Q. **Reference: Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Level 2 Chargers for Electric Vehicles)**

In Table 3 on page D-63 Hydro has estimated that the installation of 18 Level 2 chargers at nine of its sites will cost $299,800 before potential government funding. This estimate results in an average cost of approximately $16,650 per installation of a Level 2 charging station, understanding that the installation costs could vary based on the location.

During the Rate Mitigation Reference, in its response to PUB-NP-026, Newfoundland Power indicated that the Level 2 chargers cost $1,000 per unit and the total installation costs for two Level 2 chargers at its Head Office parking lot costs $16,013, an average installation cost of approximately $8,000 per unit. Newfoundland Power did note in its response that the pricing provided was specific to the location of the charger location and it can vary widely depending on the characteristics of the installation site.

In Hydro's response to PUB-Nalcor-109 during the Rate Mitigation Reference, Hydro estimated Level 2 chargers to be approximately $5,000 per unit, with installation costs varying based on the installation location.

Please explain how Hydro developed the estimated cost of this project and, if possible, why the costs to install Level 2 charging stations at its sites would be two times the cost that Newfoundland Power incurred to install Level 2 charging stations at its Head Office site.

A. Newfoundland and Labrador Hydro's ("Hydro") budget for the installation of 18 Level 2 Chargers for Electric Vehicles ("Project") is based on Hydro's recent experience installing two such chargers at Hydro Place in St. John's. The cost to install Level 2 charging infrastructure is highly dependent on equipment selection, location, and supporting electrical infrastructure required to power the chargers. When comparing Hydro's recent installation to Newfoundland Power's

installation at its Kenmount Road location, several differences are apparent which help explain the price differences noted.

1) Smart Chargers

The Project budget assumes the installation of 'smart' Level 2 chargers. These chargers have a cellular connection which can be used to monitor and track usage (including the ability to manage charging during peak hours), enable pre-charging authorization to restrict usage of the chargers for fleet use only, the ability to undertake remote diagnostics and troubleshooting, and live reporting of the chargers status (available or in-use) through the internet. The installation of smart chargers is a requirement of the government funding for which Hydro has applied.

Newfoundland Power's Kenmount Road installation did not use smart chargers which Hydro estimates would account for a difference of approximately $8,000 for that installation, or $4,000 per plug.[1] This differing equipment specification accounts for approximately 50% of the variance noted.

2) Installation Location

The Project budget assumes the installation of a concrete pad to secure the charging infrastructure as well as parking bollards to protect the chargers from potential damage from vehicles and snow clearing equipment.[2] Further, most of Hydro's installations are taking place in more remote areas of the province where installation and shipping costs are typically higher relative to more urban areas of the province such as St. John's.

Newfoundland Power's Kenmount Road installation was placed in a parking lot island which required significantly less concrete, did not include parking lot bollards, and was

[1] Smart chargers estimated at $5,000 each (consistent with Hydro's estimate included in the response to PUB-Nalcor-109 of the *Rate Mitigation Options and Impacts* proceeding) x 2 versus non-smart chargers estimated at $1,000 each x 2. This represents the cost of equipment only, and excludes the cost of installation.
[2] "2021 Capital Budget Application," Newfoundland and Labrador Hydro, rev 1, August 7, 2020 (originally filed August 4, 2020), vol I, sec D, p. D-63, fig. 1.

located in a large urban center. Hydro expects these installation differences to account for a significant portion of the cost variance noted.

3) Electrical Upgrades

Typical Level 2 charger installations require two 40 amp circuits (one per plug) in order to achieve rated charging speeds. These charging speeds are critical to ensuring fleet vehicles can recharge in a reasonable amount of time and return to service. Some of the sites identified by Hydro for charger installations require electrical service upgrades in order to accommodate two new 40 amp circuits to complete the installation thereby increasing the total project budget.

Hydro is not able to comment on whether Newfoundland Power's installation required electrical service upgrades.