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September 28, 2023

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

Dear Commissioners:

**Weather Normalization Mechanism and Reserve Components
Docket UE21230**

Please find attached the Company's response to Interrogatories from Commission Staff with respect to the Weather Normalization Mechanism and Reserve Components.

Yours truly,

MARITIME ELECTRIC

A handwritten signature in black ink that reads "Gloria Crockett".

Gloria Crockett, CPA, CA
Manager, Regulatory & Financial Planning

GCC15
Enclosure



**Response to Interrogatories
to
Weather Normalization Mechanism
and
Reserve Components**

UE21230

Submitted September 28, 2023

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- IR-1** Refer to Appendix A of the Application. The Weather Normalization Mechanism and Reserve (“WNR”) Account has recorded a balance recoverable from ratepayers in every month since January 2021. This is not consistent with the historical WNR Account balances from January 2016 to December 2020.
- a. Please explain why the WNR Account balance has been a receivable in every month since January 2021.
 - b. Please explain why the WNR account balances according to Appendix A of the application do not agree with the monthly financial statement balance filed with the Commission.

Response:

- a. The Company recorded balances owing to ratepayers in three of the twenty-four months between January 2021 and December 2022; namely the months of May and July of 2021 and February 2022. The remaining twenty-one months were recorded as amounts recoverable from ratepayers.

Whether the monthly adjustment for weather normalization is recorded as an amount owing to ratepayers or an amount recoverable from ratepayers is determined by whether actual heating degree days (“HDD”) recorded in the month is higher or lower than the 10 year average HDD for the month.

When the weather is cooler than normal and actual HDDs are higher than the 10 year average, the Company will have higher sales than it otherwise would have for the month that is offset by recording a balance owing to customers. This was the case in May and July of 2021 and February 2022.

When the weather is warmer than normal and actual HDDs are lower than the 10 year average, the Company will have lower sales than it otherwise would have for the month that is offset by recording a balance owing from customers. This was the case for the remaining twenty-one months between January 2021 and December 2022.

- b. The monthly adjustments to the WNR are prepared within the first few days following the end of a given month based on a download of the actual HDD data from Environment Canada. It is not uncommon for Environment Canada to estimate “E” or have missing data “M” that is later updated with actual data and this can result in minor variances in the HDD in any given month depending on when the data is downloaded.

The information set forth in this Application was prepared using a download of the actual HDD data from Environment Canada in June 2023 and provided in the Application as Appendix B. This has resulted in minor adjustments of 0.7 HDD in April 2022 and 3.18 HDD in October 2022. As a result, an adjustment of \$15,519 balance owing to ratepayers will be recorded in 2023.

Finally, an adjustment of \$9,144.03 recorded to the account in September 2022 in error was reversed in October 2022.

IR-2 In Order UE23-04, the Commission capped the WNR Account balance so that it will not exceed the balance as of April 30, 2023.

- a. In Section 3.2 of this Application, MECL submits that the WNR cap, as of April 30, 2023, “*should reflect the revised components effective January 1, 2023 as submitted herein.*” Why?
- b. What is the balance of the WNR Account as of April 30, 2023 using the existing WNR components, and using the updated components proposed in this Application? If the balances differ, please explain why.

Response:

- a. In Order UE16-04, the interim approval of the WNR states that “revisions to the components of the [megawatt hour] 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 of the year prior thereto”.

The two elements of the Marginal Net Revenue are the Forecast Unit Revenue per MWh and the Forecast Unit Energy Cost per MWh. As discussed in Section 4.2 of the Application, for the calendar year 2023, both of these elements are impacted by the outcome of the Company’s General Rate Application (“GRA”) Order UE23-04 issued in April 2023 and could not be reasonably forecast until the outcome of the GRA was known. For this reason, the rates approved for 2022 continue to be used to record the adjustments for 2023 until the Commission approves the Application herein.

However, to comply with the original interim approval Order UE16-04, the components should be updated for entire calendar year and once approved, applied retroactively to the beginning of the calendar year.

- b. Table 1 below provides a comparison of the April 30, 2023 WNR balance using the existing components approved for 2022 and the revised balance based on the proposed 2023 components.

TABLE 1 Comparison WNR Balance Recoverable from Customers (\$000s) Using 2022 Approved Variables and 2023 Proposed Variables for January – April, 2023		
	Existing Balance Recoverable Using Approved 2022 Variables	Revised Balance Recoverable Using Proposed 2023 Variables
April 30, 2023 WNR Balance ¹	3,865	4,056

¹ Both balances reflect the adjustment to the December 31, 2022 WNR balance of \$15,519 owing to customers discussed in the response to IR-1.

IR-3 Please explain why in the Marginal Net Revenue calculation, MECL uses the Forecast unit revenue per MWh less the Forecast unit energy cost per MWh versus the Actual unit revenue per MWh less the Actual unit energy cost per MWh.

Response:

The primary reason the Company uses forecast unit revenue per MWh less forecast unit energy cost per MWh to calculate the Marginal Net Revenue is that the actual values are not known until the end of the year.

It is also worth noting that the actual Marginal Net Revenue should not vary materially from the forecast. Table 2 provides a comparison of the actual Net Revenue in 2022 compared to the forecast used to prepare the components approved by the Commission.

TABLE 2 Summary of Proposed Revisions to Weather Normalization Mechanism and Reserve Variables		
	Approved UE21-15 January 1, 2022	Updated to Reflect Actual 2022 Results
Unit Revenue per MWh	\$ 147.23	\$ 147.93
Unit Energy Cost per MWh	\$ 92.44	\$ 92.44
Marginal Net Revenue	\$ 54.79	\$ 55.49

Updating the 2022 balance to reflect actual Marginal Net Revenue would result in an additional \$18,290 recoverable from customers, which is not material.

IR-4 Please explain how the Coefficient in the WNR formula is determined and why it has been increasing significantly since the WNR was approved in 2016.

Response:

- a. The objective of the MWh per HDD coefficient is to forecast how the electricity usage of year-round Residential, General Service and Small Industrial customers varies with temperature. This is done using multiple linear regression analysis, a statistical technique that uses two or more independent variables to predict the outcome of a dependent variable.

The formula used is $Y = a1 * X1 + a2 * X2 + b$

Where:

- Y is the average daily reported electricity sales, in MWh, for a month by the Residential, General Service and Small Industrial Rate classes;
- X1 is the average daily HDD for the month and the previous month (The Heating Degrees, in degrees Celsius (“C”), for a day is equal to 18 minus the mean temperature for the day. If the mean temperature is equal to or greater than 18 C, then the value is zero.);
- X2 is the average daily fewer hours of daylight for the month and the previous month, as compared to the months of May and April,
- b is a constant; and
- a1 is the coefficient of interest. It is the estimate of how electricity energy usage varies with temperature, in MWh/HDD.

In Appendix C – Schedule 2 (Calculation of MWh/HDD Coefficient) is prepared using Microsoft Excel. The three right hand columns are the input for the Excel “LINEST” function which performs this calculation. The excel version of the Appendices is provided for reference as IR-4 - Attachment 1a and 1b to this response.

Because Maritime Electric’s reported sales for a month are based on meter readings taken over the course of the month, half of the reported sales represent usage in the month and half of the reported sales represent usage in the previous month. A further consequence of the monthly meter reading cycle is that the average number of days of usage that the reported sales for a month represent is equal to the number of days in the previous month.

Thus:

- The “Average MWh per day” column consists of the reported sales for the month divided by the number of days in the previous month;
- The “Average HDD per day” column consists of the average of the average HDD per day for the month and the average HDD per day for the previous month; and
- The “Fewer hours of daylight” column (per day is implicit) consists of the average daily fewer hours of daylight for the month and the previous month, as compared to the months of May and April.

The purpose of the “Fewer hours of daylight” variable is to consider the increase in electricity usage for lighting in the late Fall and Winter months. Without this variable, the estimate of electricity usage for heating would be too high.

In the “Linear regression results” section of Appendix C – Schedule 2, the 84.43 value for the HDD coefficient for October 2021 to May 2022 is a measure of MWh per HDD (i.e., for each HDD, the estimated electricity usage by Residential, General Service and Small Industrial customers is 84.43 MWh).

The analysis is based on sales for the months of October through May because PEI is considered to have an eight month heating season.

- b. The MWh per HDD Coefficient or estimated electricity usage by Residential, General Service and Small Industrial customers has been increasing since the WNR was approved in 2016 primarily due to the increased penetration of electric heating on PEI. In other words, the increase in the MWh per HDD coefficient since 2016 can be viewed as a measure of the increase in Maritime Electric’s electric space heating load since 2016.

IR-5 Please explain the effect an increase in the Coefficient affects the overall calculation of the WNR adjustments.

Response:

The increase in the coefficient since the adoption of the interim WNR in 2016 means that the Company's sales are subject to increased variability from changes in temperature above or below the most recent ten year average.

As an example, a 10 HDD change in the actual HDD from the 10 year average for a given month in 2016 would result in a variation of 417.3 MWh in sales. By comparison, a 10 HDD change in actual HDD from the 10 year average in 2023 would result in a variation of 844.3 MWh in sales in a given month.