Q. The Conservation Potential Study (the "Dunsky" report) states at page 111 that EV incentives are typically provided at the federal or provincial level and limited case studies are available related to utilities providing EV purchase incentives. In light of this please explain why the recovery of the costs of the proposed utility EV incentives should be approved in this province.

A. *This Request for Information relates to the Electrification, Conservation and Demand Management Plan: 2021-2025 (the "2021 Plan") developed in partnership by Newfoundland Power and Newfoundland and Labrador Hydro ("Hydro" or, collectively, the "Utilities"). Accordingly, the response reflects collaboration between the Utilities.*

A. Introduction

The Utilities have jointly implemented customer conservation and demand management ("CDM") programs since 2009. The Utilities' programs have been successful in addressing barriers to customers' adoption of energy-efficient technologies. Since 2009, participating customers have realized electricity bill savings of approximately $118 million and all customers have benefited from reduced system costs of approximately $137 million.[1]

In 2018, the Provincial Government issued a reference to the Board on the Muskrat Falls Project rate mitigation. In its final report, the Board recommended that the Utilities and the Provincial Government work together on a comprehensive and coordinated approach to developing the most appropriate programs for the province.[2]

The 2021 Plan reflects the comprehensive and coordinated approach recommended by the Board. The 2021 Plan was developed based on the Utilities' long-term experience delivering customer programs, the analysis provided in the Dunsky report, and consultations with stakeholders, including the Provincial Government.

The 2021 Plan introduces a diversified portfolio of complementary initiatives, including EV incentives and investments in EV infrastructure.

EVs are a rapidly emerging technology globally.[3] While case studies of utilities providing EV purchase incentives are limited, utility involvement in transportation electrification is increasing throughout North America. For example, a February 2021 report from the Edison Electric Institute found that *"Electric companies increasingly are engaged in many different facets of electric transportation,"* with 52 electric companies having regulatory approval for filings related to transportation electrification.[4]

[1] See Newfoundland Power's *2021 Electrification, Conservation and Demand Management Application,* Volume 1, Evidence, page 5.
[2] Ibid., pages 6 to 7.
[3] For example, see response to Request for Information CA-NP-060 for a history of EV charger development.
[4] See Edison Electric Institute, *Electric Transportation Biannual State Regulatory Update,* February 2021.

Transportation electrification programs are often pursued to achieve a jurisdiction's specific policy goals. For example, EV incentive programs provided by utilities in British Columbia are funded under its Provincial Government's CleanBC plan.[5]

In the Newfoundland and Labrador context, electrification programs are being pursued to achieve the provincial policy goal of customer rate mitigation.

Part (b) of this response describes why each component of the Utilities' customer electrification portfolio is appropriate.

Part (c) of this response addresses why costs associated with delivering the customer electrification portfolio should be approved.

B. Customer Electrification Portfolio

Consistent with the Utilities' long-term approach to delivering CDM programs, each component of the 2021 Plan is designed to address specific barriers to customers' adoption of electric technologies, particularly EVs.

The primary barriers to customers' adoption of EVs are cost and availability of public charging stations. In a survey conducted by MQO Research, 32% of Newfoundland and Labrador residents ranked cost as the primary barrier to EV adoption, while 24% ranked availability of charging stations as the primary barrier to EV adoption.

The 2021 Plan addresses these barriers through: (i) investments in EV charging infrastructure; (ii) incentive programs; (iii) customer education and awareness; and (iv) research programs.

Diversity in investments among complementary initiatives is consistent with the recommendations of the Dunsky report.[6]

i) EV Charging Infrastructure

The Dunsky report found that the single largest factor influencing the adoption of EVs in the province is access to fast charging infrastructure.[7]

Access to fast charging infrastructure is limited in Newfoundland and Labrador[8] and lags behind that of other Canadian provinces.[9] Private sector investment in fast charging

[5] See response to Request for Information PUB-NP-044.

[6] See Newfoundland Power's *2021 Electrification, Conservation and Demand Management Application,* Volume 2, Schedule C, page 146 of 325.

[7] Ibid., page 111 of 325.

[8] Hydro is installing 14 fast chargers in the province. These will be the first public fast chargers installed in Newfoundland and Labrador.

[9] According to Natural Resources Canada, there are currently over 5,400 electric vehicle charging stations across Canada. The majority of public charging stations are concentrated in Quebec (47%), Ontario (25%) and British Columbia (17%). Newfoundland and Labrador ranks last, with 0.4% of total charging stations in Canada.

infrastructure is currently constrained by a weak business case. The weak business case reflects the upfront costs of installing EV charging infrastructure and the limited number of EVs in the province. Without investment in adequate charging infrastructure, customers' adoption of EVs is expected to be limited.

The 2021 Plan includes utility investment in fast charging infrastructure.[10] Utility investment in fast charging infrastructure is being pursued throughout North America and will address a primary barrier to customers' adoption of EVs in this province.[11]

ii) Incentive Programs

The Dunsky report determined that incentives can increase energy sales from the adoption of EVs by up to 32% over the short-term.[12] EV incentives are not expected to be required over the longer term, when cost parity has been reached between EVs and gasoline-powered vehicles.

Currently, the upfront cost of purchasing an EV is approximately $19,000 higher than the cost of purchasing a gasoline-powered vehicle. In the Utilities' experience, incentives are effective tools for overcoming barriers to adoption of new technologies in this province. For example, over 3 million at-the-cash rebates and over 60,000 on-bill rebates for energy-efficient technologies have been provided to Newfoundland Power's customers since 2009. These rebates have provided significant customer benefits, as described in part (a).

The 2021 Plan includes incentives for residential and commercial customers to purchase EVs and chargers. Vehicle incentive amounts were determined based on an assessment of the incremental cost of purchasing an EV. Charger incentive amounts are designed to cover the incremental cost of purchasing a charger with load management capabilities.[13]

The 2021 Plan also includes incentives for commercial customers under a Custom Electrification Program. While participation in this program is expected to be modest, all potential projects will be assessed on a case-by-case basis to ensure they are cost-effective from both a customer and a utility perspective.[14]

[10] See Newfoundland Power's *2021 Electrification, Conservation and Demand Management Application,* Volume 1, Exhibit 2.
[11] See response to Request for Information PUB-NP-045.
[12] See Newfoundland Power's *2021 Electrification, Conservation and Demand Management Application,* Volume 2, Schedule C, page 139 of 325.
[13] See response to Request for Information PUB-NP-039.
[14] See response to Request for Information PUB-NP-043.

iii) Education and Awareness

Increasing customers' adoption of new technologies requires customer education and awareness. This is consistent with the Utilities' long-term experience in delivering CDM programs and the recommendations of the Dunsky report.[15]
The 2021 Plan includes initiatives to educate customers on the benefits of owning an EV, including available incentives and associated fuel and maintenance savings. Initiatives will also be pursued to educate customers on the increasing range of EVs and available charging stations.

iv) Research Programs

Realizing the rate mitigating benefit of EV adoption requires managing EV load during times of system peak. The Dunsky report estimates that approximately 85% of EV load can be shifted off-peak through load management.[16] Utility intervention is essential to managing capacity-related system costs as EV adoption increases.

The 2021 Plan lays the foundation for effective load management. Two pilot programs will include a significant focus on understanding the most effective and economical options to achieve load management.

First, the EV Demand Response Pilot Program will allow the Utilities to explore the most effective options to shift EV charging to off-peak periods.[17] The pilot program will assess options based on customer acceptance and cost effectiveness. Customers who avail of the EV charger incentive will be invited to participate in the EV Demand Response Pilot Program.[18]

Second, the Custom Fleet Pilot Program will allow the Utilities to understand barriers to adopting medium and heavy-duty EVs. A significant portion of forecast electricity demand associated with EVs is expected to come from commercial vehicles. This program will pilot initiatives to encourage off-peak charging for commercial vehicles. Opportunities for vehicle-to-grid technologies will also be explored.[19]

These initiatives will support the Utilities' long-term objective of managing system load and capacity-related costs, as further described in part (c).

[15] For example, the investment scenarios in the Dunsky report include customer education and outreach efforts to make fuel switching less daunting to customers. See Newfoundland Power's *2021 Electrification, Conservation and Demand Management Application,* Volume 2, Schedule C, page 25 of 325.
[16] Ibid., page 143 of 325.
[17] Ibid., Volume 2, Schedule K, pages 1 and 2.
[18] See response to Request for Information PUB-NP-038.
[19] Vehicle-to-grid technologies enable energy to be pushed back to the electricity grid from the battery of an EV. See response to Request for Information PUB-NP-042.

C. Reasons for Approval

Customer electrification programs are being pursued to support the provincial policy goal of customer rate mitigation. The Provincial Government provided a letter of support for the 2021 Plan. The Provincial Government's letter states:

> *"The plan indicates the province's utilities are taking actions to begin addressing the electrification, and conservation and demand management (CDM) recommendations in the Board of Commissioners of Public Utilities Rate Mitigation Options and Impacts Report. The Board's report demonstrated clearly that these action areas have excellent potential to assist with our rate mitigation efforts."*[20]

The rate mitigating benefit of customer electrification was assessed through a net present value ("NPV") analysis.[21] The NPV analysis assessed the net revenue impact of increased energy sales through customer electrification to 2034.[22] The net revenue impact was then divided by projected Company energy sales to determine an indicative customer rate impact.

At the time of developing the 2021 Plan, planned electrification programs were forecast to provide additional net revenue of approximately $34 million by 2034. This equates to a rate mitigating benefit for customers of 0.5¢/kWh that year.[23]

The rate mitigating benefit of electrification programs has increased since the Utilities developed the 2021 Plan. On July 28, 2021, the Provincial Government provided an updated rate mitigation target that is now 9% higher than the previously indicated target of 13.5 ¢/kWh. This would increase the rate mitigating benefit of electrification programs to 0.65 ¢/kWh by 2034.[24] Any further increases in costs resulting from the Muskrat Falls Project would continue to increase the value of electrification programs for customers.

In addition to the rate mitigating impact of electrification, Utility intervention is essential to ensuring transportation electrification is beneficial for customers and does not result in increased system costs. The Utilities are pursuing transportation electrification in a manner that will achieve effective load management.[25] Under baseline conditions (i.e. without utility intervention), transportation electrification will increase costs to customers by approximately $22 million by 2034.[26]

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[20] See the *2021 Electrification, Conservation and Demand Management Application,* Volume 1, Exhibit 2, Appendix A for the NPV analysis.

[21] Appendix A to this report provides the NPV analysis.

[22] Net revenue reflects: (i) the incremental revenue from increased electricity sales through customer electrification; less (ii) incremental system costs and the recovery of capital, program and research costs related to customer electrification.

[23] The customer rate impact of 0.5¢/kWh was determined by dividing the net revenue impact of $33.9 million in 2034 by the projected Company energy sales, including energy sales from electrification, of 6,527 GWh.

[24] See response to Request fort Information PUB-NP-051.

[25] See response to Request for Information PUB-NP-037.

[26] See response to Request for Information PUB-NP-066.

While transportation electrification is being pursued throughout North America to achieve various policy goals, the business case for utility involvement in Newfoundland and Labrador is a direct reflection of the provincial power policy. The provincial power policy requires customers be provided with reliable service at the lowest possible cost.[27] The rate mitigating benefit of electrification programs is consistent with this requirement. It is therefore appropriate for costs associated with the Utilities' portfolio of electrification programs to be recovered from customers.

[27] See Section 3(b)(iii) of the *Electrical Power Control Act, 1994.*