





January 15, 2025

Ms. Cheryl Bradley, CPA, CA Island Regulatory & Appeals Commission PO Box 577 Charlottetown PE C1A 7L1

Dear Ms. Bradley:

UE21231 – Comprehensive Review of the Weather Normalization Mechanism and Reserve

Please find attached the Company's responses to clarification questions from Mr. Roger King with respect to the Comprehensive Review of the Weather Normalization Mechanism and Reserve filed with the Commission on September 27, 2024.

Yours truly,

MARITIME ELECTRIC

Aloria Gochet

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

GCC01 Enclosure





Via email: rdking519@gmail.com

January 15, 2025

Mr. Roger King 519 Simpson Mill Rd Hunter River PE C0A 1N0

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GCC02 Enclosure



Response to Clarification Questions to Weather Normalization Mechanism and Reserve

UE21231

Submitted January 15, 2025





Maritime Electric

IR-1 How is the "Heating Coefficient (MWh/HDD)" calculated differently for the HDD reference temperatures of 18C and 12C?

Response:

The methodology for calculating the heating coefficient (MWh/HDD) is the same for both reference temperatures of 18°C and 12°C.

Figure 1 shows the load versus Heating Degree Days ("HDD") in 2023 with the calculated regression line based on 12°C as the reference temperature. For a reference temperature of 18°C, the HDD values (horizontal axis) are calculated using a reference temperature of 18°C. The linear regression analysis is the same in both cases – average MWh sales per day for the month versus average HDD per day the month and previous month.



The difference between the two coefficients lies in how the HDD data is calculated. Specifically, the 18°C coefficient uses a reference temperature of 18°C, while the 12°C coefficient uses a reference temperature of 12°C. For example, if the mean temperature of a particular day is 5°C, the resulting number of HDD based on 18°C is 13 (i.e., 18 minus 5) whereas the resulting number of HDD based on 18°C is 7 (i.e., 12 minus 7). Therefore, the difference in the coefficients is due to the different reference temperatures used in the HDD calculation, not the coefficient calculation method itself.

IR-2 What parameters drive the changes in the "Heating Coefficient (MWh/HDD)" from yearto- year?

Response:

The regression analysis used to calculate the heating coefficient is based on the actual historical temperatures (i.e., number of HDD) and the customer load experienced during the heating season. Increases in the penetration of electric space heating has resulted in higher heating coefficients in recent years (i.e., the space-heating load is growing).

Maritime Electric

IR-3 What different permutations of HDD reference temperatures and resulting "Heating Coefficient (MWh/HDD)" have been calculated to set 12C as the preferred reference?

Response:

Maritime Electric considered several reference temperatures to calculate the heating coefficient (MWh/HDD). As discussed in Section 5.2 and shown in Figure 3 (provided below) of the Comprehensive Review of the Weather Normalization Mechanism and Reserve Report (the "WNR Report"), there is little or no change in customer load observed between daily mean temperatures of 18°C and 12°C.¹ However, increases in load due to incremental temperature decreases are observed when temperatures drop below (approximately) 12°C. This observation led to the selection of 12°C as the preferred reference temperature.



¹ The WNR Report was filed with the Commission on September 27, 2024.

IR-4 What assumptions have been made in the annual use of electric heating? What parameters change to cause the changes from year-to-year?

Response:

Please refer to the response to IR-2 herein. The WNR calculations do not start with assumptions about changes in the space-heating load. The calculation of the heating coefficient (MWh/HDD) is based on historical temperatures and customer load during the heating season. It is not influenced by assumptions about customers' use of electric space heating.

IR-5 What assumptions have been made in calculating building energy losses over the wide range of PEI customers' premises and how has this range been normalized to determine the annual "Heating Coefficient (MWh/HDD)"?

Response:

As stated in the responses to IR-2 and IR-4 herein, the heating coefficient (MWh/HDD) is based on historical temperatures and customer load. It is not influenced by any assumptions regarding building energy losses. As shown in the response to IR-1 example, the average daily total MWh sales for a month are used, which includes all building types. **IR-6** How has the complementary components of homes heated by a dual home heating system employing electricity and fossil fuels been factored?

Response:

Please refer to the response to IR-5 herein. Factors related to customer space heating systems, including those using both electricity and fossil fuels, are reflected in the actual historical load data used to calculate the heating coefficient.

- **IR-7** Reference the deployment of the pilot 600 Bridge Meters since 2019 where hourly customer energy usage data has been collected and which has enabled a data library covering four annual seasons:
 - a. How has this pilot data been used to improve estimating home heating loads?
 - b. Reference page 12 in the Application which states "with the introduction of advanced metering infrastructure ("AMI") in the coming years, the Company will have more accurate information to assess space-cooling load, how will the similar, but expanded set of AMI customer usage data yield improved space-cooling conclusions.

Response:

- a. To calculate the heating coefficient as part of the WNR, Maritime Electric uses monthly energy usage data for the eight-month heating season from all its over 75,000 residential customers. Maritime Electric believes that using this data to estimate the heating load provides satisfactory results, and there has not been a need for any greater accuracy that might be provided by using data from the bridge meters.
- b. As discussed in Section 2.1.2 of the Maritime Electric Cooling Load Study (Appendix D of the WNR Report):

Maritime Electric uses monthly billing load data for the Residential, General Service and Small Industrial rate classes to calculate space-heating load coefficients as part of the WNR. Unmetered, Street Lighting, seasonal and Large Industrial rate classes are excluded as they are deemed to not make a significant contribution to space-heating load. Analyzing space-cooling load with a cooling season of July and August (i.e., two months); however, results in an insufficient number of datapoints to accurately analyze spacecooling using monthly load data. Therefore, daily total system load was used as part of the Study to analyze space-cooling load, which provides up to 62 days of potential datapoints.

A disadvantage of using total daily system load is that it includes load from rate classes that may not contribute to space-cooling load, such as street lighting, unmetered accounts and industrial loads. Daily load cannot be segregated by rate class with Maritime Electric's current radio frequency ("RF") meters.

AMI would allow the Company to collect meter readings from customers at a frequency of one hour or less, which would enable advanced data analytics and segregation of load by rate class. Future benefits of AMI may also include the ability to disaggregate individual customer load through analyzing the specific signature of appliances connected behind the meter, including air conditioning systems. The Company does not expect AMI to change the conclusions of the Space Cooling Load Study but does expect that AMI will improve the accuracy of the results. **IR-8** Reference 3.1 - Operation of WNR cites: "Changing weather patterns are becoming more common with climate change, and the increased variability of weather patterns leads to forecast risk as the weather data is used to develop load and demand projections". Noting that the cost of Demand is not currently a month-to-month operating variable, could the WNR modeling provide useful forecast Demand data (as a function of ambient temperature) in preparation for new customer tariffs that include a Demand cost?

Response:

The heating coefficient shown in the *2023 row* of the WNR Report Table 3 was 93.96 MWh/HDD. One method to estimate the residential space heating load demand (in MW) as a function of ambient temperature is to convert the heating coefficient (MWh/HDD) to *MW/HD*, as demonstrated below:

93.96 MWh/HDD x 1 Day / 24 hours = 3.9 MW / HD

Given that the reference ambient temperature is 12°C (in this case), this result above implies that the space heating load increases by approximately 3.9 MW for every incremental 1°C drop in temperature below 12°C.

Maritime Electric has not yet analyzed potential new rate structures that include a demand charge for the residential rate class. These will be considered in future stages of rate design reviews following the Commission's decision on the Maritime Electric Rate Design Application filed on May 14, 2021 (Docket UE22503).

IR-9 To provide context of the financial impact of recent weather events to date:

- a. What is the estimated value of the Hurricane Fiona debt currently owed by customers? Which MECL balance sheet or operating financial entries show this?
- b. What is the estimated value of the WNR as of December 31, 2024? If the \$3.9M cap is still applied, which additional financial entry shows the true total amount?

Response:

- a. The deferred balance of storm restoration costs related to Hurricane Fiona is \$38.5 million (unaudited) as of December 31, 2024. This includes the \$34.6 million of restoration costs summarized in Table 1 of the Company's application to recover these costs (Docket UE21505) plus accrued interest of \$3.9 million.
- b. The balance of the WNR as of December 31, 2024 is \$3.9 million (unaudited). This is the true amount of the deferral as of December 31, 2024 as there would be no retroactive adjustments to the WNR balance as a result of the Commission's decision on this matter.

IR-10 What is the estimated value of RORA and the ECAM balance as of December 31, 2024?

Response:

The balance of RORA receivable from customers is \$0.8 million (unaudited) and the balance of ECAM receivable from customers is \$20.6 million (unaudited) as of December 31, 2024.²

² The RORA balance receivable from customers relates to an over refund of the rebate approved by the Commission in Order UE23-04 for the period May 1, 2023 to February 29, 2024.

IR-11 What is the estimated value of the undersea cables contingency fund as of December 31, 2024? Is this held by the PEI Energy Corporation or a PEI Government department?

Response:

The balance of the Cable Contingency fund is held by the PEI Energy Corporation ("PEIEC") and the Company respectfully suggests contacting the PEIEC directly regarding the balance.