

1 Q. **Reference: Application for Approval of the Construction and Installation of 14 Level 3 Direct**
2 **Current Fast Chargers and 14 Level 2 Chargers, Schedule 1, Page 1, Lines 14-15.**

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4 *“In preparing to undertake this project, Hydro researched best practices in other*
5 *jurisdictions and worked with government agencies to determine the*
6 *appropriate scope for this project.”*

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8 Please describe in detail how Hydro’s research of best practices in other jurisdictions influenced
9 the scope of the proposed project.

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12 A. Newfoundland and Labrador is the only province in Canada without a high-speed Level 3
13 charging network. Newfoundland and Labrador Hydro (“Hydro”) conducted research into the
14 best practices and lessons learned in other jurisdictions to help inform the planning, scope, and
15 development of the proposed project.

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With respect to the identification of potential locations, Hydro’s research indicated the following:

- 19 • Optimal Distance Between Charging Stations of 65km: Minimizing the distance between
20 charging locations allows electric vehicle (“EV”) owners with lower-cost vehicles (which
21 typically have less range) to still use the network, even during winter months where
22 range may be further limited due to colder weather. Although the proposed network
23 has an average distance of 65km, the distance between certain locations is greater than
24 65km due to lack of available electrical infrastructure in certain areas of the province.
- 25 • Ensuring Additional Electrical Capacity Exists at Proposed Sites: Each site Hydro
26 identified has at least 350 kW of electrical capacity available. While the initial
27 installation at each proposed location will be approximately 60 kW, the availability of
28 additional capacity will allow for future expansion of the number of Level 3 chargers at
29 each site should customer demand warrant such an investment. Further, this additional
30 capacity would allow for the upgrade of charging infrastructure at each site should

1 higher powered chargers (for example, Level 3 chargers greater than 100 kW) become
2 more common in the marketplace.

- 3 • Site Evaluation Criteria: Based on discussions with another utility that recently
4 completed a similar project, Hydro developed a scoring matrix used for the evaluation of
5 potential site hosts (please refer to Hydro’s response to PUB-NLH-003). These criteria, in
6 combination with site visits by Hydro personnel, will help mitigate construction related
7 budget overages, identify site hosts with sufficient amenities available to EV owners
8 while waiting for their vehicle to charge (e.g., coffee shops, restaurants, shopping, etc.),
9 and ensure charging sites are safe for use by the general public (e.g., snow clearing,
10 sufficient lighting, etc.)
- 11 • Distance from Major Highways and Routes: Level 3 charging networks are typically
12 located along major highways and routes. This approach recognizes the cost associated
13 with Level 3 charging infrastructure as well as the fact that fast charging is typically only
14 necessary for EV owners seeking to travel long distances in a relatively short period of
15 time. The remainder of EV charging typically occurs at the user’s residence, through a
16 Level 2 charger. As such, sites for the proposed project are typically within 1km of a
17 highway or major route.

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19 With respect to the equipment specifications associated with the project, Hydro’s research
20 indicated the following:

- 21 • Multi-Vendor Protocol Charging Plugs: Unlike gasoline powered vehicles which can use
22 any gas pump, plug standards for Direct Current Fast Chargers (“DCFC”) are not
23 universal among EV manufacturers. There are three dominant standards for DCFC plugs
24 in North America: CHAdeMO; SAE Combined Charging System (“CCS”); and Tesla.
25 CHAdeMO plugs are used by Mitsubishi and Nissan only, whereas CCS plugs are used by
26 most other EV manufactures including General Motors, Ford, Dodge, BMW,
27 Volkswagen, Kia, and Hyundai, among others. The Tesla plug type is proprietary and is
28 only able to charge Tesla vehicles; however, Tesla vehicle owners are able to purchase
29 an adapter and make use of CHAdeMO plug types. If Hydro’s application “Approval of

1 the Construction and Installation of Level 3 Direct Current Fast Chargers and Level 2
2 Chargers” is approved, the Level 3 chargers purchased by Hydro will have both
3 CHAdeMO and CCS plug types. This will ensure that owners of all EV brands can avail of
4 the proposed network.

- 5 • Co-locating Level 3 and Level 2 Chargers: Not all EV are capable of direct current (“DC”)
6 fast charging. Further, EVs that can DC fast charge can typically only do so up to an 80%
7 state of charge, after which charging speeds reduce dramatically to protect the car’s
8 battery. As such, Hydro’s proposed network includes both a Level 3 DCFC and a Level 2
9 charger at each site (28 chargers in total). This will ensure that all makes and models of
10 EVs can access the network efficiently and effectively.