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The Island Regulatory
and Appeals Commission

August 14, 2015

Mr. Mark Lanigan
Regulatory Services
Island Regulatory and Appeals Commission
PO Box 577
501-134 Kent Street
Charlottetown PE C1A 7L1

Dear Mr. Lanigan:

CT4 Filing Docket UE20723
Response to Interrogatories from the Official Opposition

Please find attached the Company's response to the Interrogatories filed by Mr. Jamie Fox, MLA, Official Opposition with respect to the CT4 filing. An electronic copy will follow shortly.

Yours truly,

MARITIME ELECTRIC



Jason C. Roberts
Director, Regulatory & Financial Planning

JCR37
Enclosure



August 14, 2015

Mr. Jamie Fox, MLA
Official Opposition Members' Office
PO Box 338
Charlottetown PE C1A 7K7

Dear Mr. Fox:

**CT4 Filing Docket UE20723
Response to Interrogatories**

Please find attached the Company's response to your Interrogatories with respect to the CT4 filing.

Yours truly,

MARITIME ELECTRIC

A handwritten signature in blue ink, appearing to read "J. Roberts".

Jason C. Roberts
Director, Regulatory & Financial Planning

JCR42
Enclosure

1. Government Official Opposition

Page 9, Section 3

Application speaks of increase to rural residential customer's, what is the effect on urban rate payers?

Response:

The increase for an Urban Residential customer will be \$3.25 per month – the same as for a Rural Residential customer - on an estimated monthly bill of \$117.94 in 2018 (excluding HST). This translates into a monthly increase of 2.8%, as can be seen in the table below.

	Service Charge	Monthly bill without CT4*	Monthly bill with CT4*	Increase in Monthly Bill*	% Increase (Before Tax)
Urban	\$24.57	\$117.94	\$121.19	\$3.25	2.8%
Rural	\$26.92	\$120.29	\$123.54	\$3.25	2.7%

** Based on 650 kWh/month, excludes HST*

The Urban customer's service charge is lower than the Rural customer's service charge, and the \$3.25 increase causes a slightly bigger percentage increase when factored against the monthly total bill. This causes the small difference in percentage increase between the Urban and Rural Residential customers.

2. Government Official Opposition

Page 10, Section 4.0

Application speaks of the Turbine 4 burning diesel fuel, was there any thought or consideration into the turbine burning LNG or similar type fuel?

Response:

Maritime Electric investigated potential options for using natural gas for CT4, including pipeline, compressed and liquefied natural gas. If natural gas in some form were available, CT4's operation would likely change from peaking to operating continuously, supplying both round-the-clock energy as well as a possible source of wind balancing.

Pipeline natural gas ('NG') would be available if a pipeline lateral were to be constructed between the Maine & Northeast Pipeline – which runs close to Port Elgin, NB – and the Island. Maritime Electric investigated this in the early 2000s, but the cost at the time (in excess of \$100 million), plus the lack of sufficient additional customers, made the pipeline uneconomic. Even with the current low natural gas prices due to the availability of shale gas, Maritime Electric does not feel the economics have improved to the point where NG is a realistic fuel source for Island-based generation in the short- to medium-term.

Compressed natural gas ('CNG') could be available in commercial quantities in New Brunswick, potentially as close as the existing Port Elgin offloading facility used by Cavendish Farms. The drawback to CNG is adequacy of supply. CT4 would require 39 CNG trucks per day to run CT4 at full output for 24 hours. Delivery of CNG volumes in this fashion is not feasible. In addition, CT4 cannot be fueled by CNG and operated as a peaking unit on CNG, given the unpredictable operating nature of a peaking unit and subsequent difficulties in timely fuel transportation.

Liquefied natural gas ('LNG') could be available in commercial quantities in New Brunswick, and potentially available from Nova Scotia in the future. It could also be shipped to the Island via marine transportation, requiring a large fuel storage facility on-Island. Assuming the LNG was trucked from the Canaport facility in Saint John, NB, CT4 would require roughly seven trucks per day to operate at full output for 24 hours. Inclement weather would present delivery challenges during these times. In addition, running CT4 on LNG would require additional gasification and truck offloading and parking equipment to be added to the project's upfront cost.

Diesel fuel is considered to be the best option at this time, considering fuel delivery infrastructure available at the Charlottetown Plant site, and both upfront and operating costs. CT4 will be purchased with dual fuel capability, which will allow it to be operated on natural gas if it becomes available in commercially-usable quantities at economic rates on PEI.

3. Government Official Opposition

Page 11, Section 4.0

Application speaks of unit being operated in the area of 200 hours per year, what is the cost of this operation per hour?

a) Does this take in to effect the cost of the project and maintenance?

Response:

The hourly cost of operation is based on the price of diesel fuel and the level of output from the combustion turbine. It is most efficient when it operates at full output, and gets progressively less efficient as its output diminishes. Air density, which changes from season to season, also impacts combustion turbine efficiency.

The combustion turbine can generally operate between 10 MW and 50 MW. An order of magnitude average production cost per megawatt-hour is \$200, based on the price of diesel in July 2015. Using an average output of 30 MW, this amounts to roughly \$6,000 per hour to operate.

a) No. Response 3 only takes into account the fuel costs. As CT4 is projected to operate for a limited number of hours per year as a peaking unit, the maintenance cost is mainly comprised of scheduled preventive maintenance and other fixed costs.

4. Government Official Opposition

Page 12, Section 4.0

Total project estimated at \$68.0 million, what is the economical benefit to PEI companies and percentage of work that will include Island companies?

Response:

Certain large equipment purchases – such as the combustion turbine and step up transformer – cannot be sourced locally. Other services – such as engineering design – will also be likely sourced off-Island due to the highly specialized nature of the design parameters involved in this equipment.

PEI companies will be able to provide some of the labour and materials for the project. At this stage the amount has not been estimated.

5. Government Official Opposition

Page 12, Section 4.0

What is the cost of the building permit from the City of Charlottetown and what is the cost of a permit located in rural PEI?

Response:

The City of Charlottetown's building permit fee for the CT3 project was \$ 52,200. The cost for CT3 was \$ 35 million.

The estimated cost for CT4 is \$ 68 million, so a reasonable expectation for the cost of the building permit for CT4 is $\$ 52,500 \times \$ 68 \text{ million} / \$ 35 \text{ million} = \$ 102,000$.

In reviewing documentation information on the Government of PEI's website, Maritime Electric understands that the building permit fee for building in a non-municipality is \$1,100.

6. Government Official Opposition

Page 13, Section 5.0

The CTGS underwent a life extension refurbishment and speaks of continued reliability of 15 years, what is the plan after this 15 years by the Company?

Response:

The 15 year life extension performed on the CTGS took place in the first half of the 1990s. In 2011, Maritime Electric, with the assistance of an outside consultant, determined that a second 10 to 15 year life extension would cost approximately \$35 million. At that time the Company determined that replacing the CTGS with a simple cycle combustion turbine would be a lower cost option than a second life extension refurbishment of the CTGS when operating costs were taken into account. Based on this, Maritime Electric limited expenditures at the CTGS to the minimum necessary for safe and reliable operation in the short term. Following the installation of CT4, the CTGS units will be placed in long term layup in a staged manner, with eventual retirement expected starting in 2021.

7. Government Official Opposition

Page 13, Section 5.0

With the existing CTGS's, can these be converted to another fuel source given that bunker C availability is an issue?

Response

It is theoretically possible to convert the CTGS units to operate on diesel fuel.

However, the CTGS units have reached the end of their life and a 10- to 15- year life extension would cost \$41 million (based on the 2011 estimate of \$ 35 million, and escalated), which is a higher cost option long-term than the proposed CT4, when operating costs are taken into account. In addition, the cost to convert the fuel delivery system for the CTGS to diesel would be high. Refurbishing the CTGS and operating it on diesel fuel is therefore uneconomic.

8. Government Official Opposition

Page 14, Section 5.0

With the statement that the refurbishment of the CTGS's is not recommended, what is the plan for these units or to replace them with energy usage increasing?

Response:

CT4 is scheduled to be commissioned in late 2017, entering full service in early 2018. The CTGS will remain in its current standby mode through 2018 to ensure that CT4 has been fully tested and can be relied upon to provide prompt energy to Maritime Electric's customers.

Maritime Electric is currently contractually obligated to be able to get the CTGS to full output within 48 hours in the winter, and seven days in the summer. The CTGS will be placed in long-term layup in 2019; this means that its start-up interval will be longer. The long term layup is expected to result in lower operating and maintenance costs for the 2019-2021 period.

9. Government Official Opposition

Page 14, Section 5.0

Looking at the Borden Generating Station, its age, what is the long term plan around this Station?

Response:

The two Borden Generating Station combustion turbines were installed in 1971 and 1973.

Based on a program of regular maintenance and inspections and component upgrades in recent years, Maritime Electric expects at least another decade of reliable service from the Borden Generating Station.

10. Government Official Opposition

Page 15, Section 5.0

What is the cost per MW to purchase power from the PEI Energy Corporation?

Response:

Maritime Electric has several energy contracts with the PEI Energy Corporation, covering all the PEI Energy Corporation wind energy generating facilities. Maritime Electric pays approximately \$ 80 / MWh for the wind generation supplied by the PEI Energy Corporation. The pricing is largely based on the minimum price requirements under the Renewable Energy Act.

11. Government Official Opposition

Page 18, Section 6.0

What type of collaboration is available to the City of Summerside in this project?

Response:

Maritime Electric and the City of Summerside have had very preliminary discussions in regards to the possibility of the City purchasing a portion of CT4's capacity.

Maritime Electric is open to agreements that are of mutual benefit to both parties and their customers.

12. Government Official Opposition

Page 22, Section 7.0

Should the rate of return of 9.75% be reviewed to reflex the rate of return enjoyed by other investors which is much lower?

- a) **Who put this rate of return into effect and does it reflex the economical climate that exists today?**
- b) **Does anyone in IRAC that reviews or directs or rules on Maritime Electric Applications, have any shares, stocks with Maritime Electric or its parent companies?**

Response:

As stated in the Application on Page 22, the 9.75% rate of return on average common equity is subject to review and adjustment by the Commission.

- a) Although the matter of financing the CT4 project remains outstanding at this time, the 9.75% rate for the equity financing component of the project is based upon the currently authorized return on average common equity as set under the terms of the PEI Energy Accord and Electric Power Act. If Maritime Electric is to be the owner of CT4, the determination of the allowed rate of return on the equity financing component of the project will be made by IRAC based upon all the evidence filed with the Commission as part of this proceeding.
- b) Maritime Electric is an indirect wholly-owned subsidiary of Fortis Inc. There are no other shareholders of Maritime Electric other than Fortis Inc., which is a publicly traded company whose shares are listed on the Toronto Stock Exchange. Maritime Electric does not have access to any information with respect to Fortis Inc. share ownership by IRAC employees or Commissioners.

The 9.75% is Maritime Electric's current allowed rate of return on common equity, which would provide an estimated 41.5% of the capital for CT4. The other 58.5% would be debt in the form of long term bonds at an assumed interest rate of 4.25%. This results in the 6.54% weighted average cost of capital referred to in the Application.

13. Government Official Opposition

Page 23, Section 7.0

With the age of the other stand by units, which will have to be reviewed within the next 10 years, should we be looking at a larger unit then what is being sought?

Response:

Maritime Electric is proposing to procure a combustion turbine with a nominal size of 50 MW. Aeroderivative turbine-generators – the type of combustion turbine suited for this application – come in a variety of sizes generally between 25 MW and 100 MW. ‘Nominal 50 MW’ covers combustion turbines that are rated between 45 MW and 60 MW.

Installing a unit much larger than the nominal 50 MW unit proposed for this project could limit the Company’s ability in the medium- to long-term to access or participate in potential mainland-based natural gas projects, which may provide significant energy and capacity benefits to Islanders.

Secondly, Maritime Electric is limited to 30 % of its firm peak load in how much generating capacity it can rely on from a single unit, as can be seen in the Application in Schedule 5 (Page 3 of 3). While a combustion turbine much larger than a nominal 50 MW unit could be installed, for reliability reasons Maritime Electric could not rely on all of that unit’s available capacity until Maritime Electric’s load grows significantly.

In addition, installing a larger combustion turbine unit now would cause a higher rate increase – estimated to be 5.0% in 2018 – for customers.

Maritime Electric is of the opinion that a combustion turbine sized around 50 MW is the best option at this time.

14. Government Official Opposition

Page 23, Section 7.0

Was there a cost analysis completed on a 50 MW unit compared to a 100 MW, if so what was the results?

Response:

As shown in the Application in Table 4 (on page 22), the net present value of a 50 MW generator is somewhat higher than the net present value of a 100 MW generator.

However, for the reasons stated in the response to Question 13 above, Maritime Electric believes that the nominal 50 MW unit size is the better option for customers.

15. Government Official Opposition

Page 25, Section 8.0

Looking at the 3 locations, it appears that the better site is the Borden Area, why would the Company not look into the future just on the possibility of natural gas and the fact that this location feeds into the Bedeque to West Royalty transmission system?

Response:

CT4 is required to be located on the PEI side of Moncton in order to provide its capacity to Maritime Electric's customers, due to transmission constraints on the mainland.

While locating CT4 anywhere on-Island - including Borden - would meet this criterion, locating the project in Charlottetown provides several additional system benefits. One of these is the fuel delivery infrastructure that exists adjacent to the Charlottetown Plant site. A second benefit is backing up a large part of the Island's transmission system and CT3 during maintenance periods, supporting central and eastern PEI voltages, and replacing the CTGS' locational benefits. Because of the nature of alternating current electricity flows, a generator located in Borden is too far from Charlottetown to be effective in supporting the system voltages in the Charlottetown area.

Placing additional generation in the Borden area will be attractive should natural gas become available on the Island in commercial quantities. The Company does not foresee this in the short to medium term. However, Maritime Electric will need additional generating capacity starting in 2020, and Borden would be a good location if natural gas could be available by then.

16. Government Official Opposition

Page 29, Section 10.0

In para 1, what is the projected date the CTGS will come off line?

Response:

See the response to Question 8.

17. Government Official Opposition

Page 29, Section 10.0

Was there a threat assessment conducted on the purposed new turbine, especially when the majority of the Island's generating capacity will be based in the same area?

Response:

Maritime Electric will have the system designed, installed and operated such that these threats are minimized.

The capacity of the CTGS is 60 MW, while the capacity of CT4 will be approximately 50 MW. After CT4 is installed and the CTGS is retired, there will be slightly less generating capacity at the Charlottetown Plant site than there is now.