Q. (Reference EV Load Management Pilot Project, page 11) It is stated "*Utilities throughout Canada are offering EV load management pilots to small samples of EV drivers in their service territories. This allows utilities to test and collect data on charging behaviours and managed EV charging strategies, technologies and incentives*."

a) Are the results of such studies in other Canadian jurisdictions relevant to NL? Why is it important that NL conduct its own pilot rather than relying on the results of pilots conducted in other Canadian jurisdictions?

b) Please explain how the charging habits of the people of NL are likely to vary from the charging habits of Canadians elsewhere.

c) Please provide copies of studies undertaken by other utilities in Canada together with information pertaining to the cost of these studies and how these costs were paid.

A. a) The results of studies completed in other Canadian jurisdictions on EV load management are relevant, but do not negate the need for Newfoundland Power to conduct a jurisdiction-specific study.

Each jurisdiction has unique characteristics that can influence the costs and benefits of implementing strategies to shift EV charging to off-peak periods.

It cannot be assumed that charging behaviours in Newfoundland and Labrador will mirror that of EV owners in other Canadian jurisdictions. Research has shown that charging habits vary amongst EV owners depending on travel patterns, access to charging infrastructure and personal preferences.[1] For example, average driving distances vary by province, which may affect EV charging habits within each jurisdiction.[2] Additionally, Newfoundland and Labrador lags behind other provinces when it comes to charger availability with just 34 publicly available Level 3 chargers.[3] This could impact an EV owner's risk tolerance for driving with a lower charge, resulting in more frequent and longer at-home charging. As with charging behaviours, customer acceptance of various EV load management strategies may also vary by jurisdiction.

Electrical system characteristics also vary by jurisdiction, which can influence the costs and benefits of EV load management strategies. For example, the time of peak load varies by jurisdiction. In Ontario, the evening peak period ends at 7:00pm,[4] whereas evening peak demand on the Island Interconnected System extends to 10:00pm.[5] A later peak would influence the timing of demand response

1 See Stanford University, ramr.sites.stanford.edu, "*Impacts of EV Charging on the Grid*," accessed June 2023.
2 See Natural Resources Canada Canada, *Canadian Vehicle Survey 2009 Summary Report*, page 15, Figure 11 – Average Distance Travelled by Light Vehicles by Jurisdiction, 2000 and 2009.
3 See Natural Resources Canada *Electric Charging and Alternative Fuelling Stations Locator*, accessed June 2023.
4 See Ontario's *Electricity Price Plans*, accessed June 2023.
5 See the Application, *EV Load Management Pilot Project* report, page 7, lines 14 to 16.

events and may impact customer participation. A longer peak may also influence the utility's ability to manage a snapback in charging that could create a new peak, which requires consideration in evaluating potential strategies.[6]

Newfoundland Power's proposed EV Load Management Pilot Project will provide jurisdiction-specific information that will enable the Company to optimize future EV load management programs for its customers. The pilot project will also provide the Company with experience using various technologies to manage EV load, which will assist in implementing programs in the future.

Newfoundland Power observes that it is very common for utilities to seek jurisdiction-specific information in relation to EV load management, as 10 utilities all throughout Canada have already completed pilot projects in their jurisdictions.[7]

b) See part a).

c) With respect to copies of the studies undertaken by other Canadian utilities, see part d) of the response to Request for Information CA-NP-007.

Information on the costs of EV load management pilots undertaken by other utilities is not widely available.

The Nova Scotia Utility and Review Board approved approximately $7.1 million for Nova Scotia Power's *Smart Grid Nova Scotia Project* for recovery in customer rates.[8] The total cost of the four-year pilot, which includes managed EV charging, is approximately $19 million; however, $12 million of the cost is offset by external funding.[9]

FortisAlberta forecasts its ongoing EV load management pilot, which uses vehicle telematics, to cost $350,000.[10] FortisAlberta's EV load management pilot costs were approved by the Alberta Utilities Commission for recovery in customer rates as part of FortisAlberta's 2023 Cost of Service Compliance Filing.[11]

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6 A snapback refers to the re-emergence of a system peak immediately following a demand response event as customers choose to commence vehicle charging. For example, if customers are incented to avoid charging between 5:00 pm and 10:00 pm, it may lead to increased EV charging activity beginning after 10:00 pm, which could result in the emergence of a new system peak.

7 See the Application, *EV Load Management Pilot Project* report, page 11, lines 11 to 14.

8 See Nova Scotia Utility and Review Board Decision 2020 NSUARB 63, page 39.

9 See Nova Scotia Utility and Review Board Decision 2020 NSUARB 63, page 3.

10 See FortisAlberta, *2023 Cost of Service Application*, Appendix G: Demand Side Management, page 17.

11 See Alberta Utilities Commission Decision 27671-D01-2022, page 32.