All our energy. All the time.



RECEIVED

The Island Regulatory and Appeals Commission

1 2021

OCT

October 1, 2021



Dear Ms. Mosher:

UE 22503 – Application for an Order to Approve Stage 1 Rate Design Changes Response to Interrogatories from Roger King

Please find attached the Company's responses to Interrogatories from Roger King submitted on August 23, 2021 and on September 8, 2021 with respect to the Company's Application to Approve Stage 1 Rate Design Changes filed with the Commission on May 14, 2021. An electronic copy will follow.

Yours truly,

MARITIME ELECTRIC

Mlaria Crochett

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

GCC26 Enclosure

All our energy. All the time.



Via email: randjking@pei.sympatico.ca

October 1, 2021

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

UE 22503 – Response to Interrogatories regarding Application to Approve Stage 1 Rate Design Changes

Please find attached the Company's response to your interrogatories submitted on August 23, 2021 and on September 8, 2021 with respect to the Company's Application to Approve Stage 1 Rate Design Changes filed with the Commission on May 14, 2021.

Yours truly,

MARITIME ELECTRIC

bia Croatt

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

GCC28 Enclosure



Response to Interrogatories submitted on August 23, 2021 and September 8, 2021 UE22503 – Application for an Order to Approve Stage 1 Rate Design Changes from Roger King

Submitted October 1, 2021

All our energy. All the time.





Response to Interrogatories submitted on August 23, 2021 from Roger King

Second Block Elimination:

IR-1 MECL has spent considerable time and effort in analyzing energy use for farms, engaging the 100+ highest energy farm operators and proposing cost increase mitigating choices. Beyond the preliminary load study (Appendix C) what similar studies, cost impact calculations and mitigating proposals are in place for the other 7000 plus second block Residential customers?

Response:

In the Stage 1 Rate Design Application priority was given to farm usage as farms were identified as the largest identifiable group of customers, with monthly usage greater than 5,000 kWh per month, to be impacted by the elimination of the declining second block Residential energy rate. The anticipated rate increase on larger farms has been a contributing factor to the long history of this issue.

Maritime Electric has not completed similar studies for other Residential customers with second block usage. It should be noted that the four-step annual increase of the second block rate to equal the first block rate will apply to all Residential customers, not just farms. As discussed in Section 8.4 of the Application, the purpose of extending the elimination of the second block over a four-year period is to balance the need to eliminate the second block in order to improve the revenue-to-cost ratio of the class with the need for reasonable annual rate increases for all Residential customers.

Rate Structure Changes Residential and other Ratepayers (UE22503) Interrogatories from Roger King (Aug. 23, 2021)

IR-2 Noting that [automated metering infrastructure] is not required to implement innovative [time-of-day] and /or thermal storage alternative tariffs, is MECL prepared to offer the 7000 plus second block Residential customers a [time-of-day] tariff for off-peak appliance use and thermal storage billing discounts for non-peak hot water heating?

Response:

Maritime Electric is unable to offer time-of-day, or time-of-use ("TOU"), rates to customers in the short-term.

Maritime Electric does not agree with the statement that automated metering infrastructure ("AMI") is not required to implement innovative rates. Such a statement suggests that innovative rates can be implemented with the meters (i.e., bridge meters) and billing system currently utilized.

Firstly, the Company's experience with the bridge meters installed for the Load Study has shown them to be labour intensive, for both the data collection process (i.e., meter readers have to slow down when driving past a bridge meter to ensure all the hourly data is properly collected) and the data storage and analysis functions. While bridge meters have provided valuable information on a small scale, Maritime Electric does not recommend wide-spread usage of bridge meters outside of the Load Study, including their use for any alternative rate strategies.

Secondly, the Company's existing customer information/billing system ("CIS") is not capable of processing more than one reading per meter per month. As a result, for existing interval reading customers, readings are analyzed and input into the billing system manually. Such a labour intensive process is only viable on a limited basis for a limited number of customers. As discussed in Section 9.4 of the Stage 1 Rate Design Application, the Company continues to develop a proposal for a new CIS, which will be capable of processing multiple readings per meter per month and will be compatible with AMI.

IR-3 How will those farmers not engaged in the Farm Study choose to switch to the Small Industrial tariff (SI) or stay with the Residential tariff?

Response:

Maritime Electric will work with customers individually to estimate their bills for both options and determine the most cost effective alternative available to them.

IR-4 Farmers operating with low Load Factors will elect to continue with the Residential tariff. What assistance will MECL provide to help improve the Load Factors and therefore encourage these farmers to move to the Small Industrial tariff?

Response:

The question asked suggests that farms have the ability to improve their load factor. Through the Farm Study the Company learned that a farm's load factor is mainly a function of the nature of their operation. For example, for a dairy farm the load factor tends to be a function of the size of the dairy herd. For small dairy farms a milking session may take just one or two hours, while for larger dairy farms a milking session can last for five to six hours. As advised by the Dairy Farmers of PEI members during the consultation process, in many cases, suggesting a dairy farmer change their milking sessions to improve their load factor may not be reasonable.

The ability to help farms improve their load factors will largely depend on each farm's particular circumstances, and will require an in-depth knowledge of farming operations.

- IR-5 Farm Study page 22: Recognizing the Commission's concern with declining cost energy blocks why does MECL continue to describe the [Small Industrial] and [General Service] tariffs in terms of first and second blocks? Would it not serve customers and the Commission better if the following descriptions were adopted:
 - a. The [Small Industrial] tariff comprises a fixed Energy (kWh) unit cost and a fixed Demand (kW) cost independent of the amount of energy used each month. (Contrary to the page 22 claim that it "is better for a wide range of load factors", it simply results in a lower cost for high load factors and a higher cost for poor load factors).
 - b. The [General Service] tariff is inequitable because it is applied to a wide range of customers' energy consumption and demand loads. Some customer equity is achieved by having both a declining second energy block (5,000 kWh) and the first 20 kW demand exception but extending the application of this tariff is not warranted. (Clearly with 75% of [General Service] customers not being metered for demand, which drives the high [revenue-to-cost ratio] of 1.21, the application of the [General Service] tariff has to change)

Response:

- a. This is incorrect. Higher load factor customers have a lower average cost per kWh (total bill/number of kWh used) because their site-related and demand-related costs are spread over a larger number of kWh. Similarly, lower load factor customers have a higher average cost per kWh because their site-related and demand-related costs are spread over a smaller number of kWh.
- b. Maritime Electric agrees that the current General Service tariff is inequitable as evidenced by its revenue-to-cost ratio. As discussed in response to IR-9, the Company will continue to analyze General Service load data and usage patterns before making a recommendation on further changes to this rate class.

Monthly Service Charge Inequity:

IR-6 Why is MECL proposing (again) to marginally reduce the rural rate to be equal to the urban rate? These monthly service charges have been static for many years and have not been contested by rural customers.

Response:

As discussed in Section 9.1 of the Stage 1 Rate Design Application, the Company is not proposing to reduce the Residential Rural monthly service charge to be equal to that of the Residential Urban service charge at this time.

Rate Structure Changes Residential and other Ratepayers (UE22503) Interrogatories from Roger King (Aug. 23, 2021)

IR-7 With a clear directive from the Commission that cost inequities should be corrected, why isn't the MECL focus upon the monthly service charge inequity for all - rural and urban - low energy use customers?

Response:

See response to IR-8.

IR-8 The factors relating to the above questions are:

- i. The significant inequity with the current monthly service charge is not between urban and rural customers. For many customers using electricity for lighting and small appliances table 3 suggests up to 23,000, the current monthly service charge can be up to 30% of the cost of the monthly energy used.
- ii. Each of the three past Cost Allocation Studies (CAS) identify the cost elements of Energy, Demand and Site as a percentage of the total annual revenue requirement which can be individually assigned to the units of energy kWh consumed.
- iii. The CAS does acknowledge that a simple allocation of Site costs for any customer classification can be on the number of sites basis. This has been adopted for the Residential class for many years but for other customer classes the site costs are contained within either energy price or demand price or both.
- iv. It is clear that there should be a minimum monthly "connection" charge to cover the basic maintenance of the electricity site connection but the inequity between customers using different amounts of energy should be corrected.

Response:

- i. The suggested inequity does not exist as explained in response to IR-8 iv below.
- ii. In each of the Maritime Electric CAS, which follows normal industry practice, only energyrelated costs are allocated by energy (kWh). Site-related costs are allocated by numbers of sites and demand-related costs are allocated by class demands.
- iii. The CAS allocates site-related costs for all customer classes based on the number of sites. The collection of site-related costs through customer rates varies from rate class to rate class.
- iv. The average site-related costs for each rate class in the CAS are the estimated costs of having a customer connected to the system, regardless of how much energy a customer uses. A monthly service charge that matches the estimated average site-related cost is the appropriate monthly "connection" charge. For the Residential rate class, the 2020 CAS average site-related cost is \$25.90 per month, which is a good match for the existing monthly service charges of \$24.57 per month (urban) and \$26.92 per month (rural). Thus, the suggested inequity does not exist.

[General Service] Customers:

IR-9 What are the pending tariff changes for the 5,000 plus [General Service] customers who are not metered for Demand but have billings which are the major cause of the high [revenue-to-cost ratio] for this class? Is this the group of [General Service] customers that will have priority allocation of the increased second block Residential funds to reduce their [revenue-to-cost ratio]?

Response:

As discussed in Section 9.2 of the Stage 1 Rate Design Application, Mr. Boutilier noted in his study that there is a large range of load sizes served under the existing General Service class, and recommended that consideration be given to restructuring this class into two or more classes, based on load size. However, Mr. Boutilier also suggested that such a review would have to wait until sufficient load data became available from the current Load Study.

As discussed in Section 6.3 of the Stage 1 Rate Design Application, March 2020 was the first full month of hourly load data from the General Service sample meters, which unfortunately coincided with the onset of the COVID-19 pandemic. In March 2021, the Company had accumulated twelve full months of hourly data which is currently being analyzed to better understand General Service customer usage patterns. However, given that General Service sales were the most negatively impacted by the pandemic, it is reasonable to assume that the first twelve months of collected data would not be considered typical or representative of the class. Therefore, it would be beneficial to have two or three years of data, depending on the time needed to recover from the pandemic, to fully understand normal General Service usage patterns and make meaningful recommendations as to whether to proceed with the rate changes proposed by Mr. Boutilier.

The Company has not prioritized the allocation of the Stage 1 Rate Design funds collected from the Residential, Large Industrial or Street Lighting classes to any particular group of customers in the General Service class. Rather, such funds should be allocated to all customers within the General Service class. Given the revenue-to-cost ratio of the General Service class is currently above the desired 95:105 range, the Company considers this allocation of funds appropriate as all General Service customers are likely over contributing compared to their cost of service regardless of their demand attributes.

Rate Structure Changes Residential and other Ratepayers (UE22503) Interrogatories from Roger King (Aug. 23, 2021)

IR-10 If tariff changes for the [General Service] customer class are also planned for stage 2 of the Rate Structure Changes activity, what is the likely future cost impact for other customers and which class will be affected the most?

Response:

The Company has not yet determined what rate changes will be proposed for Stage 2 of the Rate Design Application. The Company will continue to collect and analyze data during the execution of Stage 1 of the Rate Design Application to determine what changes can and should be proposed for Stage 2.

IR-11 Does MECL intend to consider adopting the Small Industrial tariff for the [General Service] customers who are currently metered for Demand and thus blending all Demand based customers equitably into a simple and effective demand centric tariff?

Response:

No, the Company does not intend to adopt the Small Industrial tariff for the General Service customers who are currently metered on demand. As indicated in response to IR-10, the Company has not yet determined what rate changes will be proposed for Stage 2 of the Rate Design Application, which may include changes to the General Service rate class.

Appendix D: Residential Net Metering Impacts on Rates

IR-12 Chart 1) shows 412 new installations during 2020 at an average size of 9.2KW:

- a. Were these all Residential customers? If not how many Farm, General Service and Small Industrial customers were involved?
- b. What is the historical annual energy used by these customers lowest, highest and average KWh? If all four customer classifications are involved please separate out the data.
- c. What is the high to low range of the ratio between installed solar KW to average KW use for each of the customer classifications.

Response:

It should be noted that the numbers provided in Appendix D, Chart 1 are the number of Net Metering applications received and approved by Maritime Electric. The connection of these net metering customers to the system depends on the speed of installation by the customers' contractor.

Given the small number of non-residential and non-farm customers that signed Net Metering Agreements in 2020, Maritime Electric has combined the General Service and Small Industrial classes into a 'Commercial' class in the following tables to ensure customer confidentiality.

a. In 2020, 412 customers signed Net Metering Agreements with Maritime Electric. The rate class breakdown of the customers who proceeded to install solar net metering is as follows.

Class	Systems Installed
Residential	316
Commercial	5
Farm	12
Total	333

The remaining 79 customers who signed Net Metering Agreements in 2020 had not yet completed a solar net metering installation when the application was filed.

b. The following table shows the historical lowest, highest and average kWh annual energy used by these customers for each respective class.

Rate Structure Changes Residential and other Ratepayers (UE22503) Interrogatories from Roger King (Aug. 23, 2021)

Maritime Electric

kWh	Class	2015	2016	2017	2018	2019
Lowest	Residential	688	71	0	3	38
	Commercial	893	856	1,199	2,076	2,972
	Farm	467	498	825	1,191	2,631
Highest	Residential	53,847	52,733	52,136	55,430	52,494
	Commercial	618,120	562,320	522,000	693,000	699,480
	Farm	37,028	31,291	40,618	47,355	39,534
Average	Residential	13,242	12,567	13,423	14,048	14,617
	Commercial	163,398	119,138	112,625	147,475	149,483
	Farm	15,325	13,699	17,285	18,190	19,438

c. Based on the information required in part b) of this IR-12, Maritime Electric assumes that the question is asking for the ratio of the <u>average annual kWh consumption</u> compared to installed solar kW, which is presented in the following table for the 2015 to 2019 period.

Class	Minimum	Maximum
Commercial	199.9	6,189.8
Farm	147.7	6,231.0
Residential	7.6	4,279.7

IR-13 Chart 1) also suggests new solar installations for 2020 was almost 4MW. For the 701 total installations to date what is the total power level?

Response:

The total amount of solar net metering for the 701 applications received by the end of 2020 was approximately 6,880 kW.

IR-14 Is the retrieval of summer generated grid stored energy during the winter peak times considered to be an additional customer cross-subsidization factor? If so how will it be calculated and what potential impact will this have on the net metering contracts?

Response:

Solar energy generated during the summer is not grid stored and physically retrieved during winter months. Generated electricity is used instantaneously, thus energy that is produced by a net metering customer in excess of that customer's need, at that particular instant, is supplied to the Maritime Electric system and used by other loads. At the same time, Maritime Electric avoids purchasing that same amount of energy from NB Energy Marketing at the wholesale or contracted price.

The excess energy referred to above is tracked by Maritime Electric and in a subsequent month when the customer's need is greater than the solar energy generated, the customer will receive a bill credit at the retail price for the excess energy previously used on the system.

The cross-subsidization of net metering customers by non-net metering customers is a result of the customers' surplus energy being credited at Maritime Electric's retail rate¹, which includes both energy- and demand-related charges.

¹ The Renewable Energy Act requires Maritime Electric to purchase surplus energy at the retail rate.

IR-15 It has been reported that 30KW is now the maximum allowed net metering solar generation installation. Please provide the grid stability criteria adopted and the calculations setting this limit.

Response:

Maritime Electric's net metering program is executed under the guidance of the Renewable Energy Act, which stipulates a 100 kW limit for net metered generation on PEI. While the 100 kW limit is still valid, the 30 kW threshold for a three-phase installation is a guideline adopted by Maritime Electric to ensure the installation is reviewed and properly engineered prior to installation.

Standards, including those from the Canadian Standards Association and Institute of Electrical and Electrics Engineers, specify enhanced requirements for generating facilities that are greater than 30 kW due to their size. Utilities across Canada typically set their own requirements for various aspects of their net metered generation programs. For example, Nova Scotia Power requires a three-phase service for generation 30 kW or larger.

Most net metering installations on PEI are less than 15 kW and are connected on a single-phase line. It is good utility practice to adopt a limit of up to 30 kW on a single-phase service to technically accommodate increased solar penetration on PEI. Generating facilities 30 kW and above are considered a large installation requiring a three-phase interconnection.

Maritime Electric is closely monitoring the system impact of the increased solar installations. In the future, specific areas of Maritime Electric's system may reach a "hosting limit", at which time additional infrastructure, such as upgrading from single-phase to three-phase, may be required in order to accommodate additional solar generation.



Response to Interrogatories submitted on September 8, 2021 from Roger King

Appendix C– Preliminary Residential Class Load Study Results:

IR-1 Please extend Table 3 to show the three elements of the Allocated Costs – Energy \$, Demand \$ and Site \$ – for each of the segmented cohorts listed.

Response:

An extended Table 3 of the Preliminary Residential Class Load Study Results showing the three elements of the allocated costs is provided in Attachment 1 to this response.

Appendix C– Preliminary Residential Class Load Study Results:

IR-2 Table 3 shows 418 Farm customers with energy used > 5000KWh as a single cohort but the Farm Study (Appendix A) explains that the range of monthly energy used by farms is extremely wide. To understand the range of [revenue-to-cost ratios] applicable to high use farms rather than the average [revenue-to-cost ratio] of 85% please separate the data for these 418 farms into the cohort stratum Group 2 as described in Table 2 for the General Service energy boundaries and provide a new table (Table 4?) in the same format as the extended Table 3 in question 1.

Response:

An excerpt of Table 3, separating farms into the cohort stratum Group 2 as described in Table 2 and in the same format as the extended Table 3 provided in response to question 1, is provided in Attachment 1 to this response.

Appendix C- Preliminary Residential Class Load Study Results:

IR-3 The Farm Study (Appendix A) shows the monthly energy of >5000KWh farm population as 520 for 2018 to 2019 and 528 for 2019 to 2020 whereas Table 3/Appendix C shows 418 farms. Appendix C explains that this difference is the peak energy use for these 100+ farms is not during the month of January and therefore the data is spread between Cohorts 1 to 4. For a complete understanding of the Farm segment please expand the extension table (Table 4?) as requested in question 2) for a new table (Table 5?) to include the 100+ farms.

Response:

The Company has requested additional time to formulate the response to this question and will provide the updated response to Mr. King and the Commission as soon as it is available.

Demand and Site Costs characterized as "Fixed Cost":

IR-4 The application uses the term "Fixed Costs" as a composite of the Demand (Capacity) costs and Site costs which presumably are costs that may vary from year to year. It is understood that the referenced "Variable Costs" are the month-by-month costs of the amount of energy (KWh) delivered. Noting that Capacity is purchased from NB Power (NBP) through the five year Power Purchase Agreements between MECL and NBP, what cost mechanism is used between MECL and NBP to update the actual cost of Demand for each year? Example variables prompting this question are the MECL customers' peak load for 2019 was 249.5MW but for 2020 was 259.4MW but the Demand cost metrics used in calculating all [revenue-to-cost ratios] are from the 2017 Cost Allocation Study using [coincident peak] @ \$184.46 /KW-year and [non-coincident peak] @ \$53.80 /KW-year.

Response:

Maritime Electric procures capacity from NB Energy Marketing ('NBEM') as part of its Energy Purchase Agreement. Maritime Electric has purchased capacity for the duration of this contract, with amounts based on its forecast of load and other available capacity sources.

In the event that Maritime Electric determines that it requires a different amount of capacity than is included in the Energy Purchase Agreement, Maritime Electric and NBEM would enter into discussions to determine an appropriate remuneration for the incremental capacity (if Maritime Electric projects a shortfall), or the surplus capacity (if Maritime Electric projects an oversupply) and if NBEM is in a position to offer amended terms.



Attachment IR-1 – Attachment 1

TABLE 3											
Analysis of Year Round Cohorts Extended to Show Components of Allocated Costs											
(For 12 month period March 2019 to February 2020)											
Residential Year Round (Rate Codes 110 & 130)											
						2017 Base					
	#	СР	NCP	Energy	Customer	CP Demand	NCP Demand	Energy		Revenue	RTC
January Billing Cohorts:	Customers	(MW)	(MW)	(GWh)	Related	Related	Related	Related	Total	(000s)	(%)
Usage 0 to 575 kWh	22,807	17.0	27.0	93.9	\$ 6,734	\$ 3,136	\$ 1,453	\$ 7,790	\$ 19,113	\$ 19,501	102.0
Usage 576 to 1,200 kWh	18,980	40.8	42.3	163.3	5,604	7,526	2,276	13,557	28,963	27,568	95.2
Usage 1,201 to 2,300 kWh	11,687	37.1	38.5	152.9	3,451	6,844	2,071	12,694	25,060	23,833	95.1
Usage 2,301 to 5,000 kWh	7,017	48.4	48.4	150.6	2,072	8,928	2,604	12,498	26,102	21,367	81.9
Domestic > 5,000 kWh	293	4.3	4.3	11.6	87	792	231	960	2,070	1,462	70.7
Farms > 5,000 kWh	418	7.8	10.7	42.5	123	1,439	576	3,525	5,663	4,816	85.0
Other > 5,000 kWh	45	3.3	4.7	10.5	13	615	251	872	1,752	1,140	65.1
Combined	61,247			625.3	\$ 18,084	\$ 29,280	\$ 9,461	\$ 51,897	\$ 108,722	\$ 99,688	91.7



Attachment IR-2 – Attachment 1

EXCERPT OF TABLE 3 Analysis of Farms by Cohort Stratum Group 2 and Extended to Show Components of Allocated Costs											
(For 12 month period March 2019 to February 2020)											
Residential Year Round (Rate Codes 110 & 130)											
						2017	Allocated Costs	(000s)		2017 Base	
	#	СР	NCP	Energy	Customer	CP Demand	NCP Demand	Energy		Revenue	RTC
January Billing Cohorts:	Customers	(MW)	(MW)	(GWh)	Related	Related	Related	Related	Total	(000s)	(%)
Farms 5,001 - 9,600 kWh	195	2.3	3.5	12.1	\$ 58	\$ 424	\$ 188	\$ 1,003	\$ 1,673	\$ 1,440	86.1
Farms 9,601 - 17,400 kWh	137	2.6	3.0	13.9	40	480	161	1,154	1,835	1,575	85.8
Farms 17,401 - 35,200 kWh	69	2.0	3.1	10.7	20	369	167	885	1,441	1,177	81.6
Farms 35,201 - 100,000 kWh	17	0.9	1.1	5.8	5	166	59	483	714	625	87.5
Combined	418	7.8	10.7	42.5	\$ 123	\$ 1,439	\$ 576	\$ 3,526	\$ 5,663	\$ 4,816	85.0