MARITIME ELECTRIC
A FORTIS COMPANY

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 Mr. John te Raa

Please find attached the Company's response to the Interrogatories filed by Mr. John te Raa with respect to the CT4 filing. An electronic copy will follow shortly.

Yours truly,

MARITIME ELECTRIC

Jason C. Roberts
Director, Regulatory & Financial Planning

JCR40
Enclosure

MARITIME ELECTRIC
A FORTIS COMPANY

Via email: johnteraa@gmail.com

August 14, 2015

Mr. John te Raa
1848 Hardy Mill Rd Rte 220
York PE C0A 1P0

Dear Mr. te Raa:

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

Jason C. Roberts
Director, Regulatory & Financial Planning

JCR45
Enclosure

1. **te Raa**
   Charlottetown Steam Plant (CTGS)
   On page 13 it states that in the early 1990's a 15 year life extension was carried out on the CTGS. The 15 year life extension would have ended in 2010.

   Maritime Electric, in 2010 based on a consultant's report determined that replacing the CTGS with a combustion turbine would be more cost effective than a 15 year life extension.

   Why did Maritime Electric not initiate the CTGS replacement in 2010 or soon thereafter?

Response:

The capacity of the CTGS is part of the on-Island generating capacity that is needed to be able to supply the peak load with one of the two existing submarine cables out of service.

In 2010 there was no indication that there would be transmission constraints in New Brunswick upstream from the submarine cables that would limit the amount of firm capacity that Maritime Electric could obtain from the mainland. The Company's plan at the time was that the CTGS would be able to be retired after a third cable to the mainland was installed, because with added submarine cable capacity it would be possible to reduce the amount of on-Island generating capacity.

Also at the time there was an expectation that the Province would soon be able to reach an agreement with the Federal government for funding assistance for the third cable. Based on this, Maritime Electric limited expenditures at the CTGS to the minimum necessary for safe and reliable operation in the short term. In the meantime, obtaining Federal funding for additional submarine cables has taken the Province longer than had been expected.

2. te Raa

Please provide the annual capital expenditures made on the CTGS for the years 2010 and onward including projected expenditures for 2015 and proposed expenditures for 2016, 2017 and the capital expenditures for 2018 thru the end of the long term layup.

Response:

The table below shows the actual annual capital expenditures related to the CTGS for the years 2010 through 2014 as well as forecast expenditures for 2015 through 2021.

CTGS Annual Capital Expenditures		
Actual / Forecast	**Year**	**Amount**
Actual	2010	$ 1,080,747
Actual	2011	$ 915,790
Actual	2012	$ 767,014
Actual	2013	$ 593,158
Actual	2014	$ 537,650
Forecast	2015	$ 161,000
Forecast	2016	$ 908,000
Forecast	2017	$ 200,000
Forecast	2018	$ 129,000
Forecast	2019	$ 15,000
Forecast	2020	$ 35,000
Forecast	2021	$ 0

3. te Raa

Please provide the annual O & M cost exclusive of fuel for the years 2010 and onward including projected expenditures for 2015 thru 2021.

Response:

The table below shows the actual annual operating and maintenance costs related to the CTGS for the years 2010 through 2014 as well as forecast expenditures for 2015 through 2021, exclusive of fuel.

CTGS Annual O & M (Excluding Fuel)		
Actual / Forecast	**Year**	**Amount**
Actual	2010	$ 1,948,490
Actual	2011	$ 1,871,179
Actual	2012	$ 1,798,021
Actual	2013	$ 2,018,016
Actual	2014	$ 1,889,870
Forecast	2015	$ 2,184,000
Forecast	2016	$ 2,667,000
Forecast	2017	$ 2,680,000
Forecast	2018	$ 2,101,000
Forecast	2019	$ 696,000
Forecast	2020	$ 717,000
Forecast	2021	$ 14,000

The higher amount in 2016 is to implement recommendations by ROS Consulting intended to ensure the integrity of the CTGS until the end of 2018.

The higher amount in 2017 is the payout for an employee retention plan that was put in place to ensure adequate staffing until the end of 2018.

4. te Raa

The CTGS is normally in cold standby mode.

For the 2009/2010 winter and onward, including 2015 year to date, please provide on an annual bases the following;

- **Start date of boilers and number of days the boilers were kept hot.**
- **Number of days/hours one or more of the turbines were spinning.**
- **Dates and times one or more turbines were generating electricity.**
- **The annual number of MWh generated by the steam turbines.**
- **The annual volume and costs of fuel to fire the boilers.**

Response:

	Boiler On	Boiler Off	Boiler On	Boiler Off	Boiler On	Boiler Off	Days Hot
	2009	**2009**	**2009**	**2009**	**2009**	**2009**	**2009**
Boiler No. 2	Jan 01, 2009	May 13, 2009			Oct 13, 2009	Dec 31, 2009	212
Boiler No. 4	Jan 01, 2009	Feb 01, 2009			Oct 13, 2009	Dec 31, 2009	111
Boiler No. 5	Jan 01, 2009	Feb 13, 2009			Oct 13, 2009	Dec 31, 2009	123
Boiler No. 6	Jan 01, 2009	Mar 23, 2009	Apr 27, 2009	Apr 27, 2009	Oct 13, 2009	Dec 31, 2009	162
Boiler No. 9	Jan 01, 2009	Feb 26, 2009	Apr 27, 2009	Apr 28, 2009	Oct 13, 2009	Dec 31, 2009	138
Boiler No. 10	Jan 01, 2009	Mar 10, 2009			Oct 13, 2009	Dec 31, 2009	148
	2010	**2010**	**2010**	**2010**	**2010**	**2010**	**2010**
Boiler No. 2	Jan 01, 2010	May 15, 2010	Oct 17, 2010	Dec 31, 2010			210
Boiler No. 4	Jan 01, 2010	Mar 02, 2010	Oct 17, 2010	Dec 31, 2010			136
Boiler No. 5	Jan 01, 2010	Mar 11, 2010	Oct 17, 2010	Dec 31, 2010			145
Boiler No. 6	Jan 01, 2010	Apr 21, 2010	Oct 17, 2010	Dec 31, 2010			185
Boiler No. 9	Jan 01, 2010	Mar 25, 2010	Oct 17, 2010	Dec 31, 2010			159
Boiler No. 10	Jan 01, 2010	Apr 08, 2010	Oct 17, 2010	Dec 31, 2010			173
	2011	**2011**	**2011**	**2011**	**2011**	**2011**	**2011**
Boiler No. 2	Jan 01, 2011	May 21, 2011	Oct 30, 2011	Dec 31, 2011			204
Boiler No. 4	Jan 01, 2011	Mar 14, 2011	Oct 30, 2011	Dec 31, 2011			136
Boiler No. 5	Jan 01, 2011	Mar 14, 2011	Oct 30, 2011	Dec 31, 2011			136
Boiler No. 6	Jan 01, 2011	Apr 13, 2011	Oct 30, 2011	Dec 31, 2011			166
Boiler No. 9	Jan 01, 2011	Apr 06, 2011	Oct 30, 2011	Dec 31, 2011			159
Boiler No. 10	Jan 01, 2011	Mar 23, 2011	Oct 30, 2011	Dec 31, 2011			145

	2012	2012	2012	2012	2012	2012	2012
Boiler No. 2	Jan 01, 2012	Jun 15, 2012	Jul 01, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	257
Boiler No. 4	Jan 01, 2012	Feb 28, 2012	Mar 09, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	264
Boiler No. 5	Jan 01, 2012	Mar 07, 2012	Mar 15, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	264
Boiler No. 6	Jan 01, 2012	Mar 21, 2012	Mar 29, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	265
Boiler No. 9	Jan 01, 2012	Mar 27, 2012	Apr 16, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	253
Boiler No. 10	Jan 01, 2012	Apr 04, 2012	Apr 16, 2012	Jul 31, 2012	Nov 03, 2012	Dec 31, 2012	261
	Boiler On	**Boiler Off**	**Boiler On**	**Boiler Off**	**Boiler On**	**Boiler Off**	**Days Hot**
	2013	**2013**	**2013**	**2013**	**2013**	**2013**	**2013**
Boiler No. 2	Jan 01, 2013	Apr 18, 2013	Oct 29, 2013	Dec 31, 2013			172
Boiler No. 4	Jan 01, 2013	Apr 15, 2013	Oct 29, 2013	Dec 31, 2013			169
Boiler No. 5	Jan 01, 2013	Apr 15, 2013	Oct 29, 2013	Dec 31, 2013			169
Boiler No. 6	Jan 01, 2013	Apr 09, 2013	Oct 29, 2013	Dec 31, 2013			163
Boiler No. 9	Jan 01, 2013	Apr 18, 2013	Oct 29, 2013	Dec 31, 2013			172
Boiler No. 10	Jan 01, 2013	Apr 17, 2013	Oct 29, 2013	Dec 31, 2013			171
	2014	**2014**	**2014**	**2014**	**2014**	**2014**	**2014**
Boiler No. 2	Jan 01, 2014	May 14, 2014	Nov 14, 2014	Dec 31, 2014			182
Boiler No. 4	Jan 01, 2014	May 14, 2014	Nov 14, 2014	Dec 31, 2014			182
Boiler No. 5	Jan 01, 2014	May 14, 2014	Nov 14, 2014	Dec 31, 2014			182
Boiler No. 6	Jan 01, 2014	May 08, 2014	Nov 14, 2014	Dec 31, 2014			176
Boiler No. 9	Jan 01, 2014	Apr 24, 2014	Nov 14, 2014	Dec 31, 2014			162
Boiler No. 10	Jan 01, 2014	May 02, 2014	Nov 14, 2014	Dec 31, 2014			170
Jan-Jun only	**2015**	**2015**	**2015**	**2015**	**2015**	**2015**	**2015**
Boiler No. 2	Jan 01, 2015	Apr 17, 2015					107
Boiler No. 4	Jan 01, 2015	Apr 17, 2015					107
Boiler No. 5	Jan 01, 2015	Apr 17, 2015					107
Boiler No. 6	Jan 01, 2015	Apr 17, 2015					107
Boiler No. 9	Jan 01, 2015	Apr 17, 2015					107
Boiler No. 10	Jan 01, 2015	Apr 16, 2017					106

	2009	2010	2011	2012	2013	2014	2015
Turbine Hours Spinning	704	144.5	338.25	1187	236	414	457.5
Turbine Hours Generating	704	144.5	338.25	1187	236	414	457.5
MWh Gross	5,106	1,178	2,843	14,404	2,139	4,656	4,005
MWh Net	2,387	(1,029)	533	11,354	(34)	2,097	1,846
Bunker C litres	1,780,215	422,881	946,143	5,044,631	976,142	1,543,831	1,446,797
Bunker C $	742,032	222,033	537,021	3,332,917	653,832	1,076,945	963,570

For Boiler No. 2 “days hot” means days when the boiler operating to supply steam for building heating.

For the other boilers “days hot” means days when the boilers were on warm standby, with steam being supplied to their mud drum heaters.

5. te Raa

The 2010 Maritime Electric financial statements have $ 318,174,444 as fixed assets and a rate base of $ 315,827,458.

What is the dollar value contributed by the CTGS to the above values?
Please provide the CTGS contributions to fixed assets and rate base for the years 2011 thru 2014.

What are the forecasted CTGS contributions to fixed assets and rate base for the years 2015 thru 2021?

Response:

The table below shows the annual rate base for CTGS for 2010-2014 as well as the forecast rate base for CTGS for 2015-2021.

CTGS Annual Rate Base				
Year	**Actual / Forecast**	**NBV of CTGS**	**Working Capital Adjustments**	**Annual Rate Base**
2010	Actual	$32,122,430	$1,116,310	$33,238,740
2011	Actual	$32,054,408	$1,259,826	$33,314,233
2012	Actual	$31,223,790	$2,774,941	$33,998,732
2013	Actual	$30,505,591	$2,749,749	$33,255,340
2014	Actual	$29,691,897	$2,826,410	$32,518,307
2015	Forecast	$28,323,424	$3,077,753	$31,401,178
2016	Forecast	$27,696,993	$3,094,928	$30,791,921
2017	Forecast	$26,340,746	$3,095,406	$29,436,152
2018	Forecast	$24,908,588	$1,574,804	$26,483,393
2019	Forecast	$23,359,348	$1,524,775	$24,884,123
2020	Forecast	$21,829,708	$ 25,511	$21,855,218
2021	Forecast	$20,264,236	$ 510	$20,264,746

The net book value (NBV) is the historical cost of CTGS less accumulated amortization. The current approved depreciation rate is 2.5%. On July 23, 2015 the Company filed an application with IRAC to adopt a new depreciation rate of 7.99% for CTGS which includes amortization of the accumulated reserve variance in order to ensure the CTGS is fully depreciated by its expected retirement date in 2021. Should this application be approved, the above NBV is forecast to decrease by an additional $3.4 million per year beginning in 2016.

Working capital adjustments for fuel inventory related to CTGS on hand as well as 3.6% of the annual operating costs of the CTGS and related income taxes are included in rate base as permitted under the Electric Power Act, Section 48(12) – Schedule 3.

6. te Raa

As noted in question #1, in 2010 Maritime Electric determined that the STGS should be replaced.

In section 4.0 page 10, it states that the existing CTGS will reach end of life in 5 to 7 years. That is 12 years (2022) after it was determined that STGS should be replaced.

On page 14 it states that the CTGS equipment will be put into long term layup after the installation of CT4.

CT4 will be on line in January 2018. Annual fixed O & M costs for the CTGS will be $4.3 million dollars in 2018.

Please confirm the annual fixed O & M costs for the CTGS for the years 2019 thru to the end of the long term lay up in 2022.

Response:

Table 4 of the Application, a comparison of the alternatives to the 50 MW CT4, indicates that the estimated annual fixed O & M in 2018 of $4.3M if a life extension refurbishment of the CTGS was the alternative of choice.

The table below shows the forecast annual fixed O & M for the CTGS through to the end of long term layup. This forecast is based on installation of CT4 rather than CTGS life extension, so the amount for 2018 is less than $ 4.3 million.

The amounts in the table below include fuel for generation and plant heating, so they are larger than the amounts shown in Response 3.

Forecast CTGS Annual Fixed O & M	
Year	**Fixed O & M of CTGS**
2015	$4,278,000
2016	$3,849,000
2017	$4,118,000
2018	$2,949,000
2019	$ 941,000
2020	$ 966,000
2021	$ 269,000

Table 4 in the Application shows fixed O&M for the CTGS of $ 10 million for 2018-2020 under the CT4 alternatives. The $ 10 million was a preliminary number that was intended to be conservative; i.e. a lower number would only improve the business case for CT4 as compared to a life extension refurbishment of the CTGS.

7. te Raa

Does Maritime Electric have approval from IRAC for the long term layup plan and eventual decommissioning of the Charlottetown Thermal Generating Station?

Response:

No. The Company filed an Application with IRAC on July 23, 2015 that proposes changes to the annual rates of depreciation currently used for Company assets. As part of that Application the company addresses its plans with respect to the staged long term layup, and eventual retirement, of the Charlottetown Thermal Generating Station (CTGS). The Company recommends, in this Application, that a Decommissioning Study with respect to CTGS be prepared and submitted to the Commission no later than June 30, 2018.

8. te Raa

Utility reliability criteria -

Under utility reliability criteria Maritime Electric needs to have adequate energy supply sources under a number of contingencies to ensure continuity of service.

On page 8 it states that with the approval of CT4 Maritimes expects to meet its peak load under the worst-case NB transmission system constraint until 2019.

Table 1 includes 21 MW wind effective load carrying capability to meet the NB worst case transmission constraint. Maritime Electric has experienced no wind conditions on system peak.

Please comment and explain how 21 MW wind capacity is eligible for consideration under a worst case scenario.

Are the annual capacity surpluses listed in Table 1 in compliance with reserve generating capacity requirements for Maritime Electric?

Response:

The worst case scenario that Maritime Electric plans for is the worst case single contingency scenario (often referred to as the N-1 criterion). The worst case single contingency is currently the limitation of supply from the mainland to 80 MW due to transmission constraints in the New Brunswick system. This is the basis for Table 1 in the Company's Application.

Reliability is a probabilistic concept. For example, the Northeast Power Coordinating Council (NPCC) reliability criterion for generation resource adequacy is that the probability that firm load will have to be shed as a result of insufficient generating capacity should be no more than one day in ten years. In practice this is usually applied as a Loss Of Load Expectation (LOLE) of no more than 24 hours in ten years, or no more than 2.4 hours per year on average. The 21 MW of Effective Load Carrying Capability (ELCC) for the 92 MW of wind power that Maritime Electric has under contract is based on a LOLE calculation that uses as an input the NPCC one day in ten years criterion.

The following table has the same load forecast and generating capacity resources as Table 1 in the Company's Application. With the 15 % generation planning reserve requirement taken into account, the table below shows a projected shortfall in 2019. The Company expects to be able to overcome this shortfall either by advancing the additional capacity shown for 2020 or adjusting the timing of putting some of the CTGS capacity into long term layup, depending on circumstances.

Meeting the 15 % Generation Planning Reserve Criterion							
		2015	**2016**	**2017**	**2018**	**2019**	**2020**
Maritime Electric Peak Load	MW	240	245	251	259	267	275
Less Reduction Due to DSM	MW		2	4	6	8	10
Forecast Peak Load	MW	240	243	247	253	259	265
Less Interruptible Load	MW	14	14	14	14	14	14
Firm Peak Load	MW	226	229	233	239	245	251
Plus 15 % Planning Reserve	MW	34	34	35	36	37	38
Required Capacity	**MW**	**260**	**263**	**268**	**275**	**282**	**289**
Maritime Electric Resources:							
CTGS	MW	55	55	55	55	38	19
Borden Plant	MW	40	40	40	40	40	40
Combustion Turbine 3	MW	49	49	49	49	49	49
Wind Effective Load Carrying Capability	MW	21	21	21	21	21	21
Maximum from off-Island (includes Point Lepreau)	MW	80	80	80	80	80	80
Short Term Capacity Agreement	MW	27	27				
Combustion Turbine 4	MW			50	50	50	50
Additional Capacity	MW						50
Total Available Capacity	**MW**	**272**	**272**	**295**	**295**	**278**	**309**
Capacity Surplus (Shortfall)	**MW**	**12**	**9**	**27**	**20**	**(4)**	**20**

9. te Raa

Table 1 lists 27 MW of short term capacity. What is the annual cost of this capacity? Where is this capacity located and what is the reason that it is no longer available after 2016?

Response:

The capacity is purchased on an as needed basis monthly. The purchase price is in line with what Maritime Electric pays for other short term capacity purchases.

The capacity is purchased through the New Brunswick Energy Marketing Corporation and is recognized by the New Brunswick Transmission System Operator. The capacity purchase is not a traditional supply and thus is deemed as a short term measure only until Maritime Electric can arrange for its own supply through traditional means. Also, New Brunswick Energy Marketing may not have access to this capacity in the future.

The terms of the contract are confidential.

10. te Raa

On page 9 it states that in 2018 rate increase due to CT4 is 2.7%.
This equates to an increase of $3.25 on a monthly bill for a Rural Residential customer using 650 kWh per month.

Please provide a list of the number of Rural Residential accounts for the years 2010 thru 2015.

Please provide a list of the number of Urban Residential accounts for the years 2010 thru 2015.

Please provide a map showing the boundary between Urban and Rural Customers.

Response:

The following table shows the number of urban and rural residential customers from 2010 – 2015.

Number of Maritime Electric Urban and Rural Residential Customers		
Year	**Urban**	**Rural**
2010	22,774	31,788
2011	23,206	32,121
2012	23,671	32,472
2013	23,992	32,882
2014	24,409	33,108
2015	24,505	33,264

The following is the definition of Residential Urban as set out in Section N-1 of the Maritime Electric Company, Limited Rates and General Rules and Regulations:

> *"That category of residential customers located in all incorporated cities, towns and villages with population over 2000 served by Maritime Electric"*

Thus the boundary between Urban and Rural is the municipal boundaries of municipalities with a population over 2,000. As of June 30, 2015 this includes the City of Charlottetown, a small portion of the City of Summerside, the Town of Stratford, the Town of Cornwall and the Town of Montague.

11. te Raa

The following table shows the numbers of accounts and the associated kWh consumption in the requested ranges of rural residential accounts in January of each year from 2010 through 2015:

Rural Residential Accounts for the month of January each year from 2010 thru 2015												
	2010		2011		2012		2013		2014		2015	
kWh range	Accounts	kWh	Accounts	kWh	Accounts	kWh	Accounts	kWh	Accounts	kWh	Accounts	kWh
< 400	6,447	1,284,053	6,323	1,275,531	6,138	1,189,249	5,928	1,129,577	5,836	1,089,848	5,764	1,061,959
400 - 599	5,491	2,774,154	5,396	2,728,856	5,011	2,528,128	4,739	2,392,011	4,549	2,290,198	4,193	2,115,330
600 - 699	3,085	2,002,543	3,105	2,017,166	2,765	1,794,366	2,730	1,775,372	2,542	1,651,600	2,317	1,505,482
700 - 999	7,500	6,269,882	7,666	6,424,325	7,437	6,242,525	6,920	5,816,339	6,514	5,460,800	6,174	5,198,499
1,000 – 1,999	6,386	8,394,437	6,701	8,827,720	7,487	9,995,168	8,112	11,004,237	8,393	11,569,460	9,001	12,545,186
2,000 – 2,999	1,414	3,428,626	1,447	3,512,385	1,808	4,406,214	2,365	5,764,277	2,881	7,021,022	3,357	8,137,277
3,000 & up	574	7,470,545	641	7,529,233	927	8,944,697	1,244	10,328,995	1,554	11,766,544	1,772	12,444,898

12. te Raa

For the Rural Residential accounts for the month of January 2015, please provide a breakdown of cost increases associated with CT4 as per following table.

Rural Residential Accounts The month of January 2015			
kWh Range	**# Accounts**	**Average Monthly Bill**	**Average CT4 2018% Increase**
< 400			
400 - 599			
600 - 699		**$ 120.29 ?**	**2.7% ?**
700 - 999			
1000 - 1999			
2000 - 2999			
3000 & up			

Response:

The following table shows the breakdown of the estimated cost increases for Rural Residential Accounts in 2018 associated with CT4 based on the number of customers in January 2015:

Maritime Electric Company, Limited Average Increase in 2018 Rates Associated with CT4				
			Increase	
kWh range	**Accounts***	**Average Monthly Bill**	**$**	**%**
< 400	5,764	$ 86.38	$ 2.00	2.4%
400 - 599	4,193	$ 101.24	$ 2.50	2.5%
600 - 699	2,317	$ 123.54	$ 3.25	2.7%
700 - 999	6,174	$ 153.27	$ 4.25	2.9%
1000 - 1999	9,001	$ 249.89	$ 7.50	3.1%
2000 - 2999	3,357	$ 398.54	$12.50	3.2%
3000 & up	1,772	$ 472.86	$15.00	3.3%

**** Number of accounts based on January 2015 Rural Residential Customers***

13. te Raa

Table 2 page 11
Curtailment by NB Power for 2014 there are 11 occurrences.
Please provide date, time and duration of these occurrences.

NB Power hold to schedule for 2014 there are 10 occurrences.
Please provide date, time and duration of these occurrences.
Are there any financial penalties associated with the latter occurrences?

Response:

Curtailments By NB			
2014	**Start**	**End**	**Hrs.**
1	2/18/14 7:00 AM	2/18/14 11:00 AM	4
2	4/18/14 9:00 AM	4/18/14 1:00 PM	4
3	6/27/14 1:00 PM	6/27/14 7:00 PM	6
4	9/30/14 7:00 PM	9/30/14 10:00 PM	3
5	10/6/14 10:00 AM	10/6/14 7:00 PM	9
6	10/26/14 11:00 AM	10/26/14 1:00 PM	2
7	10/28/14 7:00 PM	10/28/14 9:00 PM	2
8	10/31/14 8:00 AM	10/31/14 12:00 PM	4
9	11/26/14 5:00 PM	11/26/14 8:00 PM	3
10	12/9/14 10:00 AM	12/9/14 2:00 PM	4
11	12/13/14 9:00 AM	12/13/14 1:00 PM	4

Hold to Schedule By NB			
2014	**Start**	**End**	**Hrs.**
1	4/12/14 11:00 AM	4/12/14 2:00 PM	3
2	4/25/14 8:00 PM	4/25/14 10:00 PM	2
3	5/1/14 11:00 AM	5/1/14 1:00 PM	2
4	7/4/14 3:00 PM	7/4/14 7:00 PM	4
5	7/12/14 10:00 AM	7/12/14 12:00 PM	2
6	8/6/14 6:00 PM	8/6/14 8:00 PM	2
7	8/7/14 11:00 AM	8/7/14 2:00 PM	3
8	10/25/14 7:00 PM	10/25/14 9:00 PM	2
9	11/1/14 9:00 AM	11/1/14 11:00 AM	2
10	12/9/14 6:00 PM	12/9/14 8:00 PM	2

There are no financial penalties from NB Power for being held to schedule as long as the schedules are not exceeded. There are financial costs in the requirement to run oil-fired on-Island generation in order not to exceed the schedules. These costs are born by the party or parties responsible for the exceedance.

14. te Raa

On page 7 under the third reason for installing CT4 at the Charlottetown location it states that CT4 will have synchronous condenser capability, neither the CTGS nor the existing CT3 have this capability.

It is my understanding that the Borden Plant has sufficient synchronous capability to serve the Maritime Electric grid. Please comment.

Response:

A characteristic of alternating-current power systems is the presence of reactive power flows (reactive power flows are in addition to the flow of real power; the flow of real power provides the light, heat and power that we normally associated with the use of electricity). A feature of reactive power is that the distance over which it can usually be transmitted efficiently is short relative to the distance over which real power can be transmitted efficiently. Thus, for example, all of PEI's reactive power requirements are normally supplied from within PEI, and at high import levels from New Brunswick some of the reactive power supplied by the capacitance of the submarine cables flows into New Brunswick to help support the 138 kV voltages at Murray Corner and Bedeque.

Currently at high load levels in PEI there is more than 30 MVAr of reactive power flowing into the West Royalty Substation from the Bedeque Station. This results in an excessive drop in voltage between the Bedeque 138 kV bus and the West Royalty 138 kV bus. Maritime Electric plans to remedy this by installing switchable capacitors at the Charlottetown Substation and the Lorne Valley Station, and by equipping CT4 with synchronous condenser capability. It is expected that the switchable capacitors will be sufficient most of the time, with CT4 being used as a synchronous condenser at times of peak load and during outages to one of the two 138 kV lines between Bedeque and West Royalty. The synchronous condenser is expected to be used more frequently as Island load grows.

CT2 at the Borden Generating Station does have synchronous condenser capability. However, it is too far from Charlottetown to provide voltage support for the Charlottetown area. Any reactive power that it did provide to the Charlottetown area would have to flow to Bedeque and then to West Royalty, which would aggravate the voltage drop between the Bedeque and West Royalty 138 kV buses.

15. te Raa

Table 4 Comparison of alternatives to the 50 MW CT4.
The table lists 2 options as alternatives.

A further alternative option would be to decommission CTGS in 2018 and install two 50 MW combustion turbines.

Please discuss the operational pros and cons of this option.

Decommissioning CTGS in 2018 would present an opportunity to locate the new combustion turbines near the West Royalty substation and move CT3 to this location.

Please comment and discuss the operational pros and cons of this option.

Response:

Maritime Electric expects that two 50 MW CTs in the Charlottetown area will be sufficient to provide back up for the portion of the on-Island transmission system that serves the Charlottetown area and east. These two CTs are the existing CT3 and the proposed CT4. To install an additional CT in 2017 so as to enable retiring the CTGS in 2018 might preclude a natural gas fired opportunity, such as participating in a new natural gas fired generating plant at Moncton that NB Power is considering.

The existing Charlottetown Plant site is a better location than West Royalty for CT3 and CT4 for the following reasons:

- There are existing diesel fuel storage and delivery facilities at the Charlottetown Plant site.
- The Charlottetown Plant site is closer to the Charlottetown harbour, which is the normal delivery location in PEI for diesel fuel used by CT3.
- The Charlottetown Plant site has existing infrastructure for the auxiliary services needed for the CTs
- At the Charlottetown Plant site the CTs will be able to provide back up for the two 69 kV lines that connect the West Royalty Substation to the Charlottetown Substation.