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MARITIME ELECTRIC
A FORTIS COMPANY

September 23, 2020

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

Dear Commissioners:

2020 Supplemental Capital Budget Request
Electric Vehicle Charging Stations
Response to Interrogatories IR-1 to IR-19 from Commission Staff

Please find attached the Company's responses to Interrogatories IR-1 to IR-19 from Commission Staff with respect to the 2020 Supplemental Capital Budget Request – Electric Vehicle Charging Stations.

Yours truly,

MARITIME ELECTRIC

Gloria Crockett

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

GCC15
Attachment

180 Kent Street • PO Box 1328 • Charlottetown, PE C1A 7N2
telephone 1-800-670-1012 • fax 902-629-3665 • maritimeelectric.com

I N T E R R O G A T O R I E S

Responses to Interrogatories
from
Commission Staff

2020 Supplemental Capital Budget Request
for
Electric Vehicle Charging Stations

Submitted September 23, 2020

The Island Regulatory and Appeals Commission (the "Commission"), in assessing the reasonableness of the 2020 Supplemental Budget Request for Electric Vehicle Charging Stations as filed by Maritime Electric Company, Limited ("Maritime Electric" or "MECL") on June 30, 2020, requests responses to the following interrogatories:

IR-1 In accordance with the *Electric Power Act*, MECL's mandate is to provide reasonably safe and adequate service in the Province of Prince Edward Island. Please explain:

a. How owning electric vehicle ("EV") charging stations is consistent with MECL's mandate.

b. How owning EV charging stations is a "service" as defined in the Electric Power Act.

c. How owning EV charging stations is necessary for the production, transmission, delivery or furnishing of electrical energy in the Province.

Responses:

a. Under the *Electric Power Act,* a public utility shall, among other things, "furnish at all times such reasonably safe and adequate service and facilities for services as changing conditions require". The Company believes that conditions are changing and the provision of publically-accessible vehicle charging is becoming a necessary service. There are several services that Maritime Electric presently provides which are not explicitly listed in the *Electric Power Act*, including street lighting, transformer rentals, and public safety notices.

Publicly-accessible EV charging cannot yet support itself financially, and investment is necessary to support this industry in its infancy. The Federal and Provincial Governments recognize this and their financial support for this project is designed to help decrease the burden of providing this service. Individual Municipalities do not have the expertise to provide this service, and installing chargers across the Island with inconsistent equipment and site layout runs the risk of discouraging customers from early adoption of EVs. Maritime Electric has advantages over other potential private sector partners for municipalities including established long-term relationships with the participating Municipalities, ownership of significant existing infrastructure in each Municipality, and confidence that the Company will continue to operate long into the future.

b. Owning and operating publically-accessible EV charging stations allows the public unrestrained access to EV charging, particularly in communities that would otherwise likely not install them, and thus can be deemed a public service. An example of a similar service provided by Maritime Electric that is not specifically identified in the Act is street lighting. Street lighting has become an important service provided by the Company and is relied upon by many communities and individuals across the Island. With Maritime Electric providing this service, economies of scale help reduce the cost for each community. In this way, Maritime Electric providing street lighting, although not a necessary service under the Act, is in the best interest of ratepayers.

As per Table IR-9 included in the Company's response to IR-9 below, there may be upwards of 4,000 EVs on PEI by 2026 and 16,000 by 2034. EV charging will become a significant new load on PEI once these thresholds have been reached, and access to convenient, consistent and accessible public EV charging infrastructure will be a necessary service. Maritime Electric believes EV charging is an extension of its electrical system that already serves businesses, residences, streetlights and public facilities. This Project is the Company's first step in providing this service to customers. The Company's existing infrastructure and expertise in the electrical industry will give it an advantage for providing this service cost effectively, not unlike the way it currently provides cost effective street lighting.

c. Maritime Electric ownership of EV charging equipment is not necessary for the production, transmission, delivery or furnishing of electrical energy in the Province. However, as EV adoption increases, public charging infrastructure will become a necessary public service. Maritime Electric's expertise in the electrical industry and experienced staff will ensure the Company can provide this service safely, effectively and efficiently. Maritime Electric's ownership of the EV chargers will ensure this Project meets the terms of NRCan's ZEVIP program, enabling it to be eligible for Federal funding. The experience and insights gained by Maritime Electric, as owner of the equipment and Project lead, will enable Maritime Electric to make informed future decisions on the effectiveness and projected usage of publically-accessible EV charging. Information gained from this Project will help guide Maritime Electric's transmission and distribution planning as it strives to meet the resulting increase in load.

IR-2 In the event this Supplemental Budget Request is approved, MECL will own assets "behind the meter".

a. Please provide justification for MECL owning assets behind the meter.

b. Please explain how owning assets behind the meter is consistent with MECL's mandate as set forth in the *Electric Power Act*.

Responses:

a. Section 2.2 of the *Electric Power Act* allows Maritime Electric to provide service in most areas of the Province, but does not stipulate the location of the meter or whether Company-owned equipment is located behind or in front of the meter.

Owning assets "behind the meter" is not an unprecedented approach, nor is it uncommon in the utility industry. Maritime Electric's portion of the Powershift Atlantic project centered on controlling the timing of electric water heating loads in an attempt to distribute the coincidence of the load, limiting its impact on system peak. The project installed communication and control devices behind the customer's meter. The communication devices used the customer's Wi-Fi to allow the control devices to receive signals to start or stop the electric water heater, depending on system conditions.

Similarly, it is common for electric utilities to lease or rent energy efficient devices, as is the case in the following programs:

- NB Power's water heater rental program[1];
- The City of Summerside's lease to own option for electric thermal storage heating units[2]; and
- Saint John Energy's energy efficient heat pump rental program[3].

These programs encourage customers to replace inefficient appliances with newer, more efficient appliances and all involve the utility owning equipment behind the customer's meter.

In most cases, Maritime Electric's facilities are in front of the meter. Present-day examples of Maritime Electric owning assets behind a customer's meter include:

- Ownership of communication equipment behind the meter of its interruptible customers. This equipment allows the Company to communicate with the customer prior to interrupting the load and enables the interruption of service to occur;

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1 NB Power Water Heater Rental Program - https://www.nbpower.com/en/products-services/water-heaters/your-options/

2 City of Summerside Heat for Less Now Program – https://summerside.ca/residents/electricity/conserving_energy/heat_for_less_now

3 Saint John Energy Heat Pump Rental Program - https://www.sjenergy.com/pages/heat-pump-rentals

- Ownership of communication equipment on a third party's communication towers throughout PEI. This arrangement allows Maritime Electric to maintain its communication system, while decreasing the cost to ratepayers by sharing the cost of the infrastructure; and
- Ownership of transformers that are rented to some industrial customers who are metered at a primary voltage of 69 kV. In these cases the customers typically prefer to have the equipment owned by Maritime Electric due to the Company's expertise in servicing this equipment as well as the access to replacement transformers should there be an issue.

In these examples, Maritime Electric has agreements in place to allow it to service the equipment as required. A similar agreement will be signed between Municipalities and Maritime Electric for servicing the EV chargers.

b. As stated in IR-1, Maritime Electric's mandate under the *Electric Power Act* is to provide reasonably safe and adequate service and facilities for services as changing conditions require. Access to public EV charging infrastructure will become a necessary service as the electrification of transportation increases on PEI. Maritime Electric believes that it is in the best position to provide this service, now and into the future, based on its existing relationships with municipalities and Island customers.

In addition, Maritime Electric has determined that owning the chargers for this Project allows the Company to access increased funding from all levels of Government while ensuring that at least a portion of the operating costs[4] are shared with the Communities, reducing the risk to the Company and its ratepayers.

[4] Electric energy consumed by the chargers (including the monthly customer charge) and a portion of the operating costs (snow removal, upkeep of site, etc.) will be covered by communities.

IR-3 In the Supplemental Budget Request, MECL states that the EV charging stations will assist in achieving CO2 emission reduction targets set by Federal and Provincial Governments.

a. Please explain why it is appropriate for MECL ratepayers to subsidize a Government initiative.

b. Is this consistent with the cost of service model of regulation?

Responses:

a. The primary goals of this project are to:

- Gain insight into the PEI public EV charging patterns and usage as a way to guide future public EV charging programs;
- Encourage the electrification of the transportation industry, thus increasing on-Island electricity sales; and
- Enable communities, many of them small, to install publically accessible charging.

With transportation making up 42 per cent of the overall energy consumption on PEI, electrification of the transportation industry on PEI is critical to the Province achieving its CO2 emission reduction targets. The Federal and Provincial Governments are making CO2 emission reductions a priority and in doing so are saying that these reductions are in the best interests of all Canadian and Island citizens. It is therefore implied that reducing CO2 emissions is also in the best interest of ratepayers. The CO2 emission reductions that will be realized by EV usage are a secondary result that will benefit government partners as well as Islanders in general.

Maritime Electric is also collecting a rate rider from its customers to support the Provincial Government's Demand Side Management ("DSM") initiatives, which are being delivered through efficiencyPEI.

b. Maritime Electric has participated in programs or studies that are not immediately financially beneficial to ratepayers but have been deemed to be in the best interest of the public and therefore part of Maritime Electric's business:

- Powershift Atlantic was a study to evaluate effective ways to integrate renewable energy sources such as wind energy into the electricity system, with demonstration programs for residential and commercial customers across the Maritimes. Maritime Electric controlled electric water heaters using networked control devices. A control device made decisions to initiate the water heating based on current load and wind generation levels. The program proved that load could be shifted, albeit uneconomically, and the equipment is no longer in use. This program was a cost to ratepayers, but was partially funded by NRCan.
- Net Metering is a key step towards easing the limitations for customers wanting to install renewable generating devices at their residence or business. Without net metering the customer would not be compensated for generation above the instantaneous load on that service. This is especially critical for solar systems,

which can only produce electricity during peak daylight hours. Without net metering a customer would need to a) greatly undersize their solar system to ensure it wouldn't produce excess electricity, or b) install an expensive battery system to store surplus energy onsite. However, the net metering system is a cost to any ratepayers not participating in the program[5], as customers are credited the full retail rate, which includes both energy and delivery charges, for the energy they deliver to the system.

Many other jurisdictions have allowed utility ownership of public EV chargers. The City of Summerside, New Brunswick Power, Nova Scotia Power, FortisBC and Ivy Charging Network (jointly owned by Ontario Power Generation and HydroOne[6]) own and operate EV charging infrastructure.

[5] This is especially true for residential customers, in the residential rate class all energy and demand charges are recovered through the energy charge. A "perfectly" designed solar system would offset all of the energy charges over a year, resulting in that customer not paying any demand related costs.

[6] https://www.cbc.ca/news/business/electricity-fuel-disruption-1.5468360

IR-4 At page 37 of the Supplemental Budget Request, MECL states that it will only be involved in future EV charging programs if there is full cost recovery, such that ratepayers are not subsidizing the cost of the program. Please provide justification for MECL ratepayers subsidizing the EV charging station project proposed in the Supplemental Budget Request.

Responses:

Initially, the Company does not expect the Project to provide financial benefits to ratepayers. Without any existing usage statistics, it is difficult to predict the exact impact on ratepayers. However, as EV penetration increases and charger usage increases, electricity sales may increase to a point where the Project is a financial benefit to ratepayers.

This Project will be used to gain experience with this technology, and statistical usage information will help Maritime Electric predict which locations are best suited for future chargers and expected usage levels. The information obtained in this Project will also allow the Company to determine the business model best suited to ensure ratepayers are not subsidizing future EV charger projects.

The Company believes that this Project is in the best interest of ratepayers as 75 per cent of the upfront costs will be funded through Government contributions and 25 per cent of the costs will be funded by the Company. It will help Island Communities to encourage both Islanders and tourists to visit their Community with minimal environmental impact. The partnership with Communities ensures the costs associated with the electricity consumed by the chargers is covered by existing rates. The proposed Project will allow Maritime Electric to reduce the risk to ratepayers of investing in an emerging industry that has the potential to have major impacts on the electricity industry on PEI.

IR-5 According to the MOUs as filed by MECL, some of the EV charging stations will be installed on private property. Please provide justification for MECL ratepayers paying to install, operate and maintain EV charging stations on private property.

Responses:

Installing Maritime Electric owned equipment on private property is common. In fact, many of the Company's existing assets, including transmission lines, distribution lines, primary/secondary services, meters, street lights, and rental transformers, are installed on property not owned by the Company. Maritime Electric has the legal authority to operate and maintain this equipment using lease or easement agreements with the property owners, or under the terms of the *Electric Power Act* (Section 41). This existing model of ownership for the Company is one of the reasons that Maritime Electric is best suited to own and operate public charging infrastructure on PEI.

One of the primary goals of the project is to ensure that EV drivers have access to charging equipment across PEI. The two privately owned locations are in the Resort Municipality of Cavendish, and both locations were chosen by the Municipality. Maritime Electric did not solicit the involvement of any Communities or private businesses for this Project. Rather, initial communications with Communities was through the Federation of PEI Municipalities ("FPEIM"). Please refer to the response to IR-10 for further details on the initial correspondence with Communities. Following the initial meeting with Communities, Maritime Electric asked each Community to consider where they would like to install chargers and notify Maritime Electric of their decision. The Resort Municipality chose the two private locations as the Municipality is spread out over a wide area and has limited land under its ownership where it could install chargers. The Resort Municipality recognized that it is a tourist destination and believed that tourists who own EVs have a tendency to research where they will vacation and base their decisions, at least partially, on where they will have access to charging. These private locations were chosen as they are in areas, or near attractions, where the Municipality hopes to attract these tourists.

The Company did not accept these two proposed private locations without careful consideration. There were other private locations suggested by Municipalities that the Company chose not to include in its Application. The alternate locations were in private parking lots and were not close enough to other facilities or services, meaning these chargers would essentially benefit only one business owner. The Company believed these additional locations did not meet the intention of the Project, and were therefore not included.

IR-6 What are the benefits of MECL owning EV charging stations? Please comment specifically on:

a. the benefits to MECL;

b. the benefits to ratepayers; and

c. the benefits to ratepayers who do not own an EV.

Responses:

a. The benefits of Maritime Electric owning EV charging stations include:

- Increasing the Company's knowledge of an emerging technology which has the potential to have major impacts on the Company and the electrical system on PEI in the future;
- Removing a key barrier to increased EV adoption on the Island. Increased public charging will result in increased EV adoption which, in turn, will result in increased sales for the Company;
- Building stronger relationships with participating Municipalities and with customers; and
- Generating an additional $5,491 annual return for shareholders (refer to the Company's response to IR-7a for further details).

The ultimate goal for Maritime Electric is to increase EV usage such that charging loads will be added to the system load during low load periods and not contribute to the system peak. Public charging will help with this as it typically occurs throughout the day and will displace home charging, which has a higher tendency to occur during the system peak[7]. Maritime Electric believes that the knowledge gained from this and future similar projects will also help in the effort to shift usage away from system peak times. If successful, the additional sales resulting from the electrification of transportation will play a significant role in managing cost drivers and rate increases in the future.

b. The benefits to ratepayers include:

- Access to public charging stations for ratepayers who decide to convert to an electric vehicle[8];
- Lower public charging costs for the EV driver due to the 75 per cent government funding support; and

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[7] Maritime Electric studied EV charging across the USA. In regions without time of use rates (such as Nashville) drivers begin to charge their vehicles around 4 pm, reaching a peak by 8 pm when the charging begins to decrease. The EV Project – https://www.energy.gov/sites/prod/files/2014/02/f8/evs26_charging_demand_manuscript.pdf

[8] Some customers may want to switch to an electric vehicle but may not have access to at-home-charging. For these customers, access to public charging is a necessary service to allow them to make the transition.

- Consistent, user-friendly and high quality EV charging equipment, ensuring an optimal customer experience when using the infrastructure.

c. Benefits to ratepayers who do not own an EV include a) a potential increase in tourism with its associated benefits, and b) reduced CO2 emissions and associated improvement in air quality. Increased usage of the EV chargers will increase energy and demand charges, bringing this Project closer to full cost recovery.

IR-7 Although MECL proposes to own the EV charging stations, it will not have the right to determine the price charged at the charging stations.

a. Is it correct that owning the EV charging stations provides no financial benefit to MECL or to ratepayers?

b. Is it correct that based on MECL's current forecasts, the revenue collected by MECL from the EV charging stations will not be sufficient to cover the operating and maintenance expenses associated with owning the EV charging stations?

c. Is it correct that for privately owned/operated EV charging stations, MECL collects a service fee and demand and energy charges, but does not incur operating and maintenance costs associated with owning the asset?

d. Please provide justification for MECL owning the EV charging stations if it does not have the right to determine the price charged at the charging stations.

Responses:

a. There will be a financial benefit to Maritime Electric and its shareholders as the Company will earn its approved Return on Equity ("ROE") for this project. The total project budget is $566,493[9], but with offsetting contributions from NRCan, the Province of PEI and the participating Municipalities, Maritime Electric's net capital expenditure is $146,822. Of this amount, 60 per cent will be financed through debt and 40% will be financed through equity. Maritime Electric's shareholders will earn approximately $5,491 through its equity stake, based on Maritime Electric's allowed ROE of 9.35 per cent.

Initially, the Company does not expect the Project to provide financial benefits to ratepayers. However, the Project will help eliminate one of the key barriers to EV adoption and therefore will help in the electrification of transportation. Increased sales will lead to lower per unit infrastructure costs, which will have a positive effect on rates.

b. Without any current usage statistics, it is difficult to predict Maritime Electric's total revenue from the EV charging stations. Similarly, it is difficult to predict the operating and maintenance costs associated with the chargers without any operating or maintenance experience. This is one of the main reasons for Maritime Electric to lead this pilot project without the assurance of full cost recovery. With the insight gained from this Project, the Company will be better equipped to provide accurate cost and usage information for future EV charger projects. It is unlikely, at least initially, that the revenue collected by Maritime Electric from the EV charging stations will be sufficient to cover the operating and maintenance expenses associated with owning the EV charging stations.

[9] Refer to the Company's response to IR-13 for an explanation on why the Total Project Costs and therefore Maritime Electric's portion of the Project costs increased slightly as compared to the original submission.

c. Maritime Electric currently collects energy and demand charges from existing privately owned/operated EV charging stations, and collects a service fee if the customer has an account solely dedicated to the charging station. In most cases, the privately owned/operated charging stations have been added to an existing service, and this existing service is already incurring the service fee.

Maritime Electric does not incur operating and maintenance costs for the existing privately owned/operated EV charging stations.

d. This Project's goal is to install publically-accessible EV charging equipment in a number of Island communities. It is driven by a desire of these Communities to have publically-accessible EV charging available for environmental as well as business reasons (providing public charging equipment for both Islanders and tourists when visiting the Community). The Municipalities will pay the monthly service fee and all electricity charges associated with the equipment, and will be responsible for some of the operating and maintenance costs and tasks for the equipment.

While Maritime Electric is the owner of the equipment, the Municipalities will be the customer and will pay Maritime Electric for all energy and demand charges incurred by the EV chargers. Maritime Electric cannot, therefore, charge EV drivers for the electricity when the Municipalities are already paying Maritime Electric for the energy and demand charges. It is up to the individual Communities to decide how much they will charge EV drivers for the EV charging service. Some Communities have expressed a desire to allow free EV charging, at least at the outset, as a way to promote the chargers' use and attract EV drivers to the Community.

Maritime Electric has provided information to the Municipalities regarding the standard cost of connecting Level 2 EV chargers in the region, and expects that Municipalities will use this as a guide to setting their connection rates.

With limited information available, it would be difficult to predict expected EV charger usage. Any business case that depends wholly on revenue stemming from connection fees will be difficult to predict and manage. Instead, the Company will take advantage of Federal and Provincial funding covering upwards of 62.5 per cent of the Project costs, and will partner with Municipalities to cover the remaining costs. Without this partnership, the cost of installing EV charging infrastructure would have been prohibitive for many of the Communities. The Partnership also allows Maritime Electric to reduce the risk to ratepayers on an initial Project in an emerging technology that has the potential to have major impacts on the electricity industry on PEI.

IR-8 MECL intends to install and own Level 2 Chargers. According to the Supplemental Budget Request, Level 2 Chargers are primarily used at home or at locations where drivers remain for several hours.

a. Please explain why Level 2 Chargers were selected over Level 3 chargers.

b. Please explain why Level 2 Chargers, which are primarily used at home, are appropriate to install in public locations.

c. Please provide justification for installing Level 2 Chargers in public locations, having specific regard to the fact that efficiencyPEI has recently installed Level 3 Chargers.

Responses:

a. When the Company began investigating this program it consulted with efficiencyPEI, which at the time was completing the installation of six new Level 3 chargers[10]. efficiencyPEI indicated that the cost of its Level 3 charging stations averaged $155,000 per site. Maritime Electric's proposed EV charger Project, as submitted, has an overall budget of $566,493 and includes 50 chargers. This averages approximately $11,300 per charger.

Level 3 chargers are the quickest way to charge an EV when the battery is depleted, and are best suited for circumstances where the EV has insufficient battery capacity remaining to reach its destination. Level 3 chargers provide a lot of range in a short amount of time[11]. However, charging at a Level 3 station, also known as a Direct Current Fast Charge ("DCFC") station, is not recommended for all situations for several reasons:

- Accelerated battery degradation is a concern for frequent Level 3 charging;
- Level 3 charging is only effective if the battery's state-of-charge is below 80 per cent. Above that, the rate of charge typically slows down significantly. If the EV battery is near or above 80 per cent, it should be plugged into a Level 2 charger, since the last 20 per cent of charging is typically as fast with a Level 2 station as with a Level 3 charger but at a fraction of the cost[12]; and
- If time is not a constraint and the EV will be parked for several hours at a charger, it is more advantageous to use a Level 2 charger, which is slower but less expensive[13].

Level 3 chargers are best suited for stops along a highway where drivers travel long distances and are looking to charge quickly. With limited highways on PEI and less than

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10 The EV charging sites installed by efficiencyPEI included one level 3 charger as well as one level 2 charger. However, the majority of the costs incurred related to the installation of the level 3 charger.

11 Level 2 charging provides approximately 40 km of range for every hour of charging while Level 3 charging provides up to 145 km of range in 30 minutes according to the Owner's Manual for a 2020 Chevrolet Bolt.

12 efficiencyPEI connection fee is $2 per hour at Level 2, and $20 per hour at Level 3.

13 https://chargehub.com/en/electric-car-charging-guide.html

100 EVs registered, efficiencyPEI believed that the existing six locations with Level 3 chargers met the fast charging needs of Islanders and tourists for the foreseeable future. In addition, the cost of four Level 3 chargers exceeds the cost of 50 Level 2 chargers. Therefore, it would not have been possible to economically justify installing Level 3 chargers across the Island and satisfy the main goal of the Project.

b. Level 2 chargers are considered destination chargers, where Level 3 chargers are stop-and-go chargers. Municipalities are interested in destination chargers, where people will be spending several hours at the location, supporting local businesses or attending community events. Level 3 chargers do not align with these goals.

While Level 2 chargers are the best option for many EV owners wishing to charge their EVs at home, they area also a viable option for public charging. According to NRCan, there are approximately 5,060 EV charging stations in Canada, comprised of 4,289 Level 2 stations and 772 Level 3 stations[14]. As of March 2019, NB Power has installed 67 Level 2 chargers and 26 Level 3 chargers to meet its customer's needs[15].

c. As stated in Maritime Electric's response to IR-8a above, both Level 2 and Level 3 chargers are required to meet the needs of EV drivers. The Level 3 chargers installed by efficiencyPEI satisfy the need for fast charging at this time, but there remains a lack of destination chargers across PEI. Most of the Communities included in this Project do not presently have any EV charging infrastructure.

[14] https://www.energyhub.org/ev-map-canada/
[15] https://www.nbpower.com/en/about-us/news-media-centre/news/2019/e-charge-network-for-electric-vehicles-continues-to-grow-in-new-brunswick/

IR-9 Currently there are approximately 100 electric vehicles on PEI. What is the projected increase in the number of electric vehicles if this Supplemental Budget Request is approved?

Responses:

Maritime Electric is not aware of any studies projecting EV sales specific to PEI. NB Power recently commissioned Dunsky Energy Consulting to provide a forecast for EV uptake in that province. Maritime Electric does not have a copy of the full study but was able to extract excerpts from a recent CBC news article[16]. The table below provides the NB projections indicated in the article as well as a population-based pro rata extrapolation for EV projections in PEI.

Table IR-9 – PEI Electric Vehicle Forecast

	Dunsky forecast of EVs in NB[17]		Corresponding forecast for PEI			
Year	**Per CBC News Article[10]**	**Extrapolation**	**Population-based pro rata EV number for PEI[18]**	**Annual Gasoline displaced (millions of litres) [19]**	**Annual electricity for charging (GWh) [20]**	**Maximum Peak Impact (MW) [21]**
2019	320	320				
2020		1,000	200	0.3	0.6	1.2
2021		2,000	400	0.6	1.2	2.4
2022		4,000	800	1.2	2.4	4.8
2023		6,000	1,200	1.8	3.6	7.2
2024	10,000	10,000	2,000	3.0	6.0	12
2025		15,000	3,000	4.5	9.0	18
2026	20,000	20,000	4,000	6.0	12.0	24
2027		27,500	5,500	8.3	16.5	33
2028		35,000	7,000	10.5	21.0	42
2029		42,500	8,500	12.8	25.5	51
2030		50,000	10,000	15.0	30.0	60
2031		57,500	11,500	17.3	34.5	69
2032		65,000	13,000	19.5	39.0	78
2033		72,500	14,500	21.8	43.5	87
2034	80,000	80,000	16,000	24.0	48.0	96

16 January 7, 2020 CBC News article "NB Power could energize electric car sales for $20M"; cbc.ca/news/canada/new-brunswick/nb-power-electric-vehicle-fast-charging-stations-report-1.5417102

17 2019 Dunsky Energy Consulting report commissioned by NB Power

18 PEI has roughly one-fifth the population of NB.

19 Assumes annual driving distance of 15,000 km/yr; average mileage of 10 L/100 km

20 Assumes 2 kWh of electricity replaces 1 litre of gasoline

21 Assumes all vehicles charging simultaneously using Level 2 chargers (6.0 kW)

The Atlantic Regional Clean Power Planning Committee[22] has commissioned an electrification study to analyze the possible effects of electrification in the region and in each jurisdiction, including PEI. This study will provide several projections (high, median and low penetration scenarios) for EV penetration over the coming years. The study is expected to be finalized early in 2021.

[22] Maritime Electric and the PEI Energy Corporation are members of the Atlantic Regional Clean Power Planning Committee. The Committee is focused on developing a plan to transition the Region's electricity supply from fossil fuels to renewable sources.

IR-10 At page 14 of the Supplemental Budget Request, MECL states that NRCan ZEVIP funding is available to provincial, territorial and municipal governments and their departments and agencies. If the proponent of the project is a government entity, the stacking limit is 100 percent of the project costs.

a. Is it correct that if the proponent of the proposed project is a government entity (for example, the PEI Energy Corporation, efficiencyPEI or the Department of Environment), the project would be eligible for 100 per cent funding?

b. If so, please provide justification for MECL applying for NRCan ZEVIP funding, rather than a government entity.

c. Please explain why and how it was determined that MECL would apply for funding as the proponent of the proposed project.

d. Currently, efficiencyPEI has installed six Level 3 Charging stations. Please explain what (if any) discussions that MECL has had with efficiencyPEI and/or the PEI Energy Corporation about this proposed project.

e. As part of the Supplemental Budget Request, MECL has filed a letter from the Provincial Department of Environment confirming their support of the proposed project. Please provide particulars of discussions between MECL and the Department of Environment about the proposed project.

Responses:

a. It is correct that the Project would be eligible for 100 per cent funding when counting contributions from all levels of government if the proponent were a government entity. However, the funding available from NRCan (or any branch of the Federal Government) would still be limited to 50 per cent of total project costs. The rules on stacking of funding do not change the upper limit of Federal funding; rather they allow municipal or provincial governments to receive the same federal funding as would be received by a private business such as Maritime Electric.

b. Maritime Electric was unaware of the program until late July 2019 when it was contacted by the Rural Municipality of Miltonvale Park. The Municipality had reached out to the Federation of PEI Municipalities to see if the Federation could submit a joint application to the ZEVIP program. Upon learning that in order to qualify for funding the project must have a singular owner, the Municipality approached Maritime Electric to see if the Company would be interested. The Federation subsequently initiated an August 21, 2019 meeting with Maritime Electric, the Province of PEI and any interested communities.

Maritime Electric and the PEI Energy Corporation had several conversations leading up to this meeting to discuss potential project outcomes and structures. During these conversations the PEI Energy Corporation indicated that the Province was uninterested in leading this potential project and applying for the ZEVIP funding, but would support Maritime Electric if Maritime Electric took the project lead. It was determined that there was no other obvious entity that had a) a relationship with all Island communities, b) an

existing presence in each PEI community, and c) could coordinate and develop an application to the ZEVIP program in a short timeframe. After several conversations and meetings between Maritime Electric and the Province subsequent to the August 2019 meeting, the Province confirmed its support by guaranteeing a 12.5 per cent (with a maximum of $1,250 per charger) funding contribution.

Stakeholder, customer and employee expectations are evolving and there is an expectation that Maritime Electric operate as a sustainable company. Incorporating sustainability across the Company is considered strategic for Maritime Electric. To this end, the Company expects to receive the Canadian Electricity Association's Sustainable Electricity Company™ designation by the end of 2020 and will continue to integrate the principles of social responsibility in its decision making process. Maritime Electric believes this Project aligns with its sustainability and social responsibility goals.

c. See response IR-10b.

d. During the summer of 2019, efficiencyPEI, the Provincial entity with considerable experience with EV chargers, was in the midst of constructing its six DCFC sites. After being contacted by the Rural Municipality of Miltonvale Park, Maritime Electric had a conversation with efficiencyPEI officials regarding their EV charger installation project where relative benefits, applications, and costs of Level 2 and Level 3 EV chargers were discussed. It was apparent that Level 2 chargers were most cost-appropriate for this Project and Miltonvale Park's goal of providing EV charging during community events at their Community Centre. efficiencyPEI indicated that they were not interested in undertaking another EV charger project in addition to its core energy efficiency programs.

Maritime Electric had a brief follow-up discussion with efficiencyPEI at the August 2019 meeting where efficiencyPEI officials confirmed they were unwilling to act as project lead on this Project, but willing to promote the Project to the Provincial government for financial support.

e. Maritime Electric met with representatives from the Department of Transportation, Infrastructure and Energy, the PEI Energy Corporation, efficiencyPEI, and the Department of Environment, Water and Climate Change during development of the Project.

The Department of Environment indicated to Maritime Electric that the Province would likely provide financial support for the project through the Department of Environment. Emails following this meeting in late August 2019 and early September 2019 with the Department of Environment pertained to securing the Provincial funding commitment, which occurred by mid-September 2019. The Department was again contacted in June 2020 to confirm project cost figures and funding support.

IR-11 According to the Supplemental Budget Request, most existing EV charging stations in the Province are privately owned/operated. Is it appropriate for a monopoly such as MECL to compete with private entities? Please explain and provide justification.

Responses:

The chargers proposed to be installed under this Project will not be competing against the existing privately owned/operated charging stations located on PEI. Maritime Electric is only aware of seven locations that charge a fee for the use of their charging equipment; six are the EV chargers recently installed by efficiencyPEI and the seventh is located at a car dealership in Charlottetown. These seven chargers were not installed to generate profits for the owners, but rather to support the transition for drivers to purchase EVs. The remaining chargers installed on PEI are free of charge. Most of these are located at hotels, motels, cottage businesses, car dealerships and other businesses looking to draw EV drivers to their places of business, and possibly encourage more drivers to convert to EVs.

Many of the existing private chargers are not connected to a charging network. EV drivers have no advance indication as to whether the charger is operational or occupied. Websites providing maps for EV charging infrastructure[23] show many complaints from EV drivers that they found chargers to be out of order when they arrived at its location. Many of these existing privately owned chargers were installed to provide an inexpensive way to attract customers with EVs. However, some owners do not have the expertise or desire to complete repairs when the units have issues.

Maritime Electric believes that a network of consistent, high quality, user-friendly EV chargers will encourage more EV conversion, leading to increased energy sales and lowering per-unit infrastructure costs. Maritime Electric would not enter into this Project if the annual or total project costs were exorbitant, nor would it proceed without Government funding as the cost to ratepayers would be too high. This is a pilot project for Maritime Electric that helps Municipalities promote electrified transportation, and the information gathered will help the Company design future projects with full cost recovery.

[23] Chargehub.com or www.plugshare.com

IR-12 Table 2 includes a Maritime Electric Project Management fee in the amount of $36,000. How is this amount calculated and what does it cover? Please justify the inclusion of this fee in the Common Project Costs for an asset that MECL proposes to own.

Responses:

The Maritime Electric Project Management fee of $36,000 is based on an estimated allowance of 400 hours[24] for Project Management on the Project, as follows:

Table IR-12 - Project Management Breakdown	
Duration (hours)	**Item**
60	Finalizing site details with Communities following approval
30	Acquiring Electrical Design Engineer and working with this consultant to develop design drawings
80	Developing final drawings, specifications and RFP for issue to Contractors
10	Tender period and awarding contracts
100	Construction phase
40	Final inspections and deficiencies
40	Commissioning
40	Accounting and reporting to NRCan throughout project

NRCan's ZEVIP guidelines indicate that professional services such as: "scientific, technical, management; contracting; engineering; construction; installation, testing and commissioning of equipment; training; marketing; data collection; logistics; maintenance; printing; distribution"[25] are all eligible costs. During discussions with NRCan, Maritime Electric was encouraged to include project management costs.

The cost of managing any project is a true cost and it is standard practice for such costs to be included in the overall project cost. A consultant would need to be hired to provide this service if Maritime Electric personnel did not, and this cost would be included in the project costs. If the costs associated with the project management were not included, they would be included in the Company's operating expenses and fully covered by ratepayers. Including project management costs in the overall budget ensures that all funding partners contribute towards the management of project, which is a key element of its delivery.

[24] Average hourly cost of Project Management is estimated to be $90 per hour.
[25] Zero Emission Vehicle Infrastructure Program – Applicant's Guide

IR-13 Please provide additional details regarding the "in kind" costs included in Table 6. Specifically, are these a cost that MECL or its ratepayers are responsible for? Would these costs be incurred if MECL was not installing EV charging stations?

Responses:

As stated in the Supplemental Budget Request, the "in kind" costs included in Table 6 are estimates of additional costs, whose eligibility for ZEVIP funding is uncertain. Maritime Electric treated each new EV charger service as it would any new service; that is, the costs included in the project budget are based on Maritime Electric's standard connection rules as set out in the Rates and General Rules and Regulations.

The Company's standard connection rules state that a connection fee of $75.08 is charged for all initial service connections. This fee has been included in the budget for each site requiring a new service. As outlined in the General Rules and Regulations, Maritime Electric covers the cost of connecting a new service up to the Standard Facility Allowance of $756. Costs to provide service over and above the Standard Facility Allowance of $756 must be covered by the site owner and, as such, have been included in the project costs. A portion of the monthly General Service customer charge of $24.57 will be used to recover this initial cost to setup the service. Since Maritime Electric will be recovering these costs over the life of the service, they are not a true cost to the project. However, the costs will be incurred by the project proponent (Maritime Electric) and therefore could qualify as an "in kind" cost under the guidelines of ZEVIP. Once Maritime Electric finalized the overall project budget, it realized the project was reaching the maximum contribution levels from both the Federal and Provincial governments without the inclusion of the "in kind" costs and therefore chose to exclude the "in kind" costs from the overall budget.

The costs listed as "in kind" represent the budgeted cost to provide a new service to the site, less the standard connection fee of $75.08. In preparing its response to this interrogatory, the Company identified error in its original application. Costs above the $756 allowance for new connections should have been included in the budgets for applicable sites instead of being counted as "in kind" costs. Table 6 included on page 26 of the Company's original application summarized the individual site budgets. An updated version of Table 6 is included below.

Table 6 (Updated) - Summary of Capital Costs								
Community	**Location**	**Qty of Chargers**	**Budget**	**Federal Portion**	**MECL Portion**	**PEI Portion**	**Community Portion**	**In Kind**
Alberton	Community Park - Church St	2	21,130	10,000	5,283	2,500	3,348	0
Charlottetown	City Hall	2	29,593	10,000	7,398	2,500	9,695	0
	Victoria Park (Kiwanis Dairy Bar)	2	23,044	10,000	5,761	2,500	4,783	432
	Queen St (Victoria Row)	2	22,313	10,000	5,578	2,500	4,235	432
	Pownal St. Parkade	2	22,845	10,000	5,711	2,500	4,634	432
	Queen St Parkade	2	22,845	10,000	5,711	2,500	4,634	432
	Fitzroy St. Parkarde	2	22,845	10,000	5,711	2,500	4,634	432
	West Royalty Community Centre	2	22,008	10,000	5,502	2,500	4,006	681
	Hillsborough Park Community Centre	2	21,119	10,000	5,280	2,500	3,339	432
	Malcolm Darrach Community Centre	2	20,679	10,000	5,170	2,500	3,009	432
	180 Kent St.	1	15,265	5,000	9,015	1,250	0	0
	Town Hall	2	22,588	10,000	5,647	2,500	4,441	432
Cornwall	Civic Centre	2	21,213	10,000	5,303	2,500	3,410	432
	North River Fire Hall	2	22,173	10,000	5,543	2,500	4,130	681
	Terry Fox Complex	2	22,863	10,000	5,716	2,500	4,647	432
Miltonvale Park	Miltonvale Park Community Hall	2	21,916	10,000	5,479	2,500	3,937	0
Morell	Morell Welcome Centre	2	22,155	10,000	5,539	2,500	4,116	681
Resort Municipality	Cavendish Visitor's Information Centre	2	22,329	10,000	5,582	2,500	4,247	681
	North Rustico Home Hardware	2	21,956	10,000	5,489	2,500	3,967	681
	CFMPEI Inc.	2	22,330	10,000	5,583	2,500	4,248	681
Stratford	Stratford Town Hall	2	22,863	10,000	5,716	2,500	4,647	432
	Stratford Community Campus	2	22,038	10,000	5,509	2,500	4,028	432
St. Peters	Dr. Roddie Community Center	1	11,914	5,000	2,979	1,250	2,686	0
Three Rivers	Georgetown Playhouse	2	24,318	10,000	6,080	2,500	5,739	681
	Cardigan Parking Lot	2	21,213	10,000	5,303	2,500	3,410	432
	Cavendish Farms Wellness Centre	2	20,938	10,000	5,234	2,500	3,203	432
	Total	**50**	**566,493**	**250,000**	**146,822**	**62,500**	**107,172**	**10,815**

The net result of this correction is an increase of $4,654 to total project costs, bringing the total project costs to $566,493. This results in an increase of $1,164 to Maritime Electric's portion of project costs as compared to the amount included in the Supplementary Budget Request,

increasing the Company's portion of project costs to $146,822. An updated version of Table 13 summarizing the capital budget for the electric vehicle charger project is also included below:

Table 13 (Updated) - Capital Budget for Electric Vehicle Charger Project				
Item	**Total Project Costs**	**Offsetting Contributions from Project Partners**	**MECL Portion**	**Supplemental Budget Request**
Electric Vehicle Charger Project	$ 566,493	$ 419,671	$ 146,822	$ 146,822

IR-14 Please provide details on the accounting treatment for the funding expected to be received from the Federal, Provincial, and Municipal government.

Responses:

The proposed funding from NRCan, the Province of PEI and the participating Municipalities of $419,671 as set out in Table 13 (Updated) in the response to IR-13 will be recorded as a Customer Contribution for accounting purposes. Customer Contributions is a liability on the Company's balance sheet. The balance will be amortized at the same rate as the related capital costs and recorded as a reduction in the depreciation expense to be recovered from customers through rates.

IR-15 Please provide details regarding the accounting treatment of the EV charging stations. In particular, will the EV charging stations be recorded at full cost or net of funding?

Responses:

The proposed investment of $566,493 will be recorded as an asset in the Company's Property, Plant and Equipment accounts on the Company's balance sheet and amortized over the expected life of the asset as a depreciation expense. As stated above in the response to IR-14, the funding received from the various Government funding partners will be recorded as a customer contribution, a liability on the Company's balance sheet. The net of the total project cost (asset) less the customer contribution (liability) balance will be the resulting increase in net assets, and consequently rate base, of the Company.

IR-16 Please explain how unforeseen costs are to be handled if encountered either during the installation or during the lifetime of the EV charging stations.

Responses:

As with any project, there is a risk of unforeseen costs or cost overruns. Maritime Electric has extensive experience budgeting and managing projects of all sizes and is confident that the budgets as submitted are reasonable. The funding details for each partner are listed below:

- NRCan will fund up to 50 per cent of Total Project Costs, up to a maximum of $5,000 per connector;
- The Province of PEI will fund 12.5 per cent of Total Project Costs, up to a maximum of $1,250 per connector;
- Maritime Electric will fund 25 per cent of Total Project Costs with no maximum value per charger; and
- The Community partners will fund the remaining costs approximately 12.5 per cent of the Total Project Costs.

The funding upper limits associated with the Federal and Provincial contributions result in a significant difference in contribution levels for costs up to $10,000 per charger and costs above this limit, as seen in Table IR-16.

Table IR-16 - Breakdown of Funding

Partner	Percentage of Funding up to $10,000 per Charger	Percentage of Funding for all costs above the $10,000 threshold
NRCan	50%	0%
MECL	25%	25%
Province of PEI	12.5%	0%
Community	12.5%	75%

The budget estimates an average total cost of $11,300 per charger and the Federal and Provincial contributions will reach their maximum contribution levels of $5,000 and $1,250 per charger respectively. Therefore, 25 per cent of cost overruns during the construction phase will be the responsibility of Maritime Electric and the remaining 75 per cent will be the responsibility of the participating Communities.

Unforeseen costs incurred after the original installation phase of the project will be the responsibility of either the Community partner or Maritime Electric, depending on the issue. Maritime Electric will be responsible for any unforeseen costs directly related to the EV charger or the pedestal on which it is mounted. Maritime Electric will also be responsible for unforeseen costs associated with the primary service as per the Company's Rates and General Rules and Regulations. All other unforeseen costs will be the responsibility of the participating Community.

IR-17 Please provide details on MECL's plan if the technology associated with EV charging stations changes significantly and these assets become stranded assets.

Responses:

The Company considers the risk of EV Chargers becoming stranded assets to be low. As more EV infrastructure is deployed and existing perceived barriers to adoption are reduced, more drivers will make the decision to purchase EVs. This in turn improves the business case for more chargers to be deployed, encouraging further adoption.

The Company is proposing to install quality, industry standard equipment and technology. The proposed equipment manufacturer has supplied the charging equipment for the following recent programs:

- efficiencyPEI's six EV charging sites established across PEI;
- NB Power's echarge Network;
- NS Power's recent program to install a network of Level 2 and Level 3 chargers across Nova Scotia in partnership with NRCan; and
- Hydro Quebec's Electric Circuit network which includes over 2,500 charging stations[26]

Investing in the technology currently used by these larger electric utilities and government agencies decreases the likelihood that the installed equipment will become a stranded asset.

EV charging station technology could change significantly in two ways: a) the hardware associated with EV charging could change; or b) the charging protocol and/or communications protocol software could change.

There are two common types of Level 2 charger connectors in North America. The SAE J1772 EV connector is the most common connector, and is compatible with all electric cars available in Canada and the US[27]. The Tesla HPWC is also available, but is only compatible with Tesla cars. The EV chargers proposed for this project have the SAE J1772 connector and are, therefore, currently compatible with all vehicles. The likelihood of this hardware changing during the 10-year project life is low as this fast-changing industry has put significant effort over the last five years to develop uniform charging equipment platforms and protocols.

A more probable change in charging technology would be a change to the network management protocol. The proposed vendor has published their network management protocol under Creative Commons – Attribution-No derivatives 4.0 International Public License which is consistent with the publication of other network management protocols such as Open Charge Point Protocol ("OCPP") by the Open Charge Alliance. As a result, Maritime Electric (or other third parties) could take over network management and control of the associated station hardware in the future should the current vendor cease operations or should Maritime Electric become unsatisfied with the level of service being provided. In this scenario, the chargers would not become obsolete, and therefore would not become stranded assets. However, any additional costs resulting from the necessary upgrades would be Maritime Electric's responsibility.

[26] https://lecircuitelectrique.com/en/find-a-station/
[27] Tesla cars come with a SAE J1772 adapter.

Should installed charging infrastructure become obsolete, Maritime Electric could either replace the charger with updated technology or decommission the entire site. Both the Community and Maritime Electric would have to agree on the chosen option. Replacing the charger would be cheaper than the initial installation. Maritime Electric estimates the cost of a replacement charger only would be approximately $6,000 in 2020 dollars, compared to the proposed $11,300 cost per EV charger in this Project. If decommissioning were necessary, Maritime Electric would be responsible for costs associated with the removal of the electrical service, the charger pedestal and the charger itself. All other decommissioning costs would be the responsibility of the Community, and will be stated clearly in the easement or lease agreement signed between Maritime Electric and each Municipality.

Consistent with the Company's statement that all future EV charging program costs will include full cost recovery, the costs associated with any future replacement of chargers could include a monthly fee (or another type of cost recovery) designed to recover the capital portion of the investment.

IR-18 If the EV charging stations become stranded assets, who will pay the associated costs, including depreciation costs, decommissioning costs, etc.?

Responses:

Maritime Electric considers the investment in this Project to be a reasonable and prudent investment in an emerging technology that could have significant impacts on the electricity industry on the Island in the mid- to long term. With the insight gained from this Project, the Company will be better equipped to provide accurate cost and usage information for future EV charger projects and the impact of the electrification of transportation on the Company as a whole.

As indicated in the response to IR-17, the decommissioning costs associated with the EV infrastructure will be split between the Community (or private business) and Maritime Electric. Maritime Electric will be responsible for costs directly associated with the charger, pedestal and electrical service. All remaining costs will be the responsibility of the Community, and these responsibilities will be stated clearly in the easement or lease agreement between Maritime Electric and each Community.

In the unlikely event that EV charging infrastructure installed under this project becomes stranded, the depreciation costs associated with Maritime Electric's portion of the capital costs will be the responsibility of ratepayers. With an initial net capital expenditure expected to be $146,822 and a relatively short ten-year project life, the likelihood of this scenario resulting in a significant cost to ratepayers is small.

IR-19 According to the Supplemental Budget Request, the EV charging stations have an estimated life span of ten (10) years.

a. What is MECL's plan for the assets at the end of their useful life? Will the assets be replaced, decommissioned, other?

b. Who is responsible to pay for the associated costs at the end of their useful life?

c. Are these costs included in the estimates filed by MECL as part of the Supplemental Budget Request?

Responses:

a. As detailed in Section 4.3.1 of the Supplemental Budget Request, the project life of ten years was chosen to allow the Company to perform the financial analyses required to complete the Supplemental Budgetary Request. This timeframe aligns with similar projects in other jurisdictions and with manufacturer recommendations. Maritime Electric expects the ten year asset life is the minimum expected life, as the Company will purchase reputable equipment, ensure the installation is as robust as possible, and follow manufacturer-recommended maintenance guidelines.

The Company expects that the sites will continue to operate as EV chargers after the charging equipment requires replacement. The charger itself is the only item likely to require replacement after ten years. The remaining infrastructure, including foundations, bollards, signs, and electrical wiring, will have an expected lifespan far beyond ten years. For example, the foundation is expected to last at least 40 years. The estimated cost to replace the charger is approximately $6,000 (2020 dollars), and such replacement will be subject to the Commission's approval at the time.

The lease/easement agreement between the site owner and Maritime Electric will indicate that the charging infrastructure must remain operational for ten years, barring unforeseen circumstances. At the end of the ten-year agreement, either party will have the option to leave the agreement, and the equipment will be decommissioned if neither Maritime Electric nor the Community wishes to continue operating the equipment. Costs associated with the decommissioning will be shared between Maritime Electric and the Community as per the details laid out in the responses to IR-17 and IR-18.

b. If both parties wish to continue to operate the equipment, Maritime Electric will be responsible for all costs associated with the replacement of the charger, and will require full cost recovery as per section 4.7.5 of the Supplemental Budgetary Request in order to proceed.

If one party wishes to replace the equipment and continue to operate the charging infrastructure and the other party does not, the two parties will come to a mutual agreement to allow this to happen. If an agreement cannot be reached then the equipment will be decommissioned and costs will be shared as per above.

c. No costs associated with replacement or decommissioning of the charging equipment have been included in the Supplemental Budgetary Request.