Q. (Reference EV Load Management Pilot Project, page 10) It is stated "*The most common technologies used to control vehicle charging are Level 2 smart chargers that are equipped with wireless or cellular communication, or vehicle telematics via an EV's onboard computer system*."

a) What is the current status of Level 3 chargers?

b) Please provide a comparison of Level 1, 2 and 3 chargers including supply voltage, cost of installation, cost of charging, and charging time.

c) How does the use of residential Level 1 charging of light-duty EVs compare to residential Level 2 charging in terms of the impact on peak demand?

d) What is the manufacturing availability for Level 3 chargers, and have you reviewed the issue of availability of chargers generally?

e) What level of chargers are in use now in the province, and what is the uptake on these chargers in the province based on the information available?

f) Besides utilities, what other entities/municipalities/governments and the like are engaged in placing chargers throughout the province? Please advise of any and all information you have in this regard, and what entity is coordinating these efforts?

g) What is the total number of charge stations in the province from all sources at this time?

h) How many chargers does Hydro have at this time, and how many chargers does NP have throughout the province?

A. a) See part e).

b) Table 1 provides a comparison of Level 1, 2 and 3 chargers based on the requested information.

Table 1
Comparison of EV Chargers

Characteristic	Level 1	Level 2	Level 3
Supply Voltage:	120 V	240 V	480 V
Typical Cost of Installation:	No additional cost (EVs typically come with Level 1 charger which plugs into a standard 120 V household outlet)	Charger: $500-$1,500 Installation: $500-$1,500	Variable (approximately $200,000/charger for Newfoundland Power in 2022)
Cost of Charging:	Equal to rate for electricity	At home: equal to rate for electricity; Public: $1.50/hour for takeCHARGE chargers	$15.00/hour for takeCHARGE chargers
Charging Time:[1]	Approximately 50 hours	Approximately 9 hours	Approximately 30 minutes for 80% charge

[1] Variable based on battery size. Assumes an all-electric vehicle.

c) Level 1 chargers for EVs have a lower impact on peak demand compared to residential Level 2 chargers. The impact is approximately 1 kW for a Level 1 charger and 7 kW to 19 kW for a Level 2 charger.[2]

d) According to Flo, a Canadian manufacturer of EV chargers, Level 3 chargers currently have an eight-week delivery time. Newfoundland Power routinely reviews EV market conditions and is not aware of any issues with the manufacturing availability of Level 3 chargers in Canada.

e) Based on publicly available data from the Government of Canada, there are currently 110 publicly available Level 2 chargers and 34 publicly available Level 3 chargers in the province.[3] This equals a total of 144 publicly available chargers in Newfoundland and Labrador. Nearly half of these chargers, including almost all Level 3 chargers, are owned and operated by the utilities.[4]

Data is not available on the overall uptake of each of these chargers in the province. Newfoundland Power tracks the uptake of its Level 2 and 3 chargers. Combined, these chargers have been used for approximately 2,200 charging sessions to date.[5]

f) Besides the utilities, there are 77 Level 2 chargers and one Level 3 charger available in the province from other entities, including businesses such as automobile dealerships, municipal halls, recreation centres and organizations within the hospitality sector. The installation of these charging stations is at the discretion of the individual entities and is not coordinated by any specific organization.

g) See part e).

h) Newfoundland and Labrador Hydro currently has 23 publicly available charging sites, each with a Level 2 charger and Level 3 charger. Newfoundland Power currently has 10 publicly available charging sites, each with a Level 2 charger and a Level 3 charger.

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2 See U.S. Department of Transportation, www.transportation.gov, *"Charger Types and Speeds,"* accessed June 2023.

3 See Natural Resources Canada, www.natural-resources.canada.ca, *"Electric Charging and Alternative Fuelling Stations Locator,"* accessed June 2023.

4 One publicly available Level 3 charger is owned by Commissionaires. This charger is 25 kW in capacity, compared to the 62.5 kW capacity chargers installed by the utilities.

5 Usage data as of May 31, 2023.