

EXECUTIVE SUMMARY

The Pan-Canadian Framework on Clean Growth and Climate Change included a commitment for federal, provincial and territorial governments to develop a Canada-wide strategy for zero-emission vehicles. Such a strategy will aim to increase the number of electric vehicles (EVs) in Canada. To date, Natural Resources Canada's (NRCan's) EV and Alternative Fuel Infrastructure Deployment Initiative (EVAFIDI) has announced nearly \$100M of funding to support publicly accessible alternative fuel stations. Dunsky Energy Consulting was engaged assist NRCan in understanding future charging needs for EVs.

This report estimates, at a high-level, appropriate Canada-wide EV to public charger ratios over time. These ratios were estimated for three geographic segments within Canada:

- Corridors: Estimation of charging needs along major highways;
- Clusters: Estimation of charging needs within cities and towns (population >1000); and
- Canada-wide: A combination of both corridor and cluster charging needs.

The results of this analysis are presented in Table 1 via three ratios: EVs to Level 2 charging ports, Battery Electric Vehicles (BEVs) to DC Fast Charging (DCFC) ports, and EVs to all ports (Level 2 and DCFC).

Table 1: Estimated EV to charger ratios for Canada.

	2020	2025	2030	2035	2040	2045	2050
EVs/Level 2	15	22	31	41	46	53	56
BEVs/DCFC	140	180	220	260	290	330	350
EVs/Port	14	20	27	36	41	46	49

While a direct comparison of these estimated with other jurisdictions can be difficult due to variation in reporting methods and factors impacting the recommended ratios, a high-level comparison was undertaken. The projected ratios align with those from other countries, states and Canadian provinces.

This exercise and a scan of leading jurisdictions has highlighted the following:

1. The ratio of EVs to chargers will tend to increase over time;
2. The primary driver for the number of charging ports over the long term is capacity requirements within clusters, and not along highway corridors;
3. In the short term, sufficient charging infrastructure along corridors and in clusters is essential to ensure connectivity; and
4. There is some uncertainty on the criticality of Level 2 charging infrastructure in the long term; while it should remain useful, the industry may move towards long range BEVs that are more reliant on DCFC.

While this study summarizes Canadian charging needs at a high-level, further analysis is required to understand the localized impacts of EV adoption on charging needs.

