

September 22, 2017



Mr. Mark Lanigan  
Island Regulatory and Appeals Commission  
PO Box 577  
Charlottetown PE C1A 7L1

Dear Mr. Lanigan:

**2018 Capital Budget Filing Docket UE20726**  
**Response to Interrogatories from Commission Staff**

Please find attached the Company's response to the Interrogatories filed by Commission Staff with respect to the 2018 Capital Budget filing. An electronic copy will follow.

Yours truly,

MARITIME ELECTRIC

A handwritten signature in black ink, appearing to read "E. Riveroll".

Enrique Riveroll  
Manager, Regulatory & Financial Planning

ER02  
Enclosure

- 1. In addition to the acquisition of Bridge meters (AMI) on a test pilot project, what additional investment is required to analyze the data obtained for the meters? What customer group is targeted for the deployment of the AMI meters?**

**Will any of the new AMI meters be deployed as part of new customer installations?**

**Response:**

1. The Bridge meter pilot project will include the purchase and installation of the bridge meters as well as software required to integrate these meters in the Company's existing meter reading system. The Company will be able to capture and analyze the new interval data provided by these meters, therefore there is no additional investment anticipated for this purpose.

A specific customer group has not been identified for the deployment of bridge meters. However, meter deployment will be done strategically in order to:

- Test new functionality, such as remote connect/disconnect capabilities.
- Enable the collection of interval data provided by the bridge meter.
- Analyze customer usage patterns. This may include both new and existing customer installations.

2. **How many RI meters are required as part of Measurements Canada annual compliance testing?**

**Response:**

2. In 2018, the Company will complete compliance testing on approximately 570 meters representing four groups of meters originally purchased in 2008. As per Measurement Canada requirements, this representative sample will be removed from service and tested at an accredited facility. Successful test results will result in a total of 9,638 meters receiving an extension to their original 10 year expiry date from Measurement Canada.

A summary of the four groups of meters to be tested in 2018 is shown in Table 1.

<b>Table 1: 2018 RI Meter Sample Size</b>			
<b>Group</b>	<b>Total Meters in Group</b>	<b>Size Range</b>	<b>Required Sample Size</b>
1	3,014	1200-3200	156
2	3,012	1200-3200	156
3	3,149	1200-3200	156
4	463	<500	100
<b>TOTAL</b>	<b>9,638</b>		<b>568</b>

3. **The overall capital budget request of \$30,815,000 was the projected amount included in the 2016 general rate application? Rates approved as part of the 2016 general rate application include the amortization levels associated with this capital budget? I.e. This capital budget has no new general rate implications to customers?**

**Response:**

3. The 2018 Capital Budget application total is the same as the projected amount in the 2016 General Rate Agreement approved by the Commission in Order UE16-04. While there are some differences between the proposed budget amounts within the various classes of capital expenditures (i.e. generation, distribution, transmission and corporate) as compared to that projected in the General Rate Agreement, the resulting differences in amortization due to the different amortization rates applied to these classes is immaterial and, as a result, there are no new general rate implications to customers.

4. A number of categories include spare parts for generation assets. Is it the Company's intention that the proposed budget in those areas be left unspent, if not required? These budget allocations will not be transferred to areas where over budget situations are possible?

**Response:**

4. Generation budget includes two types of provisional amounts:
- Budget amounts to address unforeseen small refurbishments and spare parts for the Charlottetown Combustion Turbine #3 and the Borden Plant that are expected to arise during the year based on historic levels.
  - Provisional amounts are included in the Charlottetown Thermal Generating Station (CTGS) budget categories 4.1, 4.2 and 4.3 for miscellaneous capital investments required throughout the year to extend the operating life of the buildings at the site, replace safety equipment or other critical operating equipment and miscellaneous boiler improvements that may be required as the CTGS is transitioned into long-term layup mode.

Provisional budget amounts that are not used in the budget year are not carried over to the next year but may, in consultation with the Commission, be allocated to other similar Generation related budget areas in circumstances where over budget situations are possible.

5. In 2017, year to date, how often has on-Island generation ran and what was the cause for running this generation?

**Response:**

5. From January 1, 2017 to September 1, 2017, Maritime Electric on-island generation was dispatched a total of 64 times. The breakdown of the number of starts and causes for the starts are provided in Table 2.

<b>Table 2: Number of Starts</b>					
<b>Cause for Running Generation</b>	<b>CTGS</b>	<b>CT1</b>	<b>CT2</b>	<b>CT3</b>	<b>Total # of Starts</b>
Cable Load Management	-	1	8	23	32
Monthly Test Runs	-	8	6	3	17
Hold to Schedule Events	-	-		2	2
Curtailement Events	-	-	3	1	4
Training Run	9	-	-	-	9
<b>TOTAL</b>	<b>9</b>	<b>9</b>	<b>17</b>	<b>29</b>	<b>64</b>

- 6. Each year the Company budgets single and three phase line rebuilds based on the Field Audit and Assessment database. What criteria (ex. Pole age, conductor size, etc.) and ranking method is used by the Company and applied to the database of distribution lines to determine which areas are to receive attention each budget year? Can the Company give the Commission a summary breakdown of the age of distribution lines used throughout the system?

**With modern construction standards and presumably improved equipment, has the life span of distribution lines improved? Has amortization (depreciation) rates been reviewed taking in to account modern construction rebuilds?**

**Response:**

- 6. To help in determining what aspects of the distribution system should be focused on as part of the annual Capital rebuild plan, the Company uses the weighted criteria in Table 3. Load growth data and line inspection programs are also used in developing rebuild and equipment replacement programs.

<b>Table 3</b>	
<b>Weighting</b>	<b>Criteria</b>
40%	Condition, age and size of conductor
30%	Condition and age of pole/Density of Eastern Cedar poles
15%	Customers affected by an outage on distribution line
10%	Reliability history (Hours of outage associated with the line)
2.5%	State of vegetation management
2.5%	Density of porcelain cutouts

Over the course of the life of a distribution line, the Company will perform specific repairs, rebuild sections and perform extensions where required. As a result, each distribution line may have certain components of different ages making it difficult to assign a meaningful age to distribution lines and circuits.

As older distribution lines and equipment are upgraded and replaced to meet today’s standards, improvements in system reliability are achieved. However, because it is difficult to assign a specific age to a distribution line or circuit based upon the reasons outlined previously, the Company uses the Average Service Life Methodology as accepted under Canadian Accounting Standards for Private Enterprises to calculate depreciation on various classes of assets. The current amortization rates used by the Company were most recently reviewed in the 2014 Depreciation Study performed by Gannett Fleming and proposed by the Company as part of the General Rate Agreement Application. The revised depreciation rates were approved by IRAC in Order UE16-04, Appendix 5.

7. **Although tree trimming is an operating budget expenditure item, does trimming requirement form part of criteria for decisions on which line rebuilds are selected? Does tree trimming and line rebuilds occur at same time on a particular rebuild?**

**Response:**

7. The Company assesses tree trimming requirements based on customer-hour outages due to trees, results from the inspection program, and information from field staff on areas that have dense vegetation affecting power lines, while rebuilds are determined mostly by the condition and age of poles and conductor. As shown in the decision matrix in interrogatory response #6, tree trimming has been assigned a 2.5% weighting overall in the rebuild selection process.

Tree trimming is typically conducted during a rebuild. Where the rebuild is done in an existing right-of-way, the cost of vegetation management will be charged to the operating right-of-way maintenance accounts. However, where the rebuild requires relocation of the line to a new right-of-way, the cost of vegetation management will be capitalized as part of the cost of clearing a new right-of-way to accommodate the rebuilt line.



- 8. Has the Company's pole procurement and pole replacement strategy changed as a result of the NB Power pole procurement supplier change?**

**Response:**

8. The Company's pole procurement and pole replacement strategy has not changed as a result of the NB Power pole procurement supplier change. The Company currently has a two year Blanket Purchase Order to the end of 2018 for the supply of poles. The Company will continue to utilize a competitive tendering process for the supply of poles to ensure competitive pricing and product quality is attained.

9. **The proposed transportation equipment budget requests a tracked digger at an approximate cost of \$90,000. This is not a replacement asset? The Company currently has one tracked off road vehicle it purchased in 2009. What are the usage statistics for this vehicle? What is the potential usage plans for the current proposed tracked digger? What other options are available as opposed to the purchase of the proposed vehicle?**

**Response:**

9. The tracked vehicle the Company purchased in 2009 is a double bucket unit designed to enable two Power Line Technicians to work on energized transmission and distribution lines off-road. Since its acquisition, the unit has averaged 160 hours per year of operation. However, this vehicle is not equipped to install poles and cannot be retrofitted economically to do so. As a result, the Company is proposing to purchase a used tracked digger with a single bucket suitable for one Power Line Technician as well as an auger, making it capable of installing poles and working on transmission and distribution lines.

The Company currently has approximately 590km of transmission and distribution lines that are off-road which require the use of a tracked vehicle for maintenance purposes. The tracked digger with an auger will be used for pole installations during planned maintenance of existing pole lines, pole replacements due to storms, new pole line construction of lines in areas that are off-road (for example, the proposed Y-109 extension in section 6.2d), and pole replacements in areas with no snow removal. Currently, pole installations in situations outlined above require the use of other off-road equipment such as bull-dozers or excavators with an auger mounted to it. Sourcing these types of specialized heavy equipment is sometimes difficult and often results in delays in restoring power when outages occur and the equipment is required.

10. What is the timeline for beginning construction of the proposed Mount Albion substation?

**Response:**

10. The construction of the substation is expected to start in the second quarter of 2018 subject to the successful purchase of land and necessary permits and environmental approvals being received.

- 11. What other options, taking into consideration cost/benefit analysis of options, were considered to alleviate the constraints on the Crossroads substation?**

**Response:**

11. The Crossroads substation currently has a capacity of 20 MVA. The substation services 6,635 customers in 26 communities with the majority of the load served in the Town of Stratford. The Crossroads substation load peaked at 19.1 MVA on December 16, 2016, and is forecast to exceed 20 MVA in 2018.

Typically, when a substation reaches its capacity limitation, the expansion of the existing substation would be considered as an option to alleviate this capacity constraint. However, the existing footprint of the Crossroads substation, which currently has two 7.5/10 MVA power transformers and four distribution feeders, does not have the required space for an additional power transformer and additional feeders. Additionally, the substation is located such that there are no back-up capabilities from other substations.

As a result, two solutions were evaluated to alleviate the constraints on the Crossroads substation by constructing a new substation and decreasing the load at Crossroads by transferring customers to the new substation.

Option 1: Build new Mount Mellick substation

A new substation in Mount Mellick area has many advantages. With a 2.5 km transmission line extension, a new substation in Mount Mellick provides the capability to back-up both Crossroads substation and Georgetown substation, improve reliability by reducing the number of customers per feeder and reducing the number of kilometers per feeder in the area, and reduce overall losses on the system by 290 kW.

Option 2: Build new Mount Albion substation

A new substation in Mount Albion area has many advantages similar to a substation in Mount Mellick. However, with the transmission system nearby, very little transmission expansion is required as compared to a substation in Mount Mellick. Similar to a substation in Mount Mellick, a substation in Mount Albion also provides the capability to back-up both Crossroads substation and Georgetown substation, improve reliability by reducing the number of customers per feeder and reducing the number of kilometers per feeder in the area, and reduce overall losses on the system by 280 kW.

Since both option 1 and 2 have similar benefits, the following cost/benefit comparison was the determining factor:

	<b>Option 1: Mount Mellick Substation</b>	<b>Option 2: Mount Albion Substation</b>
Substation	\$ 1,338,000	\$ 1,338,000
7.5/10 MVA Transformer	\$ 822,000	\$ 822,000
Transmission line extension	\$ 352,500	\$ 141,000
Distribution line extension	\$ 1,004,000	\$ 1,004,000
Total Cost	\$ 3,516,500	\$ 3,305,000
PV loss savings	(\$ 2,900,000)	(\$ 2,800,000)
<b>Net total costs</b>	<b>\$ 616,500</b>	<b>\$ 505,000</b>

A new substation in Mount Albion is considered the most practical and cost effective solution because the net total costs are lower.

- 12. Why was the Y-109 Extension not included as a project cost associated with the new cable interconnection project?**

**Response:**

12. The submarine cable interconnection project included new facilities in PEI, namely the Borden cable risers and Borden switching station that were to be owned by the Province of PEI, and thus eligible to receive 50% funding from the Federal Government. Given the complexity of the submarine cable interconnection project, and the resulting commitment of the Company's engineering resources to the project, it was not considered prudent to reconfigure the Company's existing submarine cable in-feed infrastructure until the new submarine cable interconnection facilities were fully operational.

Although the Y-109 extension is a consequence of the new submarine cable interconnection, its prime driver is increased system reliability for eastern PEI since there will now be two separate supply paths from the interconnection to eastern PEI. Rerouting Y-109 to Borden also allows the entire Bedeque substation to be taken out of service for maintenance at most times of the year without the need for on-island generation and with no impact to customers on PEI.

**13. What is the depreciation rate on computer hardware acquisitions?**

**Response:**

13. The depreciation rate on computer hardware acquisitions is 20% as approved by IRAC in Order UE16-04 as part of the General Rate Agreement Application.

- 14. Purchased software and upgrades are annual license renewals it appears. Would these not be more appropriately expensed as an annual operating expense?**

**Response:**

14. Software agreements with various vendors provide three key functions. The first is ongoing minor releases that correct product deficiencies, add minor functionality and address security issues. The second function provides access to major releases that keep the product compatible with other technologies while at the same time adding functionality. Both of these functions add value to the asset and are therefore capitalized. The third function of the agreements is product licensing which is considered an operating expense. As a result, the Company has segregated the capital and operating components for these purposes.



- 15. Is the upgraded meter reading system technology being contemplated, suitable for migration to Bridge (or AMI) meters, if that technology becomes employed on PEI?**

**Response:**

15. The meter reading system upgrade planned for 2018 is a necessary upgrade to the existing ‘drive-by’ meter reading technology that is becoming obsolete. This will enable the Company to continue to read Radio Integrated (RI) meters and will have the capability to read Bridge meters.

If the Company were to deploy a complete AMI system in the future, the ‘drive-by’ meter reading system would eventually be replaced with the necessary communication infrastructure to allow for near real-time and two-way communications to the AMI capable meters.

- 16. What turbine maintenance software is employed by the Company presently, vendor supplied or in house developed?**

**Response:**

16. The Company currently uses a vendor supplied product, Maximo, for generating plant maintenance. This software has been used for over 15 years to track the maintenance and operation of plant assets. The Maximo software is due to be upgraded and with the future decommissioning of the Charlottetown Thermal Generating Station, it is considered prudent to evaluate other possible solutions that may be a better fit going forward to track maintenance and operation of the remaining generation assets, namely the combustion turbines.

- 17. Can further details be provided regarding the email and database enhancement upgrade for backup protection?**

**Response:**

17. The Company's email platform and Database Management System ("DBMS") are critical to the business operations of the Company and both are due to be upgraded in 2018. The DBMS supports many systems including the Customer Information System, Customer Billing System, Outage Management System and Work Order Management System. As part of the upgrade, redundant platforms for both the e-mail platform and DBMS will be created. In essence, a second copy of both environments (DBMS and email) will be established and the secondary system will become immediately available should a failure of the primary system occur. Additional benefits of this configuration include the ability to perform maintenance, patching and upgrades without any interruption of business services to customers.