Q. Has Hydro considered whether and how the construction and installation of Hydro's proposed EV fast charging network will be incorporated into utility conservation, demand management and electrification planning? If not, why not?

A. Newfoundland and Labrador Hydro ("Hydro") has considered how the proposed project will be incorporated into utility Conservation and Demand Management ("CDM") and electrification planning.

In its "Phase 2 Report on Muskrat Falls Project Rate Mitigation" ("Synapse Report"), Synapse's analysis with respect to electrification identified electric vehicles ("EV") (along with fuel switching) as having *". . . the most positive benefit to rate mitigation, as they directly increase load and allow for increase contribution to pay for MFP fixed costs."*[1] The Conservation Potential Study prepared by Dunsky Energy Consulting also noted the electrification potential associated with EVs:

> DCFC investments can have a significant impact in accelerating EV adoption and energy sales. For example, a $20M investment in DCFC infrastructure would result in 132,000 EVs on the road (219% increase from baseline), and 647 GWh of EV load by 2034 (143% increase from baseline).[2]

Hydro expects that the completion of the project will contribute to a material increase in the number of EVs in the province over the long term, thus impacting customer electricity requirements. However, the proposed network of 14 charging sites will require less than 1.0 MW of capacity if all equipment was in use simultaneously. In contrast, the most common Level 2 chargers for home-use have a capacity of 7.2 kW; if the approximately 185 EVs currently in the province were plugged into 7.2 kW Level 2 home chargers simultaneously they would contribute more than 1.3 MW in demand on the system. Therefore, consumer behavior with respect to Level 2 home chargers will be the more important consideration for utility planning purposes.

[1] "Phase 2 Report on Muskrat Falls Project Rate Mitigation", Synapse Energy Economics, Inc., September 25, 2019, rev.1, p. 11.
[2] "Conservation Potential Study, Final Report," Dunsky Energy Consulting, vol. 1, p. xviii.

The Synapse Report discussed the potential impact that at-home EV chargers could have on system peak. The Synapse Report showed that by implementing time of use rates for vehicle charging, a material amount of charging load could be shifted to off-peak times.[3] The use of smart charging stations to reduce peak load impacts is also an option.

Hydro believes it is important to incorporate the anticipated increased use of EV charging into its system planning models to enable Hydro to understand and manage the potential impact on system peak. Effective management of EV charging load is required to ensure the promotion of this end-use successfully contributes to rate mitigation efforts. As a result, CDM and pricing initiatives should be developed to ensure the maximization of value from electrification initiatives such as the promotion of increased use of EV.

Hydro believes that home-based Level 2 charging will play a key role in future CDM initiatives. Proper incentives, controls, and/or education will be required to avoid use during the evening system peak, when EV owners plug in to charge their vehicle at the end of the day. Hydro believes that a CDM pilot program for smart Level 2 home chargers which could either be programmed to charge outside peak hours and/or provide utility control to reduce charging during system peak events could provide material benefits towards managing system peak. Hydro has plans for preliminary discussions with Newfoundland Power Inc. for the first quarter of 2020 on such a potential pilot program.

[3] "Phase 2 Report on Muskrat Falls Project Rate Mitigation", Synapse Energy Economics, Inc., September 25, 2019, rev.1, pp. 111 - 112.