                    | 6,017.07                   | 31.80       | 0.2050                     | 49,340                     |
| 2007                        | 52,630.38               | 40.00               | 2.50                    | 1,315.76                   | 32.49       | 0.1878                     | 9,881                      |
| 2008                        | 167,039.96              | 40.00               | 2.50                    | 4,176.00                   | 33.18       | 0.1705                     | 28,480                     |
| 2009                        | 125,201.31              | 40.00               | 2.50                    | 3,130.03                   | 33.88       | 0.1530                     | 19,156                     |
| 2010                        | 151,205.67              | 40.00               | 2.50                    | 3,780.14                   | 34.58       | 0.1355                     | 20,488                     |
| 2011                        | 81,838.02               | 40.00               | 2.50                    | 2,045.95                   | 35.28       | 0.1180                     | 9,657                      |
| 2012                        | 59,683.98               | 40.00               | 2.50                    | 1,492.10                   | 36.00       | 0.1000                     | 5,968                      |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 390.12 STRUCTURES AND IMPROVEMENTS - DISTRICTS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 40-R1                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 2013                                           | 22,137.66               | 40.00               | 2.50                    | 553.44                     | 36.71       | 0.0823                     | 1,821                      |
| 2014                                           | 267,993.42              | 40.00               | 2.50                    | 6,699.84                   | 37.43       | 0.0643                     | 17,219                     |
| 2015                                           | 249,298.23              | 40.00               | 2.50                    | 6,232.46                   | 38.16       | 0.0460                     | 11,468                     |
| 2016                                           | 115,840.43              | 40.00               | 2.50                    | 2,896.01                   | 38.89       | 0.0278                     | 3,215                      |
| 2017                                           | 159,777.43              | 40.00               | 2.50                    | 3,994.44                   | 39.63       | 0.0093                     | 1,478                      |
|                                                | 6,358,301.06            |                     |                         | 158,957.54                 |             |                            | 2,271,342                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.50 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 391.12 OFFICE FURNITURE AND EQUIPMENT - EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. 15-SQUARE |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0    |                         |                     |                         |                            |             |                            |                            |
| 2004                       | 4,323.56                | 15.00               | 6.67                    | 288.38                     | 1.50        | 0.9000                     | 3,891                      |
| 2007                       | 5,049.13                | 15.00               | 6.67                    | 336.78                     | 4.50        | 0.7000                     | 3,534                      |
| 2009                       | 15,567.38               | 15.00               | 6.67                    | 1,038.34                   | 6.50        | 0.5667                     | 8,822                      |
| 2010                       | 329.49                  | 15.00               | 6.67                    | 21.98                      | 7.50        | 0.5000                     | 165                        |
| 2011                       | 31,755.43               | 15.00               | 6.67                    | 2,118.09                   | 8.50        | 0.4333                     | 13,761                     |
| 2013                       | 1,525.71                | 15.00               | 6.67                    | 101.76                     | 10.50       | 0.3000                     | 458                        |
| 2014                       | 5,034.32                | 15.00               | 6.67                    | 335.79                     | 11.50       | 0.2333                     | 1,175                      |
| 2015                       | 6,385.71                | 15.00               | 6.67                    | 425.93                     | 12.50       | 0.1667                     | 1,064                      |
| 2016                       | 5,388.77                | 15.00               | 6.67                    | 359.43                     | 13.50       | 0.1000                     | 539                        |
| 2017                       | 1,677.31                | 15.00               | 6.67                    | 111.88                     | 14.50       | 0.0333                     | 56                         |
|                            | 77,036.81               |                     |                         | 5,138.36                   |             |                            | 33,465                     |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.67

MARITIME ELECTRIC COMPANY

ACCOUNT 391.3 OFFICE FURNITURE AND EQUIPMENT - COMPUTER HARDWARE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                     | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. 5-SQUARE                       |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                         |                         |                     |                         |                            |             |                            |                            |
| 2013                                            | 142,842.69              | 5.00                | 20.00                   | 28,568.54                  | 0.50        | 0.9000                     | 128,558                    |
| 2014                                            | 202,769.85              | 5.00                | 20.00                   | 40,553.97                  | 1.50        | 0.7000                     | 141,939                    |
| 2015                                            | 151,332.01              | 5.00                | 20.00                   | 30,266.40                  | 2.50        | 0.5000                     | 75,666                     |
| 2016                                            | 438,020.70              | 5.00                | 20.00                   | 87,604.14                  | 3.50        | 0.3000                     | 131,406                    |
| 2017                                            | 192,595.44              | 5.00                | 20.00                   | 38,519.09                  | 4.50        | 0.1000                     | 19,260                     |
|                                                 | 1,127,560.69            |                     |                         | 225,512.14                 |             |                            | 496,829                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 20.00 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 391.4 OFFICE FURNITURE AND EQUIPMENT - COMPUTER SOFTWARE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                     | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. 10-SQUARE                      |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                         |                         |                     |                         |                            |             |                            |                            |
| 2008                                            | 539,043.07              | 10.00               | 10.00                   | 53,904.31                  | 0.50        | 0.9500                     | 512,091                    |
| 2009                                            | 405,261.15              | 10.00               | 10.00                   | 40,526.12                  | 1.50        | 0.8500                     | 344,472                    |
| 2010                                            | 441,569.23              | 10.00               | 10.00                   | 44,156.92                  | 2.50        | 0.7500                     | 331,177                    |
| 2011                                            | 567,818.95              | 10.00               | 10.00                   | 56,781.90                  | 3.50        | 0.6500                     | 369,082                    |
| 2012                                            | 685,719.20              | 10.00               | 10.00                   | 68,571.92                  | 4.50        | 0.5500                     | 377,146                    |
| 2013                                            | 566,275.16              | 10.00               | 10.00                   | 56,627.52                  | 5.50        | 0.4500                     | 254,824                    |
| 2014                                            | 631,128.74              | 10.00               | 10.00                   | 63,112.87                  | 6.50        | 0.3500                     | 220,895                    |
| 2015                                            | 731,908.86              | 10.00               | 10.00                   | 73,190.89                  | 7.50        | 0.2500                     | 182,977                    |
| 2016                                            | 719,827.79              | 10.00               | 10.00                   | 71,982.78                  | 8.50        | 0.1500                     | 107,974                    |
| 2017                                            | 688,934.33              | 10.00               | 10.00                   | 68,893.43                  | 9.50        | 0.0500                     | 34,447                     |
|                                                 | 5,977,486.48            |                     |                         | 597,748.66                 |             |                            | 2,735,085                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 10.00 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 392 TRANSPORTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 13-S2 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. +10   |                         |                     |                         |                            |             |                            |                            |
| 1944                        | 620.87                  | 13.00               |                         |                            |             | 1.0000                     | 559                        |
| 1962                        | 14.49                   | 13.00               |                         |                            |             | 1.0000                     | 13                         |
| 1964                        | 3,268.52                | 13.00               |                         |                            |             | 1.0000                     | 2,942                      |
| 1968                        | 176.82                  | 13.00               |                         |                            |             | 1.0000                     | 159                        |
| 1969                        | 3,744.93                | 13.00               |                         |                            |             | 1.0000                     | 3,370                      |
| 1973                        | 1,467.64                | 13.00               |                         |                            |             | 1.0000                     | 1,321                      |
| 1974                        | 2,103.79                | 13.00               |                         |                            |             | 1.0000                     | 1,893                      |
| 1975                        | 1,093.63                | 13.00               |                         |                            |             | 1.0000                     | 984                        |
| 1977                        | 32,309.53               | 13.00               |                         |                            |             | 1.0000                     | 29,079                     |
| 1978                        | 34,087.19               | 13.00               |                         |                            |             | 1.0000                     | 30,678                     |
| 1979                        | 37,122.78               | 13.00               |                         |                            |             | 1.0000                     | 33,411                     |
| 1980                        | 24,414.42               | 13.00               |                         |                            |             | 1.0000                     | 21,973                     |
| 1981                        | 30,262.95               | 13.00               |                         |                            |             | 1.0000                     | 27,237                     |
| 1982                        | 38,898.91               | 13.00               |                         |                            |             | 1.0000                     | 35,009                     |
| 1983                        | 26,937.39               | 13.00               |                         |                            |             | 1.0000                     | 24,244                     |
| 1984                        | 24,656.91               | 13.00               |                         |                            |             | 1.0000                     | 22,191                     |
| 1985                        | 28,461.10               | 13.00               |                         |                            |             | 1.0000                     | 25,615                     |
| 1990                        | 68,718.58               | 13.00               |                         |                            |             | 1.0000                     | 61,847                     |
| 1991                        | 30,390.91               | 13.00               |                         |                            |             | 1.0000                     | 27,352                     |
| 1993                        | 191,003.44              | 13.00               | 7.69                    | 13,219.35                  | 0.27        | 0.9792                     | 168,333                    |
| 1994                        | 66,471.58               | 13.00               | 7.69                    | 4,600.50                   | 0.46        | 0.9646                     | 57,708                     |
| 1996                        | 17,072.51               | 13.00               | 7.69                    | 1,181.59                   | 0.87        | 0.9331                     | 14,337                     |
| 1997                        | 45,442.91               | 13.00               | 7.69                    | 3,145.10                   | 1.08        | 0.9169                     | 37,501                     |
| 1998                        | 125,459.54              | 13.00               | 7.69                    | 8,683.05                   | 1.32        | 0.8985                     | 101,448                    |
| 2000                        | 274,330.51              | 13.00               | 7.69                    | 18,986.41                  | 1.82        | 0.8600                     | 212,332                    |
| 2001                        | 365,274.97              | 13.00               | 7.69                    | 25,280.68                  | 2.11        | 0.8377                     | 275,388                    |
| 2002                        | 317,400.33              | 13.00               | 7.69                    | 21,967.28                  | 2.41        | 0.8146                     | 232,705                    |
| 2003                        | 430,710.64              | 13.00               | 7.69                    | 29,809.48                  | 2.74        | 0.7892                     | 305,937                    |
| 2004                        | 423,091.21              | 13.00               | 7.69                    | 29,282.14                  | 3.10        | 0.7615                     | 289,981                    |
| 2005                        | 390,428.45              | 13.00               | 7.69                    | 27,021.55                  | 3.50        | 0.7308                     | 256,782                    |
| 2006                        | 614,446.87              | 13.00               | 7.69                    | 42,525.87                  | 3.94        | 0.6969                     | 385,398                    |
| 2007                        | 541,039.34              | 13.00               | 7.69                    | 37,445.33                  | 4.42        | 0.6600                     | 321,377                    |
| 2008                        | 522,689.37              | 13.00               | 7.69                    | 36,175.33                  | 4.96        | 0.6185                     | 290,936                    |
| 2009                        | 787,456.89              | 13.00               | 7.69                    | 54,499.89                  | 5.56        | 0.5723                     | 405,603                    |
| 2010                        | 657,801.98              | 13.00               | 7.69                    | 45,526.48                  | 6.22        | 0.5215                     | 308,763                    |
| 2011                        | 607,386.17              | 13.00               | 7.69                    | 42,037.20                  | 6.95        | 0.4654                     | 254,399                    |
| 2012                        | 356,129.15              | 13.00               | 7.69                    | 24,647.70                  | 7.75        | 0.4039                     | 129,440                    |
| 2013                        | 441,473.00              | 13.00               | 7.69                    | 30,554.35                  | 8.62        | 0.3369                     | 133,867                    |
| 2014                        | 1,287,172.61            | 13.00               | 7.69                    | 89,085.22                  | 9.55        | 0.2654                     | 307,431                    |



MARITIME ELECTRIC COMPANY

ACCOUNT 392 TRANSPORTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 13-S2                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. +10                      |                         |                     |                         |                            |             |                            |                            |
| 2015                                           | 460,688.81              | 13.00               | 7.69                    | 31,884.27                  | 10.51       | 0.1915                     | 79,416                     |
| 2016                                           | 843,994.31              | 13.00               | 7.69                    | 58,412.85                  | 11.50       | 0.1154                     | 87,642                     |
| 2017                                           | 1,788,410.10            | 13.00               | 7.69                    | 123,775.86                 | 12.50       | 0.0385                     | 61,904                     |
|                                                | 11,944,126.05           |                     |                         | 799,747.48                 |             |                            | 5,068,505                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.70 |                         |                     |                         |                            |             |                            |                            |

MARITIME ELECTRIC COMPANY

ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. 20-SQUARE                     |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0                        |                         |                     |                         |                            |             |                            |                            |
| 1998                                           | 21,416.05               | 20.00               | 5.00                    | 1,070.80                   | 0.50        | 0.9750                     | 20,881                     |
| 1999                                           | 33,850.00               | 20.00               | 5.00                    | 1,692.50                   | 1.50        | 0.9250                     | 31,311                     |
| 2000                                           | 12,560.24               | 20.00               | 5.00                    | 628.01                     | 2.50        | 0.8750                     | 10,990                     |
| 2001                                           | 34,505.16               | 20.00               | 5.00                    | 1,725.26                   | 3.50        | 0.8250                     | 28,467                     |
| 2002                                           | 8,230.84                | 20.00               | 5.00                    | 411.54                     | 4.50        | 0.7750                     | 6,379                      |
| 2003                                           | 27,615.53               | 20.00               | 5.00                    | 1,380.78                   | 5.50        | 0.7250                     | 20,021                     |
| 2004                                           | 13,541.90               | 20.00               | 5.00                    | 677.10                     | 6.50        | 0.6750                     | 9,141                      |
| 2006                                           | 9,873.86                | 20.00               | 5.00                    | 493.69                     | 8.50        | 0.5750                     | 5,677                      |
| 2007                                           | 21,223.41               | 20.00               | 5.00                    | 1,061.17                   | 9.50        | 0.5250                     | 11,142                     |
| 2008                                           | 49,644.77               | 20.00               | 5.00                    | 2,482.24                   | 10.50       | 0.4750                     | 23,581                     |
| 2009                                           | 95,735.60               | 20.00               | 5.00                    | 4,786.78                   | 11.50       | 0.4250                     | 40,688                     |
| 2010                                           | 151,385.95              | 20.00               | 5.00                    | 7,569.30                   | 12.50       | 0.3750                     | 56,770                     |
| 2011                                           | 115,218.94              | 20.00               | 5.00                    | 5,760.95                   | 13.50       | 0.3250                     | 37,446                     |
| 2012                                           | 90,562.43               | 20.00               | 5.00                    | 4,528.12                   | 14.50       | 0.2750                     | 24,905                     |
| 2013                                           | 35,911.33               | 20.00               | 5.00                    | 1,795.57                   | 15.50       | 0.2250                     | 8,080                      |
| 2014                                           | 67,600.27               | 20.00               | 5.00                    | 3,380.01                   | 16.50       | 0.1750                     | 11,830                     |
| 2015                                           | 136,633.74              | 20.00               | 5.00                    | 6,831.69                   | 17.50       | 0.1250                     | 17,079                     |
| 2016                                           | 139,198.89              | 20.00               | 5.00                    | 6,959.94                   | 18.50       | 0.0750                     | 10,440                     |
| 2017                                           | 51,227.53               | 20.00               | 5.00                    | 2,561.38                   | 19.50       | 0.0250                     | 1,281                      |
|                                                | 1,115,936.44            |                     |                         | 55,796.83                  |             |                            | 376,109                    |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.00 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 397 COMMUNICATIONS EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 20-S4 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5    |                         |                     |                         |                            |             |                            |                            |
| 1955                        | 1,866.80                | 20.00               |                         |                            |             | 1.0000                     | 1,960                      |
| 1956                        | 3,735.76                | 20.00               |                         |                            |             | 1.0000                     | 3,923                      |
| 1957                        | 91.28                   | 20.00               |                         |                            |             | 1.0000                     | 96                         |
| 1958                        | 1,432.89                | 20.00               |                         |                            |             | 1.0000                     | 1,505                      |
| 1959                        | 1,329.15                | 20.00               |                         |                            |             | 1.0000                     | 1,396                      |
| 1961                        | 430.68                  | 20.00               |                         |                            |             | 1.0000                     | 452                        |
| 1962                        | 925.72                  | 20.00               |                         |                            |             | 1.0000                     | 972                        |
| 1964                        | 1,653.23                | 20.00               |                         |                            |             | 1.0000                     | 1,736                      |
| 1970                        | 8,587.28                | 20.00               |                         |                            |             | 1.0000                     | 9,017                      |
| 1971                        | 68,084.59               | 20.00               |                         |                            |             | 1.0000                     | 71,489                     |
| 1972                        | 10,272.79               | 20.00               |                         |                            |             | 1.0000                     | 10,786                     |
| 1973                        | 7,639.80                | 20.00               |                         |                            |             | 1.0000                     | 8,022                      |
| 1975                        | 14,839.70               | 20.00               |                         |                            |             | 1.0000                     | 15,582                     |
| 1976                        | 317,878.71              | 20.00               |                         |                            |             | 1.0000                     | 333,773                    |
| 1977                        | 198,980.51              | 20.00               |                         |                            |             | 1.0000                     | 208,930                    |
| 1978                        | 46,825.81               | 20.00               |                         |                            |             | 1.0000                     | 49,167                     |
| 1979                        | 32,995.07               | 20.00               |                         |                            |             | 1.0000                     | 34,645                     |
| 1980                        | 21,079.63               | 20.00               |                         |                            |             | 1.0000                     | 22,134                     |
| 1981                        | 140,982.33              | 20.00               |                         |                            |             | 1.0000                     | 148,031                    |
| 1982                        | 2,438.63                | 20.00               |                         |                            |             | 1.0000                     | 2,561                      |
| 1983                        | 471.14                  | 20.00               | 5.00                    | 24.73                      | 0.15        | 0.9925                     | 491                        |
| 1984                        | 33,142.47               | 20.00               | 5.00                    | 1,739.98                   | 0.35        | 0.9825                     | 34,191                     |
| 1986                        | 31,509.24               | 20.00               | 5.00                    | 1,654.24                   | 0.55        | 0.9725                     | 32,175                     |
| 1988                        | 637,865.65              | 20.00               | 5.00                    | 33,487.95                  | 0.77        | 0.9615                     | 643,973                    |
| 1989                        | 208,273.52              | 20.00               | 5.00                    | 10,934.36                  | 0.90        | 0.9550                     | 208,846                    |
| 1990                        | 67,340.23               | 20.00               | 5.00                    | 3,535.36                   | 1.04        | 0.9480                     | 67,030                     |
| 1991                        | 573,157.28              | 20.00               | 5.00                    | 30,090.76                  | 1.19        | 0.9405                     | 566,007                    |
| 1992                        | 36,104.01               | 20.00               | 5.00                    | 1,895.46                   | 1.36        | 0.9320                     | 35,331                     |
| 1993                        | 137,986.56              | 20.00               | 5.00                    | 7,244.29                   | 1.55        | 0.9225                     | 133,657                    |
| 1994                        | 26,949.54               | 20.00               | 5.00                    | 1,414.85                   | 1.76        | 0.9120                     | 25,807                     |
| 1995                        | 10,590.70               | 20.00               | 5.00                    | 556.01                     | 2.01        | 0.8995                     | 10,003                     |
| 1996                        | 30,392.45               | 20.00               | 5.00                    | 1,595.60                   | 2.29        | 0.8855                     | 28,258                     |
| 1997                        | 51,538.38               | 20.00               | 5.00                    | 2,705.76                   | 2.62        | 0.8690                     | 47,026                     |
| 1998                        | 32,544.16               | 20.00               | 5.00                    | 1,708.57                   | 2.99        | 0.8505                     | 29,063                     |
| 1999                        | 77,150.18               | 20.00               | 5.00                    | 4,050.38                   | 3.43        | 0.8285                     | 67,115                     |
| 2000                        | 64,214.26               | 20.00               | 5.00                    | 3,371.25                   | 3.93        | 0.8035                     | 54,176                     |
| 2001                        | 50,825.34               | 20.00               | 5.00                    | 2,668.33                   | 4.51        | 0.7745                     | 41,332                     |
| 2002                        | 132,987.70              | 20.00               | 5.00                    | 6,981.85                   | 5.17        | 0.7415                     | 103,541                    |
| 2003                        | 111,103.29              | 20.00               | 5.00                    | 5,832.92                   | 5.92        | 0.7040                     | 82,128                     |
| 2004                        | 157,457.00              | 20.00               | 5.00                    | 8,266.49                   | 6.74        | 0.6630                     | 109,614                    |
| 2005                        | 1,599,014.72            | 20.00               | 5.00                    | 83,948.27                  | 7.62        | 0.6190                     | 1,039,280                  |
| 2006                        | 788,074.20              | 20.00               | 5.00                    | 41,373.90                  | 8.55        | 0.5725                     | 473,731                    |
| 2007                        | 1,068,814.97            | 20.00               | 5.00                    | 56,112.79                  | 9.52        | 0.5240                     | 588,062                    |

MARITIME ELECTRIC COMPANY

ACCOUNT 397 COMMUNICATIONS EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                                    | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|------------------------------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 20-S4                    |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. -5                       |                         |                     |                         |                            |             |                            |                            |
| 2008                                           | 51,725.57               | 20.00               | 5.00                    | 2,715.59                   | 10.51       | 0.4745                     | 25,771                     |
| 2009                                           | 120,355.75              | 20.00               | 5.00                    | 6,318.68                   | 11.50       | 0.4250                     | 53,709                     |
| 2010                                           | 381,190.33              | 20.00               | 5.00                    | 20,012.49                  | 12.50       | 0.3750                     | 150,094                    |
| 2011                                           | 164,114.13              | 20.00               | 5.00                    | 8,615.99                   | 13.50       | 0.3250                     | 56,004                     |
| 2012                                           | 149,992.12              | 20.00               | 5.00                    | 7,874.59                   | 14.50       | 0.2750                     | 43,310                     |
| 2013                                           | 169,495.07              | 20.00               | 5.00                    | 8,898.49                   | 15.50       | 0.2250                     | 40,043                     |
| 2014                                           | 357,449.90              | 20.00               | 5.00                    | 18,766.12                  | 16.50       | 0.1750                     | 65,681                     |
| 2015                                           | 541,568.19              | 20.00               | 5.00                    | 28,432.33                  | 17.50       | 0.1250                     | 71,081                     |
| 2016                                           | 532,016.40              | 20.00               | 5.00                    | 27,930.86                  | 18.50       | 0.0750                     | 41,896                     |
| 2017                                           | 936,756.77              | 20.00               | 5.00                    | 49,179.73                  | 19.50       | 0.0250                     | 24,590                     |
|                                                | 10,214,241.58           |                     |                         | 489,938.97                 |             |                            | 5,919,193                  |
| COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.80 |                         |                     |                         |                            |             |                            |                            |

## MARITIME ELECTRIC COMPANY

## ACCOUNT 397.5 COMMUNICATIONS EQUIPMENT - SCADA

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT DECEMBER 31, 2017

| YEAR<br>(1)                 | ORIGINAL<br>COST<br>(2) | AVG.<br>LIFE<br>(3) | --ANNUAL<br>RATE<br>(4) | ACCRUAL--<br>AMOUNT<br>(5) | EXP.<br>(6) | --ACCRUED<br>FACTOR<br>(7) | DEPREC.--<br>AMOUNT<br>(8) |
|-----------------------------|-------------------------|---------------------|-------------------------|----------------------------|-------------|----------------------------|----------------------------|
| SURVIVOR CURVE.. IOWA 15-S2 |                         |                     |                         |                            |             |                            |                            |
| NET SALVAGE PERCENT.. 0     |                         |                     |                         |                            |             |                            |                            |
| 1987                        | 220,032.06              | 15.00               |                         |                            |             | 1.0000                     | 220,032                    |
| 1988                        | 4,591.39                | 15.00               | 6.67                    | 306.25                     | 0.07        | 0.9953                     | 4,570                      |
| 1989                        | 34,316.42               | 15.00               | 6.67                    | 2,288.91                   | 0.27        | 0.9820                     | 33,699                     |
| 1990                        | 4,389.91                | 15.00               | 6.67                    | 292.81                     | 0.46        | 0.9693                     | 4,255                      |
| 1991                        | 48,031.87               | 15.00               | 6.67                    | 3,203.73                   | 0.65        | 0.9567                     | 45,951                     |
| 1995                        | 1,226.75                | 15.00               | 6.67                    | 81.82                      | 1.52        | 0.8987                     | 1,102                      |
| 1996                        | 6,044.45                | 15.00               | 6.67                    | 403.16                     | 1.76        | 0.8827                     | 5,335                      |
| 1997                        | 3,381.92                | 15.00               | 6.67                    | 225.57                     | 2.02        | 0.8653                     | 2,926                      |
| 1999                        | 351,649.28              | 15.00               | 6.67                    | 23,455.01                  | 2.59        | 0.8273                     | 290,930                    |
| 2000                        | 42,306.62               | 15.00               | 6.67                    | 2,821.85                   | 2.90        | 0.8067                     | 34,127                     |
| 2001                        | 54,374.08               | 15.00               | 6.67                    | 3,626.75                   | 3.24        | 0.7840                     | 42,629                     |
| 2002                        | 96,064.33               | 15.00               | 6.67                    | 6,407.49                   | 3.61        | 0.7593                     | 72,945                     |
| 2003                        | 15,847.57               | 15.00               | 6.67                    | 1,057.03                   | 4.00        | 0.7333                     | 11,621                     |
| 2004                        | 44,356.89               | 15.00               | 6.67                    | 2,958.60                   | 4.44        | 0.7040                     | 31,227                     |
| 2005                        | 25,235.56               | 15.00               | 6.67                    | 1,683.21                   | 4.91        | 0.6727                     | 16,975                     |
| 2006                        | 74,408.35               | 15.00               | 6.67                    | 4,963.04                   | 5.42        | 0.6387                     | 47,522                     |
| 2007                        | 15,769.05               | 15.00               | 6.67                    | 1,051.80                   | 5.99        | 0.6007                     | 9,472                      |
| 2008                        | 263,173.35              | 15.00               | 6.67                    | 17,553.66                  | 6.61        | 0.5593                     | 147,201                    |
| 2009                        | 131,076.35              | 15.00               | 6.67                    | 8,742.79                   | 7.28        | 0.5147                     | 67,461                     |
| 2010                        | 44,212.82               | 15.00               | 6.67                    | 2,949.00                   | 8.02        | 0.4653                     | 20,574                     |
| 2011                        | 67,445.28               | 15.00               | 6.67                    | 4,498.60                   | 8.82        | 0.4120                     | 27,787                     |
| 2012                        | 1,303.46                | 15.00               | 6.67                    | 86.94                      | 9.67        | 0.3553                     | 463                        |
| 2016                        | 79,841.18               | 15.00               | 6.67                    | 5,325.41                   | 13.50       | 0.1000                     | 7,984                      |
| 2017                        | 186,161.67              | 15.00               | 6.67                    | 12,416.98                  | 14.50       | 0.0333                     | 6,205                      |
|                             | 1,815,240.61            |                     |                         | 106,400.41                 |             |                            | 1,152,993                  |

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.86

## APPENDIX 9

### SUMMARY OF PROPOSED ADJUSTMENTS TO DEPRECIATION RATES AND INCREASE IN DEPRECIATION EXPENSE RELATED TO ELECTRICAL PLANT AT DECEMBER 31, 2017

| Depreciable Group                   | Original Cost At        | Existing Annual Accrual |                     | Proposed Annual Accrual |                     | Difference       |             |
|-------------------------------------|-------------------------|-------------------------|---------------------|-------------------------|---------------------|------------------|-------------|
|                                     | 12/31/2017 <sup>1</sup> | Rate <sup>2</sup>       | Amount              | Rate <sup>1</sup>       | Amount <sup>1</sup> | Amount           | Percent     |
|                                     | A                       | B                       | C=AxB               | D=E/A                   | E                   | F=E-C            | G=F/C       |
| <b>DEPRECIABLE ELECTRICAL PLANT</b> |                         |                         |                     |                         |                     |                  |             |
| <b>Total Steam Production Plant</b> | 60,749,618              | 4.53                    | 2,750,835           | 5.09                    | 3,089,585           | 338,750          | 12.3%       |
| <b>Borden Generating Station</b>    | 13,666,966              | 4.81                    | 657,872             | 4.12                    | 562,811             | (95,061)         | -14.4%      |
| <b>Combustion Turbine #3</b>        | 35,297,121              | 2.28                    | 804,774             | 2.34                    | 824,633             | 19,859           | 2.5%        |
| <b>Transmission Plant</b>           |                         |                         |                     |                         |                     |                  |             |
| Poles and Fixtures                  | 22,861,634              |                         | 685,849             |                         | 746,204             | 60,355           | 8.8%        |
| Overhead Conductors                 | 45,621,955              |                         | 1,122,300           |                         | 1,295,207           | 172,907          | 15.4%       |
| Other – Net                         | 55,711,015              |                         | 1,023,397           |                         | 1,007,086           | (16,311)         | -1.6%       |
| <b>Total Transmission Plant</b>     | 124,194,604             | 2.27                    | 2,831,546           | 2.45                    | 3,048,497           | 216,951          | 7.7%        |
| <b>Distribution Plant</b>           |                         |                         |                     |                         |                     |                  |             |
| Line Transformers                   | 69,024,150              |                         | 2,270,895           |                         | 2,435,172           | 164,277          | 7.2%        |
| Services – Overhead                 | 67,238,249              |                         | 2,087,833           |                         | 2,334,512           | 236,679          | 11.3%       |
| Other – Net                         | 212,421,611             |                         | 7,245,401           |                         | 7,120,980           | (124,421)        | -1.7%       |
| <b>Total Distribution Plant</b>     | 348,681,010             | 3.32                    | 11,614,129          | 3.41                    | 11,890,664          | 276,535          | 2.4%        |
| <b>General Plant</b>                |                         |                         |                     |                         |                     |                  |             |
| Transportation Equipment            | 11,944,126              |                         | 836,089             |                         | 799,747             | (36,342)         | -4.3%       |
| Communication Equipment – SCADA     | 1,815,241               |                         | 121,077             |                         | 106,400             | (14,677)         | -0.5%       |
| Other - Net                         | 30,755,359              |                         | 1,677,493           |                         | 1,680,213           | 2,720            | 0.2%        |
| <b>Total General Plant</b>          | 44,514,726              | 5.96                    | 2,634,659           | 5.81                    | 2,586,360           | (48,299)         | -1.8%       |
| <b>TOTAL ANNUAL IMPACT</b>          | <b>\$627,104,045</b>    | <b>3.41</b>             | <b>\$21,293,815</b> | <b>3.51</b>             | <b>\$22,002,550</b> | <b>\$708,735</b> | <b>3.3%</b> |

References:

- 2017 Study – Part VI – Table 1
- Rate shown is the composite rate for the asset group – refer to 2014 Depreciation Study – Page VI – Table 1 for the underlying rates used to calculate the Existing Annual Accrual Amount.

**Appendix 10**  
**CTGS Projected Accumulated Reserve Variance as at December 31, 2018**

| CTGS Steam Production Plant         | Original Cost<br>At 12/31/2017 | Annual Depr Accrual<br>Amt Per 2017 Study | Annual Depr Accrual<br>Amt Per UE16-04 | 2018 Depr<br>Shortfall | Reserve Variance<br>12/31/2017 | Res Var Amort<br>Per UE16-04 | Projected Reserve<br>Variance 12/31/18 |
|-------------------------------------|--------------------------------|-------------------------------------------|----------------------------------------|------------------------|--------------------------------|------------------------------|----------------------------------------|
|                                     | (A)                            | (B)                                       | (C)                                    | (D) = (B) - (C)        | (E)                            | (F)                          | (G) = (E) - (F) + (D)                  |
| Structures and Improvements         | 9,006,038                      | 547,357                                   | 481,823                                | 65,534                 | 2,970,357                      | 360,242                      | 2,675,649                              |
| Boiler Plant Equipment              | 26,445,980                     | 1,285,317                                 | 1,198,003                              | 87,314                 | 6,788,125                      | 825,115                      | 6,050,324                              |
| Turbogenerator Units                |                                |                                           |                                        |                        |                                |                              |                                        |
| Unit 7                              | 1,954,691                      | 113,005                                   |                                        |                        | 727,030                        |                              |                                        |
| Unit 8                              | 3,909,382                      | 209,582                                   |                                        |                        | 1,393,541                      |                              |                                        |
| Units 9 and 10                      | 15,637,528                     | 796,856                                   |                                        |                        | 5,344,433                      |                              |                                        |
| Total Turbogenerator Units          | 21,501,600                     | 1,119,443                                 | 943,920                                | 175,523                | 7,465,004                      | 819,211                      | 6,821,316                              |
| Accessory Electrical Equipment      | 2,283,113                      | 68,942                                    | 63,699                                 | 5,243                  | 448,151                        | 53,653                       | 399,741                                |
| Miscellaneous Power Plant Equipment | 1,512,887                      | 68,526                                    | 63,390                                 | 5,136                  | 335,340                        | 42,361                       | 298,115                                |
| <b>Total</b>                        | 60,749,618                     | 3,089,585                                 | 2,750,835                              | 338,750                | 18,006,977                     | 2,100,581                    | 16,245,146                             |

**Appendix 11**  
**CTGS Proposed Annual Depreciation and Amortization of Accumulated Reserve Variance Deferral Account**  
**2019 - 2023**

| CTGS Steam Production Plant                                                 | Original Cost<br>At 12/31/2017 | Annual Depr Accrual<br>Amt Per 2017 Study | Remaining Life<br>Amort Period | Proposed Annual<br>Depreciation Rate (%) | Estimated Annual Depreciation (\$) |           |           |           |           | Total      |
|-----------------------------------------------------------------------------|--------------------------------|-------------------------------------------|--------------------------------|------------------------------------------|------------------------------------|-----------|-----------|-----------|-----------|------------|
|                                                                             |                                |                                           |                                |                                          | 2019                               | 2020      | 2021      | 2022      | 2023      |            |
| Structures and Improvements                                                 | 9,006,038                      | 547,357                                   | 2.96                           | 6.08                                     | 547,357                            | 547,357   | 525,463   | -         | -         |            |
| Boiler Plant Equipment                                                      | 26,445,980                     | 1,285,317                                 | 2.96                           | 4.86                                     | 1,285,317                          | 1,285,317 | 1,233,904 | -         | -         |            |
| Turbogenerator Units                                                        |                                |                                           |                                |                                          |                                    |           |           |           |           |            |
| Unit 7                                                                      | 1,954,691                      | 113,005                                   | 0.99                           | 5.78                                     | 111,875                            | -         | -         | -         | -         |            |
| Unit 8                                                                      | 3,909,382                      | 209,582                                   | 1.95                           | 5.36                                     | 209,582                            | 199,103   | -         | -         | -         |            |
| Units 9 and 10                                                              | 15,637,528                     | 796,856                                   | 2.97                           | 5.10                                     | 796,856                            | 796,856   | 772,950   | -         | -         |            |
| Total Turbogenerator Units                                                  | 21,501,600                     | 1,119,443                                 |                                |                                          | 1,118,313                          | 995,959   | 772,950   | -         | -         |            |
| Accessory Electrical Equipment                                              | 2,283,113                      | 68,942                                    | 2.95                           | 3.02                                     | 68,942                             | 68,942    | 65,495    | -         | -         |            |
| Miscellaneous Power Plant Equipment                                         | 1,512,887                      | 68,526                                    | 2.92                           | 4.53                                     | 68,526                             | 68,526    | 63,044    | -         | -         |            |
| <b>Annual Depreciation Accrual - CTGS</b>                                   | 60,749,618                     | 3,089,585                                 |                                |                                          | 3,088,455                          | 2,966,101 | 2,660,856 | -         | -         | 8,715,412  |
| <b>Amortization of Estimated Accumulated Reserve Variance - CTGS</b>        |                                |                                           |                                |                                          | 1,903,657                          | 2,026,011 | 2,331,255 | 4,992,112 | 4,992,112 | 16,245,146 |
| <b>CTGS - Total Annual Depreciation Incl. Reserve Variance Amortization</b> |                                |                                           |                                |                                          | 4,992,112                          | 4,992,112 | 4,992,112 | 4,992,112 | 4,992,112 | 24,960,558 |



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## Summary:

### Maritime Electric Co. Ltd.

**Primary Credit Analyst:**

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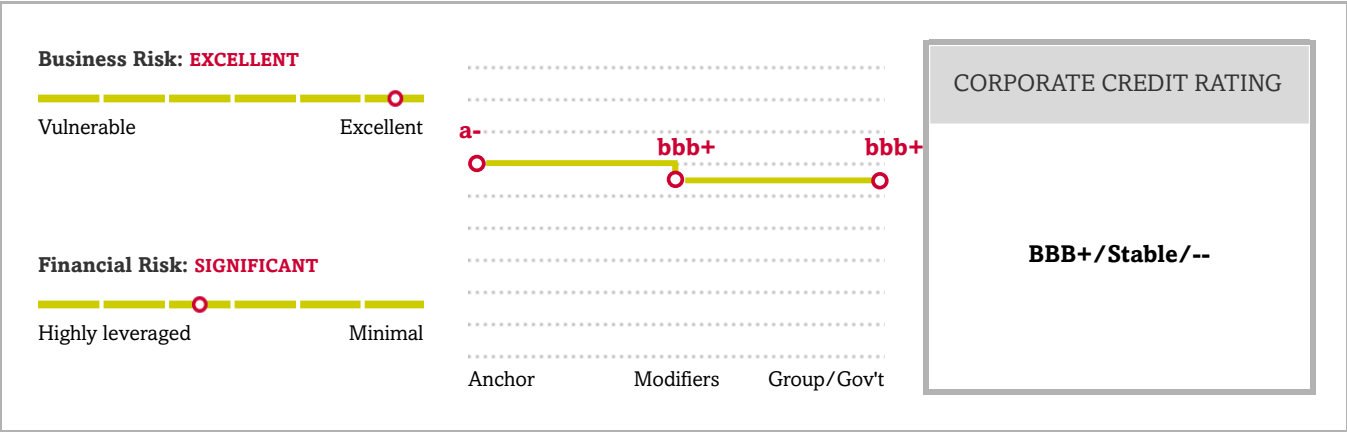
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# Summary:

## Maritime Electric Co. Ltd.



### Rationale

| Business Risk: Excellent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Financial Risk: Significant                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Maritime Electric Co. Ltd. (MECL) operates a low-risk integrated electricity generation, transmission, and distribution utility operations</li> <li>The company's operations are in the province of Prince Edward Island (PEI) under the regulatory framework of the Island Regulatory and Appeals Commission (IRAC)</li> <li>Regulation is generally supportive, where MECL benefits from various regulatory mechanisms like the energy cost adjustment mechanism, which allows for full recovery of prudently incurred costs</li> <li>Weather normalization supports financial stability</li> <li>There is a lack of regulatory and geographical diversity, although partially offsetting this is the majority of the customers being residential and small business segments that limit the impact from economic cycles</li> </ul> | <ul style="list-style-type: none"> <li>Stable and predictable cash flows</li> </ul> |

**Outlook: Stable**

The stable outlook reflects S&P Global Ratings' view that MECL will continue generating stable cash flows during the two-year outlook horizon, with no adverse regulatory or governmental rulings. We expect adjusted funds from operations (AFFO)-to-debt in the 15%-18% range.

**Downside scenario**

Although we don't expect it in the outlook period, we could lower MECL's SACP if AFFO-to-debt ratio falls and stay below 15%, toward the lower end of the significant financial risk profile. This could happen should there be an adverse change in government policy, material operational difficulties, or a significantly adverse regulatory ruling impairing timely recovery of cash flows. Given that we link our ratings on MECL to those on Fortis Inc., a change in MECL's SACP alone is unlikely to affect the ratings, all else being equal.

**Upside scenario**

Although unlikely, we could take a positive rating action on MECL if AFFO-to-debt improves to above 22% consistently, at the upper end of the significant financial risk profile, all else being equal.

**Our Base-Case Scenario**

| Assumptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Key Metrics                                                                                                                                                                                                                                                                                                                            |          |          |       |       |                    |       |         |         |                |      |          |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-------|-------|--------------------|-------|---------|---------|----------------|------|----------|----------|
| <ul style="list-style-type: none"><li>• Stable economy in the service territory with modest increase in the customer base</li><li>• Continued use of regulatory cost recovery mechanisms;</li><li>• No adverse material regulatory decisions</li><li>• The utility will continue to earn its allowed return on equity</li><li>• Average annual capital expenditure remaining at about C\$37 million</li><li>• Average annual dividends of C\$10 million in the forecast period</li></ul> | <table><tr><th></th><th>2017A</th><th>2018E</th><th>2019E</th></tr><tr><td>FFO/total debt (%)</td><td>20.6%</td><td>15%-18%</td><td>15%-18%</td></tr><tr><td>Debt-to-EBITDA</td><td>3.6x</td><td>4.3-4.5x</td><td>4.3-4.5x</td></tr></table> <p>Note: Fiscal year-end Dec. 31. FFO--Funds from operations. A--Actual. E--Estimate.</p> |          | 2017A    | 2018E | 2019E | FFO/total debt (%) | 20.6% | 15%-18% | 15%-18% | Debt-to-EBITDA | 3.6x | 4.3-4.5x | 4.3-4.5x |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2017A                                                                                                                                                                                                                                                                                                                                  | 2018E    | 2019E    |       |       |                    |       |         |         |                |      |          |          |
| FFO/total debt (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20.6%                                                                                                                                                                                                                                                                                                                                  | 15%-18%  | 15%-18%  |       |       |                    |       |         |         |                |      |          |          |
| Debt-to-EBITDA                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6x                                                                                                                                                                                                                                                                                                                                   | 4.3-4.5x | 4.3-4.5x |       |       |                    |       |         |         |                |      |          |          |

## Company Description

MECL is an integrated electricity generation, transmission, and distribution utility with operations throughout PEI. It provides services to more than 80,000 customers and operates under IRAC regulation.

MECL is an indirect wholly owned subsidiary of Fortis.

## Business Risk: Excellent

We assess MECL's business risk profile as excellent. This reflects the company's operations in a low-risk country such as Canada, its monopolistic position, and location in a supportive regulatory regime such as PEI, allowing MECL to timely and fully recover prudently incurred operating and capital expenses. These positive credit factors are offsets by the company's involvement in the electricity generation, which we assess to be at the higher end of risk spectrum. Another offsetting factor is the provincial government's involvement and influence in energy policies, specifically establishing rates for island customers, which we assess to be less favorable and exposes MECL to political risks as compared with those of regulated utilities in other Canadian provinces.

MECL is the legislated monopoly provider of electricity to more than 80,000 customers in PEI, which we believe provides the company with a stable market position. In addition, rates are set in a cost-of-service framework, which allows MECL to fully recover its revenue requirement. The province has a mature-but-stable economy that relies primarily on the public sector, fishing, agriculture, and tourism. Although the company's service territory is a small island, the majority of MECL's customers are residential and small business segments, accounting for about 85% of revenue, which limit the impact from economic cycles. Customer concentration is not a credit risk for MECL, with the top two customers accounting for about 6% of revenue while the remaining top 10 customers accounting for less than 1% each.

## Financial Risk: Significant

We assess MECL's financial risk profile as significant using the medial volatility financial ratio benchmarks. This assessment reflects the regulatory advantage and low-risk electricity distribution and transmission.

Under our base-case scenario, we expect the company's core credit ratio in the 15%-18% range. Furthermore, we expect annual capital spending for the next few years of about C\$37 million.

Although we assume that MECL will continue to invest in rate-base growth that exceeds depreciation. We expect the company will require external funding to fund the capital expenditures and expect credit metrics to weaken slightly but still be higher than our threshold for a downgrade.

## Liquidity: Adequate

We assess MECL's liquidity as adequate to cover its needs over the next 12 months. We expect the company's liquidity sources to exceed its uses by 1.1x or more, the minimum threshold for an adequate designation under our criteria, and that the company will meet our other requirements for the designation. MECL's liquidity benefits from stable cash flow generation, ample availability under the revolving credit facilities, and manageable debt maturities over the next few years.

The company's well-established and solid bank relationships; ability to absorb high-impact, low-probability events without the need for refinancing; and a satisfactory standing in credit markets also support our assessment of its liquidity as adequate.

| Principal Liquidity Sources                                                                                                                                                                 | Principal Liquidity Uses                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• FFO of C\$30 million-C\$45 million over the next 12 months</li> <li>• Available credit facility of about C\$26 million maturing in 2019</li> </ul> | <ul style="list-style-type: none"> <li>• Debt maturities, both long- and short-term, of about C\$15 million over the next 12 months</li> <li>• Capital spending of C\$30 million-C\$40 million over the next 12 months</li> <li>• Dividend payments of about C\$10 million over the next 12 months</li> </ul> |

## Other Credit Considerations

Our modifiers assessments has not changed, including the management & governance (M&G) assessment of fair. We base the fair assessment on factors including strategic positioning, risk and financial management, organizational effectiveness, and governance. The M&G assessment has a one-notch negative impact on the anchor score of 'a-', which results from an excellent business risk profile and significant financial risk profile in accordance with our corporate criteria framework. Factoring in these considerations, the final SACP is 'bbb+'.

## Group Influence

MECL is an indirect wholly owned subsidiary of Fortis. Consistent with our group rating methodology criteria, we view the company as moderately strategic to the Fortis group. We believe that, although MECL represents a small proportion of the parent's business, it provides a very stable cash flow that is aligned with the parent's overall business strategy.

In our view, MECL is unlikely to be sold, has the support of management, and is reasonably successful at what it does. Based on the 'bbb+' SACP, the 'a-' group credit profile assessment on Fortis, and the moderately strategic relationship between the two, MECL does not receive any uplift to the ratings from Fortis' ownership.

## Ratings Score Snapshot

### Corporate Credit Rating

BBB+/Stable/--

### Business risk: Excellent

- **Country risk:** Very low
- **Industry risk:** Very low
- **Competitive position:** Strong

### Financial risk: Significant

- **Cash flow/Leverage:** Significant

Anchor: a-

### Modifiers

- **Diversification/Portfolio effect:** Neutral (no impact)
- **Capital structure:** Neutral (no impact)
- **Financial policy:** Neutral (no impact)
- **Liquidity:** Adequate (no impact)
- **Management and governance:** Fair (-1 notch)
- **Comparable rating analysis:** Neutral (no impact)

### Stand-alone credit profile : bbb+

- **Group credit profile:** a-
- **Entity status within group:** Moderately strategic (no impact)

## Issue Ratings--Recovery Analysis

MECL's first mortgage bonds benefit from a first-priority lien on the majority of the utility's real property owned or subsequently acquired. Based on our criteria, collateral coverage of more than 1.5x supports a recovery rating of '1+' and an issue rating of 'A', two notches above the corporate credit rating for a 'BBB' category company. We base the recovery rating on the maximum amount of secured utility bonds outstanding at the time of the recovery analysis.

## Related Criteria

- Criteria - Corporates - General: Reflecting Subordination Risk In Corporate Issue Ratings, Sept. 21, 2017
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria - Corporates - General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014

- Criteria - Corporates - General: Corporate Methodology: Ratios And Adjustments, Nov. 19, 2013
- Criteria - Corporates - General: Corporate Methodology, Nov. 19, 2013
- Criteria - Corporates - Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Group Rating Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- Criteria - Corporates - Utilities: Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities And Insurers, Nov. 13, 2012
- General Criteria: Use Of CreditWatch And Outlooks, Sept. 14, 2009
- Criteria - Insurance - General: Hybrid Capital Handbook: September 2008 Edition, Sept. 15, 2008

| Business And Financial Risk Matrix |                        |        |              |             |            |                  |
|------------------------------------|------------------------|--------|--------------|-------------|------------|------------------|
| Business Risk Profile              | Financial Risk Profile |        |              |             |            |                  |
|                                    | Minimal                | Modest | Intermediate | Significant | Aggressive | Highly leveraged |
| Excellent                          | aaa/aa+                | aa     | a+ /a        | a-          | bbb        | bbb-/bb+         |
| Strong                             | aa/aa-                 | a+ /a  | a-/bbb+      | bbb         | bb+        | bb               |
| Satisfactory                       | a/a-                   | bbb+   | bbb/bbb-     | bbb-/bb+    | bb         | b+               |
| Fair                               | bbb/bbb-               | bbb-   | bb+          | bb          | bb-        | b                |
| Weak                               | bb+                    | bb+    | bb           | bb-         | b+         | b/b-             |
| Vulnerable                         | bb-                    | bb-    | bb-/b+       | b+          | b          | b-               |

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**REPORT:  
COST OF CAPITAL**

**PREPARED FOR:  
MARITIME ELECTRIC COMPANY, LIMITED**

**BEFORE THE:  
ISLAND REGULATORY AND APPEALS COMMISSION**

**NOVEMBER 27, 2018**



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1       **I. INTRODUCTION**

2       **A. Qualifications**

3       My name is John P. Trogonoski, and I am employed by Concentric Energy Advisors, Inc.  
4       (“Concentric”) as a Senior Project Manager. My business address is 293 Boston Post Road  
5       West, Suite 500, Marlborough, MA 01752. I am testifying on behalf of the Maritime Electric  
6       Company, Limited (“Maritime Electric”), an indirect subsidiary of Fortis Inc.

7       I am among Concentric’s professionals who provide expert testimony before U.S. state and  
8       Canadian provincial regulatory agencies on matters pertaining to finance, economics and public  
9       policy in the utility industry. Concentric provides financial, economic and regulatory advisory  
10      services to clients across North America, including utility companies, regulatory and public  
11      agencies, and utility sector investors. I advise public utilities, energy companies, public agencies  
12      and private equity investors on financial and economic issues pertaining to the utilities industry.  
13      This work includes estimating the cost of capital for the purposes of ratemaking and valuation  
14      and assessing business and financial risk. I have testified or provided expert evidence in state  
15      and provincial jurisdictions including Quebec, New York, and Colorado. This evidence has  
16      been provided on behalf of both utilities and regulatory commission staff.

17      For the past five years, I have co-authored an annual newsletter published by Concentric  
18      summarizing allowed ROEs and capital structures for gas and electric utilities in Canada and the  
19      U.S., and I also co-authored an article in Public Utilities Fortnightly regarding the use of  
20      automatic adjustment mechanisms for setting the cost of equity in Canada. I have also attended  
21      industry events and conferences, including the 2016 CAMPUT conference in Montreal.

22      Prior to joining Concentric, I was a member of the Staff of the Colorado Public Utilities  
23      Commission from 1999-2008, where I supervised the financial analysts in the energy and  
24      telecommunications sections, provided advisory services to the Commissioners on financial and  
25      economic matters, and filed expert testimony on rate of return, revenue requirement, cost  
26      allocation, rate design, incentive regulation, and public policy matters. I have a Master’s degree  
27      in Business Administration and an undergraduate degree in Marketing from the University of  
28      Colorado at Denver. My qualifications are detailed more fully in Attachment 1.



1           **B. Executive Summary**

2           I have been asked to provide an estimate of the cost of capital for Maritime Electric for the  
3           purpose of establishing the return on equity (“ROE”) and capital structure for the proposed  
4           three year rate setting period from March 1, 2019 through February 28, 2022. In order to  
5           estimate the cost of capital, I have relied upon analytical tools and data sources normally used  
6           for such purposes before regulators in Canada and the U.S. I have also reviewed past decisions  
7           of the Island Regulatory and Appeals Commission (“Commission”) in consideration of such  
8           matters. The analysis provided in this report supports my overall recommendation on the cost  
9           of equity and capital structure. That analysis includes the following:

- 10           1) Examination of the legal and regulatory requirements for determination of a fair rate  
11           of return;
- 12           2) An overview of economic and capital market conditions in Canada and the U.S. and  
13           the degree of integration between the economies of the two countries;
- 14           3) Selection of Canadian, U.S. and North American proxy groups comprised of  
15           companies that are risk comparable to Maritime Electric;
- 16           4) Estimation of the cost of common equity for the proxy group companies using the  
17           Discounted Cash Flow (“DCF”) method and the Capital Asset Pricing Model  
18           (“CAPM”);
- 19           5) Examination of authorized and earned returns on equity for other investor-owned  
20           electric utilities in Canada and the U.S.;
- 21           6) Development of a range of results for the Canadian, U.S. and North American proxy  
22           groups; and
- 23           7) An assessment of the appropriateness of Maritime Electric’s proposed capital  
24           structure based on an examination of the Company’s business and financial risks  
25           relative to the respective proxy groups.

26           As shown in Figure 1, the various ROE estimation models produce a range of results for the  
27           proxy group companies from 8.86 percent to 10.13 percent. The average of all methods is 9.46  
28           percent.



Figure 1: Summary of Results (including flotation costs)<sup>1</sup>

|                        | Canadian<br>Regulated<br>Utilities | US Electric | North<br>American<br>Electric | Average |
|------------------------|------------------------------------|-------------|-------------------------------|---------|
| CAPM                   | 10.13%                             | 9.47%       | 9.56%                         | 9.72%   |
| Constant<br>Growth DCF | 9.41%                              | 9.26%       | 9.26%                         | 9.31%   |
| Multi-Stage DCF        | 10.13%                             | 8.86%       | 9.03%                         | 9.34%   |
| Average                | 9.89%                              | 9.20%       | 9.28%                         | 9.46%   |

The average results of the Constant Growth and Multi-Stage DCF analyses for the three proxy groups are within a range from 9.31 percent to 9.34 percent, while the average CAPM results are 9.72 percent. The average results for the Canadian, U.S. Electric and North American Electric proxy groups range from 9.20 percent to 9.89 percent. Based on this analysis, I believe a reasonable estimate of Maritime Electric's required cost of equity is within a range from 9.20 percent to 9.90 percent (bounded by the U.S. electric average for all methods of 9.20 percent on the low end, and the Canadian average of all methods of 9.89 percent on the high end). Within this range, the Company's proposed ROE of 9.35 percent is reasonable, if not conservative. In addition, the Company's proposed common equity ratio of 40.00 percent is lower than that justified by its risk profile and well below the average equity thickness for the U.S. electric and North American electric proxy groups. Maritime Electric is small relative to the companies in the Canadian and U.S. electric proxy groups; the long-term economic and demographic trends on Prince Edward Island are weaker than Canada overall; and Maritime Electric does not have many of the variance and deferral accounts that are common among other regulated electric utilities across Canada.

### C. Report Organization

The remainder of the report is organized as follows:

- Section II discusses the legal requirements and regulatory precedents for the determination of a fair rate of return;

<sup>1</sup> DCF results are based on 90-day average stock prices for proxy group companies.



- Section III provides an overview of economic and capital market conditions and their impact on the allowed ROE and capital structure for Maritime Electric;
- Section IV describes the selection of proxy group companies to estimate the cost of equity for Maritime Electric and discusses the precedent in Canada for considering the use of U.S. data;
- Section V discusses the methods used to estimate the cost of equity and summarizes the results of the DCF and CAPM analyses, as well as allowed and earned ROEs for other investor-owned electric utilities;
- Section VI provides an assessment of Maritime Electric's business and financial risks relative to the Canadian and U.S. proxy group companies and recommends an appropriate equity ratio for the Company;
- Section VII describes the proposed earnings sharing mechanism; and
- Finally, Section VIII summarizes my overall conclusions and recommendations.

## II. LEGAL REQUIREMENTS AND KEY REGULATORY PRECEDENTS FOR THE DETERMINATION OF A FAIR RETURN

### A. The Fair Return Standard

The principles surrounding the concept of a "fair return" for a regulated company were first established by the Supreme Court of Canada in *Northwestern Utilities v. City of Edmonton* (1929) S.C.R. 186 ("Northwestern"), where the Supreme Court found:

By a fair return is meant that the company will be allowed as large a return on the capital invested in its enterprise (which will be net to the company) as it would receive if it were investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company's enterprise.<sup>2</sup>

---

<sup>2</sup> *Northwestern*, at 193.





1 U.S. common law regarding fair return for utility cost of capital has evolved similarly. In  
2 *Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia* (262 U.S.  
3 679, 693 (1923)), the U.S. Supreme Court stated:

4 The return should be reasonably sufficient to assure confidence in the  
5 financial soundness of the utility and should be adequate, under efficient and  
6 economical management, to maintain and support its credit and enable it to  
7 raise the money necessary for the proper discharge of its public duties. A  
8 rate of return may be reasonable at one time and become too high or too low  
9 by changes affecting opportunities for investment, the money market and  
10 business conditions generally.

11 The U.S. Supreme Court further elaborated on this requirement in its decision in *Federal Power*  
12 *Commission v. Hope Natural Gas Company* (320 U.S. 591, 603 (1944)), when it described the relevant  
13 criteria as follows:

14 From the investor or company point of view it is important that there be  
15 enough revenue not only for operating expenses but also for the capital costs  
16 of the business. These include service on the debt and dividends on the  
17 stock.... By that standard the return to the equity owner should be  
18 commensurate with returns on investments in other enterprises having  
19 corresponding risks. That return, moreover, should be sufficient to assure  
20 confidence in the financial integrity of the enterprise, so as to maintain its  
21 credit and to attract capital.

22 Over time, the Fair Return Standard has been interpreted many times in both Canada and the  
23 U.S. For example, the National Energy Board (“NEB”) summarized its interpretation of the  
24 “fair return standard” in its RH-2-2004 Phase II Decision and reiterated that interpretation in its  
25 *Trans Québec & Maritimes Pipelines Inc.* RH-1-2008 Decision.

26 The Board is of the view that the fair return standard can be articulated by  
27 having reference to three particular requirements. Specifically, a fair or  
28 reasonable return on capital should:

- 29 • be comparable to the return available from the application of the  
30 invested capital to other enterprises of like risk (the comparable  
31 investment standard);
- 32 • enable the financial integrity of the regulated enterprise to be  
33 maintained (the financial integrity standard); and



- permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the capital attraction standard).

In the Board's view, the determination of a fair return in accordance with these enunciated standards will, when combined with other aspects for the Mainline's revenue requirement, result in tolls that are just and reasonable.<sup>3</sup>

All three standards must be met, and none ranks in priority to the others. To that point, the Ontario Energy Board ("OEB") articulated the legal requirements for satisfying the Fair Return Standard in Canada in its 2009 Generic Cost of Capital Order as follows:

The Board affirms its view that the Fair Return Standard frames the discretion of a regulator, by setting out the three requirements that must be satisfied by the cost of capital determinations of the tribunal. Meeting the standard is not optional; it is a legal requirement. Notwithstanding this obligation, the Board notes that the Fair Return Standard is sufficiently broad that the regulator that applies it must still use informed judgment and apply its discretion in the determination of a rate regulated entity's cost of capital.<sup>4</sup>

\*\*\*

... all three standards or requirements (comparable investment, financial integrity, and capital attraction) must be met and none ranks in priority to the others. The Board agrees with the comments made to the effect that the cost of capital must satisfy all three requirements which can be measured through specific tests and that focusing on meeting the financial integrity and capital attraction tests without giving adequate consideration of the comparability test is not sufficient to meet the [Fair Return Standard].<sup>5</sup>

This Commission embraces the same standards for the application of the Fair Return Standard as those put forth by the NEB, the OEB and those established through Canadian and U.S. common law. In that regard, the Commission has stated:

[59] The Commission in determining a fair return must try to assess the risk associated with the capital invested and the comments provided in the Northwestern Utilities case. Those comments make reference to the fact that the company will be allowed as large a return on the capital invested in

---

<sup>3</sup> National Energy Board RH-2-2004 Reasons for Decision, TransCanada PipeLines Ltd, Phase II, April 2005, at 17.

<sup>4</sup> Ontario Energy Board, EB-2009-084, Report of the Board on the Cost of Capital for Ontario's Regulated Utilities, December 11, 2009, at i.

<sup>5</sup> *Id.*, at 19.



1 its enterprise as it would receive if it were investing the same amount in other  
2 securities possessing an attractiveness, stability and certainty equal to that of  
3 the company's enterprise.

4 [60] Regulators and courts have evolved a "fair return standard" in which  
5 returns have been set to help utilities provide safe and adequate services to  
6 the public at reasonable prices, while ensuring that the utilities involved  
7 remain a going concern with sufficient credit worthiness to attract capital  
8 needed to maintain and expand their facilities. A utility's duty to serve and  
9 the acceptance of the risk associated with this obligation cannot be  
10 discounted.<sup>6</sup>

11 The assessment of whether the Fair Return Standard has been met requires an examination of  
12 the returns required by investors in comparable risk enterprises. Investors consider whether  
13 there are alternative investment opportunities that would provide a better return for the same  
14 risk. This weighing of alternatives and the highly competitive nature of capital markets causes  
15 stocks and bonds to settle on a price that provides investors with a return that is adequate for  
16 the risks involved. Thus, for any given level of risk, there is a corresponding return that  
17 investors expect in order to take on that risk and not invest their money elsewhere. That return  
18 is referred to as the "opportunity cost" of capital or "investor required" return.

19 In addition to setting the fair return at the "opportunity cost" of capital, a fair return must also  
20 be adequate to maintain the financial integrity of the utility, which requires a return sufficient to  
21 maintain credit metrics such that the utility can maintain a favorable credit rating in order to  
22 minimize debt costs and provide lenders assurance that the company's earnings are adequate to  
23 meet its fixed obligations. Finally, a fair return must be sufficient to attract incremental capital  
24 on reasonable terms and conditions, to the benefit of both investors and customers.

## 25 **B. The Stand-Alone Principle**

26 The Stand-Alone Principle is a finance principle that advocates for investors and companies  
27 selecting investments based on comparisons to other investments of similar risks. In utility  
28 regulation, this principle considers a utility as if it were a stand-alone entity, raising capital on the  
29 merits of its own business and financial characteristics. In this way, capital may be efficiently

---

<sup>6</sup> The Island Regulatory and Appeals Commission, Docket UE20938, Order UE09-02, May 5, 2009, at 15.



1 allocated, with each business segment earning a return based on its own unique set of risks and  
2 business characteristics regardless of affiliations within a holding company structure. In order to  
3 establish a fair return and satisfy the Stand-Alone Principle, the utility must be allowed a return  
4 sufficient to meet all three requirements of the Fair Return Standard on the basis of the utility's  
5 individual merits and risk profile.

6 **C. The Relationship between Capital Structure and ROE**

7 The cost of common equity depends in part on the company's capital structure. The equity ratio  
8 and equity rate of return must therefore be considered together to determine whether the Fair  
9 Return Standard has been met. Other factors being equal, firms with lower common equity  
10 ratios require higher rates of return to compensate shareholders for the risks associated with  
11 higher financial leverage. Consequently, when a regulator approves a capital structure, that  
12 decision impacts the required rate of return on common equity.

13 The risk to the earnings stream of the company is a function of both its business and financial  
14 risk. Business risk refers to the political and regulatory environment that the company operates  
15 within and the operational and competitive forces that could potentially exert pressure on  
16 earnings and cash flows. Financial risk refers to the amount of debt in the utility's capital  
17 structure and the extent to which fixed debt obligations must be met before utility shareholders  
18 receive their returns. Both business and financial risk should be considered when setting the  
19 capital structure.

20 **III. ECONOMIC AND CAPITAL MARKET CONDITIONS**

21 **A. Summary of Current Economic and Capital Market Conditions**

22 **1. Canada**

23 The global economy is comprised of a complex set of interdependent relationships between  
24 countries. It is nearly impossible for a disruption in one major economy not to ripple  
25 throughout the global economy. Beginning with the Canadian outlook, the Bank of Canada (the  
26 "Bank" or the "BOC") noted in its June 2018 Financial System Review that the global economic  
27 expansion has strengthened and broadened across countries. According to the BOC, the  
28 Canadian economy is operating close to its potential. Labour income growth is solid, supporting



households' ability to service their outstanding debt, albeit in an environment of rising global interest rates.<sup>7</sup> The Bank also notes that solid economic growth has led interest rates in Canada and some other advanced economies to rise from historically low levels. Over the past year, yields on U.S. five-year sovereign bonds have risen by as much as 119 basis points and are currently about 95 basis points higher than a year ago. Sovereign yields in Canada have risen a similar amount, contributing to higher bank funding costs.<sup>8</sup>

The Conference Board of Canada ("Conference Board") reports that the Canadian economy is gradually transitioning to more moderate economic growth, as real GDP growth decelerated markedly in the later part of 2017 to a pace of less than 2.00 percent. Economic growth is not expected to improve in Canada over the long term and will average just 1.70 percent from 2017 through 2040. The weakness in business investment over the past few years will continue to weigh on the economy's growth potential. But the main factor slowing the Canadian economy's potential is the country's aging population, which is limiting growth in the labor force and is heavily influencing income and spending patterns.<sup>9</sup>

Bond yields have risen across all maturities and are reflected in higher borrowing rates for businesses and households. The BOC has increased its overnight rate target by 25 basis points four times since July 2017 to 1.50 percent. The BOC observes that while core inflation remains below the 2.00 percent target, it has evolved largely as expected, with a slight increase in both CPI and the Bank's core measures of inflation, consistent with the dissipating negative impact of temporary price shocks and the absorption of economic slack.<sup>10</sup> The BOC is gradually normalizing monetary policy from its accommodative stance of recent years, while continuing to monitor the excess capacity in labor markets and the impact of rising interest rates on household indebtedness in the midst of the Canadian economic recovery.<sup>11</sup>

In the June 2018 Financial System Review, the Bank of Canada identified three financial system vulnerabilities that may pose risks for the Canadian economy:

---

<sup>7</sup> Bank of Canada, Financial System Review, June 2018, at 1.

<sup>8</sup> *Ibid.*

<sup>9</sup> The Conference Board of Canada, "Provincial Outlook Long-Term Economic Forecast 2018," January 19, 2018, at ii.

<sup>10</sup> *Ibid.*

<sup>11</sup> *Ibid.*



- 1 a) Elevated level of household indebtedness: Strong income gains, a significant slowing  
2 in household credit growth and improvements in credit quality have begun to ease the  
3 vulnerability associated with high household indebtedness. But even as conditions  
4 slowly improve, the sheer size of the outstanding debt means that the vulnerability will  
5 likely persist at an elevated level for some time.<sup>12</sup>
- 6 b) Imbalances in the housing market: Housing prices have increased significantly,  
7 especially in Toronto and Vancouver, as employment gains, increased immigration and  
8 low interest rates have boosted demand, while geographic constraints and land use  
9 regulations have limited housing supply. However, the Bank notes that since last year,  
10 declining affordability, tighter mortgage underwriting standards and higher interest  
11 rates have weighed on housing demand and price growth, especially for more  
12 expensive homes.<sup>13</sup>
- 13 c) Cyber threats, operational risks and financial interconnections: According to the BOC,  
14 a successful cyber-attack or other operational incident at a financial institution or  
15 market infrastructure that propagates across the financial system could interrupt the  
16 delivery of crucial financial services. Ongoing collaboration among public and private  
17 stakeholders is therefore crucial to addressing evolving cyber and operational  
18 vulnerabilities.<sup>14</sup>

19 The Bank also identified three key risks to the Canadian financial system: 1) the potential for a  
20 severe nationwide recession leading to a rise in financial stress (this risk is considered “elevated,  
21 but decreasing”); 2) a housing price correction in overheated markets (this risk is considered  
22 “moderate”); and 3) a sharp increase in long-term interest rates driven by higher global risk  
23 premiums (this risk is considered “moderate, but increasing”).<sup>15</sup>

---

<sup>12</sup> Bank of Canada, Financial System Review, June 2018, at 3.

<sup>13</sup> *Id.*, at 9.

<sup>14</sup> *Id.*, at 13.

<sup>15</sup> *Id.*, at 16.



1                    2.    **United States**

2        The U.S. economy continues to grow at a moderate pace. At its June 2018 Federal Open Market  
3        Committee (“FOMC”) meeting, the Federal Reserve raised the federal funds target rate to a  
4        range from 2.00 to 2.25 percent, marking the eighth increase in this short-term rate since  
5        December 2015.<sup>16</sup> In October 2017, the FOMC also started reducing the size of the Federal  
6        Reserve’s \$4.5 trillion bond portfolio by no longer reinvesting the proceeds of the bonds it  
7        holds. In response to the Great Recession, the U.S. Federal Reserve pursued a policy known as  
8        “Quantitative Easing,” in which it systematically purchased mortgage-backed securities and long-  
9        term Treasury bonds to provide liquidity in financial markets and drive down yields on long-  
10       term government bonds. Although the Federal Reserve discontinued the Quantitative Easing  
11       program in October 2014, it continued to reinvest the proceeds from the bonds it holds. Under  
12       the new policy, the FOMC has been gradually reducing the Federal Reserve’s securities holdings  
13       starting at \$10 billion per month in October 2017 and ramping up to \$50 billion per month by  
14       the end of the first twelve months.<sup>17</sup>

15       In the minutes released after the August 2018 FOMC meeting, participants noted a number of  
16       economic fundamentals were supporting continued above-trend economic growth; these  
17       included a strong labor market, stimulative federal tax and spending policies, accommodative  
18       financial conditions, and continued high levels of household and business confidence.<sup>18</sup>  
19       Participants generally expected that further gradual increases in the target range for the federal  
20       funds rate would be consistent with a sustained expansion of economic activity, strong labor  
21       market conditions, and inflation near the Committee’s symmetric 2.00 percent objective over the  
22       medium term.<sup>19</sup> FOMC participants project real GDP growth in the U.S. of 3.10 percent in  
23       2018 and 2.50 percent in 2019, an unemployment rate of 3.70 percent in 2018 and 3.50 percent  
24       in 2019, and core inflation of 2.00 percent in 2018 and 2.10 percent in 2019.<sup>20</sup>

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<sup>16</sup> Federal Reserve Board, press release, March 2018.

<sup>17</sup> Federal Reserve press release, Addendum to the Policy Normalization Principles and Plans, June 14, 2017, implemented at FOMC meeting September 20, 2017.

<sup>18</sup> Minutes of the Federal Open Market Committee meeting, July 31-August 1, 2018, released August 22, 2018, at 8.

<sup>19</sup> *Id.*, at 8.

<sup>20</sup> Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, September 26, 2018.





**B. Projected Bond Yields**

According to Consensus Economics' Long-Term Financial Forecast, shown in Figure 2, Canadian and U.S. 10-year government bond yields are expected to rise gradually to reflect movement towards more normalized monetary policy in the respective economies.

**Figure 2: Long-Term Forecast for 10-Year Government Bond Yields<sup>21</sup>**

|        | 2019 | 2020 | 2021 | 2022 | 2023 | 2024-<br>2028 |
|--------|------|------|------|------|------|---------------|
| Canada | 2.7% | 3.2% | 3.3% | 3.4% | 3.6% | 3.6%          |
| U.S.   | 3.2% | 3.5% | 3.5% | 3.6% | 3.6% | 3.7%          |

**C. Changes in Capital Markets since 2015**

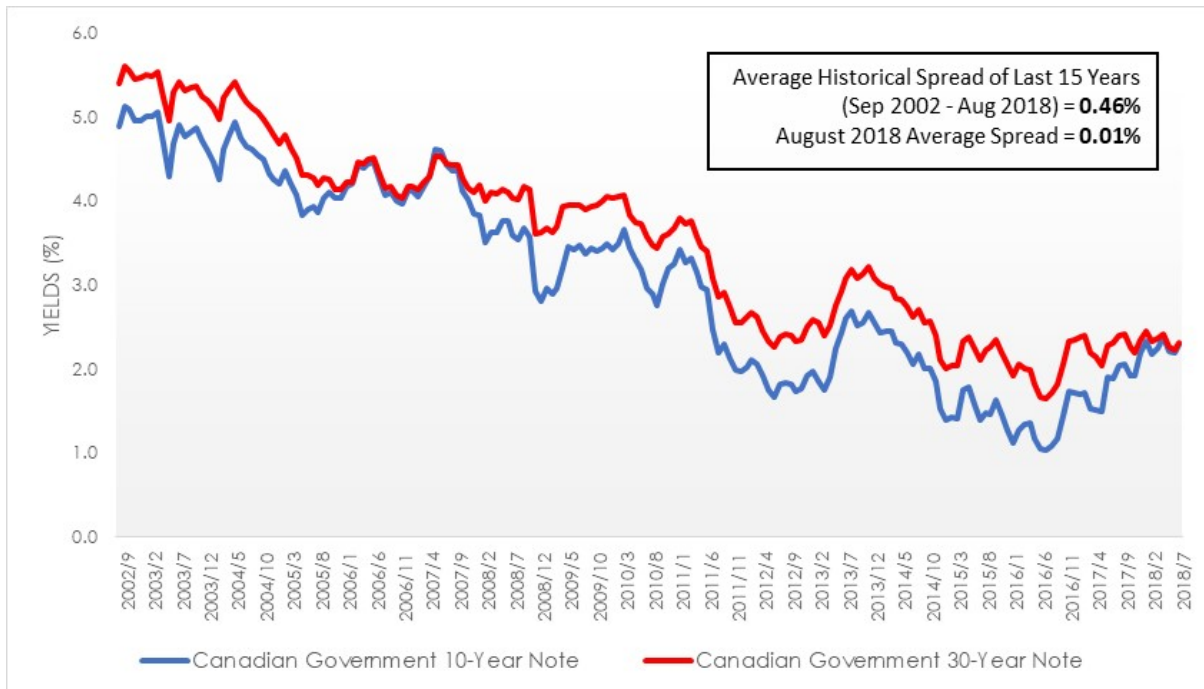
Since Maritime Electric filed its last General Rate Application ("GRA") in October 2015, monetary policy in both Canada and the U.S. has become more restrictive. Increases in both short-term and long-term interest rates on government bonds have resulted in both countries. As shown in Figure 3, the yield on 10-year Canadian government bonds increased from 1.47 percent in October 2015 to 2.30 percent in August 2018, while the yield on longer-term 30-year Canadian government bonds increased from 2.26 percent to 2.31 percent over this same period. Spreads between 10-yr and 30-yr Canadian government bonds decreased from 80 bps in October 2015 to 1 bp in August 2018, well below the historical average of 46 bps from 2002-2018 as the yield curve has flattened. Figure 3 also shows that government bond yields are beginning a transition to more normal levels from all-time lows that reflected the prolonged Quantitative Easing that occurred in both Canada and the U.S. following the global financial and economic crisis.

<sup>21</sup> Consensus Forecasts by Consensus Economics Inc., Survey Date April 12, 2018, at 3 and 28.





Figure 3: Canadian Government Bond Yields - 10-Year and 30-Year<sup>22</sup>

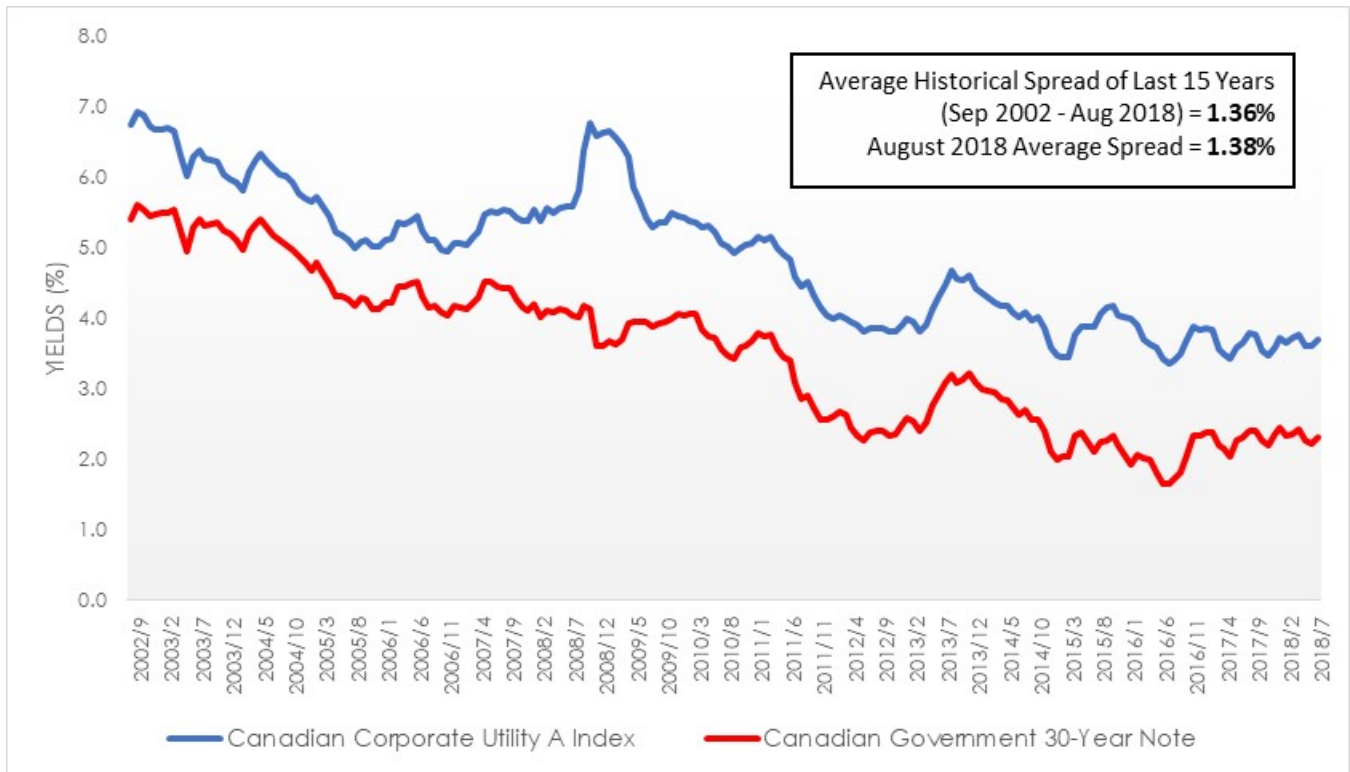


Yields on corporate bonds have declined since October 2015, despite the increase in long-term government bond yields. As Figure 4 illustrates, the Canadian Utility “A” rated bond yield index was 4.14 percent in October 2015 compared to 3.70 percent in August 2018, a decrease of 44 basis points.

<sup>22</sup> Source: Bloomberg series GCAN10YR and GCAN30YR as of August 31, 2018.



Figure 4: Canadian Utility “A” Rated Bond vs. 30-Year Canada Long Bond<sup>23</sup>

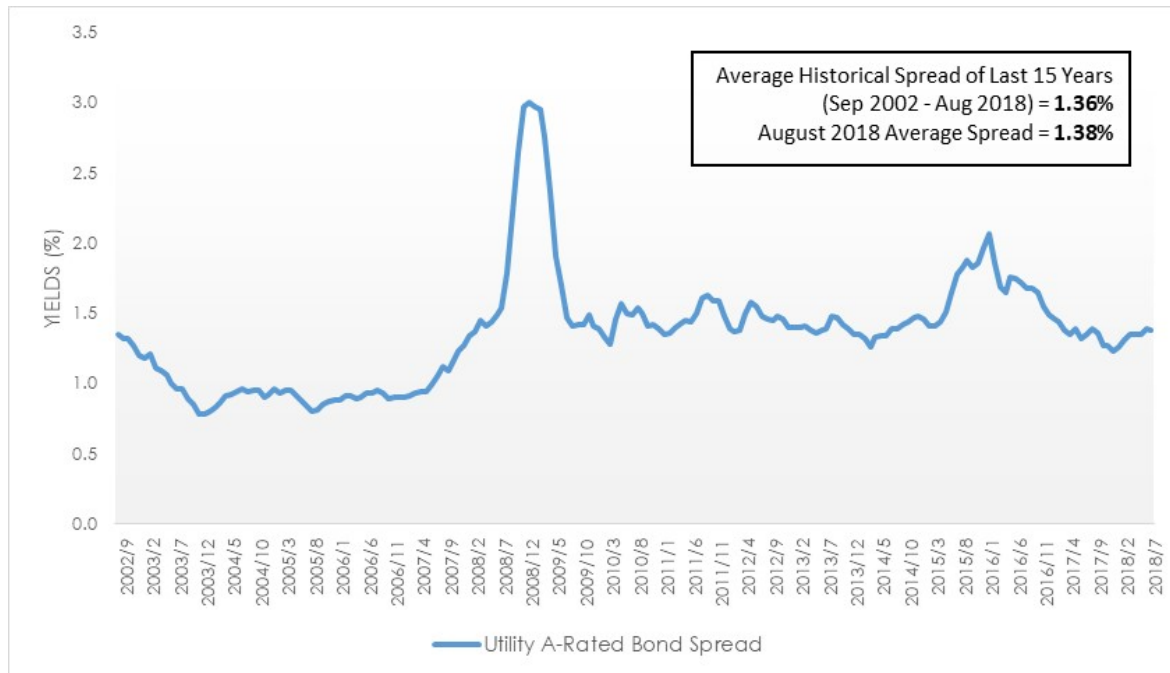


Credit spreads are a measure of the difference between the yields of different securities. These are typically expressed as a spread between bonds of the same maturity, but different quality in terms of risk. As shown in Figure 5, the Canadian Utility “A” rated spread over 30-year government bonds was 1.88 percent in October 2015 versus 1.38 percent in August 2018, a decrease of 50 basis points, indicating a return of the credit spread to average historical levels (1.36 percent from September 2002 through August 2018).

<sup>23</sup> Source: Bloomberg series C29530Y and GCAN30YR as of August 31, 2018.



Figure 5: Canadian Utility “A” Rated Bond Spread vs 30-Year Canada Long Bond<sup>24</sup>



Accompanying the increase in government bond yields, capital market conditions have generally improved in Canada and the U.S. since October 2015. Capital markets continue to recover from the global economic crisis of 2008-2009, but the pace of economic recovery has been slow and a number of unknowns, particularly with respect to U.S. trade policy, still loom on the horizon. Figure 6 provides a snapshot of key market indicators for the S&P/TSX Composite Index,<sup>25</sup> the S&P/TSX Utilities Index,<sup>26</sup> and the S&P/TSX 60 Index.<sup>27</sup> The S&P/TSX Composite, the S&P/TSX Utilities Index and the S&P/TSX 60 price indices have all increased since October 2015; trailing price-to-earnings ratios have decreased for the TSX Composite Index and TSX 60, but have increased for the TSX Utilities Index; dividend yields for all three indices are approximately the same in August 2018 as in October 2015. Over this same period, the 10-year median government bond yield increased from 1.46 percent to 2.30 percent. With the increase in

<sup>24</sup> Source: Bloomberg series C29530Y and GCAN30YR as of August 31, 2018.

<sup>25</sup> The S&P/TSX Composite is a broad market index, comprised of the largest companies on the Toronto Stock Exchange (measured by market capitalization). The companies listed in this index comprise approximately 70 percent of the market capitalization for all Canadian companies listed on the TSX.

<sup>26</sup> The S&P/TSX Utilities Index is comprised of 16 companies with concentration in the Canadian utilities sector.

<sup>27</sup> The S&P/TSX 60 is a stock market index of 60 large companies on the Toronto Stock Exchange, which exposes investors to ten industry sectors.



government bond yields and the generally steady level of equity dividend yields, the ratio of dividend yields to government bonds (D/Y ratio) has decreased from 2.2X to 1.3X for the S&P/TSX; from 3.2 to 2.2X for the S&P/TSX Utilities; and from 2.1X to 1.3X for the S&P/TSX60. This shows that investors now have alternative options for low risk investments, as government bond yields compete more effectively with utility dividend yields.

**Figure 6: TSX Market Indicators<sup>28</sup>**

|                                            | <b>October 2015<br/>Median</b> | <b>August 2018<br/>Median</b> |
|--------------------------------------------|--------------------------------|-------------------------------|
| <b><u>S&amp;P/ TSX Composite Index</u></b> |                                |                               |
| Price Index                                | 13,829.0                       | 16,330.9                      |
| Earnings per Share                         | \$788.0                        | \$1,037.1                     |
| Trailing P/E                               | 22.7                           | 17.8                          |
| Dividend Yield                             | 3.1%                           | 2.9%                          |
| Long Term Growth Rate                      | 9.2%                           | 7.3%                          |
| D/Y Ratio                                  | 2.2                            | 1.3                           |
| <b><u>S&amp;P/ TSX Utilities Index</u></b> |                                |                               |
| Price Index                                | 1,879.8                        | 1,989.4                       |
| Earnings per Share                         | \$82.9                         | \$100.9                       |
| Trailing P/E                               | 25.7                           | 31.8                          |
| Dividend Yield                             | 4.7%                           | 5.1%                          |
| Long Term Growth Rate                      | N/A                            | N/A                           |
| D/Y Ratio                                  | 3.2                            | 2.2                           |
| <b><u>S&amp;P/ TSX 60 Index</u></b>        |                                |                               |
| Price Index                                | \$811.9                        | 971.7                         |
| Earnings per Share                         | \$49.3                         | \$64.2                        |
| Trailing P/E                               | 20.1                           | 16.5                          |
| Dividend Yield                             | 3.1%                           | 3.0%                          |
| Long Term Growth Rate                      | 8.9%                           | 7.1%                          |
| D/Y Ratio                                  | 2.1                            | 1.3                           |
| <b>10-Year Canada Bond Yield</b>           | <b>1.46%</b>                   | <b>2.30%</b>                  |

Source: Data from Bloomberg

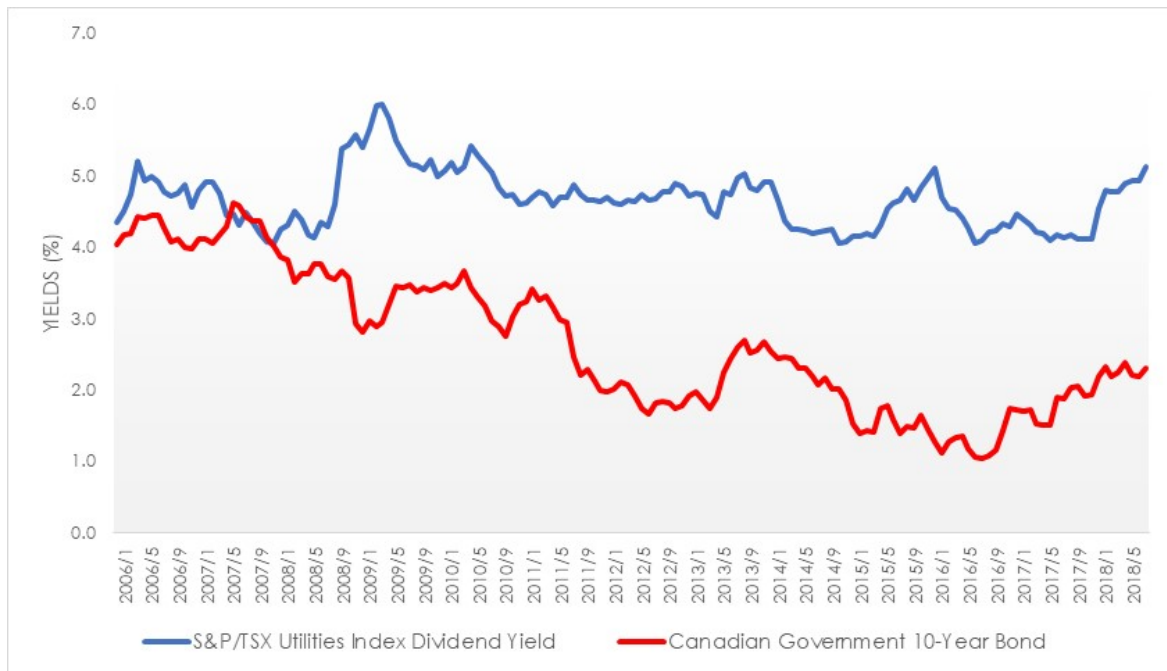
Historically, utility dividend yields and government bond yields have enjoyed a relatively high degree of correlation. Since the global recession in 2008-2009, however, these yields have separated, as shown in Figure 7. One interpretation is that investors are expecting higher

<sup>28</sup> A long-term growth rate for the TSX Utilities Index is not available from Bloomberg.



government bond yields in the future, so rather than take the risk of rising rates diminishing the value of government bonds, they have favored a low-risk substitute—utility stocks. That trend has begun to turn, although the pre-Great Recession parity in yields has not been restored.

**Figure 7: S&P/TSX Utilities Index Dividend Yield vs. 10-Year GOC Bond Yields<sup>29</sup>**



In summary, the global economy is stronger today than it was in October 2015, and this strength is reflected in higher stock prices and rising interest rates. Expectations for GDP growth and inflation are both increasing over the near to medium term. Equity valuations have increased, reflecting greater investor confidence in earnings growth as the broader economy continues to recover. As indicated previously, the expectation is that tighter monetary policy and stronger economic growth in the next several years will lead to higher interest rates in both Canada and the U.S. Financial markets reflect earnings growth optimism through higher valuations, but rising interest rates could jeopardize these valuations, especially for interest rate sensitive sectors such as utilities. The cost of capital is a prospective construct and requires a forward-looking analysis as I present in the following sections. There is little doubt that interest rates and bond

<sup>29</sup> Source: Bloomberg Series STUTILX and GCAN10YR as of August 31, 2018.



1 yields have reached a low and now are on an upward trajectory; this must be accounted for in  
2 the required equity return.

#### 3 **D. Integration of Canadian and U.S. Capital Markets**

4 In a world of increasingly linked economies and capital markets, investors seek returns from a  
5 global basket of investment options. Investors distinguish between risks on a country-to-  
6 country basis, factoring in the comparability of the economic and business environments.

7 Country-specific economic and business conditions that affect investment risk can be measured  
8 through a variety of qualitative and quantitative metrics. One such measure, produced by the  
9 Economist Intelligence Unit (affiliated with the *Economist* magazine), ranks the world's largest  
10 economies based on a range of factors impacting the business environment. According to the  
11 report:

12 The business rankings model measures the quality or attractiveness of the  
13 business environment in the 82 countries covered by *The Economist Intelligence*  
14 *Unit's Country Forecast* reports. It is designed to reflect the main criteria used  
15 by companies to formulate their global business strategies, and is based not  
16 only on historical conditions but also on expectations about conditions  
17 prevailing over the next five years...

18 ... The business rankings model examines ten separate criteria or categories,  
19 covering the political environment, the macroeconomic environment, market  
20 opportunities, policy towards free enterprise and competition, policy towards  
21 foreign investment, foreign trade and exchange controls, taxes, financing, the  
22 labor market and infrastructure. Each category contains a number of  
23 indicators that are assessed by the Economist Intelligence Unit for the last  
24 five years and the next five years. The number of indicators in each category  
25 varies from five (foreign trade and exchange regimes) to 16 (infrastructure),  
26 and there are 91 indicators in total. Each of the 91 indicators is scored on a  
27 scale from 1 (very bad for business) to 5 (very good for business).<sup>30</sup>

28 The business environment ranks are updated annually in individual country forecasts. Based on  
29 the most recent update, which provides the projected 2017-2021 rank for 82 countries, the  
30 business environments of Canada and the U.S. are ranked third and fourth, respectively, over the

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<sup>30</sup> The Economist Intelligence Unit "Business Environment Rankings; Which country is best to do business in?"  
Economist Intelligence Unit Limited 2014, at 8.



1 projected five years.<sup>31</sup> This suggests that from a business investment perspective, Canada and  
2 the U.S. are highly comparable in a global context.

3 The magnitude and significance of trade between the two countries reflects the high degree of  
4 integration between the two economies. For example, in 2017, 74.70 percent of Canada's total  
5 exports went to the U.S., and imports from the U.S. accounted for 64.60 percent of Canada's  
6 total imports.<sup>32</sup>

7 Exhibit JPT-1 presents several measures that reflect the overall economic and investment  
8 environment in Canada and the U.S. The first measure compares the returns to investors from  
9 the S&P/TSX and S&P 500 stock indices. From 1993 through 2017, the average annual total  
10 return on the S&P/TSX for was 9.99 percent compared to 10.97 percent for the S&P 500.  
11 Returns for the period have been highly correlated<sup>33</sup> at 0.68, moving together for the most part.  
12 Turning to utility stock indices, U.S. utility returns have typically shown a close historical  
13 relationship to Canadian utility returns over the last 25 years, with U.S. utility returns exceeding  
14 the Canadian returns by approximately 61 bps for the entire period. In the most recent five  
15 years, however, the difference has grown to 574 bps, primarily due to one extraordinary year in  
16 the U.S. These returns are also positively correlated at a coefficient of 0.58 for the 25-year  
17 period.

18 Exhibit JPT-1 also shows that the correlation between real GDP growth rates in the two  
19 countries is strong, as is the correlation between the consumer price indices, indicating that these  
20 metrics tend to move together over time. Over the 25-year period, real GDP growth has  
21 averaged 2.56 percent in Canada and 2.49 percent in the U.S., while consumer inflation has

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<sup>31</sup> See:  
<http://country.eiu.com/article.aspx?articleid=965872080&Country=Canada&topic=Business&subtopic=Business+environment&subsubtopic=Rankings+overview> and  
<http://country.eiu.com/article.aspx?articleid=75451591&Country=United%20States&topic=Business&subtopic=Business+environment&subsubtopic=Rankings+overview>.

<sup>32</sup> Source: Statistics Canada, Imports, exports and trade balance of goods on a balance-of-payments basis, by country or country grouping, updated 5.3.2018 at <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/gblec02a-eng.htm>.

<sup>33</sup> Correlation measures the strength of the linear relationship. Two variables moving along identical paths in the same direction will have a correlation of 1.0; if the two variables move in perfectly opposite directions, they will have a correlation coefficient of -1.0; and if they exhibit no signs of a linear relationship, the two variables will have a correlation coefficient of 0.





1 averaged 1.78 percent in Canada and 2.26 percent in the U.S. Unemployment rates over the 25-  
2 year period have been higher in Canada (7.72 percent vs. 5.91 percent in the U.S.), as correlation  
3 in employment rates between the two countries is lower than other macroeconomic indicators at  
4 0.31.

5 Average yields on 10-year government bonds have been similar in Canada and the U.S. Over the  
6 past decade, the yield on the 10-year Canadian government bond averaged 2.38 percent, while  
7 the yield on the 10-year U.S. Treasury bond averaged 2.58 percent. The 5-year averages for the  
8 Canadian and U.S. 10-year government bonds are 1.81 percent for Canada and 2.23 percent for  
9 the U.S. The average yield on 10-year government bonds for 2017 was 1.80 percent in Canada  
10 and 2.30 percent in the U.S. The correlation between average yields on 10-year government  
11 bonds in Canada and the U.S. since 1990 has been strong at 0.98. Correlations of this degree are  
12 reflective of closely-integrated financial markets. As shown on Exhibit JPT-1, 30-year  
13 government bond yields are also highly correlated between Canada and the U.S., at 0.99.

14 On balance, the economic and business environments of Canada and the U.S. are highly-  
15 integrated and exhibit strong correlation across a variety of metrics, including GDP growth and  
16 government bond yields. From a business risk perspective, including overall business  
17 environment and competitiveness, Canada and the U.S. are ranked closely when compared  
18 against other developed and developing countries. Based on these macroeconomic indicators,  
19 there are no fundamental dissimilarities between Canada and the U.S. (in terms of economic  
20 growth, inflation, or government bond yields) that would cause a reasonable investor to have a  
21 materially different return expectation for a group of comparable risk utilities in the two  
22 countries. My cost of capital analysis is framed by the conclusion that Canada and the U.S. have  
23 comparable macroeconomic and investment environments. I therefore consider both Canadian  
24 and U.S. proxy companies for my analysis.

#### 25 **IV. SELECTION OF PROXY COMPANIES**

26 Since the ROE is a market-based concept and given the fact that Maritime Electric is not  
27 publicly-traded, it is necessary to establish a group of companies that is both publicly-traded and  
28 comparable to Maritime Electric's business and financial risk characteristics to serve as its  
29 "proxy" for purposes of estimating the cost of equity. Even if Maritime Electric's regulated





electric utility operations made up the entirety of a publicly-traded entity, transitory events could bias that entity's market value in one way or another over a given period. A significant benefit of using a proxy group is that it mitigates the effects of company-specific events that may be transitory in nature. The proxy companies used in my ROE analyses each possess business and financial risk profiles similar to Maritime Electric's regulated electric utility operations, and thus provide a reasonable basis for the derivation and assessment of ROE and capital structure estimates.

I developed three proxy groups for the ROE analysis. The first proxy group is comprised of publicly-traded, regulated Canadian electric and natural gas utility companies. Recognizing there are very few publicly-traded companies in the utility sector in Canada, the only screening criterion was an investment grade credit rating, which all companies in the sector have. Fortis, Inc. was excluded from the Canadian proxy group because it is the parent company of Maritime Electric. TransCanada was excluded due to the risk profile of the TransCanada Mainline, which arguably presents more risk than regulated electric utility operations. AltaGas was excluded because it recently completed the acquisition of WGL Holdings. The following four companies comprise the Canadian proxy group:

**Figure 8: Canadian Proxy Group**

| Company                    | Ticker |
|----------------------------|--------|
| Canadian Utilities Limited | CU     |
| Emera, Inc.                | EMA    |
| Enbridge, Inc.             | ENB    |
| Valener                    | VNR    |

The second proxy group is comprised of U.S. electric utility companies that investors would consider as generally comparable in risk to Maritime Electric. To obtain companies of comparable risk, I applied a number of screens to develop a group of companies that is primarily engaged in the provision of regulated electric utility service. Starting with the 40 companies that Value Line classifies as Electric Utilities, I screened for companies that meet the following criteria:



- a) Credit ratings of at least BBB+ from S&P or Baa1 from Moody's;
- b) Consistently pay quarterly cash dividends, with no recent reductions or omissions of the dividend payment;
- c) Positive earnings growth rate forecasts from at least two sources;
- d) At least 70.00 percent of operating income derived from regulated operations in the period from 2015-2017;
- e) At least 90.00 percent of regulated operating income derived from electric utility service in the period from 2015-2017; and
- f) Not involved in a merger or other significant transformative transaction during the evaluation period.

The following U.S. electric utility companies met these screening criteria:

**Figure 9: U.S. Electric Proxy Group**

| Company                         | Ticker |
|---------------------------------|--------|
| ALLETE, Inc.                    | ALE    |
| Alliant Energy Corp.            | LNT    |
| American Electric Power Company | AEP    |
| Duke Energy Corporation         | DUK    |
| Edison International, Inc.      | EIX    |
| Eversource Energy               | ES     |
| OGE Energy Corporation          | OGE    |
| Pinnacle West Capital Corp.     | PNW    |
| PNM Resources, Inc.             | PNM    |

The third proxy group is comprised of all nine U.S. electric utilities in Figure 9 plus the two Canadian investor-owned utilities that are primarily engaged in the provision of electricity (Canadian Utilities Limited and Emera). This group is referred to as the North American Electric proxy group shown in Figure 10.



**Figure 10: North American Electric Proxy Group**

| Company                         | Ticker |
|---------------------------------|--------|
| ALLETE, Inc.                    | ALE    |
| Alliant Energy Corp.            | LNT    |
| American Electric Power Company | AEP    |
| Canadian Utilities Limited      | CU     |
| Duke Energy Corporation         | DUK    |
| Edison International, Inc.      | EIX    |
| Emera, Inc.                     | EMA    |
| Eversource Energy               | ES     |
| OGE Energy Corporation          | OGE    |
| Pinnacle West Capital Corp.     | PNW    |
| PNM Resources, Inc.             | PNM    |

Exhibit JPT-2 provides additional details on the proxy group screening process.

The development of a proxy group comprised entirely of Canadian electric utilities is compromised by the small number of publicly-traded utilities in Canada and by the fact that many of those Canadian companies derive a significant percentage of revenues and net income from operations other than regulated electric utility service. This problem has been exacerbated by the continuing trend toward mergers and acquisitions in the utility industry, both within Canada and across the border with U.S. utility holding companies. For these reasons, many utility regulators across Canada have accepted the use of U.S. data and proxy groups to estimate the allowed ROE for Canadian regulated utilities primarily due to the lack of sufficient Canadian data, and in recognition of the need for Canadian utilities to compete for capital in a global marketplace. The NEB, the BCUC, the OEB, the Alberta Utilities Commission and the Régie de L'Energie (Quebec) have all placed some weight on U.S. data and proxy groups for purposes of establishing the allowed ROE and common equity ratio for Canadian electric and gas



1 utilities.<sup>34</sup> In summary, multiple regulatory authorities in Canada have recognized that Canadian  
2 utility companies are competing for capital in global financial markets and that Canadian data are  
3 limited by the small number of publicly-traded utilities. Canadian regulators have also  
4 recognized the integrated nature of Canadian and U.S. financial markets, and the similarity of the  
5 utility regulatory regimes.

## 6 V. METHODS FOR ESTIMATING THE COST OF EQUITY

### 7 A. Financial Models to Estimate the Cost of Equity

8 Multiple approaches have been developed to estimate the cost of common equity. These  
9 financial models rely on market-based data to quantify investor expectations regarding required  
10 equity returns, adjusted for certain incremental costs and risks. Quantitative models produce a  
11 range of results from which the market-required cost of equity is determined. The  
12 methodologies used to estimate the cost of common equity should reflect investors' forward-  
13 looking views of financial markets in general, and the risk profile of the subject company relative  
14 to the proxy group in particular.

15 No financial model can exactly pinpoint the correct return on equity. Rather, each model brings  
16 its own perspective and set of inputs and assumptions that inform the estimate of the ROE.  
17 Consistent with the *Hope* standard, it is "the result reached, not the method employed, which is  
18 controlling."<sup>35</sup> Although each model brings a different perspective and adds depth to the  
19 analysis, each model also has its own inherent weaknesses and should not be relied upon  
20 individually without corroboration from other approaches. Regardless of which analyses are  
21 used to estimate the investor's required cost of equity, the analyst must apply informed judgment  
22 to assess the reasonableness of results and to determine the appropriate weight to apply to  
23 results under current and prospective capital market conditions.

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<sup>34</sup> National Energy Board, Reasons for Decision, TQM RH-1-2008 (March 2009), at 66-72; British Columbia Utilities Commission, In the Matter of FortisBC Energy Inc. Application for its Common Equity Component and Return on Equity for 2016, Decision and Order G-129-16, August 10, 2016, at 52-53; Ontario Energy Board, EB-2009-0084, Report of the Board on the Cost of Capital for Ontario's Regulated Utilities, December 11, 2009, at 23; Alberta Utilities Commission 2018 Generic Cost of Capital August 2, 2018, at paragraph [275], and English translation of Régie de l'Energie, Decision 2009-156 (R-3690-2009), Gaz Metro, December 7, 2009, at paragraph [249].

<sup>35</sup> See *Hope Natural Gas v. Federal Power Commission*.



### 1. Discounted Cash Flow (“DCF”) Model

The premise underlying the DCF model is that investors value a given investment according to the present value of its expected future cash flows over time. The standard DCF model is shown in Formula [1]:

$$P = \frac{D_0(1+g)^1}{(1+r)^1} + \frac{D_1(1+g)^2}{(1+r)^2} + \dots + \frac{D_{n-1}(1+g)^n}{(1+r)^n} \quad [1]$$

where:

$P$  = the current stock price

$g$  = the dividend growth rate

$D_n$  = the dividend in year n

$r$  = the cost of common equity.

Assuming a constant growth rate in dividends, the model may be rearranged to compute the ROE, as shown in Formula [2]:

$$r = \frac{D}{P} + g \quad [2]$$

Stated otherwise, the cost of common equity is equal to the dividend yield plus the expected dividend growth rate.

**a. Constant Growth DCF Model Assumptions**

The Constant Growth DCF model requires the following assumptions: (1) a constant average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate. The assumptions of the Constant Growth DCF model are generally reasonable for regulated utility companies, which operate in a mature industry and are characterized by a relatively steady state of earnings and dividend growth.



1                   **b. Dividend Yield**

2           As shown in equation [3], the dividend yield component of the DCF model is calculated as  
3           follows:

$$[3] \quad Y = \frac{D_0(1+0.5g)^1}{P_0}$$

4           One half year's growth rate is applied to the annual dividend rate to account for increases in  
5           quarterly dividends at different times throughout the year. It is reasonable to assume that  
6           dividend increases will be evenly distributed over calendar quarters. This adjustment ensures  
7           that the expected dividend yield is, on average, representative of the coming twelve-month  
8           period and does not overstate the aggregated dividends to be paid during that time.

9           The dividend yields were calculated for each company in the respective proxy groups by dividing  
10          the current annualized dividend by the average stock price for each company for the 30- and 90-  
11          trading days ended August 31, 2018. Those dividend yields are multiplied by one-half the  
12          growth rate to reflect expected future dividend increases.

13                   **c. Growth Rate Estimates**

14          In considering the appropriate growth rate for the DCF model, the projected earnings per share  
15          growth rate from equity analysts is the most reliable indicator of investors' expectations. I have  
16          relied on consensus earnings growth rate estimates from Zacks Investment Research, Thomson  
17          First Call and SNL Financial as of August 31, 2018 for the companies in the respective proxy  
18          groups.

19          Investors typically rely on projected earnings growth rates rather than dividend growth rates for  
20          several reasons. First, although the DCF model is based on the expected growth rate for  
21          dividends, a company's dividend growth is derived from and can only be sustained by earnings  
22          growth. Second, in order to reduce the long-term growth rate to a single measure, as required in  
23          the Constant Growth DCF model, it is necessary to assume a constant payout ratio, and that  
24          earnings per share, dividends per share and book value per share grow at a constant rate. Third,  
25          earnings growth rates are less influenced by dividend decisions that companies may make in



response to near-term changes in the business environment. Finally, analysts' earnings growth forecasts are widely available, whereas dividend and book value growth rates are generally available only from Value Line.<sup>36</sup>

**d. Constant Growth DCF Results**

The Constant Growth DCF results are summarized in Figure 11 (also see Exhibit JPT-3). As shown in that Figure, the Constant Growth DCF analysis produces an average cost of common equity using 90-day average stock prices of 9.41 percent for the Canadian proxy group, 9.26 percent for the U.S. Electric proxy group, and 9.26 percent of the North American Electric proxy group, including an adjustment for flotation costs and financial flexibility.

**Figure 11: Constant Growth DCF Results (including flotation costs)**

| Averaging Period                           | Mean Low | Mean  | Mean High |
|--------------------------------------------|----------|-------|-----------|
| <b>Canadian Proxy Group</b>                |          |       |           |
| 30-day                                     | 7.95%    | 9.32% | 10.75%    |
| 90-day                                     | 8.03%    | 9.41% | 10.84%    |
| <b>U.S. Electric Proxy Group</b>           |          |       |           |
| 30-day                                     | 8.82%    | 9.15% | 9.59%     |
| 90-day                                     | 8.92%    | 9.26% | 9.69%     |
| <b>North American Electric Proxy Group</b> |          |       |           |
| 30-day                                     | 8.81%    | 9.17% | 9.62%     |
| 90-day                                     | 8.90%    | 9.26% | 9.70%     |

The Constant Growth DCF results for the U.S. Electric proxy group and the North American Electric proxy group are both lower than the DCF results for the Canadian proxy group. I do not believe that an adjustment to the U.S. DCF results is required because, as discussed in more detail in Section VI, the U.S. Electric proxy group is more comparable to Maritime Electric than the Canadian proxy group companies, many of which have significant non-electric operations and unregulated operations. Conversely, the U.S. Electric proxy group is comprised of

<sup>36</sup> Value Line is the only publication of which I am aware that projects dividend and book value growth rates. Those estimates represent the Value Line analyst's perspective on dividend and book value growth. In contrast, many of the earnings growth rates that are publicly available are consensus estimates with contributions provided by several analysts.



1 companies that derive almost 100.00 percent of net operating income and operating revenues  
2 from electric utility operations and dedicate almost 100.00 percent of assets to regulated electric  
3 utility service. In addition, a September 2013 report published by Moody's Investors Service  
4 ("Moody's") indicated that the rating agency views the regulatory environment for utilities in the  
5 U.S. as more favorable than it previously believed, primarily due to the increased use of cost  
6 recovery mechanisms and reduced regulatory lag in the U.S. Moody's stated:

7 Based on our observations of trends and events, we propose to adopt a  
8 generally more favorable view of the relative credit supportiveness of the US  
9 utility regulatory environment. Our updated view considers improving  
10 regulatory trends that include the increased prevalence of automatic cost  
11 recovery provisions, reduced regulatory lag, and generally fair and open  
12 relationships between utilities and regulators.<sup>37</sup>

13 On that basis, in February 2014 Moody's upgraded the credit ratings of many U.S. utilities. For  
14 these reasons, I have not adjusted the DCF results for the U.S. Electric proxy group or the  
15 North American Electric proxy group, and do not believe that such an adjustment is warranted.

## 16 2. Multi-Stage DCF Model

17 In order to address some of the limiting assumptions of the Constant Growth DCF model,  
18 some analysts also consider the results of a Multi-Stage DCF Model. The Multi-Stage DCF  
19 model tempers the assumption of constant growth in perpetuity with a three-stage approach  
20 based on near-term, transitional and long-term growth rates. While I present the results of the  
21 Multi-Stage DCF model for the three proxy groups, I place less weight on these results because  
22 my view is that the underlying assumptions of the Constant Growth DCF model are reasonable  
23 and appropriate for companies that are in a period of steady state growth, such as regulated  
24 electric utilities. The Multi-Stage DCF model is more appropriately applied in circumstances  
25 where a company is in a rapid growth stage that cannot be sustained at that same high rate for an  
26 extended time period. In those circumstances, it may be appropriate to apply the Multi-Stage  
27 DCF model using a terminal growth rate based on long-term nominal GDP growth.

---

<sup>37</sup> Moody's Investors Service, "Proposed Refinements to the Regulated Utilities Rating Methodology and Our Evolving View of U.S. Utility Regulation," September 23, 2013, at 1.





The Multi-Stage DCF model transitions from near-term growth (i.e. the average of Zacks, Thomson First Call, and SNL Financial forecasts used in the Constant Growth model) for the first stage (years 1-5) to the long-term forecast of nominal GDP growth for the third stage (years 11-200). The second, or transitional, stage connects near-term growth with long-term growth by changing the growth rate each year on a geometric average basis. In the terminal stage, the dividend cash flow grows in perpetuity at the same rate as nominal GDP. The return on equity is the internal rate of return based on the current stock price and this stream of projected dividend payments.

Nominal GDP growth rates for Canada and the U.S. were developed using data for each country as reported by Consensus Economics, Inc. for the period from 2021-2025. These forecasts are based on real (constant dollar) growth rates and estimates for projected inflation. The inflation estimate was applied to the estimate of real GDP growth to develop the nominal (post-inflation) GDP growth rate. The estimates of nominal GDP growth are summarized in Figure 12.

**Figure 12: Estimates of Nominal GDP Growth <sup>38</sup>**

|                    | Canada | U.S.  |
|--------------------|--------|-------|
| Real GDP Growth    | 1.7%   | 2.1%  |
| Inflation          | 2.0%   | 2.2%  |
| Nominal GDP Growth | 3.73%  | 4.35% |

The Multi-Stage DCF results are summarized in Figure 13 (also see Exhibit JPT-4). As shown in that Figure, the Multi-Stage DCF analysis produces an average cost of common equity using 90-day average stock prices of 10.13 percent for the Canadian proxy group, 8.86 percent for the U.S. Electric proxy group, and 9.03 percent for the North American Electric proxy group, including an adjustment for flotation costs and financial flexibility.<sup>39</sup>

<sup>38</sup> Consensus Forecasts, for 2021-2025, April 13, 2018, at 3 (U.S.) and 28 (Canada).

<sup>39</sup> Based on 90-day average stock prices.



**Figure 13: Multi-Stage DCF Results (including flotation costs)**

| Proxy Group             | 30-Day | 90-Day |
|-------------------------|--------|--------|
| Canadian                | 10.03% | 10.13% |
| U.S. Electric           | 8.74%  | 8.86%  |
| North American Electric | 8.93%  | 9.03%  |

As previously noted, I place less weight on the results of the Multi-Stage DCF analysis.

### **3. Capital Asset Pricing Model (“CAPM”)**

The CAPM approach is based on the relationship between the required return of a security and the systematic risk of that security. As shown in Equation [4], the CAPM is defined by four components, each of which must be a forward-looking estimate:

$$[4] \quad K_e = r_f + \beta(r_m - r_f)$$

where:

$K_e$  = the required ROE for a given security;

$\beta$  = Beta of an individual security;

$r_f$  = the risk-free rate of return; and

$r_m$  = the required return for the market as a whole.

The term  $(r_m - r_f)$  represents the Market Risk Premium (“MRP”).

According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

$$[5] \quad \beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)}$$

where:

$r_e$  = the rate of return for the individual security or portfolio.



The variance of the market return, noted in Equation [5], is a measure of the variability in the general market, and the covariance between the return on a specific security and the market reflects the extent to which the return on that security will respond to a given change in the market return. Thus, Beta represents the risk of the security relative to the market.

**a. Risk Free Rate**

Although government bond yields have increased in recent months as central banks in both Canada and the U.S. have tightened monetary policy, these yields remain well below the historical average. At the same time, investors expect that interest rates will continue to increase over the near to intermediate term. As such, adjustments are necessary to better reflect forward-looking investor expectations about government bond yields. The use of forecast bond yields, as opposed to the current risk-free rate, reflects the current market reality that while bond yields remain lower than the long-term average, investors are factoring higher interest rates into their longer-term expectations and required returns.

My CAPM analysis relies on the 2019 through 2021 average *Consensus Economics* forecast yield of Canadian and U.S. 10-year government bonds (shown in Figure 14) plus the historical spread between 10-year and 30-year government debt. The use of a forecast is appropriate because it provides a forward-looking view of the cost of equity and accounts for expectations of rising interest rates.

**Figure 14: Long-term Forecast for 10-Year Government Bond Yields 2019-2021<sup>40</sup>**

|               | 2019 | 2020 | 2021 | Average      |
|---------------|------|------|------|--------------|
| <b>Canada</b> | 2.7% | 3.2% | 3.3% | <b>3.07%</b> |
| <b>U.S.</b>   | 3.2% | 3.5% | 3.5% | <b>3.40%</b> |

With an average spread between 10-year and 30-year government bond yields of 1 basis point in Canada and 15 basis points in the U.S.,<sup>41</sup> the corresponding longer-term yield on 30-year government bonds over the period 2019 – 2021 is shown in Figure 15.

<sup>40</sup> Consensus Forecasts by Consensus Economics Inc., Survey Date April 12, 2018, at 28 and 3.



**Figure 15: Risk Free Rate**

| <b>30-Year Risk Free Yield</b>                                                            | <b>Canada</b> | <b>U.S.</b>  |
|-------------------------------------------------------------------------------------------|---------------|--------------|
| April 2018 Consensus Forecast Average 2019-2021<br>Forecasts for 10-year government bonds | 3.07%         | 3.40%        |
| Average Daily Spread between 10-year and 30-year<br>government bonds (August 2018)        | 0.01%         | 0.15%        |
| <b>Sum</b>                                                                                | <b>3.08%</b>  | <b>3.55%</b> |

**b. Beta**

The Beta coefficient for the companies in the proxy groups are based on estimates from Value Line and Bloomberg.<sup>42</sup> Value Line publishes Beta estimates for each company based on five years of weekly stock returns and uses the New York Stock Exchange as the market index. Bloomberg produces Beta estimates based on parameters entered by the user. I computed Bloomberg Betas based on five years of weekly stock returns and used the S&P 500 (in the U.S) or the S&P/TSX Composite (in Canada) as the market index. Both Value Line and Bloomberg report adjusted Betas to compensate for the tendency of Beta to revert toward the market average of 1.0 over time. The Betas used in my CAPM analyses are shown in Figure 16.

**Figure 16: Value Line and Bloomberg Betas**

|                               | <b>Value Line</b> | <b>Bloomberg</b> |
|-------------------------------|-------------------|------------------|
| Canadian Group                | N/A               | 0.76             |
| U.S. Electric Group           | 0.69              | 0.57             |
| North American Electric Group | 0.69              | 0.60             |

There are two primary reasons to adjust raw Betas. First, numerous empirical studies have demonstrated that an individual company Beta is more likely than not to move toward the market average of 1.0 over time. Second, adjusting Beta serves a statistical purpose. Because Betas are statistically estimated and have associated error terms, Betas greater than 1.0 tend to have positive estimated errors and thus tend to overestimate future returns. Conversely, Betas below the market average of 1.0 tend to have negative error terms and underestimate future

<sup>41</sup> Historical spreads were calculated using daily bond yields for the 30 days ending August 31, 2018.

<sup>42</sup> I have used Bloomberg betas for the Canadian proxy group and both Value Line and Bloomberg betas for the U.S. proxy group.



returns. Consequently, it is necessary to adjust forecasted Betas toward 1.0 in an effort to improve forecasts.<sup>43</sup> A raw Beta reflects only where the stock price has been relative to the market historically and is an inferior proxy for the expected returns when compared to the adjusted beta.

The Betas in my analysis are also supported by a study conducted for the BCUC by the Brattle Group on cost of capital methodologies, in which Brattle observed:

Beta estimates are provided by many data services for Canadian, American and other traded companies. The most common methodology to estimate betas is to use the most recent five years of weekly or monthly return data. These betas may then be adjusted towards one as an adjustment for sampling reversion that was first identified by Professor Marshall Blume (1971, 1975).<sup>44</sup>

Dr. Blume specifically studied four groups of betas, ranging from a very low Beta group (averaging 0.50, and similar to the utility industry) to a very high Beta group. Dr. Blume found that his adjustment best predicted future Betas for each of the four risk groups over the next seven years. Dr. Blume found that a low Beta portfolio that averaged 0.50 migrated towards the grand mean of all Betas of 1.0 approximately in accordance with the Blume formula. The study makes obvious that Betas migrate towards 1.0 and do indeed exceed their long-term unadjusted averages. Given that the purpose of estimating the CAPM relying on these Beta coefficients is to estimate the forward-looking cost of capital, it is important to reflect a forward view of Beta and its tendency to revert toward the market mean over time.

### **c. Market Risk Premium**

Estimates of the MRP generally fall into two categories, *ex-post* (historical average) and *ex-ante* (forward looking). The historical MRP is based on the arithmetic mean of historical equity market returns over the income only return on long-term government bonds. While the historical MRP is generally reasonable when interest rates on long-term government bonds are near historical average levels, the historical MRP does not accurately reflect the required equity

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<sup>43</sup> Roger A. Morin, *New Regulatory Finance*, at 74.

<sup>44</sup> The Brattle Group (May 31, 2012) – Survey of Cost of Capital Practices in Canada, at 15.



1 risk premium when government bond yields are substantially higher or lower than the historical  
2 average. This is because there is an inverse relationship between interest rates and the equity risk  
3 premium; that is, as interest rates increase (decrease), the equity risk premium decreases  
4 (increases).<sup>45</sup> Given the current low level of interest rates in Canada and the U.S., I have relied  
5 on an average of the historical MRP and the forward-looking MRP in my CAPM analysis.

6 The historical MRP is based on long-horizon equity risk premia data averaged over the longest  
7 period for which data were available from Duff & Phelps for both the U.S. and Canada. In the  
8 U.S., Duff & Phelps reports premia data from 1926-2016, which results in a market risk  
9 premium of 6.94 percent,<sup>46</sup> the arithmetic mean of the premium of the S&P 500 total returns for  
10 large company common stocks over long-term government bond income returns. In Canada,  
11 the longest period for which risk premia data are available from Duff & Phelps is from 1919 –  
12 2016 in Canadian currency, which yielded an equity risk premium of 5.60 percent.<sup>47</sup>

13 The forward-looking MRP is calculated by subtracting the projected risk-free rate for each  
14 country from the estimated total return for the overall market, as calculated using the Constant  
15 Growth DCF method for the companies in the S&P/TSX Composite Index in Canada and the  
16 S&P 500 Index in the U.S. For purposes of this calculation, I excluded companies that do not  
17 pay dividends, companies for which consensus growth rates are not available from Bloomberg,  
18 and companies with negative earnings growth rates. As shown in Exhibits JPT-5 and JPT-6, the  
19 forward-looking MRP is 11.59 percent for Canada and 10.28 percent for the U.S. In my view,  
20 these MRP estimates are reasonable and better reflect the current capital market environment  
21 than the long-term historical average MRP.

22 As shown in Figure 17, the market risk premium I have utilized in my CAPM is 8.60 percent for  
23 Canadian companies and 8.61 percent for U.S. companies. Given the integration of the

---

<sup>45</sup> See e.g., S. Keith Berry, Interest Rate Risk and Utility Risk Premia during 1982-93, *Managerial and Decision Economics*, Vol. 19, No. 2 (March 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates.

<sup>46</sup> Duff and Phelps, 2017 *International Valuation Handbook: Guide to Cost of Capital, Market Results through December 2016 and March 2017*; United States Long-Horizon Equity Risk Premia in U.S. Dollars, Data Exhibit 1-52.

<sup>47</sup> *Ibid.*, Canada Long-Horizon Equity Risk Premia in Canadian Dollars, Data Exhibit 1-9.



Canadian and U.S. economies and financial markets, these market risk premiums are reasonable and there is no reason to expect a divergence in market risk premiums going forward.

**Figure 17: Market Risk Premium Values**

|                     | Canadian MRP | U.S. MRP |
|---------------------|--------------|----------|
| Historical MRP      | 5.60%        | 6.94%    |
| Forward-looking MRP | 11.59%       | 10.28%   |
| Average             | 8.60%        | 8.61%    |

**d. CAPM Results**

The results of the CAPM analysis, including flotation costs, are shown in Figure 18 and in Exhibit JPT-7.

**Figure 18: CAPM Results (including flotation costs)**

|                         | Mean Result |
|-------------------------|-------------|
| Canadian                | 10.13%      |
| U.S. Electric Utilities | 9.47%       |
| North American Electric | 9.56%       |

**4. Flotation Costs and Financing Flexibility**

It is common practice for Canadian regulators to allow an adjustment for flotation costs and financing flexibility in order to compensate the equity holder for the costs associated with the sale of new issues of common equity. These costs include out-of-pocket expenditures for the preparation, filing, underwriting and other costs of issuance of common equity including the costs of financial flexibility such that there is adequate cushion to raise equity in a variety of capital market conditions. Because the purpose of the allowed rate of return in a regulatory proceeding is to estimate the cost of capital the regulated company would incur to raise money in the “primary” markets, an estimate of the returns required by investors in the “secondary”



1 markets must be adjusted for flotation costs in order to provide an estimate of the cost of capital  
2 that the regulated company requires. I have adjusted the DCF and CAPM results upwards by 50  
3 basis points for flotation costs and financing flexibility.

4 **B. Comparison to Other Authorized ROEs and Earned ROEs**

5 Investors consider authorized ROEs for other investor-owned electric utilities in Canada and the  
6 U.S. as a relevant benchmark for purposes of establishing their return expectations. Given the  
7 “opportunity cost” concept underlying a fair return, this is reasonable and appropriate because  
8 an investor would allocate capital to a higher return for the same level of risk, if available. As  
9 shown in Figure 19, the average allowed ROE for Canadian investor-owned electric utilities was  
10 8.74 percent (2017) and 8.78 percent (2018), while in the U.S., the average allowed ROE for  
11 electric utilities in 2017 and 2018 was 9.80 percent and 9.70 percent, respectively. Furthermore,  
12 Figure 19 shows that the actual earned ROE for the investor-owned electric utilities in Canada in  
13 2017 was 10.12 percent. This variation between the allowed and earned ROE is due to the fact  
14 that other investor-owned electric utility companies in Canada do not have a hard cap on the  
15 authorized ROE (as Maritime Electric does), but rather are allowed to earn above the authorized  
16 ROE either within a specified band or without any specific limitations. Several of these  
17 companies also operate under incentive rate programs specifically allowing for both upside and  
18 downside earnings risk.





1

**Figure 19: Allowed ROEs and Earned ROEs**

|                                    | 2017<br>Allowed<br>ROE | 2017<br>Earned<br>ROE | 2018<br>Allowed<br>ROE |
|------------------------------------|------------------------|-----------------------|------------------------|
| <b>Maritime Electric</b>           | 9.35%                  | 9.35%                 | 9.35%                  |
| <b>Canadian Electric Utilities</b> |                        |                       |                        |
| Nova Scotia Power                  | 9.00%                  | 9.25%                 | 9.00%                  |
| Newfoundland Power Inc.            | 8.50%                  | 8.93%                 | 8.50%                  |
| FortisOntario Inc.                 | 8.78%                  | 10.70%                | 9.00%                  |
| ATCO Electric Distribution         | 8.50%                  | 13.21%                | 8.50%                  |
| FortisAlberta Inc.                 | 8.50%                  | 9.32%                 | 8.50%                  |
| FortisBC Inc.                      | 9.15%                  | 9.31%                 | 9.15%                  |
| <b>Average</b>                     | <b>8.74%</b>           | <b>10.12%</b>         | <b>8.78%</b>           |
| <b>U.S. Utilities<sup>48</sup></b> |                        |                       |                        |
| Electric Utilities                 | 9.80%                  | N/A                   | 9.70%                  |

2 Turning to electric utilities in the Atlantic region, the current allowed ROE for Nova Scotia  
3 Power is 9.00 percent on 37.50 percent common equity, and for Newfoundland Power is 8.50  
4 percent on 45.00 percent common equity. The Commission has previously considered this  
5 information relevant in setting the allowed ROE and equity ratio for Maritime Electric.<sup>49</sup>

6 In terms of relative generation risk, Maritime Electric has somewhat more generation risk than  
7 Newfoundland Power, which purchases approximately 93.00 percent of its electricity supply  
8 from Newfoundland and Labrador Hydro while generating the remaining 7.00 percent from  
9 company-owned hydro-electric plants, primarily for peaking purposes. Nova Scotia Power owns  
10 substantial generation assets and has higher generation risk than Maritime Electric. Maritime  
11 Electric is more risky than electric utilities in Ontario and Alberta because Maritime Electric  
12 owns generation assets, while electric utilities in those provinces do not. The generation  
13 function is generally regarded by investors as having greater risk than electric transmission or  
14 distribution. The Commission has previously accepted that Maritime Electric, with its

<sup>48</sup> Source: SNL Financial. Figures are from January 1, 2017 through August 31, 2018.

<sup>49</sup> The Island Regulatory and Appeals Commission, Docket UE20940, Order UE10-03, July 12, 2010, at paragraph [101].



responsibilities for electricity supply, is different than Ontario's electric distribution utilities, and the Commission has stated that it "views this difference as significant."<sup>50</sup> Furthermore, the Commission has stated that it "views Maritime Electric as higher risk than the benchmark BC utility and FortisBC due to a variety of factors such as utility size, nature of operations, economic climate within which it operates, and regulatory risk factors."<sup>51</sup>

## **VI. RISK ASSESSMENT**

Concentric examines risk from two primary perspectives: (1) business risk; and (2) financial risk. Business risk for a regulated utility encompasses both operational risk (e.g., economy of service territory, weather conditions, geographical diversity and size of service territory, etc.) and regulatory risk (e.g., opportunity for timely recovery of prudently-incurred costs). Financial risk primarily relates to the risk associated with the way in which a company finances its business, as evidenced by the relative percentages of debt and equity in the capital structure. To the extent a company is more highly leveraged, it requires higher net income to cover its fixed interest obligations, which must be paid before there is any net income for shareholders. Taken together, business and financial risk are the primary elements of investment risk that investors consider when establishing their return requirements.

In each risk category, Concentric further considers three perspectives:

- a) Assessment of the business risk profile of Maritime Electric based on the macroeconomic and business environment of its service area;
- b) Comparison of the business risk profile of Maritime Electric against both the Canadian and U.S. peer groups; and
- c) Comparison of the financial risk profile of Maritime Electric against these same comparators.

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<sup>50</sup> *Id.*, at paragraph [99].

<sup>51</sup> *Id.*, at paragraph [104].



1           **A. Business Risk of Maritime Electric**

2           In order to assess the business risk of Maritime Electric, I considered the following factors: 1)  
3           the small size of Maritime Electric relative to other electric utilities in Canada and the U.S.; 2)  
4           macroeconomic and demographic trends on Prince Edward Island, as well as Canada generally;  
5           3) operating risks within the Company's service territory, including power supply risks and the  
6           prevalence of severe weather conditions; 4) the existence of deferral and variance accounts that  
7           protect the Company against risks from events that are material in nature and beyond the  
8           control of utility management; and 5) risks related to competition from alternative fuel sources.

9           **1. Small Size**

10          Maritime Electric is significantly smaller than other electric utilities in the Canadian and U.S.  
11          proxy groups, both in terms of retail electric customers and net property, plant and equipment,  
12          as shown in Figures 20 and 21 which measure these metrics at the operating company level. The  
13          Commission has previously recognized that the small size of Maritime Electric makes it more  
14          risky than other electric utilities in Canada.<sup>52</sup> This finding has been used to support an above  
15          average ROE. Nothing has changed in this regard since the Company's 2015 GRA filing.  
16          Further, recent changes to the Electric Power Act require Maritime Electric to maintain a lower  
17          common equity ratio of at least 35.00 percent but not to exceed 40.00 percent, which  
18          contributes to greater financial risk. The small size of Maritime Electric could support an equity  
19          ratio higher than the upper limit of 40.00 percent allowed by the statute and/or an allowed ROE  
20          above the mean for the proxy groups.

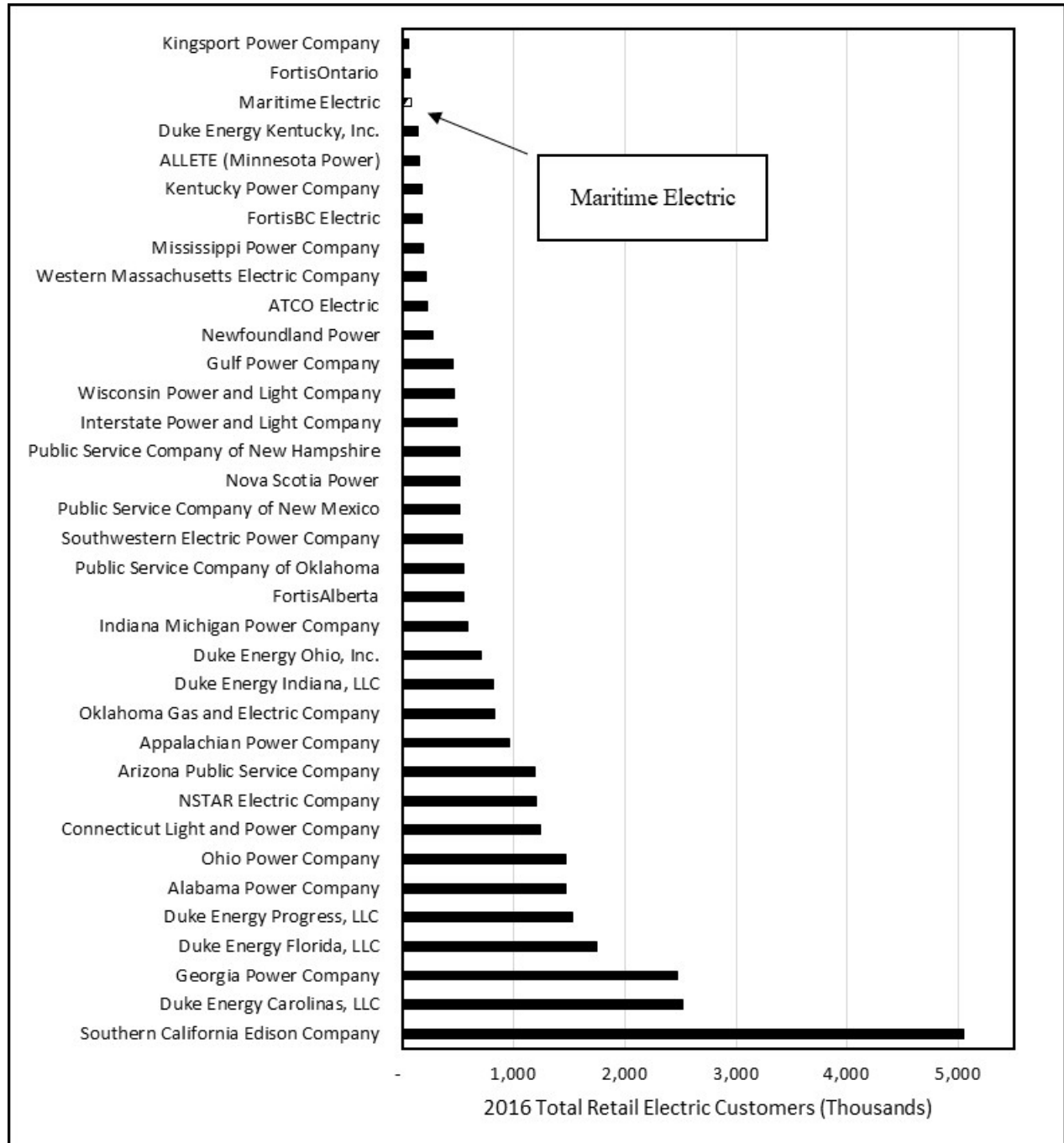
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<sup>52</sup> Island and Regulatory Appeals Commission, Docket UE 20934, Order UE06-03, at paragraph [28].



Figure 20: Small Size of Maritime Electric

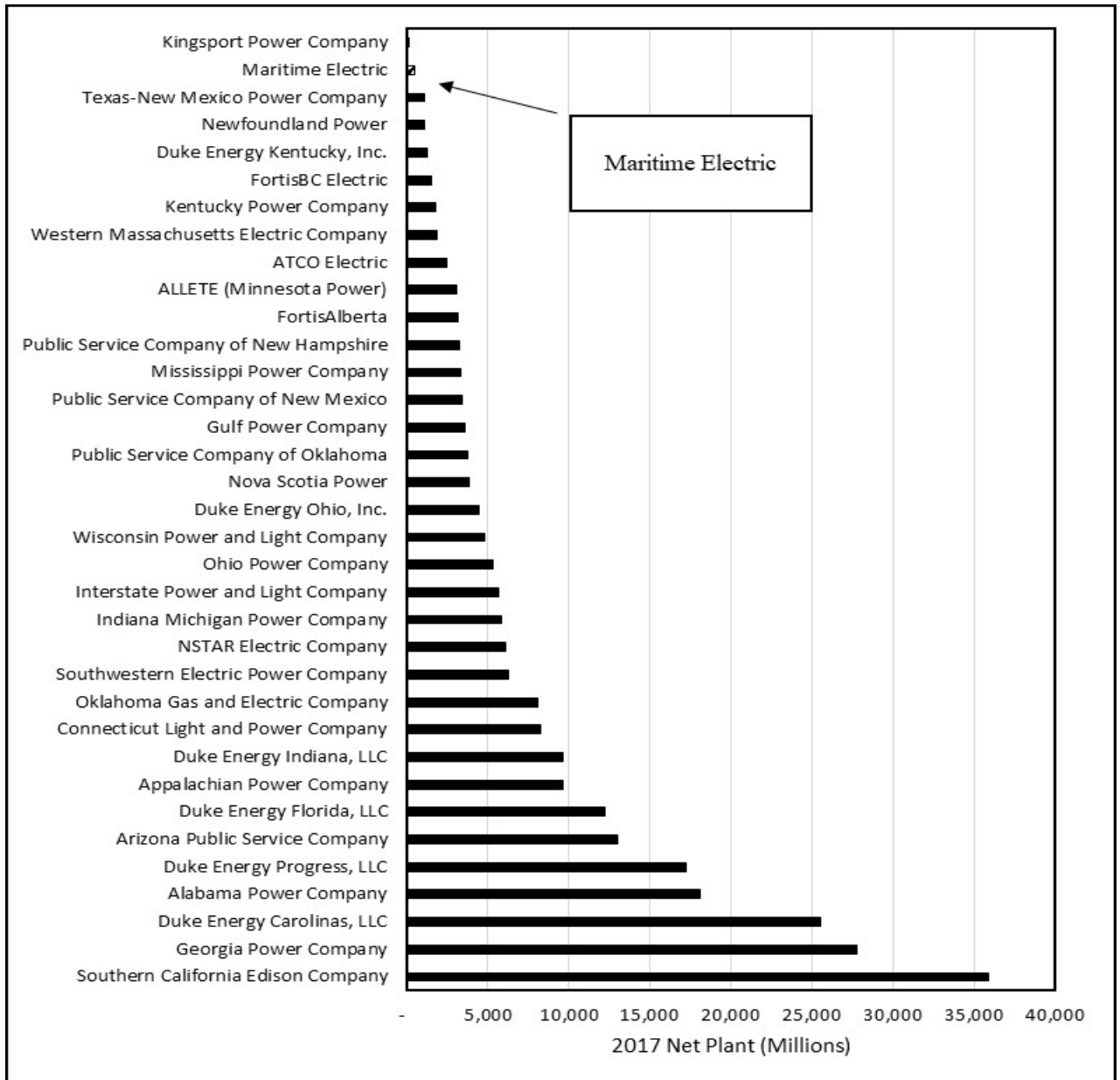
2016 Retail Electric Customers<sup>53</sup>



<sup>53</sup> Source: SNL Financial. Data taken from EIA Form 861, released October 2017.



**Figure 21: Small Size of Maritime Electric**  
**2017 Net Property, Plant and Equipment**



Due to its small size, Maritime Electric has greater risk associated with adverse economic conditions, as well as greater risk that customer demand could decrease significantly due to a major employer or industry experiencing a downturn or deciding to relocate. A small utility cannot diversify its risks to the same extent as larger utilities whose assets, geography and economic bases are less concentrated. Negative events are likely to have greater impact on the



1 earnings and cash flows of a smaller utility. Credit rating agencies consider small size as a risk  
2 factor for regulated utilities. For example, Moody's considers the size and diversity of utility  
3 operations to be a distinguishing factor that makes some utilities riskier than others. In  
4 discussing its rating methodology for regulated electric and gas utilities, Moody's states:

5 We also consider the diversity of utility operations (e.g., regulated electric,  
6 gas, water, steam) when there are material operations in more than one area.  
7 Economic diversity is typically a function of the population, size and breadth  
8 of the territory and the businesses that drive its GDP and employment. For  
9 the size of the territory, we typically consider the number of customers and  
10 the volumes of generation and/or throughput. For breadth, we consider the  
11 number of sizeable metropolitan areas served, the economic diversity and  
12 vitality in those metropolitan areas, and any concentration in a particular area  
13 or industry.<sup>54</sup>

14 Maritime Electric's service territory is characterized by the small size and lack of geographic and  
15 economic diversity that Moody's describes as an increased risk factor for regulated utilities.

## 16 **2. Macroeconomic and Demographic Trends**

17 Maritime Electric's service territory is largely rural; Charlottetown is the only major population  
18 center. The economy on Prince Edward Island ("PEI") is concentrated in the following  
19 industries: agriculture, fishing, tourism, aerospace and government. According to the  
20 Conference Board's Long-Term Economic Forecast, PEI is expected to lead the Atlantic  
21 Provinces (i.e., Nova Scotia, New Brunswick, and Newfoundland and Labrador) in economic  
22 growth over the long-term, with GDP advancing at a compound annual growth rate of 1.00  
23 percent between 2017 and 2040.<sup>55</sup> However, this long-term GDP growth rate is lower than the  
24 overall Canadian compound annual growth rate of 1.70 percent.

25 The Conference Board projects that PEI will post the highest rate of population growth in the  
26 Atlantic region and will be the only province in the region where population growth will remain  
27 positive over the long-term due to strong immigration growth.<sup>56</sup> If not for immigration, average

---

<sup>54</sup> Moody's Investors Service, "Rating Methodology: Regulated Electric and Gas Utilities," December 23, 2013, at 19.

<sup>55</sup> The Conference Board of Canada, Provincial Outlook 2018, Long-Term Economic Forecast, January 19, 2018, at 25.

<sup>56</sup> *Ibid.*



1 annual population growth over the next two decades would be negative, as will be the case in  
2 Nova Scotia, New Brunswick, and Newfoundland and Labrador. Among the highlights for PEI,  
3 the Conference Board notes:

- 4 ➤ PEI will outpace its Atlantic neighbors in economic growth, but lag behind the national  
5 average;
- 6 ➤ Limiting potential output growth is the aging of the population, which will be more  
7 pronounced on the Island than elsewhere in Canada;
- 8 ➤ The greying of the population will lead to high demand for health care and social  
9 services, presenting a significant challenge for island finances; and
- 10 ➤ The province has begun to attract more immigrants, which could help mitigate impacts  
11 of population aging on the Island's economy.<sup>57</sup>

12  
13 Figure 22 compares PEI to Canada as a whole and other Canadian provinces on a number of  
14 key macroeconomic indicators over the period from 2017-2040. It is notable that over the long-  
15 term all of PEI's key economic indicators are projected to be weaker than Canada overall.

---

<sup>57</sup> *Id.*, at 24.



1 **Figure 22: Key Economic Indicators – 2017-2040<sup>58</sup>**

|        | GDP Growth | Labor Force | Population | Employment | Disposable Income | Retail Sales | Housing Starts |
|--------|------------|-------------|------------|------------|-------------------|--------------|----------------|
| PEI    | 1.0%       | (0.1%)      | 0.0%       | 0.0%       | 2.6%              | 1.4%         | (2.9%)         |
| Canada | 1.7%       | 0.4%        | 0.8%       | 1.0%       | 3.5%              | 2.6%         | (2.4%)         |
| NS     | 0.8%       | (0.3%)      | 0.0%       | (0.2%)     | 2.5%              | 1.7%         | (8.8%)         |
| NL     | 0.0%       | (1.0%)      | (0.5%)     | (0.7%)     | 1.7%              | 1.2%         | (6.8%)         |
| NB     | 0.8%       | (0.2%)      | (0.1%)     | (0.1%)     | 2.4%              | 1.5%         | (5.9%)         |
| ALB    | 1.9%       | 1.0%        | 1.3%       | 1.2%       | 4.2%              | 2.6%         | (0.1%)         |
| BC     | 1.7%       | 0.6%        | 0.7%       | 0.6%       | 3.5%              | 2.2%         | (4.9%)         |
| ONT    | 1.9%       | 0.9%        | 0.9%       | 0.9%       | 3.7%              | 2.3%         | (1.9%)         |
| QC     | 1.5%       | 0.5%        | 0.5%       | 0.5%       | 2.9%              | 1.9%         | (5.0%)         |

2  
3 As a result of these economic and demographic trends, it is likely that Maritime Electric's electric  
4 sales growth over the long-term will be weaker even as the Company needs to continue investing  
5 capital to maintain and modernize its aging infrastructure so that service quality and reliability are  
6 maintained.

### 7 **3. Operating Risks**

8 Maritime Electric serves approximately 80,000 residential, commercial and industrial customers  
9 on PEI. Figure 23 presents the sources of the Company's electricity supply in 2017.

<sup>58</sup> The Conference Board of Canada, Provincial Outlook 2018, Long-Term Economic Forecast, forecast completed January 19, 2018.





Figure 23: Maritime Electric Electricity Supply in 2017<sup>59</sup>

|                                           | MWh     | %      |
|-------------------------------------------|---------|--------|
| On-Island oil-fired generation            | 1,794   | 0.14%  |
| On-island wind generation<br>(contracted) | 292,713 | 22.54% |
| Point Lepreau participation<br>(nuclear)  | 228,990 | 17.64% |
| System purchases from NB Power            | 774,991 | 59.68% |

Due to its island location, Maritime Electric is exposed to relatively high supply and operating risks. In 2017, Maritime Electric depended on New Brunswick Power for more than 77.00 percent of its energy requirements. The off-island energy supply is delivered from the mainland grid via four provincially-owned submarine cables, two of which were activated in August 2017. Based on conversations with the Company, my understanding is that Maritime Electric acted as Construction Agent to install the two new 180 MW submarine cables between New Brunswick and PEI and is responsible for operating and maintaining these cables after they were placed into service. These new submarine cables are expected to enhance the reliability of electricity supply on PEI and will contribute to ongoing efforts to reduce the use of fossil fuels; however, this does not resolve the transmission constraints that are associated with off-island generation in New Brunswick.

Maritime Electric's dependence on mainland power supplies means that, for reliability purposes, the Company owns on-island generation capacity (145 MW) to serve as back-up in case of supply interruption. While this generation capacity is not intended to be operated on a regular basis, as it is relatively high cost compared to off-island production, Maritime Electric has an obligation to ensure that back-up capability is maintained and available. In 2015, Maritime Electric filed an application with the Commission for approval to spend \$68 million to construct

<sup>59</sup> Provided by Maritime Electric in response to data request. Source: December 2017 Management Report for energy supply as of December 31, 2017.



1 a new 50 MW combustion turbine at the Charlottetown Generation Station (“CTGS”) location  
2 that would serve as necessary generation capacity in the event of energy supply disruptions and  
3 would eventually replace the generation units at CTGS which are near the end of their useful  
4 lives. Rather than refurbishing the existing CTGS units, Maritime Electric determined that it  
5 would be more cost effective to design and construct a new combustion turbine. The Company  
6 plans to retire and decommission the existing CTGS units after 2021. Generation assets, which  
7 inherently face higher operating and capital cost recovery risks than T&D assets, comprise  
8 approximately 14.00 percent of Maritime Electric’s net utility property, plant and equipment.<sup>60</sup>

9 Weather-related service disruptions represent another important operating risk for Maritime  
10 Electric. The Company’s service territory is subject to severe ice and wind storms. The need to  
11 address supply disruptions caused by severe weather conditions involves unpredictable and  
12 potentially volatile capital and operating costs. Maritime Electric’s capital structure and allowed  
13 ROE must provide the Company with the financial flexibility necessary to respond to  
14 unforeseen capital and operating costs in order to restore electric distribution service promptly  
15 to customers. Unlike many electric utilities in Canada and the U.S., Maritime Electric does not  
16 have a cost recovery mechanism for storm-related costs to mitigate this risk.

17 Lastly, my understanding is that all of Maritime Electric’s renewable energy supply is generated  
18 by on-island wind generation facilities. Future renewable energy supply sources are also  
19 expected to be largely from wind generation facilities. Given the intermittent nature of wind as a  
20 source of generation, there are additional operational and contractual complexities for Maritime  
21 Electric which distribution utilities in other provinces do not face to the same degree. In  
22 addition, the wind generation facilities are owned by the Province, and Maritime Electric  
23 purchases supply through a Power Purchase Agreement. As a result, Maritime Electric has no  
24 control over the reliability of the wind facilities, which could be an additional risk associated with  
25 renewable energy.

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<sup>60</sup> Maritime Electric 2017 Financial Results, at 10.



1                   **4. Deferral and Variance Accounts**

2       Maritime Electric has very limited protection against costs that tend to fluctuate significantly  
3       from year to year, are material in nature, and over which utility management has no control.  
4       While several utilities in Canada have deferral and variance accounts to mitigate the risk  
5       associated with operating and capital costs, Maritime Electric has relatively few. The only  
6       accounts that Maritime Electric has implemented are 1) the Energy Cost Adjustment Mechanism  
7       (“ECAM”), which allows the Company to recover the actual cost of fuel and purchased power  
8       compared to the forecasted amount, 2) a variance account for the recovery of costs related to  
9       demand side management and energy efficiency,<sup>61</sup> which are recovered through the ECAM, 3) a  
10      weather normalization reserve account that represents the cumulative change in the contribution  
11      margin (average selling price less average cost of energy purchased) resulting from variations in  
12      heating degree days from normal; and 4) a variance account for OPEB costs.

13      In order to mitigate volume/demand risk, the Commission approved Maritime Electric’s  
14      weather normalization reserve account in 2016. That account normalizes sales based on  
15      fluctuations in heating degree days as compared to the rolling ten-year average for the most  
16      recent ten years. Among Canadian investor-owned electric utilities, Newfoundland Power has a  
17      weather-related variance account that allows it to recover in a future period the difference  
18      between projected and actual revenues due to abnormal weather conditions in the test year.  
19      Nova Scotia Power has a Fixed Cost Recovery deferral account that provides for recovery of  
20      lost revenues associated with two large industrial customers. FortisBC Electric operates under a  
21      revenue stabilization plan that includes full protection against volumetric risk. ATCO Electric  
22      Distribution and FortisAlberta both are subject to a performance-based regulation (“PBR”) plan  
23      that adjusts revenues annually based on inflation less a productivity factor; however, the PBR  
24      plan does not include protection against changes in volume/demand. In summary, Maritime  
25      Electric has greater volumetric risk than FortisBC Electric, comparable volume/demand risk as  
26      Newfoundland Power and Nova Scotia Power, and lower volume/demand risk than the Alberta  
27      electric utilities.

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<sup>61</sup> This variance account covers community outreach and education costs, which is the only aspect of the DSM and energy efficiency program for which Maritime Electric is responsible. The Province is responsible for the other aspects of the DSM and energy efficiency program, which is scheduled to end in 2021.



1                   **5. Alternative Fuel Risk**

2       Maritime Electric faces competition from alternative fuel sources such as fuel oil for space  
3       heating needs, but this competition is not significant. The majority of the Company's residential  
4       customers are oil-based heating customers. However, Maritime Electric has experienced higher  
5       than normal sales growth due to an increase in the use of electric-based space heating (primarily  
6       heat pumps), as customers are switching from oil-based heating. Maritime Electric estimates  
7       that approximately 30.00 percent of its customers are currently using electricity for space  
8       heating. This trend is expected to continue in the near term with the recent announcement of  
9       incentives from the Government (efficiencyPEI) for energy efficient equipment for  
10      heating/cooling and the 10.00 percent rebate applied on the first block (2000 kwh) for  
11      residential customers, but is not expected to be sustained over the longer term.

12                   **6. Political and Regulatory Uncertainty**

13      With respect to the political environment and regulatory framework, a change in provincial  
14      legislation in the mid-1990s greatly altered the regulatory model for Maritime Electric. The  
15      legislation replaced rate of return/rate base regulation with price cap regulation that limited the  
16      Company's regulated prices to those of NB Power plus 10.00 percent, thereby exposing  
17      Maritime Electric to significant financial pressures. Pursuant to the 2004 Electric Power Act,  
18      Maritime Electric was returned to rate of return/rate base regulation and allowed to recover  
19      approximately \$21 million of costs that had been incurred and deferred pursuant to the prior  
20      regulatory framework.

21      Maritime Electric and the Provincial Government entered into a five-year PEI Energy Accord  
22      Agreement for the March 1, 2011 to February 29, 2016 period which, among other things, fixed  
23      customer rates and the Company's ROE during this period. As part of the Energy Accord, the  
24      government appointed the PEI Energy Commission to undertake a review of PEI's electricity  
25      sector. The PEI Energy Commission made several recommendations, including: 1) government  
26      ownership of Maritime Electric's existing and future generation assets; 2) a legislatively set  
27      reduction in the Company's allowed equity ratio; and 3) government responsibility for demand  
28      side management and energy efficiency programs. These recommendations introduced material  
29      political risk to the Company. The government acted on the recommendation regarding



ownership of Maritime Electric's future generation assets by announcing a policy which gives them the option to own and finance future generation on PEI. The government also established a target range for Maritime Electric's common equity ratio of at least 35.00 percent but not to exceed 40.00 percent. The active role of government, as demonstrated by past changes in legislation as well as by the broad mandate of the PEI Energy Commission, contributes to a higher degree of political/regulatory risk for the Company and its investors.

## **7. Summary**

My assessment is that, while the Company's volumetric risk has been reduced due to the implementation of weather normalization, Maritime Electric's business risk remains relatively high compared to other companies in the Canadian and U.S. proxy groups. The Company is very small compared to other investor-owned electric utilities in Canada and the U.S. Furthermore, the risk related to macroeconomic and demographic trends remains above average as the Provincial economy is projected to experience weaker economic growth and an aging population over the next 20 years. Maritime Electric does not have many of the variance and deferral accounts that are common among other regulated electric utilities across Canada. In particular, Maritime Electric does not have the relative certainty of a deferral account for storm-related costs that might be incurred as the result of severe wind and ice storms. Moreover, the level of government involvement and political uncertainty with regard to ownership of generation assets have increased the business and regulatory risk for Maritime Electric. For all of these reasons, my view is that the business risk of Maritime Electric remains above average.

### **B. Comparison to other Canadian Electric and Gas Utilities**

Maritime Electric derives 100.00 percent of its operating income and revenues from electric utility service. By contrast, the companies in the Canadian proxy group are engaged in diverse businesses, including natural gas distribution, oil and natural gas transmission, merchant generation, development of renewable assets, commodity marketing, and various other unregulated activities.

Emera (the parent of Nova Scotia Power) owns regulated natural gas distribution utilities in Florida and New Mexico, as well as regulated electric utilities in Nova Scotia, Maine, Florida



1 and the Caribbean. Emera also owns a portfolio of competitive electric generating facilities  
2 and engages in a physical energy marketing and trading business through its subsidiary,  
3 Emera Energy. Emera also owns an equity interest in electricity transmission assets such as  
4 Maritime Link and Labrador Link, and owns the Brunswick Pipeline, which transports  
5 natural gas from Saint John, New Brunswick to markets in the northeastern U.S. In 2017,  
6 Emera derived approximately 94.00 percent of its operating income from regulated  
7 operations. The information in Emera's annual report does not make it possible to  
8 determine the percentage of operating income from electric utility operations.

9 Canadian Utilities Ltd. ("CU Ltd.") provides gas distribution service, electric distribution and  
10 transmission service, and gas transmission service in Alberta through its ATCO Gas, ATCO  
11 Electric, and ATCO Pipeline subsidiaries. CU Ltd. derived approximately 50.00 percent of  
12 its operating income in 2017 from regulated electric utility services. CU Ltd. also owns  
13 unregulated electric generation plants in western Canada and Ontario, operates unregulated  
14 natural gas gathering, processing, storage and transmission businesses, and has regulated and  
15 unregulated operations in Australia and Mexico.

16 Enbridge, Inc. is primarily engaged in the oil and gas pipeline business in both Canada and  
17 the U.S. and the gas distribution business in Ontario (Enbridge Gas Distribution and Union  
18 Gas) and in New Brunswick. Enbridge also owns renewable energy assets and transmission  
19 facilities through its Green Power and Transmission segment in Canada and the U.S., and  
20 engages in physical commodity marketing and logistical services, oversees refinery supply  
21 services, and manages its volume commitments on various pipeline segments through its  
22 Energy Services unit. Enbridge derived approximately 28.00 percent of its operating income  
23 from regulated gas distribution service in 2017.

24 Valener, Inc. owns Gaz Metro, the natural gas distribution company in Quebec, as well as  
25 several natural gas distribution and integrated electric utilities in Vermont, including Green  
26 Mountain Power and Vermont Gas Systems. Valener derived approximately 91.00 percent  
27 of its net income from regulated utility service. The annual report for Valener does not  
28 break out the portion of net income that is attributable to electric utility service.



1                    **1. Macro-economic Conditions**

2            Macro-economic conditions on PEI are projected by the Conference Board to be generally  
3            weaker than other Canadian provinces for the period from 2017-2040. **Error! Reference**  
4            **source not found.** compares the key economic indicators for PEI to those in the provinces  
5            where the other five investor-owned electric utilities are located, as well as Ontario, Quebec and  
6            New Brunswick. As shown in **Error! Reference source not found.**, PEI's key economic  
7            indicators over this period are generally stronger than Newfoundland and Labrador and Nova  
8            Scotia, but weaker than the other Canadian provinces.

9                    **2. Capital Cost Recovery**

10           Maritime Electric files a capital budget with the Commission on an annual basis, which includes  
11           the Company's capital budget for the upcoming year, as well as a ten-year comparative history.  
12           The Commission reviews Maritime Electric's capital plan and either provides an Order  
13           approving the capital budget or modifying it. Similarly, Nova Scotia Power, Newfoundland  
14           Power and FortisBC Electric also file for pre-approval of capital expenditures. In Alberta, the  
15           Alberta Utilities Commission ("AUC") approved a new PBR plan for distribution utilities for the  
16           period 2018-2022.<sup>62</sup> The new PBR plan incorporates significant changes related to the recovery  
17           of capital-related costs. The AUC has established two types of capital. Costs associated with  
18           Type 1 capital are subject to a true up, but the Type 1 capital criteria are restrictive (*i.e.*, must be  
19           extraordinary, not previously in rate base, and required by a third-party, *e.g.*, regulatory or  
20           legislative authority).<sup>63</sup>

21           Electric utilities in Canada are not allowed to earn a cash return on Construction Work in  
22           Progress, but all utilities are permitted AFUDC. In summary, Maritime Electric has similar  
23           capital cost recovery risk as other investor-owned electric utilities in Canada except for those in  
24           Alberta, which have higher risk on certain capital costs.

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<sup>62</sup> AUC Decision 20414-D01-2016 (December 16, 2016).

<sup>63</sup> AUC Decision 20414-D01-2016 (Errata) (February 6, 2017) at para 198.





1                   **3. Operating Cost Recovery**

2           Concentric has evaluated Maritime Electric's ability to recover operating costs that (1) tend to  
3           fluctuate substantially from year to year, (2) are significant in magnitude, and (3) are generally  
4           beyond the control of utility management. Regulators in Canada often use variance and deferral  
5           accounts to mitigate the risks associated with these types of costs. Maritime Electric has  
6           deferral/variance accounts for employee future benefits expenses and energy efficiency and  
7           conservation costs<sup>64</sup>, while other Canadian investor-owned electric utilities have varying levels of  
8           protection against these operating costs, with the exception of FortisAlberta, which does not  
9           have any deferral/variance accounts related to these costs. Importantly, while Maritime Electric  
10          has protection against pension and OPEB expenses, the Company does not have a storm-related  
11          deferral account like ATCO Electric and FortisBC Electric, despite operating in a service  
12          territory characterized by severe ice and wind storms.

13                   **4. Conclusions on Business Risk**

14          Based on the information in this section, I conclude that Maritime Electric generally has greater  
15          business risk than other Canadian investor-owned electric utilities. Factors contributing to this  
16          higher risk profile include Maritime Electric's small size, dependence on one supplier, weak  
17          macro-economic and demographic trends in the Province as compared to the remainder of  
18          Canada, and weather and storm related risk. While the regulatory framework on PEI is generally  
19          supportive of maintaining credit quality, there are certain aspects of the economic and operating  
20          environment where Maritime Electric has higher business risk than other Canadian investor-  
21          owned electric utilities.

22                   **C. Comparison to U.S. Electric Proxy Group**

23          In this section, I compare Maritime Electric to the companies in the U.S. Electric proxy group  
24          on the following factors: (1) percentage of regulated electric utility operations; (2) credit rating  
25          agency comments on the supportiveness of the U.S. regulatory environment for regulated  
26          utilities; (3) assessment of regulatory mechanisms used to mitigate cost recovery risk for U.S.

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<sup>64</sup> As noted previously, Maritime Electric is only responsible for the customer education component of the energy efficiency and conservation program, and the program is scheduled to end in 2021.





1 electric utilities as compared with Maritime Electric; and (4) investment risk as measured by the  
2 business and financial risk rankings from S&P.

3 **1. Comparison of Regulated Electric Utility Operations**

4 Maritime Electric derives 100.00 percent of its operating income and revenues from regulated  
5 electric utility service. As shown in Exhibit JPT-8, the U.S. Electric proxy group companies  
6 derive approximately 98.00 percent of regulated income and 96.00 percent of regulated revenues  
7 from electric utility service, and approximately 96.00 percent of regulated assets are dedicated to  
8 electric utility operations. For this reason, I conclude that the U.S. Electric proxy group is more  
9 representative of Maritime Electric than the Canadian proxy group, which as noted previously is  
10 engaged in other regulated utility businesses, as well as non-regulated activities.

11 **2. Credit Rating Agency Comments on U.S. Regulatory Environment**

12 Some observers have previously argued before Canadian regulators that the U.S. regulatory  
13 environment for utilities is higher risk than the regulatory environment in Canada. As previously  
14 discussed, Moody's issued a September 2013 report in which the rating agency indicated that its  
15 view of U.S. utility regulation was more favorable than it had previously been. In that report,  
16 Moody's stated: "Our revised view that the regulatory environment and timely recovery of costs  
17 is in most cases more reliable than we previously believed is expected to lead to a one notch  
18 upgrade of most regulated utilities in the U.S., with some exceptions."<sup>65</sup>

19 My business risk comparison is consistent with Moody's conclusion that regulated utilities in the  
20 U.S. operate in a regulatory environment similar to those in Canada, including the generally  
21 supportive regulatory framework of this Commission.

22 **3. Comparison of Business and Regulatory Risk**

23 Exhibit JPT-9 compares the regulatory mechanisms for Maritime Electric to those for the U.S.  
24 Electric proxy group. As shown in that Exhibit, and summarized below, Maritime Electric  
25 generally has comparable business and regulatory risk as the U.S. Electric proxy group. On that

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<sup>65</sup> "Proposed Refinements to the Regulated Utilities Rating Methodology and our Evolving View of US Utility Regulation," Moody's Investors Service, September 23, 2013, at 1.



1 basis, I believe it is reasonable and appropriate to consider the DCF and CAPM results for the  
2 U.S. proxy group without adjusting those results for differences in regulatory risk between  
3 Canada and the U.S.

4 a) Regulated generation risk: Maritime Electric owns limited regulated generation assets  
5 and therefore has lower generation risk than the U.S. Electric proxy group operating  
6 companies, the majority of which own regulated generation assets.

7 b) Fuel and purchased power cost risk: Maritime Electric purchases approximately 77.00  
8 percent of its power supply from New Brunswick Power; the remaining 23.00 percent  
9 is derived from the Company-owned combustion gas turbine and on-island wind  
10 generation. Maritime Electric is allowed to recover variations in energy supply costs  
11 through the Energy Cost Adjustment Mechanism. All of the electric utility companies  
12 in the U.S. proxy group have fuel adjustment clauses that allow them to pass through  
13 fuel and purchased power costs to customers. As such, the U.S. electric utilities are not  
14 at risk for differences between the projected and actual cost of fuel and purchased  
15 power. In addition, Maritime Electric's predominant reliance on a single source of  
16 power (New Brunswick Power Corp.) places it at greater risk of supply disruptions  
17 than the electric utilities in the U.S. proxy group.

18 c) Regulatory lag: Maritime Electric files rate applications based on a forecasted test year,  
19 while 38.00 percent of operating companies in the U.S. Electric proxy group also use  
20 fully or partially forecasted test years.

21 d) Volume/demand risk: Maritime Electric has a weather normalization adjustment  
22 clause that provides regulatory protection against changes in volume/demand caused  
23 by abnormal weather conditions. Approximately 44.00 percent of the operating  
24 companies in the U.S. Electric proxy group have either full or partial revenue  
25 decoupling mechanisms, which provides more protection against volumetric risk than a  
26 weather normalization clause.

27 e) Capital cost recovery risk: Maritime Electric annually files a capital investment plan  
28 with the Commission, which approves a specified amount that will be recoverable in  
29 future rates. Approximately 79.00 percent of the operating companies in the U.S.



1 electric utility proxy group either receive pre-approval for capital expenditures and/or  
2 are allowed to earn a cash return on Construction Work in Progress. In addition,  
3 approximately 88.00 percent have one or more cost tracking mechanisms that allow  
4 them to recover capital costs between rate cases. Maritime Electric does not have any  
5 capital tracking mechanisms and earns AFUDC on capital costs rather than a cash  
6 return on CWIP.

7 f) Operating cost recovery mechanisms: Maritime Electric has been allowed to  
8 implement several deferral and variance accounts; likewise, the operating companies in  
9 the U.S. Electric proxy group employ similar regulatory protection against specific  
10 categories of costs that tend to fluctuate significantly from year to year, are material in  
11 nature, and are beyond the control of utility management. For example, Maritime  
12 Electric has an account for recovery of demand side management and energy efficiency  
13 costs, and 79.00 percent of operating companies in the U.S. Electric proxy group also  
14 have an account for this purpose. A notable exception is that Maritime Electric has no  
15 deferral or variance account or other regulatory protection against storm-related costs  
16 (both operating and capital costs), which tend to be a significant risk factor in any given  
17 year due to harsh climate in the Province. Of the U.S. Electric proxy group companies,  
18 35.00 percent of the operating companies have a storm-cost recovery account.

19 In addition to these short-term risks, as discussed previously, Maritime Electric has higher long-  
20 term business risk than the U.S. proxy group companies due to (1) unfavorable demographic  
21 trends (e.g., Maritime Electric serves an island where the population is aging and is expected to  
22 decline in absolute terms over the next 20 years), (2) the fact that macroeconomic growth is  
23 projected to be weak in the Province over the next 20 years relative to Canada, and (3) the small  
24 size of Maritime Electric in terms of customer base and net utility plant, which heightens the  
25 effect of other business risks on the Company. In addition, Maritime Electric's service territory  
26 is exposed to severe weather conditions, especially wind and ice storms that create significant  
27 risk that the Company will incur substantial capital and operating costs to restore service in any  
28 given year. On a more favorable note, Maritime Electric has lower business risk than operating  
29 companies in the U.S. Electric proxy group as it relates to competition from alternative fuel  
30 sources such as natural gas.



1                    **4. Credit Ratings as Measure of Investment Risk**

2            Maritime Electric is rated BBB+ by S&P, while the average S&P credit rating for the U.S. proxy  
3            group of electric utility companies is A-. The credit rating screen used to select the U.S. proxy  
4            group is based on both business risk (including an assessment of the regulatory environment in  
5            which the utility operates) and financial risk. Companies with similar credit ratings have been  
6            determined by the rating agency to have similar levels of business and financial risk. Various  
7            regulatory agencies have used credit ratings to assess overall investment risk. For example, in  
8            the U.S., the Federal Energy Regulatory Commission (“FERC”) has found that “it is reasonable  
9            to use the proxy companies’ corporate credit rating as a good measure of investment risk, since  
10           this rating considers both financial and business risk.”<sup>66</sup>

11           Concentric compared the investment risk of Maritime Electric to that of the U.S. Electric proxy  
12           group by analyzing the business and financial risk rankings reported by S&P. As shown in  
13           **Error! Reference source not found.**, Maritime Electric’s business risk ranking is “Excellent”  
14           and its financial risk ranking is “Significant.” On that basis, Maritime Electric’s business risk is  
15           comparable to most companies in the U.S. Electric proxy group, but the Company has higher  
16           financial risk due to its more leveraged capital structure.

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<sup>66</sup> See, for example, *Potomac-Appalachian Transmission Highline, LLC*, 122 FERC ¶ 61,188 at paragraph 97 (2008).



Figure 24: U.S. Electric Proxy Group – S&P Rankings

| Company                           | S&P Rating  | Business Risk    | Financial Risk     |
|-----------------------------------|-------------|------------------|--------------------|
| ALLETE, Inc.                      | BBB+        | Strong           | Significant        |
| Alliant Energy Corp.              | A-          | Excellent        | Significant        |
| American Electric Power Co.       | A-          | Excellent        | Significant        |
| Duke Energy Corporation           | A-          | Excellent        | Significant        |
| Edison International              | BBB+        | Excellent        | Significant        |
| Eversource Energy                 | A+          | Excellent        | Intermediate       |
| OGE Energy Corporation            | BBB+        | Strong           | Significant        |
| Pinnacle West Capital Corp.       | A-          | Excellent        | Significant        |
| PNM Resources, Inc.               | BBB+        | Strong           | Significant        |
| <b>Maritime Electric Co. Ltd.</b> | <b>BBB+</b> | <b>Excellent</b> | <b>Significant</b> |

#### **D. Financial Risk**

Financial risk exists to the extent a company incurs debt obligations in financing its operations. These fixed obligations increase the level of income required to cover interest payments before common stockholders receive any return. Fixed financial obligations also reduce a company's financial flexibility and its ability to respond to adverse economic circumstances and capital market conditions.

The capital structure relates to a company's financial risk, which represents the risk that a company may not have adequate cash flows to meet its financial obligations and is a function of the percentage of debt (or financial leverage) in the capital structure. As the percentage of debt in the capital structure increases, so do the fixed obligations for the repayment of that debt. Consequently, as the degree of financial leverage increases, the risk of financial distress for common equity holders (i.e., financial risk) also increases.<sup>67</sup> Since the capital structure can affect the Company's overall level of risk, it is an important consideration in establishing a fair return.

<sup>67</sup> See Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 45-46.



1 Under the provisions of the revised Electric Power Act, Maritime Electric is required to  
2 maintain a minimum of at least 35.00 percent common equity and not more than 40.00 percent  
3 common equity in its capital structure.

4 Maritime Electric issues First Mortgage Bonds (“FMB”) to finance its rate base investments  
5 rather than senior unsecured debt. These FMBs, which are typically in the range of \$40 million  
6 or less, are sold through private placements with Canadian based insurance companies rather  
7 than in the public debt market. The supply of potential investors is limited for Maritime  
8 Electric’s debt offerings. For example, when the Company issued debt in 2016, it met with six  
9 prospective investors. Maritime Electric’s FMBs are rated “A” by Moody’s because the funds  
10 are secured by the utility assets of the Company. It is generally riskier for companies to issue  
11 FMBs than unsecured debt because the utility is agreeing to use its assets as collateral to secure  
12 the loan. Maritime Electric, however, has no choice but to issue FMBs due to the small size of  
13 the debt offering, which is a function of the small size of the Company itself.

#### 14 **1. Comparison to Other Investor-Owned Electric Utilities**

15 One way to assess the reasonableness of Maritime Electric’s proposed equity ratio is by  
16 comparison to other investor-owned electric utilities. As shown in Figure 25, Maritime  
17 Electric’s proposed common equity ratio of 40.00 percent is consistent with the average  
18 common equity ratio of 39.40 percent for the other Canadian investor-owned electric utilities,  
19 and within the range of equity ratios from 37.00 percent to 45.00 percent.



Figure 25: Comparison of Authorized Equity Ratios

| Operating Utility                                     | Equity Ratio |
|-------------------------------------------------------|--------------|
| Maritime Electric (current)                           | 40.0%        |
| Maritime Electric (proposed)                          | 40.0%        |
| ATCO Electric Distribution                            | 37.0%        |
| FortisAlberta                                         | 37.0%        |
| FortisBC Electric                                     | 40.0%        |
| Newfoundland Power                                    | 45.0%        |
| FortisOntario and other Ontario Electric Distributors | 40.0%        |
| Nova Scotia Power                                     | 37.5%        |
| Average                                               | 39.4%        |

As shown in Exhibit JPT-9, the average authorized common equity ratio for the operating companies in the U.S. Electric proxy group is approximately 49.40 percent, or more than 9.00 percentage points higher than Maritime Electric's proposed common equity ratio of 40.00 percent. Maritime Electric's proposed common equity ratio is lower than the authorized equity ratio of any operating utility in the U.S. proxy group except for AEP Texas Inc. (also at 40.00 percent), which does not have any regulated generation assets in rate base.

## 2. Assessment of Credit Metrics

Financial risk is also measured through credit metrics, such as the ratio of Funds From Operations ("FFO") to debt, as well as interest coverage ratios that compare Earnings Before Interest and Taxes ("EBITDA") and FFO to interest payments on long-term debt. As shown in Exhibit JPT-10, the S&P adjusted credit metrics for Maritime Electric in 2017 were generally stronger than the companies in the Canadian proxy group, but weaker than the average for the U.S. Electric proxy group, especially with respect to interest coverage ratios and debt to capital ratios. Figure 27 summarizes the key credit metrics for Maritime Electric and the average credit metrics for the companies in the Canadian proxy group and the U.S. Electric proxy group.



**Figure 26: 2017 S&P Credit Metrics Comparison**

| Credit Metric               | Maritime Electric | Canadian | U.S. Electric |
|-----------------------------|-------------------|----------|---------------|
| Debt to Capital Ratio       | 63%               | 61%      | 55%           |
| EBITDA to Interest Coverage | 4.69              | 3.57     | 4.85          |
| FFO to Interest Coverage    | 4.93              | 3.60     | 6.36          |
| FFO / Debt (%)              | 20.6%             | 11.1%    | 19.3%         |
| Debt / EBITDA               | 3.65              | 6.28     | 4.28          |

As shown in Figure 27, compared to the Canadian proxy group, Maritime Electric has a higher debt to capital ratio, stronger interest coverage ratios, a stronger FFO / Debt ratio, and a stronger Debt / EBITDA ratio. Compared to the U.S. Electric proxy group, Maritime Electric has a higher debt to capital ratio, a similar EBITDA to interest coverage ratio, a weaker FFO to interest coverage ratio, a similar FFO / Debt ratio, and a stronger Debt / EBITDA ratio.

Maritime Electric's credit metrics have improved since 2014. Based on a comparison of the equity ratios and the credit metrics of Maritime Electric to the companies in the Canadian and U.S. proxy groups, my conclusion is that the Company has somewhat higher financial leverage, but stronger coverage ratios than the Canadian proxy group, and higher financial leverage and somewhat weaker coverage ratios than the U.S. Electric proxy group.

### **3. Credit Rating Agency View**

Maritime Electric has consistently maintained a long-term issuer rating from S&P of "BBB+" since January 2004. An April 2018 S&P report reaffirmed the current rating for Maritime Electric, noting the supportive regulatory and business environment on PEI. However, S&P expressed some degree of caution with respect to the extent of government involvement in the business of Maritime Electric. In terms of Financial Risk, S&P ranks Maritime Electric as having "Significant" financial risk, which is consistent with the companies in the U.S. Electric Utility proxy group. As shown in Figure 27, two companies in the Canadian peer group also have "Significant" financial risk rankings, while Enbridge has an "Aggressive" financial risk ranking.





Figure 27: Canadian Proxy Group – S&P Rankings

| Company                           | S&P Rating  | Business Risk    | Financial Risk     |
|-----------------------------------|-------------|------------------|--------------------|
| Canadian Utilities Ltd.           | A-          | Excellent        | Significant        |
| Emera                             | BBB+        | Excellent        | Aggressive         |
| Enbridge, Inc.                    | BBB+        | Excellent        | Significant        |
| Valener, Inc.                     | Not Rated   | ---              | ---                |
| <b>Maritime Electric Co. Ltd.</b> | <b>BBB+</b> | <b>Excellent</b> | <b>Significant</b> |

#### 4. Conclusions on Proposed Equity Ratio

Maritime Electric is proposing a capital structure consisting of 40.00 percent average common equity and 60.00 percent average long-term debt. Maritime Electric's proposed equity ratio is consistent with the average authorized equity ratio for the Canadian proxy group, but substantially lower than the authorized equity ratios of the electric utility companies in the U.S. Electric proxy group. For those reasons, my conclusion is that Maritime Electric's proposed common equity ratio of 40.00 percent is lower than that justified by its risk profile but is consistent with the range established by the Electric Power Act and should be adopted by the Commission.

## VII. EARNINGS SHARING MECHANISM

Maritime Electric currently has a Rate of Return Adjustment deferral account that requires the Company to return to customers 100.00 percent of earnings above its authorized ROE of 9.35 percent. This deferral account places a hard cap on Maritime Electric's earnings and provides no financial incentive for the Company to seek cost savings and operating efficiencies. By contrast, many performance-based regulation ("PBR") plans offer the utility a financial incentive to achieve cost savings by allowing the utility to share in some portion of those savings. For example, if a utility achieves an earned return 75 basis points above its authorized ROE, the PBR plan might allow the utility to retain 50.00 percent of those savings, while returning the other 50.00 percent to customers.



1 The primary purpose of an Earnings Sharing Mechanism (“ESM”) is to share with customers  
2 earnings that deviate in a meaningful way (either positive or negative) from the level of earnings  
3 associated with the authorized ROE. It is probable that revenues, costs and rate base will each  
4 deviate from the assumptions that are used as the basis for calculating rates whether the  
5 ratemaking approach is based on a historical test year with post-test period adjustments, or  
6 whether rate calculations are based on a forward-looking test year, as is the case with Maritime  
7 Electric. Thus, it is probable that the earned ROE will be higher or lower than the authorized  
8 ROE. The ESM apportions this variance in earnings between customers and the utility based on  
9 a prescribed formula.

10 An ESM helps to safeguard against an earnings outcome that may be unacceptable to either  
11 customers (or regulators on their behalf) or to the utility. In this respect, ESMs are a form of  
12 variance management. However, rather than focusing narrowly on a particular revenue, cost or  
13 rate base circumstance that contributes to the variation in earnings as is the case with a variance  
14 or deferral account, the ESM focuses on the end result and therefore captures all contributing  
15 circumstances in a single measure after any variance and deferral accounts have been reflected.  
16 By focusing on the end result, the ESM reduces the regulatory burden associated with a more  
17 detailed inquiry into the specific circumstances that contributed to earnings variations.

18 The ESM begins with the calculation of realized earnings for a preceding twelve-month period;  
19 this calculation is typically performed for each year of a multi-year rate plan. Using this  
20 comparison as a starting point, ESMs are defined by two key parameters: 1) the size of a  
21 “deadband” around the authorized ROE; and 2) the “customer sharing percentage” or the  
22 sharing of earnings with customers that applies when actual earnings fall outside the deadband.

23 The “deadband” is a range around the authorized ROE within which there is no sharing (i.e., the  
24 utility absorbs 100.00 percent of earnings “shortfalls” and retains 100.00 percent of “surplus”  
25 earnings). Customer sharing begins when the earned ROE falls outside the deadband. A  
26 common deadband is  $\pm 50$  to 100 basis points, but there are also examples of ESMs with  
27 deadbands between  $\pm 200$  and 350 basis points. There have also been a more limited number of



ESMs where there is no deadband, and customer sharing begins with the first dollar of earnings either above or below the authorized ROE.<sup>68</sup>

Maritime Electric is proposing a symmetrical ESM with a deadband of +/- 50 basis points around the authorized ROE of 9.35 percent. Under this proposal, the Company would receive the benefit of surplus earnings and assume the risk of an earnings shortfall within the deadband from 8.85 percent to 9.85 percent. For earnings greater than 9.85 percent, the Company would share 100.00 percent of those excess earnings with customers. For earnings below 8.85 percent, Maritime Electric would be allowed to raise customer rates in the following rate year in order to provide the Company with an earned ROE of no less than 8.85 percent.

## VIII. OVERALL CONCLUSIONS AND RECOMMENDATIONS

For the reasons discussed throughout this report, it is appropriate to consider both the CAPM and DCF results when establishing the authorized ROE for Maritime Electric. The results of my CAPM and DCF analyses are summarized in Figure 28.

**Figure 28: Summary of Results (including flotation costs)**

|                        | Canadian<br>Regulated<br>Utilities | US Electric | North<br>American<br>Electric | Average |
|------------------------|------------------------------------|-------------|-------------------------------|---------|
| CAPM                   | 10.13%                             | 9.47%       | 9.56%                         | 9.72%   |
| Constant<br>Growth DCF | 9.41%                              | 9.26%       | 9.26%                         | 9.31%   |
| Multi-Stage DCF        | 10.13%                             | 8.86%       | 9.03%                         | 9.34%   |
| Average                | 9.89%                              | 9.20%       | 9.28%                         | 9.46%   |

The average results of the Constant Growth and Multi-Stage DCF analyses for the three proxy groups are within a range from 9.31 percent to 9.34 percent, while the average CAPM results are 9.72 percent. The average results for the Canadian, U.S. Electric and North American Electric proxy groups range from 9.20 percent to 9.89 percent. Based on this analysis, I believe a

<sup>68</sup> Maritime Electric currently has an earnings cap. The Company returns every dollar of earnings above its authorized ROE of 9.35% to customers.



1 reasonable estimate of Maritime Electric's required cost of equity is within a range from 9.20  
2 percent to 9.90 percent (bounded by the U.S. electric average for all methods of 9.20 percent on  
3 the low end, and the Canadian average of all methods of 9.89 percent on the high end). Within  
4 this range, the Company's proposed ROE of 9.35 percent is reasonable, if not conservative. In  
5 particular, the proposed ROE of 9.35 percent is toward the lower end of the range of reasonable  
6 results at a time when interest rates on government and corporate bond yields have been rising.  
7 In addition, the Company's proposed common equity ratio of 40.00 percent is lower than that  
8 justified by its risk profile and well below the average equity thickness for the U.S. electric and  
9 North American electric proxy groups. Maritime Electric is small relative to the companies in  
10 the Canadian and U.S. electric proxy groups; the long-term economic and demographic trends  
11 on Prince Edward Island are weaker than Canada overall; and Maritime Electric does not have  
12 many of the variance and deferral accounts that are common among other regulated electric  
13 utilities across Canada. Finally, I recommend that the Commission approve the Company's  
14 proposed symmetrical ESM with a deadband of +/- 50 basis points around the authorized ROE  
15 of 9.35 percent.

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**John P. Trogonoski**  
**Senior Project Manager**

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Mr. Trogonoski is a Project Manager with approximately 25 years of experience in utility regulation, financial and economic analysis, business valuation, property taxation, and program administration. Since joining Concentric in 2008, Mr. Trogonoski has assisted clients with a variety of regulatory matters including expert testimony and reports on cost of capital and business and financial risk analysis. As a member of the Staff of the Colorado Public Utilities Commission, Mr. Trogonoski supervised the financial analysts in the energy and telecommunications sections and filed expert testimony on matters such as rate of return, revenue requirement, cost allocation, rate design, incentive regulation, and public policy. He has an M.S. in Business Administration and a B.S. in Marketing from the University of Colorado at Denver.

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**REPRESENTATIVE PROJECT EXPERIENCE**

**UTILITY CONSULTING**

Since joining Concentric Energy Advisors in February 2008, Mr. Trogonoski has:

- Filed expert testimony on behalf of Hydro-Quebec Distribution and Transmission in support of the Company's request to the Régie de l'énergie to modify its allowed return on equity. Performed risk analysis to determine whether it was appropriate to consider a U.S. peer group of regulated electric utilities as an appropriate proxy group for purposes of establishing the allowed ROE for Hydro-Quebec. This analysis included review of the business and financial risks of Canadian and U.S. peer groups on factors that are important to investors in assessing the relative risks of these companies and the regulatory protections that help to mitigate those risks.
- Prepared expert testimony and exhibits for return on equity analysis for numerous North American gas and electric utility clients. This included preparing direct testimony, responding to data requests, drafting rebuttal testimony in response to intervening witnesses, assisting with hearing preparation, and drafting post-hearing statements of position.
- Prepared expert testimony and exhibits for multiple clients seeking regulatory approval of mergers and acquisitions. This included summarizing credit rating agency reactions to the proposed mergers, researching merger approval standards, analyzing the benefits of increased financial scale in the utility industry, and developing financial and ring-fencing commitments in order to mitigate any risk that might result from the merger.
- Performed regulatory due diligence for clients considering the potential acquisition of a natural gas distribution company and an electric transmission company. Due diligence included a review of the regulatory framework in the jurisdiction of the target company, potential cost disallowances, an assessment of the projected ROE and capital structure, an evaluation of the reasonableness of projected capital spending based on forecasted economic growth in the service territory, and the implications of these factors on the value of the target company.
- Assisted in the development of a conservation program for New Jersey American Water, which was filed with the Board of Public Utilities in conjunction with the company's rate case. The program included rebates for various indoor and outdoor plumbing fixtures, as



well as estimated penetration of the proposed rebate programs, and a cost/benefit analysis in support of the various rebates.

- Prepared rebuttal testimony for Central Maine Power in response to a complaint from Staff of the Maine Public Utilities Commission concerning the billing and collection practices of the utility. Demonstrated that increase in late payments was attributable to economic conditions during the recession rather than to decision by the company to outsource the billing and collection function to a third-party provider.
- Reviewed de-list bids filed with the ISO New England by a merchant generation company that wished to withdraw from the Forward Capacity Market. Also prepared user manuals for ISO New England to assist project sponsors in completing a request to provide new supply generation in the Forward Capacity Market, and to assist market participants in completing a request to de-list existing capacity.
- Analyzed the internal policies and tariff of New Mexico Gas in response to service outages and determined if the time to restore service to customers was consistent with other major gas distribution outages that have occurred across the United States. Offered recommendations to improve the Company's communication with regulators and customers.
- Assisted in the development of a business valuation for Poseidon Water, LLC by reviewing and validating cost assumptions for construction costs, water rates, and electricity prices. Also developed cost of capital studies for proxy groups of regulated water utilities and wholesale power generators for use in this valuation.

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## EXPERT REPORTS

- Drafted a report for the Ontario Energy Board that reviewed low-income energy assistance programs that have been implemented in other jurisdictions, including Canada, the United States, the United Kingdom, the European Union countries, Australia, and New Zealand. Attended hearing and responded to questions related to research report on behalf of OEB staff.
- Drafted a report for the Ontario Energy Board that proposed revisions to the Board's existing rules for Demand Side Management for gas distribution companies in Ontario. Participated in workshop and responded to questions from stakeholders regarding the proposed changes to the Board's rules.

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## REGULATORY EXPERIENCE

While at the Colorado Public Utilities Commission, Mr. Trogonoski:

- Supervised financial analysts in the energy and telecommunications units from 2004 to 2008. In this capacity, he was responsible for the financial analysis, accounting, and auditing work of between five and nine financial analysts. This included preparation of expert testimony and recommendations concerning rate cases, applications for alternative forms of regulatory treatment, performance of managerial and financial audits, compliance with relevant statutes and Commission rules, and review of applications for certificates of public convenience and necessity, transfers of authority, franchise agreements, and discontinuance of service.



- Provided expert testimony on rate of return issues, capital structure, cost of debt, financial integrity, and credit quality in numerous rate case proceedings involving energy, telecommunications and water companies including Xcel Energy, Qwest Corporation, and Atmos Energy.
- Performed managerial and financial audits of regulated energy and telecommunications companies using the regulatory and accounting guidelines in the Uniform System of Accounts relied upon by the Federal Energy Regulatory Commission, the Federal Communications Commission, the Financial Accounting Standards Board, and the Commission's rules and regulations.
- Led Staff's review of an application for relaxed regulatory treatment by Qwest Corporation. Provided expert testimony regarding Qwest's market share in Colorado relative to cable providers, wireless providers, and Competitive Local Exchange Carriers. Assisted professional market research firm in designing questionnaire to examine customer preferences for purchasing telecommunications services, expectations concerning price and quality of those services, and desire for regulation over those services.
- Led Staff's investigation into a Competitive Local Exchange Carrier who was providing regulated telephone service to over 14,000 customers without the requisite Commission authority and without an effective tariff. This investigation resulted in a Commission order to cease and desist provision of regulated services, an order to transfer customers to an alternative provider, and sanctions against the principals.
- Administered the Colorado High Cost Support Mechanism, which provided universal telecommunications service to customers in rural, high costs areas through an assessment on all Colorado customers. Also, later supervised the position that administered this program.

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## **PUBLICATIONS AND RESEARCH**

- "Autopilot Error: Why Similar U.S. and Canadian Risk Profiles Yield Varied Rate-making Results" (with John Trogonoski), Public Utilities Fortnightly, May 2010

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## **PROFESSIONAL HISTORY**

### **Concentric Energy Advisors, Inc. (2008 – Present)**

Senior Project Manager

Project Manager

Senior Consultant

### **Colorado Public Utilities Commission (2004 – 2008)**

Supervisory Financial Analyst, Telecommunications and Energy

### **Colorado Public Utilities Commission (1999 – 2004)**

Financial Analyst, Telecommunications, Energy and Water

### **State of Colorado, Division of Property Taxation (1994 – 1999)**

Property Tax Specialist



**Nobel Sysco, Inc. (1992 – 1994)**

Marketing Associate

**State of Colorado, Division of Property Taxation (1989 – 1991)**

Tax Appraiser Consultant

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**EDUCATION**

M.S. in Business Administration, University of Colorado at Denver, 1987

B.S. in Marketing, University of Colorado at Denver, 1986

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| SPONSOR                                     | DATE | CASE/APPLICANT                                    | DOCKET NO. | SUBJECT                                                                                                                                                                          |
|---------------------------------------------|------|---------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Colorado Public Utilities Commission</b> |      |                                                   |            |                                                                                                                                                                                  |
| Colorado PUC Staff                          | 2000 | Qwest Corporation                                 | 99A-577T   | Capital Structure<br>Cost of Capital<br>Cost of Debt<br>Composite Income Tax Rate<br>Interest During Construction factor<br>Ad Valorem Tax factor                                |
| Colorado PUC Staff                          | 2001 | Peetz Cooperative Telephone                       | 01S-321T   | Cost of Capital<br>Revenue Requirement<br>Adjustments to Rate Base<br>Adjustment to Operating Expenses<br>Imputed Capital Structure<br>Capital Credit Rotation                   |
| Colorado PUC Staff                          | 2002 | Mile High Telecom                                 | 02C-082T   | Order to show cause<br>Operating without CPCN or tariff<br>Violation of stipulation – alleged fraud                                                                              |
| Colorado PUC Staff                          | 2002 | Public Service Company of Colorado – Electric/Gas | 02S-315EG  | Cost of Capital<br>Dissolution of PS Credit Corporation<br>Financial Integrity and credit ratings<br>Impact of NRG on regulated entity<br>Dividend payments and capital spending |
| Colorado PUC Staff                          | 2003 | Aquila Networks, Inc.                             | 02S-594E   | Cost of Capital                                                                                                                                                                  |



| SPONSOR            | DATE | CASE/APPLICANT             | DOCKET NO. | SUBJECT                                                                                                                                                                                                                                                             |
|--------------------|------|----------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Colorado PUC Staff | 2003 | Lake Durango Water Company | 03S-052W   | Allowable expenses – depreciation and taxes<br>Value of purchased water<br>Operating Ratio method<br>Rate design for retail and bulk customers<br>Customer impact of proposed rates<br>Enhancement of accounting & financial reports                                |
| Colorado PUC Staff | 2003 | Roggen Telephone           | 03S-246T   | Cost of Capital                                                                                                                                                                                                                                                     |
| Colorado PUC Staff | 2003 | South Park Telephone       | 03A-277T   | Request for HCSM support<br>Adjustments to Rate Base<br>Disallowance of Expenses<br>Depreciation rates and USF impact<br>Cost of Capital                                                                                                                            |
| Colorado PUC Staff | 2003 | Pine Drive Telephone       | 03S-314T   | Cost of Capital                                                                                                                                                                                                                                                     |
| Colorado PUC Staff | 2003 | Phillips County Telephone  | 03S-315T   | Cost of Capital                                                                                                                                                                                                                                                     |
| Colorado PUC Staff | 2004 | Aquila Networks, Inc.      | 04S-035E   | Cost of Capital                                                                                                                                                                                                                                                     |
| Colorado PUC Staff | 2004 | SC TxLink, LLC             | 04A-508    | CPCN for CLEC authority<br>Financial Assurance - bonding                                                                                                                                                                                                            |
| Colorado PUC Staff | 2005 | Qwest Corporation          | 04A-411T   | History of CLEC competition since 1996<br>Wireless competition in Colorado<br>Is Wireless substitute for wireline?<br>Financial barriers to entry<br>Introduce customer survey<br>Analyze and interpret survey results<br>Regulation of retail service in 14 states |



| SPONSOR                                                                | DATE | CASE/APPLICANT                                                         | DOCKET NO.        | SUBJECT                                                                                                                                                                       |
|------------------------------------------------------------------------|------|------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Colorado PUC Staff                                                     | 2005 | Public Service Company of Colorado – Gas                               | 05S-264G          | Cost of Capital – investor owned<br>Rate design issues in Phase 2 – S&F Charge<br>Impact on rate of return – minimum system                                                   |
| Colorado PUC Staff                                                     | 2005 | Public Service Company of Colorado - Steam                             | 05S-369ST         | Cost of Capital                                                                                                                                                               |
| Colorado PUC Staff                                                     | 2006 | Public Service Company of Colorado - Electric                          | 06S-234EG         | Cost of Capital<br>Credit quality and cash flow<br>Financial integrity and credit ratings<br>Purchased power and imputed debt<br>Performance based regulatory plan            |
| Colorado PUC Staff                                                     | 2007 | Public Service Company of Colorado - Gas                               | 06S-656G          | Cost of Capital<br>Financial integrity and credit ratings                                                                                                                     |
| Colorado PUC Staff                                                     | 2007 | Nunn Telephone                                                         | 07A-124T          | Overview of HCSM statutes and rules<br>Information required by CRS 40-15-208<br>Use of separation program – revenue requirement<br>Challenges faced with new petition process |
| <b>Subpoenas to Provide Expert Testimony</b>                           |      |                                                                        |                   |                                                                                                                                                                               |
| U.S. Bankruptcy Court – Denver, CO                                     | 2005 | ON Systems, Inc.                                                       | N/A               | Testify in U.S. bankruptcy court - value of CPCN                                                                                                                              |
| U.S. District Court, Southern District of Florida                      | 2008 | USA vs. Wetherald, et al                                               | 06-80199-CR-MARRA | Testify on behalf of U.S. government<br>Wire fraud, mail fraud, money laundering                                                                                              |
| <b>New York Public Service Commission</b>                              |      |                                                                        |                   |                                                                                                                                                                               |
| New York State Gas and Electric Company and Rochester Gas and Electric | 2015 | New York State Gas and Electric Company and Rochester Gas and Electric | 15G-0284          | Cost of Capital (Rebuttal)                                                                                                                                                    |



| SPONSOR                                                 | DATE | CASE/APPLICANT                                          | DOCKET NO.             | SUBJECT                                   |
|---------------------------------------------------------|------|---------------------------------------------------------|------------------------|-------------------------------------------|
| Niagara Mohawk Power Corporation d/b/a National Grid    | 2017 | Niagara Mohawk Power Corporation d/b/a National Grid    | 17-E-0238<br>17-G-0239 | Cost of Capital (Rebuttal)                |
| <b>Régie de l'Énergie du Québec</b>                     |      |                                                         |                        |                                           |
| Hydro Quebec Distribution and Hydro Quebec TransÉnergie | 2013 | Hydro Quebec Distribution and Hydro Quebec TransÉnergie | R-3842-2013            | Risk analysis in support of ROE testimony |

Canadian & U.S. Macroeconomic Factors

|                          | [1]              | [2]     | [3]                  | [4]                  | [5]             | [6]   | [7]        | [8]   | [9]                | [10] | [9]                | [10] | [11]                                  | [11]                            | [12]         | [13] | [14]                               |
|--------------------------|------------------|---------|----------------------|----------------------|-----------------|-------|------------|-------|--------------------|------|--------------------|------|---------------------------------------|---------------------------------|--------------|------|------------------------------------|
|                          | Total Return on: |         | Total Return on:     |                      | Real GDP Growth |       | CPI Change |       | 10-year Gov't Bond |      | 30-year Gov't Bond |      | Exports                               |                                 | Unemployment |      | Currency                           |
|                          | S&P/TSX          | S&P 500 | S&P/TSX<br>Utilities | S&P 500<br>Utilities | Canada          | U.S.  | Canada     | U.S.  | Canada             | U.S. | Canada             | U.S. | Canada to<br>U.S./<br>Canadian<br>GDP | U.S. to<br>Canada /<br>U.S. GDP | Canada       | U.S. | Exchange<br>Rate<br>(CAD /<br>USD) |
| 1990                     | -18.7            | -4.9    | -1.6                 | -1.4                 | 0.1             | 1.9   | 4.8        | 5.4   | 10.8               | 8.5  | n/a                | 8.6  | 16.1                                  | 2.0                             | 8.2          | 5.6  | 1.17                               |
| 1991                     | 8.4              | 31.9    | -3.5                 | 25.0                 | -2.1            | -0.1  | 5.6        | 4.2   | 9.4                | 7.8  | 9.8                | 8.1  | 15.6                                  | 1.9                             | 10.3         | 6.9  | 1.15                               |
| 1992                     | -4.1             | 7.6     | 2.1                  | 7.2                  | 0.9             | 3.6   | 1.5        | 3.0   | 8.1                | 7.0  | 8.8                | 7.7  | 17.3                                  | 2.1                             | 11.2         | 7.5  | 1.21                               |
| 1993                     | 32.2             | 10.1    | 16.3                 | 13.4                 | 2.7             | 2.7   | 1.9        | 3.0   | 7.2                | 5.9  | 8.0                | 6.6  | 20.0                                  | 2.5                             | 11.4         | 6.9  | 1.29                               |
| 1994                     | -1.3             | 1.2     | 3.8                  | -11.1                | 4.5             | 4.0   | 0.2        | 2.6   | 8.4                | 7.1  | 8.7                | 7.4  | 23.0                                  | 3.0                             | 10.4         | 6.1  | 1.37                               |
| 1995                     | 15.1             | 37.6    | -2.0                 | 32.0                 | 2.7             | 2.7   | 2.1        | 2.8   | 8.1                | 6.6  | 8.5                | 6.9  | 24.8                                  | 3.2                             | 9.5          | 5.6  | 1.37                               |
| 1996                     | 26.7             | 22.0    | 17.5                 | 5.2                  | 1.6             | 3.8   | 1.6        | 3.0   | 7.2                | 6.4  | 7.8                | 6.7  | 25.9                                  | 3.1                             | 9.6          | 5.4  | 1.36                               |
| 1997                     | 15.3             | 34.0    | 32.1                 | 25.7                 | 4.3             | 4.5   | 1.6        | 2.3   | 6.1                | 6.3  | 6.7                | 6.6  | 26.8                                  | 3.5                             | 9.1          | 4.9  | 1.38                               |
| 1998                     | -2.0             | 27.9    | -0.2                 | 15.3                 | 3.9             | 4.4   | 1.0        | 1.6   | 5.3                | 5.3  | 5.6                | 5.6  | 28.7                                  | 3.9                             | 8.3          | 4.5  | 1.48                               |
| 1999                     | 30.4             | 21.1    | -30.8                | -9.2                 | 5.2             | 4.7   | 1.7        | 2.2   | 5.6                | 5.6  | 5.7                | 5.9  | 30.8                                  | 4.0                             | 7.6          | 4.2  | 1.49                               |
| 2000                     | 10.1             | -4.6    | 42.1                 | 61.2                 | 5.2             | 4.1   | 2.7        | 3.4   | 5.9                | 6.0  | 5.7                | 5.9  | 32.6                                  | 4.0                             | 6.8          | 4.0  | 1.49                               |
| 2001                     | -9.3             | -9.3    | 7.3                  | -27.8                | 1.8             | 1.0   | 2.5        | 2.8   | 5.5                | 5.0  | 5.8                | 5.5  | 30.9                                  | 3.8                             | 7.2          | 4.7  | 1.55                               |
| 2002                     | -11.9            | -22.6   | 3.4                  | -30.9                | 3.0             | 1.8   | 2.3        | 1.6   | 5.3                | 4.6  | 5.7                | 5.3  | 29.3                                  | 3.8                             | 7.7          | 5.8  | 1.57                               |
| 2003                     | 24.2             | 24.5    | 23.4                 | 23.3                 | 1.8             | 2.8   | 2.8        | 2.3   | 4.8                | 4.0  | 5.3                | 4.9  | 26.3                                  | 3.0                             | 7.6          | 6.0  | 1.40                               |
| 2004                     | 13.4             | 11.2    | 8.7                  | 24.3                 | 3.1             | 3.8   | 1.9        | 2.7   | 4.6                | 4.3  | 5.1                | 5.0  | 26.4                                  | 2.7                             | 7.2          | 5.5  | 1.30                               |
| 2005                     | 25.4             | 7.0     | 37.6                 | 19.2                 | 3.2             | 3.3   | 2.2        | 3.4   | 4.1                | 4.3  | 4.4                | 4.6  | 26.0                                  | 2.5                             | 6.8          | 5.1  | 1.21                               |
| 2006                     | 15.5             | 13.9    | 5.8                  | 18.7                 | 2.6             | 2.7   | 2.0        | 3.2   | 4.2                | 4.8  | 4.3                | 4.9  | 24.2                                  | 2.3                             | 6.3          | 4.6  | 1.13                               |
| 2007                     | 11.6             | 5.7     | 11.8                 | 18.9                 | 2.1             | 1.8   | 2.1        | 2.8   | 4.3                | 4.6  | 4.3                | 4.8  | 22.6                                  | 2.1                             | 6.0          | 4.6  | 1.07                               |
| 2008                     | -33.5            | -36.1   | -20.4                | -28.0                | 1.0             | -0.3  | 2.4        | 3.8   | 3.6                | 3.6  | 4.1                | 4.3  | 22.4                                  | 2.1                             | 6.2          | 5.8  | 1.07                               |
| 2009                     | 31.3             | 22.6    | 15.9                 | 9.4                  | -2.9            | -2.8  | 0.3        | -0.4  | 3.2                | 3.2  | 3.9                | 4.1  | 17.3                                  | 1.9                             | 8.4          | 9.3  | 1.14                               |
| 2010                     | 16.3             | 13.2    | 18.6                 | 5.2                  | 3.1             | 2.5   | 1.8        | 1.6   | 3.2                | 3.2  | 3.8                | 4.2  | 17.8                                  | 1.9                             | 8.0          | 9.6  | 1.03                               |
| 2011                     | -8.5             | 1.1     | 6.0                  | 18.7                 | 3.1             | 1.6   | 2.9        | 3.2   | 2.8                | 2.8  | 3.3                | 3.9  | 18.6                                  | 1.8                             | 7.5          | 8.9  | 0.99                               |
| 2012                     | 4.9              | 14.2    | 3.3                  | 3.0                  | 1.7             | 2.2   | 1.5        | 2.1   | 1.9                | 1.8  | 2.4                | 2.9  | 18.5                                  | 1.8                             | 7.3          | 8.1  | 1.00                               |
| 2013                     | 12.0             | 29.1    | -4.9                 | 11.2                 | 2.5             | 1.7   | 0.9        | 1.5   | 2.3                | 2.3  | 2.8                | 3.4  | 18.8                                  | 1.8                             | 7.1          | 7.4  | 1.03                               |
| 2014                     | 10.7             | 14.7    | 16.2                 | 31.0                 | 2.9             | 2.6   | 1.9        | 1.6   | 2.2                | 2.5  | 2.8                | 3.3  | 20.2                                  | 1.8                             | 6.9          | 6.2  | 1.10                               |
| 2015                     | -9.2             | 1.4     | -4.4                 | -5.4                 | 1.0             | 2.9   | 1.1        | 0.1   | 1.5                | 2.1  | 2.2                | 2.8  | 19.9                                  | 1.5                             | 6.9          | 5.3  | 1.28                               |
| 2016                     | 21.9             | 13.7    | 18.7                 | 16.6                 | 1.4             | 1.5   | 1.4        | 1.3   | 1.3                | 1.8  | 1.9                | 2.6  | 19.3                                  | 1.4                             | 7.0          | 4.9  | 1.32                               |
| 2017                     | 8.3              | 20.8    | 11.6                 | 12.4                 | 2.6             | 2.3   | 1.6        | 2.1   | 1.8                | 2.3  | 2.3                | 2.9  | 19.2                                  | 1.5                             | 6.3          | 4.4  | 1.31                               |
| 25-year Avg.             | 9.99             | 10.97   | 9.49                 | 10.10                | 2.56            | 2.49  | 1.78       | 2.26  | 4.41               | 4.26 | 4.84               | 4.84 | 23.36                                 | 2.60                            | 7.72         | 5.91 | 1.27                               |
| 10-year Avg.             | 5.42             | 9.46    | 6.06                 | 7.43                 | 1.641           | 1.413 | 1.587      | 1.695 | 2.378              | 2.58 | 2.94               | 3.45 | 19.50                                 | 1.75                            | 7.16         | 6.97 | 1.13                               |
| 5-year Avg.              | 8.73             | 15.92   | 7.43                 | 13.17                | 2.08            | 2.17  | 1.40       | 1.32  | 1.81               | 2.23 | 2.40               | 3.02 | 19.30                                 | 1.61                            | 6.85         | 5.60 | 1.21                               |
| Correlation              | 0.70             |         | 0.61                 |                      | 0.85            |       | 0.63       |       | 0.97               |      | 0.98               |      | 0.92                                  |                                 | 0.24         |      | --                                 |
| Consensus Forecasts [15] |                  |         |                      |                      |                 |       |            |       |                    |      |                    |      |                                       |                                 |              |      |                                    |
| 2019                     |                  |         |                      |                      | 1.90            | 2.60  | 2.00       | 2.10  | 2.70               | 3.20 |                    |      |                                       |                                 | 5.90         | 3.90 | 1.26                               |
| 2020                     |                  |         |                      |                      | 1.80            | 1.80  | 2.00       | 2.20  | 3.20               | 3.50 |                    |      |                                       |                                 | 5.80         | 3.60 | 1.25                               |
| 2021                     |                  |         |                      |                      | 1.60            | 1.90  | 1.90       | 2.20  | 3.30               | 3.50 |                    |      |                                       |                                 |              |      |                                    |

Notes:

- [1] Source: Bloomberg Professional; total return index gross dividend yield  
[2] Source: Bloomberg Professional; total return index gross dividend yield  
[3] Source: Bloomberg Professional; total return index gross dividend yield  
[4] Source: Bloomberg Professional; total return index gross dividend yield  
[5] Source: Statistics Canada; expenditure-based GDP at market prices, chained 2007 prices, seasonally adjusted, accessed March 1, 2018  
[6] Source: U.S. Bureau of Economic Analysis; Table 1.1.6 Real Gross Domestic Product, chained 2009 dollars, seasonally adjusted, accessed March 1, 2018  
[7] Source: Statistics Canada; Consumer Price Index (2002=100), All items, not seasonally adjusted, accessed March 1, 2018  
[8] Source: U.S. Bureau of Labor Statistics; CPI-All Urban Consumers (1982-84=100), all items, not seasonally adjusted, accessed March 1, 2018  
[9] Source: Bank of Canada  
[10] Source: Bloomberg Professional  
[11] Source: Statistics Canada, Imports, exports and trade balance of goods by country and Gross domestic product, expenditure-based; United States Census Bureau, trade in goods with Canada; and U.S. Bureau of Economic Analysis Table 1.1.5 GDP  
[12] Source: Statistics Canada; Labour force survey estimates (LFS), unemployment rate, 15 years and over, seasonally adjusted, accessed March 1, 2018  
[13] Source: U.S. Bureau of Labor Statistics, Unemployment Rate, seasonally adjusted, accessed March 1, 2018  
[14] Source: Federal Reserve Economic Data  
[15] Source: Consensus Forecasts, Survey Date April 9, 2018.

**U.S. PROXY GROUP**

|                                       |        | [1]           | [2]                           | [3]                                                                      | [4]                          | [5]                         | [6]                              | [7]                          | [8]                                       | [9]                                           | [10]                                         | [11]                                                                  | [12]                              |
|---------------------------------------|--------|---------------|-------------------------------|--------------------------------------------------------------------------|------------------------------|-----------------------------|----------------------------------|------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|-----------------------------------|
|                                       |        |               |                               | Postive<br>Earnings<br>Growth by<br>more than<br>one Analyst<br>(Yes/No) | Market Cap<br>(US\$ Million) | Total Electric<br>Customers | Total<br>Revenue<br>(\$ Million) | Total Assets<br>(\$ Million) | Owned<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Income /<br>Total Income<br>(%) | Regulated<br>Electric<br>Income /<br>Total<br>Regulated<br>Income (%) | Involved in<br>Merger<br>(Yes/No) |
| Company                               | Ticker | S&P<br>Rating | Pays<br>Dividends<br>(Yes/No) |                                                                          |                              |                             |                                  |                              |                                           |                                               |                                              |                                                                       |                                   |
| ALLETE, Inc.                          | ALE    | BBB+          | Yes                           | Yes                                                                      | 3,856                        | 160,000                     | 1,444                            | 5,080                        | Yes                                       | Yes                                           | 83%                                          | 97%                                                                   | No                                |
| Alliant Energy Corporation            | LNT    | A-            | Yes                           | Yes                                                                      | 10,195                       | 962,121                     | 3,461                            | 14,188                       | Yes                                       | Yes                                           | 101%                                         | 95%                                                                   | No                                |
| American Electric Power Company, Inc. | AEP    | A-            | Yes                           | Yes                                                                      | 35,358                       | 5,400,000                   | 15,874                           | 64,729                       | Yes                                       | Yes                                           | 91%                                          | 100%                                                                  | No                                |
| Duke Energy Corporation               | DUK    | A-            | Yes                           | Yes                                                                      | 57,872                       | 7,595,791                   | 24,064                           | 137,914                      | Yes                                       | Yes                                           | 106%                                         | 95%                                                                   | No                                |
| Edison International                  | EIX    | BBB+          | Yes                           | Yes                                                                      | 21,416                       | 5,097,818                   | 12,475                           | 52,580                       | Yes                                       | Yes                                           | 106%                                         | 100%                                                                  | No                                |
| Eversource Energy                     | ES     | A+            | Yes                           | Yes                                                                      | 19,783                       | 3,187,126                   | 7,830                            | 36,220                       | Yes                                       | No                                            | 97%                                          | 91%                                                                   | No                                |
| OGE Energy Corporation                | OGE    | BBB+          | Yes                           | Yes                                                                      | 7,356                        | 841,830                     | 2,478                            | 10,413                       | Yes                                       | Yes                                           | 102%                                         | 100%                                                                  | No                                |
| Pinnacle West Capital Corporation     | PNW    | A-            | Yes                           | Yes                                                                      | 8,796                        | 1,221,485                   | 3,616                            | 17,019                       | Yes                                       | Yes                                           | 72%                                          | 100%                                                                  | No                                |
| PNM Resources, Inc.                   | PNM    | BBB+          | Yes                           | Yes                                                                      | 3,103                        | 773,444                     | 1,508                            | 6,646                        | Yes                                       | Yes                                           | 100%                                         | 100%                                                                  | No                                |
| Average                               |        |               |                               |                                                                          |                              |                             |                                  |                              |                                           |                                               | 95%                                          | 98%                                                                   |                                   |

Notes:

- [1] Source: SNL Financial  
[2] Source: Bloomberg Professional  
[3] Source: Value Line, Zacks and Yahoo Finance  
[4] Source: Bloomberg Professional, as of August 31, 2018  
[5] Source: SNL Financial, as of 12/31/2017  
[6] Source: SNL Financial, as of 12/31/2017  
[7] Source: SNL Financial, as of 12/31/2017  
[8] Source: Company 10-K reports, most recent year  
[9] Source: Company 10-K reports, most recent year  
[10] - [11] Source: Company 10-K reports, average of three most recent years  
[12] Source: Bloomberg Professional



CANADIAN PROXY GROUP

|                            | [1]    | [2]           | [3]                           | [4]                                                                      | [5]                         | [6]                         | [7]                              | [8]                          | [9]                                       | [10]                                          | [11]                                              | [12]                                                                  |                                   |
|----------------------------|--------|---------------|-------------------------------|--------------------------------------------------------------------------|-----------------------------|-----------------------------|----------------------------------|------------------------------|-------------------------------------------|-----------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------|
|                            |        |               |                               | Postive<br>Earnings<br>Growth by<br>more than<br>one Analyst<br>(Yes/No) | Market Cap<br>(C\$ Million) | Total Electric<br>Customers | Total<br>Revenue<br>(\$ Million) | Total Assets<br>(\$ Million) | Owned<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Oper Income<br>/ Total<br>Income (%) | Regulated<br>Electric<br>Income /<br>Total<br>Regulated<br>Income (%) | Involved in<br>Merger<br>(Yes/No) |
| Company                    | Ticker | S&P<br>Rating | Pays<br>Dividends<br>(Yes/No) |                                                                          |                             |                             |                                  |                              |                                           |                                               |                                                   |                                                                       |                                   |
| Canadian Utilities Limited | CU     | A-            | Yes                           | Yes                                                                      | 6,292                       | 256,343                     | 4,095                            | 20,825                       | Yes                                       | No                                            | 50%                                               | N/A                                                                   | No                                |
| Emera Inc.                 | EMA    | BBB+          | Yes                           | Yes                                                                      | 9,574                       | 1,121,516                   | 6,352                            | 28,771                       | Yes                                       | Yes                                           | 94%                                               | N/A                                                                   | No                                |
| Enbridge Inc.              | ENB    | BBB+          | Yes                           | Yes                                                                      | 76,353                      | n/a                         | 45,932                           | 162,093                      | Yes                                       | No                                            | 28%                                               | 0.00%                                                                 | No                                |
| Valener Inc.               | VNR    | N/A           | Yes                           | No                                                                       | 786                         | n/a                         | 74                               | 922                          | No                                        | Yes                                           | N/A                                               | N/A                                                                   | No                                |

Notes:

- [1] Source: SNL Financial
- [2] Source: Bloomberg Professional
- [3] Source: Value Line, Zacks and Yahoo Finance
- [4] Source: Bloomberg Professional, as of August 31, 2018
- [5] Source: SNL Financial, as of 12/31/2017
- [6] Source: SNL Financial, as of 12/31/2017
- [7] Source: SNL Financial, as of 12/31/2017
- [8] Source: Company 10-K reports, most recent year
- [9] Source: Company 10-K reports, most recent year
- [10] Source: Company Annual Reports, average of three most recent years
- [11] Source: Company Annual Reports, average of three most recent years
- [12] Source: Bloomberg Professional

**NORTH AMERICA ELECTRIC PROXY GROUP**

|                                       |        | [1]           | [2]                           | [3]                                                                      | [4]                        | [5]                         | [6]                              | [7]                          | [8]                                       | [9]                                           | [10]                                         | [11]                                                                  | [12]                              |
|---------------------------------------|--------|---------------|-------------------------------|--------------------------------------------------------------------------|----------------------------|-----------------------------|----------------------------------|------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|-----------------------------------|
|                                       |        |               |                               | Postive<br>Earnings<br>Growth by<br>more than<br>one Analyst<br>(Yes/No) | Market Cap<br>(\$ Million) | Total Electric<br>Customers | Total<br>Revenue<br>(\$ Million) | Total Assets<br>(\$ Million) | Owned<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Generation<br>Assets<br>(Yes/No) | Regulated<br>Income /<br>Total Income<br>(%) | Regulated<br>Electric<br>Income /<br>Total<br>Regulated<br>Income (%) | Involved in<br>Merger<br>(Yes/No) |
| Company                               | Ticker | S&P<br>Rating | Pays<br>Dividends<br>(Yes/No) |                                                                          |                            |                             |                                  |                              |                                           |                                               |                                              |                                                                       |                                   |
| ALLETE, Inc.                          | ALE    | BBB+          | Yes                           | Yes                                                                      | 3,856                      | 160,000                     | 1,444                            | 5,080                        | Yes                                       | Yes                                           | 83%                                          | 97%                                                                   | No                                |
| Alliant Energy Corporation            | LNT    | A-            | Yes                           | Yes                                                                      | 10,195                     | 962,121                     | 3,461                            | 14,188                       | Yes                                       | Yes                                           | 101%                                         | 95%                                                                   | No                                |
| American Electric Power Company, Inc. | AEP    | A-            | Yes                           | Yes                                                                      | 35,358                     | 5,400,000                   | 15,874                           | 64,729                       | Yes                                       | Yes                                           | 91%                                          | 100%                                                                  | No                                |
| Duke Energy Corporation               | DUK    | A-            | Yes                           | Yes                                                                      | 57,872                     | 7,595,791                   | 24,064                           | 137,914                      | Yes                                       | Yes                                           | 106%                                         | 95%                                                                   | No                                |
| Edison International                  | EIX    | BBB+          | Yes                           | Yes                                                                      | 21,416                     | 5,097,818                   | 12,475                           | 52,580                       | Yes                                       | Yes                                           | 106%                                         | 100%                                                                  | No                                |
| Eversource Energy                     | ES     | A+            | Yes                           | Yes                                                                      | 19,783                     | 3,187,126                   | 7,830                            | 36,220                       | Yes                                       | No                                            | 97%                                          | 91%                                                                   | No                                |
| OGE Energy Corporation                | OGE    | BBB+          | Yes                           | Yes                                                                      | 7,356                      | 841,830                     | 2,478                            | 10,413                       | Yes                                       | Yes                                           | 102%                                         | 100%                                                                  | No                                |
| Pinnacle West Capital Corporation     | PNW    | A-            | Yes                           | Yes                                                                      | 8,796                      | 1,221,485                   | 3,616                            | 17,019                       | Yes                                       | Yes                                           | 72%                                          | 100%                                                                  | No                                |
| PNM Resources, Inc.                   | PNM    | BBB+          | Yes                           | Yes                                                                      | 3,103                      | 773,444                     | 1,508                            | 6,646                        | Yes                                       | Yes                                           | 100%                                         | 100%                                                                  | No                                |
| Canadian Utilities Limited            | CU     | A-            | Yes                           | Yes                                                                      | 6,292                      | 256,343                     | 4,095                            | 20,825                       | Yes                                       | No                                            | 50%                                          | N/A                                                                   | No                                |
| Emera Inc.                            | EMA    | BBB+          | Yes                           | Yes                                                                      | 9,574                      | 1,121,516                   | 6,352                            | 28,771                       | Yes                                       | Yes                                           | 94%                                          | N/A                                                                   | No                                |

Notes:

- [1] Source: SNL Financial  
[2] Source: Bloomberg Professional  
[3] Source: Value Line, Zacks and Yahoo Finance  
[4] Source: Bloomberg Professional, as of August 31, 2018  
[5] Source: SNL Financial, as of 12/31/2017  
[6] Source: SNL Financial, as of 12/31/2017  
[7] Source: SNL Financial, as of 12/31/2017  
[8] Source: Company 10-K reports, most recent year  
[9] Source: Company 10-K reports, most recent year  
[10] Source: Company 10-K reports, average of three most recent years  
[11] Source: Company 10-K reports, average of three most recent years  
[12] Source: Bloomberg Professional



### 30-DAY CONSTANT GROWTH DCF -- U.S. PROXY GROUP

|                                       |        | [1]                    | [2]         | [3]               | [4]               | [5]                 | [6]               | [7]                  | [8]            | [9]            | [10]            | [11]            |
|---------------------------------------|--------|------------------------|-------------|-------------------|-------------------|---------------------|-------------------|----------------------|----------------|----------------|-----------------|-----------------|
|                                       |        |                        |             |                   | Expected          |                     |                   |                      | Average        |                |                 |                 |
| Company                               | Ticker | Annualized<br>Dividend | Stock Price | Dividend<br>Yield | Dividend<br>Yield | Zacks EPS<br>Growth | SNL EPS<br>Growth | First Call<br>Growth | Growth<br>Rate | Low DCF<br>ROE | Mean DCF<br>ROE | High DCF<br>ROE |
| ALLETE, Inc.                          | ALE    | \$2.24                 | \$76.95     | 2.91%             | 3.00%             | 6.00%               | 6.90%             | 6.00%                | 6.30%          | 9.00%          | 9.30%           | 9.91%           |
| Alliant Energy Corporation            | LNT    | \$1.34                 | \$42.81     | 3.13%             | 3.22%             | 5.50%               | 5.74%             | 5.75%                | 5.66%          | 8.72%          | 8.88%           | 8.97%           |
| American Electric Power Company, Inc. | AEP    | \$2.48                 | \$71.08     | 3.49%             | 3.59%             | 5.60%               | 5.95%             | 5.59%                | 5.71%          | 9.18%          | 9.30%           | 9.54%           |
| Duke Energy Corporation               | DUK    | \$3.71                 | \$81.01     | 4.58%             | 4.68%             | 4.60%               | 4.90%             | 4.13%                | 4.54%          | 8.80%          | 9.23%           | 9.59%           |
| Edison International                  | EIX    | \$2.42                 | \$67.24     | 3.60%             | 3.68%             | 5.80%               | 3.74%             | 3.44%                | 4.33%          | 7.10%          | 8.00%           | 9.50%           |
| Eversource Energy                     | ES     | \$2.02                 | \$61.35     | 3.29%             | 3.39%             | 5.90%               | 5.95%             | 5.80%                | 5.88%          | 9.19%          | 9.27%           | 9.34%           |
| OGE Energy Corporation                | OGE    | \$1.33                 | \$36.62     | 3.63%             | 3.72%             | 4.80%               | 4.83%             | 4.70%                | 4.78%          | 8.42%          | 8.50%           | 8.55%           |
| Pinnacle West Capital Corporation     | PNW    | \$2.78                 | \$80.58     | 3.45%             | 3.53%             | 4.50%               | 5.00%             | 3.72%                | 4.41%          | 7.23%          | 7.93%           | 8.54%           |
| PNM Resources, Inc.                   | PNM    | \$1.06                 | \$39.35     | 2.69%             | 2.76%             | 4.60%               | 5.10%             | 4.45%                | 4.72%          | 7.20%          | 7.47%           | 7.86%           |
| MEAN                                  |        |                        |             | 3.42%             | 3.51%             | 5.26%               | 5.35%             | 4.84%                | 5.15%          | 8.32%          | 8.65%           | 9.09%           |
| Flotation Costs [12]                  |        |                        |             |                   |                   |                     |                   |                      |                | 0.50%          | 0.50%           | 0.50%           |
|                                       |        |                        |             |                   |                   |                     |                   |                      |                | 8.82%          | 9.15%           | 9.59%           |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 30-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

### 30-DAY CONSTANT GROWTH DCF -- CANADIAN PROXY GROUP

|                            |        | [1]                    | [2]         | [3]               | [4]               | [5]                 | [6]               | [7]                  | [8]            | [9]            | [10]            | [11]            |
|----------------------------|--------|------------------------|-------------|-------------------|-------------------|---------------------|-------------------|----------------------|----------------|----------------|-----------------|-----------------|
|                            |        |                        |             |                   | Expected          |                     |                   |                      | Average        |                |                 |                 |
| Company                    | Ticker | Annualized<br>Dividend | Stock Price | Dividend<br>Yield | Dividend<br>Yield | Zacks EPS<br>Growth | SNL EPS<br>Growth | First Call<br>Growth | Growth<br>Rate | Low DCF<br>ROE | Mean DCF<br>ROE | High DCF<br>ROE |
| Canadian Utilities Limited | CU     | \$1.57                 | \$32.33     | 4.87%             | 4.91%             | n/a                 | 2.05%             | 1.75%                | 1.90%          | 6.66%          | 6.81%           | 6.97%           |
| Emera Inc.                 | EMA    | \$2.26                 | \$41.53     | 5.44%             | 5.58%             | n/a                 | 5.90%             | 4.35%                | 5.13%          | 9.91%          | 10.71%          | 11.50%          |
| Enbridge Inc.              | ENB    | \$2.68                 | \$46.17     | 5.81%             | 5.95%             | 9.00%               | 4.60%             | 0.92%                | 4.84%          | 6.76%          | 10.79%          | 15.07%          |
| Valener Inc.               | VNR    | \$1.16                 | \$20.21     | 5.74%             | 5.77%             | n/a                 | 0.70%             | 1.68%                | 1.19%          | 6.46%          | 6.96%           | 7.47%           |
| MEAN                       |        |                        |             | 5.46%             | 5.56%             | 9.00%               | 3.31%             | 2.18%                | 3.26%          | 7.45%          | 8.82%           | 10.25%          |
| Flotation Costs [12]       |        |                        |             |                   |                   |                     |                   |                      |                | 0.50%          | 0.50%           | 0.50%           |
|                            |        |                        |             |                   |                   |                     |                   |                      |                | 7.95%          | 9.32%           | 10.75%          |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 30-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

### 30-DAY CONSTANT GROWTH DCF -- NORTH AMERICA ELECTRIC PROXY GROUP

|                                       |        | [1]                    | [2]         | [3]               | [4]               | [5]                 | [6]               | [7]                  | [8]            | [9]            | [10]            | [11]            |
|---------------------------------------|--------|------------------------|-------------|-------------------|-------------------|---------------------|-------------------|----------------------|----------------|----------------|-----------------|-----------------|
|                                       |        |                        |             |                   | Expected          |                     |                   |                      | Average        |                |                 |                 |
| Company                               | Ticker | Annualized<br>Dividend | Stock Price | Dividend<br>Yield | Dividend<br>Yield | Zacks EPS<br>Growth | SNL EPS<br>Growth | First Call<br>Growth | Growth<br>Rate | Low DCF<br>ROE | Mean DCF<br>ROE | High DCF<br>ROE |
| ALLETE, Inc.                          | ALE    | \$2.24                 | \$76.95     | 2.91%             | 3.00%             | 6.00%               | 6.90%             | 6.00%                | 6.30%          | 9.00%          | 9.30%           | 9.91%           |
| Alliant Energy Corporation            | LNT    | \$1.34                 | \$42.81     | 3.13%             | 3.22%             | 5.50%               | 5.74%             | 5.75%                | 5.66%          | 8.72%          | 8.88%           | 8.97%           |
| American Electric Power Company, Inc. | AEP    | \$2.48                 | \$71.08     | 3.49%             | 3.59%             | 5.60%               | 5.95%             | 5.59%                | 5.71%          | 9.18%          | 9.30%           | 9.54%           |
| Duke Energy Corporation               | DUK    | \$3.71                 | \$81.01     | 4.58%             | 4.68%             | 4.60%               | 4.90%             | 4.13%                | 4.54%          | 8.80%          | 9.23%           | 9.59%           |
| Edison International                  | EIX    | \$2.42                 | \$67.24     | 3.60%             | 3.68%             | 5.80%               | 3.74%             | 3.44%                | 4.33%          | 7.10%          | 8.00%           | 9.50%           |
| Eversource Energy                     | ES     | \$2.02                 | \$61.35     | 3.29%             | 3.39%             | 5.90%               | 5.95%             | 5.80%                | 5.88%          | 9.19%          | 9.27%           | 9.34%           |
| OGE Energy Corporation                | OGE    | \$1.33                 | \$36.62     | 3.63%             | 3.72%             | 4.80%               | 4.83%             | 4.70%                | 4.78%          | 8.42%          | 8.50%           | 8.55%           |
| Pinnacle West Capital Corporation     | PNW    | \$2.78                 | \$80.58     | 3.45%             | 3.53%             | 4.50%               | 5.00%             | 3.72%                | 4.41%          | 7.23%          | 7.93%           | 8.54%           |
| PNM Resources, Inc.                   | PNM    | \$1.06                 | \$39.35     | 2.69%             | 2.76%             | 4.60%               | 5.10%             | 4.45%                | 4.72%          | 7.20%          | 7.47%           | 7.86%           |
| Canadian Utilities Limited            | CU     | \$1.57                 | \$32.33     | 4.87%             | 4.91%             | n/a                 | 2.05%             | 1.75%                | 1.90%          | 6.66%          | 6.81%           | 6.97%           |
| Emera Inc.                            | EMA    | \$2.26                 | \$41.53     | 5.44%             | 5.58%             | n/a                 | 5.90%             | 4.35%                | 5.13%          | 9.91%          | 10.71%          | 11.50%          |
| MEAN                                  |        |                        |             | 3.73%             | 3.82%             | 5.26%               | 5.10%             | 4.52%                | 4.85%          | 8.31%          | 8.67%           | 9.12%           |
| Flotation Costs [12]                  |        |                        |             |                   |                   |                     |                   |                      |                | 0.50%          | 0.50%           | 0.50%           |
|                                       |        |                        |             |                   |                   |                     |                   |                      |                | 8.81%          | 9.17%           | 9.62%           |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 30-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

**90-DAY CONSTANT GROWTH DCF -- U.S. PROXY GROUP**

|                                       |        | [1]                    | [2]         | [3]               | [4]               | [5]                 | [6]               | [7]                  | [8]            | [9]            | [10]            | [11]            |
|---------------------------------------|--------|------------------------|-------------|-------------------|-------------------|---------------------|-------------------|----------------------|----------------|----------------|-----------------|-----------------|
|                                       |        |                        |             |                   | Expected          |                     |                   |                      | Average        |                |                 |                 |
| Company                               | Ticker | Annualized<br>Dividend | Stock Price | Dividend<br>Yield | Dividend<br>Yield | Zacks EPS<br>Growth | SNL EPS<br>Growth | First Call<br>Growth | Growth<br>Rate | Low DCF<br>ROE | Mean DCF<br>ROE | High DCF<br>ROE |
| ALLETE, Inc.                          | ALE    | \$2.24                 | \$76.49     | 2.93%             | 3.02%             | 6.00%               | 6.90%             | 6.00%                | 6.30%          | 9.02%          | 9.32%           | 9.93%           |
| Alliant Energy Corporation            | LNT    | \$1.34                 | \$41.96     | 3.19%             | 3.28%             | 5.50%               | 5.74%             | 5.75%                | 5.66%          | 8.78%          | 8.95%           | 9.03%           |
| American Electric Power Company, Inc. | AEP    | \$2.48                 | \$68.86     | 3.60%             | 3.70%             | 5.60%               | 5.95%             | 5.59%                | 5.71%          | 9.29%          | 9.42%           | 9.66%           |
| Duke Energy Corporation               | DUK    | \$3.71                 | \$78.63     | 4.72%             | 4.83%             | 4.60%               | 4.90%             | 4.13%                | 4.54%          | 8.95%          | 9.37%           | 9.73%           |
| Edison International                  | EIX    | \$2.42                 | \$64.17     | 3.77%             | 3.85%             | 5.80%               | 3.74%             | 3.44%                | 4.33%          | 7.28%          | 8.18%           | 9.68%           |
| Eversource Energy                     | ES     | \$2.02                 | \$58.69     | 3.44%             | 3.54%             | 5.90%               | 5.95%             | 5.80%                | 5.88%          | 9.34%          | 9.43%           | 9.49%           |
| OGE Energy Corporation                | OGE    | \$1.33                 | \$35.12     | 3.79%             | 3.88%             | 4.80%               | 4.83%             | 4.70%                | 4.78%          | 8.58%          | 8.65%           | 8.71%           |
| Pinnacle West Capital Corporation     | PNW    | \$2.78                 | \$79.21     | 3.51%             | 3.59%             | 4.50%               | 5.00%             | 3.72%                | 4.41%          | 7.29%          | 7.99%           | 8.60%           |
| PNM Resources, Inc.                   | PNM    | \$1.06                 | \$38.70     | 2.74%             | 2.80%             | 4.60%               | 5.10%             | 4.45%                | 4.72%          | 7.25%          | 7.52%           | 7.91%           |
| MEAN                                  |        |                        |             | 3.52%             | 3.61%             | 5.26%               | 5.35%             | 4.84%                | 5.15%          | 8.42%          | 8.76%           | 9.19%           |
| Flotation Costs [12]                  |        |                        |             |                   |                   |                     |                   |                      |                | 0.50%          | 0.50%           | 0.50%           |
|                                       |        |                        |             |                   |                   |                     |                   |                      |                | 8.92%          | 9.26%           | 9.69%           |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 90-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

### 90-DAY CONSTANT GROWTH DCF -- CANADIAN PROXY GROUP

|                            |        | [1]                 | [2]         | [3]            | [4]            | [5]              | [6]            | [7]               | [8]         | [9]         | [10]         | [11]         |
|----------------------------|--------|---------------------|-------------|----------------|----------------|------------------|----------------|-------------------|-------------|-------------|--------------|--------------|
|                            |        |                     |             |                | Expected       |                  |                |                   | Average     |             |              |              |
| Company                    | Ticker | Annualized Dividend | Stock Price | Dividend Yield | Dividend Yield | Zacks EPS Growth | SNL EPS Growth | First Call Growth | Growth Rate | Low DCF ROE | Mean DCF ROE | High DCF ROE |
| Canadian Utilities Limited | CU     | \$1.57              | \$32.31     | 4.87%          | 4.92%          | n/a              | 2.05%          | 1.75%             | 1.90%       | 6.66%       | 6.82%        | 6.97%        |
| Emera Inc.                 | EMA    | \$2.26              | \$41.33     | 5.47%          | 5.61%          | n/a              | 5.90%          | 4.35%             | 5.13%       | 9.94%       | 10.73%       | 11.53%       |
| Enbridge Inc.              | ENB    | \$2.68              | \$43.61     | 6.15%          | 6.30%          | 9.00%            | 4.60%          | 0.92%             | 4.84%       | 7.10%       | 11.14%       | 15.43%       |
| Valener Inc.               | VNR    | \$1.16              | \$20.30     | 5.72%          | 5.75%          | n/a              | 0.70%          | 1.68%             | 1.19%       | 6.44%       | 6.94%        | 7.44%        |
| MEAN                       |        |                     |             | 5.55%          | 5.64%          | 9.00%            | 3.31%          | 2.18%             | 3.26%       | 7.53%       | 8.91%        | 10.34%       |
| Flotation Costs [12]       |        |                     |             |                |                |                  |                |                   |             | 0.50%       | 0.50%        | 0.50%        |
|                            |        |                     |             |                |                |                  |                |                   |             | 8.03%       | 9.41%        | 10.84%       |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 90-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.



**90-DAY CONSTANT GROWTH DCF -- NORTH AMERICA ELECTRIC PROXY GROUP**

|                                       |        | [1]                 | [2]         | [3]            | [4]            | [5]              | [6]            | [7]               | [8]         | [9]         | [10]         | [11]         |
|---------------------------------------|--------|---------------------|-------------|----------------|----------------|------------------|----------------|-------------------|-------------|-------------|--------------|--------------|
|                                       |        |                     |             |                | Expected       |                  |                |                   | Average     |             |              |              |
| Company                               | Ticker | Annualized Dividend | Stock Price | Dividend Yield | Dividend Yield | Zacks EPS Growth | SNL EPS Growth | First Call Growth | Growth Rate | Low DCF ROE | Mean DCF ROE | High DCF ROE |
| ALLETE, Inc.                          | ALE    | \$2.24              | \$76.49     | 2.93%          | 3.02%          | 6.00%            | 6.90%          | 6.00%             | 6.30%       | 9.02%       | 9.32%        | 9.93%        |
| Alliant Energy Corporation            | LNT    | \$1.34              | \$41.96     | 3.19%          | 3.28%          | 5.50%            | 5.74%          | 5.75%             | 5.66%       | 8.78%       | 8.95%        | 9.03%        |
| American Electric Power Company, Inc. | AEP    | \$2.48              | \$68.86     | 3.60%          | 3.70%          | 5.60%            | 5.95%          | 5.59%             | 5.71%       | 9.29%       | 9.42%        | 9.66%        |
| Duke Energy Corporation               | DUK    | \$3.71              | \$78.63     | 4.72%          | 4.83%          | 4.60%            | 4.90%          | 4.13%             | 4.54%       | 8.95%       | 9.37%        | 9.73%        |
| Edison International                  | EIX    | \$2.42              | \$64.17     | 3.77%          | 3.85%          | 5.80%            | 3.74%          | 3.44%             | 4.33%       | 7.28%       | 8.18%        | 9.68%        |
| Eversource Energy                     | ES     | \$2.02              | \$58.69     | 3.44%          | 3.54%          | 5.90%            | 5.95%          | 5.80%             | 5.88%       | 9.34%       | 9.43%        | 9.49%        |
| OGE Energy Corporation                | OGE    | \$1.33              | \$35.12     | 3.79%          | 3.88%          | 4.80%            | 4.83%          | 4.70%             | 4.78%       | 8.58%       | 8.65%        | 8.71%        |
| Pinnacle West Capital Corporation     | PNW    | \$2.78              | \$79.21     | 3.51%          | 3.59%          | 4.50%            | 5.00%          | 3.72%             | 4.41%       | 7.29%       | 7.99%        | 8.60%        |
| PNM Resources, Inc.                   | PNM    | \$1.06              | \$38.70     | 2.74%          | 2.80%          | 4.60%            | 5.10%          | 4.45%             | 4.72%       | 7.25%       | 7.52%        | 7.91%        |
| Canadian Utilities Limited            | CU     | \$1.57              | \$32.31     | 4.87%          | 4.92%          | n/a              | 2.05%          | 1.75%             | 1.90%       | 6.66%       | 6.82%        | 6.97%        |
| Emera Inc.                            | EMA    | \$2.26              | \$41.33     | 5.47%          | 5.61%          | n/a              | 5.90%          | 4.35%             | 5.13%       | 9.94%       | 10.73%       | 11.53%       |
| MEAN                                  |        |                     |             | 3.82%          | 3.91%          | 5.26%            | 5.10%          | 4.52%             | 4.85%       | 8.40%       | 8.76%        | 9.20%        |
| Flotation Costs [12]                  |        |                     |             |                |                |                  |                |                   |             | 0.50%       | 0.50%        | 0.50%        |
|                                       |        |                     |             |                |                |                  |                |                   |             | 8.90%       | 9.26%        | 9.70%        |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 90-day average as of August 31, 2018  
[3] Equals [1] / [2]  
[4] Equals [3] x (1 + 0.5 x [8])  
[5] Source: Zacks at August 31, 2018  
[6] Source: SNL Financial Median Long-Term EPS Growth Rate as of September 12, 2018  
[7] Source: Yahoo! Finance at August 31, 2018  
[8] Equals Average([5], [6], [7])  
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])  
[10] Equals [4] + [8]  
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])  
[12] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

**30-DAY MULTI-STAGE DCF -- U.S. PROXY GROUP**

| Company                               | Ticker | [1]                    | [2]         | [3]                       | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                        | [10]  |
|---------------------------------------|--------|------------------------|-------------|---------------------------|--------|--------|--------|--------|---------|----------------------------|-------|
|                                       |        | Annualized<br>Dividend | Stock Price | Growth Rate,<br>Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth<br>(perpetuity) | ROE   |
| ALLETE, Inc.                          | ALE    | \$2.24                 | \$76.95     | 6.30%                     | 5.97%  | 5.65%  | 5.32%  | 5.00%  | 4.67%   | 4.35%                      | 7.91% |
| Alliant Energy Corporation            | LNT    | \$1.34                 | \$42.81     | 5.66%                     | 5.44%  | 5.22%  | 5.00%  | 4.79%  | 4.57%   | 4.35%                      | 8.03% |
| American Electric Power Company, Inc. | AEP    | \$2.48                 | \$71.08     | 5.71%                     | 5.49%  | 5.26%  | 5.03%  | 4.80%  | 4.57%   | 4.35%                      | 8.47% |
| Duke Energy Corporation               | DUK    | \$3.71                 | \$81.01     | 4.54%                     | 4.51%  | 4.48%  | 4.44%  | 4.41%  | 4.38%   | 4.35%                      | 9.40% |
| Edison International                  | EIX    | \$2.42                 | \$67.24     | 4.33%                     | 4.33%  | 4.33%  | 4.34%  | 4.34%  | 4.34%   | 4.35%                      | 8.24% |
| Eversource Energy                     | ES     | \$2.02                 | \$61.35     | 5.88%                     | 5.63%  | 5.37%  | 5.11%  | 4.86%  | 4.60%   | 4.35%                      | 8.28% |
| OGE Energy Corporation                | OGE    | \$1.33                 | \$36.62     | 4.78%                     | 4.70%  | 4.63%  | 4.56%  | 4.49%  | 4.42%   | 4.35%                      | 8.39% |
| Pinnacle West Capital Corporation     | PNW    | \$2.78                 | \$80.58     | 4.41%                     | 4.40%  | 4.39%  | 4.38%  | 4.37%  | 4.36%   | 4.35%                      | 8.10% |
| PNM Resources, Inc.                   | PNM    | \$1.06                 | \$39.35     | 4.72%                     | 4.65%  | 4.59%  | 4.53%  | 4.47%  | 4.41%   | 4.35%                      | 7.31% |
| MEAN                                  |        |                        |             | 5.15%                     | 5.01%  | 4.88%  | 4.75%  | 4.61%  | 4.48%   | 4.35%                      | 8.24% |
| Flotation Costs [11]                  |        |                        |             |                           |        |        |        |        |         |                            | 0.50% |
|                                       |        |                        |             |                           |        |        |        |        |         |                            | 8.74% |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 30-day average as of August 31, 2018  
[3] Source: Constant Growth DCF  
[4] Equals  $[3] - ([3] - [9]) / 6$   
[5] Equals  $[4] - ([3] - [9]) / 6$   
[6] Equals  $[5] - ([3] - [9]) / 6$   
[7] Equals  $[6] - ([3] - [9]) / 6$   
[8] Equals  $[7] - ([3] - [9]) / 6$   
[9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 3.  
[10] Internal rate of return  
[11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

30-DAY MULTI-STAGE DCF -- CANADIAN PROXY GROUP

| Company                    | Ticker | [1]                 | [2]         | [3]                    | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                     | [10]   |
|----------------------------|--------|---------------------|-------------|------------------------|--------|--------|--------|--------|---------|-------------------------|--------|
|                            |        | Annualized Dividend | Stock Price | Growth Rate, Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth (perpetuity) | ROE    |
| Canadian Utilities Limited | CU     | \$1.57              | \$32.33     | 1.90%                  | 2.21%  | 2.51%  | 2.82%  | 3.12%  | 3.43%   | 3.73%                   | 8.41%  |
| Emera Inc.                 | EMA    | \$2.26              | \$41.53     | 5.13%                  | 4.89%  | 4.66%  | 4.43%  | 4.20%  | 3.97%   | 3.73%                   | 10.16% |
| Enbridge Inc.              | ENB    | \$2.68              | \$46.17     | 4.84%                  | 4.66%  | 4.47%  | 4.29%  | 4.10%  | 3.92%   | 3.73%                   | 10.49% |
| Valener Inc.               | VNR    | \$1.16              | \$20.21     | 1.19%                  | 1.61%  | 2.04%  | 2.46%  | 2.89%  | 3.31%   | 3.73%                   | 9.05%  |
| MEAN                       |        |                     |             | 3.26%                  | 3.34%  | 3.42%  | 3.50%  | 3.58%  | 3.66%   | 3.73%                   | 9.53%  |
| Flotation Costs [11]       |        |                     |             |                        |        |        |        |        |         |                         | 0.50%  |
|                            |        |                     |             |                        |        |        |        |        |         |                         | 10.03% |

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, 30-day average as of August 31, 2018
- [3] Source: Constant Growth DCF
- [4] Equals  $[3] - ([3] - [9]) / 6$
- [5] Equals  $[4] - ([3] - [9]) / 6$
- [6] Equals  $[5] - ([3] - [9]) / 6$
- [7] Equals  $[6] - ([3] - [9]) / 6$
- [8] Equals  $[7] - ([3] - [9]) / 6$
- [9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 28.
- [10] Internal rate of return
- [11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.



**30-DAY MULTI-STAGE DCF -- NORTH AMERICA ELECTRIC PROXY GROUP**

|                                       |        | [1]                 | [2]         | [3]                    | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                     | [10]   |
|---------------------------------------|--------|---------------------|-------------|------------------------|--------|--------|--------|--------|---------|-------------------------|--------|
| Company                               | Ticker | Annualized Dividend | Stock Price | Growth Rate, Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth (perpetuity) | ROE    |
| ALLETE, Inc.                          | ALE    | \$2.24              | \$76.95     | 6.30%                  | 5.97%  | 5.65%  | 5.32%  | 5.00%  | 4.67%   | 4.35%                   | 7.91%  |
| Alliant Energy Corporation            | LNT    | \$1.34              | \$42.81     | 5.66%                  | 5.44%  | 5.22%  | 5.00%  | 4.79%  | 4.57%   | 4.35%                   | 8.03%  |
| American Electric Power Company, Inc. | AEP    | \$2.48              | \$71.08     | 5.71%                  | 5.49%  | 5.26%  | 5.03%  | 4.80%  | 4.57%   | 4.35%                   | 8.47%  |
| Duke Energy Corporation               | DUK    | \$3.71              | \$81.01     | 4.54%                  | 4.51%  | 4.48%  | 4.44%  | 4.41%  | 4.38%   | 4.35%                   | 9.40%  |
| Edison International                  | EIX    | \$2.42              | \$67.24     | 4.33%                  | 4.33%  | 4.33%  | 4.34%  | 4.34%  | 4.34%   | 4.35%                   | 8.24%  |
| Eversource Energy                     | ES     | \$2.02              | \$61.35     | 5.88%                  | 5.63%  | 5.37%  | 5.11%  | 4.86%  | 4.60%   | 4.35%                   | 8.28%  |
| OGE Energy Corporation                | OGE    | \$1.33              | \$36.62     | 4.78%                  | 4.70%  | 4.63%  | 4.56%  | 4.49%  | 4.42%   | 4.35%                   | 8.39%  |
| Pinnacle West Capital Corporation     | PNW    | \$2.78              | \$80.58     | 4.41%                  | 4.40%  | 4.39%  | 4.38%  | 4.37%  | 4.36%   | 4.35%                   | 8.10%  |
| PNM Resources, Inc.                   | PNM    | \$1.06              | \$39.35     | 4.72%                  | 4.65%  | 4.59%  | 4.53%  | 4.47%  | 4.41%   | 4.35%                   | 7.31%  |
| Canadian Utilities Limited            | CU     | \$1.57              | \$32.33     | 1.90%                  | 2.21%  | 2.51%  | 2.82%  | 3.12%  | 3.43%   | 3.73%                   | 8.41%  |
| Emera Inc.                            | EMA    | \$2.26              | \$41.53     | 5.13%                  | 4.89%  | 4.66%  | 4.43%  | 4.20%  | 3.97%   | 3.73%                   | 10.16% |
| MEAN                                  |        |                     |             | 4.85%                  | 4.75%  | 4.65%  | 4.54%  | 4.44%  | 4.34%   | 4.23%                   | 8.43%  |
| Flotation Costs [11]                  |        |                     |             |                        |        |        |        |        |         |                         | 0.50%  |
|                                       |        |                     |             |                        |        |        |        |        |         |                         | 8.93%  |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 30-day average as of August 31, 2018  
[3] Source: Constant Growth DCF  
[4] Equals  $[3] - ([3] - [9]) / 6$   
[5] Equals  $[4] - ([3] - [9]) / 6$   
[6] Equals  $[5] - ([3] - [9]) / 6$   
[7] Equals  $[6] - ([3] - [9]) / 6$   
[8] Equals  $[7] - ([3] - [9]) / 6$   
[9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 3 and 28.  
[10] Internal rate of return  
[11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

**90-DAY MULTI-STAGE DCF -- U.S. PROXY GROUP**

| Company                               | Ticker | [1]                 | [2]         | [3]                    | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                     | [10]  |
|---------------------------------------|--------|---------------------|-------------|------------------------|--------|--------|--------|--------|---------|-------------------------|-------|
|                                       |        | Annualized Dividend | Stock Price | Growth Rate, Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth (perpetuity) | ROE   |
| ALLETE, Inc.                          | ALE    | \$2.24              | \$76.49     | 6.30%                  | 5.97%  | 5.65%  | 5.32%  | 5.00%  | 4.67%   | 4.35%                   | 7.93% |
| Alliant Energy Corporation            | LNT    | \$1.34              | \$41.96     | 5.66%                  | 5.44%  | 5.22%  | 5.00%  | 4.79%  | 4.57%   | 4.35%                   | 8.11% |
| American Electric Power Company, Inc. | AEP    | \$2.48              | \$68.86     | 5.71%                  | 5.49%  | 5.26%  | 5.03%  | 4.80%  | 4.57%   | 4.35%                   | 8.61% |
| Duke Energy Corporation               | DUK    | \$3.71              | \$78.63     | 4.54%                  | 4.51%  | 4.48%  | 4.44%  | 4.41%  | 4.38%   | 4.35%                   | 9.56% |
| Edison International                  | EIX    | \$2.42              | \$64.17     | 4.33%                  | 4.33%  | 4.33%  | 4.34%  | 4.34%  | 4.34%   | 4.35%                   | 8.43% |
| Eversource Energy                     | ES     | \$2.02              | \$58.69     | 5.88%                  | 5.63%  | 5.37%  | 5.11%  | 4.86%  | 4.60%   | 4.35%                   | 8.46% |
| OGE Energy Corporation                | OGE    | \$1.33              | \$35.12     | 4.78%                  | 4.70%  | 4.63%  | 4.56%  | 4.49%  | 4.42%   | 4.35%                   | 8.57% |
| Pinnacle West Capital Corporation     | PNW    | \$2.78              | \$79.21     | 4.41%                  | 4.40%  | 4.39%  | 4.38%  | 4.37%  | 4.36%   | 4.35%                   | 8.16% |
| PNM Resources, Inc.                   | PNM    | \$1.06              | \$38.70     | 4.72%                  | 4.65%  | 4.59%  | 4.53%  | 4.47%  | 4.41%   | 4.35%                   | 7.37% |
| MEAN                                  |        |                     |             | 5.15%                  | 5.01%  | 4.88%  | 4.75%  | 4.61%  | 4.48%   | 4.35%                   | 8.36% |
| Flotation Costs [11]                  |        |                     |             |                        |        |        |        |        |         |                         | 0.50% |
|                                       |        |                     |             |                        |        |        |        |        |         |                         | 8.86% |

Notes:

- [1] Source: Bloomberg Professional  
[2] Source: Bloomberg Professional, 90-day average as of August 31, 2018  
[3] Source: Constant Growth DCF  
[4] Equals  $[3] - ([3] - [9]) / 6$   
[5] Equals  $[4] - ([3] - [9]) / 6$   
[6] Equals  $[5] - ([3] - [9]) / 6$   
[7] Equals  $[6] - ([3] - [9]) / 6$   
[8] Equals  $[7] - ([3] - [9]) / 6$   
[9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 3.  
[10] Internal rate of return  
[11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

90-DAY MULTI-STAGE DCF -- CANADIAN PROXY GROUP

| Company                    | Ticker | [1]                 | [2]         | [3]                    | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                     | [10]   |
|----------------------------|--------|---------------------|-------------|------------------------|--------|--------|--------|--------|---------|-------------------------|--------|
|                            |        | Annualized Dividend | Stock Price | Growth Rate, Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth (perpetuity) | ROE    |
| Canadian Utilities Limited | CU     | \$1.57              | \$32.31     | 1.90%                  | 2.21%  | 2.51%  | 2.82%  | 3.12%  | 3.43%   | 3.73%                   | 8.42%  |
| Emera Inc.                 | EMA    | \$2.26              | \$41.33     | 5.13%                  | 4.89%  | 4.66%  | 4.43%  | 4.20%  | 3.97%   | 3.73%                   | 10.20% |
| Enbridge Inc.              | ENB    | \$2.68              | \$43.61     | 4.84%                  | 4.66%  | 4.47%  | 4.29%  | 4.10%  | 3.92%   | 3.73%                   | 10.90% |
| Valener Inc.               | VNR    | \$1.16              | \$20.30     | 1.19%                  | 1.61%  | 2.04%  | 2.46%  | 2.89%  | 3.31%   | 3.73%                   | 9.02%  |
| MEAN                       |        |                     |             | 3.26%                  | 3.34%  | 3.42%  | 3.50%  | 3.58%  | 3.66%   | 3.73%                   | 9.63%  |
| Flotation Costs [11]       |        |                     |             |                        |        |        |        |        |         |                         | 0.50%  |
|                            |        |                     |             |                        |        |        |        |        |         |                         | 10.13% |

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, 90-day average as of August 31, 2018
- [3] Source: Constant Growth DCF
- [4] Equals  $[3] - ([3] - [9]) / 6$
- [5] Equals  $[4] - ([3] - [9]) / 6$
- [6] Equals  $[5] - ([3] - [9]) / 6$
- [7] Equals  $[6] - ([3] - [9]) / 6$
- [8] Equals  $[7] - ([3] - [9]) / 6$
- [9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 28.
- [10] Internal rate of return
- [11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

**90-DAY MULTI-STAGE DCF -- NORTH AMERICA ELECTRIC PROXY GROUP**

| Company                               | Ticker | [1]                    | [2]         | [3]                       | [4]    | [5]    | [6]    | [7]    | [8]     | [9]                        | [10]   |
|---------------------------------------|--------|------------------------|-------------|---------------------------|--------|--------|--------|--------|---------|----------------------------|--------|
|                                       |        | Annualized<br>Dividend | Stock Price | Growth Rate,<br>Years 1-5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | GDP Growth<br>(perpetuity) | ROE    |
| ALLETE, Inc.                          | ALE    | \$2.24                 | \$76.49     | 6.30%                     | 5.97%  | 5.65%  | 5.32%  | 5.00%  | 4.67%   | 4.35%                      | 7.93%  |
| Alliant Energy Corporation            | LNT    | \$1.34                 | \$41.96     | 5.66%                     | 5.44%  | 5.22%  | 5.00%  | 4.79%  | 4.57%   | 4.35%                      | 8.11%  |
| American Electric Power Company, Inc. | AEP    | \$2.48                 | \$68.86     | 5.71%                     | 5.49%  | 5.26%  | 5.03%  | 4.80%  | 4.57%   | 4.35%                      | 8.61%  |
| Duke Energy Corporation               | DUK    | \$3.71                 | \$78.63     | 4.54%                     | 4.51%  | 4.48%  | 4.44%  | 4.41%  | 4.38%   | 4.35%                      | 9.56%  |
| Edison International                  | EIX    | \$2.42                 | \$64.17     | 4.33%                     | 4.33%  | 4.33%  | 4.34%  | 4.34%  | 4.34%   | 4.35%                      | 8.43%  |
| Eversource Energy                     | ES     | \$2.02                 | \$58.69     | 5.88%                     | 5.63%  | 5.37%  | 5.11%  | 4.86%  | 4.60%   | 4.35%                      | 8.46%  |
| OGE Energy Corporation                | OGE    | \$1.33                 | \$35.12     | 4.78%                     | 4.70%  | 4.63%  | 4.56%  | 4.49%  | 4.42%   | 4.35%                      | 8.57%  |
| Pinnacle West Capital Corporation     | PNW    | \$2.78                 | \$79.21     | 4.41%                     | 4.40%  | 4.39%  | 4.38%  | 4.37%  | 4.36%   | 4.35%                      | 8.16%  |
| PNM Resources, Inc.                   | PNM    | \$1.06                 | \$38.70     | 4.72%                     | 4.65%  | 4.59%  | 4.53%  | 4.47%  | 4.41%   | 4.35%                      | 7.37%  |
| Canadian Utilities Limited            | CU     | \$1.57                 | \$32.31     | 1.90%                     | 2.21%  | 2.51%  | 2.82%  | 3.12%  | 3.43%   | 3.73%                      | 8.42%  |
| Emera Inc.                            | EMA    | \$2.26                 | \$41.33     | 5.13%                     | 4.89%  | 4.66%  | 4.43%  | 4.20%  | 3.97%   | 3.73%                      | 10.20% |
| MEAN                                  |        |                        |             | 4.85%                     | 4.75%  | 4.65%  | 4.54%  | 4.44%  | 4.34%   | 4.23%                      | 8.53%  |
| Flotation Costs [11]                  |        |                        |             |                           |        |        |        |        |         |                            | 0.50%  |
|                                       |        |                        |             |                           |        |        |        |        |         |                            | 9.03%  |

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, 90-day average as of August 31, 2018

[3] Source: Constant Growth DCF

[4] Equals  $[3] - ([3] - [9]) / 6$

[5] Equals  $[4] - ([3] - [9]) / 6$

[6] Equals  $[5] - ([3] - [9]) / 6$

[7] Equals  $[6] - ([3] - [9]) / 6$

[8] Equals  $[7] - ([3] - [9]) / 6$

[9] Consensus Economics Inc., Consensus Forecasts, April 9, 2018, at 3 and 28.

[10] Internal rate of return

[11] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.



Market DCF Calculation as of August 31, 2018

|                                                                              |        | [1]                   | [2]                                | [3]                         | [4]                                             | [5]                                                | [6]                          |
|------------------------------------------------------------------------------|--------|-----------------------|------------------------------------|-----------------------------|-------------------------------------------------|----------------------------------------------------|------------------------------|
|                                                                              |        | Dividend<br>Yield     | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g) | Secondary<br>Market Investor<br>Required Return | Forecast<br>Canadian<br>Government<br>Bond 30 Year | Equity Risk<br>Premium       |
| S&P/TSX UTILITIES INDEX                                                      |        | 3.27%                 | 3.46%                              | 11.21%                      | 14.67%                                          | 3.08%                                              | 11.59%                       |
|                                                                              |        | [7]                   | [8]                                | [9]                         | [10]                                            | [11]                                               | [12]                         |
|                                                                              |        | Shares<br>Outstanding | Price (\$)                         | Market<br>Capitalization    | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield                       | Long-Term<br>Growth Estimate |
| Company                                                                      | Ticker | (million)             |                                    | (\$million)                 |                                                 |                                                    |                              |
| Sun Life Financial Inc                                                       | SLF    | 607.01                | 51.87                              | 31,486                      | 1.83%                                           | 3.66%                                              | 8.70%                        |
| West Fraser Timber Co Ltd                                                    | WFT    | 71.35                 | 86.57                              | 6,177                       | 0.36%                                           | 0.69%                                              | 3.30%                        |
| Saputo Inc                                                                   | SAP    | 388.36                | 39.96                              | 15,519                      | 0.90%                                           | 1.65%                                              | 6.26%                        |
| Pembina Pipeline Corp                                                        | PPL    | 504.32                | 44.51                              | 22,447                      | 1.30%                                           | 5.12%                                              | 6.70%                        |
| Ritchie Bros Auctioneers Inc                                                 | RBA    | 108.20                | 49.75                              | 5,383                       | 0.31%                                           | 1.87%                                              | 10.65%                       |
| Gildan Activewear Inc                                                        | GIL    | 208.13                | 38.46                              | 8,005                       | 0.46%                                           | 1.53%                                              | 10.72%                       |
| Manulife Financial Corp                                                      | MFC    | 1,984.08              | 23.88                              | 47,380                      | 2.75%                                           | 3.69%                                              | 22.30%                       |
| FirstService Corp                                                            | FSV    | 34.63                 | 111.65                             | 3,867                       | 0.22%                                           | 0.64%                                              | 20.00%                       |
| Canadian Pacific Railway Ltd                                                 | CP     | 142.57                | 274.49                             | 39,135                      | 2.27%                                           | 0.95%                                              | 8.93%                        |
| Husky Energy Inc                                                             | HSE    | 1,005.12              | 21.58                              | 21,691                      | 1.26%                                           | 2.32%                                              | 20.57%                       |
| George Weston Ltd                                                            | WN     | 128.00                | 101.64                             | 13,010                      | 0.76%                                           | 1.93%                                              | 2.10%                        |
| Hydro One Ltd                                                                | H      | 595.88                | 19.28                              | 11,489                      | 0.67%                                           | 4.77%                                              | 7.00%                        |
| Cameco Corp                                                                  | CCO    | 395.79                | 13.56                              | 5,367                       | 0.31%                                           | 2.95%                                              | 47.78%                       |
| Nutrien Ltd                                                                  | NTR    | 615.37                | 73.34                              | 45,131                      | 2.62%                                           | 2.85%                                              | 17.60%                       |
| Brookfield Infrastructure Partners LP                                        | BIP-U  | 276.79                | 50.89                              | 14,086                      | 0.82%                                           | 4.80%                                              | 21.68%                       |
| Franco-Nevada Corp                                                           | FNV    | 186.18                | 83.42                              | 15,531                      | 0.90%                                           | 1.50%                                              | 4.00%                        |
| Metro Inc                                                                    | MRU    | 256.25                | 40.86                              | 10,470                      | 0.61%                                           | 1.76%                                              | 9.41%                        |
| Tourmaline Oil Corp                                                          | TOU    | 272.08                | 21.26                              | 5,785                       | 0.34%                                           | 1.69%                                              | 13.10%                       |
| Bank of Montreal                                                             | BMO    | 639.93                | 106.97                             | 68,453                      | 3.97%                                           | 3.59%                                              | 7.23%                        |
| Bank of Nova Scotia/The                                                      | BNS    | 1,231.73              | 75.53                              | 93,033                      | 5.40%                                           | 4.50%                                              | 6.54%                        |
| Canadian Imperial Bank of Commerce                                           | CM     | 443.27                | 122.30                             | 54,212                      | 3.15%                                           | 4.45%                                              | 3.47%                        |
| National Bank of Canada                                                      | NA     | 338.14                | 65.31                              | 22,084                      | 1.28%                                           | 3.80%                                              | 5.30%                        |
| Toronto-Dominion Bank/The                                                    | TD     | 1,828.63              | 78.65                              | 143,822                     | 8.35%                                           | 3.41%                                              | 8.10%                        |
| Osisko Gold Royalties Ltd                                                    | OR     | 156.26                | 10.35                              | 1,617                       | 0.09%                                           | 1.93%                                              | 6.92%                        |
| Restaurant Brands International Inc                                          | QSR    | 250.02                | 74.85                              | 18,714                      | 1.09%                                           | 3.18%                                              | 13.97%                       |
| Suncor Energy Inc                                                            | SU     | 1,627.76              | 53.72                              | 87,443                      | 5.07%                                           | 2.68%                                              | 3.95%                        |
| Lundin Mining Corp                                                           | LUN    | 732.02                | 6.22                               | 4,553                       | 0.26%                                           | 1.93%                                              | 4.99%                        |
| Aecon Group Inc                                                              | ARE    | 59.82                 | 17.35                              | 1,038                       | 0.06%                                           | 2.88%                                              | 9.90%                        |
| Royal Bank of Canada                                                         | RY     | 1,441.12              | 103.66                             | 149,386                     | 8.67%                                           | 3.78%                                              | 7.04%                        |
| Russel Metals Inc                                                            | RUS    | 62.08                 | 28.53                              | 1,771                       | 0.10%                                           | 5.33%                                              | 48.90%                       |
| Toromont Industries Ltd                                                      | TIH    | 81.30                 | 65.24                              | 5,304                       | 0.31%                                           | 1.41%                                              | 22.10%                       |
| Colliers International Group Inc                                             | CIGI   | 37.87                 | 106.43                             | 4,030                       | 0.23%                                           | 0.12%                                              | 25.00%                       |
| Cogeco Communications Inc                                                    | CCA    | 33.87                 | 64.77                              | 2,194                       | 0.13%                                           | 2.93%                                              | 5.28%                        |
| First Quantum Minerals Ltd                                                   | FM     | 689.39                | 16.37                              | 11,285                      | 0.65%                                           | 0.06%                                              | 28.21%                       |
| Rogers Communications Inc                                                    | RCI/B  | 403.66                | 67.62                              | 27,295                      | 1.58%                                           | 2.84%                                              | 5.25%                        |
| Maple Leaf Foods Inc                                                         | MFI    | 125.72                | 31.60                              | 3,973                       | 0.23%                                           | 1.65%                                              | 6.43%                        |
| Inter Pipeline Ltd                                                           | IPL    | 387.80                | 23.98                              | 9,299                       | 0.54%                                           | 7.01%                                              | 5.90%                        |
| Algonquin Power & Utilities Corp                                             | AQN    | 472.20                | 13.52                              | 6,384                       | 0.37%                                           | 4.96%                                              | 8.00%                        |
| Dream Global Real Estate Investment Trust                                    | DRG-U  | 191.17                | 14.64                              | 2,799                       | 0.16%                                           | 5.46%                                              | 4.30%                        |
| Pan American Silver Corp                                                     | PAAS   | 153.29                | 20.39                              | 3,126                       | 0.18%                                           | 0.90%                                              | 4.00%                        |
| WestJet Airlines Ltd                                                         | WJA    | 113.95                | 19.15                              | 2,182                       | 0.13%                                           | 2.92%                                              | 1.29%                        |
| Emera Inc                                                                    | EMA    | 231.86                | 41.29                              | 9,574                       | 0.56%                                           | 5.69%                                              | 9.86%                        |
| Waste Connections Inc                                                        | WCN    | 263.47                | 103.57                             | 27,287                      | 1.58%                                           | 0.70%                                              | 11.97%                       |
| Keyera Corp                                                                  | KEY    | 207.35                | 35.96                              | 7,456                       | 0.43%                                           | 5.01%                                              | 13.70%                       |
| Cineplex Inc                                                                 | CGX    | 63.33                 | 32.91                              | 2,084                       | 0.12%                                           | 5.29%                                              | 10.30%                       |
| BCE Inc                                                                      | BCE    | 898.00                | 53.23                              | 47,800                      | 2.77%                                           | 5.67%                                              | 4.05%                        |
| TransCanada Corp                                                             | TRP    | 907.30                | 55.58                              | 50,428                      | 2.93%                                           | 4.97%                                              | 7.33%                        |
| OceanaGold Corp                                                              | OGC    | 617.53                | 3.86                               | 2,384                       | 0.14%                                           | 1.35%                                              | 12.34%                       |
| Dollarama Inc                                                                | DOL    | 326.83                | 49.35                              | 16,129                      | 0.94%                                           | 0.32%                                              | 14.92%                       |
| Imperial Oil Ltd                                                             | IMO    | 799.30                | 40.67                              | 32,508                      | 1.89%                                           | 1.87%                                              | 38.60%                       |
| Brookfield Renewable Partners LP                                             | BEP-U  | 180.27                | 40.11                              | 7,230                       | 0.42%                                           | 6.34%                                              | 9.00%                        |
| Alimentation Couche-Tard Inc                                                 | ATD/B  | 437.32                | 62.48                              | 27,324                      | 1.59%                                           | 0.64%                                              | 16.25%                       |
| Brookfield Property Partners LP                                              | BPY-U  | 254.46                | 26.08                              | 6,636                       | 0.39%                                           | 6.27%                                              | 7.20%                        |
| Agnico Eagle Mines Ltd                                                       | AEM    | 234.23                | 44.98                              | 10,535                      | 0.61%                                           | 1.27%                                              | 3.00%                        |
| TELUS Corp                                                                   | T      | 597.71                | 48.39                              | 28,923                      | 1.68%                                           | 4.34%                                              | 6.65%                        |
| CAE Inc                                                                      | CAE    | 267.87                | 26.05                              | 6,978                       | 0.40%                                           | 1.54%                                              | 10.30%                       |
| Canadian Natural Resources Ltd                                               | CNQ    | 1,221.07              | 44.56                              | 54,411                      | 3.16%                                           | 3.01%                                              | 6.43%                        |
| Canadian Tire Corp Ltd                                                       | CTC/A  | 61.43                 | 163.27                             | 10,030                      | 0.58%                                           | 2.20%                                              | 10.52%                       |
| Finning International Inc                                                    | FIT    | 168.22                | 30.33                              | 5,102                       | 0.30%                                           | 2.64%                                              | 10.00%                       |
| Fortis Inc/Canada                                                            | FIS    | 424.83                | 42.72                              | 18,149                      | 1.05%                                           | 3.98%                                              | 5.00%                        |
| Goldcorp Inc                                                                 | G      | 869.28                | 14.10                              | 12,257                      | 0.71%                                           | 0.74%                                              | 3.85%                        |
| BRP Inc/CA                                                                   | DOO    | 34.15                 | 68.12                              | 2,326                       | 0.13%                                           | 0.53%                                              | 15.60%                       |
| Enbridge Inc                                                                 | ENB    | 1,715.42              | 44.51                              | 76,353                      | 4.43%                                           | 6.03%                                              | 5.58%                        |
| Magna International Inc                                                      | MG     | 342.89                | 70.66                              | 24,229                      | 1.41%                                           | 2.43%                                              | 4.23%                        |
| Shaw Communications Inc                                                      | SJR/B  | 483.34                | 26.32                              | 12,721                      | 0.74%                                           | 4.50%                                              | 2.35%                        |
| SNC-Lavalin Group Inc                                                        | SNC    | 175.55                | 52.53                              | 9,222                       | 0.54%                                           | 2.19%                                              | 7.90%                        |
| Thomson Reuters Corp                                                         | TRI    | 702.48                | 58.04                              | 40,772                      | 2.37%                                           | 3.13%                                              | 0.50%                        |
| Norbord Inc                                                                  | OSB    | 86.66                 | 49.66                              | 4,304                       | 0.25%                                           | 36.25%                                             | 5.51%                        |
| CI Financial Corp                                                            | CIX    | 261.51                | 21.00                              | 5,492                       | 0.32%                                           | 3.43%                                              | 10.50%                       |
| Yamana Gold Inc                                                              | YRI    | 949.04                | 3.62                               | 3,436                       | 0.20%                                           | 0.72%                                              | 19.00%                       |
| Wheaton Precious Metals Corp                                                 | WPM    | 443.56                | 22.36                              | 9,918                       | 0.58%                                           | 2.08%                                              | 5.00%                        |
| Quebecor Inc                                                                 | QBR/B  | 156.12                | 26.28                              | 4,103                       | 0.24%                                           | 0.84%                                              | 11.84%                       |
| Open Text Corp                                                               | OTEX   | 267.85                | 51.18                              | 13,709                      | 0.80%                                           | 1.54%                                              | 14.00%                       |
| Alamos Gold Inc                                                              | AGI    | 389.38                | 5.74                               | 2,235                       | 0.13%                                           | 0.44%                                              | 37.42%                       |
| Canadian National Railway Co                                                 | CNR    | 734.17                | 116.06                             | 85,207                      | 4.94%                                           | 1.57%                                              | 7.23%                        |
| Mean for Companies Paying Dividends with Positive Long-Term Growth Estimates |        |                       |                                    |                             |                                                 | 3.27%                                              | 11.21%                       |

Notes:  
[1] Equals mean of Column [11]  
[2] Equals Column [1] x (1 + 0.5 x Column [3])

Market DCF Calculation as of August 31, 2018

|                         |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                                | [6]                          |
|-------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|----------------------------------------------------|------------------------------|
|                         |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast<br>Canadian<br>Government<br>Bond 30 Year | Equity Risk<br>Premium       |
| S&P/TSX UTILITIES INDEX |        | 3.27%                              | 3.46%                              | 11.21%                                  | 14.67%                                          | 3.08%                                              | 11.59%                       |
|                         |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                               | [12]                         |
| Company                 | Ticker | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield                       | Long-Term<br>Growth Estimate |

[3] Equals mean of Column [12]  
[4] Equals Column [2] + Column [3]  
[5] Source: April 2018 Consensus Forecast Average 2019-2021 Forecasts 10-Year bond yield plus 30-day average spread between 10- and 30-year government bonds ending August 31, 2018  
[6] Equals Column [4] - (Column [5])  
[7] Source: Bloomberg Finance L.P., as of August 31, 2018  
[8] Source: Bloomberg Finance L.P., as of August 31, 2018  
[9] Equals Column [7] x Column [8]  
[10] Equals percent of sum of Column [9]  
[11] Source: Bloomberg Finance L.P., as of August 31, 2018  
[12] Source: Bloomberg Finance L.P., as of August 31, 2018



Market DCF Calculation as of August 31, 2018

|                                      |      | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|--------------------------------------|------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                      |      | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                   |      | <b>2.25%</b>                       | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                      |      | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                      |      | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| LyondellBasell Industries NV         | LYB  | 389.3                              | 112.78                             | 43,908                                  | 0.22%                                           | 3.55%                                      | 7.60%                        |
| American Express Co                  | AXP  | 861.1                              | 105.98                             | 91,255                                  | 0.46%                                           | 1.32%                                      | 17.30%                       |
| Verizon Communications Inc           | VZ   | 4,131.9                            | 54.37                              | 224,653                                 | 1.13%                                           | 4.34%                                      | 4.58%                        |
| Broadcom Inc                         | AVGO | 431.7                              | 219.03                             | 94,551                                  | 0.47%                                           | 3.20%                                      | 13.01%                       |
| Boeing Co/The                        | BA   | 574.5                              | 342.79                             | 196,936                                 | 0.99%                                           | 2.00%                                      | 15.37%                       |
| Caterpillar Inc                      | CAT  | 594.3                              | 138.85                             | 82,522                                  | 0.41%                                           | 2.48%                                      | 25.37%                       |
| JPMorgan Chase & Co                  | JPM  | 3,360.9                            | 114.58                             | 385,090                                 | 1.93%                                           | 1.96%                                      | 9.80%                        |
| Chevron Corp                         | CVX  | 1,916.1                            | 118.46                             | 226,987                                 | 1.14%                                           | 3.78%                                      | 6.76%                        |
| Coca-Cola Co/The                     | KO   | 4,252.9                            | 44.57                              | 189,553                                 | 0.95%                                           | 3.50%                                      | 7.82%                        |
| AbbVie Inc                           | ABBV | 1,514.3                            | 95.98                              | 145,340                                 | 0.73%                                           | 4.00%                                      | 10.89%                       |
| Walt Disney Co/The                   | DIS  | 1,487.2                            | 112.02                             | 166,601                                 | 0.84%                                           | 1.50%                                      | 12.93%                       |
| Extra Space Storage Inc              | EXR  | 126.5                              | 92.21                              | 11,665                                  | 0.06%                                           | 3.73%                                      | 6.18%                        |
| Exxon Mobil Corp                     | XOM  | 4,233.8                            | 80.17                              | 339,425                                 | 1.70%                                           | 4.09%                                      | 13.95%                       |
| Phillips 66                          | PSX  | 464.3                              | 118.51                             | 55,020                                  | 0.28%                                           | 2.70%                                      | 5.55%                        |
| General Electric Co                  | GE   | 8,691.1                            | 12.94                              | 112,463                                 | 0.56%                                           | 3.71%                                      | 3.67%                        |
| HP Inc                               | HPQ  | 1,582.4                            | 24.65                              | 39,006                                  | 0.20%                                           | 2.26%                                      | 8.79%                        |
| Home Depot Inc/The                   | HD   | 1,144.1                            | 200.77                             | 229,709                                 | 1.15%                                           | 2.05%                                      | 13.27%                       |
| International Business Machines Corp | IBM  | 912.8                              | 146.48                             | 133,702                                 | 0.67%                                           | 4.29%                                      | 2.40%                        |
| Johnson & Johnson                    | JNJ  | 2,682.8                            | 134.69                             | 361,340                                 | 1.81%                                           | 2.67%                                      | 7.49%                        |
| McDonald's Corp                      | MCD  | 775.8                              | 162.23                             | 125,858                                 | 0.63%                                           | 2.49%                                      | 8.69%                        |
| Merck & Co Inc                       | MRK  | 2,659.5                            | 68.59                              | 182,417                                 | 0.92%                                           | 2.80%                                      | 7.25%                        |
| 3M Co                                | MMM  | 586.6                              | 210.92                             | 123,728                                 | 0.62%                                           | 2.58%                                      | 8.70%                        |
| American Water Works Co Inc          | AWK  | 180.5                              | 87.53                              | 15,798                                  | 0.08%                                           | 2.08%                                      | 8.08%                        |
| Bank of America Corp                 | BAC  | 9,988.3                            | 30.93                              | 308,937                                 | 1.55%                                           | 1.94%                                      | 14.10%                       |
| Baker Hughes a GE Co                 | BHGE | 411.7                              | 32.97                              | 13,572                                  | 0.07%                                           | 2.18%                                      | 33.00%                       |
| Pfizer Inc                           | PFE  | 5,862.1                            | 41.52                              | 243,395                                 | 1.22%                                           | 3.28%                                      | 6.88%                        |
| Procter & Gamble Co/The              | PG   | 2,489.2                            | 82.95                              | 206,476                                 | 1.04%                                           | 3.46%                                      | 7.19%                        |
| Travelers Cos Inc/The                | TRV  | 267.7                              | 131.60                             | 35,227                                  | 0.18%                                           | 2.34%                                      | 17.75%                       |
| United Technologies Corp             | UTX  | 800.1                              | 131.70                             | 105,372                                 | 0.53%                                           | 2.13%                                      | 10.59%                       |
| Analog Devices Inc                   | ADI  | 371.7                              | 98.85                              | 36,740                                  | 0.18%                                           | 1.94%                                      | 9.53%                        |
| Walmart Inc                          | WMT  | 2,950.8                            | 95.86                              | 282,868                                 | 1.42%                                           | 2.17%                                      | 6.49%                        |
| Cisco Systems Inc                    | CSCO | 4,702.9                            | 47.77                              | 224,657                                 | 1.13%                                           | 2.76%                                      | 7.18%                        |
| Intel Corp                           | INTC | 4,611.0                            | 48.43                              | 223,311                                 | 1.12%                                           | 2.48%                                      | 9.36%                        |
| General Motors Co                    | GM   | 1,410.9                            | 36.05                              | 50,863                                  | 0.26%                                           | 4.22%                                      | 10.78%                       |
| Microsoft Corp                       | MSFT | 7,668.2                            | 112.33                             | 861,371                                 | 4.32%                                           | 1.50%                                      | 10.03%                       |
| Dallar General Corp                  | DG   | 265.5                              | 107.73                             | 28,606                                  | 0.14%                                           | 1.08%                                      | 15.06%                       |
| Kinder Morgan Inc/DE                 | KMI  | 2,206.8                            | 17.70                              | 39,061                                  | 0.20%                                           | 4.52%                                      | 12.00%                       |
| Citigroup Inc                        | C    | 2,516.6                            | 71.24                              | 179,283                                 | 0.90%                                           | 2.53%                                      | 12.80%                       |
| American International Group Inc     | AIG  | 888.4                              | 53.17                              | 47,239                                  | 0.24%                                           | 2.41%                                      | 11.00%                       |
| Honeywell International Inc          | HON  | 742.6                              | 159.06                             | 118,120                                 | 0.59%                                           | 1.87%                                      | 16.96%                       |
| Altria Group Inc                     | MO   | 1,885.2                            | 58.52                              | 110,320                                 | 0.55%                                           | 5.47%                                      | 4.87%                        |
| HCA Healthcare Inc                   | HCA  | 346.0                              | 134.11                             | 46,408                                  | 0.23%                                           | 1.04%                                      | 13.58%                       |
| International Paper Co               | IP   | 408.9                              | 51.14                              | 20,910                                  | 0.10%                                           | 3.72%                                      | 7.90%                        |
| Abbott Laboratories                  | ABT  | 1,754.3                            | 66.84                              | 117,259                                 | 0.59%                                           | 1.68%                                      | 13.00%                       |
| Aflac Inc                            | AFL  | 767.8                              | 46.24                              | 35,503                                  | 0.18%                                           | 2.25%                                      | 8.45%                        |
| Air Products & Chemicals Inc         | APD  | 219.3                              | 166.29                             | 36,463                                  | 0.18%                                           | 2.65%                                      | 12.14%                       |
| Royal Caribbean Cruises Ltd          | RCL  | 209.0                              | 122.58                             | 25,616                                  | 0.13%                                           | 1.96%                                      | 14.92%                       |
| American Electric Power Co Inc       | AEP  | 492.9                              | 71.73                              | 35,358                                  | 0.18%                                           | 3.46%                                      | 5.47%                        |
| Anadarko Petroleum Corp              | APC  | 512.1                              | 64.40                              | 32,978                                  | 0.17%                                           | 1.55%                                      | 17.74%                       |
| Aon PLC                              | AON  | 242.7                              | 145.56                             | 35,321                                  | 0.18%                                           | 1.10%                                      | 11.42%                       |
| Apache Corp                          | APA  | 382.5                              | 43.83                              | 16,764                                  | 0.08%                                           | 2.28%                                      | 7.01%                        |
| Archer-Daniels-Midland Co            | ADM  | 559.7                              | 50.40                              | 28,211                                  | 0.14%                                           | 2.66%                                      | 11.40%                       |
| Automatic Data Processing Inc        | ADP  | 438.1                              | 146.75                             | 64,289                                  | 0.32%                                           | 1.88%                                      | 13.50%                       |
| Avery Dennison Corp                  | AVY  | 87.4                               | 105.18                             | 9,195                                   | 0.05%                                           | 1.98%                                      | 10.37%                       |
| MSCI Inc                             | MSCI | 88.8                               | 180.26                             | 16,013                                  | 0.08%                                           | 1.29%                                      | 13.45%                       |
| Ball Corp                            | BLL  | 343.9                              | 41.88                              | 14,403                                  | 0.07%                                           | 0.96%                                      | 5.60%                        |
| Bank of New York Mellon Corp/The     | BK   | 999.9                              | 52.15                              | 52,147                                  | 0.26%                                           | 2.15%                                      | 7.80%                        |

Market DCF Calculation as of August 31, 2018

|                                    |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|------------------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                    |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                 |        | <b>2.25%</b>                       | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                    |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                    |        | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| Company                            | Ticker |                                    |                                    |                                         |                                                 |                                            |                              |
| Baxter International Inc           | BAX    | 534.3                              | 74.37                              | 39,733                                  | 0.20%                                           | 1.02%                                      | 12.33%                       |
| Becton Dickinson and Co            | BDX    | 267.6                              | 261.87                             | 70,067                                  | 0.35%                                           | 1.15%                                      | 15.23%                       |
| Best Buy Co Inc                    | BBY    | 279.4                              | 79.56                              | 22,228                                  | 0.11%                                           | 2.26%                                      | 12.46%                       |
| H&R Block Inc                      | HRB    | 205.5                              | 27.06                              | 5,560                                   | 0.03%                                           | 3.70%                                      | 10.00%                       |
| Bristol-Myers Squibb Co            | BMJ    | 1,631.9                            | 60.55                              | 98,810                                  | 0.50%                                           | 2.64%                                      | 9.37%                        |
| Fortune Brands Home & Security Inc | FBHS   | 142.4                              | 52.98                              | 7,545                                   | 0.04%                                           | 1.51%                                      | 12.83%                       |
| Brown-Forman Corp                  | BF/B   | 312.1                              | 52.22                              | 16,298                                  | 0.08%                                           | 1.21%                                      | 12.85%                       |
| Cabot Oil & Gas Corp               | COG    | 441.2                              | 23.83                              | 10,513                                  | 0.05%                                           | 1.01%                                      | 44.72%                       |
| Campbell Soup Co                   | CPB    | 300.6                              | 39.45                              | 11,860                                  | 0.06%                                           | 3.55%                                      | 3.69%                        |
| Kansas City Southern               | KSU    | 102.2                              | 115.96                             | 11,846                                  | 0.06%                                           | 1.24%                                      | 8.70%                        |
| Hilton Worldwide Holdings Inc      | HLT    | 298.2                              | 77.62                              | 23,145                                  | 0.12%                                           | 0.77%                                      | 11.20%                       |
| Carnival Corp                      | CCL    | 530.6                              | 61.49                              | 32,627                                  | 0.16%                                           | 3.25%                                      | 13.80%                       |
| Cigna Corp                         | CI     | 243.4                              | 188.34                             | 45,835                                  | 0.23%                                           | 0.02%                                      | 12.03%                       |
| UDR Inc                            | UDR    | 267.7                              | 39.97                              | 10,699                                  | 0.05%                                           | 3.23%                                      | 5.51%                        |
| Clorox Co/The                      | CLX    | 128.1                              | 144.98                             | 18,570                                  | 0.09%                                           | 2.65%                                      | 9.07%                        |
| CMS Energy Corp                    | CMS    | 283.3                              | 49.24                              | 13,948                                  | 0.07%                                           | 2.90%                                      | 6.16%                        |
| Colgate-Palmolive Co               | CL     | 867.7                              | 66.41                              | 57,627                                  | 0.29%                                           | 2.53%                                      | 7.86%                        |
| Comerica Inc                       | CMA    | 171.4                              | 97.48                              | 16,708                                  | 0.08%                                           | 2.46%                                      | 21.22%                       |
| CA Inc                             | CA     | 418.2                              | 43.80                              | 18,316                                  | 0.09%                                           | 2.33%                                      | 4.10%                        |
| Conagra Brands Inc                 | CAG    | 391.6                              | 36.75                              | 14,393                                  | 0.07%                                           | 2.31%                                      | 7.85%                        |
| Consolidated Edison Inc            | ED     | 311.1                              | 78.93                              | 24,555                                  | 0.12%                                           | 3.62%                                      | 3.60%                        |
| SL Green Realty Corp               | SLG    | 86.6                               | 104.40                             | 9,038                                   | 0.05%                                           | 3.11%                                      | 4.48%                        |
| Corning Inc                        | GLW    | 810.0                              | 33.51                              | 27,144                                  | 0.14%                                           | 2.15%                                      | 8.98%                        |
| Cummins Inc                        | CMI    | 163.3                              | 141.80                             | 23,157                                  | 0.12%                                           | 3.22%                                      | 9.16%                        |
| Danaher Corp                       | DHR    | 699.8                              | 103.54                             | 72,453                                  | 0.36%                                           | 0.62%                                      | 7.13%                        |
| Target Corp                        | TGT    | 526.4                              | 87.50                              | 46,056                                  | 0.23%                                           | 2.93%                                      | 6.70%                        |
| Deere & Co                         | DE     | 321.7                              | 143.80                             | 46,257                                  | 0.23%                                           | 1.92%                                      | 7.33%                        |
| Dominion Energy Inc                | D      | 653.8                              | 70.77                              | 46,267                                  | 0.23%                                           | 4.72%                                      | 5.63%                        |
| Dover Corp                         | DOV    | 147.7                              | 85.87                              | 12,683                                  | 0.06%                                           | 2.24%                                      | 14.00%                       |
| Cboe Global Markets Inc            | CBOE   | 111.8                              | 100.80                             | 11,271                                  | 0.06%                                           | 1.23%                                      | 12.92%                       |
| Duke Energy Corp                   | DUK    | 712.4                              | 81.24                              | 57,872                                  | 0.29%                                           | 4.57%                                      | 4.48%                        |
| Eaton Corp PLC                     | ETN    | 433.3                              | 83.14                              | 36,025                                  | 0.18%                                           | 3.18%                                      | 8.92%                        |
| Ecolab Inc                         | ECL    | 288.9                              | 150.48                             | 43,474                                  | 0.22%                                           | 1.09%                                      | 13.03%                       |
| PerkinElmer Inc                    | PKI    | 110.7                              | 92.43                              | 10,235                                  | 0.05%                                           | 0.30%                                      | 16.35%                       |
| Emerson Electric Co                | EMR    | 628.5                              | 76.73                              | 48,222                                  | 0.24%                                           | 2.53%                                      | 12.07%                       |
| EOG Resources Inc                  | EOG    | 579.2                              | 118.23                             | 68,479                                  | 0.34%                                           | 0.74%                                      | 12.14%                       |
| Equifax Inc                        | EFX    | 120.4                              | 133.97                             | 16,132                                  | 0.08%                                           | 1.16%                                      | 7.43%                        |
| EQT Corp                           | EQT    | 264.0                              | 51.02                              | 13,469                                  | 0.07%                                           | 0.24%                                      | 17.50%                       |
| FedEx Corp                         | FDX    | 264.4                              | 243.95                             | 64,509                                  | 0.32%                                           | 1.07%                                      | 13.52%                       |
| Macy's Inc                         | M      | 307.0                              | 36.55                              | 11,220                                  | 0.06%                                           | 4.13%                                      | 0.50%                        |
| FMC Corp                           | FMC    | 134.6                              | 85.45                              | 11,504                                  | 0.06%                                           | 0.77%                                      | 24.50%                       |
| NextEra Energy Inc                 | NEE    | 471.6                              | 170.10                             | 80,220                                  | 0.40%                                           | 2.61%                                      | 8.38%                        |
| Franklin Resources Inc             | BEN    | 527.1                              | 31.74                              | 16,729                                  | 0.08%                                           | 2.90%                                      | 10.00%                       |
| Gap Inc/The                        | GPS    | 384.7                              | 30.35                              | 11,676                                  | 0.06%                                           | 3.20%                                      | 10.22%                       |
| General Dynamics Corp              | GD     | 296.3                              | 193.40                             | 57,301                                  | 0.29%                                           | 1.92%                                      | 11.28%                       |
| General Mills Inc                  | GIS    | 596.0                              | 46.01                              | 27,421                                  | 0.14%                                           | 4.26%                                      | 7.53%                        |
| Genuine Parts Co                   | GPC    | 146.8                              | 99.85                              | 14,653                                  | 0.07%                                           | 2.88%                                      | 5.68%                        |
| WW Grainger Inc                    | GWW    | 56.1                               | 354.07                             | 19,875                                  | 0.10%                                           | 1.54%                                      | 14.87%                       |
| Halliburton Co                     | HAL    | 879.9                              | 39.89                              | 35,099                                  | 0.18%                                           | 1.81%                                      | 74.00%                       |
| Harley-Davidson Inc                | HOG    | 166.6                              | 42.62                              | 7,099                                   | 0.04%                                           | 3.47%                                      | 10.00%                       |
| Fortive Corp                       | FTV    | 349.2                              | 83.98                              | 29,322                                  | 0.15%                                           | 0.33%                                      | 13.63%                       |
| Hershey Co/The                     | HSY    | 148.7                              | 100.52                             | 14,947                                  | 0.08%                                           | 2.87%                                      | 9.00%                        |
| Synchrony Financial                | SYF    | 740.7                              | 31.67                              | 23,458                                  | 0.12%                                           | 2.65%                                      | 7.35%                        |
| Hormel Foods Corp                  | HRL    | 530.5                              | 39.15                              | 20,769                                  | 0.10%                                           | 1.92%                                      | 6.55%                        |
| Arthur J Gallagher & Co            | AJG    | 182.6                              | 72.14                              | 13,174                                  | 0.07%                                           | 2.27%                                      | 10.32%                       |
| Mondelez International Inc         | MDLZ   | 1,466.6                            | 42.72                              | 62,651                                  | 0.31%                                           | 2.43%                                      | 10.26%                       |
| CenterPoint Energy Inc             | CNP    | 431.6                              | 27.79                              | 11,993                                  | 0.06%                                           | 3.99%                                      | 6.32%                        |
| Humana Inc                         | HUM    | 137.8                              | 333.26                             | 45,911                                  | 0.23%                                           | 0.60%                                      | 14.40%                       |
| Willis Towers Watson PLC           | WLTW   | 130.8                              | 147.27                             | 19,258                                  | 0.10%                                           | 1.63%                                      | 15.30%                       |
| Illinois Tool Works Inc            | ITW    | 335.4                              | 138.88                             | 46,574                                  | 0.23%                                           | 2.88%                                      | 10.13%                       |
| Ingersoll-Rand PLC                 | IR     | 245.3                              | 101.29                             | 24,847                                  | 0.12%                                           | 2.09%                                      | 11.44%                       |
| Foot Locker Inc                    | FL     | 116.9                              | 49.30                              | 5,764                                   | 0.03%                                           | 2.80%                                      | 4.91%                        |



Market DCF Calculation as of August 31, 2018

|                                        |        | [1]                   | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|----------------------------------------|--------|-----------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                        |        | Dividend<br>Yield     | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                     |        | <b>2.25%</b>          | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                        |        | [7]                   | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                        |        | Shares<br>Outstanding | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| Company                                | Ticker | (million)             |                                    |                                         |                                                 |                                            |                              |
| Interpublic Group of Cos Inc/The       | IPG    | 383.8                 | 23.35                              | 8,961                                   | 0.04%                                           | 3.60%                                      | 6.43%                        |
| International Flavors & Fragrances Inc | IFF    | 79.0                  | 130.29                             | 10,299                                  | 0.05%                                           | 2.24%                                      | 9.20%                        |
| Jacobs Engineering Group Inc           | JEC    | 141.9                 | 72.69                              | 10,315                                  | 0.05%                                           | 0.83%                                      | 17.01%                       |
| Hanesbrands Inc                        | HBI    | 360.5                 | 17.54                              | 6,323                                   | 0.03%                                           | 3.42%                                      | 5.04%                        |
| Kellogg Co                             | K      | 346.7                 | 71.79                              | 24,888                                  | 0.12%                                           | 3.12%                                      | 8.42%                        |
| Broadridge Financial Solutions Inc     | BR     | 116.3                 | 135.14                             | 15,720                                  | 0.08%                                           | 1.44%                                      | 10.00%                       |
| Perrigo Co PLC                         | PRGO   | 136.8                 | 76.51                              | 10,469                                  | 0.05%                                           | 0.99%                                      | 7.40%                        |
| Kimberly-Clark Corp                    | KMB    | 347.7                 | 115.54                             | 40,169                                  | 0.20%                                           | 3.46%                                      | 6.26%                        |
| Kimco Realty Corp                      | KIM    | 421.4                 | 17.11                              | 7,210                                   | 0.04%                                           | 6.55%                                      | 3.04%                        |
| Kohl's Corp                            | KSS    | 167.1                 | 79.11                              | 13,219                                  | 0.07%                                           | 3.08%                                      | 7.23%                        |
| Oracle Corp                            | ORCL   | 3,981.2               | 48.58                              | 193,405                                 | 0.97%                                           | 1.56%                                      | 7.68%                        |
| Kroger Co/The                          | KR     | 796.7                 | 31.50                              | 25,095                                  | 0.13%                                           | 1.78%                                      | 6.46%                        |
| Leggett & Platt Inc                    | LEG    | 130.2                 | 45.44                              | 5,914                                   | 0.03%                                           | 3.35%                                      | 10.00%                       |
| Lennar Corp                            | LEN    | 291.7                 | 51.67                              | 15,073                                  | 0.08%                                           | 0.31%                                      | 21.15%                       |
| Jefferies Financial Group Inc          | JEF    | 333.3                 | 23.22                              | 7,740                                   | 0.04%                                           | 2.15%                                      | 18.00%                       |
| Eli Lilly & Co                         | LLY    | 1,074.0               | 105.65                             | 113,467                                 | 0.57%                                           | 2.13%                                      | 11.65%                       |
| L Brands Inc                           | LB     | 277.2                 | 26.43                              | 7,327                                   | 0.04%                                           | 9.08%                                      | 9.33%                        |
| Lowe's Cos Inc                         | LOW    | 811.0                 | 108.75                             | 88,196                                  | 0.44%                                           | 1.77%                                      | 15.36%                       |
| Host Hotels & Resorts Inc              | HST    | 741.7                 | 21.53                              | 15,968                                  | 0.08%                                           | 3.72%                                      | 3.98%                        |
| Marsh & McLennan Cos Inc               | MMC    | 505.0                 | 84.63                              | 42,736                                  | 0.21%                                           | 1.96%                                      | 14.91%                       |
| Masco Corp                             | MAS    | 307.5                 | 37.97                              | 11,675                                  | 0.06%                                           | 1.11%                                      | 15.97%                       |
| S&P Global Inc                         | SPGI   | 251.5                 | 207.05                             | 52,073                                  | 0.26%                                           | 0.97%                                      | 11.60%                       |
| Medtronic PLC                          | MDT    | 1,350.5               | 96.41                              | 130,203                                 | 0.65%                                           | 2.07%                                      | 7.90%                        |
| CVS Health Corp                        | CVS    | 1,018.1               | 75.24                              | 76,599                                  | 0.38%                                           | 2.66%                                      | 11.66%                       |
| DowDuPont Inc                          | DWDP   | 2,307.4               | 70.13                              | 161,816                                 | 0.81%                                           | 2.17%                                      | 8.37%                        |
| Motorola Solutions Inc                 | MSI    | 162.3                 | 128.36                             | 20,829                                  | 0.10%                                           | 1.62%                                      | 7.45%                        |
| Newell Brands Inc                      | NWL    | 472.5                 | 21.72                              | 10,263                                  | 0.05%                                           | 4.24%                                      | 2.76%                        |
| Twenty-First Century Fox Inc           | FOXA   | 1,054.1               | 45.40                              | 47,854                                  | 0.24%                                           | 0.79%                                      | 9.95%                        |
| NIKE Inc                               | NKE    | 1,280.5               | 82.20                              | 105,256                                 | 0.53%                                           | 0.97%                                      | 14.06%                       |
| NiSource Inc                           | NI     | 363.0                 | 27.07                              | 9,827                                   | 0.05%                                           | 2.88%                                      | 5.63%                        |
| Noble Energy Inc                       | NBL    | 483.1                 | 29.72                              | 14,358                                  | 0.07%                                           | 1.48%                                      | 41.24%                       |
| Norfolk Southern Corp                  | NSC    | 280.0                 | 173.84                             | 48,680                                  | 0.24%                                           | 1.84%                                      | 10.20%                       |
| Principal Financial Group Inc          | PFG    | 284.7                 | 55.19                              | 15,715                                  | 0.08%                                           | 3.84%                                      | 7.93%                        |
| Eversource Energy                      | ES     | 316.9                 | 62.43                              | 19,783                                  | 0.10%                                           | 3.24%                                      | 6.37%                        |
| Northrop Grumman Corp                  | NOC    | 174.1                 | 298.49                             | 51,974                                  | 0.26%                                           | 1.61%                                      | 15.18%                       |
| Wells Fargo & Co                       | WFC    | 4,816.1               | 58.48                              | 281,648                                 | 1.41%                                           | 2.94%                                      | 13.41%                       |
| Nucor Corp                             | NUE    | 316.3                 | 62.50                              | 19,771                                  | 0.10%                                           | 2.43%                                      | 5.65%                        |
| PVH Corp                               | PVH    | 77.1                  | 143.16                             | 11,036                                  | 0.06%                                           | 0.10%                                      | 10.65%                       |
| Occidental Petroleum Corp              | OXY    | 764.7                 | 79.87                              | 61,078                                  | 0.31%                                           | 3.91%                                      | 14.30%                       |
| Omnicom Group Inc                      | OMC    | 224.4                 | 69.32                              | 15,554                                  | 0.08%                                           | 3.46%                                      | 5.44%                        |
| ONEOK Inc                              | OKE    | 411.2                 | 65.91                              | 27,105                                  | 0.14%                                           | 5.01%                                      | 26.88%                       |
| Raymond James Financial Inc            | RJF    | 145.9                 | 93.04                              | 13,573                                  | 0.07%                                           | 1.29%                                      | 17.00%                       |
| Parker-Hannifin Corp                   | PH     | 132.4                 | 175.60                             | 23,242                                  | 0.12%                                           | 1.73%                                      | 9.32%                        |
| PPL Corp                               | PPL    | 699.6                 | 29.74                              | 20,805                                  | 0.10%                                           | 5.51%                                      | 8.10%                        |
| Exelon Corp                            | EXC    | 965.9                 | 43.71                              | 42,220                                  | 0.21%                                           | 3.16%                                      | 4.45%                        |
| ConocoPhillips                         | COP    | 1,162.1               | 73.43                              | 85,333                                  | 0.43%                                           | 1.55%                                      | 6.00%                        |
| PulteGroup Inc                         | PHM    | 284.0                 | 27.95                              | 7,938                                   | 0.04%                                           | 1.29%                                      | 21.34%                       |
| Pinnacle West Capital Corp             | PNW    | 112.0                 | 78.55                              | 8,796                                   | 0.04%                                           | 3.54%                                      | 4.47%                        |
| PNC Financial Services Group Inc/The   | PNC    | 464.3                 | 143.54                             | 66,646                                  | 0.33%                                           | 2.65%                                      | 9.79%                        |
| PPG Industries Inc                     | PPG    | 242.0                 | 110.54                             | 26,753                                  | 0.13%                                           | 1.74%                                      | 8.06%                        |
| Praxair Inc                            | PX     | 287.6                 | 158.19                             | 45,492                                  | 0.23%                                           | 2.09%                                      | 13.90%                       |
| Progressive Corp/The                   | PGR    | 583.1                 | 67.53                              | 39,377                                  | 0.20%                                           | 1.67%                                      | 9.20%                        |
| Public Service Enterprise Group Inc    | PEG    | 505.3                 | 52.35                              | 26,454                                  | 0.13%                                           | 3.44%                                      | 7.35%                        |
| Raytheon Co                            | RTN    | 285.3                 | 199.44                             | 56,892                                  | 0.29%                                           | 1.74%                                      | 14.87%                       |
| Robert Half International Inc          | RHI    | 122.4                 | 78.18                              | 9,573                                   | 0.05%                                           | 1.43%                                      | 17.10%                       |
| Edison International                   | EIX    | 325.8                 | 65.73                              | 21,416                                  | 0.11%                                           | 3.68%                                      | 5.35%                        |
| Schlumberger Ltd                       | SLB    | 1,384.1               | 63.16                              | 87,421                                  | 0.44%                                           | 3.17%                                      | 35.00%                       |
| Charles Schwab Corp/The                | SCHW   | 1,351.1               | 50.79                              | 68,620                                  | 0.34%                                           | 1.02%                                      | 21.63%                       |
| Sherwin-Williams Co/The                | SHW    | 93.4                  | 455.58                             | 42,543                                  | 0.21%                                           | 0.76%                                      | 11.42%                       |
| JM Smucker Co/The                      | SJM    | 113.7                 | 103.38                             | 11,758                                  | 0.06%                                           | 3.29%                                      | 4.05%                        |
| Snap-on Inc                            | SNA    | 56.4                  | 176.78                             | 9,971                                   | 0.05%                                           | 1.86%                                      | 7.95%                        |
| AMETEK Inc                             | AME    | 231.9                 | 76.96                              | 17,847                                  | 0.09%                                           | 0.73%                                      | 11.81%                       |

Market DCF Calculation as of August 31, 2018

|                                            |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|--------------------------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                            |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                         |        | <b>2.25%</b>                       | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                            |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                            |        | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| Company                                    | Ticker |                                    |                                    |                                         |                                                 |                                            |                              |
| Southern Co/The                            | SO     | 1,014.1                            | 43.78                              | 44,399                                  | 0.22%                                           | 5.48%                                      | 4.06%                        |
| BB&T Corp                                  | BBT    | 774.4                              | 51.66                              | 40,008                                  | 0.20%                                           | 3.14%                                      | 14.92%                       |
| Southwest Airlines Co                      | LUV    | 573.0                              | 61.30                              | 35,126                                  | 0.18%                                           | 1.04%                                      | 11.12%                       |
| Stanley Black & Decker Inc                 | SWK    | 153.0                              | 140.53                             | 21,502                                  | 0.11%                                           | 1.88%                                      | 10.65%                       |
| Public Storage                             | PSA    | 174.2                              | 212.58                             | 37,040                                  | 0.19%                                           | 3.76%                                      | 5.42%                        |
| SunTrust Banks Inc                         | STI    | 460.7                              | 73.56                              | 33,891                                  | 0.17%                                           | 2.72%                                      | 14.78%                       |
| Sysco Corp                                 | SYI    | 519.8                              | 74.82                              | 38,890                                  | 0.20%                                           | 1.92%                                      | 11.63%                       |
| Andeavor                                   | ANDV   | 151.1                              | 152.79                             | 23,091                                  | 0.12%                                           | 1.54%                                      | 7.95%                        |
| Texas Instruments Inc                      | TXN    | 972.2                              | 112.40                             | 109,275                                 | 0.55%                                           | 2.21%                                      | 11.05%                       |
| Textron Inc                                | TXT    | 248.4                              | 69.03                              | 17,148                                  | 0.09%                                           | 0.12%                                      | 13.71%                       |
| Thermo Fisher Scientific Inc               | TMO    | 402.8                              | 239.10                             | 96,309                                  | 0.48%                                           | 0.28%                                      | 11.50%                       |
| Tiffany & Co                               | TIF    | 122.4                              | 122.65                             | 15,014                                  | 0.08%                                           | 1.79%                                      | 12.54%                       |
| TJX Cos Inc/The                            | TJX    | 620.8                              | 109.97                             | 68,266                                  | 0.34%                                           | 1.42%                                      | 10.70%                       |
| Torchmark Corp                             | TMK    | 112.7                              | 87.92                              | 9,908                                   | 0.05%                                           | 0.73%                                      | 13.17%                       |
| Total System Services Inc                  | TSS    | 182.4                              | 97.14                              | 17,720                                  | 0.09%                                           | 0.54%                                      | 14.62%                       |
| Johnson Controls International plc         | JCI    | 924.9                              | 37.77                              | 34,934                                  | 0.18%                                           | 2.75%                                      | 10.30%                       |
| Union Pacific Corp                         | UNP    | 739.5                              | 150.62                             | 111,383                                 | 0.56%                                           | 2.12%                                      | 14.20%                       |
| UnitedHealth Group Inc                     | UNH    | 962.5                              | 268.46                             | 258,386                                 | 1.30%                                           | 1.34%                                      | 13.06%                       |
| Unum Group                                 | UNM    | 218.7                              | 36.88                              | 8,066                                   | 0.04%                                           | 2.82%                                      | 9.00%                        |
| Marathon Oil Corp                          | MRO    | 854.1                              | 21.51                              | 18,373                                  | 0.09%                                           | 0.93%                                      | 5.00%                        |
| Ventas Inc                                 | VTR    | 356.4                              | 59.87                              | 21,340                                  | 0.11%                                           | 5.28%                                      | 1.84%                        |
| Vornado Realty Trust                       | VNO    | 190.2                              | 77.00                              | 14,648                                  | 0.07%                                           | 3.27%                                      | 0.48%                        |
| Vulcan Materials Co                        | VMC    | 132.3                              | 110.80                             | 14,655                                  | 0.07%                                           | 1.01%                                      | 20.36%                       |
| Weyerhaeuser Co                            | WY     | 757.7                              | 34.71                              | 26,299                                  | 0.13%                                           | 3.92%                                      | 16.20%                       |
| Whirlpool Corp                             | WHR    | 64.6                               | 124.98                             | 8,069                                   | 0.04%                                           | 3.68%                                      | 9.46%                        |
| WEC Energy Group Inc                       | WEC    | 315.5                              | 67.58                              | 21,324                                  | 0.11%                                           | 3.27%                                      | 2.90%                        |
| Xerox Corp                                 | XRX    | 255.1                              | 27.86                              | 7,107                                   | 0.04%                                           | 3.59%                                      | 2.05%                        |
| AES Corp/VA                                | AES    | 661.7                              | 13.46                              | 8,906                                   | 0.04%                                           | 3.86%                                      | 8.88%                        |
| Amgen Inc                                  | AMGN   | 647.3                              | 199.81                             | 129,331                                 | 0.65%                                           | 2.64%                                      | 6.46%                        |
| Apple Inc                                  | AAPL   | 4,829.9                            | 227.63                             | 1,099,436                               | 5.52%                                           | 1.28%                                      | 11.66%                       |
| Cintas Corp                                | CTAS   | 106.3                              | 213.37                             | 22,677                                  | 0.11%                                           | 0.76%                                      | 13.05%                       |
| Comcast Corp                               | CMCSA  | 4,572.5                            | 36.99                              | 169,136                                 | 0.85%                                           | 2.05%                                      | 14.85%                       |
| Malson Coors Brewing Co                    | TAP    | 195.6                              | 66.74                              | 13,055                                  | 0.07%                                           | 2.46%                                      | 5.13%                        |
| KLA-Tencor Corp                            | KLAC   | 156.1                              | 116.21                             | 18,144                                  | 0.09%                                           | 2.58%                                      | 7.37%                        |
| Marriott International Inc/MD              | MAR    | 347.0                              | 126.47                             | 43,884                                  | 0.22%                                           | 1.30%                                      | 14.46%                       |
| McCormick & Co Inc/MD                      | MKC    | 121.3                              | 124.88                             | 15,146                                  | 0.08%                                           | 1.67%                                      | 8.80%                        |
| Nordstrom Inc                              | JWN    | 167.5                              | 62.85                              | 10,527                                  | 0.05%                                           | 2.35%                                      | 8.43%                        |
| PACCAR Inc                                 | PCAR   | 350.5                              | 68.42                              | 23,984                                  | 0.12%                                           | 1.64%                                      | 6.03%                        |
| Costco Wholesale Corp                      | COST   | 438.5                              | 233.13                             | 102,237                                 | 0.51%                                           | 0.98%                                      | 10.81%                       |
| Stryker Corp                               | SYK    | 374.0                              | 169.43                             | 63,365                                  | 0.32%                                           | 1.11%                                      | 8.44%                        |
| Tyson Foods Inc                            | TSN    | 295.9                              | 62.81                              | 18,587                                  | 0.09%                                           | 1.91%                                      | 5.90%                        |
| Applied Materials Inc                      | AMAT   | 983.0                              | 43.02                              | 42,288                                  | 0.21%                                           | 1.86%                                      | 14.06%                       |
| American Airlines Group Inc                | AAL    | 460.5                              | 40.48                              | 18,641                                  | 0.09%                                           | 0.99%                                      | 16.07%                       |
| Cardinal Health Inc                        | CAH    | 308.8                              | 52.19                              | 16,118                                  | 0.08%                                           | 3.65%                                      | 9.40%                        |
| DR Horton Inc                              | DHI    | 377.1                              | 44.51                              | 16,783                                  | 0.08%                                           | 1.12%                                      | 20.70%                       |
| Flowserve Corp                             | FLS    | 130.9                              | 52.12                              | 6,820                                   | 0.03%                                           | 1.46%                                      | 19.90%                       |
| Expeditors International of Washington Inc | EXPD   | 174.3                              | 73.28                              | 12,775                                  | 0.06%                                           | 1.23%                                      | 11.73%                       |
| Fastenal Co                                | FAST   | 286.9                              | 58.36                              | 16,746                                  | 0.08%                                           | 2.74%                                      | 17.55%                       |
| M&T Bank Corp                              | MTB    | 143.8                              | 177.15                             | 25,473                                  | 0.13%                                           | 2.26%                                      | 14.30%                       |
| Xcel Energy Inc                            | XEL    | 509.1                              | 48.05                              | 24,462                                  | 0.12%                                           | 3.16%                                      | 5.80%                        |
| Fifth Third Bancorp                        | FITB   | 666.3                              | 29.43                              | 19,611                                  | 0.10%                                           | 2.45%                                      | 5.65%                        |
| Gilead Sciences Inc                        | GILD   | 1,296.3                            | 75.73                              | 98,172                                  | 0.49%                                           | 3.01%                                      | 5.72%                        |
| Hasbro Inc                                 | HAS    | 126.9                              | 99.31                              | 12,606                                  | 0.06%                                           | 2.54%                                      | 8.13%                        |
| Huntington Bancshares Inc/OH               | HBAN   | 1,104.2                            | 16.21                              | 17,900                                  | 0.09%                                           | 3.45%                                      | 13.36%                       |
| Welltower Inc                              | WELL   | 372.0                              | 66.71                              | 24,818                                  | 0.12%                                           | 5.22%                                      | 5.90%                        |
| Northern Trust Corp                        | NTRS   | 223.3                              | 107.46                             | 23,994                                  | 0.12%                                           | 2.05%                                      | 16.78%                       |
| Packaging Corp of America                  | PKG    | 94.5                               | 109.92                             | 10,387                                  | 0.05%                                           | 2.87%                                      | 10.00%                       |
| Paychex Inc                                | PAYX   | 359.0                              | 73.25                              | 26,297                                  | 0.13%                                           | 3.06%                                      | 9.00%                        |
| People's United Financial Inc              | PBCT   | 348.8                              | 18.51                              | 6,457                                   | 0.03%                                           | 3.78%                                      | 2.00%                        |
| QUALCOMM Inc                               | QCOM   | 1,469.1                            | 68.71                              | 100,943                                 | 0.51%                                           | 3.61%                                      | 12.32%                       |
| Roper Technologies Inc                     | ROP    | 103.3                              | 298.37                             | 30,835                                  | 0.15%                                           | 0.55%                                      | 13.40%                       |
| Ross Stores Inc                            | ROST   | 376.5                              | 95.78                              | 36,065                                  | 0.18%                                           | 0.94%                                      | 10.27%                       |
| Starbucks Corp                             | SBUX   | 1,349.1                            | 53.45                              | 72,109                                  | 0.36%                                           | 2.69%                                      | 14.30%                       |
| KeyCorp                                    | KEY    | 1,052.0                            | 21.07                              | 22,166                                  | 0.11%                                           | 3.23%                                      | 16.21%                       |
| State Street Corp                          | STI    | 379.4                              | 86.91                              | 32,975                                  | 0.17%                                           | 2.16%                                      | 12.36%                       |
| US Bancorp                                 | USB    | 1,629.0                            | 54.11                              | 88,148                                  | 0.44%                                           | 2.22%                                      | 7.45%                        |



Market DCF Calculation as of August 31, 2018

|                                           |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|-------------------------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                           |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                        |        | <b>2.25%</b>                       | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                           |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                           |        | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| Company                                   | Ticker |                                    |                                    |                                         |                                                 |                                            |                              |
| AO Smith Corp                             | AOS    | 144.5                              | 58.08                              | 8,395                                   | 0.04%                                           | 1.24%                                      | 11.50%                       |
| Symantec Corp                             | SYMC   | 621.5                              | 20.16                              | 12,530                                  | 0.06%                                           | 1.49%                                      | 6.68%                        |
| T Rowe Price Group Inc                    | TROW   | 243.2                              | 115.89                             | 28,183                                  | 0.14%                                           | 2.42%                                      | 12.08%                       |
| Waste Management Inc                      | WM     | 428.7                              | 90.90                              | 38,970                                  | 0.20%                                           | 2.05%                                      | 11.61%                       |
| CBS Corp                                  | CBS    | 338.5                              | 53.02                              | 17,949                                  | 0.09%                                           | 1.36%                                      | 18.52%                       |
| Allergan PLC                              | AGN    | 339.4                              | 191.71                             | 65,075                                  | 0.33%                                           | 1.50%                                      | 8.49%                        |
| Constellation Brands Inc                  | STZ    | 167.9                              | 208.20                             | 34,949                                  | 0.18%                                           | 1.42%                                      | 11.19%                       |
| Xilinx Inc                                | XLNX   | 252.9                              | 77.83                              | 19,684                                  | 0.10%                                           | 1.85%                                      | 11.60%                       |
| DENTSPLY SIRONA Inc                       | XRAY   | 222.3                              | 39.92                              | 8,876                                   | 0.04%                                           | 0.88%                                      | 6.93%                        |
| Zions Bancorporation                      | ZION   | 194.4                              | 53.29                              | 10,360                                  | 0.05%                                           | 2.25%                                      | 10.30%                       |
| Alaska Air Group Inc                      | ALK    | 123.1                              | 67.49                              | 8,311                                   | 0.04%                                           | 1.90%                                      | 7.51%                        |
| Invesco Ltd                               | IVZ    | 410.8                              | 24.10                              | 9,901                                   | 0.05%                                           | 4.98%                                      | 7.48%                        |
| Intuit Inc                                | INTU   | 258.7                              | 219.47                             | 56,771                                  | 0.28%                                           | 0.86%                                      | 16.38%                       |
| Morgan Stanley                            | MS     | 1,744.8                            | 48.83                              | 85,198                                  | 0.43%                                           | 2.46%                                      | 13.44%                       |
| Microchip Technology Inc                  | MCHP   | 235.6                              | 86.03                              | 20,265                                  | 0.10%                                           | 1.69%                                      | 14.55%                       |
| Chubb Ltd                                 | CB     | 463.3                              | 135.24                             | 62,651                                  | 0.31%                                           | 2.16%                                      | 10.00%                       |
| Citizens Financial Group Inc              | CFG    | 475.9                              | 41.16                              | 19,590                                  | 0.10%                                           | 2.62%                                      | 21.50%                       |
| Allstate Corp/The                         | ALL    | 346.2                              | 100.57                             | 34,821                                  | 0.17%                                           | 1.83%                                      | 9.00%                        |
| Equity Residential                        | EQR    | 368.3                              | 67.75                              | 24,951                                  | 0.13%                                           | 3.19%                                      | 5.25%                        |
| BorgWarner Inc                            | BWA    | 208.9                              | 43.77                              | 9,142                                   | 0.05%                                           | 1.55%                                      | 5.79%                        |
| Simon Property Group Inc                  | SPG    | 309.2                              | 183.03                             | 56,595                                  | 0.28%                                           | 4.37%                                      | 6.61%                        |
| Eastman Chemical Co                       | EMN    | 141.3                              | 97.03                              | 13,708                                  | 0.07%                                           | 2.31%                                      | 5.90%                        |
| AvalonBay Communities Inc                 | AVB    | 138.2                              | 183.29                             | 25,334                                  | 0.13%                                           | 3.21%                                      | 6.87%                        |
| Prudential Financial Inc                  | PRU    | 417.0                              | 98.25                              | 40,970                                  | 0.21%                                           | 3.66%                                      | 9.00%                        |
| United Parcel Service Inc                 | UPS    | 693.4                              | 122.88                             | 85,204                                  | 0.43%                                           | 2.96%                                      | 8.97%                        |
| Apartment Investment & Management Co      | AIV    | 157.4                              | 43.80                              | 6,892                                   | 0.03%                                           | 3.47%                                      | 6.12%                        |
| Walgreens Boots Alliance Inc              | WBA    | 992.4                              | 68.56                              | 68,040                                  | 0.34%                                           | 2.57%                                      | 10.64%                       |
| McKesson Corp                             | MCK    | 199.8                              | 128.75                             | 25,721                                  | 0.13%                                           | 1.21%                                      | 5.83%                        |
| Lockheed Martin Corp                      | LMT    | 284.8                              | 320.41                             | 91,247                                  | 0.46%                                           | 2.50%                                      | 25.21%                       |
| AmerisourceBergen Corp                    | ABC    | 216.4                              | 89.97                              | 19,466                                  | 0.10%                                           | 1.69%                                      | 10.05%                       |
| Capital One Financial Corp                | COF    | 478.4                              | 99.09                              | 47,407                                  | 0.24%                                           | 1.61%                                      | 16.00%                       |
| Darden Restaurants Inc                    | DRI    | 123.5                              | 116.04                             | 14,336                                  | 0.07%                                           | 2.59%                                      | 10.09%                       |
| NetApp Inc                                | NTAP   | 259.3                              | 86.81                              | 22,507                                  | 0.11%                                           | 1.84%                                      | 15.95%                       |
| Citrix Systems Inc                        | CTXS   | 135.7                              | 114.02                             | 15,468                                  | 0.08%                                           | 1.23%                                      | 9.00%                        |
| DXC Technology Co                         | DXC    | 281.2                              | 91.09                              | 25,611                                  | 0.13%                                           | 0.83%                                      | 6.36%                        |
| Hartford Financial Services Group Inc/The | HIG    | 358.4                              | 50.37                              | 18,054                                  | 0.09%                                           | 2.38%                                      | 9.50%                        |
| Iron Mountain Inc                         | IRM    | 286.1                              | 36.10                              | 10,330                                  | 0.05%                                           | 6.51%                                      | 10.10%                       |
| Estee Lauder Cos Inc/The                  | EL     | 224.1                              | 140.12                             | 31,407                                  | 0.16%                                           | 1.08%                                      | 16.95%                       |
| Universal Health Services Inc             | UHS    | 86.1                               | 130.16                             | 11,205                                  | 0.06%                                           | 0.31%                                      | 7.93%                        |
| Skyworks Solutions Inc                    | SWKS   | 179.0                              | 91.30                              | 16,341                                  | 0.08%                                           | 1.66%                                      | 12.04%                       |
| National Oilwell Varco Inc                | NOV    | 382.6                              | 47.07                              | 18,010                                  | 0.09%                                           | 0.42%                                      | 41.00%                       |
| Quest Diagnostics Inc                     | DGX    | 136.7                              | 109.98                             | 15,031                                  | 0.08%                                           | 1.82%                                      | 9.20%                        |
| Activision Blizzard Inc                   | ATVI   | 762.4                              | 72.10                              | 54,970                                  | 0.28%                                           | 0.47%                                      | 13.90%                       |
| Rockwell Automation Inc                   | ROK    | 123.2                              | 180.96                             | 22,288                                  | 0.11%                                           | 2.03%                                      | 12.34%                       |
| Kraft Heinz Co/The                        | KHC    | 1,219.2                            | 58.27                              | 71,041                                  | 0.36%                                           | 4.29%                                      | 5.60%                        |
| American Tower Corp                       | AMT    | 440.8                              | 149.12                             | 65,737                                  | 0.33%                                           | 2.07%                                      | 16.10%                       |
| HollyFrontier Corp                        | HFC    | 176.2                              | 74.52                              | 13,129                                  | 0.07%                                           | 1.77%                                      | 8.43%                        |
| Ralph Lauren Corp                         | RL     | 55.2                               | 132.81                             | 7,338                                   | 0.04%                                           | 1.88%                                      | 6.83%                        |
| Boston Properties Inc                     | BXP    | 154.4                              | 130.45                             | 20,144                                  | 0.10%                                           | 2.45%                                      | 5.83%                        |
| Amphenol Corp                             | APH    | 300.4                              | 94.58                              | 28,407                                  | 0.14%                                           | 0.97%                                      | 11.81%                       |
| Arconic Inc                               | ARNC   | 483.0                              | 22.38                              | 10,809                                  | 0.05%                                           | 1.07%                                      | 16.00%                       |
| Pioneer Natural Resources Co              | PXD    | 170.4                              | 174.70                             | 29,769                                  | 0.15%                                           | 0.18%                                      | 27.13%                       |
| Valero Energy Corp                        | VLO    | 427.4                              | 117.88                             | 50,382                                  | 0.25%                                           | 2.71%                                      | 16.65%                       |
| L3 Technologies Inc                       | LLL    | 78.3                               | 213.72                             | 16,740                                  | 0.08%                                           | 1.50%                                      | 12.64%                       |
| Western Union Co/The                      | WU     | 447.3                              | 18.92                              | 8,462                                   | 0.04%                                           | 4.02%                                      | 4.20%                        |
| CH Robinson Worldwide Inc                 | CHRW   | 138.5                              | 96.08                              | 13,311                                  | 0.07%                                           | 1.92%                                      | 10.23%                       |
| Accenture PLC                             | ACN    | 640.7                              | 169.07                             | 108,331                                 | 0.54%                                           | 1.57%                                      | 11.15%                       |
| Yum! Brands Inc                           | YUM    | 317.4                              | 86.89                              | 27,575                                  | 0.14%                                           | 1.66%                                      | 12.50%                       |
| Prologis Inc                              | PLD    | 629.4                              | 67.18                              | 42,283                                  | 0.21%                                           | 2.86%                                      | 6.68%                        |
| Ameren Corp                               | AEE    | 244.0                              | 63.23                              | 15,431                                  | 0.08%                                           | 2.89%                                      | 8.98%                        |
| NVIDIA Corp                               | NVDA   | 608.0                              | 280.68                             | 170,653                                 | 0.86%                                           | 0.21%                                      | 11.23%                       |

Market DCF Calculation as of August 31, 2018

|                                            |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|--------------------------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                            |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| <b>S&amp;P 500</b>                         |        | <b>2.25%</b>                       | <b>2.38%</b>                       | <b>11.45%</b>                           | <b>13.83%</b>                                   | <b>3.55%</b>                               | <b>10.28%</b>                |
|                                            |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
|                                            |        | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| Company                                    | Ticker |                                    |                                    |                                         |                                                 |                                            |                              |
| Sealed Air Corp                            | SEE    | 158.8                              | 40.11                              | 6,370                                   | 0.03%                                           | 1.60%                                      | 3.89%                        |
| Cognizant Technology Solutions Corp        | CTSH   | 580.2                              | 78.43                              | 45,508                                  | 0.23%                                           | 1.02%                                      | 14.70%                       |
| Affiliated Managers Group Inc              | AMG    | 53.4                               | 146.09                             | 7,806                                   | 0.04%                                           | 0.82%                                      | 11.68%                       |
| Aetna Inc                                  | AET    | 327.4                              | 200.27                             | 65,568                                  | 0.33%                                           | 1.00%                                      | 10.69%                       |
| Republic Services Inc                      | RSG    | 325.4                              | 73.36                              | 23,868                                  | 0.12%                                           | 2.04%                                      | 11.92%                       |
| Goldman Sachs Group Inc/The                | GS     | 377.6                              | 237.81                             | 89,787                                  | 0.45%                                           | 1.35%                                      | 12.69%                       |
| Sempra Energy                              | SRE    | 273.5                              | 116.08                             | 31,743                                  | 0.16%                                           | 3.08%                                      | 16.14%                       |
| Moody's Corp                               | MCO    | 191.9                              | 178.02                             | 34,162                                  | 0.17%                                           | 0.99%                                      | 8.00%                        |
| Devon Energy Corp                          | DVN    | 508.8                              | 42.93                              | 21,843                                  | 0.11%                                           | 0.75%                                      | 14.46%                       |
| Allegion PLC                               | ALLE   | 95.0                               | 87.22                              | 8,286                                   | 0.04%                                           | 0.96%                                      | 11.23%                       |
| Agilent Technologies Inc                   | A      | 318.8                              | 67.54                              | 21,530                                  | 0.11%                                           | 0.88%                                      | 10.35%                       |
| Anthem Inc                                 | ANTM   | 260.0                              | 264.73                             | 68,818                                  | 0.35%                                           | 1.13%                                      | 11.59%                       |
| CME Group Inc                              | CME    | 340.6                              | 174.73                             | 59,511                                  | 0.30%                                           | 1.60%                                      | 15.00%                       |
| Juniper Networks Inc                       | JNPR   | 344.8                              | 28.43                              | 9,803                                   | 0.05%                                           | 2.53%                                      | 9.40%                        |
| BlackRock Inc                              | BLK    | 159.6                              | 479.06                             | 76,450                                  | 0.38%                                           | 2.61%                                      | 10.67%                       |
| DTE Energy Co                              | DTE    | 181.5                              | 111.14                             | 20,170                                  | 0.10%                                           | 3.18%                                      | 6.03%                        |
| Nasdaq Inc                                 | NDAQ   | 164.5                              | 95.44                              | 15,701                                  | 0.08%                                           | 1.84%                                      | 11.27%                       |
| Philip Morris International Inc            | PM     | 1,554.5                            | 77.89                              | 121,081                                 | 0.61%                                           | 5.85%                                      | 10.33%                       |
| Huntington Ingalls Industries Inc          | HII    | 43.3                               | 244.47                             | 10,590                                  | 0.05%                                           | 1.18%                                      | 27.50%                       |
| MetLife Inc                                | MET    | 994.8                              | 45.89                              | 45,653                                  | 0.23%                                           | 3.66%                                      | 12.58%                       |
| Tapestry Inc                               | TPR    | 288.0                              | 50.69                              | 14,601                                  | 0.07%                                           | 2.66%                                      | 11.60%                       |
| Fluor Corp                                 | FLR    | 140.6                              | 57.41                              | 8,073                                   | 0.04%                                           | 1.46%                                      | 25.82%                       |
| CSX Corp                                   | CSX    | 858.8                              | 74.16                              | 63,689                                  | 0.32%                                           | 1.19%                                      | 11.96%                       |
| Rockwell Collins Inc                       | COL    | 164.4                              | 135.95                             | 22,346                                  | 0.11%                                           | 0.97%                                      | 11.60%                       |
| TechnipFMC PLC                             | FTI    | 454.5                              | 30.63                              | 13,921                                  | 0.07%                                           | 1.70%                                      | 8.70%                        |
| Zimmer Biomet Holdings Inc                 | ZBH    | 203.5                              | 123.63                             | 25,157                                  | 0.13%                                           | 0.78%                                      | 3.64%                        |
| Mastercard Inc                             | MA     | 1,025.1                            | 215.56                             | 220,961                                 | 1.11%                                           | 0.46%                                      | 21.42%                       |
| Intercontinental Exchange Inc              | ICE    | 573.4                              | 76.23                              | 43,713                                  | 0.22%                                           | 1.26%                                      | 8.32%                        |
| Fidelity National Information Services Inc | FIS    | 328.8                              | 108.17                             | 35,569                                  | 0.18%                                           | 1.18%                                      | 4.40%                        |
| Wynn Resorts Ltd                           | WYNN   | 108.6                              | 148.34                             | 16,116                                  | 0.08%                                           | 2.02%                                      | 18.30%                       |
| NRG Energy Inc                             | NRG    | 303.4                              | 35.39                              | 10,738                                  | 0.05%                                           | 0.34%                                      | 15.69%                       |
| Regions Financial Corp                     | RF     | 1,102.5                            | 19.46                              | 21,454                                  | 0.11%                                           | 2.88%                                      | 22.28%                       |
| Mosaic Co/The                              | MOS    | 385.5                              | 31.27                              | 12,053                                  | 0.06%                                           | 0.32%                                      | 7.00%                        |
| Expedia Group Inc                          | EXPE   | 136.7                              | 130.50                             | 17,833                                  | 0.09%                                           | 0.98%                                      | 14.23%                       |
| Evergy Inc                                 | EVERG  | 271.7                              | 57.05                              | 15,500                                  | 0.08%                                           | 3.23%                                      | 8.59%                        |
| CF Industries Holdings Inc                 | CF     | 233.5                              | 51.95                              | 12,129                                  | 0.06%                                           | 2.31%                                      | 15.30%                       |
| Viacom Inc                                 | VIAB   | 353.4                              | 29.28                              | 10,349                                  | 0.05%                                           | 2.73%                                      | 6.56%                        |
| TE Connectivity Ltd                        | TEL    | 348.5                              | 91.68                              | 31,947                                  | 0.16%                                           | 1.92%                                      | 9.25%                        |
| Cooper Cos Inc/The                         | COO    | 49.1                               | 255.78                             | 12,569                                  | 0.06%                                           | 0.02%                                      | 10.80%                       |
| Discover Financial Services                | DFS    | 342.7                              | 78.12                              | 26,768                                  | 0.13%                                           | 2.05%                                      | 9.18%                        |
| Visa Inc                                   | V      | 1,776.7                            | 146.89                             | 260,973                                 | 1.31%                                           | 0.57%                                      | 17.90%                       |
| Xylem Inc/NY                               | XYL    | 179.6                              | 75.91                              | 13,635                                  | 0.07%                                           | 1.11%                                      | 8.60%                        |
| Marathon Petroleum Corp                    | MPC    | 451.0                              | 82.29                              | 37,113                                  | 0.19%                                           | 2.24%                                      | 20.43%                       |
| Tractor Supply Co                          | TSCO   | 121.8                              | 88.28                              | 10,753                                  | 0.05%                                           | 1.40%                                      | 13.43%                       |
| ResMed Inc                                 | RMD    | 142.7                              | 111.41                             | 15,896                                  | 0.08%                                           | 1.33%                                      | 12.15%                       |
| Albemarle Corp                             | ALB    | 108.5                              | 95.52                              | 10,359                                  | 0.05%                                           | 1.40%                                      | 13.53%                       |
| Essex Property Trust Inc                   | ESS    | 66.1                               | 246.28                             | 16,267                                  | 0.08%                                           | 3.02%                                      | 6.51%                        |
| Realty Income Corp                         | O      | 290.0                              | 58.57                              | 16,988                                  | 0.09%                                           | 4.51%                                      | 4.36%                        |
| WestRock Co                                | WRK    | 255.1                              | 55.08                              | 14,052                                  | 0.07%                                           | 3.12%                                      | 6.50%                        |
| Western Digital Corp                       | WDC    | 291.4                              | 63.24                              | 18,425                                  | 0.09%                                           | 3.16%                                      | 3.52%                        |
| PepsiCo Inc                                | PEP    | 1,414.3                            | 112.01                             | 158,418                                 | 0.79%                                           | 3.31%                                      | 6.72%                        |
| Church & Dwight Co Inc                     | CHD    | 245.4                              | 56.58                              | 13,885                                  | 0.07%                                           | 1.54%                                      | 9.63%                        |
| Duke Realty Corp                           | DRE    | 357.3                              | 28.49                              | 10,179                                  | 0.05%                                           | 2.81%                                      | 5.34%                        |
| Federal Realty Investment Trust            | FRT    | 73.5                               | 130.61                             | 9,599                                   | 0.05%                                           | 3.12%                                      | 4.85%                        |
| MGM Resorts International                  | MGM    | 537.9                              | 28.99                              | 15,594                                  | 0.08%                                           | 1.66%                                      | 3.72%                        |
| Twenty-First Century Fox Inc               | FOX    | 798.5                              | 44.90                              | 35,854                                  | 0.18%                                           | 0.80%                                      | 9.95%                        |
| Alliant Energy Corp                        | LNT    | 238.0                              | 42.84                              | 10,195                                  | 0.05%                                           | 3.13%                                      | 5.86%                        |
| JB Hunt Transport Services Inc             | JBHT   | 109.3                              | 120.75                             | 13,203                                  | 0.07%                                           | 0.80%                                      | 13.46%                       |
| Lam Research Corp                          | LRCX   | 157.6                              | 173.09                             | 27,276                                  | 0.14%                                           | 2.54%                                      | 13.55%                       |
| Pentair PLC                                | PNR    | 175.4                              | 43.48                              | 7,627                                   | 0.04%                                           | 1.61%                                      | 11.05%                       |
| Alexandria Real Estate Equities Inc        | ARE    | 105.8                              | 128.35                             | 13,574                                  | 0.07%                                           | 2.90%                                      | 6.82%                        |
| Delta Air Lines Inc                        | DAL    | 691.3                              | 58.48                              | 40,429                                  | 0.20%                                           | 2.39%                                      | 15.22%                       |
| News Corp                                  | NWS    | 199.6                              | 13.60                              | 2,715                                   | 0.01%                                           | 1.47%                                      | 26.30%                       |
| Regency Centers Corp                       | REG    | 169.4                              | 66.03                              | 11,188                                  | 0.06%                                           | 3.36%                                      | 9.68%                        |
| Macerich Co/The                            | MAC    | 141.1                              | 58.74                              | 8,285                                   | 0.04%                                           | 5.04%                                      | 6.07%                        |
| Martin Marietta Materials Inc              | MLM    | 63.0                               | 198.72                             | 12,522                                  | 0.06%                                           | 0.97%                                      | 14.09%                       |
| Coty Inc                                   | COTY   | 750.8                              | 12.36                              | 9,280                                   | 0.05%                                           | 4.05%                                      | 13.06%                       |
| Everest Re Group Ltd                       | RE     | 40.9                               | 223.02                             | 9,111                                   | 0.05%                                           | 2.33%                                      | 10.00%                       |



Market DCF Calculation as of August 31, 2018

|                                                                              |        | [1]                                | [2]                                | [3]                                     | [4]                                             | [5]                                        | [6]                          |
|------------------------------------------------------------------------------|--------|------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|--------------------------------------------|------------------------------|
|                                                                              |        | Dividend<br>Yield                  | Dividend<br>Yield x<br>(1 + 0.50g) | Expected<br>Growth Rate (g)             | Secondary<br>Market Investor<br>Required Return | Forecast US<br>Government 30<br>Year Yield | Equity Risk<br>Premium       |
| S&P 500                                                                      |        | 2.25%                              | 2.38%                              | 11.45%                                  | 13.83%                                          | 3.55%                                      | 10.28%                       |
|                                                                              |        | [7]                                | [8]                                | [9]                                     | [10]                                            | [11]                                       | [12]                         |
| Company                                                                      | Ticker | Shares<br>Outstanding<br>(million) | Price (\$)                         | Market<br>Capitalization<br>(\$million) | Percent of Total<br>Market<br>Capitalization    | Current<br>Dividend<br>Yield               | Long-Term<br>Growth Estimate |
| News Corp                                                                    | NWSA   | 383.4                              | 13.07                              | 5,011                                   | 0.03%                                           | 1.53%                                      | 26.30%                       |
| Global Payments Inc                                                          | GPN    | 158.2                              | 124.58                             | 19,707                                  | 0.10%                                           | 0.03%                                      | 17.00%                       |
| Crown Castle International Corp                                              | CCI    | 414.8                              | 114.03                             | 47,304                                  | 0.24%                                           | 3.68%                                      | 19.23%                       |
| Aptiv PLC                                                                    | APTIV  | 264.7                              | 88.01                              | 23,300                                  | 0.12%                                           | 1.00%                                      | 13.12%                       |
| Advance Auto Parts Inc                                                       | AAP    | 74.1                               | 164.03                             | 12,152                                  | 0.06%                                           | 0.15%                                      | 17.52%                       |
| Alliance Data Systems Corp                                                   | ADS    | 54.9                               | 238.58                             | 13,109                                  | 0.07%                                           | 0.96%                                      | 11.93%                       |
| Nielsen Holdings PLC                                                         | NLSN   | 355.2                              | 26.00                              | 9,235                                   | 0.05%                                           | 5.38%                                      | 12.00%                       |
| Garmin Ltd                                                                   | GRMN   | 188.8                              | 68.14                              | 12,865                                  | 0.06%                                           | 3.11%                                      | 5.98%                        |
| Cimarex Energy Co                                                            | XEC    | 95.4                               | 84.48                              | 8,056                                   | 0.04%                                           | 0.85%                                      | 72.05%                       |
| Zoetis Inc                                                                   | ZTS    | 481.8                              | 90.60                              | 43,653                                  | 0.22%                                           | 0.56%                                      | 17.87%                       |
| Digital Realty Trust Inc                                                     | DLR    | 206.1                              | 124.28                             | 25,614                                  | 0.13%                                           | 3.25%                                      | 7.28%                        |
| Equinix Inc                                                                  | EQIX   | 79.5                               | 436.13                             | 34,676                                  | 0.17%                                           | 2.09%                                      | 15.76%                       |
| Mean for Companies Paying Dividends with Positive Long-Term Growth Estimates |        |                                    |                                    |                                         |                                                 | 2.25%                                      | 11.45%                       |

Notes:

[1] Equals mean of Column [11]

[2] Equals Column [1] x (1 + 0.5 x Column [3])

[3] Equals mean of Column [12]

[4] Equals Column [2] + Column [3]

[5] Source: April 2018 Consensus Forecast Average 2019-2021 Forecasts 10-Year bond yield plus 30-day average spread between 10- and 30-year government bonds ending August 31, 2018

[6] Equals Column [4] - (Column [5])

[7] Source: Bloomberg Finance L.P., as of August 31, 2018

[8] Source: Bloomberg Finance L.P., as of August 31, 2018

[9] Equals Column [7] x Column [8]

[10] Equals percent of sum of Column [9]

[11] Source: Bloomberg Finance L.P., as of August 31, 2018

[12] Source: Bloomberg Finance L.P., as of August 31, 2018

Capital Asset Pricing Model

|                                       |        | [1]       | [2]        | [3]          | [4]            | [5]                    | [6]         | [7]            | [8]        |
|---------------------------------------|--------|-----------|------------|--------------|----------------|------------------------|-------------|----------------|------------|
|                                       |        |           |            |              |                | Average<br>Market Risk | Basic CAPM  |                |            |
| US Proxy Group                        | Ticker | Bloomberg | Value Line | Average Beta | Risk Free Rate | Premium                | Calculation | Flotation Cost | Total CAPM |
| ALLETE, Inc.                          | ALE    | 0.59      | 0.75       | 0.67         | 3.55%          | 8.61%                  | 9.30%       | 0.50%          | 9.80%      |
| Alliant Energy Corporation            | LNT    | 0.56      | 0.70       | 0.63         | 3.55%          | 8.61%                  | 8.99%       | 0.50%          | 9.49%      |
| American Electric Power Company, Inc. | AEP    | 0.55      | 0.65       | 0.60         | 3.55%          | 8.61%                  | 8.73%       | 0.50%          | 9.23%      |
| Duke Energy Corporation               | DUK    | 0.46      | 0.55       | 0.51         | 3.55%          | 8.61%                  | 7.90%       | 0.50%          | 8.40%      |
| Edison International                  | EIX    | 0.55      | 0.60       | 0.58         | 3.55%          | 8.61%                  | 8.50%       | 0.50%          | 9.00%      |
| Eversource Energy                     | ES     | 0.58      | 0.60       | 0.59         | 3.55%          | 8.61%                  | 8.65%       | 0.50%          | 9.15%      |
| OGE Energy Corporation                | OGE    | 0.67      | 0.95       | 0.81         | 3.55%          | 8.61%                  | 10.54%      | 0.50%          | 11.04%     |
| Pinnacle West Capital Corporation     | PNW    | 0.56      | 0.65       | 0.61         | 3.55%          | 8.61%                  | 8.77%       | 0.50%          | 9.27%      |
| PNM Resources, Inc.                   | PNM    | 0.61      | 0.75       | 0.68         | 3.55%          | 8.61%                  | 9.39%       | 0.50%          | 9.89%      |
| MEAN                                  |        | 0.57      | 0.69       | 0.63         |                |                        | 8.97%       |                | 9.47%      |

|                            |        |           |            |              |                | Average<br>Market Risk | Basic CAPM  |                |            |
|----------------------------|--------|-----------|------------|--------------|----------------|------------------------|-------------|----------------|------------|
| Canada Proxy Group         | Ticker | Bloomberg | Value Line | Average Beta | Risk Free Rate | Premium                | Calculation | Flotation Cost | Total CAPM |
| Canadian Utilities Limited | CU     | 0.82      | n/a        | 0.82         | 3.08%          | 8.59%                  | 10.16%      | 0.50%          | 10.66%     |
| Emera Inc.                 | EMA    | 0.66      | n/a        | 0.66         | 3.08%          | 8.59%                  | 8.74%       | 0.50%          | 9.24%      |
| Enbridge Inc.              | ENB    | 1.03      | n/a        | 1.03         | 3.08%          | 8.59%                  | 11.94%      | 0.50%          | 12.44%     |
| Valener Inc.               | VNR    | 0.53      | n/a        | 0.53         | 3.08%          | 8.59%                  | 7.66%       | 0.50%          | 8.16%      |
| MEAN                       |        | 0.76      |            | 0.76         |                |                        | 9.63%       |                | 10.13%     |

|                                       |        |           |            |              |                | Average<br>Market Risk | Basic CAPM  |                |            |
|---------------------------------------|--------|-----------|------------|--------------|----------------|------------------------|-------------|----------------|------------|
| North American Electric Proxy Group   | Ticker | Bloomberg | Value Line | Average Beta | Risk Free Rate | Premium                | Calculation | Flotation Cost | Total CAPM |
| ALLETE, Inc.                          | ALE    | 0.59      | 0.75       | 0.67         | 3.55%          | 8.61%                  | 9.30%       | 0.50%          | 9.80%      |
| Alliant Energy Corporation            | LNT    | 0.56      | 0.70       | 0.63         | 3.55%          | 8.61%                  | 8.99%       | 0.50%          | 9.49%      |
| American Electric Power Company, Inc. | AEP    | 0.55      | 0.65       | 0.60         | 3.55%          | 8.61%                  | 8.73%       | 0.50%          | 9.23%      |
| Duke Energy Corporation               | DUK    | 0.46      | 0.55       | 0.51         | 3.55%          | 8.61%                  | 7.90%       | 0.50%          | 8.40%      |
| Edison International                  | EIX    | 0.55      | 0.60       | 0.58         | 3.55%          | 8.61%                  | 8.50%       | 0.50%          | 9.00%      |
| Eversource Energy                     | ES     | 0.58      | 0.60       | 0.59         | 3.55%          | 8.61%                  | 8.65%       | 0.50%          | 9.15%      |
| OGE Energy Corporation                | OGE    | 0.67      | 0.95       | 0.81         | 3.55%          | 8.61%                  | 10.54%      | 0.50%          | 11.04%     |
| Pinnacle West Capital Corporation     | PNW    | 0.56      | 0.65       | 0.61         | 3.55%          | 8.61%                  | 8.77%       | 0.50%          | 9.27%      |
| PNM Resources, Inc.                   | PNM    | 0.61      | 0.75       | 0.68         | 3.55%          | 8.61%                  | 9.39%       | 0.50%          | 9.89%      |
| Canadian Utilities Limited            | CU     | 0.82      | n/a        | 0.82         | 3.08%          | 8.59%                  | 10.16%      | 0.50%          | 10.66%     |
| Emera Inc.                            | EMA    | 0.66      | n/a        | 0.66         | 3.08%          | 8.59%                  | 8.74%       | 0.50%          | 9.24%      |
| MEAN                                  |        | 0.60      | 0.69       | 0.65         |                |                        | 9.06%       |                | 9.56%      |

Notes:

[1] Source: Bloomberg Professional as of August 31, 2018; weekly changes in equity stock price against SPX index (U.S.) or SPTSX (Canada) Index for the past five years

[2] Source: Value Line as of August 31, 2018

[3] Equals mean of [1] and [2]

[4] Source: Equals average long-term Consensus Forecast of 10-year government bond yields for the period 2019-2021 as of April 9, 2018. (Pg. 3, 28) plus the 30-day average spread between 10- and 30-year bond ending August 31, 2018.

[5] Source: Canada - Bloomberg TSX total return less [4] as of August 31, 2018; U.S. - Bloomberg S&P 500 total return less [4] as of August 31, 2018

[6] Equals [4] + ([5] x [3])

[7] The Commission allows 50 bps adjustment for flotation cost and financial flexibility.

[8] Equals [6] + [7]

**2015-2017% Regulated**

| <b>Utility</b>                  | <b>% Regulated<br/>Income</b> | <b>% Electric<br/>Revenues</b> | <b>% Electric<br/>Income</b> | <b>% Electric<br/>Assets</b> |
|---------------------------------|-------------------------------|--------------------------------|------------------------------|------------------------------|
| ALLETE, Inc.                    | 83%                           | 98%                            | 97%                          | 99%                          |
| Alliant Energy Corp             | 101%                          | 87%                            | 95%                          | 85%                          |
| American Electric Power Company | 91%                           | 100%                           | 100%                         | 100%                         |
| Duke Energy Corporation         | 106%                          | 95%                            | 95%                          | 93%                          |
| Edison International            | 106%                          | 100%                           | 100%                         | 100%                         |
| Eversource Energy               | 97%                           | 88%                            | 91%                          | 89%                          |
| OG&E Energy Corp                | 102%                          | 100%                           | 100%                         | 100%                         |
| Pinnacle West Capital           | 72%                           | 100%                           | 100%                         | 100%                         |
| PNM Resources                   | 100%                          | 100%                           | 100%                         | 100%                         |
| <b>U.S. Proxy Group Average</b> | <b>95%</b>                    | <b>96%</b>                     | <b>98%</b>                   | <b>96%</b>                   |

Note: Percentage of operating income may exceed 100% due to losses at affiliates.



Regulatory Risk Assessment

|                                            |           | [1]                                     | [2]           | [3]                   | [4]                    | [5]                  | [6]       | [7]                    | [8]                             |                                      |  |
|--------------------------------------------|-----------|-----------------------------------------|---------------|-----------------------|------------------------|----------------------|-----------|------------------------|---------------------------------|--------------------------------------|--|
|                                            |           |                                         |               |                       |                        |                      |           | Approved<br>ROE<br>(%) | Approved<br>Equity Ratio<br>(%) | Generation<br>Assets in Rate<br>Base |  |
| Company                                    | Ticker    | Electric Operating Subsidiary           | S&P Rating    | Electric Jurisdiction | RRA Ranking            | Test Year            | Rate Base |                        |                                 |                                      |  |
| ALLETE, Inc.<br>Alliant Energy Corporation | ALE       | Minnesota Power                         | BBB+          | Minnesota             | Average / 2            | Partially-Forecasted | Average   | 9.25                   | 53.81                           | Yes                                  |  |
|                                            | LNT       | Interstate Power and Light Company      | A-            | Iowa                  | Average / 1            | Historical           | Average   | 9.98                   | 49.02                           | Yes                                  |  |
|                                            |           | Wisconsin Power and Light Company       | A             | Wisconsin             | Above Average / 2      | Fully-Forecasted     | Average   | 10.00                  | 52.00                           | Yes                                  |  |
| American Electric Power                    | AEP       | AEP Texas, Inc.                         | A-            | Texas                 | Average / 3            | Historical           | Year-end  | 9.96                   | 40.00                           | No                                   |  |
|                                            |           | Appalachian Power Company               | A-            | Virginia              | Above Average / 2      | Historical           | Year-end  | 9.70                   | 42.89                           | Yes                                  |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
| Duke Energy Corp                           | DUK       | Duke Energy Carolinas, LLC              | A-            | North Carolina        | Average / 1            | Historical           | Year-end  | 9.90                   | 52.00                           | Yes                                  |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
| Edison International<br>Eversource Energy  | EIX<br>ES | Southern California Edison Company      | BBB+          | California            | Above Average / 3      | Fully-Forecasted     | Average   | 10.30                  | 48.00                           | Yes                                  |  |
|                                            |           | Connecticut Light and Power Company     | A+            | Connecticut           | Below Average / 1      | Historical           | Average   | 9.20                   | 53.00                           | No                                   |  |
|                                            |           | NSTAR Electric Company                  | A+            | Massachusetts         | Average / 2            | Historical           | Year-end  | 10.00                  | 53.34                           | No                                   |  |
|                                            |           | Public Service Company of New Hampshire | A+            | New Hampshire         | Average / 3            | Historical           | N/A       | 9.67                   | 52.40                           | No                                   |  |
|                                            |           | Western Massachusetts Electric Company  | A+            | Massachusetts         | Average / 2            | Historical           | Year-end  | 10.00                  | 54.51                           | No                                   |  |
| OGE Energy Corporation                     | OGE       | Oklahoma Gas and Electric Company       | BBB+          | Arkansas              | Average / 1            | Partially-Forecasted | Year-end  | 9.50                   | 49.61                           | Yes                                  |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
| Pinnacle West Capital Corp.                | PNW       | Arizona Public Service Company          | BBB+          | Oklahoma              | Average / 3            | Historical           | Year-end  | 9.50                   | 53.31                           | Yes                                  |  |
|                                            |           |                                         | A-            | Arizona               | Average / 3            | Historical           | Year-end  | 10.00                  | 55.80                           | Yes                                  |  |
| PNM Resources, Inc.                        | PNM       | Public Service Company of New Mexico    | BBB+          | New Mexico            | Below Average / 2      | Fully-Forecasted     | Year-end  | 9.58                   | 49.61                           | Yes                                  |  |
|                                            |           |                                         |               |                       |                        |                      |           |                        |                                 |                                      |  |
|                                            |           | Texas-New Mexico Power                  | BBB+          | Texas                 | Average / 3            | Historical           | Year-end  | 10.13                  | 45.00                           | No                                   |  |
| Proxy Group Total                          |           |                                         | Average<br>A- | Total<br>34           | Average<br>Average / 2 | 8<br>5<br>21         | Average   | Average<br>9.88        | Average<br>49.43                | Total<br>26<br>76%                   |  |
| Fortis, Inc.                               | FTS       | Maritime Electric                       | BBB+          | PEI                   |                        | Fully-Forecasted     | Average   | 9.35                   | 40.00                           | Yes                                  |  |



| Regulatory Risk Assessment  |        |                                         |                                                                           |             |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
|-----------------------------|--------|-----------------------------------------|---------------------------------------------------------------------------|-------------|---------|------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------|------------------------|---------------------------|----------------------------------------|------------------------|---|
|                             |        |                                         | [9]                                                                       | [10]        | [11]    | [12]                               | [13]                                                                           | [14]                                                                                  | [15]                        | [16]                   | [17]                      | [18]                                   |                        |   |
|                             |        |                                         | Revenue Decoupling                                                        |             |         | Capital Costs                      |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
| Company                     | Ticker | Electric Operating Subsidiary           | Fuel Cost<br>Pass<br>Through                                              | Full        | Partial | Conservation<br>Program<br>Expense | Capital Costs                                                                  | Renewable<br>Expense                                                                  | Environmental<br>Compliance | Generation<br>Capacity | Generic<br>Infrastructure | RTO-related<br>Transmission<br>Expense | Storm Cost<br>Recovery |   |
| ALLETE, Inc.                | ALE    | Minnesota Power                         | ✓                                                                         |             |         | ✓                                  | CWIP                                                                           | ✓                                                                                     | ✓                           |                        |                           | ✓                                      |                        |   |
| Alliant Energy Corporation  | LNT    | Interstate Power and Light Company      | ✓                                                                         |             |         | ✓                                  | Pre-approval<br>CWIP on 50%, pre-<br>approval                                  | ✓                                                                                     | ✓                           |                        |                           | ✓                                      |                        |   |
| American Electric Power     | AEP    | Wisconsin Power and Light Company       | ✓                                                                         |             |         |                                    | surcharge mechanism<br>for certain T&D                                         |                                                                                       |                             |                        | ✓                         |                                        |                        |   |
|                             |        | AEP Texas, Inc.                         | ✓                                                                         |             |         | ✓                                  | CWIP                                                                           | ✓                                                                                     |                             | ✓                      |                           | ✓                                      |                        |   |
|                             |        | Appalachian Power Company               | ✓                                                                         |             |         | ✓                                  | CWIP for large gen and<br>trans projects                                       | ✓                                                                                     |                             |                        |                           | ✓                                      |                        |   |
|                             |        | Indiana Michigan Power Company          | ✓                                                                         |             | ✓       | ✓                                  | CWIP                                                                           | ✓                                                                                     | ✓                           |                        | ✓                         | ✓                                      |                        |   |
|                             |        |                                         | ✓                                                                         |             |         | ✓                                  | Pre-approval of projects<br>> \$100 mil                                        | ✓                                                                                     |                             |                        |                           |                                        |                        |   |
|                             |        | Kentucky Power Company                  | ✓                                                                         |             | ✓       | ✓                                  | CWIP                                                                           | ✓                                                                                     | ✓                           | ✓                      |                           |                                        |                        |   |
|                             |        | Kingsport Power                         | ✓                                                                         |             |         |                                    | CWIP                                                                           |                                                                                       |                             |                        |                           |                                        |                        |   |
|                             |        | Ohio Power Company                      | *                                                                         |             | ✓       | ✓                                  | CWIP if 75% complete                                                           | ✓                                                                                     |                             |                        |                           | ✓                                      | ✓                      | ✓ |
|                             |        |                                         |                                                                           |             |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
|                             |        |                                         | Public Service Company of Oklahoma<br>Southwestern Electric Power Company | ✓<br>✓<br>✓ |         | ✓<br>✓<br>✓                        | ✓<br>✓<br>✓                                                                    | Pre-approval for new<br>construction<br>No<br>CWIP for nuclear<br>surcharge mechanism |                             | ✓<br>✓<br>✓            |                           | ✓                                      | ✓                      | ✓ |
| Duke Energy Corp            | DUK    | Duke Energy Carolinas, LLC              | ✓                                                                         |             |         | ✓                                  | for certain T&D<br>CWIP and pre-approval                                       |                                                                                       |                             |                        |                           | ✓                                      |                        |   |
|                             |        |                                         | ✓                                                                         |             |         |                                    | for baseload gen<br>CWIP and pre-approval<br>of costs                          |                                                                                       | ✓                           |                        |                           |                                        | ✓                      |   |
|                             |        | Duke Energy Florida, LLC                | ✓                                                                         |             |         | ✓                                  | CWIP for nuclear, IGCC,<br>or trans                                            |                                                                                       | ✓                           | ✓                      |                           |                                        | ✓                      |   |
|                             |        | Duke Energy Indiana, LLC                | ✓                                                                         |             | ✓       | ✓                                  | CWIP                                                                           | ✓                                                                                     | ✓                           | ✓                      | ✓                         | ✓                                      |                        |   |
|                             |        | Duke Energy Kentucky, Inc.              | ✓                                                                         |             | ✓       | ✓                                  | CWIP                                                                           | ✓                                                                                     |                             |                        |                           |                                        |                        |   |
|                             |        | Duke Energy Ohio, Inc.                  | *                                                                         |             | ✓       | ✓                                  | CWIP if 75% complete                                                           | ✓                                                                                     |                             |                        |                           | ✓                                      | ✓                      | ✓ |
|                             |        |                                         |                                                                           |             |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
|                             |        | Duke Energy Progress, LLC               | ✓                                                                         |             |         | ✓                                  | CWIP and pre-approval<br>for baseload gen<br>CWIP and pre-approval<br>of costs | ✓                                                                                     | ✓                           |                        |                           |                                        |                        | ✓ |
|                             |        |                                         | ✓                                                                         |             |         |                                    |                                                                                |                                                                                       | ✓                           |                        |                           |                                        |                        | ✓ |
|                             |        |                                         | Adder for 50% of CWIP,<br>pre-approval of costs                           |             |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
| Edison International        | EIX    | Southern California Edison Company      | ✓                                                                         | ✓           |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
| Eversource Energy           | ES     | Connecticut Light and Power Company     |                                                                           | ✓           | ✓       | No                                 |                                                                                |                                                                                       |                             |                        | ✓                         | ✓                                      |                        |   |
|                             |        | NSTAR Electric Company                  | *                                                                         |             | ✓       | No                                 |                                                                                |                                                                                       |                             |                        | ✓                         | ✓                                      |                        |   |
|                             |        | Public Service Company of New Hampshire | ✓                                                                         |             |         | No                                 |                                                                                |                                                                                       |                             |                        | ✓                         | ✓                                      |                        |   |
| OGE Energy Corporation      | OGE    | Western Massachusetts Electric Company  | *                                                                         | ✓           | ✓       | No                                 | ✓                                                                              |                                                                                       |                             | ✓                      |                           | ✓                                      | ✓                      |   |
|                             |        | Oklahoma Gas and Electric Company       | ✓                                                                         |             | ✓       | ✓                                  | No                                                                             | ✓                                                                                     | ✓                           | ✓                      | ✓                         | ✓                                      | ✓                      |   |
|                             |        |                                         | ✓                                                                         |             |         | ✓                                  | Pre-approval for new<br>construction                                           | ✓                                                                                     | ✓                           |                        | ✓                         | ✓                                      | ✓                      |   |
| Pinnacle West Capital Corp. | PNW    | Arizona Public Service Company          | ✓                                                                         |             | ✓       | ✓                                  | No                                                                             | ✓                                                                                     | ✓                           | ✓                      |                           | ✓                                      |                        |   |
| PNM Resources, Inc.         | PNM    | Public Service Company of New Mexico    | ✓                                                                         |             |         | ✓                                  | CWIP, if costs are<br>reasonable                                               | ✓                                                                                     | ✓                           |                        | ✓                         |                                        |                        |   |
|                             |        | Texas-New Mexico Power                  | ✓                                                                         |             |         | ✓                                  | surcharge mechanism<br>for certain T&D                                         |                                                                                       |                             |                        | ✓                         | ✓                                      |                        |   |
| Proxy Group Total           |        |                                         | Adjustment Clauses Count and Percentage of total proxy group              |             |         |                                    |                                                                                |                                                                                       |                             |                        |                           |                                        |                        |   |
|                             |        |                                         | 28                                                                        | 3           | 12      | 27                                 | 27                                                                             | 18                                                                                    | 17                          | 8                      | 13                        | 18                                     | 12                     |   |
|                             |        |                                         | 82%                                                                       | 9%          | 35%     | 79%                                | 79%                                                                            | 53%                                                                                   | 50%                         | 24%                    | 38%                       | 53%                                    | 35%                    |   |
| Fortis, Inc.                | FTS    | Maritime Electric                       | Yes                                                                       | No          | Yes     | No                                 | Pre-approval                                                                   | No                                                                                    | No                          | No                     | No                        | No                                     | No                     |   |

Notes

- [1] Source: SNL Financial, S&P Long-Term Rating
- [2] Source: SNL Financial
- [3] Source: Regulatory Research Associates
- [4] Source: Regulatory Research Associates
- [5] Source: Regulatory Research Associates
- [6] and [7] Source: Regulatory Research Associates;
- \* An adjustment was made to those capital structures authorized in Arkansas, Florida, Indiana and Michigan as those states include zero cost of capital items in the capital structure
- [8] Source: SNL Financial
- [9] Source: "Adjustment Clauses: A State-by-state Overview," Regulatory Research Associates, September 12, 2017 and SNL Financial
- \* Ohio: Gas utilities are permitted to use a gas cost recovery, or GCR, clause, which provides for quarterly adjustments, with an annual review and hearing.
- \* Massachusetts: Cost of gas adjustments, or CGAs, are determined semi-annually based on seasonally-differentiated peak and off-peak costs.
- \* Pennsylvania: generation required to meet provider of last resort, or POLR, obligations is competitively procured and priced; therefore, the utilities are not at risk for changes in power prices
- [10] to [11] and [13] to [17] Source: "Adjustment Clauses: A State-by-state Overview," Regulatory Research Associates, September 12, 2017
- [12] Source: Regulatory Research Associates
- [18] Source: SEC Form 10-K for each holding company

## CREDIT METRICS ANALYSIS

| Company Name                          | Ticker | Rating                      | Debt to<br>Capital<br>Ratio | EBITDA to<br>Interest<br>Coverage | FFO to<br>Interest<br>Coverage | FFO /<br>Debt (%) | Debt to<br>EBITDA |
|---------------------------------------|--------|-----------------------------|-----------------------------|-----------------------------------|--------------------------------|-------------------|-------------------|
| Maritime Electric                     |        | BBB+                        | 63%                         | 4.69                              | 4.93                           | 20.6%             | 3.65              |
|                                       |        | <u>U.S. Proxy Group</u>     |                             |                                   |                                |                   |                   |
| ALLETE, Inc.                          | ALE    | BBB+                        | 47%                         | 4.85                              | 7.10                           | 20.0%             | 3.96              |
| Alliant Energy Corporation            | LNT    | A-                          | 59%                         | 4.73                              | 5.88                           | 17.5%             | 4.83              |
| American Electric Power Company, Inc. | AEP    | A-                          | 56%                         | 5.07                              | 6.11                           | 18.9%             | 4.25              |
| Duke Energy Corporation               | DUK    | A-                          | 56%                         | 4.01                              | 5.24                           | 15.4%             | 5.01              |
| Edison International                  | EIX    | BBB+                        | 58%                         | 4.45                              | 8.10                           | 22.9%             | 3.59              |
| Eversource Energy                     | ES     | A+                          | 57%                         | 5.36                              | 6.11                           | 14.6%             | 5.29              |
| OGE Energy Corporation                | OGE    | BBB+                        | 47%                         | 5.47                              | 6.07                           | 22.6%             | 3.58              |
| Pinnacle West Capital Corporation     | PNW    | A-                          | 50%                         | 5.66                              | 7.38                           | 24.7%             | 3.29              |
| PNM Resources, Inc.                   | PNM    | BBB+                        | 63%                         | 4.04                              | 5.29                           | 16.7%             | 4.70              |
| U.S. Proxy Group                      |        |                             | 55%                         | 4.85                              | 6.36                           | 19.3%             | 4.28              |
|                                       |        | <u>Canadian Proxy Group</u> |                             |                                   |                                |                   |                   |
| Canadian Utilities Limited            | CU     | A-                          | 66%                         | 3.89                              | 4.14                           | 12.5%             | 5.79              |
| Emera Incorporated                    | EMA    | BBB+                        | 67%                         | 3.23                              | 3.46                           | 10.4%             | 6.38              |
| Enbridge Inc.                         | ENB    | BBB+                        | 50%                         | 3.60                              | 3.20                           | 10.6%             | 6.67              |
| Valener, Inc.                         | VNR    | NR                          | [1]                         |                                   |                                |                   |                   |
| Canadian Proxy Group                  |        |                             | 61%                         | 3.57                              | 3.60                           | 11.1%             | 6.28              |

### Notes & Sources:

All values are based on Standard and Poor's 2017 adjusted credit metrics for the holding company

[1] Credit rating for Valener was withdrawn by S&P in 2016.

June 29, 2018

Island Regulatory and Appeals Commission  
PO Box 577  
Charlottetown PE C1A 7L1

Dear Commissioners:



### 2017 Cost Allocation Study

Under Order UE16-04, Maritime Electric Company, Limited was directed by the Island Regulatory and Appeals Commission to file with the Commission an updated Cost Allocation Study based on financial results ending on December 31, 2017. Please find attached a copy of Maritime Electric's 2017 Cost Allocation Study. The Company retained the services of Chymko Consulting Limited to provide a technical update to the 2014 Cost Allocation Study. The study was based on Maritime Electric's Statement of Earnings for the twelve months ending on December 31, 2017 as well as recommendations from the Point Lepreau Cost Allocation Classification Study filed on April 27, 2017 with the Commission.

The 2017 Cost Allocation Study followed the same three step methodology as previous Cost Allocation Studies with respect to functionalizing revenue requirement, classification, and allocation of expenses to the different rate classes. The functionalized revenue requirement was \$182.6 million and is summarized in Table 1 below:

| <b>Table 1</b>                                         |                |
|--------------------------------------------------------|----------------|
| <b>Functionalized Revenue Requirement (\$ million)</b> |                |
| Power Supply Costs                                     | \$126.1        |
| Transmission Costs                                     | \$12.3         |
| Distribution Costs                                     | \$33.2         |
| Services and Metering Costs                            | \$9.1          |
| Customer Care Costs                                    | \$1.2          |
| Lighting Costs                                         | \$0.7          |
| <b>Total Functionalized Revenue Requirement</b>        | <b>\$182.6</b> |

The above functionalized revenue requirement was then classified as demand, energy or site related based on cost drivers that are measured in terms of how customers use the system. Table 2 includes a comparison of the ratio of demand, energy and site related revenue requirement in the 2014 and 2017 Cost Allocation Studies. The difference is primarily due to the impact of the reclassification of Point Lepreau costs from demand related costs to energy related as recommended in the Point Lepreau Allocation Classification Study.

| <b>Table 2</b>                        |               |               |             |              |
|---------------------------------------|---------------|---------------|-------------|--------------|
| <b>Classified Revenue Requirement</b> |               |               |             |              |
|                                       | <b>Demand</b> | <b>Energy</b> | <b>Site</b> | <b>Total</b> |
| 2017 Revenue Requirement              | 32%           | 55%           | 14%         | 100%         |
| 2014 Revenue Requirement              | 37%           | 50%           | 13%         | 100%         |

The revenue to cost ("RTC") ratios, which compares the revenue collected from each rate class with the allocated cost of providing service to each rate class, are consistent with the 2014 Cost Allocation Study with the exception of Small Industrial, Large Industrial and Lights. Table 3 includes a comparison of the RTCs for each Rate Classification from the 2008, 2014 and 2017 Cost Allocation Studies.

| <b>Table 3</b>                                      |                 |                 |                 |
|-----------------------------------------------------|-----------------|-----------------|-----------------|
| <b>Comparison of Revenue to Cost ("RTC") Ratios</b> |                 |                 |                 |
| <b>Rate Classification</b>                          | <b>2017 RTC</b> | <b>2014 RTC</b> | <b>2008 RTC</b> |
| Residential                                         | 91%             | 92%             | 91%             |
| Residential (Seasonal)                              | 96%             | 97%             | 122%            |
| Farm                                                | 82%             | 81%             | N/A             |
| General Service                                     | 121%            | 117%            | 114%            |
| General Service (Seasonal)                          | 113%            | 115%            | 132%            |
| Small Industrial                                    | 102%            | 96%             | 109%            |
| Large Industrial                                    | 94%             | 100%            | 86%             |
| Lights                                              | 91%             | 103%            | 119%            |
| Unmetered                                           | 104%            | 103%            | 98%             |
| <b>Total</b>                                        | <b>100%</b>     | <b>100%</b>     | <b>100%</b>     |

The change in Small and Large Industrial RTCs from 2014 to 2017 is due in part to the loss of one Large Industrial customer in October 2014 and the migration of three Small Industrial customers to the Large Industrial rate in 2017. In addition, changes to the classification of Point Lepreau costs for demand and energy, as detailed in the Point Lepreau Cost Allocation Classification Study has impacted RTCs for the Industrial rate classes. The reduction in the Lights Classification RTC is attributable to a reduction in both sales and demand for this rate class resulting from the conversion from high pressure sodium streetlights to LED streetlights. What would otherwise result in lower costs allocated to this rate class is offset by increased capital costs associated with the conversion to LED streetlights.

One of the objectives of the cost allocation study is to allocate the costs of providing a service to rate classes on a cost causation basis; therefore, an RTC ratio below or above 100% indicates revenue should be increased or decreased respectively. The Residential rate class has consistently been below 100%, while the General Service rate classes have consistently been above 100%. RTCs between 90% and 110% are considered in the Industry to be reasonable in balancing rate class cross subsidization with the rate shock associated with implementing changes. The RTC for the Farm rate class continues to be substantially lower than the recommended industry standard of 90%. Proposals with respect to the cost allocation results and rate design recommendations will be presented in the Company's General Rate Application to be filed later this Fall.

If you have any questions, please do not hesitate to contact me at 902-629-3696.

Yours truly,

MARITIME ELECTRIC



Jason C. Roberts  
Vice President,  
Finance & Chief Financial Officer

JCR36  
Enclosure



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June 26, 2018

Enrique Riveroll  
Maritime Electric Company, Ltd.  
180 Kent Street  
Charlottetown, PE C1A 7N2

Dear Mr. Riveroll

SUBJECT: 2017 Cost Allocation Study

Please find attached the findings of Chymko Consulting's Electric Utility cost allocation study technical update to assist Maritime Electric with its upcoming rate proposal to the Island Regulatory and Appeals Commission.

We appreciate the time and effort of Maritime Electric staff to provide us with the necessary data and information to conduct this study. Should you have any questions or comments on this report, please contact me at (403) 781-7691.

Yours truly,

A handwritten signature in blue ink, appearing to read "M. Turner", is written over the "Yours truly," text.

Michael Turner  
President

cc: Gloria Crockett

Attachment





## 2017 Cost Allocation Study

Maritime Electric

June 26, 2018

[www.chymko.com](http://www.chymko.com)

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# EXECUTIVE SUMMARY

1. Maritime Electric Company Limited (MECL) retained Chymko Consulting Ltd. to update the comprehensive 2014 Cost Allocation Study in support of a future rate proposal to the Island Regulatory and Appeals Commission (IRAC). The following report provides the results of this study, which is based on MECL's 2017 Financial Results for twelve months ending on December 31, 2017.
2. A cost allocation study first functionalizes revenue requirement (in this case, the Statement of Earnings), essentially seeking to attribute the full cost of service to a specific purpose, such as power supply, transmission, distribution network, services and metering, customer care, and lighting. Next, the cost allocation study classifies each function as demand, energy, or site related depending upon how the cost of that function might vary with how end-use customers use the system. Finally, the cost allocation study will allocate the functionalized and classified expenses to rate classes.
3. Table A below summarizes MECL's allocated revenue requirement.

| <b>Table A</b>                                           |                   |                |                       |            |
|----------------------------------------------------------|-------------------|----------------|-----------------------|------------|
| <b>Allocated 2017 Net Revenue Requirement from Rates</b> |                   |                |                       |            |
|                                                          | Revenue Collected | Allocated Cost | Revenue to Cost Ratio | 2014 Study |
| Residential                                              | 45.9%             | 50.3%          | 91.4%                 | 92.0%      |
| Residential (S)                                          | 2.4%              | 2.5%           | 95.5%                 | 96.9%      |
| Farm                                                     | 3.8%              | 4.6%           | 82.1%                 | 81.3%      |
| General Service                                          | 31.9%             | 26.2%          | 121.5%                | 117.2%     |
| General Service (S)                                      | 1.0%              | 0.9%           | 112.9%                | 115.1%     |
| Small Industrial                                         | 6.4%              | 6.2%           | 102.4%                | 95.9%      |
| Large Industrial                                         | 7.2%              | 7.7%           | 93.6%                 | 100.1%     |
| Lights                                                   | 1.3%              | 1.4%           | 91.1%                 | 103.0%     |
| Unmetered                                                | 0.2%              | 0.2%           | 104.3%                | 103.2%     |
| Total                                                    | 100.0%            | 100.0%         | 100.0%                | 100.0%     |

4. Allocated cost is one bookend for a 2019 rate proposal, representing the cost to provide electric utility service for each rate class. If cost causation were the only consideration, for instance, Table A indicates that 2019 rates should seek to recover 50.3 percent of 2019 revenue requirement from the Residential rate class, 2.5 percent from the Seasonal Residential rate class, and so on.
5. Another consideration is how much the rate for each class of customer would have to change to recover allocated cost. By the current revenue to cost ratios shown in Table A above, some rates would need to change significantly. Subject to full consideration of all rate design principles and further analysis of any such change, it may well be that rate rebalancing would need to be implemented gradually over the course of multiple years.



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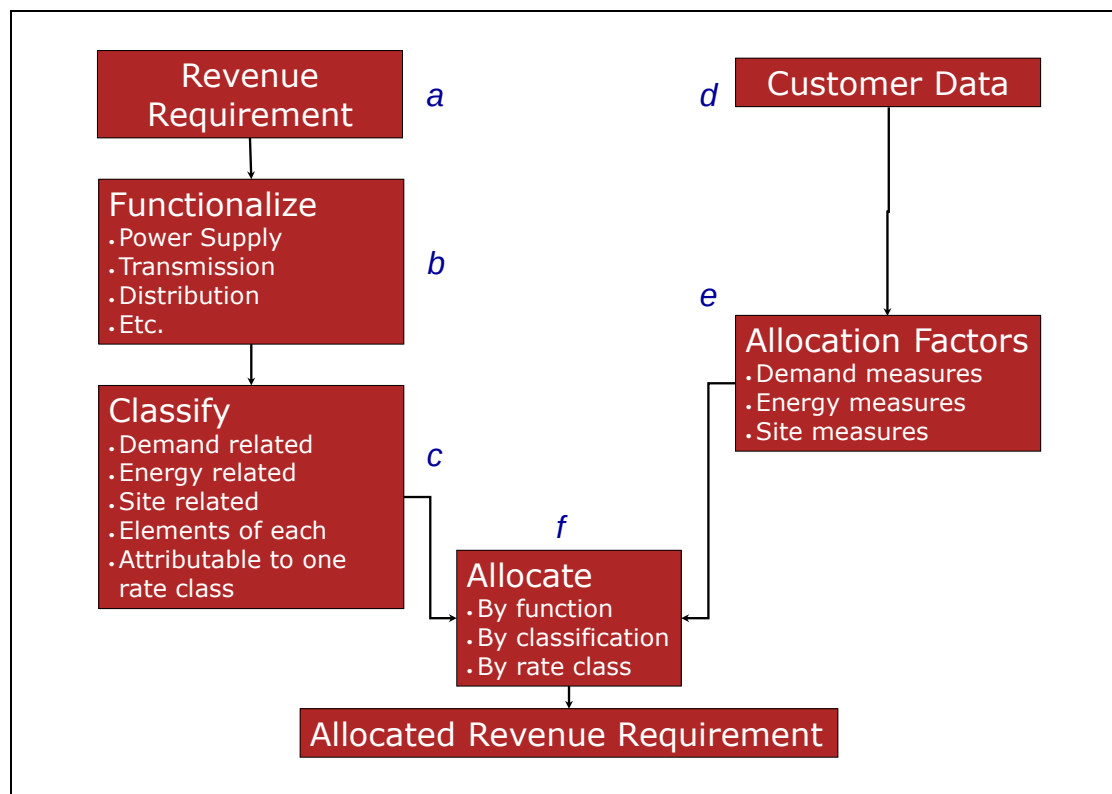
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# 1 INTRODUCTION

6. Maritime Electric Company Limited (MECL) retained Chymko Consulting Ltd. to complete a technical update to the cost allocation study conducted in support of MECL's 2019 rate proposal to the Island Regulatory and Appeals Commission (IRAC). Based on the assumptions discussed in this report, Chymko Consulting's cost allocation study takes as a starting point MECL's Statement of Earnings for twelve months, ending on December 31, 2017. Contained in MECL's December 2017 monthly financial report submitted to IRAC, the Statement of Earnings represents the total cost of providing electric utility service at a rate of return determined by IRAC in Order UE16-04R.
7. A cost allocation study will typically begin with "revenue requirement," which represents the forecast cost of providing electric utility service based on a regulator-approved rate of return. MECL's 2017 Statement of Earnings is similarly based on a rate of return deemed to be in the public interest insofar as it is compliant with Order UE16-04R. Therefore, the principle difference between the Statement of Earnings and revenue requirement is that the Statement of Earnings is calculated after-the-fact and revenue requirement is typically forward-looking. MECL has traditionally filed cost allocation studies based on actual expenses from the previous calendar year, and in using the 2017 Statement of Earnings this study is no different.
8. This study examines the detailed expenses underlying the Statement of Earnings and assigns, attributes, or allocates expenses to each of MECL's rate classes. The fully-allocated 2017 Statement of Earnings by rate class then becomes an important benchmark to inform MECL's anticipated 2019 rate proposal. If the Residential rate class is attributed fifty percent of 2017 expenses, for instance, then this information can serve as a target or objective for designing 2019 Residential rates.
9. The first step of a cost allocation model is to group similar types of expenses that make up revenue requirement into elements of service, or functions. For each function, the user of the cost allocation model must consider:
  - Is the function incurred for the purpose of servicing all rate classes, a sub-set of rate classes, or a single rate class?
  - If the function is attributable to more than one rate class, how might the cost of that function vary depending upon how end-use customers use the distribution system? For example, does the cost vary with peak daily demand changes? Does it vary with the total amount of energy delivered? Does it vary with the number of distribution sites served?
  - How does each rate class contribute to the use of distribution infrastructure? For example, how does each rate class contribute to total peak demand and total energy delivered? How many sites are served in each rate class?
10. In order to answer the above questions, cost allocation studies follow a structured process, which can be explained with the aid of Figure 1 below. Taking revenue requirement (labelled

as a) as a given, the first step is known as functionalization (labelled as b), which begins with attributing each line item in the study by its purpose or function.

**Figure 1: Process of a cost allocation study**



11. The next step in a cost allocation study is called classification (c). The purpose of classification is to determine how each function might vary based on how end-use customers use the system. Sometimes, a function exists solely for the purpose of serving a subset of rate classes, perhaps only a single rate class. However, as long as the function is attributable to more than one rate class, it is necessary to explore further as to whether the expense will vary with peak demand on the system, the amount of energy consumed, or the number of sites served by the system. Thus, each function is classified as demand related, energy related, site-related, or a combination of the three.
12. The final step of a cost allocation study is to allocate the functionalized and classified revenue requirement to rate classes. The choice of allocation factor is to a large degree influenced by the classification of each functionalized detail of revenue requirement. For example, demand related costs are generally allocated by the same proportions as the peak demand of each rate class. Similarly, energy related costs are allocated by the same proportions as energy sales and site related costs are allocated by the relative size of each rate class.

- 
13. The development of allocation factors starts with the collection of MECL's system load data and billing statistics (d). From this foundation along with any associated load research data, it is possible to calculate allocation factors based on each rate classes' peak demand, energy consumption, and the number of sites per rate class.
  14. As suggested by the overview above, the process of a cost allocation study is relatively uncomplicated given there is agreement upon how a cost is to be functionalized, classified, and allocated. Thus, generally accepted principles and methods have evolved out of a number of years of regulatory experience. Regulated distribution utilities must file cost allocation studies to demonstrate that its tariffs are just and reasonable. Generally accepted methods typically evolve out of the regulatory process, but even these continue to evolve with industry changes and provincial government policy. Furthermore, every utility is different and every utility service area has its own unique characteristics and issues that may justify a different method. Therefore, it is important to justify the rationale for every cost functionalization, classification, and allocation decision, regardless of whether it is a commonly accepted standard or not.

## 2 FUNCTIONALIZATION

15. The starting point for cost allocation is the 2017 MECL Statement of Earnings. This is summarized in Table 1 below.

| <b>Table 1<sup>1</sup></b>                                           |         |
|----------------------------------------------------------------------|---------|
| <b>MECL 2017 Statement of Earnings (Revenue Requirement, \$,000)</b> |         |
| Twelve Months ending December 31, 2017                               |         |
| Operating Expenses                                                   |         |
| Energy Costs                                                         | 118,465 |
| ECAM Adjustment                                                      | (2,359) |
| Net Energy Costs                                                     | 116,106 |
| Distribution                                                         | 4,476   |
| Transmission                                                         | 1,220   |
| Transmission and Distribution - Other                                | 2,056   |
| Transmission – OATT                                                  | 225     |
| General                                                              | 9,060   |
| Total Operating Expenses                                             | 133,143 |
| Amortization                                                         |         |
| Amortization Other                                                   | 851     |
| Amortization Plant And Equipment                                     | 21,373  |
| Total Amortization                                                   | 22,224  |
| Total Operating Income                                               | 155,367 |
| Financing Expenses                                                   |         |
| Long-Term Debt                                                       | 12,065  |
| Short-Term Debt                                                      | 627     |
| Interest Charged To Construction                                     | (450)   |
| Amortization of Financing Costs                                      | 9       |
| Total Financing Expenses                                             | 12,252  |
| Earnings before Income Taxes                                         | 18,869  |
| Income Taxes                                                         | 5,941   |
| Net Earnings                                                         | 12,928  |
| Gross Revenue Requirement                                            | 186,488 |
| OATT Revenue                                                         | (1,914) |
| Other Revenue <sup>2</sup>                                           | (1,973) |
| Net Revenue Requirement                                              | 182,601 |

16. Net earnings identified is equivalent to the allowed return on equity for a prospective revenue requirement. This is because MECL has already adjusted 2017 net earnings to account for the maximum rate of return allowed by the agreement between MECL and the Government of Prince Edward Island.
17. Note that the Statement of Earnings in Table 1 reconciles to MECL's December 2017 IRAC filings, subject to three exceptions: first, the Transmission – OATT revenue line includes external OATT revenue only; second, Pole Revenue is included in other revenue rather than in street light revenue. Finally, although not shown in Table 1, adjustments have been made

<sup>1</sup> Table totals in this report may not reconcile due to rounding.

<sup>2</sup> Inclusive of pole rental revenue.

---

to revenue collected from Small Industrial and Large Industrial customers for the purposes of the cost allocation study. The rationale for these adjustments is explained further in Section 5.

## 2.1 METHOD

18. Consistent with the 2014 Cost Allocation Study, Chymko Consulting's current study fully attributes revenue requirement in Table 1 to one of sixteen functions discussed below. For purposes of summary, the sixteen functions are also discussed under six general categories: power supply, transmission, distribution network, services and metering, customer care, and lighting.

### *Power Supply*

- Generation: MECL's Borden and Charlottetown generating facilities, which are typically dispatched for backup purposes.
- Purchased Power: Energy supply purchases from NB Power and PEI Energy Corp, which are typically dispatched for base load and ancillary service requirements.

### *Transmission*

- High-voltage transmission facilities operating at a voltage of 69 kV or greater.

### *Distribution Network*

- Substations: Facilities used to regulate and step-down voltages from transmission facilities to distribution lines.
- Primary Lines: Bulk distribution lines used to deliver energy from substations to localized distribution transformers.
- Transformers: Facilities used to regulate and step-down voltages from primary distribution lines to a voltage more suitable for the end-use consumer.
- Secondary Lines: Local distribution lines operating at a consumer-level voltage that service multiple end-use customers.

### *Services and Metering*

- Service Lines: Local distribution lines operating at a consumer-level voltage that connect the distribution network to the meter of a single, end-use customer.
- Meter Assets: Metering infrastructure used to measure and record energy consumed by each end-use customer.

- 
- Meter Reading: The process of collecting and processing end-use customer metering data, primarily for the purpose of billing.

### *Customer Care*

- Billing: The process of preparing and delivering invoices to end-use customers for power supply and use of the MECL system.
- Remittance & Collection: The accounts receivable process of collecting and processing end-use customer bill payments.
- Uncollectibles & Damage Claims: Uncollectibles are associated with the cost of outstanding customer invoices (e.g. bad debts), whereas damage claims represent claims against MECL for damage to customers' property.
- Service Connections: Activities related to the connection or re-connection of customers, which may include off-cycle meter reads as well as modifications or additions to secondary lines, service lines, and meters. MECL recovers the cost of these activities under sections O-1 and O-2 of its tariff.
- Late Payments: Penalty revenues associated with consumer accounts in arrears, as recovered under section O-3 of the MECL tariff.

### *Lighting*

- Facilities dedicated to the use of providing electric service to street and area lighting, as defined under sections N-22, N-23, N-25, and N-26 of the MECL tariff.

19. Chymko Consulting functionalizes revenue requirement as per a series of methods and assumptions summarized in Table 2 below, which are unchanged from the 2014 Cost Allocation Study. Overall, this table demonstrates that 63% of revenue requirement is directly assigned to a function. An additional 33% is functionalized according to the same proportions as the underlying facilities and assets, the majority of which are also directly assignable because of detailed asset records. A further 3% is allocated by the same proportions by which labour cost is functionalized, which leaves 2% to be allocated by various methods involving professional judgement.

| <b>Table 2</b><br><b>Methods to Functionalize 2017 MECL Revenue Requirement</b> |                  |                        |        |                               |       |
|---------------------------------------------------------------------------------|------------------|------------------------|--------|-------------------------------|-------|
|                                                                                 | Direct<br>Assign | Assets &<br>Facilities | Labour | Profes-<br>sional<br>Judgment | Total |
| Operating Expenses                                                              |                  |                        |        |                               |       |
| Energy Costs                                                                    | 99%              | 1%                     | 0%     | 1%                            | 100%  |
| ECAM Adjustment                                                                 | 100%             | 0%                     | 0%     | 0%                            | 100%  |
| Net Energy Costs                                                                | 99%              | 1%                     | 0%     | 1%                            | 100%  |
| Distribution                                                                    | 16%              | 77%                    | 0%     | 7%                            | 100%  |
| Transmission                                                                    | 100%             | 0%                     | 0%     | 0%                            | 100%  |
| Transmission and Distribution - Other                                           | 6%               | 94%                    | 0%     | 0%                            | 100%  |
| Transmission – OATT                                                             | 100%             | 0%                     | 0%     | 0%                            | 100%  |
| General                                                                         | 7%               | 16%                    | 47%    | 30%                           | 100%  |
| Total Operating Expenses                                                        | 88%              | 6%                     | 3%     | 3%                            | 100%  |
| Amortization                                                                    |                  |                        |        |                               |       |
| Amortization Other                                                              | 49%              | 8%                     | 43%    | 0%                            | 100%  |
| Amortization Plant And Equipment                                                | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Total Amortization                                                              | 2%               | 96%                    | 2%     | 0%                            | 100%  |
| Total Operating Income                                                          | 76%              | 19%                    | 3%     | 2%                            | 100%  |
| Financing Expenses                                                              |                  |                        |        |                               |       |
| Long-Term Debt                                                                  | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Short-Term Debt                                                                 | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Interest Charged To Construction                                                | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Amortization of Financing Costs                                                 | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Total Financing Expenses                                                        | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Earnings before Income Taxes                                                    | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Income Taxes                                                                    | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Net Earnings                                                                    | 0%               | 100%                   | 0%     | 0%                            | 100%  |
| Gross Revenue Requirement                                                       | 63%              | 32%                    | 2%     | 2%                            | 100%  |
| OATT Revenue                                                                    | 100%             | 0%                     | 0%     | 0%                            | 100%  |
| Other Revenue                                                                   | 56%              | 15%                    | 0%     | 29%                           | 100%  |
| Net Revenue Requirement                                                         | 63%              | 33%                    | 3%     | 2%                            | 100%  |

20. To the extent that the information exists, and it is practical to do so, the first priority in functionalization is to directly attribute as much as possible to a given function without the need to allocate. The detailed financial accounting records provided by MECL allows Chymko Consulting to directly assign nearly two thirds of revenue requirement to one of the sixteen functions.
21. That which cannot be directly assigned is allocated. Amortization, debt financing, return, and income tax are the most important examples of a functional allocation. These expenses comprise more than one quarter of the MECL revenue requirement and only indirectly are they associated with the sixteen functions. Amortization, debt financing, and return are all calculated based on MECL's infrastructure investment and therefore the underlying infrastructure becomes a determining factor as to how these expenses should be functionalized. Moreover, MECL pays income tax only if it earns a positive return and therefore, tax is also indirectly associated with utility infrastructure.



- 
22. Chymko Consulting allocates these expenses by the same proportions as the underlying capital infrastructure, which means that gross plant and depreciation must also be fully attributed to each of the sixteen functions. MECL's detailed plant records facilitate a relatively straightforward functionalization process: nearly two-thirds of gross plant in service is directly attributable to a single function and an additional thirty-six percent is attributable to a narrow subset of the sixteen functions.
23. The next-most important functionalization method as it affects total revenue requirement is general operating expenses that are non-specific to any particular utility function. For instance, because corporate overhead costs (corporate supervisory salaries and employment benefits) exist for the purpose of all other personnel, Chymko Consulting allocated such expenses by the same proportions as all other labour expenses already attributed to the sixteen functions.
24. The final category of functionalization method used is broadly described as professional judgement in Table 2. This actually describes seven different methods that are applied on a case-by-case basis depending upon the nature of the expense. The two most important methods, as measured by total expense allocated, are used for the allocation of energy control centre expenses and the allocation of finance administration costs. In the case of the former, this and previous studies rely on the professional judgement of MECL staff to functionalize energy control centre: one-quarter to power supply, one-quarter to transmission, and the remaining amount to the distribution network. In the case of financial administration, approximately half of the annual expense is postage and stationary associated with billing and the other half is labour cost. For the half that is labour, expenses are functionalized according to the work responsibilities of the seven personnel in that department.

## 2.2 RESULT

25. The outcome of the functionalization process is summarized in Table 3 below.

| Table 3<br>Functionalized MECL Revenue Requirement (\$,000) |                 |         |                      |                             |                  |          |         |
|-------------------------------------------------------------|-----------------|---------|----------------------|-----------------------------|------------------|----------|---------|
|                                                             | Power<br>Supply | Trans'n | Distrib'n<br>Network | Services<br>and<br>Metering | Customer<br>Care | Lighting | Total   |
| Operating Expenses                                          |                 |         |                      |                             |                  |          |         |
| Energy Costs                                                | 114,094         | 3,925   | 429                  | 16                          | 0                | 1        | 118,465 |
| ECAM Adjustment                                             | (2,359)         | 0       | 0                    | 0                           | 0                | 0        | (2,359) |
| Net Energy Costs                                            | 111,735         | 3,925   | 429                  | 16                          | 0                | 1        | 116,106 |
| Distribution                                                | 80              | 80      | 3,688                | 590                         | 0                | 39       | 4,476   |
| Transmission                                                | 0               | 1,220   | 0                    | 0                           | 0                | 0        | 1,220   |
| T&D – Other                                                 | 0               | 0       | 2,056                | 0                           | 0                | 0        | 2,056   |
| Transmission – OATT                                         | 0               | 225     | 0                    | 0                           | 0                | 0        | 225     |
| General                                                     | 1,388           | 1,410   | 2,971                | 1,171                       | 2,073            | 47       | 9,060   |
| Total Operating Expenses                                    | 113,203         | 6,861   | 9,144                | 1,777                       | 2,073            | 86       | 133,143 |
| Amortization                                                |                 |         |                      |                             |                  |          | 0       |
| Other                                                       | 515             | 146     | 160                  | 27                          | 0                | 2        | 851     |
| Plant And Equipment                                         | 6,627           | 2,344   | 9,138                | 2,923                       | 48               | 292      | 21,373  |
| Total Amortization                                          | 7,142           | 2,491   | 9,298                | 2,950                       | 48               | 294      | 22,224  |
| Total Operating Income                                      | 120,345         | 9,352   | 18,442               | 4,727                       | 2,121            | 381      | 155,367 |
| Financing Expenses                                          |                 |         |                      |                             |                  |          | 0       |
| Long-Term Debt                                              | 2,261           | 1,900   | 6,014                | 1,710                       | 42               | 139      | 12,065  |
| Short-Term Debt                                             | 118             | 99      | 313                  | 89                          | 2                | 7        | 627     |
| Charged To Construction                                     | (84)            | (71)    | (224)                | (64)                        | (2)              | (5)      | (450)   |
| Amortization of Financing                                   | 2               | 1       | 4                    | 1                           | 0                | 0        | 9       |
| Total Financing Expenses                                    | 2,296           | 1,929   | 6,107                | 1,737                       | 42               | 141      | 12,252  |
| Earnings before Tax                                         | 122,641         | 11,281  | 24,549               | 6,464                       | 2,163            | 522      | 167,619 |
| Income Taxes                                                | 1,113           | 935     | 2,961                | 842                         | 21               | 68       | 5,941   |
| Net Earnings                                                | 2,422           | 2,036   | 6,444                | 1,833                       | 45               | 149      | 12,928  |
| Gross Revenue Requirement                                   | 126,176         | 14,252  | 33,954               | 9,138                       | 2,228            | 739      | 186,488 |
| OATT Revenue                                                | 0               | (1,914) | 0                    | 0                           | 0                | 0        | (1,914) |
| Other Revenue                                               | (56)            | (47)    | (720)                | (42)                        | (1,104)          | (3)      | (1,973) |
| Net Revenue Requirement                                     | 126,121         | 12,290  | 33,234               | 9,096                       | 1,124            | 735      | 182,601 |

26. The results in Table 3 are relatively consistent with previous studies to the extent that Chymko Consulting has followed the same methods as the previous study. Compared to Chymko Consulting's 2014 Cost Allocation Study for MECL, the largest shift in functionalized expense is related to power supply, which has dropped from seventy three percent to sixty-nine per cent of the total functionalized cost (see Table 4 below).
27. Excluding power supply from the analysis, Table 4 also demonstrates that there is an increase in expenses functionalized as transmission. This is attributed to a substantial increase to the Maritime Interconnection Facilities resulting from the lease payment for two new submarine cables.
28. At the same time, costs that are functionalized as distribution related increased at a lower rate than other functionalized costs, resulting in the distribution function's share of revenue requirement decreasing from sixty-three per cent in 2014 to fifty-nine per cent in 2017. This decrease is primarily attributed to slightly lower underground service line maintenance costs, and lower SCADA costs. Such maintenance costs tend to ebb and flow from year-to-year

depending on labour demands for special projects and the level of scheduled underground maintenance checks.

29. The proportion of revenue requirement functionalized as Service & Metering has decreased slightly since 2014, although in absolute dollars the amount of revenue requirement functionalized as Service & Metering is higher than in 2014. These costs did not increase at the same rate as overall revenue requirement because of a slight reduction in supervisory, regulation and training costs.
30. Finally, the level of costs functionalized as Customer Care have also decreased. This is mainly attributable to fewer costs related to claims and uncollectable accounts, as well as lower supervisory costs for both the contact centre and finance labour.

| <b>Table 4</b><br><b>Functionalized MECL Revenue Requirement</b> |                 |         |                      |                             |                  |          |       |
|------------------------------------------------------------------|-----------------|---------|----------------------|-----------------------------|------------------|----------|-------|
|                                                                  | Power<br>Supply | Trans'n | Distrib'n<br>Network | Services<br>and<br>Metering | Customer<br>Care | Lighting | Total |
| Percent of total                                                 |                 |         |                      |                             |                  |          |       |
| 2017 Revenue Requirement                                         | 69%             | 7%      | 18%                  | 5%                          | 1%               | 0%       | 100%  |
| 2014 Revenue Requirement                                         | 73%             | 4%      | 17%                  | 5%                          | 1%               | 0%       | 100%  |
| Excluding Power Supply                                           |                 |         |                      |                             |                  |          |       |
| 2017 Revenue Requirement                                         | N/A             | 22%     | 59%                  | 16%                         | 2%               | 1%       | 100%  |
| 2014 Revenue Requirement                                         | N/A             | 15%     | 63%                  | 18%                         | 3%               | 1%       | 100%  |

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## 3 CLASSIFICATION

31. Functionalized revenue requirement is next classified based on the generally accepted cost drivers that can be measured in terms of how customers use the system. Costs associated with upstream functions are generally accepted to be a function of the peak demand placed on the system and are classified accordingly. At the other extreme, downstream functions, such as services and metering, are generally a function of the number of sites served.<sup>3</sup>

### 3.1 METHOD

#### *Power Supply*

32. In the context of a vertically integrated and regulated electric utility, power supply requirements are generally considered to be a function of both peak demand and total energy consumed. Power supply is a function of total energy consumed because all else equal, a utility with 50,000 GWh of annual sales would incur higher power supply costs than a utility with 1,000 GWh of annual sales. However, even among two utilities with the same annual sales, generation resource planning (and therefore, cost) will differ based on the peak hourly demand. While a consistently flat electrical load may be better served by larger generating facilities suited for full-on production, a variable and peaking load will require a different mix of generating resources. Options for meeting variable peak demand may include smaller scale facilities, technologies that are able to ramp-up production on relatively short notice, or a combination of the two.
33. In MECL's 2014 Cost Allocation Study, 95 per cent of Point Lepreau annual power supply costs were classified as demand related, which reflected all the fixed costs. Only 5 per cent of costs, which reflected fuel costs, were classified as energy related. However, in the Point Lepreau Cost Allocation Classification Study (filed with the Commission on April 30, 2017), MECL proposed that this method of classifying power supply costs did not adequately reflect the fact that a significant portion of the fixed costs for a base load generating plant such as Point Lepreau are incurred to produce lower cost energy. Thus, these costs could be more appropriately classified as energy related rather than demand related. Consequently, the study recommended a change in allocation such that 25 per cent of Point Lepreau's fixed costs are classified as demand related, and 75 per cent of as energy related. The current cost allocation study reflects those changes.
34. In addition to changes to Point Lepreau power supply costs, the Point Lepreau Cost Allocation Classification Study recommended similar changes to two other types of power supply costs. The first is to classify all combustion turbine fuel costs as energy related rather than demand-

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<sup>3</sup> Note that Chymko Consulting's report often uses the term "sites" as opposed to "customers" in the context of a cost allocation study. The purpose of this terminology is to be clear that a cost allocation study is concerned with attributing revenue requirement to distribution points of delivery or "sites." Some customers may actually be served by multiple sites.

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related in order to better reflect the fact that most of the combustion turbine's fuel usage occurs to supply energy for the system.

35. The second change is to classify a portion of wind purchase power as demand related, rather than 100% energy related. The ratio of costs classified as demand related are in the same proportion as the ratio of wind power nameplate capacity that is included as capacity for capacity planning purposes. For the current cost allocation study this proportion is 23 per cent. This change brings MECL's method for classifying wind energy in line with that of NS Power.
36. Consistent with previous studies, MECL's Energy Control Centre (ECC) is classified as ninety five percent energy related because the main purpose of the ECC is to manage and coordinate the delivery of energy supply. Because at least a portion of ECC activities must ultimately feed into long term resource planning, five percent of the ECC expenses are classified as demand related.

### *Transmission*

37. Transmission lines are part of a bulk delivery system that ultimately services all utility customers, including wholesale customers. Transmission infrastructure is generally unaffected by the addition of one more customer, unless the addition of that customer is expected to materially affect peak system demand. Chymko Consulting therefore considers transmission lines to be demand related and allocates these functions on the basis of coincident peak demand.<sup>4</sup> Coincident peak demand is appropriate for this allocation because transmission facilities must be capable of providing service during the time of system peak. PEI's demand for electricity is at its highest during the winter, and therefore MECL's backbone delivery system must be designed to accommodate peak demand at this time.

### *Distribution Network*

38. Substations are part of a bulk delivery system that services virtually all of MECL customers. Also similar to transmission infrastructure, substations are generally unaffected by the addition of one more customer, unless the addition of that customer is expected to materially affect peak system demand. Thus, substations are classified as demand related and allocated on the basis of coincident peak demand.<sup>5</sup>
39. Functions such as primary lines, transformers, and secondary lines also form MECL's distribution network. These facilities must also be designed to meet peak demand, but it is also true that the cost of these functions will increase as more customers are added to the system. Expanding the distribution system to service new customers will require MECL to

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<sup>4</sup> For transmission lines, peak demand is measured at the transmission system level including losses, which as noted earlier are not evenly distributed between rate classes.

<sup>5</sup> The allocator for substations is also adjusted to recognize that some Large Industrial customers are serviced at a transmission voltage and do not use substation facilities.

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extend distribution lines and install new transformers, and so there will be a base level cost regardless of the capacity that these facilities will be required to carry.

40. This cost allocation study continues with the same basic principles followed in previous MECL cost allocation studies. MECL considers that circumstances have not materially changed and the Company's objective for this study is to apply consistent methods to previous studies and facilitate a more meaningful comparison of results over time. Thus, lines are classified as 50% demand related and 50% site related<sup>6</sup> whereas transformers are classified as 60% demand related and 40% site related.

### *Services, Metering, and Customer Care*

41. Functions such as service lines, metering, meter reading, billing, remittance & collection, and uncollectibles & damage claims are all classified as site related. It is generally recognized that the cost of these functions will primarily vary with the number of customers served. Factors other than demand, energy or sites also play a role in cost causation, but these adjustments are made by the choice of allocation and are discussed further in Section 4.
42. Finally, functions associated with service connections and late payments are also classified as site related. From a cost causation perspective, MECL tracks cost by rate class and so classification of these functions is mainly for presentation purposes. In Section 4, these functions are allocated to rate classes in the exact same proportion as actual revenue.

## 3.2 RESULT

43. MECL's classified revenue requirement is summarized in Table 5 below.

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<sup>6</sup> For the allocation of distribution network functions, allocators are adjusted to recognize that some distribution customers are serviced at a primary voltage and do not use a MECL transformer or secondary line.

| Table 5<br>Classified 2017 MECL Revenue Requirement (\$,000) |         |         |         |         |
|--------------------------------------------------------------|---------|---------|---------|---------|
|                                                              | Demand  | Energy  | Site    | Total   |
| Operating Expenses                                           |         |         |         |         |
| Energy Costs                                                 | 21,795  | 96,543  | 127     | 118,465 |
| ECAM Adjustment                                              | (312)   | (2,047) | 0       | (2,359) |
| Net Energy Costs                                             | 21,483  | 94,497  | 127     | 116,106 |
| Distribution                                                 | 2,248   | 26      | 2,202   | 4,476   |
| Transmission                                                 | 1,220   | 0       | 0       | 1,220   |
| T&D - Other                                                  | 1,209   | 0       | 847     | 2,056   |
| Transmission - OATT                                          | 225     | 0       | 0       | 225     |
| General                                                      | 4,020   | 493     | 4,547   | 9,060   |
| Total Operating Expenses                                     | 30,405  | 95,015  | 7,723   | 133,143 |
| Amortization                                                 | 0       | 0       | 0       | 0       |
| Other                                                        | 356     | 399     | 96      | 851     |
| Plant And Equipment                                          | 11,967  | 2,141   | 7,264   | 21,373  |
| Total Amortization                                           | 12,323  | 2,540   | 7,360   | 22,224  |
| Total Operating Income                                       | 42,728  | 97,555  | 15,084  | 155,367 |
| Financing Expenses                                           | 0       | 0       | 0       | 0       |
| Long-Term Debt                                               | 6,743   | 836     | 4,486   | 12,065  |
| Short-Term Debt                                              | 351     | 43      | 233     | 627     |
| Charged To Construction                                      | (251)   | (31)    | (167)   | (450)   |
| Amortization of Financing                                    | 5       | 1       | 3       | 9       |
| Total Financing Expenses                                     | 6,847   | 849     | 4,555   | 12,252  |
| Earnings before Tax                                          | 10,546  | 1,308   | 7,015   | 18,869  |
| Income Taxes                                                 | 3,320   | 412     | 2,209   | 5,941   |
| Net Earnings                                                 | 7,225   | 896     | 4,807   | 12,928  |
| Gross Revenue Requirement                                    | 60,122  | 99,712  | 26,654  | 186,488 |
| OATT Revenue                                                 | (1,914) | 0       | 0       | (1,914) |
| Other Revenue                                                | (452)   | (21)    | (1,500) | (1,973) |
| Net Revenue Requirement                                      | 57,755  | 99,691  | 25,155  | 182,601 |

44. As noted in the April 30, 2017 Point Lepreau Cost Allocation Classification Study, the impact of the changes to the classification of Point Lepreau costs is a shift in costs classified as demand to energy related. The change in the classification of fuel oil further shifts costs from demand to energy. However, the overall shift is somewhat mitigated by the change in classification for wind power from 100 per cent energy related 23 per cent demand related. As shown in Table 6, the overall impact is a 5% decrease in the amount of costs that are classified as demand related and a 5% increase in energy related costs.
45. Without the changes in Point Lepreau cost classification, the percentage of revenue requirement classified as demand related would have increased by about 3% as compared to 2014, and the percentage of revenue requirement classified as energy related would have decreased by about 4%. This reflects an increase in costs functionalized as transmission related as these costs are classified as demand related.
46. The same effect is demonstrated when power supply is excluded from the analysis. As shown in Table 6, when power supply is excluded, more of revenue requirement is classified as demand related.

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| <b>Table 6</b><br><b>Classified MECL Revenue Requirement</b> |        |        |      |       |
|--------------------------------------------------------------|--------|--------|------|-------|
|                                                              | Demand | Energy | Site | Total |
| Percent of total                                             |        |        |      |       |
| 2017 Revenue Requirement                                     | 32%    | 55%    | 14%  | 100%  |
| 2014 Revenue Requirement                                     | 37%    | 50%    | 13%  | 100%  |
| Excluding Power Supply                                       |        |        |      |       |
| 2017 Revenue Requirement                                     | 55%    | 0%     | 45%  | 100%  |
| 2014 Revenue Requirement                                     | 52%    | 0%     | 48%  | 100%  |



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## 4 ALLOCATION

47. Once revenue requirement is classified between demand, energy, and site related, the next step is to allocate revenue requirement to rate classes. This requires some consideration of how customers should be grouped into rate classes for purposes of allocation as well as choosing the appropriate allocator for each expense.

### 4.1 RATE CLASSES

48. The rate classes used in the current cost allocation study are consistent with previous cost allocation studies and remain influenced by a 1990s regulatory framework that obliged MECL to adopt the same rate schedules as New Brunswick Power. For the 2014 study, Chymko Consulting modified its cost allocation model to accommodate an additional farm rate class separate from residential. This was done in preparation for future rate design changes involving the elimination of the declining block rate structure.<sup>7</sup>
49. In Order UE18-02, IRAC approved MECL's request to complete the current cost allocation study before filing the rate design study required under Order UE16-04R. As such, for the current cost allocation study, Chymko Consulting has continued to accommodate an additional farm rate class separate from residential.

### 4.2 ALLOCATORS

50. The final step of the cost allocation study is to allocate the utility's classified revenue requirement to rate classes. The choice of allocation factor is to a large degree influenced by classification. For example, demand related costs are generally allocated by the same proportions as the peak demand of each rate class. Similarly, energy related costs are allocated by the same proportions as energy sales and site related costs are allocated by the relative number of sites within each rate class. Below are some common measures of customer usage that are often used as the basis for allocation to rate classes.

#### *Coincident Peak Demand (CP)*

51. Coincident peak represents each rate class's contribution to the utility's peak demand day. This is typically measured over the period of one year, but other variants include the sum of peak summer and peak winter demands as well as the sum of daily peak demand for twelve consecutive months. This type of allocator is often paired with demand related costs

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<sup>7</sup> As established in the previous cost allocation study, it is expected that eliminating the declining block rate structure will have a disproportionate impact on farm customers, and therefore the change could be more easily managed if farm customers are first separated from the Residential rate class. For the current study, as in the 2014 Cost Allocation Study, Chymko Consulting assumed the same service line cost and pro-rated peak demand (based on energy sales) for the two customer groups.

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associated with high-voltage transmission. The MECL system peak occurs during the winter due to the combination of lighting and heating demand.

52. While the coincident peak demand allocator recognizes customers are collectively peaking, it also recognizes that individual customers use energy at different times of the day. For example, a transmission line servicing one 1 MW customer is likely to require higher capacity than a line that services one thousand 1 kW customers who collectively add up to 1 MW. Given that individual customers do not necessarily peak at the same time, this diversity can be factored into transmission system design. The calculation of coincident peak demand also reflects this diversity, making it an appropriate allocator for transmission facilities.
53. Firm load is used to allocate purchased power costs in order to account for the fact that interruptible load reduces the amount of generating capacity that needs to be purchased.

### *Non-Coincident Peak Demand (NCP)*

54. Non-coincident peak demand (NCP) represents the peak demand for each rate class without regard for when the peak occurs for other rate classes. Therefore, the sum of all rate class NCPs is by definition equal to or greater than the system peak. This type of allocator is typically paired with demand related costs associated with more localized distribution facilities. NCP is widely recognized as an appropriate allocator for components of the distribution system that must be designed and built to handle local peak demand situations that do not necessarily correspond to the overall system peak.
55. Distribution network functions classified as demand related are allocated on the basis of non-coincident peak demand. As facilities become more localized, the needs of specific local customers play a more important role in network design. Individual customers served by a distribution feeder are still diverse, but compared to a bulk transmission system that services a greater number and a broader mix of customers, diversity is less of a factor. Thus, local distribution customers are more likely to peak at the same time compared to a random collection of residential, commercial, and industrial customers. Given that local distribution facilities are more likely to serve one particular rate class, an allocation based on non-coincident rate class peak demand is appropriate. The calculation of non-coincident peak demand reflects diversity within a rate class, but not between rate classes.

### *Energy Use*

56. An energy allocator is calculated from rate class kWh sales, grossed-up for losses. This allocator is used for power supply classified as energy related, but is not otherwise used for the other, wires-related functions.

### *Number of Sites*

57. The number of sites within each rate class is used to allocate site-related costs. Depending upon the function to be allocated, a number of adjustments are required. For instance, the allocation of the secondary lines function should exclude distribution sites that are just served

at the primary voltage. Another adjustment is necessary for lighting fixtures and other unmetered points of delivery, which are high in number but the addition of one more fixture should not cause distribution cost to increase as much as the addition of one more residential customer, for example.<sup>8</sup>

58. Furthermore, site counts are sometimes weighted if the per-site cost is known to differ between rate classes and neither a demand nor an energy-based allocation is a reasonable alternative. This situation often occurs when a number of factors either directly or indirectly affect the per-site cost and the net impact is material. This is a generally accepted cost allocation practice and in its cost allocation model, Chymko Consulting weights the site-based allocations of functions such as service lines, meter assets, meter reading, billing, and remittance & collection.
59. While the functions for service connection and late payment revenue are classified as site related, this is mainly for completeness. This revenue is directly assigned to rate classes according the same proportions as it was collected.

### *Summary of Allocators*

| <b>Table 7<br/>Summary of 2017 Peak Demand Allocators</b> |                                      |                                   |                                                     |                                               |               |
|-----------------------------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------------------------|-----------------------------------------------|---------------|
|                                                           | Coincident<br>Peak <sup>9</sup> (kW) | Coincident<br>Peak - Firm<br>(kW) | Non-<br>Coincident<br>Peak <sup>10 11</sup><br>(kW) | Energy Including<br>Losses <sup>9</sup> (MWh) | Sites         |
| Residential                                               | 142,677                              | 142,677                           | 171,362                                             | 505,169                                       | 57,286        |
| Residential (S)                                           | 1,581                                | 1,581                             | 6,638                                               | 19,523                                        | 7,504         |
| Farm                                                      | 14,756                               | 14,756                            | 17,749                                              | 52,322                                        | 2,094         |
| General Service                                           | 58,081                               | 57,419                            | 85,135                                              | 375,639                                       | 7,191         |
| General Service (S)                                       | 1                                    | 1                                 | 3,584                                               | 9,279                                         | 1,704         |
| Small Industrial                                          | 14,593                               | 14,593                            | 29,032                                              | 88,162                                        | 291           |
| Large Industrial                                          | 16,303                               | 2,513                             | 6,419                                               | 150,029                                       | 6             |
| Lights                                                    | 1,424                                | 1,424                             | 1,444                                               | 5,519                                         | 4,556         |
| Unmetered                                                 | 364                                  | 364                               | 355                                                 | 2,416                                         | 269           |
| <b>Total</b>                                              | <b>249,780</b>                       | <b>235,328</b>                    | <b>321,718</b>                                      | <b>1,208,058</b>                              | <b>80,902</b> |

## 4.3 RESULT

60. MECL's allocated revenue requirement is shown in detail in Appendix A while a simplified version is shown in Table 8 below.

<sup>8</sup> In this study, Chymko Consulting discounted the number of lighting fixtures and unmetered points of delivery by a factor of 0.40. Chymko Consulting selected 0.40 such that the allocated secondary distribution voltage cost per fixture is approximately one fifth of a Residential customer.

<sup>9</sup> Calculated at input voltage.

<sup>10</sup> Calculated at primary voltage.

<sup>11</sup> Excludes transmission only customers and transmission losses.

| <b>Table 8</b>                                          |                    |                  |                           |                |                |                         |
|---------------------------------------------------------|--------------------|------------------|---------------------------|----------------|----------------|-------------------------|
| <b>Allocated 2017 MECL Revenue Requirement (\$,000)</b> |                    |                  |                           |                |                |                         |
|                                                         | Operating Expenses | Capital Expenses | Gross Revenue Requirement | OATT Revenue   | Other Revenue  | Net Revenue Requirement |
| Residential                                             | 63,270             | 31,019           | 94,288                    | (1,093)        | (1,389)        | 91,806                  |
| Residential (S)                                         | 2,461              | 2,162            | 4,623                     | (12)           | (98)           | 4,512                   |
| Farm                                                    | 6,177              | 2,375            | 8,552                     | (113)          | (67)           | 8,372                   |
| General Service                                         | 37,724             | 10,886           | 48,610                    | (445)          | (285)          | 47,880                  |
| General Service (S)                                     | 896                | 694              | 1,590                     | (0)            | (26)           | 1,565                   |
| Small Industrial                                        | 8,973              | 2,602            | 11,575                    | (112)          | (61)           | 11,402                  |
| Large Industrial                                        | 12,392             | 1,864            | 14,256                    | (125)          | (16)           | 14,115                  |
| Lights                                                  | 954                | 1,644            | 2,598                     | (11)           | (28)           | 2,559                   |
| Unmetered                                               | 296                | 99               | 395                       | (3)            | (2)            | 391                     |
| <b>Total</b>                                            | <b>133,143</b>     | <b>53,344</b>    | <b>186,488</b>            | <b>(1,914)</b> | <b>(1,973)</b> | <b>182,601</b>          |

61. Again, results are consistent with prior studies and differences from the 2014 study are largely caused by how MECL's revenue requirement and customer base has evolved since 2014. A comparison appears below in Table 9, and explanations regarding changes in MECL's customer base follows below.

| <b>Table 9</b>                            |                           |             |                        |            |
|-------------------------------------------|---------------------------|-------------|------------------------|------------|
| <b>Allocated MECL Revenue Requirement</b> |                           |             |                        |            |
|                                           | Total Revenue Requirement |             | Excluding Power Supply |            |
|                                           | 2017                      | 2014        | 2017                   | 2014       |
| Residential                               | 50%                       | 53%         | 61%                    | 63%        |
| Residential (S)                           | 2%                        | 2%          | 5%                     | 5%         |
| Farm                                      | 5%                        |             | 4%                     |            |
| General Service <sup>12</sup>             | 26%                       | 28%         | 19%                    | 19%        |
| General Service (S)                       | 1%                        | 1%          | 1%                     | 2%         |
| Small Industrial                          | 6%                        | 7%          | 4%                     | 5%         |
| Large Industrial                          | 8%                        | 8%          | 2%                     | 2%         |
| Lights                                    | 1%                        | 1%          | 3%                     | 3%         |
| Unmetered                                 | 0%                        | 0%          | 0%                     | 0%         |
| <b>Total</b>                              | <b>100%</b>               | <b>100%</b> | <b>100%</b>            | <b>99%</b> |

## *Residential*

62. The Residential rate class share of peak demand is increasing at a faster rate than sales, which results in more costs being allocated to the rate class. The increase in the Residential rate classes' share of peak demand is attributed to a gradual expansion of electric heat. Electric heat is currently the predominant heating source installed in new homes, and this is expected to continue if oil prices continue to rise. Many new homes are putting in both

<sup>12</sup> As per the rate schedules approved in Order EU16-04R, the 2017 Cost Allocation Study does not include a General Service 2 rate class. For the purposes of comparison, the 2014 study General Service 2 results have been combined with General Service 1 (presented as General Service).

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resistive and heat pump installations, with the resistive heat sources intended to operate only during the coldest times of the year.

- 63. Annual system peaks typically occur between mid-December and mid-January, during extended cold snaps. Holiday lighting is on, and many of the installed heat pumps are supplemented with resistive heat. The utility believes this has been the main contributing factor to observed higher system peaks.
- 64. The increase in costs allocated to Residential rate class because of an increase in peak demand is slightly offset by the changes related to Point Lepreau cost allocation, specifically the shift in costs from demand to energy related. As such, the Residential rate class's share of revenue requirement (50%) is comparable to previous years'.

### *Residential (Seasonal)*

- 65. The Residential Seasonal rate class's share of revenue requirement is up slightly from 2014 because of an overall growth in the rate class. Additionally, the seasonal load profile has materially flattened since 2015 as winter sales (November – February) have increased 47% while summer sales have increased 9%.
- 66. Both the flattening effect and the overall growth in customers is attributed to the seasonal sub-class 131, which has 24% more customers than in 2015. Rate code 131 is billed for the full year (as opposed to rate code 133 which is only billed for the summer months), and because these sites are active in the winter months and consume more energy (both gross and per customer) in the winter than in the summer, the flattening of the seasonal load is also attributed to the growth in this sub-class. A potential area of further study is to assess the appropriateness and value of rate code 131 and whether the service should be consolidated into the regular Residential rate class under the rate code for rural customers.
- 67. Similar to the Residential rate class, the Seasonal Residential rate class also saw a slight increase in peak demand, the impact of which was also offset by the Point Lepreau changes. Despite these similarities, the Seasonal Residential rate class still has a revenue to cost ratio closer to 100% than the Residential class. This is because the seasonal customers contribute to system peak less than residential customers, and as such they are assigned proportionally fewer generation, power and transmission costs.

### *General Service*

- 68. Compared to 2014, sales have increased slightly for the General Service rate class, while peak demand has decreased slightly. The change of spread between peak demand and sales differs for residential and general service customers. Residential customers mostly install heat pumps as a supplementary heat source, which coincides with system peak load. General service customers often install heat pumps to provide air conditioning in summer months, which does not coincide with system peak load. This means that the General Service rate peak demand has grown at a materially slower rate than Residential, thereby reducing the General Service share of peak demand, and by extension their share of allocated cost.

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### *Small Industrial*

- 69. Sales for the Small Industrial rate class are slightly lower than 2015, but this is mainly attributable to the loss of three customers, who were migrated to Large Industrial over the course of 2017 and 2018.<sup>13</sup>
- 70. With the loss of three customers, the metered demand of the rate class decreased by 2.8 MW, and as such the Small Industrial rate class's share of revenue requirement has decreased from the 2014 study by one percentage point.

### *Large Industrial*

- 71. Sales for the Large Industrial have increased modestly since 2015; however, these customers were observed not to contribute to the higher system peak (as per interval metering). At the same time, the Large Industrial non-coincident peak has increased, and this is attributable to the addition of the three former Small Industrial customers.
- 72. Because of a decreased share of coincident peak demand, the Large Industrial rate class is attributed a smaller share of costs associated with functions that are allocated on the basis of CP, such as generation, purchased power and transmission costs. However, this impact is offset by the Large Industrial's increased NCP, which results in a larger share of costs associated with functions that are allocated by NCP, such as distribution lines and transformers. The impact of the lower CP is further offset by the Point Lepreau changes, which result in more costs allocated to the rate class on the basis of energy. As such, the Large Industrial's share of allocated revenue requirement remains consistent with 2014 results.

### *Lights*

- 73. Conversion to LED streetlights has reduced sales for this rate class by approximately twelve percent and the contribution to system peak demand by ten percent. What would otherwise mean fewer costs allocated to this rate class is offset by increased capital costs (i.e. return and depreciation) that is directly assigned to lights. This is attributed to LED conversions, which has increased the street and yard lights capital asset base by 33% since the 2014 study. Therefore, the total net impact of these offsetting changes is that lighting's share of revenue requirement increases from 1.3 percent to 1.4 percent.

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<sup>13</sup> For the purpose of using the results of this study to go-forward rates, these three customers are removed entirely from 2017 Small Industrial load data and added to 2017 Large Industrial load data. Load data was calculated for the Small Industrial rate class as though the three customers were not a part of this class for the entirety of the year, and for the Large Industrial rate class as though the three customers were part of the rate class for the entirety of the year. Because of the timing of when upgraded meters were actually installed for these customers, a minor amount of estimation was necessary in order to determine the customers' individual contributions to rate class coincident and non-coincident peak demand.

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## 5 CONCLUSIONS

74. Chymko Consulting's 2017 Cost Allocation Study is based on MECL's 2017 Statement of Earnings. To use these results as a yardstick for a 2019 rate proposal, it is necessary to express the allocated net revenue requirement as a percentage share. This adjustment is shown in Table 10.

| <b>Table 10</b>                                          |                                         |                      |
|----------------------------------------------------------|-----------------------------------------|----------------------|
| <b>Allocated 2017 Net Revenue Requirement from Rates</b> |                                         |                      |
|                                                          | <b>Net Revenue Requirement (\$,000)</b> | <b>Percent Share</b> |
| Residential                                              | 91,806                                  | 50.3%                |
| Residential (S) <sup>14</sup>                            | 4,512                                   | 2.5%                 |
| Farm                                                     | 8,372                                   | 4.6%                 |
| General Service                                          | 47,880                                  | 26.2%                |
| General Service (S)                                      | 1,565                                   | 0.9%                 |
| Small Industrial                                         | 11,402                                  | 6.2%                 |
| Large Industrial                                         | 14,115                                  | 7.7%                 |
| Lights                                                   | 2,559                                   | 1.4%                 |
| Unmetered                                                | 391                                     | 0.2%                 |
| Total                                                    | 182,601                                 | 100.0%               |

75. Allocated cost in Table 10 is only one yardstick or guideline for designing 2019 rates. Other rate design considerations are equally important and one such consideration is the current structure and level of rates. If the desired change is too significant and would cause rate shock (i.e. an increase greater than ten percent of the total bill), then it may be necessary to adopt additional strategies to implement change gradually. One such indicator of the possibility of rate shock is the revenue-to-cost ratio. Table 11 below calculates revenue to cost ratios on current rates as well as providing similarly calculated revenue to cost ratios from the 2014 study.

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<sup>14</sup> Of note is the very small allocation to farm customers that are currently billed as Seasonal Residential; this is primarily due to the fact that MECL identified only fifteen such sites in its 2014 data. Chymko Consulting considers there to be too few customers and too few sales to create an administratively feasible rate. Not only is this too small of a sample to depend on consistent cost allocation results over time, but 2014 usage appears very similar to Seasonal Residential and the administration of such a rate class is likely to be burdensome. Thus, Chymko Consulting recommends that these two groups remain in the same Seasonal rate class.

| <b>Table 11</b>                                          |                   |                |                       |            |
|----------------------------------------------------------|-------------------|----------------|-----------------------|------------|
| <b>Allocated 2017 Net Revenue Requirement from Rates</b> |                   |                |                       |            |
|                                                          | Revenue Collected | Allocated Cost | Revenue to Cost Ratio | 2014 Study |
| Residential                                              | 45.9%             | 50.3%          | 91%                   | 92%        |
| Residential (S)                                          | 2.4%              | 2.5%           | 96%                   | 97%        |
| Farm                                                     | 3.8%              | 4.6%           | 82%                   | 81%        |
| General Service                                          | 31.9%             | 26.2%          | 121%                  | 117%       |
| General Service (S)                                      | 1.0%              | 0.9%           | 113%                  | 115%       |
| Small Industrial                                         | 6.4%              | 6.2%           | 102%                  | 96%        |
| Large Industrial                                         | 7.2%              | 7.7%           | 94%                   | 100%       |
| Lights <sup>15</sup>                                     | 1.3%              | 1.4%           | 91%                   | 103%       |
| Unmetered <sup>15</sup>                                  | 0.2%              | 0.2%           | 104%                  | 103%       |
| Total                                                    | 100.0%            | 100.0%         | 100%                  | 100%       |

76. Given that the objective of a cost allocation study is to fairly allocate revenue requirement to rate classes on a cost causation basis, a ratio below 100% in Table 11 indicate that (all else equal) rate revenues should be raised for that rate class. Similarly, a ratio above 100% indicates that current rate revenues are above cost and should (all else equal) be lowered.
77. What is generally accepted to be a reasonable revenue to cost ratio will vary among Canadian provinces and regulators. For MECL's specific circumstances, Chymko Consulting considers 100% to be a long-term objective, but variances in any given year would be expected and reasonable. Actual rate impacts will depend upon MECL's rate design proposal, and MECL's proposal will need to make such other considerations such as rate shock and whether an overall general rate increase is required for 2019. Moreover, one must take into account that rates are set prospectively and that normal forecast variances in cost, load, and revenue will mean that the intended revenue to cost ratio will rarely be achieved. Pending further rate design analysis, it may be necessary to compromise revenue to cost ratio objectives in the short run so as to mitigate rate shock for one or more rate classes or even subsets of customers within rate classes. In this situation, a short to medium term objective of transitioning customer rates toward a revenue to cost ratio between 90% and 110% may be more reasonable.
78. The revenue to cost ratio for the general services rate classes has increased since the 2014 Cost Allocation Study (from 117%/115% to 121%). Some of this change can be attributed to Point Lepreau classification, but the larger impact for General Service is related to the growth of transmission and distribution infrastructure since 2015. Many of these capital expenses are functionalized as at least partially demand related, and as noted in the discussion of allocators, peak demand of the General Service rate class grew at a slower rate than Residential, which means that the General Service share of demand related cost decreases.

<sup>15</sup> The 2008 study allocated lighting and unmetered cost based on number of customer accounts, rather than points of distribution delivery (see paragraph 57).



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79. In order to present a revenue to cost ratio that is more relevant on a go-forward basis, MECL assisted Chymko Consulting in removing revenue attributable to the three industrial customers that switched rate classes from the Small Industrial revenue. The share of revenue from this rate class would have otherwise increased, but with the adjustment for the three customers, the share of revenue from this rate class is largely unchanged.
80. Similarly, Chymko Consulting adjusted the revenue for Large Industrial customers to include estimates of what these same customers would have paid in 2017 on Large Industrial rates. These adjustments include equipment rental, fees, transformation charges. The inclusion of these three customers at the Large Industrial rate rather than the Small Industrial rate decreases utility revenue overall.
81. Taking these adjustments into account, the Large Industrial revenue to cost ratio has decreased to 94%, which is still within MECL's range of tolerance. While the share of costs allocated to Large Industrial has remained consistent with the 2014 study, the share of revenue has decreased.<sup>16</sup> Though the rate class gained three Small Industrial customers, another Large Industrial customer exited the system in January 2017. While energy sales for the class increased, sales per customer decreased by thirty percent compared to the 2015 study and revenue per customer has declined by more than thirty five percent (after the adjustment made for Small Industrial customers now paying Large Industrial rates).
82. Considering that some estimation was required to calculate Large Industrial peak demand allocators, Chymko Consulting would not recommend any rate class rebalancing adjustments in future Large Industrial rate design (i.e. adjustments in addition to general increases), at least until the cost allocation study is updated with new data.
83. Unit cost is another output from the cost allocation study with potential use for rate design. Unit cost is calculated by dividing billing units into allocated cost for each rate class. In Table 12 below, Chymko Consulting divides billing demand (i.e. peak demand on the customers' bills) into allocated demand related cost and number of bills into allocated site-related cost.

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<sup>16</sup> If not for the changes to classification of energy purchases discussed in Section 3.1, the Large Industrial share of allocated cost would have also declined by a similar magnitude as revenue and the revenue-to-cost ratio would be 104%.

| Table 12<br>Unit Cost Results for Consideration in Rate Design |                                             |                              |
|----------------------------------------------------------------|---------------------------------------------|------------------------------|
|                                                                | Demand Related<br>(\$/kW/Mo Billing Demand) | Site Related<br>(\$/Bill/Mo) |
| Residential                                                    | N/A                                         | 24.61                        |
| Residential (S)                                                | N/A                                         | 44.17                        |
| Farm                                                           | N/A                                         | 24.62                        |
| General Service                                                | 15.43                                       | 30.82                        |
| General Service (S)                                            | 11.78                                       | 63.08                        |
| Small Industrial                                               | 12.14                                       | 37.49                        |
| Large Industrial                                               | 8.05                                        | 247.57                       |
| Lights                                                         | N/A                                         | 537.41                       |
| Unmetered                                                      | 61.48                                       | 63.21                        |
| Total                                                          | 0.00                                        | 1072.97                      |

84. Site related unit cost gives some indication for an appropriate monthly service charge. Given that the service line, meter, and billing costs are all considered site related, a monthly service charge equal to unit cost would at least ensure the utility is recovering the localized fixed costs from every customer regardless of their consumption. One such application is the seasonal rate, which requires just as much local distribution infrastructure to serve but is billed for only half the year. From a cost-causation perspective, it would be fair for the seasonal rate class to have a higher monthly service charge to ensure these local infrastructure costs are recovered from each site.<sup>17</sup>
85. Similar to the site related unit cost, the demand related unit cost in Table 12 is calculated as the demand related cost divided by the kilowatts billed to customers in that rate class. This only applies to rate classes that are metered and billed for peak demand and unit cost also provides useful information for a potential demand charge. Demand related costs are predominantly related to reserve power supply, transmission, and primary voltage distribution and flowing through the demand related unit cost in the monthly demand charge helps communicate to these customers the value of reducing peak demand.

### *Final Remarks*

86. The overall purpose of a cost allocation study is to develop a benchmark to guide rate design. Rates that reflect the full cost of electric utility service are generally accepted as a worthwhile objective, subject to a number of other considerations that must be taken into account. MECL's existing rate structure presents a number of challenges simply because the basic form and structure has changed only nominally for approximately twenty years. Customer acceptance is an important consideration in rate design and the longevity of the existing structure may make some changes, regardless of their merit, more difficult to accept. It is for this reason that cost allocation results alone should not be the determining factor for rates. The revenue to cost ratios in Table 11 indicates that some rates might need to change

<sup>17</sup> Note that there is an offsetting effect in which seasonal rate classes are allocated fewer demand related costs because they contribute little to system peak by virtue of being less active in the winter.

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significantly. Pending further analysis of any such change, it may well be that rate rebalancing would need to be implemented gradually over the course of multiple years.

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# APPENDIX A: DETAILED SCHEDULES

## MECL 2017 Cost Allocation Model

|                                                                          |
|--------------------------------------------------------------------------|
| Schedule Index                                                           |
| Prepared by Chymko Consulting                                            |
| 105, 535 - 10 Ave SW                                                     |
| Calgary, AB                                                              |
| T2R 1J4                                                                  |
| (403) 781-7691                                                           |
| SPLIT RESIDENTIAL RATE CLASS                                             |
| <a href="#">1.0: Summary of Cost Allocation Results</a>                  |
| <a href="#">1.1: Unit Cost Summary</a>                                   |
| <a href="#">1.2: Unit Cost by Function</a>                               |
| <a href="#">1.3: Allocated Revenue Requirement (\$,000)</a>              |
| <a href="#">1.4: Allocated Revenue Requirement (\$,000)</a>              |
| <a href="#">2.0: Allocators by Function</a>                              |
| <a href="#">2.1: Allocators</a>                                          |
| <a href="#">2.2: Allocator Assumptions</a>                               |
| <a href="#">2.4: Classification Assumptions</a>                          |
| <a href="#">2.5: Allocator by Function Assumptions</a>                   |
| <a href="#">3.0: Functionalized Revenue Requirement, Summary</a>         |
| <a href="#">3.1: Functionalized Revenue Requirement</a>                  |
| <a href="#">3.2: Functionalized Labour</a>                               |
| <a href="#">3.3: Functionalized Vehicle</a>                              |
| <a href="#">3.4: Functionalized Rate Base</a>                            |
| <a href="#">3.5: Functionalized Contributions Related Distribution P</a> |
| <a href="#">3.6: Functionalized Amortization</a>                         |
| <a href="#">4.0: Functionalized Gross Plant</a>                          |
| <a href="#">4.1: Revenue Requirement Summary</a>                         |
| <a href="#">4.2: Rate Base (\$,000)</a>                                  |
| <a href="#">5.0: Functional Allocator Summary</a>                        |
| <a href="#">5.1: Functional Allocator Worksheet</a>                      |
| <a href="#">5.2: Functional Allocator Worksheet, Blended Allocators</a>  |
| <a href="#">6.0: Revenue Requirement 2017</a>                            |
| <a href="#">6.1: Plant In Service 2017</a>                               |
| <a href="#">6.2: Contributions &amp; Intangible Assets</a>               |
| <a href="#">6.3: Standard Lists</a>                                      |

# MECL 2017 Cost Allocation Model

|                                    |             |                 |       |                   |                       |                  |                  |        |           |          |
|------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|----------|
| Schedule 1.0                       |             |                 |       |                   |                       |                  |                  |        |           |          |
| Summary of Cost Allocation Results |             |                 |       |                   |                       |                  |                  |        |           |          |
| Revenue Requirement (\$,000)       |             |                 |       |                   |                       |                  |                  |        |           |          |
|                                    | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total    |
| Revenue Collected                  | 85,456      | 4,424           | 6,988 | 58,695            | 1,804                 | 11,805           | 13,289           | 2,415  | 412       | 185,288  |
| less Rate of Return Adjustment     | (1,622)     | (116)           | (122) | (557)             | (38)                  | (133)            | (88)             | (85)   | (5)       | (2,768)  |
| add Weather Normalization          | 26          | 1               | 2     | 14                | 0                     | 3                | 4                | 1      | 0         | 52       |
| Base Revenue, Comparable for 201   | 83,860      | 4,309           | 6,868 | 58,151            | 1,766                 | 11,675           | 13,205           | 2,330  | 407       | 182,572  |
| Revenue Share                      | 46%         | 2%              | 4%    | 32%               | 1%                    | 6%               | 7%               | 1%     | 0%        | 100%     |
| Allocated Cost (net of Other Reven | 91,806      | 4,512           | 8,372 | 47,880            | 1,565                 | 11,402           | 14,115           | 2,559  | 391       | 182,601  |
| Allocated Share                    | 50%         | 2%              | 5%    | 26%               | 1%                    | 6%               | 8%               | 1%     | 0%        | 100%     |
| Revenue to Cost Ratio              | 91 %        | 96 %            | 82 %  | 121 %             | 113 %                 | 102 %            | 94 %             | 91 %   | 104 %     | 100 %    |
| Revenue to Cost Ratio (2015 Study  | 92 %        | 97 %            | 81 %  | 117 %             | 115 %                 | 96 %             | 100 %            | 103 %  | 103 %     | 100 %    |
| Unit Cost                          |             |                 |       |                   |                       |                  |                  |        |           |          |
| Demand Related (\$/kW/Mo Billing   | N/A         | N/A             | N/A   | 15.43             | 11.78                 | 12.14            | 8.05             | N/A    | 61.48     | 0.00     |
| Site Related (\$/Bill/Mo)          | 24.61       | 44.17           | 24.62 | 30.82             | 63.08                 | 37.49            | 247.57           | 537.41 | 63.21     | 1,072.97 |

MECL 2017 Cost Allocation Model

|                                        |             |                 |        |                   |                       |                  |                  |        |           |        |
|----------------------------------------|-------------|-----------------|--------|-------------------|-----------------------|------------------|------------------|--------|-----------|--------|
| Schedule 1.1                           |             |                 |        |                   |                       |                  |                  |        |           |        |
| Unit Cost Summary                      |             |                 |        |                   |                       |                  |                  |        |           |        |
| Full Revenue Requirement (¢/kWh Sales) |             |                 |        |                   |                       |                  |                  |        |           |        |
|                                        | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total  |
| Operating Expenses                     |             |                 |        |                   |                       |                  |                  |        |           |        |
| Energy Costs                           | 10.62       | 8.91            | 10.61  | 9.41              | 7.70                  | 9.54             | 8.15             | 10.56  | 9.46      | 9.81   |
| ECAM Adjustment                        | (0.21)      | (0.18)          | (0.21) | (0.19)            | (0.16)                | (0.19)           | (0.17)           | (0.21) | (0.19)    | (0.20) |
| Net Energy Costs                       | 10.41       | 8.73            | 10.40  | 9.22              | 7.54                  | 9.35             | 7.98             | 10.35  | 9.27      | 9.61   |
| Distribution                           | 0.55        | 1.24            | 0.35   | 0.21              | 0.72                  | 0.23             | 0.03             | 2.80   | 0.37      | 0.37   |
| Transmission                           | 0.14        | 0.04            | 0.14   | 0.08              | 0.00                  | 0.08             | 0.05             | 0.13   | 0.07      | 0.10   |
| Transmission and Distribution -        | 0.25        | 0.51            | 0.17   | 0.10              | 0.31                  | 0.12             | 0.01             | 0.97   | 0.18      | 0.17   |
| Transmission - OATT                    | 0.03        | 0.01            | 0.03   | 0.01              | 0.00                  | 0.01             | 0.01             | 0.02   | 0.01      | 0.02   |
| General                                | 1.15        | 2.08            | 0.72   | 0.42              | 1.09                  | 0.38             | 0.16             | 3.01   | 2.35      | 0.75   |
| Total Operating Expenses               | 12.52       | 12.61           | 11.81  | 10.04             | 9.66                  | 10.18            | 8.26             | 17.28  | 12.25     | 11.02  |
| Amortization                           |             |                 |        |                   |                       |                  |                  |        |           |        |
| Amortization Other                     | 0.09        | 0.10            | 0.08   | 0.06              | 0.06                  | 0.06             | 0.04             | 0.19   | 0.07      | 0.07   |
| Amortization Plant And Equipme         | 2.44        | 4.27            | 1.83   | 1.17              | 2.86                  | 1.19             | 0.54             | 12.22  | 1.63      | 1.77   |
| Total Amortization                     | 2.53        | 4.37            | 1.91   | 1.23              | 2.92                  | 1.25             | 0.58             | 12.41  | 1.69      | 1.84   |
| Total Operating Income                 | 15.05       | 16.98           | 13.72  | 11.27             | 12.58                 | 11.43            | 8.84             | 29.70  | 13.94     | 12.86  |
| Financing Expenses                     |             |                 |        |                   |                       |                  |                  |        |           |        |
| Long-Term Debt                         | 1.40        | 2.60            | 1.02   | 0.65              | 1.76                  | 0.66             | 0.26             | 6.73   | 0.94      | 1.00   |
| Short-Term Debt                        | 0.07        | 0.14            | 0.05   | 0.03              | 0.09                  | 0.03             | 0.01             | 0.35   | 0.05      | 0.05   |
| Interest Charged To Constructio        | (0.05)      | (0.10)          | (0.04) | (0.02)            | (0.07)                | (0.02)           | (0.01)           | (0.25) | (0.03)    | (0.04) |
| Amortization of Financing Costs        | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00   |
| Total Financing Expenses               | 1.42        | 2.64            | 1.03   | 0.66              | 1.79                  | 0.67             | 0.26             | 6.84   | 0.95      | 1.01   |
| Earnings before Income Taxes           | 16.48       | 19.61           | 14.75  | 11.93             | 14.38                 | 12.10            | 9.10             | 36.54  | 14.90     | 13.88  |
| Income Taxes                           | 0.69        | 1.28            | 0.50   | 0.32              | 0.87                  | 0.32             | 0.13             | 3.32   | 0.46      | 0.49   |
| Net Earnings                           | 1.50        | 2.78            | 1.09   | 0.69              | 1.89                  | 0.71             | 0.27             | 7.22   | 1.01      | 1.07   |
| Gross Revenue Requirement              | 18.66       | 23.68           | 16.35  | 12.94             | 17.14                 | 13.13            | 9.50             | 47.07  | 16.37     | 15.44  |
| OATT Revenue                           | (0.22)      | (0.06)          | (0.22) | (0.12)            | (0.00)                | (0.13)           | (0.08)           | (0.20) | (0.12)    | (0.16) |
| Other Revenue                          | (0.27)      | (0.50)          | (0.13) | (0.08)            | (0.28)                | (0.07)           | (0.01)           | (0.50) | (0.08)    | (0.16) |
| Net Revenue Requirement                | 18.17       | 23.11           | 16.00  | 12.75             | 16.86                 | 12.93            | 9.41             | 46.37  | 16.17     | 15.12  |

# MECL 2017 Cost Allocation Model

|                                                              |             |                 |      |                   |                       |                  |                  |        |           |  |
|--------------------------------------------------------------|-------------|-----------------|------|-------------------|-----------------------|------------------|------------------|--------|-----------|--|
| Schedule 1.1                                                 |             |                 |      |                   |                       |                  |                  |        |           |  |
| Unit Cost Summary                                            |             |                 |      |                   |                       |                  |                  |        |           |  |
|                                                              |             |                 |      |                   |                       |                  |                  |        |           |  |
| Demand Related Revenue Requirement (\$/kW/Mo Billing Demand) |             |                 |      |                   |                       |                  |                  |        |           |  |
|                                                              | Residential | Residential (S) | Farm | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered |  |
| Operating Expenses                                           |             |                 |      |                   |                       |                  |                  |        |           |  |
| Energy Costs                                                 | N/A         | N/A             | N/A  | 5.72              | 0.10                  | 4.08             | 2.35             | N/A    | 25.41     |  |
| ECAM Adjustment                                              | N/A         | N/A             | N/A  | (0.08)            | (0.00)                | (0.06)           | (0.01)           | N/A    | (0.37)    |  |
| Net Energy Costs                                             | 0.00        | 0.00            | 0.00 | 5.64              | 0.10                  | 4.02             | 2.34             | 0.00   | 25.04     |  |
| Distribution                                                 | N/A         | N/A             | N/A  | 0.64              | 1.29                  | 0.58             | 0.19             | N/A    | 2.06      |  |
| Transmission                                                 | N/A         | N/A             | N/A  | 0.31              | 0.00                  | 0.22             | 0.30             | N/A    | 1.37      |  |
| Transmission and Distribution -                              | N/A         | N/A             | N/A  | 0.34              | 0.70                  | 0.31             | 0.09             | N/A    | 1.11      |  |
| Transmission - OATT                                          | N/A         | N/A             | N/A  | 0.06              | 0.00                  | 0.04             | 0.06             | N/A    | 0.25      |  |
| General                                                      | N/A         | N/A             | N/A  | 1.07              | 1.02                  | 0.86             | 0.70             | N/A    | 4.14      |  |
| Total Operating Expenses                                     | N/A         | N/A             | N/A  | 8.05              | 3.11                  | 6.04             | 3.67             | N/A    | 33.97     |  |
| Amortization                                                 |             |                 |      |                   |                       |                  |                  |        |           |  |
| Amortization Other                                           | N/A         | N/A             | N/A  | 0.09              | 0.05                  | 0.07             | 0.06             | N/A    | 0.38      |  |
| Amortization Plant And Equipme                               | N/A         | N/A             | N/A  | 3.20              | 3.30                  | 2.60             | 2.08             | N/A    | 12.21     |  |
| Total Amortization                                           | N/A         | N/A             | N/A  | 3.30              | 3.35                  | 2.67             | 2.14             | N/A    | 12.60     |  |
| Total Operating Income                                       | N/A         | N/A             | N/A  | 11.35             | 6.46                  | 8.71             | 5.81             | N/A    | 46.56     |  |
| Financing Expenses                                           |             |                 |      |                   |                       |                  |                  |        |           |  |
| Long-Term Debt                                               | N/A         | N/A             | N/A  | 1.82              | 2.16                  | 1.51             | 1.07             | N/A    | 6.77      |  |
| Short-Term Debt                                              | N/A         | N/A             | N/A  | 0.09              | 0.11                  | 0.08             | 0.06             | N/A    | 0.35      |  |
| Interest Charged To Constructio                              | N/A         | N/A             | N/A  | (0.07)            | (0.08)                | (0.06)           | (0.04)           | N/A    | (0.25)    |  |
| Amortization of Financing Costs                              | N/A         | N/A             | N/A  | 0.00              | 0.00                  | 0.00             | 0.00             | N/A    | 0.00      |  |
| Total Financing Expenses                                     | N/A         | N/A             | N/A  | 1.85              | 2.20                  | 1.53             | 1.09             | N/A    | 6.88      |  |
| Earnings before Income Taxes                                 | N/A         | N/A             | N/A  | 2.85              | 3.38                  | 2.36             | 1.68             | N/A    | 10.59     |  |
| Income Taxes                                                 | N/A         | N/A             | N/A  | 0.90              | 1.07                  | 0.74             | 0.53             | N/A    | 3.34      |  |
| Net Earnings                                                 | N/A         | N/A             | N/A  | 1.95              | 2.32                  | 1.62             | 1.15             | N/A    | 7.26      |  |
| Gross Revenue Requirement                                    | N/A         | N/A             | N/A  | 16.04             | 12.04                 | 12.60            | 8.58             | N/A    | 64.04     |  |
| OATT Revenue                                                 | N/A         | N/A             | N/A  | (0.49)            | (0.00)                | (0.34)           | (0.48)           | N/A    | (2.15)    |  |
| Other Revenue                                                | N/A         | N/A             | N/A  | (0.13)            | (0.26)                | (0.12)           | (0.05)           | N/A    | (0.41)    |  |
| Net Revenue Requirement                                      | N/A         | N/A             | N/A  | 15.43             | 11.78                 | 12.14            | 8.05             | N/A    | 61.48     |  |
|                                                              |             |                 |      |                   |                       |                  |                  |        |           |  |



# MECL 2017 Cost Allocation Model

|                                             |             |                    |        |                      |                             |                     |                     |        |           |        |
|---------------------------------------------|-------------|--------------------|--------|----------------------|-----------------------------|---------------------|---------------------|--------|-----------|--------|
| Schedule 1.1                                |             |                    |        |                      |                             |                     |                     |        |           |        |
| Unit Cost Summary                           |             |                    |        |                      |                             |                     |                     |        |           |        |
|                                             |             |                    |        |                      |                             |                     |                     |        |           |        |
| Energy Related Revenue Requirement (\$/kWh) |             |                    |        |                      |                             |                     |                     |        |           |        |
|                                             | Residential | Residential<br>(S) | Farm   | General<br>Service 1 | General<br>Service 1<br>(S) | Small<br>Industrial | Large<br>Industrial | Lights | Unmetered | Total  |
| Operating Expenses                          |             |                    |        |                      |                             |                     |                     |        |           |        |
| Energy Costs                                | 8.04        | 8.11               | 8.04   | 8.01                 | 7.66                        | 8.03                | 7.74                | 8.07   | 8.07      | 7.99   |
| ECAM Adjustment                             | (0.17)      | (0.17)             | (0.17) | (0.17)               | (0.16)                      | (0.17)              | (0.16)              | (0.17) | (0.17)    | (0.17) |
| Net Energy Costs                            | 7.87        | 7.94               | 7.87   | 7.84                 | 7.49                        | 7.86                | 7.58                | 7.90   | 7.90      | 7.82   |
| Distribution                                | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Transmission                                | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Transmission and Distribution -             | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Transmission - OATT                         | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| General                                     | 0.04        | 0.04               | 0.04   | 0.04                 | 0.04                        | 0.04                | 0.04                | 0.04   | 0.04      | 0.04   |
| Total Operating Expenses                    | 7.91        | 7.98               | 7.91   | 7.89                 | 7.54                        | 7.91                | 7.62                | 7.95   | 7.95      | 7.87   |
| Amortization                                |             |                    |        |                      |                             |                     |                     |        |           |        |
| Amortization Other                          | 0.03        | 0.03               | 0.03   | 0.03                 | 0.03                        | 0.03                | 0.03                | 0.03   | 0.03      | 0.03   |
| Amortization Plant And Equipme              | 0.18        | 0.18               | 0.18   | 0.18                 | 0.17                        | 0.18                | 0.17                | 0.18   | 0.18      | 0.18   |
| Total Amortization                          | 0.21        | 0.21               | 0.21   | 0.21                 | 0.20                        | 0.21                | 0.20                | 0.21   | 0.21      | 0.21   |
| Total Operating Income                      | 8.12        | 8.19               | 8.12   | 8.10                 | 7.74                        | 8.12                | 7.82                | 8.16   | 8.16      | 8.08   |
| Financing Expenses                          |             |                    |        |                      |                             |                     |                     |        |           |        |
| Long-Term Debt                              | 0.07        | 0.07               | 0.07   | 0.07                 | 0.07                        | 0.07                | 0.07                | 0.07   | 0.07      | 0.07   |
| Short-Term Debt                             | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Interest Charged To Constructio             | (0.00)      | (0.00)             | (0.00) | (0.00)               | (0.00)                      | (0.00)              | (0.00)              | (0.00) | (0.00)    | (0.00) |
| Amortization of Financing Costs             | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Total Financing Expenses                    | 0.07        | 0.07               | 0.07   | 0.07                 | 0.07                        | 0.07                | 0.07                | 0.07   | 0.07      | 0.07   |
| Earnings before Income Taxes                | 0.11        | 0.11               | 0.11   | 0.11                 | 0.10                        | 0.11                | 0.10                | 0.11   | 0.11      | 0.11   |
| Income Taxes                                | 0.03        | 0.03               | 0.03   | 0.03                 | 0.03                        | 0.03                | 0.03                | 0.03   | 0.03      | 0.03   |
| Net Earnings                                | 0.07        | 0.08               | 0.07   | 0.07                 | 0.07                        | 0.07                | 0.07                | 0.07   | 0.07      | 0.07   |
| Gross Revenue Requirement                   | 8.41        | 8.48               | 8.41   | 8.39                 | 8.01                        | 8.41                | 8.10                | 8.45   | 8.45      | 8.36   |
| OATT Revenue                                | 0.00        | 0.00               | 0.00   | 0.00                 | 0.00                        | 0.00                | 0.00                | 0.00   | 0.00      | 0.00   |
| Other Revenue                               | (0.00)      | (0.00)             | (0.00) | (0.00)               | (0.00)                      | (0.00)              | (0.00)              | (0.00) | (0.00)    | (0.00) |
| Net Revenue Requirement                     | 8.41        | 8.48               | 8.41   | 8.38                 | 8.01                        | 8.41                | 8.10                | 8.45   | 8.45      | 8.36   |
|                                             |             |                    |        |                      |                             |                     |                     |        |           |        |

MECL 2017 Cost Allocation Model

|                                            |             |                 |        |                   |                       |                  |                  |        |           |          |
|--------------------------------------------|-------------|-----------------|--------|-------------------|-----------------------|------------------|------------------|--------|-----------|----------|
| Schedule 1.1                               |             |                 |        |                   |                       |                  |                  |        |           |          |
| Unit Cost Summary                          |             |                 |        |                   |                       |                  |                  |        |           |          |
| Site Related Revenue Requirement (\$/Bill) |             |                 |        |                   |                       |                  |                  |        |           |          |
|                                            | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total    |
| Operating Expenses                         |             |                 |        |                   |                       |                  |                  |        |           |          |
| Energy Costs                               | 0.13        | 0.23            | 0.13   | 0.14              | 0.28                  | 0.16             | 0.38             | 2.37   | 0.23      | 4.04     |
| ECAM Adjustment                            | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Net Energy Costs                           | 0.13        | 0.23            | 0.13   | 0.14              | 0.28                  | 0.16             | 0.38             | 2.37   | 0.23      | 4.04     |
| Distribution                               | 2.24        | 3.92            | 2.24   | 2.29              | 4.56                  | 3.08             | 6.03             | 43.31  | 3.59      | 71.25    |
| Transmission                               | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Transmission and Distribution -            | 0.87        | 1.53            | 0.87   | 0.87              | 1.74                  | 0.87             | 0.39             | 14.38  | 1.63      | 23.16    |
| Transmission - OATT                        | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| General                                    | 4.86        | 6.83            | 4.86   | 5.05              | 7.93                  | 5.39             | 39.67            | 42.97  | 29.19     | 146.74   |
| Total Operating Expenses                   | 8.10        | 12.51           | 8.10   | 8.34              | 14.50                 | 9.50             | 46.48            | 103.02 | 34.65     | 245.19   |
| Amortization                               |             |                 |        |                   |                       |                  |                  |        |           |          |
| Amortization Other                         | 0.10        | 0.17            | 0.10   | 0.10              | 0.20                  | 0.14             | 0.30             | 2.00   | 0.16      | 3.27     |
| Amortization Plant And Equipme             | 6.93        | 12.79           | 6.93   | 9.26              | 19.32                 | 13.27            | 80.82            | 181.37 | 11.05     | 341.74   |
| Total Amortization                         | 7.02        | 12.96           | 7.02   | 9.36              | 19.53                 | 13.41            | 81.12            | 183.37 | 11.21     | 345.00   |
| Total Operating Income                     | 15.12       | 25.47           | 15.12  | 17.70             | 34.03                 | 22.91            | 127.60           | 286.39 | 45.85     | 590.20   |
| Financing Expenses                         |             |                 |        |                   |                       |                  |                  |        |           |          |
| Long-Term Debt                             | 4.32        | 7.93            | 4.32   | 5.81              | 12.07                 | 8.09             | 50.69            | 100.31 | 7.05      | 200.58   |
| Short-Term Debt                            | 0.22        | 0.41            | 0.22   | 0.30              | 0.63                  | 0.42             | 2.64             | 5.22   | 0.37      | 10.43    |
| Interest Charged To Constructio            | (0.16)      | (0.30)          | (0.16) | (0.22)            | (0.45)                | (0.30)           | (1.89)           | (3.74) | (0.26)    | (7.48)   |
| Amortization of Financing Costs            | 0.00        | 0.01            | 0.00   | 0.00              | 0.01                  | 0.01             | 0.04             | 0.07   | 0.01      | 0.14     |
| Total Financing Expenses                   | 4.38        | 8.05            | 4.38   | 5.90              | 12.26                 | 8.21             | 51.47            | 101.86 | 7.16      | 203.68   |
| Earnings before Income Taxes               | 19.51       | 33.52           | 19.51  | 23.60             | 46.28                 | 31.12            | 179.07           | 388.25 | 53.01     | 793.87   |
| Income Taxes                               | 2.13        | 3.90            | 2.13   | 2.86              | 5.94                  | 3.98             | 24.96            | 49.39  | 3.47      | 98.76    |
| Net Earnings                               | 4.62        | 8.50            | 4.62   | 6.23              | 12.93                 | 8.67             | 54.31            | 107.48 | 7.56      | 214.92   |
| Gross Revenue Requirement                  | 26.26       | 45.92           | 26.26  | 32.69             | 65.16                 | 43.78            | 258.34           | 545.12 | 64.04     | 1,107.56 |
| OATT Revenue                               | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Other Revenue                              | (1.65)      | (1.75)          | (1.64) | (1.88)            | (2.08)                | (6.29)           | (10.77)          | (7.70) | (0.83)    | (34.59)  |
| Net Revenue Requirement                    | 24.61       | 44.17           | 24.62  | 30.82             | 63.08                 | 37.49            | 247.57           | 537.41 | 63.21     | 1,072.97 |

# MECL 2017 Cost Allocation Model

|                                        |             |                 |        |                   |                       |                  |                  |        |           |        |
|----------------------------------------|-------------|-----------------|--------|-------------------|-----------------------|------------------|------------------|--------|-----------|--------|
| Schedule 1.2                           |             |                 |        |                   |                       |                  |                  |        |           |        |
| Unit Cost by Function                  |             |                 |        |                   |                       |                  |                  |        |           |        |
|                                        |             |                 |        |                   |                       |                  |                  |        |           |        |
| Full Revenue Requirement (¢/kWh Sales) |             |                 |        |                   |                       |                  |                  |        |           |        |
|                                        | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total  |
| Generation                             | 1.85        | 0.87            | 1.84   | 1.22              | 0.46                  | 1.28             | 0.99             | 1.73   | 1.21      | 1.48   |
| Purchased Power                        | 9.54        | 8.38            | 9.54   | 8.73              | 7.45                  | 8.83             | 7.64             | 9.43   | 8.78      | 8.96   |
| Transmission                           | 1.39        | 0.40            | 1.39   | 0.76              | 0.00                  | 0.81             | 0.53             | 1.27   | 0.74      | 1.02   |
| Substations                            | 0.32        | 0.09            | 0.32   | 0.17              | 0.00                  | 0.19             | 0.02             | 0.30   | 0.17      | 0.22   |
| Primary Lines                          | 1.80        | 4.27            | 1.14   | 0.69              | 2.55                  | 0.78             | 0.10             | 8.10   | 1.35      | 1.22   |
| Transformers                           | 1.28        | 2.73            | 0.89   | 0.56              | 1.75                  | 0.68             | 0.09             | 4.92   | 0.89      | 0.89   |
| Secondary Lines                        | 0.63        | 1.48            | 0.39   | 0.24              | 0.88                  | 0.27             | 0.03             | 2.80   | 0.47      | 0.42   |
| Service Lines                          | 0.87        | 3.50            | 0.31   | 0.16              | 1.88                  | 0.07             | 0.00             | 4.39   | 0.59      | 0.53   |
| Meter Assets                           | 0.19        | 0.64            | 0.07   | 0.16              | 1.58                  | 0.03             | 0.01             | 0.00   | 0.00      | 0.16   |
| Meter Reading                          | 0.13        | 0.25            | 0.05   | 0.02              | 0.11                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.07   |
| Billing                                | 0.14        | 0.28            | 0.05   | 0.02              | 0.12                  | 0.00             | 0.00             | 0.06   | 1.88      | 0.08   |
| Remittance & Collection                | 0.10        | 0.20            | 0.04   | 0.02              | 0.08                  | 0.00             | 0.00             | 0.06   | 0.10      | 0.05   |
| Uncollectibles & Damage Claims         | 0.07        | 0.24            | 0.02   | 0.01              | 0.11                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.04   |
| Service Connections                    | (0.05)      | (0.14)          | (0.02) | (0.01)            | (0.06)                | (0.00)           | 0.00             | (0.00) | (0.00)    | (0.03) |
| Late Payments                          | (0.10)      | (0.08)          | (0.03) | (0.03)            | (0.05)                | (0.02)           | (0.00)           | (0.02) | (0.00)    | (0.05) |
| Lighting                               | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 13.33  | 0.00      | 0.06   |
| Total                                  | 18.17       | 23.11           | 16.00  | 12.75             | 16.86                 | 12.93            | 9.41             | 46.37  | 16.17     | 15.12  |
|                                        |             |                 |        |                   |                       |                  |                  |        |           |        |

# MECL 2017 Cost Allocation Model

|                                                              |             |                 |      |                   |                       |                  |                  |        |           |       |
|--------------------------------------------------------------|-------------|-----------------|------|-------------------|-----------------------|------------------|------------------|--------|-----------|-------|
| Schedule 1.2                                                 |             |                 |      |                   |                       |                  |                  |        |           |       |
| Unit Cost by Function                                        |             |                 |      |                   |                       |                  |                  |        |           |       |
|                                                              |             |                 |      |                   |                       |                  |                  |        |           |       |
| Demand Related Revenue Requirement (\$/kW/Mo Billing Demand) |             |                 |      |                   |                       |                  |                  |        |           |       |
|                                                              | Residential | Residential (S) | Farm | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total |
| Generation                                                   | 0.00        | 0.00            | 0.00 | 3.07              | 0.00                  | 2.17             | 3.02             | 0.00   | 13.57     | 7.96  |
| Purchased Power                                              | 0.00        | 0.00            | 0.00 | 3.82              | 0.00                  | 2.73             | 0.59             | 0.00   | 17.05     | 9.42  |
| Transmission                                                 | 0.00        | 0.00            | 0.00 | 3.12              | 0.00                  | 2.20             | 3.07             | 0.00   | 13.78     | 8.08  |
| Substations                                                  | 0.00        | 0.00            | 0.00 | 0.70              | 0.00                  | 0.51             | 0.13             | 0.00   | 3.21      | 1.77  |
| Primary Lines                                                | 0.00        | 0.00            | 0.00 | 2.12              | 5.29                  | 2.03             | 0.56             | 0.00   | 6.24      | 4.83  |
| Transformers                                                 | 0.00        | 0.00            | 0.00 | 1.87              | 4.65                  | 1.79             | 0.49             | 0.00   | 5.48      | 4.25  |
| Secondary Lines                                              | 0.00        | 0.00            | 0.00 | 0.74              | 1.83                  | 0.70             | 0.19             | 0.00   | 2.16      | 1.67  |
| Service Lines                                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Meter Assets                                                 | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Meter Reading                                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Billing                                                      | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Remittance & Collection                                      | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Uncollectibles & Damage Claims                               | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Service Connections                                          | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Late Payments                                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Lighting                                                     | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Total                                                        | 0.00        | 0.00            | 0.00 | 15.43             | 11.78                 | 12.14            | 8.05             | 0.00   | 61.48     | 37.99 |
|                                                              |             |                 |      |                   |                       |                  |                  |        |           |       |

# MECL 2017 Cost Allocation Model

|                                             |             |                 |      |                   |                       |                  |                  |        |           |       |
|---------------------------------------------|-------------|-----------------|------|-------------------|-----------------------|------------------|------------------|--------|-----------|-------|
| Schedule 1.2                                |             |                 |      |                   |                       |                  |                  |        |           |       |
| Unit Cost by Function                       |             |                 |      |                   |                       |                  |                  |        |           |       |
|                                             |             |                 |      |                   |                       |                  |                  |        |           |       |
| Energy Related Revenue Requirement (\$/kWh) |             |                 |      |                   |                       |                  |                  |        |           |       |
|                                             | Residential | Residential (S) | Farm | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total |
| Generation                                  | 0.48        | 0.48            | 0.48 | 0.48              | 0.45                  | 0.48             | 0.46             | 0.48   | 0.48      | 0.47  |
| Purchased Power                             | 7.82        | 7.89            | 7.82 | 7.80              | 7.45                  | 7.82             | 7.53             | 7.86   | 7.86      | 7.78  |
| Transmission                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Substations                                 | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Primary Lines                               | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Transformers                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Secondary Lines                             | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Service Lines                               | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Meter Assets                                | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Meter Reading                               | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Billing                                     | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Remittance & Collection                     | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Uncollectibles & Damage Claims              | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Service Connections                         | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Late Payments                               | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Lighting                                    | 0.00        | 0.00            | 0.00 | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00  |
| Total                                       | 8.30        | 8.37            | 8.30 | 8.27              | 7.91                  | 8.30             | 7.99             | 8.34   | 8.34      | 8.25  |
|                                             |             |                 |      |                   |                       |                  |                  |        |           |       |

# MECL 2017 Cost Allocation Model

|                                            |             |                 |        |                   |                       |                  |                  |        |           |          |
|--------------------------------------------|-------------|-----------------|--------|-------------------|-----------------------|------------------|------------------|--------|-----------|----------|
| Schedule 1.2                               |             |                 |        |                   |                       |                  |                  |        |           |          |
| Unit Cost by Function                      |             |                 |        |                   |                       |                  |                  |        |           |          |
|                                            |             |                 |        |                   |                       |                  |                  |        |           |          |
| Site Related Revenue Requirement (\$/Bill) |             |                 |        |                   |                       |                  |                  |        |           |          |
|                                            | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total    |
| Generation                                 | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Purchased Power                            | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Transmission                               | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Substations                                | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 0.00   | 0.00      | 0.00     |
| Primary Lines                              | 7.57        | 13.25           | 7.57   | 7.57              | 15.05                 | 7.57             | 6.31             | 124.72 | 14.15     | 203.76   |
| Transformers                               | 4.43        | 7.76            | 4.43   | 4.43              | 8.82                  | 4.43             | 0.00             | 73.07  | 8.29      | 115.68   |
| Secondary Lines                            | 2.62        | 4.59            | 2.62   | 2.62              | 5.21                  | 2.62             | 0.00             | 43.20  | 4.90      | 68.40    |
| Service Lines                              | 6.40        | 13.28           | 6.40   | 7.09              | 16.93                 | 18.70            | 64.55            | 73.08  | 8.29      | 214.74   |
| Meter Assets                               | 1.39        | 2.43            | 1.39   | 7.16              | 14.24                 | 7.16             | 154.28           | 0.00   | 0.00      | 188.05   |
| Meter Reading                              | 0.95        | 0.95            | 0.95   | 0.95              | 0.95                  | 0.95             | 4.77             | 0.00   | 0.00      | 10.48    |
| Billing                                    | 1.05        | 1.05            | 1.05   | 1.05              | 1.05                  | 1.05             | 26.24            | 1.05   | 26.24     | 59.82    |
| Remittance & Collection                    | 0.76        | 0.76            | 0.76   | 0.76              | 0.76                  | 0.76             | 0.76             | 1.05   | 1.42      | 7.80     |
| Uncollectibles & Damage Claims             | 0.52        | 0.91            | 0.52   | 0.52              | 1.03                  | 0.00             | 0.00             | 0.00   | 0.00      | 3.50     |
| Service Connections                        | (0.39)      | (0.52)          | (0.39) | (0.24)            | (0.54)                | (0.07)           | 0.00             | (0.02) | (0.03)    | (2.19)   |
| Late Payments                              | (0.71)      | (0.30)          | (0.70) | (1.10)            | (0.44)                | (5.70)           | (9.33)           | (0.35) | (0.06)    | (18.68)  |
| Lighting                                   | 0.00        | 0.00            | 0.00   | 0.00              | 0.00                  | 0.00             | 0.00             | 221.62 | 0.00      | 221.62   |
| Total                                      | 24.61       | 44.17           | 24.62  | 30.82             | 63.08                 | 37.49            | 247.57           | 537.41 | 63.21     | 1,072.97 |

MECL 2017 Cost Allocation Model

|                                        |             |                    |       |                      |                             |                     |                     |        |           |         |
|----------------------------------------|-------------|--------------------|-------|----------------------|-----------------------------|---------------------|---------------------|--------|-----------|---------|
| Schedule 1.3                           |             |                    |       |                      |                             |                     |                     |        |           |         |
| Allocated Revenue Requirement (\$,000) |             |                    |       |                      |                             |                     |                     |        |           |         |
| Full Revenue Requirement               |             |                    |       |                      |                             |                     |                     |        |           |         |
|                                        | Residential | Residential<br>(S) | Farm  | General<br>Service 1 | General<br>Service 1<br>(S) | Small<br>Industrial | Large<br>Industrial | Lights | Unmetered | Total   |
| Operating Expenses                     |             |                    |       |                      |                             |                     |                     |        |           |         |
| Energy Costs                           | 53,653      | 1,740              | 5,549 | 35,354               | 715                         | 8,414               | 12,229              | 583    | 228       | 118,465 |
| ECAM Adjustment                        | (1,050)     | (36)               | (109) | (714)                | (15)                        | (170)               | (250)               | (11)   | (5)       | (2,359) |
| Net Energy Costs                       | 52,603      | 1,704              | 5,440 | 34,640               | 700                         | 8,245               | 11,979              | 571    | 224       | 116,106 |
| Distribution                           | 2,777       | 242                | 184   | 788                  | 67                          | 202                 | 52                  | 155    | 9         | 4,476   |
| Transmission                           | 697         | 8                  | 72    | 284                  | 0                           | 71                  | 80                  | 7      | 2         | 1,220   |
| Transmission and Distribution -        | 1,262       | 100                | 91    | 389                  | 29                          | 105                 | 22                  | 54     | 4         | 2,056   |
| Transmission - OATT                    | 129         | 1                  | 13    | 52                   | 0                           | 13                  | 15                  | 1      | 0         | 225     |
| General                                | 5,802       | 405                | 377   | 1,572                | 101                         | 336                 | 244                 | 166    | 57        | 9,060   |
| Total Operating Expenses               | 63,270      | 2,461              | 6,177 | 37,724               | 896                         | 8,973               | 12,392              | 954    | 296       | 133,143 |
| Amortization                           |             |                    |       |                      |                             |                     |                     |        |           |         |
| Amortization Other                     | 437         | 19                 | 41    | 219                  | 6                           | 53                  | 64                  | 10     | 2         | 851     |
| Amortization Plant And Equipme         | 12,342      | 834                | 959   | 4,400                | 266                         | 1,051               | 807                 | 675    | 39        | 21,373  |
| Total Amortization                     | 12,780      | 853                | 999   | 4,619                | 271                         | 1,104               | 871                 | 685    | 41        | 22,224  |
| Total Operating Income                 | 76,049      | 3,314              | 7,177 | 42,343               | 1,168                       | 10,077              | 13,263              | 1,639  | 337       | 155,367 |
| Financing Expenses                     |             |                    |       |                      |                             |                     |                     |        |           |         |
| Long-Term Debt                         | 7,071       | 507                | 533   | 2,430                | 164                         | 581                 | 385                 | 372    | 23        | 12,065  |
| Short-Term Debt                        | 368         | 26                 | 28    | 126                  | 9                           | 30                  | 20                  | 19     | 1         | 627     |
| Interest Charged To Constructio        | (264)       | (19)               | (20)  | (91)                 | (6)                         | (22)                | (14)                | (14)   | (1)       | (450)   |
| Amortization of Financing Costs        | 5           | 0                  | 0     | 2                    | 0                           | 0                   | 0                   | 0      | 0         | 9       |
| Total Financing Expenses               | 7,180       | 515                | 541   | 2,467                | 166                         | 590                 | 391                 | 377    | 23        | 12,252  |
| Earnings before Income Taxes           | 11,059      | 794                | 834   | 3,800                | 256                         | 908                 | 602                 | 581    | 35        | 18,869  |
| Income Taxes                           | 3,482       | 250                | 263   | 1,196                | 81                          | 286                 | 190                 | 183    | 11        | 5,941   |
| Net Earnings                           | 7,577       | 544                | 571   | 2,603                | 175                         | 622                 | 412                 | 398    | 24        | 12,928  |
| Gross Revenue Requirement              | 94,288      | 4,623              | 8,552 | 48,610               | 1,590                       | 11,575              | 14,256              | 2,598  | 395       | 186,488 |
| OATT Revenue                           | (1,093)     | (12)               | (113) | (445)                | (0)                         | (112)               | (125)               | (11)   | (3)       | (1,914) |
| Other Revenue                          | (1,389)     | (98)               | (67)  | (285)                | (26)                        | (61)                | (16)                | (28)   | (2)       | (1,973) |
| Net Revenue Requirement                | 91,806      | 4,512              | 8,372 | 47,880               | 1,565                       | 11,402              | 14,115              | 2,559  | 391       | 182,601 |

MECL 2017 Cost Allocation Model

|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |
|----------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 1.3                           |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocated Revenue Requirement (\$,000) |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |
| Demand Related Revenue Requirement     |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                        | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| Operating Expenses                     |             |                 |       |                   |                       |                  |                  |        |           |         |
| Energy Costs                           | 12,961      | 145             | 1,340 | 5,240             | 1                     | 1,330            | 615              | 129    | 33        | 21,795  |
| ECAM Adjustment                        | (189)       | (2)             | (20)  | (76)              | (0)                   | (19)             | (3)              | (2)    | (0)       | (312)   |
| Net Energy Costs                       | 12,772      | 143             | 1,321 | 5,163             | 1                     | 1,311            | 612              | 127    | 33        | 21,483  |
| Distribution                           | 1,227       | 40              | 127   | 582               | 20                    | 190              | 48               | 11     | 3         | 2,248   |
| Transmission                           | 697         | 8               | 72    | 284               | 0                     | 71               | 80               | 7      | 2         | 1,220   |
| Transmission and Distribution -        | 662         | 22              | 69    | 314               | 11                    | 102              | 22               | 6      | 1         | 1,209   |
| Transmission - OATT                    | 129         | 1               | 13    | 52                | 0                     | 13               | 15               | 1      | 0         | 225     |
| General                                | 2,253       | 46              | 233   | 982               | 16                    | 281              | 182              | 21     | 5         | 4,020   |
| Total Operating Expenses               | 17,739      | 260             | 1,835 | 7,378             | 48                    | 1,968            | 959              | 173    | 44        | 30,405  |
| Amortization                           |             |                 |       |                   |                       |                  |                  |        |           |         |
| Amortization Other                     | 203         | 3               | 21    | 86                | 1                     | 23               | 16               | 2      | 0         | 356     |
| Amortization Plant And Equipme         | 6,680       | 141             | 691   | 2,934             | 51                    | 847              | 544              | 63     | 16        | 11,967  |
| Total Amortization                     | 6,883       | 145             | 712   | 3,019             | 52                    | 870              | 560              | 65     | 16        | 12,323  |
| Total Operating Income                 | 24,623      | 405             | 2,547 | 10,398            | 100                   | 2,839            | 1,519            | 238    | 61        | 42,728  |
| Financing Expenses                     |             |                 |       |                   |                       |                  |                  |        |           |         |
| Long-Term Debt                         | 3,752       | 86              | 388   | 1,668             | 33                    | 491              | 281              | 35     | 9         | 6,743   |
| Short-Term Debt                        | 195         | 4               | 20    | 87                | 2                     | 26               | 15               | 2      | 0         | 351     |
| Interest Charged To Constructio        | (140)       | (3)             | (14)  | (62)              | (1)                   | (18)             | (10)             | (1)    | (0)       | (251)   |
| Amortization of Financing Costs        | 3           | 0               | 0     | 1                 | 0                     | 0                | 0                | 0      | 0         | 5       |
| Total Financing Expenses               | 3,810       | 87              | 394   | 1,693             | 34                    | 499              | 285              | 36     | 9         | 6,847   |
| Earnings before Income Taxes           | 5,868       | 134             | 607   | 2,608             | 52                    | 768              | 439              | 55     | 14        | 10,546  |
| Income Taxes                           | 1,848       | 42              | 191   | 821               | 16                    | 242              | 138              | 17     | 4         | 3,320   |
| Net Earnings                           | 4,021       | 92              | 416   | 1,787             | 36                    | 526              | 301              | 37     | 9         | 7,225   |
| Gross Revenue Requirement              | 34,301      | 626             | 3,549 | 14,699            | 186                   | 4,106            | 2,242            | 328    | 83        | 60,122  |
| OATT Revenue                           | (1,093)     | (12)            | (113) | (445)             | (0)                   | (112)            | (125)            | (11)   | (3)       | (1,914) |
| Other Revenue                          | (245)       | (8)             | (25)  | (117)             | (4)                   | (38)             | (13)             | (2)    | (1)       | (452)   |
| Net Revenue Requirement                | 32,963      | 606             | 3,410 | 14,137            | 182                   | 3,956            | 2,105            | 315    | 80        | 57,755  |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |



MECL 2017 Cost Allocation Model

|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |
|----------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 1.3                           |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocated Revenue Requirement (\$,000) |             |                 |       |                   |                       |                  |                  |        |           |         |
| Energy Related Revenue Requirement     |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                        | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| Operating Expenses                     |             |                 |       |                   |                       |                  |                  |        |           |         |
| Energy Costs                           | 40,604      | 1,583           | 4,206 | 30,103            | 711                   | 7,084            | 11,614           | 446    | 195       | 96,543  |
| ECAM Adjustment                        | (861)       | (34)            | (89)  | (638)             | (15)                  | (150)            | (246)            | (9)    | (4)       | (2,047) |
| Net Energy Costs                       | 39,743      | 1,549           | 4,116 | 29,464            | 695                   | 6,934            | 11,367           | 436    | 191       | 94,497  |
| Distribution                           | 11          | 0               | 1     | 8                 | 0                     | 2                | 3                | 0      | 0         | 26      |
| Transmission                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0       |
| Transmission and Distribution -        | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0       |
| Transmission - OATT                    | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0       |
| General                                | 207         | 8               | 21    | 154               | 4                     | 36               | 59               | 2      | 1         | 493     |
| Total Operating Expenses               | 39,961      | 1,558           | 4,139 | 29,626            | 699                   | 6,972            | 11,430           | 439    | 192       | 95,015  |
| Amortization                           |             |                 |       |                   |                       |                  |                  |        |           |         |
| Amortization Other                     | 168         | 7               | 17    | 124               | 3                     | 29               | 48               | 2      | 1         | 399     |
| Amortization Plant And Equipme         | 900         | 35              | 93    | 668               | 16                    | 157              | 258              | 10     | 4         | 2,141   |
| Total Amortization                     | 1,068       | 42              | 111   | 792               | 19                    | 186              | 306              | 12     | 5         | 2,540   |
| Total Operating Income                 | 41,029      | 1,599           | 4,250 | 30,418            | 718                   | 7,158            | 11,735           | 450    | 197       | 97,555  |
| Financing Expenses                     |             |                 |       |                   |                       |                  |                  |        |           |         |
| Long-Term Debt                         | 352         | 14              | 36    | 261               | 6                     | 61               | 101              | 4      | 2         | 836     |
| Short-Term Debt                        | 18          | 1               | 2     | 14                | 0                     | 3                | 5                | 0      | 0         | 43      |
| Interest Charged To Constructio        | (13)        | (1)             | (1)   | (10)              | (0)                   | (2)              | (4)              | (0)    | (0)       | (31)    |
| Amortization of Financing Costs        | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 1       |
| Total Financing Expenses               | 357         | 14              | 37    | 265               | 6                     | 62               | 102              | 4      | 2         | 849     |
| Earnings before Income Taxes           | 550         | 21              | 57    | 408               | 10                    | 96               | 157              | 6      | 3         | 1,308   |
| Income Taxes                           | 173         | 7               | 18    | 128               | 3                     | 30               | 50               | 2      | 1         | 412     |
| Net Earnings                           | 377         | 15              | 39    | 279               | 7                     | 66               | 108              | 4      | 2         | 896     |
| Gross Revenue Requirement              | 41,937      | 1,635           | 4,344 | 31,091            | 734                   | 7,316            | 11,995           | 460    | 201       | 99,712  |
| OATT Revenue                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0       |
| Other Revenue                          | (9)         | (0)             | (1)   | (6)               | (0)                   | (2)              | (2)              | (0)    | (0)       | (21)    |
| Net Revenue Requirement                | 41,928      | 1,634           | 4,343 | 31,084            | 734                   | 7,315            | 11,992           | 460    | 201       | 99,691  |

MECL 2017 Cost Allocation Model

|                                        |             |                    |      |                      |                             |                     |                     |        |           |         |
|----------------------------------------|-------------|--------------------|------|----------------------|-----------------------------|---------------------|---------------------|--------|-----------|---------|
| Schedule 1.3                           |             |                    |      |                      |                             |                     |                     |        |           |         |
| Allocated Revenue Requirement (\$,000) |             |                    |      |                      |                             |                     |                     |        |           |         |
| Site Related Revenue Requirement       |             |                    |      |                      |                             |                     |                     |        |           |         |
|                                        | Residential | Residential<br>(S) | Farm | General<br>Service 1 | General<br>Service 1<br>(S) | Small<br>Industrial | Large<br>Industrial | Lights | Unmetered | Total   |
| Operating Expenses                     |             |                    |      |                      |                             |                     |                     |        |           |         |
| Energy Costs                           | 88          | 12                 | 3    | 12                   | 3                           | 1                   | 0                   | 8      | 0         | 127     |
| ECAM Adjustment                        | 0           | 0                  | 0    | 0                    | 0                           | 0                   | 0                   | 0      | 0         | 0       |
| Net Energy Costs                       | 88          | 12                 | 3    | 12                   | 3                           | 1                   | 0                   | 8      | 0         | 127     |
| Distribution                           | 1,539       | 202                | 56   | 197                  | 47                          | 11                  | 0                   | 144    | 6         | 2,202   |
| Transmission                           | 0           | 0                  | 0    | 0                    | 0                           | 0                   | 0                   | 0      | 0         | 0       |
| Transmission and Distribution -        | 600         | 79                 | 22   | 75                   | 18                          | 3                   | 0                   | 48     | 3         | 847     |
| Transmission - OATT                    | 0           | 0                  | 0    | 0                    | 0                           | 0                   | 0                   | 0      | 0         | 0       |
| General                                | 3,342       | 351                | 122  | 436                  | 81                          | 19                  | 3                   | 143    | 50        | 4,547   |
| Total Operating Expenses               | 5,569       | 643                | 204  | 720                  | 149                         | 33                  | 3                   | 342    | 60        | 7,723   |
| Amortization                           |             |                    |      |                      |                             |                     |                     |        |           |         |
| Amortization Other                     | 67          | 9                  | 2    | 9                    | 2                           | 0                   | 0                   | 7      | 0         | 96      |
| Amortization Plant And Equipme         | 4,762       | 658                | 174  | 799                  | 199                         | 46                  | 6                   | 602    | 19        | 7,264   |
| Total Amortization                     | 4,828       | 667                | 176  | 808                  | 201                         | 47                  | 6                   | 608    | 19        | 7,360   |
| Total Operating Income                 | 10,397      | 1,310              | 380  | 1,528                | 350                         | 80                  | 9                   | 950    | 79        | 15,084  |
| Financing Expenses                     |             |                    |      |                      |                             |                     |                     |        |           |         |
| Long-Term Debt                         | 2,967       | 408                | 108  | 501                  | 124                         | 28                  | 4                   | 333    | 12        | 4,486   |
| Short-Term Debt                        | 154         | 21                 | 6    | 26                   | 6                           | 1                   | 0                   | 17     | 1         | 233     |
| Interest Charged To Constructio        | (111)       | (15)               | (4)  | (19)                 | (5)                         | (1)                 | (0)                 | (12)   | (0)       | (167)   |
| Amortization of Financing Costs        | 2           | 0                  | 0    | 0                    | 0                           | 0                   | 0                   | 0      | 0         | 3       |
| Total Financing Expenses               | 3,013       | 414                | 110  | 509                  | 126                         | 29                  | 4                   | 338    | 12        | 4,555   |
| Earnings before Income Taxes           | 4,640       | 638                | 170  | 784                  | 194                         | 44                  | 6                   | 521    | 19        | 7,015   |
| Income Taxes                           | 1,461       | 201                | 53   | 247                  | 61                          | 14                  | 2                   | 164    | 6         | 2,209   |
| Net Earnings                           | 3,179       | 437                | 116  | 537                  | 133                         | 30                  | 4                   | 357    | 13        | 4,807   |
| Gross Revenue Requirement              | 18,050      | 2,362              | 660  | 2,821                | 670                         | 153                 | 19                  | 1,809  | 111       | 26,654  |
| OATT Revenue                           | 0           | 0                  | 0    | 0                    | 0                           | 0                   | 0                   | 0      | 0         | 0       |
| Other Revenue                          | (1,135)     | (90)               | (41) | (162)                | (21)                        | (22)                | (1)                 | (26)   | (1)       | (1,500) |
| Net Revenue Requirement                | 16,915      | 2,272              | 619  | 2,659                | 649                         | 131                 | 18                  | 1,783  | 109       | 25,155  |

# MECL 2017 Cost Allocation Model

|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |
|----------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 1.4                           |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocated Revenue Requirement (\$,000) |             |                 |       |                   |                       |                  |                  |        |           |         |
| Full Revenue Requirement               |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                        | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| Generation                             | 9,323       | 171             | 965   | 4,601             | 42                    | 1,128            | 1,479            | 95     | 29        | 17,833  |
| Purchased Power                        | 48,204      | 1,637           | 4,991 | 32,793            | 692                   | 7,783            | 11,456           | 520    | 212       | 108,288 |
| Transmission                           | 7,020       | 78              | 726   | 2,858             | 0                     | 718              | 802              | 70     | 18        | 12,290  |
| Substations                            | 1,634       | 18              | 169   | 642               | 0                     | 167              | 34               | 16     | 4         | 2,684   |
| Primary Lines                          | 9,118       | 833             | 596   | 2,598             | 237                   | 690              | 147              | 447    | 33        | 14,697  |
| Transformers                           | 6,488       | 533             | 468   | 2,091             | 163                   | 598              | 129              | 271    | 21        | 10,763  |
| Secondary Lines                        | 3,158       | 289             | 206   | 900               | 82                    | 239              | 51               | 155    | 11        | 5,091   |
| Service Lines                          | 4,400       | 683             | 161   | 612               | 174                   | 65               | 5                | 243    | 14        | 6,357   |
| Meter Assets                           | 955         | 125             | 35    | 618               | 146                   | 25               | 11               | 0      | 0         | 1,915   |
| Meter Reading                          | 655         | 49              | 24    | 82                | 10                    | 3                | 0                | 0      | 0         | 824     |
| Billing                                | 721         | 54              | 26    | 91                | 11                    | 4                | 2                | 3      | 45        | 957     |
| Remittance & Collection                | 523         | 39              | 19    | 66                | 8                     | 3                | 0                | 3      | 2         | 664     |
| Uncollectibles & Damage Claims         | 357         | 47              | 13    | 45                | 11                    | 0                | 0                | 0      | 0         | 472     |
| Service Connections                    | (266)       | (27)            | (10)  | (20)              | (6)                   | (0)              | 0                | (0)    | (0)       | (329)   |
| Late Payments                          | (485)       | (15)            | (18)  | (95)              | (5)                   | (20)             | (1)              | (1)    | (0)       | (639)   |
| Lighting                               | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 735    | 0         | 735     |
| Total                                  | 91,806      | 4,512           | 8,372 | 47,880            | 1,565                 | 11,402           | 14,115           | 2,559  | 391       | 182,601 |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |         |

# MECL 2017 Cost Allocation Model

|                                        |             |                 |       |                   |                       |                  |                  |        |           |        |
|----------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|--------|
| Schedule 1.4                           |             |                 |       |                   |                       |                  |                  |        |           |        |
| Allocated Revenue Requirement (\$,000) |             |                 |       |                   |                       |                  |                  |        |           |        |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |        |
| Demand Related Revenue Requirement     |             |                 |       |                   |                       |                  |                  |        |           |        |
|                                        | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total  |
| Generation                             | 6,913       | 77              | 715   | 2,814             | 0                     | 707              | 790              | 69     | 18        | 12,102 |
| Purchased Power                        | 8,687       | 96              | 898   | 3,496             | 0                     | 888              | 153              | 87     | 22        | 14,327 |
| Transmission                           | 7,020       | 78              | 726   | 2,858             | 0                     | 718              | 802              | 70     | 18        | 12,290 |
| Substations                            | 1,634       | 18              | 169   | 642               | 0                     | 167              | 34               | 16     | 4         | 2,684  |
| Primary Lines                          | 3,914       | 152             | 405   | 1,945             | 82                    | 663              | 147              | 33     | 8         | 7,348  |
| Transformers                           | 3,440       | 133             | 356   | 1,709             | 72                    | 583              | 129              | 29     | 7         | 6,458  |
| Secondary Lines                        | 1,356       | 53              | 140   | 674               | 28                    | 230              | 51               | 11     | 3         | 2,545  |
| Service Lines                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Meter Assets                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Meter Reading                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Billing                                | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Remittance & Collection                | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Uncollectibles & Damage Claims         | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Service Connections                    | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Late Payments                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Lighting                               | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Total                                  | 32,963      | 606             | 3,410 | 14,137            | 182                   | 3,956            | 2,105            | 315    | 80        | 57,755 |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |        |

# MECL 2017 Cost Allocation Model

|                                        |             |                 |       |                   |                       |                  |                  |        |           |        |
|----------------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|--------|
| Schedule 1.4                           |             |                 |       |                   |                       |                  |                  |        |           |        |
| Allocated Revenue Requirement (\$,000) |             |                 |       |                   |                       |                  |                  |        |           |        |
| Energy Related Revenue Requirement     |             |                 |       |                   |                       |                  |                  |        |           |        |
|                                        | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total  |
| Generation                             | 2,410       | 94              | 250   | 1,787             | 42                    | 420              | 689              | 26     | 12        | 5,731  |
| Purchased Power                        | 39,518      | 1,540           | 4,093 | 29,297            | 691                   | 6,894            | 11,303           | 434    | 190       | 93,960 |
| Transmission                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Substations                            | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Primary Lines                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Transformers                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Secondary Lines                        | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Service Lines                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Meter Assets                           | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Meter Reading                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Billing                                | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Remittance & Collection                | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Uncollectibles & Damage Claims         | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Service Connections                    | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Late Payments                          | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Lighting                               | 0           | 0               | 0     | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Total                                  | 41,928      | 1,634           | 4,343 | 31,084            | 734                   | 7,315            | 11,992           | 460    | 201       | 99,691 |
|                                        |             |                 |       |                   |                       |                  |                  |        |           |        |

# MECL 2017 Cost Allocation Model

|                                        |             |                 |      |                   |                       |                  |                  |        |           |        |
|----------------------------------------|-------------|-----------------|------|-------------------|-----------------------|------------------|------------------|--------|-----------|--------|
| Schedule 1.4                           |             |                 |      |                   |                       |                  |                  |        |           |        |
| Allocated Revenue Requirement (\$,000) |             |                 |      |                   |                       |                  |                  |        |           |        |
| Site Related Revenue Requirement       |             |                 |      |                   |                       |                  |                  |        |           |        |
|                                        | Residential | Residential (S) | Farm | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total  |
| Generation                             | 0           | 0               | 0    | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Purchased Power                        | 0           | 0               | 0    | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Transmission                           | 0           | 0               | 0    | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Substations                            | 0           | 0               | 0    | 0                 | 0                     | 0                | 0                | 0      | 0         | 0      |
| Primary Lines                          | 5,204       | 682             | 190  | 653               | 155                   | 26               | 0                | 414    | 24        | 7,348  |
| Transformers                           | 3,049       | 399             | 111  | 383               | 91                    | 16               | 0                | 242    | 14        | 4,305  |
| Secondary Lines                        | 1,802       | 236             | 66   | 226               | 54                    | 9                | 0                | 143    | 8         | 2,545  |
| Service Lines                          | 4,400       | 683             | 161  | 612               | 174                   | 65               | 5                | 243    | 14        | 6,357  |
| Meter Assets                           | 955         | 125             | 35   | 618               | 146                   | 25               | 11               | 0      | 0         | 1,915  |
| Meter Reading                          | 655         | 49              | 24   | 82                | 10                    | 3                | 0                | 0      | 0         | 824    |
| Billing                                | 721         | 54              | 26   | 91                | 11                    | 4                | 2                | 3      | 45        | 957    |
| Remittance & Collection                | 523         | 39              | 19   | 66                | 8                     | 3                | 0                | 3      | 2         | 664    |
| Uncollectibles & Damage Claims         | 357         | 47              | 13   | 45                | 11                    | 0                | 0                | 0      | 0         | 472    |
| Service Connections                    | (266)       | (27)            | (10) | (20)              | (6)                   | (0)              | 0                | (0)    | (0)       | (329)  |
| Late Payments                          | (485)       | (15)            | (18) | (95)              | (5)                   | (20)             | (1)              | (1)    | (0)       | (639)  |
| Lighting                               | 0           | 0               | 0    | 0                 | 0                     | 0                | 0                | 735    | 0         | 735    |
| Total                                  | 16,915      | 2,272           | 619  | 2,659             | 649                   | 131              | 18               | 1,783  | 109       | 25,155 |

# MECL 2017 Cost Allocation Model

|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
|--------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|---------|-----------|---------|
| Schedule 2.0                   |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators by Function         |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators                     |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights  | Unmetered | Total   |
| Generation                     | 52.3 %      | 1.0 %           | 5.4 % | 25.8 %            | 0.2 %                 | 6.3 %            | 8.3 %            | 0.5 %   | 0.2 %     | 100.0 % |
| Purchased Power                | 44.5 %      | 1.5 %           | 4.6 % | 30.3 %            | 0.6 %                 | 7.2 %            | 10.6 %           | 0.5 %   | 0.2 %     | 100.0 % |
| Transmission                   | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %   | 0.1 %     | 100.0 % |
| Substations                    | 60.9 %      | 0.7 %           | 6.3 % | 23.9 %            | 0.0 %                 | 6.2 %            | 1.2 %            | 0.6 %   | 0.2 %     | 100.0 % |
| Primary Lines                  | 62.0 %      | 5.7 %           | 4.1 % | 17.7 %            | 1.6 %                 | 4.7 %            | 1.0 %            | 3.0 %   | 0.2 %     | 100.0 % |
| Transformers                   | 60.3 %      | 4.9 %           | 4.3 % | 19.4 %            | 1.5 %                 | 5.6 %            | 1.2 %            | 2.5 %   | 0.2 %     | 100.0 % |
| Secondary Lines                | 62.0 %      | 5.7 %           | 4.1 % | 17.7 %            | 1.6 %                 | 4.7 %            | 1.0 %            | 3.0 %   | 0.2 %     | 100.0 % |
| Service Lines                  | 69.2 %      | 10.7 %          | 2.5 % | 9.6 %             | 2.7 %                 | 1.0 %            | 0.1 %            | 3.8 %   | 0.2 %     | 100.0 % |
| Meter Assets                   | 49.9 %      | 6.5 %           | 1.8 % | 32.3 %            | 7.6 %                 | 1.3 %            | 0.6 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Meter Reading                  | 79.5 %      | 6.0 %           | 2.9 % | 10.0 %            | 1.2 %                 | 0.4 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Billing                        | 75.3 %      | 5.6 %           | 2.8 % | 9.5 %             | 1.1 %                 | 0.4 %            | 0.2 %            | 0.4 %   | 4.7 %     | 100.0 % |
| Remittance & Collection        | 78.8 %      | 5.9 %           | 2.9 % | 9.9 %             | 1.2 %                 | 0.4 %            | 0.0 %            | 0.5 %   | 0.4 %     | 100.0 % |
| Uncollectibles & Damage Claims | 75.6 %      | 9.9 %           | 2.8 % | 9.5 %             | 2.2 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Service Connections            | 80.9 %      | 8.2 %           | 2.9 % | 6.2 %             | 1.7 %                 | 0.1 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Late Payments                  | 75.8 %      | 2.4 %           | 2.7 % | 14.9 %            | 0.7 %                 | 3.1 %            | 0.1 %            | 0.2 %   | 0.0 %     | 100.0 % |
| Lighting                       | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 100.0 % | 0.0 %     | 100.0 % |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |

# MECL 2017 Cost Allocation Model

|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
|---------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 2.0                    |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocators by Function          |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
| Demand Allocators, Isolated (%) |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| Generation                      | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %  | 0.1 %     | 100.0 % |
| Purchased Power                 | 60.6 %      | 0.7 %           | 6.3 % | 24.4 %            | 0.0 %                 | 6.2 %            | 1.1 %            | 0.6 %  | 0.2 %     | 100.0 % |
| Transmission                    | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %  | 0.1 %     | 100.0 % |
| Substations                     | 60.9 %      | 0.7 %           | 6.3 % | 23.9 %            | 0.0 %                 | 6.2 %            | 1.2 %            | 0.6 %  | 0.2 %     | 100.0 % |
| Primary Lines                   | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Transformers                    | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Secondary Lines                 | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Service Lines                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Assets                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Reading                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Billing                         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Remittance & Collection         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Uncollectibles & Damage Claims  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Connections             | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Late Payments                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Lighting                        | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |



# MECL 2017 Cost Allocation Model

|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
|---------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 2.0                    |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocators by Function          |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
| Energy Allocators, Isolated (%) |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| Generation                      | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %  | 0.2 %     | 100.0 % |
| Purchased Power                 | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %  | 0.2 %     | 100.0 % |
| Transmission                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Substations                     | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Primary Lines                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Transformers                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Secondary Lines                 | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Lines                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Assets                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Reading                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Billing                         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Remittance & Collection         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Uncollectibles & Damage Claims  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Connections             | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Late Payments                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Lighting                        | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |

# MECL 2017 Cost Allocation Model

|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
|--------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|---------|-----------|---------|
| Schedule 2.0                   |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators by Function         |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
| Site Allocators, Isolated (%)  |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights  | Unmetered | Total   |
| Generation                     | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Purchased Power                | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Transmission                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Substations                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Primary Lines                  | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Transformers                   | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Secondary Lines                | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Service Lines                  | 69.2 %      | 10.7 %          | 2.5 % | 9.6 %             | 2.7 %                 | 1.0 %            | 0.1 %            | 3.8 %   | 0.2 %     | 100.0 % |
| Meter Assets                   | 49.9 %      | 6.5 %           | 1.8 % | 32.3 %            | 7.6 %                 | 1.3 %            | 0.6 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Meter Reading                  | 79.5 %      | 6.0 %           | 2.9 % | 10.0 %            | 1.2 %                 | 0.4 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Billing                        | 75.3 %      | 5.6 %           | 2.8 % | 9.5 %             | 1.1 %                 | 0.4 %            | 0.2 %            | 0.4 %   | 4.7 %     | 100.0 % |
| Remittance & Collection        | 78.8 %      | 5.9 %           | 2.9 % | 9.9 %             | 1.2 %                 | 0.4 %            | 0.0 %            | 0.5 %   | 0.4 %     | 100.0 % |
| Uncollectibles & Damage Claims | 75.6 %      | 9.9 %           | 2.8 % | 9.5 %             | 2.2 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Service Connections            | 80.9 %      | 8.2 %           | 2.9 % | 6.2 %             | 1.7 %                 | 0.1 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Late Payments                  | 75.8 %      | 2.4 %           | 2.7 % | 14.9 %            | 0.7 %                 | 3.1 %            | 0.1 %            | 0.2 %   | 0.0 %     | 100.0 % |
| Lighting                       | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 100.0 % | 0.0 %     | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
|--------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|---------|-----------|---------|
| Schedule 2.1                   |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators                     |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators                     |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights  | Unmetered | Total   |
| 1CP - Input                    | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %   | 0.1 %     | 100.0 % |
| 1CP - Input Firm               | 60.6 %      | 0.7 %           | 6.3 % | 24.4 %            | 0.0 %                 | 6.2 %            | 1.1 %            | 0.6 %   | 0.2 %     | 100.0 % |
| 1CP - Transmission             | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %   | 0.1 %     | 100.0 % |
| 1CP - Distribution Primary     | 60.9 %      | 0.7 %           | 6.3 % | 23.9 %            | 0.0 %                 | 6.2 %            | 1.2 %            | 0.6 %   | 0.2 %     | 100.0 % |
| NCP - Distribution Primary     | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %   | 0.1 %     | 100.0 % |
| NCP - Distribution Secondary   | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %   | 0.1 %     | 100.0 % |
| Energy - Input                 | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %   | 0.2 %     | 100.0 % |
| Sites                          | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Distribution Primary   | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Distribution Secondary | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Mass Market            | 75.6 %      | 9.9 %           | 2.8 % | 9.5 %             | 2.2 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Service Lines                  | 69.2 %      | 10.7 %          | 2.5 % | 9.6 %             | 2.7 %                 | 1.0 %            | 0.1 %            | 3.8 %   | 0.2 %     | 100.0 % |
| Meter Assets                   | 49.9 %      | 6.5 %           | 1.8 % | 32.3 %            | 7.6 %                 | 1.3 %            | 0.6 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Meter Reading                  | 79.5 %      | 6.0 %           | 2.9 % | 10.0 %            | 1.2 %                 | 0.4 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Billing                        | 75.3 %      | 5.6 %           | 2.8 % | 9.5 %             | 1.1 %                 | 0.4 %            | 0.2 %            | 0.4 %   | 4.7 %     | 100.0 % |
| Remittance & Collection        | 78.8 %      | 5.9 %           | 2.9 % | 9.9 %             | 1.2 %                 | 0.4 %            | 0.0 %            | 0.5 %   | 0.4 %     | 100.0 % |
| Service Connection Revenue     | 80.9 %      | 8.2 %           | 2.9 % | 6.2 %             | 1.7 %                 | 0.1 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Penalty Revenue                | 75.8 %      | 2.4 %           | 2.7 % | 14.9 %            | 0.7 %                 | 3.1 %            | 0.1 %            | 0.2 %   | 0.0 %     | 100.0 % |
| Lighting Direct Assign         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 100.0 % | 0.0 %     | 100.0 % |
| MECL Generation                | 52.3 %      | 1.0 %           | 5.4 % | 25.8 %            | 0.2 %                 | 6.3 %            | 8.3 %            | 0.5 %   | 0.2 %     | 100.0 % |
| MECL Purchases                 | 44.5 %      | 1.5 %           | 4.6 % | 30.3 %            | 0.6 %                 | 7.2 %            | 10.6 %           | 0.5 %   | 0.2 %     | 100.0 % |
| Primary System                 | 62.0 %      | 5.7 %           | 4.1 % | 17.7 %            | 1.6 %                 | 4.7 %            | 1.0 %            | 3.0 %   | 0.2 %     | 100.0 % |
| Distribution Transformers      | 60.3 %      | 4.9 %           | 4.3 % | 19.4 %            | 1.5 %                 | 5.6 %            | 1.2 %            | 2.5 %   | 0.2 %     | 100.0 % |
| Secondary System               | 62.0 %      | 5.7 %           | 4.1 % | 17.7 %            | 1.6 %                 | 4.7 %            | 1.0 %            | 3.0 %   | 0.2 %     | 100.0 % |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |

# MECL 2017 Cost Allocation Model

|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
|---------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 2.1                    |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocators                      |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
| Demand Allocators, Isolated (%) |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| 1CP - Input                     | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %  | 0.1 %     | 100.0 % |
| 1CP - Input Firm                | 60.6 %      | 0.7 %           | 6.3 % | 24.4 %            | 0.0 %                 | 6.2 %            | 1.1 %            | 0.6 %  | 0.2 %     | 100.0 % |
| 1CP - Transmission              | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %  | 0.1 %     | 100.0 % |
| 1CP - Distribution Primary      | 60.9 %      | 0.7 %           | 6.3 % | 23.9 %            | 0.0 %                 | 6.2 %            | 1.2 %            | 0.6 %  | 0.2 %     | 100.0 % |
| NCP - Distribution Primary      | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| NCP - Distribution Secondary    | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Energy - Input                  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites                           | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Distribution Primary    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Distribution Secondary  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Mass Market             | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Lines                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Assets                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Reading                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Billing                         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Remittance & Collection         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Connection Revenue      | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Penalty Revenue                 | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Lighting Direct Assign          | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| MECL Generation                 | 57.1 %      | 0.6 %           | 5.9 % | 23.3 %            | 0.0 %                 | 5.8 %            | 6.5 %            | 0.6 %  | 0.1 %     | 100.0 % |
| MECL Purchases                  | 60.6 %      | 0.7 %           | 6.3 % | 24.4 %            | 0.0 %                 | 6.2 %            | 1.1 %            | 0.6 %  | 0.2 %     | 100.0 % |
| Primary System                  | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Distribution Transformers       | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
| Secondary System                | 53.3 %      | 2.1 %           | 5.5 % | 26.5 %            | 1.1 %                 | 9.0 %            | 2.0 %            | 0.4 %  | 0.1 %     | 100.0 % |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |

# MECL 2017 Cost Allocation Model

|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
|---------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|--------|-----------|---------|
| Schedule 2.1                    |             |                 |       |                   |                       |                  |                  |        |           |         |
| Allocators                      |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |
| Energy Allocators, Isolated (%) |             |                 |       |                   |                       |                  |                  |        |           |         |
|                                 | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total   |
| 1CP - Input                     | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| 1CP - Input Firm                | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| 1CP - Transmission              | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| 1CP - Distribution Primary      | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| NCP - Distribution Primary      | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| NCP - Distribution Secondary    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Energy - Input                  | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %  | 0.2 %     | 100.0 % |
| Sites                           | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Distribution Primary    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Distribution Secondary  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Sites - Mass Market             | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Lines                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Assets                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Meter Reading                   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Billing                         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Remittance & Collection         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Service Connection Revenue      | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Penalty Revenue                 | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Lighting Direct Assign          | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| MECL Generation                 | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %  | 0.2 %     | 100.0 % |
| MECL Purchases                  | 42.1 %      | 1.6 %           | 4.4 % | 31.2 %            | 0.7 %                 | 7.3 %            | 12.0 %           | 0.5 %  | 0.2 %     | 100.0 % |
| Primary System                  | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Distribution Transformers       | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
| Secondary System                | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %  | 0.0 %     | 0.0 %   |
|                                 |             |                 |       |                   |                       |                  |                  |        |           |         |

# MECL 2017 Cost Allocation Model

|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
|--------------------------------|-------------|-----------------|-------|-------------------|-----------------------|------------------|------------------|---------|-----------|---------|
| Schedule 2.1                   |             |                 |       |                   |                       |                  |                  |         |           |         |
| Allocators                     |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                |             |                 |       |                   |                       |                  |                  |         |           |         |
| Site Allocators, Isolated (%)  |             |                 |       |                   |                       |                  |                  |         |           |         |
|                                | Residential | Residential (S) | Farm  | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights  | Unmetered | Total   |
| 1CP - Input                    | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| 1CP - Input Firm               | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| 1CP - Transmission             | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| 1CP - Distribution Primary     | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| NCP - Distribution Primary     | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| NCP - Distribution Secondary   | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Energy - Input                 | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Sites                          | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Distribution Primary   | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Distribution Secondary | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Sites - Mass Market            | 75.6 %      | 9.9 %           | 2.8 % | 9.5 %             | 2.2 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Service Lines                  | 69.2 %      | 10.7 %          | 2.5 % | 9.6 %             | 2.7 %                 | 1.0 %            | 0.1 %            | 3.8 %   | 0.2 %     | 100.0 % |
| Meter Assets                   | 49.9 %      | 6.5 %           | 1.8 % | 32.3 %            | 7.6 %                 | 1.3 %            | 0.6 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Meter Reading                  | 79.5 %      | 6.0 %           | 2.9 % | 10.0 %            | 1.2 %                 | 0.4 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Billing                        | 75.3 %      | 5.6 %           | 2.8 % | 9.5 %             | 1.1 %                 | 0.4 %            | 0.2 %            | 0.4 %   | 4.7 %     | 100.0 % |
| Remittance & Collection        | 78.8 %      | 5.9 %           | 2.9 % | 9.9 %             | 1.2 %                 | 0.4 %            | 0.0 %            | 0.5 %   | 0.4 %     | 100.0 % |
| Service Connection Revenue     | 80.9 %      | 8.2 %           | 2.9 % | 6.2 %             | 1.7 %                 | 0.1 %            | 0.0 %            | 0.0 %   | 0.0 %     | 100.0 % |
| Penalty Revenue                | 75.8 %      | 2.4 %           | 2.7 % | 14.9 %            | 0.7 %                 | 3.1 %            | 0.1 %            | 0.2 %   | 0.0 %     | 100.0 % |
| Lighting Direct Assign         | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 100.0 % | 0.0 %     | 100.0 % |
| MECL Generation                | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| MECL Purchases                 | 0.0 %       | 0.0 %           | 0.0 % | 0.0 %             | 0.0 %                 | 0.0 %            | 0.0 %            | 0.0 %   | 0.0 %     | 0.0 %   |
| Primary System                 | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Distribution Transformers      | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |
| Secondary System               | 70.8 %      | 9.3 %           | 2.6 % | 8.9 %             | 2.1 %                 | 0.4 %            | 0.0 %            | 5.6 %   | 0.3 %     | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                       |             |                 |        |                   |                       |                  |                  |        |           |           |
|---------------------------------------|-------------|-----------------|--------|-------------------|-----------------------|------------------|------------------|--------|-----------|-----------|
| Schedule 2.2                          |             |                 |        |                   |                       |                  |                  |        |           |           |
| Allocator Assumptions                 |             |                 |        |                   |                       |                  |                  |        |           |           |
|                                       |             |                 |        |                   |                       |                  |                  |        |           |           |
| Site Allocator Weighting Assumptions  |             |                 |        |                   |                       |                  |                  |        |           |           |
|                                       | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total     |
| Service Lines                         | 353         | 418             | 353    | 391               | 470                   | 1,031            | 3,560            | 245    | 245       | 6,576     |
| Meter Assets                          | 49          | 49              | 49     | 250               | 250                   | 250              | 5,388            | 0      | 0         | 6,284     |
| Meter Reading                         | 12          | 7               | 12     | 12                | 6                     | 12               | 60               | 0      | 0         | 121       |
| Billing                               | 12          | 7               | 12     | 12                | 6                     | 12               | 300              | 1      | 300       | 361       |
| Remittance & Collection               | 12          | 7               | 12     | 12                | 6                     | 12               | 12               | 1      | 12        | 73        |
| Lighting & Unmetered Equivalence      |             |                 |        |                   |                       |                  |                  | 0.40   | 0.40      |           |
|                                       |             |                 |        |                   |                       |                  |                  |        |           |           |
| Base Allocators                       |             |                 |        |                   |                       |                  |                  |        |           |           |
|                                       | Residential | Residential (S) | Farm   | General Service 1 | General Service 1 (S) | Small Industrial | Large Industrial | Lights | Unmetered | Total     |
| 1CP - Input (kW)                      | 142,677     | 1,581           | 14,756 | 58,081            | 1                     | 14,593           | 16,303           | 1,424  | 364       | 249,780   |
| 1CP - Input Firm (kW)                 | 142,677     | 1,581           | 14,756 | 57,419            | 1                     | 14,593           | 2,513            | 1,424  | 364       | 235,328   |
| 1CP - Transmission (kW)               | 139,173     | 1,542           | 14,393 | 56,654            | 1                     | 14,235           | 15,903           | 1,389  | 355       | 243,645   |
| 1CP - Distribution Primary (kW)       | 139,173     | 1,542           | 14,393 | 54,695            | 1                     | 14,235           | 2,857            | 1,389  | 355       | 228,640   |
| NCP - Distribution Primary (kW)       | 171,362     | 6,638           | 17,749 | 85,135            | 3,584                 | 29,032           | 6,419            | 1,444  | 355       | 321,718   |
| NCP - Distribution Secondary (kW)     | 161,888     | 6,271           | 16,767 | 80,428            | 3,386                 | 27,427           | 6,064            | 1,364  | 335       | 303,931   |
| Energy - Input (MWh)                  | 545,726     | 21,273          | 56,523 | 404,585           | 9,549                 | 95,207           | 156,089          | 5,989  | 2,621     | 1,297,563 |
| Sites                                 | 57,286      | 7,504           | 2,094  | 7,191             | 1,704                 | 291              | 6                | 4,556  | 269       | 80,902    |
| Sites - Distribution Primary          | 57,286      | 7,504           | 2,094  | 7,190             | 1,704                 | 291              | 5                | 4,556  | 269       | 80,900    |
| Sites - Distribution Secondary        | 57,286      | 7,504           | 2,094  | 7,190             | 1,704                 | 291              | 0                | 4,556  | 269       | 80,895    |
| Sites - Mass Market                   | 57,286      | 7,504           | 2,094  | 7,191             | 1,704                 | 0                | 0                | 0      | 0         | 75,780    |
| Service Lines (\$,000)                | 20,219      | 3,140           | 739    | 2,812             | 800                   | 301              | 21               | 1,114  | 66        | 29,212    |
| Meter Assets (\$,000)                 | 2,779       | 364             | 102    | 1,798             | 426                   | 73               | 32               | 0      | 0         | 5,574     |
| Meter Reading (Weighted Sites x 1000) | 687         | 51              | 25     | 86                | 10                    | 3                | 0                | 0      | 0         | 864       |
| Billing (Weighted Sites x 1000)       | 687         | 51              | 25     | 86                | 10                    | 3                | 2                | 3      | 43        | 912       |
| Remittance & Collection (Weighted)    | 687         | 51              | 25     | 86                | 10                    | 3                | 0                | 5      | 3         | 872       |
| Service Connection Revenue (\$,000)   | 375         | 38              | 14     | 29                | 8                     | 0                | 0                | 0      | 0         | 464       |
| Penalty Revenue (\$,000)              | 485         | 15              | 18     | 95                | 5                     | 20               | 1                | 1      | 0         | 639       |
| Lighting Direct Assign                | 0           | 0               | 0      | 0                 | 0                     | 0                | 0                | 1      | 0         | 1         |
|                                       |             |                 |        |                   |                       |                  |                  |        |           |           |
| Sales Data                            |             |                 |        |                   |                       |                  |                  |        |           |           |
| Billing Demand (kW * 12 Months)       | N/A         | N/A             | N/A    | 916,109           | 15,480                | 325,915          | 261,436          | N/A    | 1,300     | 1,520,241 |
| Peak metered demand                   | N/A         | N/A             | N/A    | 916,109           | 15,480                | 324,009          | 260,334          | N/A    | N/A       | 1,515,932 |
| Sales (MWh)                           | 505,169     | 19,523          | 52,322 | 375,639           | 9,279                 | 88,162           | 150,029          | 5,519  | 2,416     | 1,208,058 |
| Average Bills per Month               | 57,286      | 7,504           | 2,094  | 7,191             | 1,704                 | 0                | 6                | 3,318  | 144       | 79,539    |
| Revenue (\$,000)                      | 85,456      | 4,424           | 6,988  | 58,695            | 1,804                 | 11,805           | 13,289           | 2,415  | 412       | 185,288   |
| Lighting & Unmetered Fixtures         |             |                 |        |                   |                       |                  |                  | 11,390 | 673       |           |

# MECL 2017 Cost Allocation Model

|                                |                        |                       |                   |                                      |                      |
|--------------------------------|------------------------|-----------------------|-------------------|--------------------------------------|----------------------|
| Schedule 2.4                   |                        |                       |                   |                                      |                      |
| Classification Assumptions     |                        |                       |                   |                                      |                      |
|                                |                        |                       |                   |                                      |                      |
|                                |                        |                       |                   |                                      |                      |
| Allocator                      | Demand<br>Related      | Energy<br>Related     | Site<br>Related   | Total                                |                      |
| 1CP - Input                    | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| 1CP - Input Firm               | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| 1CP - Transmission             | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| 1CP - Distribution Primary     | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| NCP - Distribution Primary     | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| NCP - Distribution Secondary   | 100 %                  | 0 %                   | 0 %               | 100 %                                |                      |
| Energy - Input                 | 0 %                    | 100 %                 | 0 %               | 100 %                                |                      |
| Sites                          | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Sites - Distribution Primary   | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Sites - Distribution Secondary | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Sites - Mass Market            | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Service Lines                  | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Meter Assets                   | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Meter Reading                  | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Billing                        | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Remittance & Collection        | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Service Connection Revenue     | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Penalty Revenue                | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| Lighting Direct Assign         | 0 %                    | 0 %                   | 100 %             | 100 %                                |                      |
| MECL Generation                | 68 %                   | 32 %                  | 0 %               | 100 %                                |                      |
| MECL Purchases                 | 13 %                   | 87 %                  | 0 %               | 100 %                                |                      |
| Primary System                 | 50 %                   | 0 %                   | 50 %              | 100 %                                |                      |
| Distribution Transformers      | 60 %                   | 0 %                   | 40 %              | 100 %                                |                      |
| Secondary System               | 50 %                   | 0 %                   | 50 %              | 100 %                                |                      |
| Blended Allocator Assumptions  |                        |                       |                   |                                      |                      |
|                                | MECL<br>Generatio<br>n | MECL<br>Purchase<br>s | Primary<br>System | Distributi<br>on<br>Transfor<br>mers | Secondar<br>y System |
| 1CP - Input                    | 68 %                   |                       |                   |                                      |                      |
| 1CP - Input Firm               |                        | 13 %                  |                   |                                      |                      |
| 1CP - Transmission             |                        |                       |                   |                                      |                      |
| 1CP - Distribution Primary     |                        |                       |                   |                                      |                      |
| NCP - Distribution Primary     |                        |                       | 50 %              |                                      |                      |
| NCP - Distribution Secondary   |                        |                       |                   | 60 %                                 | 50 %                 |
| Energy - Input                 | 32 %                   | 87 %                  |                   |                                      |                      |
| Sites                          |                        |                       |                   |                                      |                      |
| Sites - Distribution Primary   |                        |                       | 50 %              |                                      |                      |
| Sites - Distribution Secondary |                        |                       |                   | 40 %                                 | 50 %                 |
| Total                          | 100 %                  | 100 %                 | 100 %             | 100 %                                | 100 %                |



## MECL 2017 Cost Allocation Model

|                                   |                            |
|-----------------------------------|----------------------------|
| Schedule 2.5                      |                            |
| Allocator by Function Assumptions |                            |
|                                   |                            |
|                                   |                            |
| Function                          | Allocator                  |
| Generation                        | MECL Generation            |
| Purchased Power                   | MECL Purchases             |
| Transmission                      | 1CP - Transmission         |
| Substations                       | 1CP - Distribution Primary |
| Primary Lines                     | Primary System             |
| Transformers                      | Distribution Transformers  |
| Secondary Lines                   | Secondary System           |
| Service Lines                     | Service Lines              |
| Meter Assets                      | Meter Assets               |
| Meter Reading                     | Meter Reading              |
| Billing                           | Billing                    |
| Remittance & Collection           | Remittance & Collection    |
| Uncollectibles & Damage Claims    | Sites - Mass Market        |
| Service Connections               | Service Connection Revenue |
| Late Payments                     | Penalty Revenue            |
| Lighting                          | Lighting Direct Assign     |

# MECL 2017 Cost Allocation Model

| Schedule 3.0                                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|---------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Revenue Requirement, Summary |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Revenue Requirement (\$,000)                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                             | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                                | 4,493          | 109,601             | 3,925            | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 118,465 |
| ECAM Adjustment                             | 0              | (2,359)             | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (2,359) |
| Net Energy Costs                            | 4,493          | 107,242             | 3,925            | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 116,106 |
| Distribution                                | 80             | 0                   | 80               | 322             | 1,691            | 1,093            | 581                 | 432              | 0               | 158              | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 4,476   |
| Transmission                                | 0              | 0                   | 1,220            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,220   |
| Transmission and Distribution -             | 0              | 0                   | 0                | 243             | 914              | 595              | 305                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,056   |
| Transmission - OATT                         | 0              | 0                   | 225              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 225     |
| General                                     | 1,303          | 85                  | 1,410            | 292             | 1,342            | 830              | 508                 | 493              | 62              | 615              | 907     | 592                            | 455                                      | 119                        | 0                    | 47       | 9,060   |
| Total Operating Expenses                    | 5,875          | 107,327             | 6,861            | 1,051           | 4,032            | 2,596            | 1,465               | 939              | 65              | 773              | 907     | 592                            | 455                                      | 119                        | 0                    | 86       | 133,143 |
| Amortization                                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                          | 88             | 427                 | 146              | 18              | 74               | 41               | 27                  | 23               | 0               | 4                | 0       | 0                              | 0                                        | 0                          | 0                    | 2        | 851     |
| Amortization Plant And Equipme              | 6,607          | 20                  | 2,344            | 557             | 4,236            | 2,892            | 1,454               | 2,200            | 696             | 27               | 15      | 22                             | 5                                        | 5                          | 0                    | 292      | 21,373  |
| Total Amortization                          | 6,695          | 448                 | 2,491            | 575             | 4,309            | 2,933            | 1,481               | 2,222            | 696             | 32               | 15      | 22                             | 5                                        | 5                          | 0                    | 294      | 22,224  |
| Total Operating Income                      | 12,570         | 107,775             | 9,352            | 1,626           | 8,342            | 5,529            | 2,946               | 3,161            | 761             | 805              | 922     | 615                            | 460                                      | 124                        | 0                    | 381      | 155,367 |
| Financing Expenses                          |                | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Long-Term Debt                              | 2,060          | 201                 | 1,900            | 414             | 2,655            | 2,049            | 896                 | 1,251            | 452             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 139      | 12,065  |
| Short-Term Debt                             | 107            | 10                  | 99               | 22              | 138              | 107              | 47                  | 65               | 23              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 627     |
| Interest Charged To Constructio             | (77)           | (7)                 | (71)             | (15)            | (99)             | (76)             | (33)                | (47)             | (17)            | (0)              | (1)     | (1)                            | (0)                                      | (0)                        | 0                    | (5)      | (450)   |
| Amortization of Financing Costs             | 1              | 0                   | 1                | 0               | 2                | 1                | 1                   | 1                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 9       |
| Total Financing Expenses                    | 2,092          | 204                 | 1,929            | 421             | 2,697            | 2,080            | 909                 | 1,270            | 459             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 141      | 12,252  |
| Earnings before Income Taxes                | 3,222          | 314                 | 2,971            | 648             | 4,153            | 3,204            | 1,401               | 1,957            | 707             | 11               | 22      | 30                             | 7                                        | 7                          | 0                    | 217      | 18,869  |
| Income Taxes                                | 1,014          | 99                  | 935              | 204             | 1,307            | 1,009            | 441                 | 616              | 222             | 4                | 7       | 9                              | 2                                        | 2                          | 0                    | 68       | 5,941   |
| Net Earnings                                | 2,207          | 215                 | 2,036            | 444             | 2,845            | 2,195            | 960                 | 1,341            | 484             | 8                | 15      | 21                             | 5                                        | 4                          | 0                    | 149      | 12,928  |
| Gross Revenue Requirement                   | 17,884         | 108,293             | 14,252           | 2,694           | 15,191           | 10,813           | 5,256               | 6,388            | 1,926           | 824              | 958     | 664                            | 472                                      | 134                        | 0                    | 739      | 186,488 |
| OATT Revenue                                | 0              | 0                   | (1,914)          | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (1,914) |
| Other Revenue                               | (51)           | (5)                 | (47)             | (10)            | (494)            | (51)             | (165)               | (31)             | (11)            | (0)              | (0)     | (0)                            | (0)                                      | (464)                      | (639)                | (3)      | (1,973) |
| Net Revenue Requirement                     | 17,833         | 108,288             | 12,290           | 2,684           | 14,697           | 10,763           | 5,091               | 6,357            | 1,915           | 824              | 957     | 664                            | 472                                      | (329)                      | (639)                | 735      | 182,601 |

# MECL 2017 Cost Allocation Model

|                                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|----------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.0                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Revenue Requirement, Summary  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Revenue Requirement, Demand Related (\$,000) |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                                 | 3,049          | 14,501              | 3,925            | 194             | 43               | 47               | 36                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 21,795  |
| ECAM Adjustment                              | 0              | (312)               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (312)   |
| Net Energy Costs                             | 3,049          | 14,189              | 3,925            | 194             | 43               | 47               | 36                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 21,483  |
| Distribution                                 | 54             | 0                   | 80               | 322             | 845              | 656              | 291                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,248   |
| Transmission                                 | 0              | 0                   | 1,220            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,220   |
| Transmission and Distribution -              | 0              | 0                   | 0                | 243             | 457              | 357              | 152                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,209   |
| Transmission - OATT                          | 0              | 0                   | 225              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 225     |
| General                                      | 884            | 11                  | 1,410            | 292             | 671              | 498              | 254                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,020   |
| Total Operating Expenses                     | 3,987          | 14,200              | 6,861            | 1,051           | 2,016            | 1,558            | 732                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 30,405  |
| Amortization                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                           | 60             | 57                  | 146              | 18              | 37               | 25               | 14                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 356     |
| Amortization Plant And Equipme               | 4,484          | 3                   | 2,344            | 557             | 2,118            | 1,735            | 727                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 11,967  |
| Total Amortization                           | 4,543          | 59                  | 2,491            | 575             | 2,155            | 1,760            | 740                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 12,323  |
| Total Operating Income                       | 8,531          | 14,260              | 9,352            | 1,626           | 4,171            | 3,317            | 1,473               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 42,728  |
| Financing Expenses                           |                | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Long-Term Debt                               | 1,398          | 27                  | 1,900            | 414             | 1,328            | 1,229            | 448                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 6,743   |
| Short-Term Debt                              | 73             | 1                   | 99               | 22              | 69               | 64               | 23                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 351     |
| Interest Charged To Constructi               | (52)           | (1)                 | (71)             | (15)            | (49)             | (46)             | (17)                | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (251)   |
| Amortization of Financing Costs              | 1              | 0                   | 1                | 0               | 1                | 1                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 5       |
| Total Financing Expenses                     | 1,420          | 27                  | 1,929            | 421             | 1,348            | 1,248            | 455                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 6,847   |
| Earnings before Income Taxes                 | 2,186          | 42                  | 2,971            | 648             | 2,076            | 1,922            | 700                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 10,546  |
| Income Taxes                                 | 688            | 13                  | 935              | 204             | 654              | 605              | 220                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,320   |
| Net Earnings                                 | 1,498          | 28                  | 2,036            | 444             | 1,423            | 1,317            | 480                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 7,225   |
| Gross Revenue Requirement                    | 12,137         | 14,328              | 14,252           | 2,694           | 7,596            | 6,488            | 2,628               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 60,122  |
| OATT Revenue                                 | 0              | 0                   | (1,914)          | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (1,914) |
| Other Revenue                                | (35)           | (1)                 | (47)             | (10)            | (247)            | (30)             | (82)                | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (452)   |
| Net Revenue Requirement                      | 12,102         | 14,327              | 12,290           | 2,684           | 7,348            | 6,458            | 2,545               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 57,755  |

# MECL 2017 Cost Allocation Model

|                                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|----------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.0                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Revenue Requirement, Summary  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Revenue Requirement, Energy Related (\$,000) |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                                 | 1,444          | 95,099              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 96,543  |
| ECAM Adjustment                              | 0              | (2,047)             | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (2,047) |
| Net Energy Costs                             | 1,444          | 93,053              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 94,497  |
| Distribution                                 | 26             | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 26      |
| Transmission                                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission and Distribution -              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission - OATT                          | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| General                                      | 419            | 74                  | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 493     |
| Total Operating Expenses                     | 1,888          | 93,127              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 95,015  |
| Amortization                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                           | 28             | 371                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 399     |
| Amortization Plant And Equipme               | 2,123          | 18                  | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,141   |
| Total Amortization                           | 2,151          | 388                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,540   |
| Total Operating Income                       | 4,040          | 93,515              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 97,555  |
| Financing Expenses                           |                | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Long-Term Debt                               | 662            | 174                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 836     |
| Short-Term Debt                              | 34             | 9                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 43      |
| Interest Charged To Constructi               | (25)           | (6)                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (31)    |
| Amortization of Financing Costs              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1       |
| Total Financing Expenses                     | 672            | 177                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 849     |
| Earnings before Income Taxes                 | 1,035          | 272                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,308   |
| Income Taxes                                 | 326            | 86                  | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 412     |
| Net Earnings                                 | 709            | 187                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 896     |
| Gross Revenue Requirement                    | 5,747          | 93,964              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 99,712  |
| OATT Revenue                                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Other Revenue                                | (16)           | (4)                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (21)    |
| Net Revenue Requirement                      | 5,731          | 93,960              | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 99,691  |

# MECL 2017 Cost Allocation Model

|                                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|---------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.0                                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Revenue Requirement, Summary |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Revenue Requirement, Site Related (\$,000)  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                             | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                                | 0              | 0                   | 0                | 0               | 43               | 31               | 36                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 127     |
| ECAM Adjustment                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Net Energy Costs                            | 0              | 0                   | 0                | 0               | 43               | 31               | 36                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 127     |
| Distribution                                | 0              | 0                   | 0                | 0               | 845              | 437              | 291                 | 432              | 0               | 158              | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 2,202   |
| Transmission                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission and Distribution -             | 0              | 0                   | 0                | 0               | 457              | 238              | 152                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 847     |
| Transmission - OATT                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| General                                     | 0              | 0                   | 0                | 0               | 671              | 332              | 254                 | 493              | 62              | 615              | 907     | 592                            | 455                                      | 119                        | 0                    | 47       | 4,547   |
| Total Operating Expenses                    | 0              | 0                   | 0                | 0               | 2,016            | 1,038            | 732                 | 939              | 65              | 773              | 907     | 592                            | 455                                      | 119                        | 0                    | 86       | 7,723   |
| Amortization                                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                          | 0              | 0                   | 0                | 0               | 37               | 16               | 14                  | 23               | 0               | 4                | 0       | 0                              | 0                                        | 0                          | 0                    | 2        | 96      |
| Amortization Plant And Equipme              | 0              | 0                   | 0                | 0               | 2,118            | 1,157            | 727                 | 2,200            | 696             | 27               | 15      | 22                             | 5                                        | 5                          | 0                    | 292      | 7,264   |
| Total Amortization                          | 0              | 0                   | 0                | 0               | 2,155            | 1,173            | 740                 | 2,222            | 696             | 32               | 15      | 22                             | 5                                        | 5                          | 0                    | 294      | 7,360   |
| Total Operating Income                      | 0              | 0                   | 0                | 0               | 4,171            | 2,211            | 1,473               | 3,161            | 761             | 805              | 922     | 615                            | 460                                      | 124                        | 0                    | 381      | 15,084  |
| Financing Expenses                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Long-Term Debt                              | 0              | 0                   | 0                | 0               | 1,328            | 820              | 448                 | 1,251            | 452             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 139      | 4,486   |
| Short-Term Debt                             | 0              | 0                   | 0                | 0               | 69               | 43               | 23                  | 65               | 23              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 233     |
| Interest Charged To Constructio             | 0              | 0                   | 0                | 0               | (49)             | (31)             | (17)                | (47)             | (17)            | (0)              | (1)     | (1)                            | (0)                                      | (0)                        | 0                    | (5)      | (167)   |
| Amortization of Financing Costs             | 0              | 0                   | 0                | 0               | 1                | 1                | 0                   | 1                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3       |
| Total Financing Expenses                    | 0              | 0                   | 0                | 0               | 1,348            | 832              | 455                 | 1,270            | 459             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 141      | 4,555   |
| Earnings before Income Taxes                | 0              | 0                   | 0                | 0               | 2,076            | 1,282            | 700                 | 1,957            | 707             | 11               | 22      | 30                             | 7                                        | 7                          | 0                    | 217      | 7,015   |
| Income Taxes                                | 0              | 0                   | 0                | 0               | 654              | 404              | 220                 | 616              | 222             | 4                | 7       | 9                              | 2                                        | 2                          | 0                    | 68       | 2,209   |
| Net Earnings                                | 0              | 0                   | 0                | 0               | 1,423            | 878              | 480                 | 1,341            | 484             | 8                | 15      | 21                             | 5                                        | 4                          | 0                    | 149      | 4,807   |
| Gross Revenue Requirement                   | 0              | 0                   | 0                | 0               | 7,596            | 4,325            | 2,628               | 6,388            | 1,926           | 824              | 958     | 664                            | 472                                      | 134                        | 0                    | 739      | 26,654  |
| OATT Revenue                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Other Revenue                               | 0              | 0                   | 0                | 0               | (247)            | (20)             | (82)                | (31)             | (11)            | (0)              | (0)     | (0)                            | (0)                                      | (464)                      | (639)                | (3)      | (1,500) |
| Net Revenue Requirement                     | 0              | 0                   | 0                | 0               | 7,348            | 4,305            | 2,545               | 6,357            | 1,915           | 824              | 957     | 664                            | 472                                      | (329)                      | (639)                | 735      | 25,155  |

# MECL 2017 Cost Allocation Model

| Schedule 3.1                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Revenue Requirement |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Direct Assigned (\$,000)           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                       | 4,023          | 109,473             | 3,340            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 116,837 |
| ECAM Adjustment                    | 0              | (2,359)             | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (2,359) |
| Net Energy Costs                   | 4,023          | 107,115             | 3,340            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 114,478 |
| Distribution                       | 0              | 0                   | 0                | 113             | 0                | 452              | 0                   | 0                | 0               | 158              | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 723     |
| Transmission                       | 0              | 0                   | 1,220            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,220   |
| Transmission and Distribution -    | 0              | 0                   | 0                | 117             | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 117     |
| Transmission - OATT                | 0              | 0                   | 225              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 225     |
| General                            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 393              | 0       | 0                              | 250                                      | 0                          | 0                    | 0        | 643     |
| Total Operating Expenses           | 4,023          | 107,115             | 4,786            | 230             | 0                | 452              | 0                   | 0                | 0               | 551              | 0       | 0                              | 250                                      | 0                          | 0                    | 0        | 117,407 |
| Amortization                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                 | 0              | 421                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 421     |
| Amortization Plant And Equipme     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Amortization                 | 0              | 421                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 421     |
| Total Operating Income             | 4,023          | 107,536             | 4,786            | 230             | 0                | 452              | 0                   | 0                | 0               | 551              | 0       | 0                              | 250                                      | 0                          | 0                    | 0        | 117,828 |
| Financing Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Long-Term Debt                     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Short-Term Debt                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Interest Charged To Constructi     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Amortization of Financing Costs    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Financing Expenses           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Earnings before Income Taxes       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Income Taxes                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Net Earnings                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Revenue Requirement          | 4,023          | 107,536             | 4,786            | 230             | 0                | 452              | 0                   | 0                | 0               | 551              | 0       | 0                              | 250                                      | 0                          | 0                    | 0        | 117,828 |
| OATT Revenue                       | 0              | 0                   | (1,914)          | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (1,914) |
| Other Revenue                      | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | (464)                      | (639)                | 0        | (1,103) |
| Net Revenue Requirement            | 4,023          | 107,536             | 2,872            | 230             | 0                | 452              | 0                   | 0                | 0               | 551              | 0       | 0                              | 250                                      | (464)                      | (639)                | 0        | 114,811 |

# MECL 2017 Cost Allocation Model

|                                    |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
|------------------------------------|-----|-------|-------------------|-------------------------------|----------------|--------|---------------------|-------------------|------------------|----------------|--------------|-------------------------------------|------------------------|--------------------------|----------------|---|--------|
| Schedule 3.1                       |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
| Functionalized Revenue Requirement |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
| For Allocation (First)             |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
|                                    | ECC | SCADA | Environm<br>ental | Primary<br>&<br>Secondar<br>Y | Call<br>Center | Labour | Customer<br>Service | Finance<br>Labour | Finance<br>Admin | Head<br>Office | T&D<br>Plant | Right of<br>Way<br>Amortizat<br>ion | Distributi<br>on Lines | Distributi<br>on Network | Total<br>Plant |   | Total  |
| Operating Expenses                 |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
| Energy Costs                       | 763 | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 84           | 0                                   | 0                      | 0                        | 0              | 0 | 847    |
| ECAM Adjustment                    | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Net Energy Costs                   | 763 | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 84           | 0                                   | 0                      | 0                        | 0              | 0 | 847    |
| Distribution                       | 0   | 318   | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 1,431                  | 2,003                    | 0              | 0 | 3,752  |
| Transmission                       | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Transmission and Distribution -    | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 1,939                    | 0              | 0 | 1,939  |
| Transmission - OATT                | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| General                            | 0   | 0     | 3                 | 0                             | 894            | 4,282  | 431                 | 367               | 868              | 130            | 299          | 0                                   | 0                      | 0                        | 39             | 0 | 7,313  |
| Total Operating Expenses           | 763 | 318   | 3                 | 0                             | 894            | 4,282  | 431                 | 367               | 868              | 130            | 383          | 0                                   | 1,431                  | 3,942                    | 39             | 0 | 13,851 |
| Amortization                       |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
| Amortization Other                 | 0   | 0     | 0                 | 0                             | 0              | 362    | 0                   | 0                 | 0                | 0              | 0            | 68                                  | 0                      | 0                        | 0              | 0 | 430    |
| Amortization Plant And Equipme     | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Total Amortization                 | 0   | 0     | 0                 | 0                             | 0              | 362    | 0                   | 0                 | 0                | 0              | 0            | 68                                  | 0                      | 0                        | 0              | 0 | 430    |
| Total Operating Income             | 763 | 318   | 3                 | 0                             | 894            | 4,644  | 431                 | 367               | 868              | 130            | 383          | 68                                  | 1,431                  | 3,942                    | 39             | 0 | 14,281 |
| Financing Expenses                 |     |       |                   |                               |                |        |                     |                   |                  |                |              |                                     |                        |                          |                |   |        |
| Long-Term Debt                     | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Short-Term Debt                    | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Interest Charged To Constructi     | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Amortization of Financing Costs    | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Total Financing Expenses           | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Earnings before Income Taxes       | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Income Taxes                       | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Net Earnings                       | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Gross Revenue Requirement          | 763 | 318   | 3                 | 0                             | 894            | 4,644  | 431                 | 367               | 868              | 130            | 383          | 68                                  | 1,431                  | 3,942                    | 39             | 0 | 14,281 |
| OATT Revenue                       | 0   | 0     | 0                 | 0                             | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | 0      |
| Other Revenue                      | 0   | 0     | 0                 | (571)                         | 0              | 0      | 0                   | 0                 | 0                | 0              | 0            | 0                                   | 0                      | 0                        | 0              | 0 | (571)  |
| Net Revenue Requirement            | 763 | 318   | 3                 | (571)                         | 894            | 4,644  | 431                 | 367               | 868              | 130            | 383          | 68                                  | 1,431                  | 3,942                    | 39             | 0 | 13,710 |

# MECL 2017 Cost Allocation Model

|                                    |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
|------------------------------------|--------------|---------------|------------------------|-----------|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Schedule 3.1                       |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
| Functionalized Revenue Requirement |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
| For Allocation (Second)            |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
|                                    | Amortization | G&T Rate Base | Rate Base Excluding WC | Rate Base |   |   |   |   |   |   |   |   |   |   |   |   | Total  |
| Operating Expenses                 |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
| Energy Costs                       | 0            | 781           | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 781    |
| ECAM Adjustment                    | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Net Energy Costs                   | 0            | 781           | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 781    |
| Distribution                       | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Transmission                       | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Transmission and Distribution -    | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Transmission - OATT                | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| General                            | 0            | 0             | 1,104                  | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,104  |
| Total Operating Expenses           | 0            | 781           | 1,104                  | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,885  |
| Amortization                       |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
| Amortization Other                 | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Amortization Plant And Equipment   | 21,373       | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,373 |
| Total Amortization                 | 21,373       | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,373 |
| Total Operating Income             | 21,373       | 781           | 1,104                  | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,258 |
| Financing Expenses                 |              |               |                        |           |   |   |   |   |   |   |   |   |   |   |   |   |        |
| Long-Term Debt                     | 0            | 0             | 0                      | 12,065    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,065 |
| Short-Term Debt                    | 0            | 0             | 0                      | 627       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 627    |
| Interest Charged To Construction   | 0            | 0             | 0                      | (450)     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (450)  |
| Amortization of Financing Costs    | 0            | 0             | 0                      | 9         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9      |
| Total Financing Expenses           | 0            | 0             | 0                      | 12,252    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,252 |
| Earnings before Income Taxes       | 0            | 0             | 0                      | 18,869    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,869 |
| Income Taxes                       | 0            | 0             | 0                      | 5,941     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,941  |
| Net Earnings                       | 0            | 0             | 0                      | 12,928    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,928 |
| Gross Revenue Requirement          | 21,373       | 781           | 1,104                  | 31,121    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54,378 |
| OATT Revenue                       | 0            | 0             | 0                      | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0      |
| Other Revenue                      | 0            | 0             | 0                      | (298)     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (298)  |
| Net Revenue Requirement            | 21,373       | 781           | 1,104                  | 30,822    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54,080 |



# MECL 2017 Cost Allocation Model

| Schedule 3.1                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Revenue Requirement |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Required Allocation Factors        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| ECC                                | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                              | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Environmental                      | 50.0 %         | 0.0 %               | 0.0 %            | 1.9 %           | 0.0 %            | 48.1 %           | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Primary & Secondary                | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Call Center                        | 0.0 %          | 0.0 %               | 5.0 %            | 0.0 %           | 3.3 %            | 3.3 %            | 3.3 %               | 0.0 %            | 0.0 %           | 5.0 %            | 20.0 %  | 40.0 %                         | 10.0 %                                   | 10.0 %                     | 0.0 %                | 0.0 %    | 100.0 % |
| Labour                             | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Customer Service                   | 0.0 %          | 0.0 %               | 2.8 %            | 0.0 %           | 1.8 %            | 1.8 %            | 1.8 %               | 0.0 %            | 0.0 %           | 27.8 %           | 11.0 %  | 22.0 %                         | 25.5 %                                   | 5.5 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Finance Labour                     | 6.9 %          | 0.5 %               | 13.1 %           | 2.5 %           | 13.3 %           | 8.1 %            | 4.6 %               | 6.3 %            | 0.9 %           | 0.3 %            | 28.6 %  | 14.3 %                         | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Finance Admin                      | 3.5 %          | 0.2 %               | 6.6 %            | 1.2 %           | 6.6 %            | 4.0 %            | 2.3 %               | 3.2 %            | 0.5 %           | 0.2 %            | 64.3 %  | 7.1 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.3 %    | 100.0 % |
| Head Office                        | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |
| T&D Plant                          | 0.0 %          | 0.0 %               | 23.2 %           | 4.2 %           | 26.3 %           | 17.2 %           | 8.9 %               | 15.7 %           | 3.1 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Right of Way Amortization          | 0.0 %          | 0.0 %               | 94.1 %           | 0.0 %           | 3.0 %            | 2.0 %            | 1.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Lines                 | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.3 %           | 0.0 %            | 16.8 %              | 30.2 %           | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 2.7 %    | 100.0 % |
| Distribution Network               | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Total Plant                        | 19.1 %         | 0.1 %               | 18.3 %           | 3.5 %           | 21.5 %           | 14.3 %           | 7.3 %               | 12.0 %           | 2.4 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.1 %    | 100.0 % |
| Amortization                       | 30.9 %         | 0.1 %               | 11.0 %           | 2.6 %           | 19.8 %           | 13.5 %           | 6.8 %               | 10.3 %           | 3.3 %           | 0.1 %            | 0.1 %   | 0.1 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| G&T Rate Base                      | 52.0 %         | 0.0 %               | 48.0 %           | 0.0 %           | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Rate Base Excluding WC             | 17.3 %         | 0.5 %               | 15.9 %           | 3.5 %           | 22.3 %           | 17.2 %           | 7.5 %               | 10.5 %           | 3.8 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.2 %    | 100.0 % |
| Rate Base                          | 17.1 %         | 1.7 %               | 15.7 %           | 3.4 %           | 22.0 %           | 17.0 %           | 7.4 %               | 10.4 %           | 3.7 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.2 %    | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|--------|
| Schedule 3.1                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Functionalized Revenue Requirement |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| First Allocation                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Operating Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Energy Costs                       | 64             | 127                 | 210              | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 847    |
| ECAM Adjustment                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Net Energy Costs                   | 64             | 127                 | 210              | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 847    |
| Distribution                       | 80             | 0                   | 80               | 209             | 1,691            | 641              | 581                 | 432              | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 3,752  |
| Transmission                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission and Distribution -    | 0              | 0                   | 0                | 126             | 914              | 595              | 305                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,939  |
| Transmission - OATT                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| General                            | 1,112          | 80                  | 1,234            | 253             | 1,096            | 640              | 425                 | 377              | 20              | 222              | 906     | 591                            | 205                                      | 118                        | 0                    | 34       | 7,313  |
| Total Operating Expenses           | 1,255          | 207                 | 1,524            | 782             | 3,786            | 1,954            | 1,382               | 823              | 23              | 222              | 906     | 591                            | 205                                      | 118                        | 0                    | 73       | 13,851 |
| Amortization                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Amortization Other                 | 88             | 6                   | 146              | 18              | 74               | 41               | 27                  | 23               | 0               | 4                | 0       | 0                              | 0                                        | 0                          | 0                    | 2        | 430    |
| Amortization Plant And Equipme     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Amortization                 | 88             | 6                   | 146              | 18              | 74               | 41               | 27                  | 23               | 0               | 4                | 0       | 0                              | 0                                        | 0                          | 0                    | 2        | 430    |
| Total Operating Income             | 1,343          | 213                 | 1,671            | 801             | 3,860            | 1,995            | 1,409               | 845              | 23              | 226              | 906     | 591                            | 205                                      | 118                        | 0                    | 75       | 14,281 |
| Financing Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0      |
| Long-Term Debt                     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Short-Term Debt                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Interest Charged To Constructio    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Amortization of Financing Costs    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Financing Expenses           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Earnings before Income Taxes       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Income Taxes                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Net Earnings                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Gross Revenue Requirement          | 1,343          | 213                 | 1,671            | 801             | 3,860            | 1,995            | 1,409               | 845              | 23              | 226              | 906     | 591                            | 205                                      | 118                        | 0                    | 75       | 14,281 |
| OATT Revenue                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Other Revenue                      | 0              | 0                   | 0                | 0               | (429)            | 0                | (143)               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (571)  |
| Net Revenue Requirement            | 1,343          | 213                 | 1,671            | 801             | 3,431            | 1,995            | 1,266               | 845              | 23              | 226              | 906     | 591                            | 205                                      | 118                        | 0                    | 75       | 13,710 |

# MECL 2017 Cost Allocation Model

| Schedule 3.1                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|--------|
| Functionalized Revenue Requirement |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Second Allocation                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Operating Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Energy Costs                       | 406            | 0                   | 375              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 781    |
| ECAM Adjustment                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Net Energy Costs                   | 406            | 0                   | 375              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 781    |
| Distribution                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission and Distribution -    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission - OATT                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| General                            | 191            | 6                   | 176              | 38              | 246              | 190              | 83                  | 116              | 42              | 1                | 1       | 2                              | 0                                        | 0                          | 0                    | 13       | 1,104  |
| Total Operating Expenses           | 597            | 6                   | 550              | 38              | 246              | 190              | 83                  | 116              | 42              | 1                | 1       | 2                              | 0                                        | 0                          | 0                    | 13       | 1,885  |
| Amortization                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Amortization Other                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Amortization Plant And Equipme     | 6,607          | 20                  | 2,344            | 557             | 4,236            | 2,892            | 1,454               | 2,200            | 696             | 27               | 15      | 22                             | 5                                        | 5                          | 0                    | 292      | 21,373 |
| Total Amortization                 | 6,607          | 20                  | 2,344            | 557             | 4,236            | 2,892            | 1,454               | 2,200            | 696             | 27               | 15      | 22                             | 5                                        | 5                          | 0                    | 292      | 21,373 |
| Total Operating Income             | 7,204          | 26                  | 2,895            | 595             | 4,482            | 3,082            | 1,537               | 2,316            | 738             | 28               | 17      | 24                             | 5                                        | 5                          | 0                    | 305      | 23,258 |
| Financing Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Long-Term Debt                     | 2,060          | 201                 | 1,900            | 414             | 2,655            | 2,049            | 896                 | 1,251            | 452             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 139      | 12,065 |
| Short-Term Debt                    | 107            | 10                  | 99               | 22              | 138              | 107              | 47                  | 65               | 23              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 627    |
| Interest Charged To Constructi     | (77)           | (7)                 | (71)             | (15)            | (99)             | (76)             | (33)                | (47)             | (17)            | (0)              | (1)     | (1)                            | (0)                                      | (0)                        | 0                    | (5)      | (450)  |
| Amortization of Financing Costs    | 1              | 0                   | 1                | 0               | 2                | 1                | 1                   | 1                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 9      |
| Total Financing Expenses           | 2,092          | 204                 | 1,929            | 421             | 2,697            | 2,080            | 909                 | 1,270            | 459             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 141      | 12,252 |
| Earnings before Income Taxes       | 3,222          | 314                 | 2,971            | 648             | 4,153            | 3,204            | 1,401               | 1,957            | 707             | 11               | 22      | 30                             | 7                                        | 7                          | 0                    | 217      | 18,869 |
| Income Taxes                       | 1,014          | 99                  | 935              | 204             | 1,307            | 1,009            | 441                 | 616              | 222             | 4                | 7       | 9                              | 2                                        | 2                          | 0                    | 68       | 5,941  |
| Net Earnings                       | 2,207          | 215                 | 2,036            | 444             | 2,845            | 2,195            | 960                 | 1,341            | 484             | 8                | 15      | 21                             | 5                                        | 4                          | 0                    | 149      | 12,928 |
| Gross Revenue Requirement          | 12,518         | 544                 | 7,795            | 1,663           | 11,331           | 8,366            | 3,847               | 5,543            | 1,903           | 47               | 52      | 74                             | 17                                       | 16                         | 0                    | 663      | 54,378 |
| OATT Revenue                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Other Revenue                      | (51)           | (5)                 | (47)             | (10)            | (66)             | (51)             | (22)                | (31)             | (11)            | (0)              | (0)     | (0)                            | (0)                                      | (0)                        | 0                    | (3)      | (298)  |
| Net Revenue Requirement            | 12,467         | 539                 | 7,748            | 1,653           | 11,265           | 8,315            | 3,825               | 5,512            | 1,892           | 47               | 52      | 73                             | 17                                       | 16                         | 0                    | 660      | 54,080 |

# MECL 2017 Cost Allocation Model

| Schedule 3.1                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Revenue Requirement |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                       | 4,493          | 109,601             | 3,925            | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 118,465 |
| ECAM Adjustment                    | 0              | (2,359)             | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (2,359) |
| Net Energy Costs                   | 4,493          | 107,242             | 3,925            | 194             | 86               | 78               | 71                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 116,106 |
| Distribution                       | 80             | 0                   | 80               | 322             | 1,691            | 1,093            | 581                 | 432              | 0               | 158              | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 4,476   |
| Transmission                       | 0              | 0                   | 1,220            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,220   |
| Transmission and Distribution -    | 0              | 0                   | 0                | 243             | 914              | 595              | 305                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,056   |
| Transmission - OATT                | 0              | 0                   | 225              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 225     |
| General                            | 1,303          | 85                  | 1,410            | 292             | 1,342            | 830              | 508                 | 493              | 62              | 615              | 907     | 592                            | 455                                      | 119                        | 0                    | 47       | 9,060   |
| Total Operating Expenses           | 5,875          | 107,327             | 6,861            | 1,051           | 4,032            | 2,596            | 1,465               | 939              | 65              | 773              | 907     | 592                            | 455                                      | 119                        | 0                    | 86       | 133,143 |
| Amortization                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other                 | 88             | 427                 | 146              | 18              | 74               | 41               | 27                  | 23               | 0               | 4                | 0       | 0                              | 0                                        | 0                          | 0                    | 2        | 851     |
| Amortization Plant And Equipme     | 6,607          | 20                  | 2,344            | 557             | 4,236            | 2,892            | 1,454               | 2,200            | 696             | 27               | 15      | 22                             | 5                                        | 5                          | 0                    | 292      | 21,373  |
| Total Amortization                 | 6,695          | 448                 | 2,491            | 575             | 4,309            | 2,933            | 1,481               | 2,222            | 696             | 32               | 15      | 22                             | 5                                        | 5                          | 0                    | 294      | 22,224  |
| Total Operating Income             | 12,570         | 107,775             | 9,352            | 1,626           | 8,342            | 5,529            | 2,946               | 3,161            | 761             | 805              | 922     | 615                            | 460                                      | 124                        | 0                    | 381      | 155,367 |
| Financing Expenses                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Long-Term Debt                     | 2,060          | 201                 | 1,900            | 414             | 2,655            | 2,049            | 896                 | 1,251            | 452             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 139      | 12,065  |
| Short-Term Debt                    | 107            | 10                  | 99               | 22              | 138              | 107              | 47                  | 65               | 23              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 627     |
| Interest Charged To Constructi     | (77)           | (7)                 | (71)             | (15)            | (99)             | (76)             | (33)                | (47)             | (17)            | (0)              | (1)     | (1)                            | (0)                                      | (0)                        | 0                    | (5)      | (450)   |
| Amortization of Financing Costs    | 1              | 0                   | 1                | 0               | 2                | 1                | 1                   | 1                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 9       |
| Total Financing Expenses           | 2,092          | 204                 | 1,929            | 421             | 2,697            | 2,080            | 909                 | 1,270            | 459             | 7                | 14      | 19                             | 5                                        | 4                          | 0                    | 141      | 12,252  |
| Earnings before Income Taxes       | 3,222          | 314                 | 2,971            | 648             | 4,153            | 3,204            | 1,401               | 1,957            | 707             | 11               | 22      | 30                             | 7                                        | 7                          | 0                    | 217      | 18,869  |
| Income Taxes                       | 1,014          | 99                  | 935              | 204             | 1,307            | 1,009            | 441                 | 616              | 222             | 4                | 7       | 9                              | 2                                        | 2                          | 0                    | 68       | 5,941   |
| Net Earnings                       | 2,207          | 215                 | 2,036            | 444             | 2,845            | 2,195            | 960                 | 1,341            | 484             | 8                | 15      | 21                             | 5                                        | 4                          | 0                    | 149      | 12,928  |
| Gross Revenue Requirement          | 17,884         | 108,293             | 14,252           | 2,694           | 15,191           | 10,813           | 5,256               | 6,388            | 1,926           | 824              | 958     | 664                            | 472                                      | 134                        | 0                    | 739      | 186,488 |
| OATT Revenue                       | 0              | 0                   | (1,914)          | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (1,914) |
| Other Revenue                      | (51)           | (5)                 | (47)             | (10)            | (494)            | (51)             | (165)               | (31)             | (11)            | (0)              | (0)     | (0)                            | (0)                                      | (464)                      | (639)                | (3)      | (1,973) |
| Net Revenue Requirement            | 17,833         | 108,288             | 12,290           | 2,684           | 14,697           | 10,763           | 5,091               | 6,357            | 1,915           | 824              | 957     | 664                            | 472                                      | (329)                      | (639)                | 735      | 182,601 |

# MECL 2017 Cost Allocation Model

|                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Schedule 3.2                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Functionalized Labour           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Direct Assigned (\$,000)        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Energy Costs                    | 1,582          | 0                   | 22               | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,603 |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Energy Costs                | 1,582          | 0                   | 22               | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,603 |
| Distribution                    | 0              | 0                   | 0                | 45              | 0                | 293              | 0                   | 0                | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 422   |
| Transmission                    | 0              | 0                   | 1,134            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,134 |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission - OATT             | 0              | 0                   | 188              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 188   |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Expenses        | 1,582          | 0                   | 1,343            | 45              | 0                | 293              | 0                   | 0                | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,347 |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Income          | 1,582          | 0                   | 1,343            | 45              | 0                | 293              | 0                   | 0                | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,347 |
| Financing Expenses              |                | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Interest Charged To Constructio | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Revenue Requirement       | 1,582          | 0                   | 1,343            | 45              | 0                | 293              | 0                   | 0                | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,347 |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Revenue Requirement         | 1,582          | 0                   | 1,343            | 45              | 0                | 293              | 0                   | 0                | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,347 |

# MECL 2017 Cost Allocation Model

|                                 |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
|---------------------------------|-----|-------|-----------|---------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|-------|
| Schedule 3.2                    |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
| Functionalized Labour           |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
| For Allocation                  |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
|                                 | ECC | SCADA | T&D Plant | Distributi on Lines | Distributi on |   |   |   |   |   |   |   |   |   |   |   | Total |
| Operating Expenses              |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
| Energy Costs                    | 728 | 0     | 84        | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 812   |
| ECAM Adjustment                 | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Net Energy Costs                | 728 | 0     | 84        | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 812   |
| Distribution                    | 0   | 162   | 0         | 1,393               | 1,225         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,780 |
| Transmission                    | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Transmission and Distribution - | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Transmission - OATT             | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| General                         | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Total Operating Expenses        | 728 | 162   | 84        | 1,393               | 1,225         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,592 |
| Amortization                    |     |       |           |                     |               |   |   |   |   |   |   |   |   |   |   |   |       |
| Amortization Other              | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Amortization Plant And Equipme  | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Total Amortization              | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Total Operating Income          | 728 | 162   | 84        | 1,393               | 1,225         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,592 |
| Financing Expenses              |     | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Long-Term Debt                  | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Short-Term Debt                 | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Interest Charged To Constructi  | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Amortization of Financing Costs | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Total Financing Expenses        | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Earnings before Income Taxes    | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Income Taxes                    | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Net Earnings                    | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Gross Revenue Requirement       | 728 | 162   | 84        | 1,393               | 1,225         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,592 |
| OATT Revenue                    | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Other Revenue                   | 0   | 0     | 0         | 0                   | 0             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0     |
| Net Revenue Requirement         | 728 | 162   | 84        | 1,393               | 1,225         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,592 |

# MECL 2017 Cost Allocation Model

|                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.2                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Labour           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Required Allocation Factors     |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| ECC                             | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                           | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| T&D Plant                       | 0.0 %          | 0.0 %               | 23.2 %           | 4.2 %           | 26.3 %           | 17.2 %           | 8.9 %               | 15.7 %           | 3.1 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Distribution Lines              | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.3 %           | 0.0 %            | 16.8 %              | 30.2 %           | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 2.7 %    | 100.0 % |
| Distribution Network            | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Allocation                      |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Energy Costs                    | 61             | 121                 | 201              | 186             | 83               | 75               | 68                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 812     |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Net Energy Costs                | 61             | 121                 | 201              | 186             | 83               | 75               | 68                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 812     |
| Distribution                    | 41             | 0                   | 41               | 120             | 1,292            | 390              | 440                 | 421              | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 38       | 2,780   |
| Transmission                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission - OATT             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Operating Expenses        | 101            | 121                 | 242              | 306             | 1,374            | 465              | 508                 | 434              | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 3,592   |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Operating Income          | 101            | 121                 | 242              | 306             | 1,374            | 465              | 508                 | 434              | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 3,592   |
| Financing Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Interest Charged To Constructio | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Revenue Requirement       | 101            | 121                 | 242              | 306             | 1,374            | 465              | 508                 | 434              | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 3,592   |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Net Revenue Requirement         | 101            | 121                 | 242              | 306             | 1,374            | 465              | 508                 | 434              | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 3,592   |

# MECL 2017 Cost Allocation Model

| Schedule 3.2                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Functionalized Labour           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Total                           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Energy Costs                    | 1,642          | 121                 | 223              | 186             | 83               | 75               | 68                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 2,415 |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Energy Costs                | 1,642          | 121                 | 223              | 186             | 83               | 75               | 68                  | 13               | 3               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 1        | 2,415 |
| Distribution                    | 41             | 0                   | 41               | 165             | 1,292            | 683              | 440                 | 421              | 0               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 38       | 3,202 |
| Transmission                    | 0              | 0                   | 1,134            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,134 |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission - OATT             | 0              | 0                   | 188              | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 188   |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Expenses        | 1,683          | 121                 | 1,585            | 350             | 1,374            | 758              | 508                 | 434              | 3               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 6,939 |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Income          | 1,683          | 121                 | 1,585            | 350             | 1,374            | 758              | 508                 | 434              | 3               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 6,939 |
| Financing Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0     |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Interest Charged To Constructi  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Revenue Requirement       | 1,683          | 121                 | 1,585            | 350             | 1,374            | 758              | 508                 | 434              | 3               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 6,939 |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Revenue Requirement         | 1,683          | 121                 | 1,585            | 350             | 1,374            | 758              | 508                 | 434              | 3               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 6,939 |



# MECL 2017 Cost Allocation Model

| Schedule 3.3                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Functionalized Vehicle          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Direct Assigned (\$,000)        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Energy Costs                    | 34             | 0                   | 1                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 36    |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Energy Costs                | 34             | 0                   | 1                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 36    |
| Distribution                    | 0              | 0                   | 0                | 2               | 0                | 57               | 0                   | 0                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 68    |
| Transmission                    | 0              | 0                   | 56               | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 56    |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission - OATT             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Expenses        | 34             | 0                   | 58               | 2               | 0                | 57               | 0                   | 0                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 160   |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Income          | 34             | 0                   | 58               | 2               | 0                | 57               | 0                   | 0                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 160   |
| Financing Expenses              |                | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Interest Charged To Constructi  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Revenue Requirement       | 34             | 0                   | 58               | 2               | 0                | 57               | 0                   | 0                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 160   |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Revenue Requirement         | 34             | 0                   | 58               | 2               | 0                | 57               | 0                   | 0                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 160   |

# MECL 2017 Cost Allocation Model

|                                  |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
|----------------------------------|------------|-----------------|--------------|--------------------|---------------|--------------|-----------------|---------------|--------------|---------------|---------|-------------------------|--------------------------------|---------------------|---------------|----------|---------|
| Schedule 3.3                     |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
| Functionalized Vehicle           |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
| For Allocation                   |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
|                                  | ECC        | SCADA           | T&D Plant    | Distribution Lines | Distribution  |              |                 |               |              |               |         |                         |                                |                     |               |          | Total   |
| Operating Expenses               |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
| Energy Costs                     | 20         | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 21      |
| ECAM Adjustment                  | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Net Energy Costs                 | 20         | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 21      |
| Distribution                     | 0          | 13              | 0            | 13                 | 163           | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 189     |
| Transmission                     | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Transmission and Distribution -  | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Transmission - OATT              | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| General                          | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Total Operating Expenses         | 20         | 13              | 0            | 13                 | 163           | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 209     |
| Amortization                     |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
| Amortization Other               | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Amortization Plant And Equipment | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Total Amortization               | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Total Operating Income           | 20         | 13              | 0            | 13                 | 163           | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 209     |
| Financing Expenses               |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
| Long-Term Debt                   | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Short-Term Debt                  | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Interest Charged To Construction | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Amortization of Financing Costs  | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Total Financing Expenses         | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Earnings before Income Taxes     | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Income Taxes                     | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Net Earnings                     | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Gross Revenue Requirement        | 20         | 13              | 0            | 13                 | 163           | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 209     |
| OATT Revenue                     | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Other Revenue                    | 0          | 0               | 0            | 0                  | 0             | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 0       |
| Net Revenue Requirement          | 20         | 13              | 0            | 13                 | 163           | 0            | 0               | 0             | 0            | 0             | 0       | 0                       | 0                              | 0                   | 0             | 0        | 209     |
| Required Allocation Factors      |            |                 |              |                    |               |              |                 |               |              |               |         |                         |                                |                     |               |          |         |
|                                  | Generation | Purchased Power | Transmission | Substations        | Primary Lines | Transformers | Secondary Lines | Service Lines | Meter Assets | Meter Reading | Billing | Remittance & Collection | Uncollectibles & Damage Claims | Service Connections | Late Payments | Lighting | Total   |
| ECC                              | 8.3 %      | 16.7 %          | 25.0 %       | 25.0 %             | 8.3 %         | 8.3 %        | 8.3 %           | 0.0 %         | 0.0 %        | 0.0 %         | 0.0 %   | 0.0 %                   | 0.0 %                          | 0.0 %               | 0.0 %         | 0.0 %    | 100.0 % |
| SCADA                            | 25.0 %     | 0.0 %           | 25.0 %       | 25.0 %             | 8.3 %         | 8.3 %        | 8.3 %           | 0.0 %         | 0.0 %        | 0.0 %         | 0.0 %   | 0.0 %                   | 0.0 %                          | 0.0 %               | 0.0 %         | 0.0 %    | 100.0 % |
| T&D Plant                        | 0.0 %      | 0.0 %           | 23.2 %       | 4.2 %              | 26.3 %        | 17.2 %       | 8.9 %           | 15.7 %        | 3.1 %        | 0.0 %         | 0.0 %   | 0.0 %                   | 0.0 %                          | 0.0 %               | 0.0 %         | 1.4 %    | 100.0 % |
| Distribution Lines               | 0.0 %      | 0.0 %           | 0.0 %        | 0.0 %              | 50.3 %        | 0.0 %        | 16.8 %          | 30.2 %        | 0.0 %        | 0.0 %         | 0.0 %   | 0.0 %                   | 0.0 %                          | 0.0 %               | 0.0 %         | 2.7 %    | 100.0 % |
| Distribution Network             | 0.0 %      | 0.0 %           | 0.0 %        | 6.5 %              | 47.1 %        | 30.7 %       | 15.7 %          | 0.0 %         | 0.0 %        | 0.0 %         | 0.0 %   | 0.0 %                   | 0.0 %                          | 0.0 %               | 0.0 %         | 0.0 %    | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Schedule 3.3                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Functionalized Vehicle          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Allocation                      |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Energy Costs                    | 2              | 3                   | 5                | 5               | 2                | 2                | 2                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 21    |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Energy Costs                | 2              | 3                   | 5                | 5               | 2                | 2                | 2                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 21    |
| Distribution                    | 3              | 0                   | 3                | 14              | 84               | 51               | 29                  | 4                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 189   |
| Transmission                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission - OATT             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Expenses        | 5              | 3                   | 8                | 19              | 86               | 53               | 31                  | 4                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 209   |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Income          | 5              | 3                   | 8                | 19              | 86               | 53               | 31                  | 4                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 209   |
| Financing Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0     |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Interest Charged To Constructi  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Revenue Requirement       | 5              | 3                   | 8                | 19              | 86               | 53               | 31                  | 4                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 209   |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Revenue Requirement         | 5              | 3                   | 8                | 19              | 86               | 53               | 31                  | 4                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 209   |

# MECL 2017 Cost Allocation Model

|                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|---------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Schedule 3.3                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Functionalized Vehicle          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Total                           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                 | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Operating Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Energy Costs                    | 36             | 3                   | 7                | 5               | 2                | 2                | 2                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 56    |
| ECAM Adjustment                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Energy Costs                | 36             | 3                   | 7                | 5               | 2                | 2                | 2                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 56    |
| Distribution                    | 3              | 0                   | 3                | 16              | 84               | 108              | 29                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 257   |
| Transmission                    | 0              | 0                   | 56               | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 56    |
| Transmission and Distribution - | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission - OATT             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| General                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Expenses        | 39             | 3                   | 66               | 21              | 86               | 110              | 31                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 369   |
| Amortization                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Amortization Other              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization Plant And Equipme  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Amortization              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Operating Income          | 39             | 3                   | 66               | 21              | 86               | 110              | 31                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 369   |
| Financing Expenses              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0     |
| Long-Term Debt                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Short-Term Debt                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Interest Charged To Constructi  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Amortization of Financing Costs | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Financing Expenses        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Earnings before Income Taxes    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Income Taxes                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Earnings                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Revenue Requirement       | 39             | 3                   | 66               | 21              | 86               | 110              | 31                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 369   |
| OATT Revenue                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other Revenue                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Net Revenue Requirement         | 39             | 3                   | 66               | 21              | 86               | 110              | 31                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 369   |

# MECL 2017 Cost Allocation Model

| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|----------|
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Direct Assigned (\$,000)           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total    |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Production                         | 61,459         | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 61,459   |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Substations                        | 0              | 0                   | 857              | 2,479           | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,336    |
| Lines and Line Transformers        | 0              | 0                   | 45,138           | 0               | 0                | 62,090           | 0                   | 40,371           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 147,600  |
| SCADA and Communications           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,665   |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 4,456    |
| Total Transmission & Distrib       | 0              | 0                   | 45,996           | 2,479           | 0                | 62,090           | 0                   | 40,371           | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 170,057  |
| Administrative & General           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Gross Fixed Assets                 | 61,459         | 0                   | 45,996           | 2,479           | 0                | 62,090           | 0                   | 40,371           | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 231,517  |
| Contributions - Net                | 0              | 0                   | (13,252)         | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (13,252) |
| Future Income Taxes                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Fixed Assets Recovery              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| ECAM                               | 0              | (780)               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (780)    |
| Deferred Charges                   | (534)          | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (534)    |
| Employee Future Benefits           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| DSM                                | 0              | (48)                | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (48)     |
| Future Income Tax Liability        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Future Income Tax Asset            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Other                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Tax Adjustments for CAR            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Future Income Taxes          | (534)          | (829)               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (1,363)  |
| Deferred Financing Costs           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd pre-2004 costs recover  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd post-2003 costs recover | 0              | 2,517               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,517    |
| Regulatory Liabilities - Other     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Regulatory Asset - Other           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Intangible Assets                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Right of Ways                      | 0              | 0                   | 3,080            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,080    |
| Software                           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Intangible Assets            | 0              | 0                   | 3,080            | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,080    |
| Deferred Charge                    | 1,880          | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,880    |
| Working Capital                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Inventory                          | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Gross operating expenses           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Income taxes paid                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Working Capital              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total                              | 62,804         | 1,689               | 35,825           | 2,479           | 0                | 62,090           | 0                   | 40,371           | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 224,379  |

# MECL 2017 Cost Allocation Model

|                                    |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
|------------------------------------|---------------------------------|-----|-------|---------------------------|--------------------------------|---------------------------|-----------------------------|--------------------|---------|----------------|--------------------------------------------------------|-----------|---------------------------------|-------|---|---|----------|
| Schedule 3.4                       |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| Functionalized Rate Base           |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
|                                    |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| For Allocation                     | First Allocation                |     |       |                           |                                |                           |                             |                    |         |                |                                                        | Second Al | Third Allocation                |       |   |   |          |
|                                    | Substatio<br>ns 1841<br>Account | ECC | SCADA | Primary<br>&<br>Secondary | Distributi<br>on<br>Facilities | Distributi<br>on<br>Lines | Distributi<br>on<br>Network | Transport<br>ation | Labour  | Head<br>Office | Contribut<br>ions<br>Related<br>Distributi<br>on Plant | Net Plant | Rate<br>Base<br>Excluding<br>WC | O&M   |   |   | Total    |
| Fixed Assets                       |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| Production                         | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Transmission & Distribution        |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| Substations                        | 29,608                          | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 29,608   |
| Lines and Line Transformers        | 0                               | 0   | 0     | 106,089                   | 0                              | 0                         | 2,847                       | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 108,936  |
| SCADA and Communications           | 0                               | 0   | 4,459 | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 4,459    |
| Meters                             | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Street & Private Area Lights       | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Total Transmission & Distrib       | 29,608                          | 0   | 4,459 | 106,089                   | 0                              | 0                         | 2,847                       | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 143,003  |
| Administrative & General           | 0                               | 420 | 0     | 0                         | 0                              | 0                         | 4,860                       | 6,772              | 3,517   | 3,155          | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 18,724   |
| Gross Fixed Assets                 | 29,608                          | 420 | 4,459 | 106,089                   | 0                              | 0                         | 7,707                       | 6,772              | 3,517   | 3,155          | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 161,726  |
| Contributions - Net                | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | (11,744)                                               | 0         | 0                               | 0     | 0 | 0 | (11,744) |
| Future Income Taxes                |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| Fixed Assets Recovery              | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | (56,484)  | 0                               | 0     | 0 | 0 | (56,484) |
| ECAM                               | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Deferred Charges                   | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Employee Future Benefits           | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 3,271   | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 3,271    |
| DSM                                | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Future Income Tax Liability        | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 4,842     | 0                               | 0     | 0 | 0 | 4,842    |
| Future Income Tax Asset            | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 25,967    | 0                               | 0     | 0 | 0 | 25,967   |
| Other                              | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 35        | 0                               | 0     | 0 | 0 | 35       |
| Tax Adjustments for CAR            | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 13,228    | 0                               | 0     | 0 | 0 | 13,228   |
| Total Future Income Taxes          | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 3,271   | 0              | 0                                                      | (12,412)  | 0                               | 0     | 0 | 0 | (9,142)  |
| Deferred Financing Costs           | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 652       | 0                               | 0     | 0 | 0 | 652      |
| Unrecoverd pre-2004 costs recover  | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Unrecoverd post-2003 costs recover | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Regulatory Liabilities - Other     | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | (15,619)  | 0                               | 0     | 0 | 0 | (15,619) |
| Regulatory Asset - Other           | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | (9,352) | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | (9,352)  |
| Intangible Assets                  |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   |          |
| Right of Ways                      | 0                               | 0   | 0     | 0                         | 222                            | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 222      |
| Software                           | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 675     | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 675      |
| Total Intangible Assets            | 0                               | 0   | 0     | 0                         | 222                            | 0                         | 0                           | 0                  | 675     | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 897      |
| Deferred Charge                    | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 0        |
| Working Capital                    |                                 |     |       |                           |                                |                           |                             |                    |         |                |                                                        |           |                                 |       |   |   | 0        |
| Inventory                          | 0                               | 0   | 0     | 0                         | 0                              | 4,018                     | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 0     | 0 | 0 | 4,018    |
| Gross operating expenses           | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 0                               | 4,955 | 0 | 0 | 4,955    |
| Income taxes paid                  | 0                               | 0   | 0     | 0                         | 0                              | 0                         | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 327                             | 0     | 0 | 0 | 327      |
| Total Working Capital              | 0                               | 0   | 0     | 0                         | 0                              | 4,018                     | 0                           | 0                  | 0       | 0              | 0                                                      | 0         | 327                             | 4,955 | 0 | 0 | 9,301    |
| Total                              | 29,608                          | 420 | 4,459 | 106,089                   | 222                            | 4,018                     | 7,707                       | 6,772              | (1,890) | 3,155          | (11,744)                                               | (27,380)  | 327                             | 4,955 | 0 | 0 | 126,719  |

# MECL 2017 Cost Allocation Model

| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Required Allocation Factors        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Substations 1841 Account           | 0.0 %          | 0.0 %               | 71.6 %           | 28.4 %          | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| ECC                                | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                              | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Primary & Secondary                | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Facilities            | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.4 %           | 32.8 %           | 16.8 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Lines                 | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.3 %           | 0.0 %            | 16.8 %              | 30.2 %           | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 2.7 %    | 100.0 % |
| Distribution Network               | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Transportation                     | 10.6 %         | 0.9 %               | 17.9 %           | 5.7 %           | 23.4 %           | 29.8 %           | 8.3 %               | 1.1 %            | 0.0 %           | 2.3 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.1 %    | 100.0 % |
| Labour                             | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Head Office                        | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |
| Contributions Related Distribution | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 36.3 %           | 23.6 %           | 12.1 %              | 21.8 %           | 4.3 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.9 %    | 100.0 % |
| Net Plant                          | 17.3 %         | 0.1 %               | 16.3 %           | 3.6 %           | 22.1 %           | 17.4 %           | 7.5 %               | 10.3 %           | 3.8 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.1 %    | 100.0 % |
| Rate Base Excluding WC             | 17.3 %         | 0.5 %               | 15.9 %           | 3.5 %           | 22.3 %           | 17.2 %           | 7.5 %               | 10.5 %           | 3.8 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.2 %    | 100.0 % |
| O&M                                | 4.0 %          | 81.8 %              | 4.8 %            | 0.8 %           | 2.9 %            | 1.8 %            | 1.1 %               | 0.6 %            | 0.0 %           | 0.6 %            | 0.7 %   | 0.5 %                          | 0.3 %                                    | 0.1 %                      | 0.0 %                | 0.1 %    | 100.0 % |
|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |

# MECL 2017 Cost Allocation Model

|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|----------|
| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| First Allocation                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total    |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Production                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Substations                        | 0              | 0                   | 21,197           | 8,410           | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 29,608   |
| Lines and Line Transformers        | 0              | 0                   | 0                | 184             | 80,908           | 874              | 26,969              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 108,936  |
| SCADA and Communications           | 1,115          | 0                   | 1,115            | 1,115           | 372              | 372              | 372                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,459    |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Transmission & Distrib       | 1,115          | 0                   | 22,312           | 9,710           | 81,280           | 1,245            | 27,341              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 143,003  |
| Administrative & General           | 1,834          | 209                 | 2,566            | 1,063           | 5,026            | 4,201            | 1,792               | 469              | 25              | 270              | 397     | 577                            | 126                                      | 126                        | 0                    | 42       | 18,724   |
| Gross Fixed Assets                 | 2,949          | 209                 | 24,878           | 10,773          | 86,305           | 5,447            | 29,133              | 469              | 25              | 270              | 397     | 577                            | 126                                      | 126                        | 0                    | 42       | 161,726  |
| Contributions - Net                | 0              | 0                   | 0                | 0               | (4,258)          | (2,773)          | (1,419)             | (2,556)          | (510)           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | (228)    | (11,744) |
| Future Income Taxes                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Fixed Assets Recovery              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| ECAM                               | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Deferred Charges                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Employee Future Benefits           | 793            | 57                  | 747              | 165             | 648              | 357              | 239                 | 204              | 1               | 40               | 0       | 0                              | 0                                        | 0                          | 0                    | 18       | 3,271    |
| DSM                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Future Income Tax Liability        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Future Income Tax Asset            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Other                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Tax Adjustments for CAR            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Future Income Taxes          | 793            | 57                  | 747              | 165             | 648              | 357              | 239                 | 204              | 1               | 40               | 0       | 0                              | 0                                        | 0                          | 0                    | 18       | 3,271    |
| Deferred Financing Costs           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd pre-2004 costs recover  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd post-2003 costs recover | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Regulatory Liabilities - Other     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Regulatory Asset - Other           | (2,268)        | (164)               | (2,136)          | (472)           | (1,852)          | (1,022)          | (684)               | (585)            | (4)             | (113)            | 0       | 0                              | 0                                        | 0                          | 0                    | (52)     | (9,352)  |
| Intangible Assets                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Right of Ways                      | 0              | 0                   | 0                | 0               | 112              | 73               | 37                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 222      |
| Software                           | 164            | 12                  | 154              | 34              | 134              | 74               | 49                  | 42               | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 4        | 675      |
| Total Intangible Assets            | 164            | 12                  | 154              | 34              | 246              | 147              | 87                  | 42               | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 4        | 897      |
| Deferred Charge                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Working Capital                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Inventory                          | 0              | 0                   | 0                | 0               | 2,022            | 0                | 674                 | 1,214            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 108      | 4,018    |
| Gross operating expenses           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Income taxes paid                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Working Capital              | 0              | 0                   | 0                | 0               | 2,022            | 0                | 674                 | 1,214            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 108      | 4,018    |
| Total                              | 1,638          | 115                 | 23,643           | 10,500          | 83,111           | 2,156            | 28,030              | (1,211)          | (487)           | 204              | 397     | 577                            | 126                                      | 126                        | 0                    | (108)    | 148,816  |



# MECL 2017 Cost Allocation Model

|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|----------|
| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Second Allocation                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total    |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Production                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Substations                        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Lines and Line Transformers        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| SCADA and Communications           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Transmission & Distrib       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Administrative & General           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Gross Fixed Assets                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Contributions - Net                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Future Income Taxes                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Fixed Assets Recovery              | (9,799)        | (34)                | (9,235)          | (2,016)         | (12,488)         | (9,850)          | (4,219)             | (5,816)          | (2,152)         | (42)             | (60)    | (88)                           | (19)                                     | (19)                       | 0                    | (648)    | (56,484) |
| ECAM                               | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Deferred Charges                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Employee Future Benefits           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| DSM                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Future Income Tax Liability        | 840            | 3                   | 792              | 173             | 1,070            | 844              | 362                 | 499              | 184             | 4                | 5       | 8                              | 2                                        | 2                          | 0                    | 56       | 4,842    |
| Future Income Tax Asset            | 4,505          | 15                  | 4,245            | 927             | 5,741            | 4,528            | 1,939               | 2,674            | 989             | 19               | 28      | 40                             | 9                                        | 9                          | 0                    | 298      | 25,967   |
| Other                              | 6              | 0                   | 6                | 1               | 8                | 6                | 3                   | 4                | 1               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 35       |
| Tax Adjustments for CAR            | 2,295          | 8                   | 2,163            | 472             | 2,925            | 2,307            | 988                 | 1,362            | 504             | 10               | 14      | 21                             | 4                                        | 4                          | 0                    | 152      | 13,228   |
| Total Future Income Taxes          | (2,153)        | (7)                 | (2,029)          | (443)           | (2,744)          | (2,165)          | (927)               | (1,278)          | (473)           | (9)              | (13)    | (19)                           | (4)                                      | (4)                        | 0                    | (142)    | (12,412) |
| Deferred Financing Costs           | 113            | 0                   | 107              | 23              | 144              | 114              | 49                  | 67               | 25              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 652      |
| Unrecoverd pre-2004 costs recover  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd post-2003 costs recover | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Regulatory Liabilities - Other     | (2,710)        | (9)                 | (2,554)          | (558)           | (3,453)          | (2,724)          | (1,167)             | (1,608)          | (595)           | (12)             | (17)    | (24)                           | (5)                                      | (5)                        | 0                    | (179)    | (15,619) |
| Regulatory Asset - Other           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Intangible Assets                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Right of Ways                      | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Software                           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Intangible Assets            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Deferred Charge                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Working Capital                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Inventory                          | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Gross operating expenses           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Income taxes paid                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total Working Capital              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Total                              | (4,750)        | (16)                | (4,476)          | (977)           | (6,053)          | (4,775)          | (2,045)             | (2,819)          | (1,043)         | (20)             | (29)    | (42)                           | (9)                                      | (9)                        | 0                    | (314)    | (27,380) |

# MECL 2017 Cost Allocation Model

|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|-------|
| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Third Allocation                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Production                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Substations                        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Lines and Line Transformers        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| SCADA and Communications           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Transmission & Distrib       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Administrative & General           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross Fixed Assets                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Contributions - Net                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Future Income Taxes                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Fixed Assets Recovery              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| ECAM                               | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Deferred Charges                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Employee Future Benefits           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| DSM                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Future Income Tax Liability        | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Future Income Tax Asset            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Other                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Tax Adjustments for CAR            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Future Income Taxes          | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Deferred Financing Costs           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Unrecoverd pre-2004 costs recover  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Unrecoverd post-2003 costs recover | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Regulatory Liabilities - Other     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Regulatory Asset - Other           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Intangible Assets                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Right of Ways                      | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Software                           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Total Intangible Assets            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Deferred Charge                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Working Capital                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |       |
| Inventory                          | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0     |
| Gross operating expenses           | 199            | 4,052               | 238              | 38              | 143              | 91               | 52                  | 31               | 1               | 29               | 34      | 22                             | 17                                       | 4                          | 0                    | 3        | 4,955 |
| Income taxes paid                  | 56             | 2                   | 52               | 11              | 73               | 56               | 25                  | 34               | 12              | 0                | 0       | 1                              | 0                                        | 0                          | 0                    | 4        | 327   |
| Total Working Capital              | 256            | 4,053               | 290              | 50              | 216              | 147              | 77                  | 65               | 13              | 29               | 35      | 23                             | 17                                       | 5                          | 0                    | 7        | 5,283 |
| Total                              | 256            | 4,053               | 290              | 50              | 216              | 147              | 77                  | 65               | 13              | 29               | 35      | 23                             | 17                                       | 5                          | 0                    | 7        | 5,283 |

# MECL 2017 Cost Allocation Model

|                                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|----------|
| Schedule 3.4                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Functionalized Rate Base           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Total                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total    |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Production                         | 61,459         | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 61,459   |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Substations                        | 0              | 0                   | 22,055           | 10,889          | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 32,944   |
| Lines and Line Transformers        | 0              | 0                   | 45,138           | 184             | 80,908           | 62,964           | 26,969              | 40,371           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 256,535  |
| SCADA and Communications           | 1,115          | 0                   | 1,115            | 1,115           | 372              | 372              | 372                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,459    |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,665   |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 4,456    |
| Total Transmission & Distrib       | 1,115          | 0                   | 68,308           | 12,188          | 81,280           | 63,335           | 27,341              | 40,371           | 14,665          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 4,456    | 313,060  |
| Administrative & General           | 1,834          | 209                 | 2,566            | 1,063           | 5,026            | 4,201            | 1,792               | 469              | 25              | 270              | 397     | 577                            | 126                                      | 126                        | 0                    | 42       | 18,724   |
| Gross Fixed Assets                 | 64,408         | 209                 | 70,874           | 13,252          | 86,305           | 67,537           | 29,133              | 40,840           | 14,691          | 270              | 397     | 577                            | 126                                      | 126                        | 0                    | 4,498    | 393,243  |
| Contributions - Net                | 0              | 0                   | (13,252)         | 0               | (4,258)          | (2,773)          | (1,419)             | (2,556)          | (510)           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | (228)    | (24,996) |
| Future Income Taxes                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0        |
| Fixed Assets Recovery              | (9,799)        | (34)                | (9,235)          | (2,016)         | (12,488)         | (9,850)          | (4,219)             | (5,816)          | (2,152)         | (42)             | (60)    | (88)                           | (19)                                     | (19)                       | 0                    | (648)    | (56,484) |
| ECAM                               | 0              | (780)               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (780)    |
| Deferred Charges                   | (534)          | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (534)    |
| Employee Future Benefits           | 793            | 57                  | 747              | 165             | 648              | 357              | 239                 | 204              | 1               | 40               | 0       | 0                              | 0                                        | 0                          | 0                    | 18       | 3,271    |
| DSM                                | 0              | (48)                | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | (48)     |
| Future Income Tax Liability        | 840            | 3                   | 792              | 173             | 1,070            | 844              | 362                 | 499              | 184             | 4                | 5       | 8                              | 2                                        | 2                          | 0                    | 56       | 4,842    |
| Future Income Tax Asset            | 4,505          | 15                  | 4,245            | 927             | 5,741            | 4,528            | 1,939               | 2,674            | 989             | 19               | 28      | 40                             | 9                                        | 9                          | 0                    | 298      | 25,967   |
| Other                              | 6              | 0                   | 6                | 1               | 8                | 6                | 3                   | 4                | 1               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 35       |
| Tax Adjustments for CAR            | 2,295          | 8                   | 2,163            | 472             | 2,925            | 2,307            | 988                 | 1,362            | 504             | 10               | 14      | 21                             | 4                                        | 4                          | 0                    | 152      | 13,228   |
| Total Future Income Taxes          | (1,895)        | (779)               | (1,282)          | (278)           | (2,096)          | (1,807)          | (688)               | (1,074)          | (472)           | 30               | (13)    | (19)                           | (4)                                      | (4)                        | 0                    | (124)    | (10,505) |
| Deferred Financing Costs           | 113            | 0                   | 107              | 23              | 144              | 114              | 49                  | 67               | 25              | 0                | 1       | 1                              | 0                                        | 0                          | 0                    | 7        | 652      |
| Unrecoverd pre-2004 costs recover  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0        |
| Unrecoverd post-2003 costs recover | 0              | 2,517               | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,517    |
| Regulatory Liabilities - Other     | (2,710)        | (9)                 | (2,554)          | (558)           | (3,453)          | (2,724)          | (1,167)             | (1,608)          | (595)           | (12)             | (17)    | (24)                           | (5)                                      | (5)                        | 0                    | (179)    | (15,619) |
| Regulatory Asset - Other           | (2,268)        | (164)               | (2,136)          | (472)           | (1,852)          | (1,022)          | (684)               | (585)            | (4)             | (113)            | 0       | 0                              | 0                                        | 0                          | 0                    | (52)     | (9,352)  |
| Intangible Assets                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Right of Ways                      | 0              | 0                   | 3,080            | 0               | 112              | 73               | 37                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 3,302    |
| Software                           | 164            | 12                  | 154              | 34              | 134              | 74               | 49                  | 42               | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 4        | 675      |
| Total Intangible Assets            | 164            | 12                  | 3,235            | 34              | 246              | 147              | 87                  | 42               | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 4        | 3,977    |
| Deferred Charge                    | 1,880          | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 1,880    |
| Working Capital                    |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0        |
| Inventory                          | 0              | 0                   | 0                | 0               | 2,022            | 0                | 674                 | 1,214            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 108      | 4,018    |
| Gross operating expenses           | 199            | 4,052               | 238              | 38              | 143              | 91               | 52                  | 31               | 1               | 29               | 34      | 22                             | 17                                       | 4                          | 0                    | 3        | 4,955    |
| Income taxes paid                  | 56             | 2                   | 52               | 11              | 73               | 56               | 25                  | 34               | 12              | 0                | 0       | 1                              | 0                                        | 0                          | 0                    | 4        | 327      |
| Total Working Capital              | 256            | 4,053               | 290              | 50              | 2,238            | 147              | 751                 | 1,279            | 13              | 29               | 35      | 23                             | 17                                       | 5                          | 0                    | 115      | 9,301    |
| Total                              | 59,948         | 5,841               | 55,281           | 12,051          | 77,273           | 59,619           | 26,062              | 36,406           | 13,149          | 213              | 402     | 557                            | 134                                      | 121                        | 0                    | 4,040    | 351,098  |

# MECL 2017 Cost Allocation Model

|                                                         |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|---------------------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.5                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Contributions Related Distribution Plant |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Direct Assigned (\$,000)                                |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                                         | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Lines and Line Transformers                             | 0              | 0                   | 0                | 0               | 0                | 79,816           | 0                   | 73,674           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 153,490 |
| SCADA and Communications                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Meters                                                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,691  |
| Street & Private Area Lights                            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 6,580   |
| Total Transmission & Distrib                            | 0              | 0                   | 0                | 0               | 0                | 79,816           | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 174,760 |
| Administrative & General                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Fixed Assets                                      | 0              | 0                   | 0                | 0               | 0                | 79,816           | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 174,760 |
| Intangible Assets                                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                                           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Software                                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets                                 | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total                                                   | 0              | 0                   | 0                | 0               | 0                | 79,816           | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 174,760 |
| For Allocation                                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                                         | Primary<br>&   | Distributi<br>on    |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | Total   |
| Fixed Assets                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Lines and Line Transformers                             | 163,413        | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| SCADA and Communications                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Meters                                                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Street & Private Area Lights                            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Transmission & Distrib                            | 163,413        | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| Administrative & General                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Fixed Assets                                      | 163,413        | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| Intangible Assets                                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                                           | 0              | 282                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Software                                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets                                 | 0              | 282                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Total                                                   | 163,413        | 282                 | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,695 |
| Required Allocation Factors                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                                         | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Primary & Secondary                                     | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Facilities                                 | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.4 %           | 32.8 %           | 16.8 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                                         |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|---------------------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 3.5                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Contributions Related Distribution Plant |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocation                                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                                         | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Lines and Line Transformers                             | 0              | 0                   | 0                | 0               | 122,560          | 0                | 40,853              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| SCADA and Communications                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Meters                                                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Street & Private Area Lights                            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Transmission & Distrib                            | 0              | 0                   | 0                | 0               | 122,560          | 0                | 40,853              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| Administrative & General                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Fixed Assets                                      | 0              | 0                   | 0                | 0               | 122,560          | 0                | 40,853              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| Intangible Assets                                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                                           | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Software                                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets                                 | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Total                                                   | 0              | 0                   | 0                | 0               | 122,702          | 93               | 40,901              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,695 |
| Total                                                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                                         | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                                            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                                              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Lines and Line Transformers                             | 0              | 0                   | 0                | 0               | 122,560          | 79,816           | 40,853              | 73,674           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 316,902 |
| SCADA and Communications                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Meters                                                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,691  |
| Street & Private Area Lights                            | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 6,580   |
| Total Transmission & Distrib                            | 0              | 0                   | 0                | 0               | 122,560          | 79,816           | 40,853              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 338,173 |
| Administrative & General                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Fixed Assets                                      | 0              | 0                   | 0                | 0               | 122,560          | 79,816           | 40,853              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 338,173 |
| Intangible Assets                                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                                           | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Software                                                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets                                 | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Total                                                   | 0              | 0                   | 0                | 0               | 122,702          | 79,908           | 40,901              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 338,455 |

# MECL 2017 Cost Allocation Model

|                              |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
|------------------------------|---------------------------------|---------------------|------------------|-------------------------------|--------------------------------|------------------------|-----------------------------|--------------------|-----------------|------------------|--------------------------------------------------------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|--------|
| Schedule 3.6                 |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Functionalized Amortization  |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Direct Assigned (\$,000)     |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
|                              | Generati<br>on                  | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns               | Primary<br>Lines               | Transfor<br>mers       | Secondar<br>y Lines         | Service<br>Lines   | Meter<br>Assets | Meter<br>Reading | Billing                                                | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Fixed Assets                 |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Production                   | 6,326                           | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 6,326  |
| Transmission & Distribution  |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Substations                  | 0                               | 0                   | 0                | 70                            | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 70     |
| Lines and Line Transformers  | 0                               | 0                   | 1,745            | 0                             | 0                              | 2,626                  | 0                           | 2,285              | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 6,656  |
| SCADA and Communications     | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Meters                       | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 726             | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 726    |
| Street & Private Area Lights | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 301      | 301    |
| Total Transmission & Distrib | 0                               | 0                   | 1,745            | 70                            | 0                              | 2,626                  | 0                           | 2,285              | 726             | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 301      | 7,753  |
| Administrative & General     | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Gross Fixed Assets           | 6,326                           | 0                   | 1,745            | 70                            | 0                              | 2,626                  | 0                           | 2,285              | 726             | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 301      | 14,080 |
| Contributions - Net          | 0                               | 0                   | (448)            | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | (448)  |
| Total                        | 6,326                           | 0                   | 1,298            | 70                            | 0                              | 2,626                  | 0                           | 2,285              | 726             | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 301      | 13,632 |
| For Allocation               |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
|                              | Substatio<br>ns 1841<br>Account | ECC                 | SCADA            | Primary<br>&<br>Secondar<br>y | Distributi<br>on<br>Facilities | Distributi<br>on Lines | Distributi<br>on<br>Network | Transport<br>ation | Labour          | Head<br>Office   | Contribut<br>ions<br>Related<br>Distributi<br>on Plant |                                |                                          |                            |                      |          | Total  |
| Fixed Assets                 |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Production                   | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission & Distribution  |                                 |                     |                  |                               |                                |                        |                             |                    |                 |                  |                                                        |                                |                                          |                            |                      |          |        |
| Substations                  | 898                             | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 898    |
| Lines and Line Transformers  | 0                               | 0                   | 0                | 5,352                         | 0                              | 0                      | (20)                        | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 5,332  |
| SCADA and Communications     | 0                               | 0                   | 580              | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 580    |
| Meters                       | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Street & Private Area Lights | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Transmission & Distrib | 898                             | 0                   | 580              | 5,352                         | 0                              | 0                      | (20)                        | 0                  | 0               | 0                | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 6,810  |
| Administrative & General     | 0                               | 17                  | 0                | 0                             | 0                              | 0                      | 214                         | 802                | 558             | 124              | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 1,716  |
| Gross Fixed Assets           | 898                             | 17                  | 580              | 5,352                         | 0                              | 0                      | 195                         | 802                | 558             | 124              | 0                                                      | 0                              | 0                                        | 0                          | 0                    | 0        | 8,526  |
| Contributions - Net          | 0                               | 0                   | 0                | 0                             | 0                              | 0                      | 0                           | 0                  | 0               | 0                | (478)                                                  | 0                              | 0                                        | 0                          | 0                    | 0        | (478)  |
| Total                        | 898                             | 17                  | 580              | 5,352                         | 0                              | 0                      | 195                         | 802                | 558             | 124              | (478)                                                  | 0                              | 0                                        | 0                          | 0                    | 0        | 8,048  |

# MECL 2017 Cost Allocation Model

| Schedule 3.6                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functionalized Amortization        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Required Allocation Factors        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Substations 1841 Account           | 0.0 %          | 0.0 %               | 71.6 %           | 28.4 %          | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| ECC                                | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                              | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Primary & Secondary                | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Facilities            | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.4 %           | 32.8 %           | 16.8 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Lines                 | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.3 %           | 0.0 %            | 16.8 %              | 30.2 %           | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 2.7 %    | 100.0 % |
| Distribution Network               | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Transportation                     | 10.6 %         | 0.9 %               | 17.9 %           | 5.7 %           | 23.4 %           | 29.8 %           | 8.3 %               | 1.1 %            | 0.0 %           | 2.3 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.1 %    | 100.0 % |
| Labour                             | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Head Office                        | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |
| Contributions Related Distribution | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 36.3 %           | 23.6 %           | 12.1 %              | 21.8 %           | 4.3 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.9 %    | 100.0 % |
| First Allocation                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                                    | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                         | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                        | 0              | 0                   | 643              | 255             | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 898     |
| Lines and Line Transformers        | 0              | 0                   | 0                | (1)             | 4,005            | (6)              | 1,335               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 5,332   |
| SCADA and Communications           | 145            | 0                   | 145              | 145             | 48               | 48               | 48                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 580     |
| Meters                             | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Street & Private Area Lights       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Transmission & Distrib       | 145            | 0                   | 788              | 399             | 4,053            | 42               | 1,383               | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 6,810   |
| Administrative & General           | 231            | 21                  | 293              | 96              | 417              | 378              | 149                 | 51               | 1               | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 5        | 1,716   |
| Gross Fixed Assets                 | 376            | 21                  | 1,081            | 494             | 4,470            | 420              | 1,532               | 51               | 1               | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 5        | 8,526   |
| Contributions - Net                | 0              | 0                   | 0                | 0               | (173)            | (113)            | (58)                | (104)            | (21)            | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | (9)      | (478)   |
| Total                              | 376            | 21                  | 1,081            | 494             | 4,297            | 307              | 1,475               | (53)             | (20)            | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | (5)      | 8,048   |

# MECL 2017 Cost Allocation Model

|                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|--------|
| Schedule 3.6                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Functionalized Amortization  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Total                        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Fixed Assets                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Production                   | 6,326          | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 6,326  |
| Transmission & Distribution  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Substations                  | 0              | 0                   | 643              | 325             | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 968    |
| Lines and Line Transformers  | 0              | 0                   | 1,745            | (1)             | 4,005            | 2,620            | 1,335               | 2,285            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 11,988 |
| SCADA and Communications     | 145            | 0                   | 145              | 145             | 48               | 48               | 48                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 580    |
| Meters                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 726             | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 726    |
| Street & Private Area Lights | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 301      | 301    |
| Total Transmission & Distrib | 145            | 0                   | 2,533            | 469             | 4,053            | 2,668            | 1,383               | 2,285            | 726             | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 301      | 14,563 |
| Administrative & General     | 231            | 21                  | 293              | 96              | 417              | 378              | 149                 | 51               | 1               | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 5        | 1,716  |
| Gross Fixed Assets           | 6,702          | 21                  | 2,826            | 565             | 4,470            | 3,046            | 1,532               | 2,335            | 727             | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 306      | 22,606 |
| Contributions - Net          | 0              | 0                   | (448)            | 0               | (173)            | (113)            | (58)                | (104)            | (21)            | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | (9)      | (926)  |
| Total                        | 6,702          | 21                  | 2,378            | 565             | 4,297            | 2,933            | 1,475               | 2,231            | 706             | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 297      | 21,680 |



# MECL 2017 Cost Allocation Model

|                              |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------|---------------------------------|---------------------|------------------|--------------------------|--------------------------------|-----------------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 4.0                 |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Gross Plant   |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Direct Assigned (\$,000)     |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              | Generati<br>on                  | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns          | Primary<br>Lines               | Transfor<br>mers            | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                 |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                   | 112,119                         | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 112,119 |
| Transmission & Distribution  |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                  | 0                               | 0                   | 882              | 3,226                    | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,107   |
| Lines and Line Transformers  | 0                               | 0                   | 66,481           | 0                        | 0                              | 79,816                      | 0                   | 73,674           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 219,970 |
| SCADA and Communications     | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Meters                       | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,691  |
| Street & Private Area Lights | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 6,580   |
| Total Transmission & Distrib | 0                               | 0                   | 67,362           | 3,226                    | 0                              | 79,816                      | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 245,348 |
| Administrative & General     | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Gross Fixed Assets           | 112,119                         | 0                   | 67,362           | 3,226                    | 0                              | 79,816                      | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 357,467 |
| Intangible Assets            |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                | 0                               | 0                   | 4,459            | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,459   |
| Software                     | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets      | 0                               | 0                   | 4,459            | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,459   |
| Total                        | 112,119                         | 0                   | 71,821           | 3,226                    | 0                              | 79,816                      | 0                   | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 361,926 |
| For Allocation               | First Allocation                |                     |                  |                          | Second Al                      | Third Allocation            |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              | Substatio<br>ns 1841<br>Account | ECC                 | SCADA            | Primary<br>&<br>Secondar | Distributi<br>on<br>Facilities | Distributi<br>on<br>Network | Transport<br>ation  | Labour           | Head<br>Office  |                  |         |                                |                                          |                            |                      |          | Total   |
| Fixed Assets                 |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                   | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution  |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                  | 48,014                          | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 48,014  |
| Lines and Line Transformers  | 0                               | 0                   | 0                | 163,413                  | 0                              | 2,687                       | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 166,100 |
| SCADA and Communications     | 0                               | 0                   | 11,468           | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 11,468  |
| Meters                       | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Street & Private Area Lights | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Transmission & Distrib | 48,014                          | 0                   | 11,468           | 163,413                  | 0                              | 2,687                       | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 225,582 |
| Administrative & General     | 0                               | 716                 | 0                | 0                        | 0                              | 7,434                       | 11,453              | 4,454            | 5,307           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 29,363  |
| Gross Fixed Assets           | 48,014                          | 716                 | 11,468           | 163,413                  | 0                              | 10,121                      | 11,453              | 4,454            | 5,307           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 254,945 |
| Intangible Assets            |                                 |                     |                  |                          |                                |                             |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                | 0                               | 0                   | 0                | 0                        | 282                            | 0                           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282     |
| Software                     | 0                               | 0                   | 0                | 0                        | 0                              | 0                           | 0                   | 2,623            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,623   |
| Total Intangible Assets      | 0                               | 0                   | 0                | 0                        | 282                            | 0                           | 0                   | 2,623            | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,905   |
| Total                        | 48,014                          | 716                 | 11,468           | 163,413                  | 282                            | 10,121                      | 11,453              | 7,077            | 5,307           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 257,850 |

# MECL 2017 Cost Allocation Model

|                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 4.0                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Gross Plant   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Required Allocation Factors  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Substations 1841 Account     | 0.0 %          | 0.0 %               | 71.6 %           | 28.4 %          | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| ECC                          | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                        | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Primary & Secondary          | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Facilities      | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.4 %           | 32.8 %           | 16.8 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Network         | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Transportation               | 10.6 %         | 0.9 %               | 17.9 %           | 5.7 %           | 23.4 %           | 29.8 %           | 8.3 %               | 1.1 %            | 0.0 %           | 2.3 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.1 %    | 100.0 % |
| Labour                       | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Head Office                  | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |
| First Allocation             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Transmission & Distribution  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                  | 0              | 0                   | 34,375           | 13,639          | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 48,014  |
| Lines and Line Transformers  | 0              | 0                   | 0                | 0               | 122,560          | 0                | 40,853              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 163,413 |
| SCADA and Communications     | 2,867          | 0                   | 2,867            | 2,867           | 956              | 956              | 956                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 11,468  |
| Meters                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Street & Private Area Lights | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Transmission & Distrib | 2,867          | 0                   | 37,242           | 16,506          | 123,515          | 956              | 41,809              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 222,895 |
| Administrative & General     | 60             | 119                 | 179              | 179             | 60               | 60               | 60                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 716     |
| Gross Fixed Assets           | 2,927          | 119                 | 37,421           | 16,685          | 123,575          | 1,015            | 41,868              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 223,611 |
| Intangible Assets            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Software                     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total Intangible Assets      | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0       |
| Total                        | 2,927          | 119                 | 37,421           | 16,685          | 123,575          | 1,015            | 41,868              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 223,611 |

# MECL 2017 Cost Allocation Model

|                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|--------|
| Schedule 4.0                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Functionalized Gross Plant   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Second Allocation            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Fixed Assets                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Production                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission & Distribution  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Substations                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Lines and Line Transformers  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| SCADA and Communications     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Meters                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Street & Private Area Lights | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Transmission & Distrib | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Administrative & General     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Gross Fixed Assets           | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Intangible Assets            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Right of Ways                | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282    |
| Software                     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Intangible Assets      | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282    |
| Total                        | 0              | 0                   | 0                | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 282    |
| Third Allocation             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total  |
| Fixed Assets                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Production                   | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Transmission & Distribution  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Substations                  | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Lines and Line Transformers  | 0              | 0                   | 0                | 174             | 1,266            | 825              | 422                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,687  |
| SCADA and Communications     | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Meters                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Street & Private Area Lights | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Total Transmission & Distrib | 0              | 0                   | 0                | 174             | 1,266            | 825              | 422                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 2,687  |
| Administrative & General     | 2,678          | 209                 | 3,816            | 1,494           | 7,770            | 6,639            | 2,738               | 699              | 42              | 437              | 667     | 970                            | 212                                      | 212                        | 0                    | 62       | 28,647 |
| Gross Fixed Assets           | 2,678          | 209                 | 3,816            | 1,668           | 9,037            | 7,464            | 3,160               | 699              | 42              | 437              | 667     | 970                            | 212                                      | 212                        | 0                    | 62       | 31,334 |
| Intangible Assets            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |        |
| Right of Ways                | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 0      |
| Software                     | 636            | 46                  | 599              | 132             | 520              | 287              | 192                 | 164              | 1               | 32               | 0       | 0                              | 0                                        | 0                          | 0                    | 15       | 2,623  |
| Total Intangible Assets      | 636            | 46                  | 599              | 132             | 520              | 287              | 192                 | 164              | 1               | 32               | 0       | 0                              | 0                                        | 0                          | 0                    | 15       | 2,623  |
| Total                        | 3,314          | 255                 | 4,415            | 1,800           | 9,556            | 7,751            | 3,352               | 863              | 43              | 469              | 667     | 970                            | 212                                      | 212                        | 0                    | 77       | 33,957 |

# MECL 2017 Cost Allocation Model

|                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 4.0                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functionalized Gross Plant   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|                              | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Fixed Assets                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Production                   | 112,119        | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 112,119 |
| Transmission & Distribution  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                  | 0              | 0                   | 35,257           | 16,865          | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 52,121  |
| Lines and Line Transformers  | 0              | 0                   | 66,481           | 174             | 123,826          | 80,640           | 41,275              | 73,674           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 386,070 |
| SCADA and Communications     | 2,867          | 0                   | 2,867            | 2,867           | 956              | 956              | 956                 | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 11,468  |
| Meters                       | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,691  |
| Street & Private Area Lights | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 6,580   |
| Total Transmission & Distrib | 2,867          | 0                   | 104,605          | 19,906          | 124,781          | 81,596           | 42,231              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 470,930 |
| Administrative & General     | 2,738          | 328                 | 3,995            | 1,673           | 7,830            | 6,699            | 2,798               | 699              | 42              | 437              | 667     | 970                            | 212                                      | 212                        | 0                    | 62       | 29,363  |
| Gross Fixed Assets           | 117,724        | 328                 | 108,600          | 21,578          | 132,611          | 88,295           | 45,029              | 74,373           | 14,733          | 437              | 667     | 970                            | 212                                      | 212                        | 0                    | 6,642    | 612,412 |
| Intangible Assets            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Right of Ways                | 0              | 0                   | 4,459            | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,741   |
| Software                     | 636            | 46                  | 599              | 132             | 520              | 287              | 192                 | 164              | 1               | 32               | 0       | 0                              | 0                                        | 0                          | 0                    | 15       | 2,623   |
| Total Intangible Assets      | 636            | 46                  | 5,058            | 132             | 662              | 379              | 239                 | 164              | 1               | 32               | 0       | 0                              | 0                                        | 0                          | 0                    | 15       | 7,364   |
| Total                        | 118,360        | 374                 | 113,658          | 21,711          | 133,273          | 88,674           | 45,268              | 74,537           | 14,734          | 469              | 667     | 970                            | 212                                      | 212                        | 0                    | 6,657    | 619,776 |

# MECL 2017 Cost Allocation Model

|                                 |           |
|---------------------------------|-----------|
| Schedule 4.1                    |           |
| Revenue Requirement Summary     |           |
|                                 |           |
| Operating Expenses              | (\$,0000) |
| Energy Costs                    | 118,465   |
| ECAM Adjustment                 | (2,359)   |
| Net Energy Costs                | 116,106   |
| Distribution                    | 4,476     |
| Transmission                    | 1,220     |
| Transmission and Distribution - | 2,056     |
| Transmission - OATT             | 225       |
| General                         | 9,060     |
| Total Operating Expenses        | 133,143   |
| Amortization                    |           |
| Amortization Other              | 851       |
| Amortization Plant And Equipme  | 21,373    |
| Total Amortization              | 22,224    |
| Total Operating Income          | 155,367   |
| Financing Expenses              |           |
| Long-Term Debt                  | 12,065    |
| Short-Term Debt                 | 627       |
| Interest Charged To Constructio | (450)     |
| Amortization of Financing Costs | 9         |
| Total Financing Expenses        | 12,252    |
| Earnings before Income Taxes    | 18,869    |
| Income Taxes                    | 5,941     |
| Net Earnings                    | 12,928    |
| Gross Revenue Requirement       | 186,488   |
| OATT Revenue                    | (1,914)   |
| Other Revenue                   | (1,973)   |
| Net Revenue Requirement         | 182,601   |

# MECL 2017 Cost Allocation Model

|                                   |          |          |          |                             |
|-----------------------------------|----------|----------|----------|-----------------------------|
| Schedule 4.2                      |          |          |          |                             |
| Rate Base (\$,000)                |          |          |          |                             |
|                                   |          |          |          |                             |
|                                   | Open     | Close    | Mid Year | Basis for Functionalization |
| Fixed Assets                      |          |          |          |                             |
| Production                        | 63,677   | 59,242   | 61,459   | Detailed Analysis           |
| Transmission & Distribution       |          |          |          |                             |
| Substations                       | 31,955   | 33,933   | 32,944   | Detailed Analysis           |
| Lines and Line Transformers       | 248,599  | 264,472  | 256,535  | Detailed Analysis           |
| SCADA and Communications          | 4,094    | 4,825    | 4,459    | Detailed Analysis           |
| Meters                            | 14,773   | 14,558   | 14,665   | Detailed Analysis           |
| Street & Private Area Lights      | 4,271    | 4,640    | 4,456    | Detailed Analysis           |
| Total Transmission & Distrib      | 303,691  | 322,428  | 313,060  |                             |
| Administrative & General          | 18,342   | 19,106   | 18,724   | Detailed Analysis           |
| Net Fixed Assets                  | 385,710  | 400,776  | 393,243  |                             |
| Contributions - Net               | (25,239) | (24,752) | (24,996) | Detailed Analysis           |
| Future Income Taxes               |          |          |          |                             |
| Fixed Assets Recovery             | (55,226) | (57,742) | (56,484) | Net Plant                   |
| ECAM                              | (669)    | (892)    | (780)    | Purchased Power             |
| Deferred Charges                  | (550)    | (519)    | (534)    | Generation                  |
| Employee Future Benefits          | 3,567    | 2,975    | 3,271    | Labour                      |
| DSM                               | (45)     | (52)     | (48)     | Purchased Power             |
| Future Income Tax Liability       | 5,216    | 4,468    | 4,842    | Net Plant                   |
| Future Income Tax Asset           | 18,958   | 32,975   | 25,967   | Net Plant                   |
| Other                             | 10       | 59       | 35       | Net Plant                   |
| Tax Adjustments for CAR           | 13,162   | 13,294   | 13,228   | Net Plant                   |
| Total Future Income Taxes         | (15,576) | (5,434)  | (10,505) | Net Plant                   |
| Deferred Financing Costs          | 656      | 648      | 652      | Net Plant                   |
| Unrecoverd pre-2004 costs recove  | 0        | 0        | 0        | Purchased Power             |
| Unrecoverd post-2003 costs recove | 2,158    | 2,877    | 2,517    | Purchased Power             |
| Regulatory Liabilities - Other    | (16,827) | (14,412) | (15,619) | Net Plant                   |
| Regulatory Asset - Other          | (10,495) | (8,209)  | (9,352)  | Labour                      |
| Intangible Assets                 |          |          |          |                             |
| Right of Ways                     | 3,332    | 3,272    | 3,302    | Detailed Analysis           |
| Software                          | 707      | 643      | 675      | Detailed Analysis           |
| Total Intangible Assets           | 4,039    | 3,915    | 3,977    |                             |
| Deferred Charge                   | 1,918    | 1,841    | 1,880    | Generation                  |
| Working Capital                   |          |          |          |                             |
| Inventory                         | 4,367    | 3,669    | 4,018    | Distribution Lines          |
| Gross operating expenses          | 4,837    | 5,074    | 4,955    | O&M                         |
| Income taxes paid                 | 126      | 528      | 327      | Rate Base Excluding WC      |
| Total Working Capital             | 9,330    | 9,271    | 9,301    |                             |
| Rate Base                         | 335,675  | 366,521  | 351,098  |                             |

# MECL 2017 Cost Allocation Model

|                                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|----------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 5.0                     |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator Summary     |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Percent (%)                      |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator             | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Exogenous Allocators             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations 1841 Account         | 0.0 %          | 0.0 %               | 71.6 %           | 28.4 %          | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Primary & Secondary              | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 75.0 %           | 0.0 %            | 25.0 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Call Center                      | 0.0 %          | 0.0 %               | 5.0 %            | 0.0 %           | 3.3 %            | 3.3 %            | 3.3 %               | 0.0 %            | 0.0 %           | 5.0 %            | 20.0 %  | 40.0 %                         | 10.0 %                                   | 10.0 %                     | 0.0 %                | 0.0 %    | 100.0 % |
| ECC                              | 8.3 %          | 16.7 %              | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| SCADA                            | 25.0 %         | 0.0 %               | 25.0 %           | 25.0 %          | 8.3 %            | 8.3 %            | 8.3 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Allocators Based on Fixed Assets |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Environmental                    | 50.0 %         | 0.0 %               | 0.0 %            | 1.9 %           | 0.0 %            | 48.1 %           | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| T&D Transformers                 | 0.0 %          | 0.0 %               | 1.1 %            | 3.8 %           | 0.0 %            | 95.1 %           | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Distribution Facilities          | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.4 %           | 32.8 %           | 16.8 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Right of Way Amortization        | 0.0 %          | 0.0 %               | 94.1 %           | 0.0 %           | 3.0 %            | 2.0 %            | 1.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Engineering                      | 0.6 %          | 0.0 %               | 23.1 %           | 4.2 %           | 26.1 %           | 17.1 %           | 8.8 %               | 15.6 %           | 3.1 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Procurement                      | 0.0 %          | 0.0 %               | 23.0 %           | 3.7 %           | 26.6 %           | 17.3 %           | 8.9 %               | 16.0 %           | 3.2 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Distribution Lines               | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 50.3 %           | 0.0 %            | 16.8 %              | 30.2 %           | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 2.7 %    | 100.0 % |
| Distribution Network             | 0.0 %          | 0.0 %               | 0.0 %            | 6.5 %           | 47.1 %           | 30.7 %           | 15.7 %              | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| T&D Plant                        | 0.0 %          | 0.0 %               | 23.2 %           | 4.2 %           | 26.3 %           | 17.2 %           | 8.9 %               | 15.7 %           | 3.1 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Total Plant                      | 19.1 %         | 0.1 %               | 18.3 %           | 3.5 %           | 21.5 %           | 14.3 %           | 7.3 %               | 12.0 %           | 2.4 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.1 %    | 100.0 % |
| Contributions Related Distributi | 0.0 %          | 0.0 %               | 0.0 %            | 0.0 %           | 36.3 %           | 23.6 %           | 12.1 %              | 21.8 %           | 4.3 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.9 %    | 100.0 % |
| Amortization                     | 30.9 %         | 0.1 %               | 11.0 %           | 2.6 %           | 19.8 %           | 13.5 %           | 6.8 %               | 10.3 %           | 3.3 %           | 0.1 %            | 0.1 %   | 0.1 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Net Plant                        | 17.3 %         | 0.1 %               | 16.3 %           | 3.6 %           | 22.1 %           | 17.4 %           | 7.5 %               | 10.3 %           | 3.8 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.1 %    | 100.0 % |
| Rate Base Excluding WC           | 17.3 %         | 0.5 %               | 15.9 %           | 3.5 %           | 22.3 %           | 17.2 %           | 7.5 %               | 10.5 %           | 3.8 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.2 %    | 100.0 % |
| G&T Rate Base                    | 52.0 %         | 0.0 %               | 48.0 %           | 0.0 %           | 0.0 %            | 0.0 %            | 0.0 %               | 0.0 %            | 0.0 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Rate Base                        | 17.1 %         | 1.7 %               | 15.7 %           | 3.4 %           | 22.0 %           | 17.0 %           | 7.4 %               | 10.4 %           | 3.7 %           | 0.1 %            | 0.1 %   | 0.2 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.2 %    | 100.0 % |
| Allocators Based on O&M          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Transportation                   | 10.6 %         | 0.9 %               | 17.9 %           | 5.7 %           | 23.4 %           | 29.8 %           | 8.3 %               | 1.1 %            | 0.0 %           | 2.3 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.1 %    | 100.0 % |
| Labour                           | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| O&M                              | 4.0 %          | 81.8 %              | 4.8 %            | 0.8 %           | 2.9 %            | 1.8 %            | 1.1 %               | 0.6 %            | 0.0 %           | 0.6 %            | 0.7 %   | 0.5 %                          | 0.3 %                                    | 0.1 %                      | 0.0 %                | 0.1 %    | 100.0 % |
| Blended Allocators               |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Finance Labour                   | 6.9 %          | 0.5 %               | 13.1 %           | 2.5 %           | 13.3 %           | 8.1 %            | 4.6 %               | 6.3 %            | 0.9 %           | 0.3 %            | 28.6 %  | 14.3 %                         | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Finance Admin                    | 3.5 %          | 0.2 %               | 6.6 %            | 1.2 %           | 6.6 %            | 4.0 %            | 2.3 %               | 3.2 %            | 0.5 %           | 0.2 %            | 64.3 %  | 7.1 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.3 %    | 100.0 % |
| Customer Service                 | 0.0 %          | 0.0 %               | 2.8 %            | 0.0 %           | 1.8 %            | 1.8 %            | 1.8 %               | 0.0 %            | 0.0 %           | 27.8 %           | 11.0 %  | 22.0 %                         | 25.5 %                                   | 5.5 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Head Office                      | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |

# MECL 2017 Cost Allocation Model

|                                           |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|-------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 5.1                              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator Worksheet            |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Exogenous Allocators                      |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                      | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Substations 1841 Account                  | 0              | 0                   | 72               | 28              | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 100     |
| Primary & Secondary                       | 0              | 0                   | 0                | 0               | 75               | 0                | 25                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 100     |
| Call Center                               | 0              | 0                   | 5                | 0               | 3                | 3                | 3                   | 0                | 0               | 5                | 20      | 40                             | 10                                       | 10                         | 0                    | 0        | 100     |
| ECC                                       | 8              | 17                  | 25               | 25              | 8                | 8                | 8                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 100     |
| SCADA                                     | 25             | 0                   | 25               | 25              | 8                | 8                | 8                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 100     |
| Allocators Based on Fixed Assets (\$,000) |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                      | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Environmental                             |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 0       |
| Wires                                     | 0              | 0                   | 0                | 3,216           | 0                | 79,816           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 83,032  |
| Generation                                | 83,032         |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 83,032  |
| Total                                     | 83,032         | 0                   | 0                | 3,216           | 0                | 79,816           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 166,063 |
| T&D Transformers                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                               |                |                     | 882              | 3,226           |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 4,107   |
| Lines and Line Transformers               |                |                     |                  |                 |                  | 79,816           |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 79,816  |
| Total                                     | 0              | 0                   | 882              | 3,226           | 0                | 79,816           | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 83,923  |
| Distribution Facilities                   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                               |                |                     |                  |                 | 0                | 0                | 0                   |                  |                 |                  |         |                                |                                          |                            |                      |          | 0       |
| Lines and Line Transformers               |                |                     |                  |                 | 122,560          | 79,816           | 40,853              |                  |                 |                  |         |                                |                                          |                            |                      |          | 243,228 |
| Total                                     | 0              | 0                   | 0                | 0               | 122,560          | 79,816           | 40,853              | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 243,228 |
| Right of Way Amortization                 |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Transmission Component                    |                |                     | 100.0 %          |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 64      |
| Distribution Component                    |                |                     |                  |                 | 50.4 %           | 32.8 %           | 16.8 %              |                  |                 |                  |         |                                |                                          |                            |                      |          | 4       |
| Total                                     | 0              | 0                   | 64               | 0               | 2                | 1                | 1                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 68      |
| Engineering                               |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total Transmission & Distributio          | 2,867          | 0                   | 104,605          | 19,732          | 123,515          | 80,771           | 41,809              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 468,243 |
| Administrative & General                  | 60             | 119                 | 179              | 179             | 60               | 60               | 60                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 716     |
| Right of Ways                             | 0              | 0                   | 4,459            | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,741   |
| Total                                     | 2,927          | 119                 | 109,242          | 19,911          | 123,717          | 80,924           | 41,916              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 473,700 |
| Procurement                               |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Substations                               | 0              | 0                   | 35,257           | 16,865          | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 52,121  |
| Lines and Line Transformers               | 0              | 0                   | 66,481           | 0               | 122,560          | 79,816           | 40,853              | 73,674           | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 383,383 |
| Meters                                    | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 14,691  |
| Street & Private Area Lights              | 0              | 0                   | 0                | 0               | 0                | 0                | 0                   | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 6,580   |
| Right of Ways                             | 0              | 0                   | 4,459            | 0               | 142              | 93               | 47                  | 0                | 0               | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 4,741   |
| Total                                     | 0              | 0                   | 106,196          | 16,865          | 122,702          | 79,908           | 40,901              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 461,516 |
| Distribution Lines                        |                |                     |                  |                 | 122,702          |                  | 40,901              | 73,674           |                 |                  |         |                                |                                          |                            |                      |          | 243,856 |
| Distribution Network                      |                |                     |                  | 16,865          | 122,702          | 79,908           | 40,901              |                  |                 |                  |         |                                |                                          |                            |                      |          | 260,375 |
| T&D Plant                                 |                |                     | 109,242          | 19,911          | 123,717          | 80,924           | 41,916              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 470,654 |
| Total Plant                               | 118,360        | 374                 | 113,658          | 21,711          | 133,273          | 88,674           | 45,268              | 74,537           | 14,734          | 469              | 667     | 970                            | 212                                      | 212                        | 0                    | 6,657    | 619,776 |
| Contributions Related Distribution        | 0              | 0                   | 0                | 0               | 122,702          | 79,908           | 40,901              | 73,674           | 14,691          | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | 6,580    | 338,455 |
| Amortization                              | 6,702          | 21                  | 2,378            | 565             | 4,297            | 2,933            | 1,475               | 2,231            | 706             | 28               | 16      | 23                             | 5                                        | 5                          | 0                    | 297      | 21,680  |



# MECL 2017 Cost Allocation Model

|                                  |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
|----------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|----------|
| Schedule 5.1                     |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Functional Allocator Worksheet   |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Net Plant                        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Gross Fixed Assets               | 64,408         | 209                 | 70,874           | 13,252          | 86,305           | 67,537           | 29,133              | 40,840           | 14,691          | 270              | 397     | 577                            | 126                                      | 126                        | 0                    | 4,498    | 393,243  |
| Contributions - Net              | 0              | 0                   | (13,252)         | 0               | (4,258)          | (2,773)          | (1,419)             | (2,556)          | (510)           | 0                | 0       | 0                              | 0                                        | 0                          | 0                    | (228)    | (24,996) |
| Total Intangible Assets          | 164            | 12                  | 3,235            | 34              | 246              | 147              | 87                  | 42               | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 4        | 3,977    |
| Total                            | 64,572         | 221                 | 60,857           | 13,286          | 82,293           | 64,911           | 27,801              | 38,326           | 14,181          | 278              | 397     | 577                            | 126                                      | 126                        | 0                    | 4,273    | 372,225  |
| Rate Base Excluding WC           | 59,692         | 1,787               | 54,991           | 12,002          | 77,057           | 59,471           | 25,985              | 36,341           | 13,136          | 184              | 367     | 534                            | 117                                      | 117                        | 0                    | 4,033    | 345,815  |
| G&T Rate Base                    | 59,948         |                     | 55,281           |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          | 115,229  |
| Rate Base                        | 59,948         | 5,841               | 55,281           | 12,051          | 77,273           | 59,619           | 26,062              | 36,406           | 13,149          | 213              | 402     | 557                            | 134                                      | 121                        | 0                    | 4,040    | 351,098  |
| Allocators Based on O&M (\$,000) |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |          |
| Functional Allocator             | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total    |
| Transportation                   | 39             | 3                   | 66               | 21              | 86               | 110              | 31                  | 4                | 0               | 8                | 0       | 0                              | 0                                        | 0                          | 0                    | 0        | 369      |
| Labour                           | 1,683          | 121                 | 1,585            | 350             | 1,374            | 758              | 508                 | 434              | 3               | 84               | 0       | 0                              | 0                                        | 0                          | 0                    | 39       | 6,939    |
| O&M                              | 5,279          | 107,321             | 6,310            | 1,013           | 3,786            | 2,406            | 1,382               | 823              | 23              | 773              | 906     | 591                            | 455                                      | 118                        | 0                    | 73       | 131,258  |

# MECL 2017 Cost Allocation Model

|                                                    |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|----------------------------------------------------|----------------|-------------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Schedule 5.2                                       |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator Worksheet, Blended Allocators |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Finance Labour                                     |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| FTEs by Function                                   |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Billing                                            | 2.0            | Billing                 |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Customer Payments                                  | 1.0            | Remittance & Collection |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Collection                                         | 0.0            | Remittance & Collection |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Purchasing                                         | 1.0            | Procurement             |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Payroll                                            | 1.0            | Labour                  |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Accounts Receivable (Non-Elect)                    | 1.0            | Labour                  |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Accounts Payable                                   | 1.0            | Procurement             |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                                              | 7.0            |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Weighting                                          |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator                                          | Weight         |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Billing                                            | 29 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Remittance & Collection                            | 14 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Procurement                                        | 29 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Labour                                             | 29 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                                              | 100 %          |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator Components                               |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                               | Generati<br>on | Purchase<br>d Power     | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Billing                                            |                |                         |                  |                 |                  |                  |                     |                  |                 |                  | 100.0 % |                                |                                          |                            |                      |          | 100.0 % |
| Remittance & Collection                            |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         | 100.0 %                        |                                          |                            |                      |          | 100.0 % |
| Procurement                                        | 0.0 %          | 0.0 %                   | 23.0 %           | 3.7 %           | 26.6 %           | 17.3 %           | 8.9 %               | 16.0 %           | 3.2 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Labour                                             | 24.3 %         | 1.7 %                   | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Average                                            | 6.9 %          | 0.5 %                   | 13.1 %           | 2.5 %           | 13.3 %           | 8.1 %            | 4.6 %               | 6.3 %            | 0.9 %           | 0.3 %            | 28.6 %  | 14.3 %                         | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Finance Admin                                      |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Weighting                                          |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Finance Labour                                     | 50 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Billing                                            | 50 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                                              | 100 %          |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator Components                               |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                               | Generati<br>on | Purchase<br>d Power     | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Finance Labour                                     | 6.9 %          | 0.5 %                   | 13.1 %           | 2.5 %           | 13.3 %           | 8.1 %            | 4.6 %               | 6.3 %            | 0.9 %           | 0.3 %            | 28.6 %  | 14.3 %                         | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Billing                                            |                |                         |                  |                 |                  |                  |                     |                  |                 |                  | 100.0 % |                                |                                          |                            |                      |          | 100.0 % |
| Average                                            | 3.5 %          | 0.2 %                   | 6.6 %            | 1.2 %           | 6.6 %            | 4.0 %            | 2.3 %               | 3.2 %            | 0.5 %           | 0.2 %            | 64.3 %  | 7.1 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.3 %    | 100.0 % |
| Customer Service                                   |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Weighting                                          |                |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Call Centre                                        | 55 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Uncollectibles & Damage Claims                     | 20 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Meter Reading                                      | 25 %           |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                                              | 100 %          |                         |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |

# MECL 2017 Cost Allocation Model

| Schedule 5.2                                       |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
|----------------------------------------------------|----------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|------------------|-----------------|------------------|---------|--------------------------------|------------------------------------------|----------------------------|----------------------|----------|---------|
| Functional Allocator Worksheet, Blended Allocators |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator Components                               |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                               | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Call Center                                        | 0.0 %          | 0.0 %               | 5.0 %            | 0.0 %           | 3.3 %            | 3.3 %            | 3.3 %               | 0.0 %            | 0.0 %           | 5.0 %            | 20.0 %  | 40.0 %                         | 10.0 %                                   | 10.0 %                     | 0.0 %                | 0.0 %    | 100.0 % |
| Uncollectibles & Damage Claims                     |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                | 100.0 %                                  |                            |                      |          | 100.0 % |
| Meter Reading                                      |                |                     |                  |                 |                  |                  |                     |                  |                 | 100.0 %          |         |                                |                                          |                            |                      |          | 100.0 % |
| Average                                            | 0.0 %          | 0.0 %               | 2.8 %            | 0.0 %           | 1.8 %            | 1.8 %            | 1.8 %               | 0.0 %            | 0.0 %           | 27.8 %           | 11.0 %  | 22.0 %                         | 25.5 %                                   | 5.5 %                      | 0.0 %                | 0.0 %    | 100.0 % |
| Head Office                                        |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocation of Head Office Floor Space              |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Function                                           | Floor          | Occupanc<br>y       | Allocator        |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Customer Service                                   | 1              | 100 %               | Call Center      |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Customer Service                                   | 2              | 100 %               | Call Center      |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Engineering                                        | 3              | 75 %                | Engineering      |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Information Technology                             | 3              | 25 %                | Labour           |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Finance                                            | 4              | 80 %                | Finance Labour   |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Procurement                                        | 4              | 20 %                | Procurement      |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Executive                                          | 5              | 100 %               | Labour           |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Weighting                                          |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator                                          | Weight         |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Call Center                                        | 40 %           |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Finance Labour                                     | 16 %           |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Engineering                                        | 15 %           |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Procurement                                        | 4 %            |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Labour                                             | 25 %           |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Total                                              | 100 %          |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Allocator Components                               |                |                     |                  |                 |                  |                  |                     |                  |                 |                  |         |                                |                                          |                            |                      |          |         |
| Functional Allocator                               | Generati<br>on | Purchase<br>d Power | Transmis<br>sion | Substatio<br>ns | Primary<br>Lines | Transfor<br>mers | Secondar<br>y Lines | Service<br>Lines | Meter<br>Assets | Meter<br>Reading | Billing | Remittan<br>ce &<br>Collection | Uncollecti<br>bles &<br>Damage<br>Claims | Service<br>Connecti<br>ons | Late<br>Payment<br>s | Lighting | Total   |
| Call Center                                        | 0.0 %          | 0.0 %               | 5.0 %            | 0.0 %           | 3.3 %            | 3.3 %            | 3.3 %               | 0.0 %            | 0.0 %           | 5.0 %            | 20.0 %  | 40.0 %                         | 10.0 %                                   | 10.0 %                     | 0.0 %                | 0.0 %    | 100.0 % |
| Finance Labour                                     | 6.9 %          | 0.5 %               | 13.1 %           | 2.5 %           | 13.3 %           | 8.1 %            | 4.6 %               | 6.3 %            | 0.9 %           | 0.3 %            | 28.6 %  | 14.3 %                         | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Engineering                                        | 0.6 %          | 0.0 %               | 23.1 %           | 4.2 %           | 26.1 %           | 17.1 %           | 8.8 %               | 15.6 %           | 3.1 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Procurement                                        | 0.0 %          | 0.0 %               | 23.0 %           | 3.7 %           | 26.6 %           | 17.3 %           | 8.9 %               | 16.0 %           | 3.2 %           | 0.0 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 1.4 %    | 100.0 % |
| Labour                                             | 24.3 %         | 1.7 %               | 22.8 %           | 5.0 %           | 19.8 %           | 10.9 %           | 7.3 %               | 6.3 %            | 0.0 %           | 1.2 %            | 0.0 %   | 0.0 %                          | 0.0 %                                    | 0.0 %                      | 0.0 %                | 0.6 %    | 100.0 % |
| Average                                            | 7.3 %          | 0.5 %               | 14.2 %           | 2.4 %           | 13.4 %           | 8.6 %            | 5.6 %               | 5.5 %            | 0.7 %           | 2.4 %            | 12.6 %  | 18.3 %                         | 4.0 %                                    | 4.0 %                      | 0.0 %                | 0.5 %    | 100.0 % |

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| Schedule 6.0             |                                |                    |                             |                |                 |                     |                          |                                 |
|--------------------------|--------------------------------|--------------------|-----------------------------|----------------|-----------------|---------------------|--------------------------|---------------------------------|
| Revenue Requirement 2017 |                                |                    |                             |                |                 |                     |                          |                                 |
| Account                  | Description                    | 2017 Trial Balance | Power Supply Demand Related | Labour Related | Vehicle Related | O&M Reporting       | Functionalization Method | Power Supply Demand Related (%) |
| 7000                     | NB Power Assured               | 3,649,523          | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7002                     | NB Power Capacity              | 2,550,000          | 2,550,000                   | 0              | 0               | Energy Costs        | Purchased Power          | 100 %                           |
| 7007                     | Wind Energy                    | 23,232,701         | 5,343,521                   | 0              | 0               | Energy Costs        | Purchased Power          | 23 %                            |
| 7008                     | Other Energy                   | 193,790            | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7020                     | Lepreau Fuel                   | 1,566,090          | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7021                     | Lepreau Cost of Carrying Fuel  | 47,967             | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7023                     | Lepreau Cost of Capital        | 9,128,368          | 2,282,092                   | 0              | 0               | Energy Costs        | Purchased Power          | 25 %                            |
| 7025                     | Lepreau O&M & Indirect         | 10,803,898         | 2,700,975                   | 0              | 0               | Energy Costs        | Purchased Power          | 25 %                            |
| 7027                     | Lepreau Decommissioning Charge | 1,995,576          | 498,894                     | 0              | 0               | Energy Costs        | Purchased Power          | 25 %                            |
| 7029                     | Lepreau Guarantee Fee          | 431,842            | 107,961                     | 0              | 0               | Energy Costs        | Purchased Power          | 25 %                            |
| 7031                     | Lepreau Inventory Common Stock | 6,492              | 1,623                       | 0              | 0               | Energy Costs        | Purchased Power          | 25 %                            |
| 7033                     | Lepreau Heavy Water            | 0                  | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7040                     | O&M Murray Corner              | 187,428            | 0                           | 0              | 0               | Energy Costs        | Transmission             | N/A                             |
| 7041                     | O&M Memramcook                 | 165,233            | 0                           | 0              | 0               | Energy Costs        | Transmission             | N/A                             |
| 7042                     | Breaker Rental NB Power        | 183,878            | 0                           | 0              | 0               | Energy Costs        | Transmission             | N/A                             |
| 7046                     | NB Power Secure                | 18,162,834         | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7047                     | NB Power Interruptible         | 0                  | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7048                     | NB Power Curtailed             | 0                  | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7049                     | Capacity Other                 | 110,000            | 110,000                     | 0              | 0               | Energy Costs        | Purchased Power          | 100 %                           |
| 7050                     | NB Power Firm                  | 36,636,913         | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7051                     | NB Power Firm 2                | 0                  | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7053                     | Imbalance Energy               | (38,802)           | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7054                     | Imbalance Premium              | 77,814             | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7055                     | COS Energy Purchase            | 10,073             | 10,073                      | 0              | 0               | Energy Costs        | Purchased Power          | 100 %                           |
| 7056                     | E-Tagging and Scheduling       | 12,279             | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7057                     | Cost of Energy for Sales       | 0                  | 0                           | 0              | 0               | Energy Costs        | Purchased Power          | 0 %                             |
| 7058                     | IPL Transmission Sch 1, 2, 7   | 895,972            | 895,972                     | 0              | 0               | Energy Costs        | Purchased Power          | 100 %                           |
| 7090                     | ECAM Recovery                  | (2,358,689)        | 0                           | 0              | 0               | ECAM Adjustment     | Purchased Power          | 0 %                             |
| 7102                     | CTGS Build and Serv            | 409,240            | 409,240                     | 241,616        | 2,887           | Energy Costs        | Generation               | 100 %                           |
| 7103                     | CTGS Maintenance               | 578,327            | 578,327                     | 433,628        | 15,020          | Energy Costs        | Generation               | 100 %                           |
| 7105                     | CTGS Operating                 | 423,800            | 423,800                     | 403,415        | 5,175           | Energy Costs        | Generation               | 100 %                           |
| 7116                     | CTGS Superintendence           | 279,252            | 279,252                     | 254,784        | 2,415           | Energy Costs        | Generation               | 100 %                           |
| 7117                     | CTGS Generation Fuel Bunker    | 810,374            | 810,374                     | 0              | 0               | Energy Costs        | Generation               | 100 %                           |
| 7150                     | ECC Operations                 | 763,155            | 0                           | 728,307        | 20,003          | Energy Costs        | ECC                      | N/A                             |
| 7180                     | Training                       | 14,050             | 0                           | 0              | 0               | Energy Costs        | G&T Rate Base            | N/A                             |
| 7202                     | BGS CT Building and Services   | 1,450              | 1,450                       | 366            | 0               | Energy Costs        | Generation               | 100 %                           |
| 7209                     | BGS CT Operating               | 72,089             | 72,089                      | 6,714          | 433             | Energy Costs        | Generation               | 100 %                           |
| 7210                     | BGS CT Maintenance             | 255,208            | 255,208                     | 154,279        | 5,416           | Energy Costs        | Generation               | 100 %                           |
| 7217                     | BGS CT Fuel - Diesel           | 230,694            | 0                           | 0              | 0               | Energy Costs        | Generation               | 0 %                             |
| 7302                     | CTGS CT Building and Services  | 971                | 971                         | 0              | 0               | Energy Costs        | Generation               | 100 %                           |
| 7303                     | CTGS CT Maint                  | 160,104            | 160,104                     | 43,217         | 1,600           | Energy Costs        | Generation               | 100 %                           |
| 7305                     | CTGS CT Operating              | 58,331             | 58,331                      | 43,507         | 1,243           | Energy Costs        | Generation               | 100 %                           |
| 7317                     | CTGS CT Fuel - Diesel          | 743,228            | 0                           | 0              | 0               | Energy Costs        | Generation               | 0 %                             |
| 7350                     | Insurance                      | 552,481            | 0                           | 0              | 0               | Energy Costs        | G&T Rate Base            | N/A                             |
| 7355                     | Prop Taxes                     | 214,619            | 0                           | 0              | 0               | Energy Costs        | G&T Rate Base            | N/A                             |
| 7415                     | MICF Gov Misc Lab & Exp        | 2,803,846          | 0                           | 21,662         | 1,401           | Energy Costs        | Transmission             | N/A                             |
| 7450                     | Mech Maint BUDGET              | 84,041             | 0                           | 83,540         | 499             | Energy Costs        | T&D Plant                | N/A                             |
| 7510                     | OATT                           | 225,185            | 0                           | 187,635        | 0               | Transmission - OATT | Transmission             | N/A                             |
| 7741                     | Maint Sub, Build, Prop         | 113,103            | 0                           | 44,609         | 2,457           | Distribution        | Substations              | N/A                             |

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|                          |                                |             |   |           |         |                                       |                                |     |
|--------------------------|--------------------------------|-------------|---|-----------|---------|---------------------------------------|--------------------------------|-----|
| Schedule 6.0             |                                |             |   |           |         |                                       |                                |     |
| Revenue Requirement 2017 |                                |             |   |           |         |                                       |                                |     |
| 7745                     | Maint ROW Line Clearing        | 1,431,043   | 0 | 1,392,573 | 13,144  | Distribution                          | Distribution Lines             | N/A |
| 7748                     | Maint Lines                    | 1,513,054   | 0 | 866,712   | 125,207 | Distribution                          | Distribution Network           | N/A |
| 7750                     | Maint Line Devices             | 47,854      | 0 | 31,216    | 2,180   | Distribution                          | Distribution Network           | N/A |
| 7751                     | Maint Trans                    | 452,070     | 0 | 293,456   | 57,211  | Distribution                          | Transformers                   | N/A |
| 7754                     | Maint street lights            | 59,326      | 0 | 46,052    | 12,429  | Distribution                          | Distribution Network           | N/A |
| 7755                     | Maint UG system                | 61,086      | 0 | 46,053    | 12,397  | Distribution                          | Distribution Network           | N/A |
| 7756                     | Maint UG service lines         | 1,656       | 0 | 713       | 0       | Distribution                          | Distribution Network           | N/A |
| 7758                     | Maint Meters                   | 158,003     | 0 | 84,143    | 8,306   | Distribution                          | Meter Reading                  | N/A |
| 7760                     | Communication                  | 212,842     | 0 | 90,877    | 7,814   | Distribution                          | SCADA                          | N/A |
| 7763                     | Scada                          | 105,279     | 0 | 71,358    | 4,930   | Distribution                          | SCADA                          | N/A |
| 7765                     | Eng                            | 311,696     | 0 | 234,697   | 10,425  | Distribution                          | Distribution Network           | N/A |
| 7768                     | Misc labor and expense         | 8,574       | 0 | 0         | 0       | Distribution                          | Distribution Network           | N/A |
| 7780                     | Training                       | 57,756      | 0 | 0         | 0       | Transmission and Distribution - Other | Distribution Network           | N/A |
| 7841                     | Maint sub equip                | 53,856      | 0 | 50,207    | 3,491   | Transmission                          | Transmission                   | N/A |
| 7845                     | Maint ROW Line Clearing        | 701,576     | 0 | 700,347   | 1,172   | Transmission                          | Transmission                   | N/A |
| 7848                     | Maint Trans Lines              | 284,820     | 0 | 212,767   | 41,818  | Transmission                          | Transmission                   | N/A |
| 7850                     | Maint line devices             | 54,106      | 0 | 49,652    | 4,341   | Transmission                          | Transmission                   | N/A |
| 7865                     | Eng                            | 126,090     | 0 | 120,732   | 5,358   | Transmission                          | Transmission                   | N/A |
| 7950                     | Insurance                      | 117,034     | 0 | 0         | 0       | Transmission and Distribution - Other | Substations                    | N/A |
| 7955                     | Prop Taxes                     | 1,881,192   | 0 | 0         | 0       | Transmission and Distribution - Other | Distribution Network           | N/A |
| 8000                     | Super                          | 428,245     | 0 | N/A       | N/A     | General                               | Customer service               | N/A |
| 8020                     | CSS                            | 893,842     | 0 | N/A       | N/A     | General                               | Call Center                    | N/A |
| 8030                     | Meter Reading                  | 392,780     | 0 | N/A       | N/A     | General                               | Meter Reading                  | N/A |
| 8040                     | Training                       | 2,771       | 0 | N/A       | N/A     | General                               | Customer service               | N/A |
| 8055                     | Claims                         | 52,024      | 0 | N/A       | N/A     | General                               | Uncollectibles & Damage Claims | N/A |
| 8060                     | Collections                    | (17,364)    | 0 | N/A       | N/A     | General                               | Uncollectibles & Damage Claims | N/A |
| 8065                     | Uncollectible                  | 215,633     | 0 | N/A       | N/A     | General                               | Uncollectibles & Damage Claims | N/A |
| 8090                     | Training                       | 0           | 0 | N/A       | N/A     | General                               | Customer service               | N/A |
| 8100                     | Super                          | 355,648     | 0 | N/A       | N/A     | General                               | Finance Labour                 | N/A |
| 8110                     | Admin                          | 868,263     | 0 | N/A       | N/A     | General                               | Finance Admin                  | N/A |
| 8130                     | Aud, Tax & Prof Services       | 132,600     | 0 | N/A       | N/A     | General                               | Rate Base Excluding WC         | N/A |
| 8140                     | Training                       | 11,209      | 0 | N/A       | N/A     | General                               | Finance Labour                 | N/A |
| 8200                     | Super                          | 359,426     | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8210                     | Operational Costs              | 70,152      | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8240                     | Training                       | 13,893      | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8300                     | Super                          | 1,388       | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8340                     | Training                       | 263         | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8345                     | HO Prop Exp                    | 130,251     | 0 | N/A       | N/A     | General                               | Head Office                    | N/A |
| 8350                     | WRSC Prop Exp                  | 178,146     | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8360                     | East Prop Exp                  | 45,972      | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8365                     | West Prop Exp                  | 45,836      | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8370                     | Sub Prop                       | 27,151      | 0 | N/A       | N/A     | General                               | T&D Plant                      | N/A |
| 8400                     | Super                          | 321,451     | 0 | N/A       | N/A     | General                               | Rate Base Excluding WC         | N/A |
| 8415                     | Donations                      | 159,600     | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8500                     | Super                          | 226,586     | 0 | N/A       | N/A     | General                               | Rate Base Excluding WC         | N/A |
| 8510                     | Regulation                     | 411,149     | 0 | N/A       | N/A     | General                               | Rate Base Excluding WC         | N/A |
| 8540                     | Training                       | 12,156      | 0 | N/A       | N/A     | General                               | Rate Base Excluding WC         | N/A |
| 8600                     | Super                          | 3,516,414   | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8602                     | Insurance                      | 38,794      | 0 | N/A       | N/A     | General                               | Total Plant                    | N/A |
| 8603                     | Legal                          | 74,236      | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8605                     | Future Benefits                | (1,371,000) | 0 | N/A       | N/A     | General                               | Labour                         | N/A |
| 8606                     | Supplementary Retirement Pensi | 108,400     | 0 | N/A       | N/A     | General                               | Labour                         | N/A |

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|                          |                                |             |   |     |     |                                  |                           |     |
|--------------------------|--------------------------------|-------------|---|-----|-----|----------------------------------|---------------------------|-----|
| Schedule 6.0             |                                |             |   |     |     |                                  |                           |     |
| Revenue Requirement 2017 |                                |             |   |     |     |                                  |                           |     |
| 8607                     | Prop Taxes                     | 208,964     | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 8613                     | Directors' Fees                | 251,962     | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 8614                     | Gen Admin                      | 228,090     | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 8615                     | Gen Admin - Parent             | 612,000     | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 8620                     | Environmental                  | 3,152       | 0 | N/A | N/A | General                          | Environmental             | N/A |
| 8630                     | Aud, Tax & Prof Services       | 0           | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 8640                     | Training                       | 49,624      | 0 | N/A | N/A | General                          | Labour                    | N/A |
| 6611                     | Interest Income Misc           | (151,735)   | 0 | N/A | N/A | Short-Term Debt                  | Rate Base                 | N/A |
| 6604                     | Interest During Construction   | (449,760)   | 0 | N/A | N/A | Interest Charged To Construction | Rate Base                 | N/A |
| 9000                     | Interest 2016 11.5%            | 0           | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9001                     | Interest 2018 8.55%            | 1,282,500   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9002                     | Interest 2031 8.92%            | 1,784,000   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9003                     | Interest 2027 8.625%           | 1,293,750   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9004                     | Interest 2038 6.054%           | 3,632,400   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9006                     | Interest 2061 4.915%           | 1,462,800   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9008                     | Interest 2025 7.57%            | 1,135,500   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9009                     | Interest 2061 4.915%           | 1,474,500   | 0 | N/A | N/A | Long-Term Debt                   | Rate Base                 | N/A |
| 9100                     | Other Interest                 | 779,145     | 0 | N/A | N/A | Short-Term Debt                  | Rate Base                 | N/A |
| 9200                     | Amortization Finance Costs Tem | 8,708       | 0 | N/A | N/A | Amortization of Financing Costs  | Rate Base                 | N/A |
| 9400                     | Amortization                   | 21,372,683  | 0 | N/A | N/A | Amortization Plant And Equipment | Amortization              | N/A |
| 9415                     | Amortization - Lepreau Writedo | 98,600      | 0 | N/A | N/A | Amortization Other               | Purchased Power           | N/A |
| 9420                     | Amortization - DSM Costs       | 322,476     | 0 | N/A | N/A | Amortization Other               | Purchased Power           | N/A |
| 9425                     | Amortization - Developed Softw | 361,972     | 0 | N/A | N/A | Amortization Other               | Labour                    | N/A |
| 9427                     | Amortization - ROW and Easemen | 67,795      | 0 | N/A | N/A | Amortization Other               | Right of Way Amortization | N/A |
| 9600                     | Income Tax                     | 5,940,740   | 0 | N/A | N/A | Income Taxes                     | Rate Base                 | N/A |
| Total Net Earnings       |                                | 12,928,143  | 0 |     |     | Net Earnings                     | Rate Base                 | N/A |
| 6241                     | Service Connections            | (463,552)   | 0 | N/A | N/A | Other Revenue                    | Service Connections       | N/A |
| 6260                     | Late Payment Charges           | (639,391)   | 0 | N/A | N/A | Other Revenue                    | Late Payments             | N/A |
| 6605                     | Misc Revenue                   | (561,181)   | 0 | N/A | N/A | Other Revenue                    | Primary & Secondary       | N/A |
| 6622                     | Rental Property Income Base WR | 0           | 0 | N/A | N/A | Other Revenue                    | Head Office               | N/A |
| 6606                     | Accrued Revenue Adjustment     | (298,281)   | 0 | N/A | N/A | Other Revenue                    | Rate Base                 | N/A |
| Pole Revenue             |                                | (10,170)    | 0 | N/A | N/A | Other Revenue                    | Primary & Secondary       | N/A |
| 7500                     | Transmission Access            | 5,304,673   | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7502                     | Scheduling Service             | 210,292     | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7503                     | Wind Regulation and Load Follo | 9,737       | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7504                     | Reactive Supply and Voltage Co | 340,020     | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7505                     | Energy Imbalance OATT          | 108,068     | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7507                     | Residual Uplift                | 0           | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 7508                     | Non-Capital Support Charge     | 74,928      | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6340                     | Transmission Access            | (6,690,324) | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6342                     | Scheduling Service             | (315,832)   | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6343                     | Regulation and Load Following  | (9,737)     | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6344                     | Reactive Supply and Voltage Co | (464,307)   | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6345                     | Energy Imbalance OATT          | (155,312)   | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6346                     | Cumulative Transmission Energy | 0           | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6347                     | Residual Uplift                | 0           | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |
| 6348                     | Non-Capital Support Charge     | (326,372)   | 0 | 0   | 0   | OATT Revenue                     | Transmission              | N/A |

# MECL 2017 Cost Allocation Model

|                       |                                      |              |            |            |                          |             |             |         |           |           |              |              |        |
|-----------------------|--------------------------------------|--------------|------------|------------|--------------------------|-------------|-------------|---------|-----------|-----------|--------------|--------------|--------|
| Schedule 6.1          |                                      | 1            |            |            |                          |             |             |         |           |           |              |              |        |
| Plant In Service 2017 |                                      |              |            |            |                          |             |             |         |           |           |              |              |        |
|                       |                                      | Fixed Assets |            |            | Accumulated Amortization |             |             | WIP     |           |           | Net          |              | Annual |
| Account               | Name                                 | Open         | Close      | id Year    | Open                     | Close       | id Year     | Open    | Close     | id Year   | Fixed Assets | Amortization |        |
| 1101                  | Prod Power Plant Land                | 2,261,810    | 2,261,810  | 2,261,810  | 0                        | 0           | 0           | 0       | 0         | 0         | 2,261,810    | 0            |        |
| 1102                  | Prod Power Plant Build & Structure   | 7,987,112    | 7,979,541  | 7,983,327  | 4,339,158                | 4,971,244   | 4,655,201   | (0)     | (0)       | (0)       | 3,328,125    | 746,441      |        |
| 1103                  | Prod Pumphouse Elect Equip           | 1,630,613    | 1,630,613  | 1,630,613  | 1,204,869                | 1,329,611   | 1,267,240   | 0       | 0         | 0         | 363,373      | 124,742      |        |
| 1104                  | Prod Pumphouse Mech Equip            | 32,949       | 32,949     | 32,949     | 14,978                   | (256)       | 7,361       | 0       | 0         | 0         | 25,588       | 2,521        |        |
| 1105                  | Prod Boiler Plant Equip              | 24,773,350   | 24,782,418 | 24,777,884 | 16,440,962               | 18,259,598  | 17,350,280  | (0)     | 0         | (0)       | 7,427,604    | 1,895,508    |        |
| 1107                  | Prod Turbine & Aux Equip             | 21,842,787   | 21,501,600 | 21,672,194 | 13,248,601               | 14,104,757  | 13,676,679  | (0)     | (0)       | (0)       | 7,995,515    | 1,777,120    |        |
| 1109                  | Gas Turbine & Aux Equip              | 34,813,111   | 35,297,121 | 35,055,116 | 6,410,092                | 6,671,148   | 6,540,620   | 0       | (0)       | (0)       | 28,514,496   | 799,257      |        |
| 1113                  | Prod Elect Equip Plant & Yard        | 2,283,113    | 2,283,113  | 2,283,113  | 1,879,332                | 1,996,684   | 1,938,008   | 0       | 0         | 0         | 345,105      | 117,352      |        |
| 1115                  | Prod Misc Power Plant Equip          | 1,506,403    | 1,506,403  | 1,506,403  | 1,085,918                | 1,191,216   | 1,138,567   | 0       | 0         | 0         | 367,836      | 105,298      |        |
| 1135                  | Prod Shop Equip                      | 6,483        | 6,483      | 6,483      | 4,741                    | 5,194       | 4,968       | 0       | 0         | 0         | 1,516        | 453          |        |
| 1139                  | Prod River Pumphouse Build           | 1,026,497    | 1,026,497  | 1,026,497  | 509,360                  | 605,338     | 557,349     | 0       | 0         | 0         | 469,148      | 95,977       |        |
| 1201                  | Prod Borden Power Plant Land         | 43,567       | 43,567     | 43,567     | 0                        | 0           | 0           | 0       | 0         | 0         | 43,567       | 0            |        |
| 1202                  | Prod Borden Build & Structures       | 481,306      | 481,306    | 481,306    | 196,123                  | 212,391     | 204,257     | 0       | 0         | 0         | 277,049      | 16,268       |        |
| 1209                  | Prod Borden Gas Turbine & Aux Eq     | 12,805,896   | 12,865,545 | 12,835,720 | 2,781,580                | 3,388,934   | 3,085,257   | (0)     | (0)       | (0)       | 9,750,464    | 626,383      |        |
| 1215                  | Prod Borden Misc Equip               | 320,116      | 320,116    | 320,116    | 112,163                  | 125,928     | 119,046     | 0       | 0         | 0         | 201,070      | 13,765       |        |
| 1301                  | ECC Land                             | 20,470       | 20,470     | 20,470     | 0                        | 0           | 0           | 0       | 0         | 0         | 20,470       | 0            |        |
| 1315                  | Prod ECC Misc Power Plant Equip      | 201,817      | 201,817    | 201,817    | 112,157                  | 117,203     | 114,680     | 0       | 0         | 0         | 87,137       | 5,045        |        |
| 1355                  | ECC UG Cables                        | 0            | 0          | 0          | 0                        | 0           | 0           | 0       | 0         | 0         | 0            | 0            |        |
| 1379                  | ECC Build                            | 689,006      | 701,589    | 695,297    | 287,332                  | 303,554     | 295,443     | 0       | 0         | 0         | 399,855      | 17,382       |        |
| 1740                  | Dist Substation Land                 | 4,506        | 4,506      | 4,506      | 0                        | 0           | 0           | 0       | 0         | 0         | 4,506        | 0            |        |
| 1741                  | Dist Substation Equip Build & Struc  | 3,141,771    | 3,289,859  | 3,215,815  | 715,127                  | 778,876     | 747,002     | (0)     | (0)       | (0)       | 2,468,813    | 70,426       |        |
| 1744                  | Dist Land                            | 5,467        | 5,467      | 5,467      | 0                        | 0           | 0           | 0       | 0         | 0         | 5,467        | 0            |        |
| 1748                  | Dist OH Conductors                   | 79,066,546   | 84,370,093 | 81,718,319 | 23,918,899               | 25,049,932  | 24,484,415  | (0)     | (0)       | (0)       | 57,233,904   | 2,565,955    |        |
| 1749                  | Dist Poles & Fixtures                | 62,800,280   | 75,601,860 | 69,201,070 | 26,638,848               | 32,224,334  | 29,431,591  | (0)     | (0)       | (0)       | 39,769,479   | 2,415,117    |        |
| 1750                  | Dist Line Control Devices            | 9,357,986    | 9,505,073  | 9,431,530  | 1,961,381                | 2,250,197   | 2,105,789   | (0)     | (0)       | (0)       | 7,325,740    | 296,150      |        |
| 1751                  | Dist Transformers                    | 66,166,305   | 69,024,150 | 67,595,227 | 14,809,149               | 16,616,504  | 15,712,826  | (15)    | (15)      | (15)      | 51,882,416   | 2,223,883    |        |
| 1752                  | Dist Transformer Installations       | 11,849,699   | 12,591,274 | 12,220,486 | 1,888,977                | 2,136,492   | 2,012,734   | (0)     | (0)       | (0)       | 10,207,752   | 402,054      |        |
| 1753                  | Dist Service Lines                   | 76,003,644   | 67,238,249 | 71,620,947 | 34,362,819               | 30,225,357  | 32,294,088  | (0)     | (0)       | (0)       | 39,326,858   | 2,234,574    |        |
| 1754                  | Dist Street & Yard Lights            | 5,798,304    | 6,053,459  | 5,925,881  | 1,627,000                | 1,484,641   | 1,555,820   | (0)     | (0)       | (0)       | 4,370,061    | 272,591      |        |
| 1755                  | Dist UG Conductors                   | 3,026,345    | 3,097,194  | 3,061,769  | 1,264,709                | 1,339,416   | 1,302,062   | 0       | 0         | 0         | 1,759,707    | 74,707       |        |
| 1756                  | Dist UG Service Lines                | 2,029,531    | 2,076,695  | 2,053,113  | 983,777                  | 1,033,873   | 1,008,825   | 0       | 0         | 0         | 1,044,288    | 50,096       |        |
| 1757                  | Dist UG System Street Lights         | 653,789      | 653,789    | 653,789    | 553,829                  | 582,596     | 568,212     | 0       | 0         | 0         | 85,576       | 28,767       |        |
| 1758                  | Dist Meters                          | 13,884,790   | 14,245,974 | 14,065,382 | 914,954                  | 1,555,741   | 1,235,348   | (0)     | (0)       | (0)       | 12,830,034   | 704,676      |        |
| 1759                  | Dist Meter Installations             | 599,839      | 651,341    | 625,590    | (1,202,879)              | (1,216,851) | (1,209,865) | 0       | 0         | 0         | 1,835,455    | 20,832       |        |
| 1760                  | Dist Communications System           | 9,277,485    | 10,214,242 | 9,745,863  | 5,525,240                | 5,982,950   | 5,754,095   | 101,927 | (0)       | 50,964    | 3,940,805    | 464,878      |        |
| 1761                  | Dist Eng Test & Survey Equip         | 23,570       | 22,893     | 23,231     | (326,636)                | (328,303)   | (327,470)   | 0       | 0         | 0         | 350,701      | 1,162        |        |
| 1762                  | Dist Tools & Stores Equip            | 1,138,738    | 1,093,044  | 1,115,891  | 385,633                  | 346,330     | 365,982     | 0       | 0         | 0         | 749,909      | 55,795       |        |
| 1763                  | Supervisory Scada System             | 1,629,079    | 1,815,241  | 1,722,160  | 1,106,974                | 1,221,842   | 1,164,408   | 78,478  | 0         | 39,239    | 518,513      | 114,868      |        |
| 1777                  | Dist General Property Land           | 329,731      | 329,731    | 329,731    | 0                        | 0           | 0           | 0       | 0         | 0         | 329,731      | 0            |        |
| 1778                  | Dist General Prop Build Office       | 4,973,384    | 4,981,390  | 4,977,387  | 2,090,283                | 2,214,718   | 2,152,501   | 0       | 0         | 0         | 2,824,886    | 124,435      |        |
| 1779                  | Dist General Property Build District | 6,231,287    | 6,358,301  | 6,294,794  | 2,428,806                | 2,537,901   | 2,483,353   | 0       | 103,921   | 51,960    | 3,759,480    | 157,370      |        |
| 1780                  | Office Equip                         | 78,685       | 77,037     | 77,861     | (180,912)                | (182,855)   | (181,884)   | 0       | 0         | 0         | 259,745      | 5,193        |        |
| 1781                  | Transportation Equip                 | 10,961,598   | 11,944,126 | 11,452,862 | 4,645,670                | 4,716,477   | 4,681,073   | 0       | 0         | 0         | 6,771,789    | 801,700      |        |
| 1784                  | Computer Hardware                    | 1,186,176    | 1,127,561  | 1,156,869  | (98,209)                 | (150,809)   | (124,509)   | 0       | 0         | 0         | 1,281,378    | 231,374      |        |
| 1785                  | Computer Software                    | 3,231,969    | 3,205,708  | 3,218,839  | 1,290,997                | 1,195,273   | 1,243,135   | (0)     | (0)       | (0)       | 1,975,704    | 321,884      |        |
| 1786                  | Marketing & Transition               | 0            | 0          | 0          | 0                        | 0           | 0           | 0       | 0         | 0         | 0            | 0            |        |
| 1840                  | Trans Substation Land                | 399,940      | 501,943    | 450,941    | 0                        | 0           | 0           | 1,158   | 47,033    | 24,096    | 426,846      | 0            |        |
| 1841                  | Trans Substation Equip, Build & St   | 45,732,118   | 50,295,933 | 48,014,025 | 16,611,050               | 17,490,414  | 17,050,732  | 429,231 | 2,281,928 | 1,355,579 | 29,607,714   | 897,862      |        |
| 1844                  | Trans Land                           | 427,346      | 433,956    | 430,651    | 0                        | 0           | 0           | 0       | 0         | 0         | 430,651      | 0            |        |
| 1846                  | Road & Trails                        | 73,263       | 73,263     | 73,263     | 12,401                   | 13,867      | 13,134      | 0       | 0         | 0         | 60,129       | 1,465        |        |

# MECL 2017 Cost Allocation Model

|              |                              |                             |
|--------------|------------------------------|-----------------------------|
| Schedule 6.  |                              |                             |
| Plant In Ser |                              |                             |
|              |                              |                             |
| Account      | Presentation Header          | Basis for Functionalization |
| 1101         | Production                   | Generation                  |
| 1102         | Production                   | Generation                  |
| 1103         | Production                   | Generation                  |
| 1104         | Production                   | Generation                  |
| 1105         | Production                   | Generation                  |
| 1107         | Production                   | Generation                  |
| 1109         | Production                   | Generation                  |
| 1113         | Production                   | Generation                  |
| 1115         | Production                   | Generation                  |
| 1135         | Production                   | Generation                  |
| 1139         | Production                   | Generation                  |
| 1201         | Production                   | Generation                  |
| 1202         | Production                   | Generation                  |
| 1209         | Production                   | Generation                  |
| 1215         | Production                   | Generation                  |
| 1301         | Administrative & General     | ECC                         |
| 1315         | Production                   | Generation                  |
| 1355         | Production                   | Generation                  |
| 1379         | Administrative & General     | ECC                         |
| 1740         | Substations                  | Substations                 |
| 1741         | Substations                  | Substations                 |
| 1744         | Substations                  | Substations                 |
| 1748         | Lines and Line Transformers  | Primary & Secondary         |
| 1749         | Lines and Line Transformers  | Primary & Secondary         |
| 1750         | Lines and Line Transformers  | Primary & Secondary         |
| 1751         | Lines and Line Transformers  | Transformers                |
| 1752         | Lines and Line Transformers  | Transformers                |
| 1753         | Lines and Line Transformers  | Service Lines               |
| 1754         | Street & Private Area Lights | Lighting                    |
| 1755         | Lines and Line Transformers  | Primary & Secondary         |
| 1756         | Lines and Line Transformers  | Service Lines               |
| 1757         | Street & Private Area Lights | Lighting                    |
| 1758         | Meters                       | Meter Assets                |
| 1759         | Meters                       | Meter Assets                |
| 1760         | SCADA and Communications     | SCADA                       |
| 1761         | Administrative & General     | Distribution Network        |
| 1762         | Administrative & General     | Distribution Network        |
| 1763         | SCADA and Communications     | SCADA                       |
| 1777         | Administrative & General     | Head Office                 |
| 1778         | Administrative & General     | Head Office                 |
| 1779         | Administrative & General     | Distribution Network        |
| 1780         | Administrative & General     | Labour                      |
| 1781         | Administrative & General     | Transportation              |
| 1784         | Administrative & General     | Labour                      |
| 1785         | Administrative & General     | Labour                      |
| 1786         | Administrative & General     | Labour                      |
| 1840         | Substations                  | Transmission                |
| 1841         | Substations                  | Substations 1841 Account    |
| 1844         | Substations                  | Transmission                |
| 1846         | Lines and Line Transformers  | Transmission                |



# MECL 2017 Cost Allocation Model

|                       |                                |             |             |             |             |             |             |           |           |           |             |            |
|-----------------------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|-----------|-----------|-------------|------------|
| Schedule 6.1          |                                | 1           |             |             |             |             |             |           |           |           |             |            |
| Plant In Service 2017 |                                |             |             |             |             |             |             |           |           |           |             |            |
| 1847                  | Trans Towers                   | 878,834     | 878,834     | 878,834     | 710,302     | 727,879     | 719,091     | 0         | 0         | 0         | 159,744     | 17,577     |
| 1848                  | Trans OH Conductors            | 39,053,630  | 42,905,459  | 40,979,545  | 11,707,174  | 12,697,987  | 12,202,581  | 2,112,341 | 0         | 1,056,171 | 27,720,793  | 1,008,097  |
| 1849                  | Trans Poles & Fixtures         | 21,032,562  | 22,861,634  | 21,947,098  | 5,973,143   | 6,574,086   | 6,273,615   | 1,047,122 | (0)       | 523,561   | 15,149,922  | 658,413    |
| 1850                  | Trans Line Control Devices     | 2,156,220   | 2,716,496   | 2,436,358   | 524,075     | 584,009     | 554,042     | 0         | 0         | 0         | 1,882,316   | 59,934     |
| 1855                  | Trans UG Cables                | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| 1877                  | Trans General Property Land    | 165,586     | 165,586     | 165,586     | 0           | 0           | 0           | 0         | 0         | 0         | 165,586     | 0          |
| Subtotal PPE          |                                | 596,096,410 | 623,354,316 | 609,725,363 | 209,469,947 | 222,985,416 | 216,227,682 | 3,770,242 | 2,432,866 | 3,101,554 | 390,396,127 | 22,625,346 |
| 3200                  | Material & Supply Line Hardwar | 2,489,157   | 2,935,868   | 2,712,512   | 0           | 0           | 0           | 0         | 0         | 0         | 2,712,512   | 0          |
| 3205                  | PST Material & Supply Line Har | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| 3210                  | COGP Line Hardware             | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| 3212                  | COGP LH Price Variance         | 0           | (20,592)    | (10,296)    | 0           | 0           | 0           | 0         | 0         | 0         | (10,296)    | 0          |
| 3215                  | COGP Other                     | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| 3217                  | COGP Other Price Variance      | 0           | (30,540)    | (15,270)    | 0           | 0           | 0           | 0         | 0         | 0         | (15,270)    | 0          |
| 3220                  | Material Quantity Variance     | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| 3305                  | HRLY Clearing                  | 0           | 0           | 0           | 0           | 0           | 0           | 0         | 0         | 0         | 0           | 0          |
| Subtotal Inventory    |                                | 2,489,157   | 2,884,736   | 2,686,946   | 0           | 0           | 0           | 0         | 0         | 0         | 2,686,946   | 0          |
| WIP Adjustment        |                                | 395,579     | (395,579)   | 0           | 0           | 0           | 0           | 30,964    | (350,508) | (159,772) | 159,772     | (19,797)   |
| Total Fixed Assets    |                                | 598,981,146 | 625,843,473 | 612,412,309 | 209,469,947 | 222,985,416 | 216,227,682 | 3,801,206 | 2,082,358 | 2,941,782 | 393,242,846 | 22,605,549 |

# MECL 2017 Cost Allocation Model

|              |                             |                      |
|--------------|-----------------------------|----------------------|
| Schedule 6.  |                             |                      |
| Plant In Ser |                             |                      |
|              |                             |                      |
| 1847         | Lines and Line Transformers | Transmission         |
| 1848         | Lines and Line Transformers | Transmission         |
| 1849         | Lines and Line Transformers | Transmission         |
| 1850         | Lines and Line Transformers | Transmission         |
| 1855         | Lines and Line Transformers | Transmission         |
| 1877         | Lines and Line Transformers | Transmission         |
| Subtotal PP  |                             |                      |
| 3200         | Lines and Line Transformers | Distribution Network |
| 3205         | Lines and Line Transformers | Distribution Network |
| 3210         | Lines and Line Transformers | Distribution Network |
| 3212         | Lines and Line Transformers | Distribution Network |
| 3215         | Lines and Line Transformers | Distribution Network |
| 3217         | Lines and Line Transformers | Distribution Network |
| 3220         | Lines and Line Transformers | Distribution Network |
| 3305         | Lines and Line Transformers | Distribution Network |
| Subtotal Inv |                             |                      |
| WIP Adjustr  | Lines and Line Transformers | Distribution Network |
| Total Fixed  |                             |                      |

# MECL 2017 Cost Allocation Model

|                                   |                              |             |              |           |            |                                          |                             |
|-----------------------------------|------------------------------|-------------|--------------|-----------|------------|------------------------------------------|-----------------------------|
| Schedule 6.2                      |                              |             |              |           |            |                                          |                             |
| Contributions & Intangible Assets |                              |             |              |           |            |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
| Contributions                     |                              | Gross       |              |           |            |                                          |                             |
| Account                           | Name                         | Open        | Close        | Change    | id Year    |                                          |                             |
| 4500                              | Contributions - New Services | 24,078,931  | 24,530,871   | 451,940   | 24,304,901 |                                          |                             |
| 4503                              | Contributions - Extensions   | 369,349     | 369,349      | 0         | 369,349    |                                          |                             |
| 4510                              | Refundable Contributions     | 492,198     | 479,684      | (12,514)  | 485,941    |                                          |                             |
| 4505                              | Contributions - Other        | 16,405,417  | 16,405,417   | 0         | 16,405,417 |                                          |                             |
| Total Gross                       |                              | 41,345,895  | 41,785,321   | 439,426   | 41,565,608 |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
|                                   |                              | Accumulated | Amortization |           |            |                                          |                             |
|                                   |                              | Open        | Close        | Change    | id Year    | Basis for Functionalization              |                             |
| 4501                              | Amortization Contributions   | 13,177,277  | 13,655,247   | 477,970   | 13,416,262 | Contributions Related Distribution Plant |                             |
| 4501                              | Amortization Contributions   | 2,929,773   | 3,377,640    | 447,868   | 3,153,706  | Transmission                             |                             |
| Total Accumulated Amortization    |                              | 16,107,050  | 17,032,887   | 925,838   | 16,569,968 |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
|                                   |                              | Total Net   |              |           |            |                                          |                             |
|                                   |                              | Open        | Close        | Change    | id Year    | Basis for Functionalization              |                             |
|                                   | Distribution                 | 11,763,201  | 11,724,657   | (38,544)  | 11,743,929 | Contributions Related Distribution Plant |                             |
|                                   | Transmission                 | 13,475,645  | 13,027,777   | (447,868) | 13,251,711 | Transmission                             |                             |
|                                   | Total Net                    | 25,238,846  | 24,752,434   | (486,412) | 24,995,640 |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
| Intangible                        |                              | Gross       |              |           |            |                                          |                             |
| Account                           | Name                         | Open        | Close        | Change    | id Year    | Presentation Header                      | Basis for Functionalization |
| 3580                              | ROW Distribution             | 282,000     | 282,000      | 0         | 282,000    | Right of Ways                            | Distribution Facilities     |
| 3580                              | ROW Transmission             | 4,454,826   | 4,462,985    | 8,159     | 4,458,906  | Right of Ways                            | Transmission                |
| 3585                              | CIS and EPS                  | 2,474,190   | 2,771,779    | 297,588   | 2,622,985  | Software                                 | Labour                      |
| Total Gross                       |                              | 7,211,017   | 7,516,763    | 305,747   | 7,363,890  |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
|                                   |                              | Accumulated | Amortization |           |            |                                          |                             |
| Account                           | Name                         | Open        | Close        | Change    | id Year    | Presentation Header                      | Basis for Functionalization |
| 3580                              | ROW Distribution             | 58,177      | 62,209       | 4,033     | 60,193     | Right of Ways                            | Distribution Facilities     |
| 3580                              | ROW Transmission             | 1,346,731   | 1,410,494    | 63,762    | 1,378,613  | Right of Ways                            | Transmission                |
| 3585                              | CIS and EPS                  | 1,766,767   | 2,128,739    | 361,972   | 1,947,753  |                                          |                             |
| Total Accumulated Amortization    |                              | 3,171,675   | 3,601,442    | 429,767   | 3,386,558  |                                          |                             |
|                                   |                              |             |              |           |            |                                          |                             |
|                                   |                              | Total Net   |              |           |            |                                          |                             |
| Account                           | Name                         | Open        | Close        | Change    | id Year    | Presentation Header                      | Basis for Functionalization |
| 3580                              | ROW Distribution             | 223,823     | 219,791      | (4,033)   | 221,807    | Right of Ways                            | Distribution Facilities     |
| 3580                              | ROW Transmission             | 3,108,095   | 3,052,491    | (55,604)  | 3,080,293  | Right of Ways                            | Transmission                |
| 3585                              | CIS and EPS                  | 707,424     | 643,040      | (64,384)  | 675,232    | Software                                 | Labour                      |
| Total Net                         |                              | 4,039,342   | 3,915,322    | (124,020) | 3,977,332  |                                          |                             |

## MECL 2017 Cost Allocation Model

|                                |                                |
|--------------------------------|--------------------------------|
| Schedule 6.3                   |                                |
| Standard Lists                 |                                |
|                                |                                |
| Rate Classes                   | Allocators                     |
| Residential                    | 1CP - Input                    |
| Residential (S)                | 1CP - Input Firm               |
| Farm                           | 1CP - Transmission             |
| General Service 1              | 1CP - Distribution Primary     |
| General Service 1 (S)          | NCP - Distribution Primary     |
| Small Industrial               | NCP - Distribution Secondary   |
| Large Industrial               | Energy - Input                 |
| Lights                         | Sites                          |
| Unmetered                      | Sites - Distribution Primary   |
|                                | Sites - Distribution Secondary |
| Functions                      | Sites - Mass Market            |
| Generation                     | Service Lines                  |
| Purchased Power                | Meter Assets                   |
| Transmission                   | Meter Reading                  |
| Substations                    | Billing                        |
| Primary Lines                  | Remittance & Collection        |
| Transformers                   | Service Connection Revenue     |
| Secondary Lines                | Penalty Revenue                |
| Service Lines                  | Lighting Direct Assign         |
| Meter Assets                   | MECL Generation                |
| Meter Reading                  | MECL Purchases                 |
| Billing                        | Primary System                 |
| Remittance & Collection        | Distribution Transformers      |
| Uncollectibles & Damage Claims | Secondary System               |
| Service Connections            |                                |
| Late Payments                  |                                |
| Lighting                       |                                |