

October 2026

LEADING THE CHARGE



How Canadian governments
and businesses can build a
reliable, equitable, and smart
EV charging network



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Executive summary

Electric vehicle (EV) charging infrastructure is essential to enable the transition from internal combustion engine (ICE) vehicles to EVs.

EVs—alongside modal shift to electrified public transit and active transport—are key to Canada meeting its net zero targets and electrification ambitions. EVs can improve the lives of Canadians through better air quality and health outcomes, lower costs for drivers, and improved grid flexibility and stability.

But Canadians cannot make the switch alone—Canada needs to build out the network of charging infrastructure to enable this transition.

Modelling indicates that the number of EVs and chargers will need to scale up rapidly for Canada to remain on track for net zero greenhouse gas emissions in 2050—with an estimated 19 million chargers supporting 21 million EVs by 2040. This is a jump from around one million chargers and one million EVs today.

While these estimates contain big numbers, almost all additional future chargers are expected to be in people's homes, and could be easily and cheaply installed when households purchase an EV. The private sector and some utilities are already beginning to build out the public charging network across Canada today, with some government support.

But four areas remain where barriers are preventing the necessary buildout:

1. EVs and public charging infrastructure risk getting stuck in a chicken-and-egg dynamic—building more chargers depends on having more EVs on the road while having more EVs on the road depends on having more chargers.
2. In remote and rural areas, there may never be high enough utilization of charging infrastructure for the private sector to provide charging.

3. Residents of multi-unit residential buildings (MURBs) risk getting left behind due to split incentives, as well as the higher costs and complexities of installing EV chargers.
4. EV charging could be an asset for the grid, if it's built to enable flexible electricity demand—in most places, it isn't, yet.

For each of these problems, there are multiple potential solutions. Many of these options are complementary, and a portfolio of policies may be required to deliver a reliable, equitable charging network.

Overall, we propose an approach that tackles both the supply and demand sides of the chicken-and-egg problem, combining broad, economy-wide regulatory approaches, specific changes to regulated electricity markets, and targeted funding support. This combination can deliver both benefits for consumers and emissions reductions, while limiting fiscal costs for taxpayers. We make the following recommendations:

1. The federal government should set and maintain sufficiently stringent tailpipe standards to put Canada on track to reach its goal of 75 per cent EV sales by 2035 and 90 per cent EV sales by 2040.
2. The federal government should provide dedicated support for charging infrastructure in rural and remote communities and in MURBs.
3. Provincial and territorial governments should regulate all new MURBs to be EV-ready.
4. Provincial and territorial governments should direct regulators to enable rate design that makes demand charges economically viable at all stages of the transition.
5. Provincial and territorial governments should direct regulators to maximize managed charging for L2 chargers.

1

Introduction

An effective EV charging network is essential to enable the transition from ICE vehicles to EVs.

Accelerating EV deployment supports Canadian governments' objectives of speeding up electrification across the economy (NRCan 2026a) and meeting Canada's long-term commitment to reach net zero greenhouse gas emissions by 2050 (Dion et al 2024).

In addition to improving air quality and associated health outcomes, EVs offer cost savings to consumers making the switch: Clean Energy Canada found that EV ownership saved an average of \$23,000 to \$32,000 over 10 years of ownership compared to an ICE vehicle. If EV charging is done in a smart way, EVs can also serve as a valuable resource to improve grid flexibility and stability (Schmitt et al 2024; CEC 2026a; Štogl et al 2024; Lloyd et al 2026).

But Canadians cannot make the switch alone—they need reliable and convenient access to EV charging in their homes, at their workplaces, in their communities, and on highways. The energy transition must include both individual households making the switch to EVs and the buildout of a new shared infrastructure: a charging network.

This scoping paper examines what this buildout entails, identifies where barriers are blocking it from happening, sets out policy implications arising from these barriers, and makes a series of recommendations to federal and provincial/territorial governments to speed up the transition.

This research is based on three complementary methods. First, we reviewed academic literature, grey literature, and policy documents to establish the current state of knowledge on EV charging infrastructure in Canada and to identify key issues and gaps. Second, we conducted approximately 10 semi-structured interviews with experts working on EV charging across industries, industry

associations, academia, think tanks, consultancies, NGOs, and municipalities, providing practitioner and stakeholder perspectives to contextualize the literature. Third, we analyzed previously published data sets—including projections of future charger deployment and spatial mapping of current charging infrastructure—to characterize EV charging infrastructure patterns and trends. This paper is focused on the charging needs of passenger transportation; fleet and medium- and heavy-duty electric vehicles are out of scope.

Section 2 of this scoping paper looks at available data to estimate the numbers, types, and locations of chargers required to support the EV transition. In total numbers, the installation of charging ports is picking up pace across Canada—but progress is uneven. For most charger types in most locations, closing the infrastructure gaps doesn't represent a policy problem, as markets can be expected to drive buildout with the support of existing policies.

Section 3 identifies four policy problems that are acting as barriers to buildout.

Section 4 sets out key policy implications. For each of these problems there are multiple potential solutions. Many of these options are complementary, and a portfolio of policies may be required to deliver a reliable and equitable charging network. For all policy interventions, their impact depends on certainty and predictability.

Section 5 identifies a set of policy recommendations for federal and provincial/territorial governments. We propose an approach that tackles both the supply and demand sides of the chicken-and-egg problem, combining broad, economy-wide regulatory approaches, specific changes to regulated electricity markets, and targeted funding support. This combination can deliver both benefits for consumers and emissions reductions while limiting fiscal costs for taxpayers.

2

Building a charging network to support the EV transition

Where and when EVs recharge is different from how ICE vehicles refuel.

The EV transition does not mean building charging ports at gas stations to which drivers make a dedicated trip to recharge. Most EV charging happens while the car would otherwise just be parked—usually at home, sometimes at workplaces and other destinations. Different types of chargers suit different locations and different driver needs (see Box 1).

It is difficult to predict the exact number and types of charging ports that will be required. Lower population growth, increased public transit use, or increased remote work would all reduce the number of vehicle kilometres travelled and, therefore, the number of chargers needed. Improvements in average battery range or charger voltage (and, thus, charging speed) would also reduce the number of chargers needed. Assumptions about average utilization rates—i.e., how frequently each charger is used—can also significantly shift estimates. For example, assuming a utilization rate of 20 per cent rather than 10 per cent would halve the number of chargers required.

While exact requirements are difficult to predict, modelling by [Dunskey for Natural Resources Canada](#) (NRCan) from 2024 gives a good indication of the approximate scale of the buildout required—it estimates that around 19 million EV charging ports will be needed to support 21 million EVs on the road by 2040. Although this modelling assumed the now-cancelled Electric Vehicle Availability Standard (EVAS) would be implemented, the assumption of a significant ramp-up in EV uptake over the long term still holds. The current federal government has committed to rapidly scaling up EV sales, with a goal of a 75 per cent share for EVs of new passenger

vehicle sales in 2035 and 90 per cent of sales in 2040, to be achieved through stronger greenhouse gas emission standards, similar to the objectives of the original EVAS ([Prime Minister of Canada 2026](#)). Globally, the switch to EVs is accelerating—a quarter of cars sold globally in 2025 were EVs ([IEA 2026](#)). In some places, it's much higher; for instance, last year, EVs made up 97 per cent of sales in Norway and 53 per cent in China (*ibid*). While Canada lags in uptake—with EVs making up just 8.7 per cent of sales in 2025 ([CER 2026](#))—market share is growing, with sales up nearly 75 per cent in March 2026 year-on-year ([Electric Mobility Canada 2026](#)).

As with any projection, actual uptake may differ from the trajectory that underlies the Dunskey analysis, but its results give a useful estimate of the number and location of chargers needed to support the transition to EVs.

The EV transition also changes how passenger transportation is powered—a switch from gasoline to electricity. Part of the infrastructure buildout means planning for how the location and timing of EV charging interacts with the electricity grid and how the additional power demand is met. Dunskey estimates that in total (including both light-duty and medium- and heavy-duty vehicles), EVs could add up to 22,500 MW of coincident demand by 2040—the equivalent of around 5.63 million air conditioning units running at once¹ ([Dunskey 2024](#)).



¹ Assuming average running draw of 4,000 watts per central air conditioner ([Aurora Solar 2026](#)).

BOX 1

EV charger options and use cases

EV drivers make use of different types of chargers depending on their driving habits and where they live. Level 1 (L1) chargers (standard power outlets) may suit drivers who live in houses with off-street parking and short commutes. Level 2 (L2) chargers may be the best option for drivers living in multi-unit residential buildings (MURBs) with longer commutes. And Direct Current Fast Chargers (DCFC) will support all drivers when they are making longer journeys.

Charger options	Level 1	Level 2	Direct current fast charger (DCFC)
Input	120 V	208/240 V	480 V
Output	1-1.5 kW	3.3-19.2 kW	50-350+ kW
Outlet	Standard electrical outlet (e.g., phone charger plug)	Special electrical outlet (e.g., stove or dryer plug)	DC outlet (not found in homes)
Time to charge*	8-50+ hours	4-10 hours	25-30 minutes
Range (per hour charging)*	3-8 kilometres	16-50 kilometres	Max vehicle range
Typical uses	Home charging and backup situations	Home charging, charging at businesses and public spaces	Charging at dedicated stations, public spaces, highway corridors
Electrical upgrade required?	Rarely	Sometimes (panel upgrade)	Almost always (service/transformer upgrade)
Approximate total cost to install	\$0-\$600	\$1,500-\$6,000	\$30,000-\$150,000

**Amounts shown are estimates only and assume 80 per cent charging limit. Times to full charge and range per hour of charging will vary depending on the vehicle, battery, and charger, as well as fluctuating temperatures, battery state, and tire pressure.*

Source: NRCan, BC Hydro

2.1 More EVs on the road will require a more complete charging network—mostly in people’s homes

Dunsky’s modelling estimates that in 2040, nearly all chargers (96 per cent) will be in people’s homes. Those with access to home charging currently use it to power more than 80 per cent of journeys (CAA 2024). This is the cheapest and most convenient way to charge—with EV drivers able to make use of cheaper, off-peak electricity rates where available and avoid trips to refuel.

A small number (Dunsky projects 2.6 per cent) of chargers will be at workplaces. Some could be private (only accessible to those employed by the workplace) and others public. Dunsky assumes workplace chargers would be half private and half public. Workplace charging can also benefit companies that have switched their vehicle fleets to EVs while supporting workers who have limited or no access to home charging.

A similar number (Dunsky projects 2 per cent of chargers) will be in local communities—e.g., municipal parking lots, at shopping centres, and on-street parking. These chargers would be used while cars would otherwise be parked as drivers run errands, and would be essential to make EVs accessible to those without dedicated access to home parking.

A tiny fraction (Dunsky projects 0.02 per cent of chargers) will be located along highways or in rural communities. These represent a very small number of the total required, though they represent a larger share of total charging capacity due to their higher charging output. Despite being a small share of the total charging network, they have outsized importance, enabling longer journeys and making EVs a genuine alternative to ICE vehicles for all journeys. Highways require a certain frequency of chargers—Dunsky assumes every 65 kilometres—to create an effective network. Before this level of completeness is met, longer journeys may not be feasible or require careful planning.

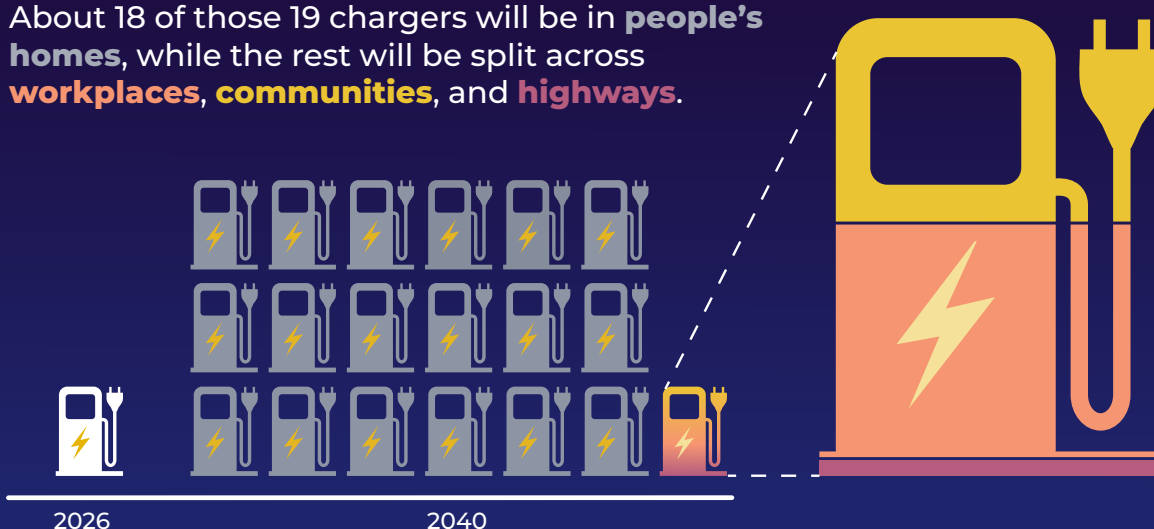
How do these numbers compare to the number of EV chargers in Canada today? NRCan tracks public EV chargers and notes that, as of July 2026, there are approximately 30,000 L2 public charging ports and 9,000 DCFC public charging ports. By 2040, Dunsky projects public charging needs of 631,200 L2 and 45,600 DCFC ports. Data on private chargers (those that haven’t received government funding) is not as closely tracked. StatsCan data shows that in 2023, 5 per cent of Canadian households had an EV charger at home—approximately 470,000 L2 ports and 317,000 L1 ports (StatsCan 2025). Dunsky projects home charging needs of 16,065,900 L2 and 2,207,300 ports in 2040. Assuming installation of home chargers has continued at a steady rate since 2023, there would likely be approximately one million charging ports across Canada today.

FIGURE 1

Projected number of EV charging ports required by 2040

For every **one charger** in Canada today, the country will need **18 added** by 2040.

About 18 of those 19 chargers will be in **people's homes**, while the rest will be split across **workplaces, communities, and highways**.



That's a long way to go, but EV charging has been expanding rapidly. The number of public chargers has grown 16-fold in less than a decade, from only 2,509 public chargers across Canada in 2017. As well, in 2021, only 324,388 households had an EV charger, meaning the number of ports increased 2.4 times in just two years ([StatsCan 2025](#)).

2.2 A smart buildout means putting the right kinds of chargers in the right places

Today, the number of EV chargers varies significantly across regions, reflecting the unequal distribution of EVs. In July 2026, British Columbia had around 8,100 public ports in operation supporting the roughly 230,000 EVs on the road, while Saskatchewan had just 427 public ports for its roughly 5,755 EVs. All regions of Canada will need to install more charging ports, but some have further to go than others ([Transport Canada 2026](#); [NRCan n.d.](#)).

In addition, not all ports are created equal. Different chargers are needed to fulfill different functions, so planning for—and tracking—the types and locations of charging ports matters ([Bailie et al. 2026](#)).

A closer look at corridor charging illustrates this point. Dunsky estimates that Canada will need 3,900 EV charging ports along its major highways and in rural communities by 2040 for long-distance journeys to be feasible. Comparing the locations of DCFC ports to the National Highway System, there are over 5,000 DCFC ports within one

kilometre of a highway today. That number should be sufficient, but a closer look at the location of these chargers tells a different story: there are still significant gaps in the network where stretches of highway have no fast charging available. Some of these areas are very remote, but there are also gaps on major highways in Ontario, Canada's most populous province.

FIGURE 2

Gaps remain in Canada's fast charging network today

Gaps along the **National Highway System** where drivers must travel more than 65 kilometres before reaching a DCFC port.



This analysis combines data on public charging locations published by Natural Resources Canada with the National Highway System (NHS) geometry published by Transport Canada. The analysis was conducted using Claude Opus 4.8 (Anthropic) as an AI coding assistant, using Python geospatial libraries. Public charging stations were deduplicated and filtered to Canadian DC fast chargers within 1 km of the NHS; a routable network representation of the highway system was then used to identify stretches where the nearest fast charger is more than 65 km away by road. The methodology, choice of parameters, and interpretation are the author's own, and Institute staff reviewed and validated all outputs before use.

Source: Canadian Climate Institute analysis of [Electric Charging and Alternative Fuelling Stations Locator](#) (as of July 20, 2026).

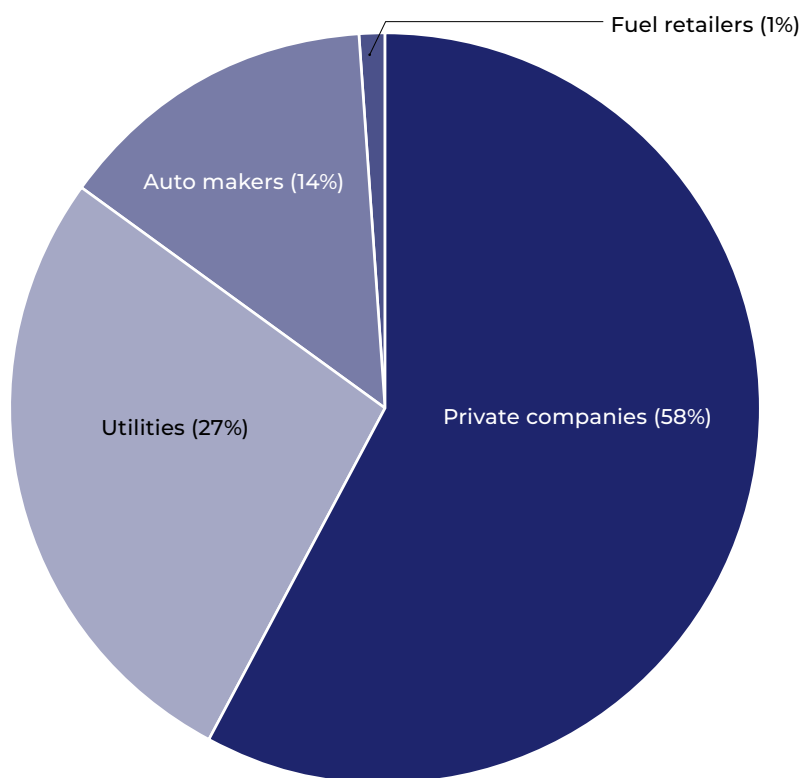
2.3 Most charging infrastructure will be installed by households and the private sector, with some government support

Currently, most private chargers are being installed in single-family homes by Canadians when they purchase EVs. Households in some provinces—such as [British Columbia](#) and [Quebec](#)—can make use of provincial government rebates to reduce the cost of purchasing and installing an L2 charger. For those using L1 charging, EVs are plugged directly into regular electrical sockets. Installation of private chargers in MURBs is often supported by government funding—for example, through the federal Zero Emission Vehicle Infrastructure Program ([ZEVIP](#)) or British Columbia's [rebate program](#) for MURBs.

To date, most of Canada's public chargers have been installed by the private sector, and the market is split across four kinds of installer: independent private charging companies (e.g., FLO, ChargePoint); utilities (e.g., Electric Circuit, BC Hydro); automakers (e.g., Tesla, Electrify Canada [VW]); and fuel retailers (e.g., Petro-Canada, Shell Recharge).²

FIGURE 3

Public charging infrastructure is being built by different entities across Canada



Source: [NRCan](#).

² Thirteen per cent of NRCan chargers are unaffiliated so have been removed from totals when calculating market split. For more information, see [Electric Autonomy Canada 2026](#).

Flo, Electric Circuit, and ChargePoint are the three largest players in terms of total network size, while Tesla dominates fast charging specifically (NRCan n.d.).

Provinces where utilities have taken a lead on providing charging infrastructure have some of the best coverage in Canada. Hydro-Québec operates over 8,000 L2 and DCFC charging ports—the largest public charging network in the province—through [Circuit électrique](#). BC Hydro currently operates over 900 L2 and DCFC ports and has committed to building 2,500 more by 2035 (CBC News 2026).

About 60 per cent of the market is Canadian-owned (including all utility-backed entities), with 39 per cent American-owned and the remaining one per cent internationally owned. American ownership is mostly Tesla and ChargePoint (96 per cent of the category), with a long tail of smaller players, including OpConnect and AmpUp (NRCan n.d.).

About 30 per cent of public chargers in Canada received federal funding or financing. As of September 2025, a total of 31,678 charging ports in operation had received federal funding or financing through ZEVIP, the Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative (EVAFIDI), or the Charging and Hydrogen Refuelling Infrastructure Initiative (CHRI) policies (Open Government 2026). About a third of these are public chargers, with the remaining two-thirds primarily intended for use by fleets, at workplaces, or in MURBs. The majority of public chargers in Canada today (about 70 per cent) did not require federal funding to be built. Provincial and municipal governments also provide funding in some cases, so some of those chargers could have benefited from incentives from other orders of government.

To date, the buildout of the charging network involves many entities installing and maintaining public and private chargers, all with different incentives and business models. Having multiple actors involved could strengthen the market by fostering competition and driving innovation but could also raise co-ordination challenges.



A Petro-Canada EV charging station in Calgary, Alberta.

TABLE 1

Examples of EV charging infrastructure policies in Canada

Policy name	Funding entity	Mechanism	Description
Zero Emission Vehicle Infrastructure Program (ZEVIP)	Natural Resources Canada	Grant	Grants cover 50 per cent of project costs for installations in public places, MURBs, workplaces and fleets. Max. \$2M per project, max. two projects per applicant. Indigenous stream (now closed) offered grants up to 75 per cent. Total \$680M committed.
Charging and Hydrogen Refuelling Infrastructure Initiative (CHRI)	Canada Infrastructure Bank	Loan	The federal government committed \$1.5 billion in loans to the private sector for large-scale charging infrastructure projects across Canada.
CleanBC Go Electric	Government of British Columbia	Rebate	Single-family homes eligible for 50 per cent (up to \$350) rebate for L2 charger purchase and installation. MURBs eligible for 75 per cent (up to \$3,000) for EV-ready plan, 50 per cent (up to \$2,000) for EV charger purchase and installation, up to \$137,000 for EV-ready building projects. Workplaces eligible for 50 per cent (up to \$2,000) for EV charger purchase and installation. Additional top-ups available for Indigenous communities and other specified regions.
Roulez vert	Government of Quebec	Rebate	Rebates for homeowners up to \$600. MURBs eligible for rebates of 50 per cent (up to \$5,000) per charging station or connector. Workplaces eligible for rebates of 50 per cent (up to \$5,000) per charging station or connector.

Much of the work of building out EV charging infrastructure is underway. Expanding the number of chargers to 19 times as many as there are today, however, remains a major endeavour. But most chargers will be in people's homes—installed by households when they purchase an EV. And the charging network is already expanding quickly. Households and businesses are installing ports because it makes economic sense, and doing so in many cases without government support. However, for some types of chargers, and in some locations, the path to completing the buildout is more challenging.

3

Barriers to buildout

In many places, the installation of chargers across all types is keeping pace with the number of EVs on the road.

For example, for the roughly two-thirds of Canadians who live in single-family homes, it is usually easy to install a home charger. L1 chargers can be plugged directly into a power outlet without requiring specialist equipment or an electrical upgrade, and L2 chargers can usually be installed for a few thousand dollars. On well-travelled highways, there is already a good business case for fast chargers, supported by existing charging policies. In most urban centres, particularly in British Columbia and Quebec, and increasingly in other provinces and territories, the number of L2 and DCFC chargers is growing, again supported by federal and provincial programs. Current policies that support EV demand—like the Electric Vehicle Affordability Program—and EV charging infrastructure—like ZEVIP, CHRI, and provincial programs—are helping to maintain momentum and supporting these technologies to overcome a chicken-and-egg dynamic.

But for certain types and locations of chargers, charger installers face more barriers. Approximately 25 per cent of needed chargers are likely to require additional policy support:³

- ▶ In some places, there may never be high enough utilization to incentivize the private sector to invest.
- ▶ Residents of MURBs risk getting left behind due to the higher costs and complexities of installing EV chargers.

³ Dunskey modelling estimates that in 2040, 4.7 million chargers will be in MURBs. We assume other private chargers don't face a barrier. Roughly 75 per cent of Canadians live in a Census Metropolitan Area. Using this as a proxy for high utilization areas, we assume 25 per cent of public chargers are in low-utilization areas. So 4700000 (MURB) + 169200 (Rural) / 19195900 (Total Ports) = 25 per cent.

EV charging will be a significant new source of power demand—but it also has the potential to be a flexible resource. In most places, grid capacity is not currently a barrier to buildout, but smart integration of EV demand becomes more important as EV uptake climbs, so EVs can become a grid resource and not a risk. Managed charging⁴ and grid planning are both needed to take advantage of the opportunity and avoid costly buildout of transmission and distribution infrastructure.

TABLE 2
Are there barriers to buildout?

	Buildout underway	Barriers remain
Private: Home	Single-family homes*	MURBs
Public: Community	Dense/high-utilization	Rural/low-utilization
Public: Corridor	High-utilization	Low-utilization

*Usually easy to install but because L2 home charging represents the largest category of chargers—and the biggest power draw on the grid—they could cause grid constraints if not appropriately planned for.

3.1 EVs and public charging infrastructure risk getting stuck in a chicken-and-egg dynamic

In a future with high EV adoption, the private sector can be expected to provide most public charging infrastructure, just as it does today with gas stations. In the areas of Canada leading on EV deployment, such as British Columbia’s Lower Mainland and southern Quebec, the business case for public charging is already strong.

But especially in the earlier phases of the transition, EVs and their charging infrastructure could get caught in a chicken-and-egg dynamic—i.e., which comes first, the EV demand or the charging infrastructure to support it (Shi et al 2021)? Drivers are hesitant to purchase an EV without a robust and accessible charging network—a demand-side failure (Pardo-Bosch et al 2021; Funke et al 2019). But low utilization of chargers reduces their profitability and makes them unviable—a supply-side failure (Shi et al 2021; Muratori et al 2019).

It’s a form of co-ordination failure, where individually rational decisions produce a collectively bad outcome. Neither side can move first without bearing all the risk, so the market stalls. This can slow the expansion of new technologies and cause

4 Managed charging controls the time and power rate of EV charging. **Passive management** means drivers set schedules e.g., to coincide with lower time-of-use electricity rates. **Active management** actively controls the charging load either at the building-level (to avoid total building electricity rates exceeding capacity limits) or at the grid-level (to balance the grid and reduce peak demand).

incumbent technologies to remain locked in despite their negative externalities (Brozynski and Leibowicz 2022).

Conversely, the presence of charging infrastructure, particularly fast-charging infrastructure (Zhang et al 2021), can reduce range anxiety and incentivize adoption of EVs (Clemente et al 2014; Greene et al 2020) so the vicious circle can turn virtuous, with sufficient support.

Because most EV owners can charge conveniently and cheaply at home or work, they turn to public charging only when longer trips demand it—unlike combustion vehicles, which depend entirely on gas stations. This structural difference means public charging providers face inherently weaker demand, putting sustained pressure on their operating margins unlike those of traditional fuel retailers (Der et al 2024).

Current electricity rate structures can also make it hard for DCFC providers to invest if they can't guarantee high utilization (ChargePoint 2022). For commercial and industrial customers, electricity bills are usually made up of a volumetric charge (c/kWh, for energy actually consumed) and a demand charge (\$/kWh, based on the customer's single highest 15-minute power draw). This charge exists because utilities have to build and maintain the electricity grid to be able to meet peak demand—and for large industrial customers with a predictable, flat power draw, the demand charge will account for a small proportion of the bill. But DCFC providers are likely to have extremely peaky demand—a DCFC could draw 50 to 350+ kW for 15 minutes and then sit idle for the rest of the month. For example, an analysis from charging operators in British Columbia found that up to 80 per cent of total electricity utility costs were due to demand charges (BCUC 2022). These charges were not designed with EV fast charging in mind and mean that only those sites with high utilization are commercially viable. As DCFC technology improves and the charging speeds (and therefore power draw) increase, this problem will only be exacerbated.

Once chargers are installed and publicly available, they also need to work reliably and be convenient to use in order to overcome the chicken-and-egg problem. If drivers arrive at a charging point and find it is temporarily unavailable, they risk being stranded. This experience—or even hearing about this experience from others—can impact users' perception of the general reliability of the charging network and attitudes towards EVs. It is often more difficult to pay at public chargers than at gas stations, with specific apps or user accounts required.

While early adopters of EVs may have stronger intrinsic motivation and may be willing to tolerate some inconvenience, the mainstream majority may not be willing to tolerate as much of a hassle. This may be a short-term transition issue—once there is sufficient competition for customers, charging providers will need to offer a reliable service to be competitive—but unreliability and inconvenience can pose a barrier to adoption in the meantime.

3.2 In some places, there may never be high enough utilization for private sector charging

In rural and remote areas—including many Indigenous communities—lower population densities and fewer cars on the road mean that EV chargers are likely to be used infrequently even in a world with high EV uptake. Persistent low utilization means that it will never become profitable for the private sector to provide public charging infrastructure in these places.

While rural communities are more likely to have mostly single-family homes—and, therefore, their residents are more likely to be able to install and use home charging at lower costs—adding these ports is critical to make EVs a practical choice for all Canadians. Gaps in the charging network impact those living and working in rural and remote areas and reduce the ability of other Canadians to visit them.

This is an issue now and could become greater in the future without policy intervention. Today, rural areas are systematically underserved. For example, federal investment is geographically concentrated in the more populous provinces—87 per cent of ZEVIP funded charging ports installed to 2023 were in Ontario, British Columbia, and Quebec, with the remaining 13 per cent in the other provinces, the Northwest Territories, and Yukon (CESD 2023).

This is an equity issue. EVs are significantly cheaper to run than ICE vehicles—recent analysis from Clean Energy Canada finds that EVs save typical drivers between \$23,000 and \$32,000 over 10 years (CEC 2026a)—and people living in remote areas are more likely to be reliant on personal vehicles for transportation. In addition, they are more likely to have to drive longer distances for work and to access services, and have less access to public transport (Affordability Action Council 2024, Krasniuk and Crizzle 2023).



Other services—such as Canada Post and electricity utilities—face similar dynamics of higher costs and lower profits in rural/remote areas. But here, regulated entities are required to offer service to all customers and effectively cross-subsidize the additional operating costs in rural/remote areas from urban customers. No such obligations exist in the EV charging sector, so charging infrastructure is either absent or dependent on government funding.

The physical characteristics of rural and remote areas can also make building a sufficient charging network more difficult. Cold weather can reduce EV range by 14 to 39 per cent (AMA 2025), which means that chargers must be available more frequently along northern corridors than in warmer parts of the country. Remote areas are also more likely to be without consistent cell phone service, without alternative charging destinations, and have fewer travellers on the road—all increasing the importance of regular, reliable charging sites.

Other policy problems—like grid preparedness—are also more likely to be an issue in rural areas. For example, the Northern Gateway Project aims to expand charging in rural Manitoba with a specific focus on enabling EV adoption in Indigenous communities. The project, which uses NRCan funding to bring free charging to communities and drivers, installed an L2 charger rather than a DCFC in the Pimicikamak Cree Nation location because no direct-current system (essential for a DCFC) was available (Vorano 2026).

BOX 2

Aerial view of Iqaluit with the Arctic Ocean harbor in the distance.

Indigenous and off-grid communities

- ▶ Off-grid communities face a distinct energy context. Canada's 280 off-grid communities consume approximately 682 million litres of diesel fuel annually. Roughly 75 per cent of these communities are Indigenous. Equity concerns are exacerbated in these communities—e.g., energy costs in Nunavut can exceed \$1.15/kWh, nearly 10 times the Canadian average of \$0.129/kWh (Lark Scientific 2025).
- ▶ Running an EV on diesel-generated electricity offsets the usual emissions benefits of an EV over an ICE vehicle, so supporting communities to transition to cleaner power sources may be necessary before transitioning to EVs (CESD 2023).
- ▶ Indigenous communities are more likely to be off-grid and more likely to be rural and remote, so they are less likely to have private sector suppliers and more likely to be reliant on government funding. A fragmented and frequently changing landscape of federal programs (ZEVIP, Clean Energy for Rural and Remote Communities Program, Indigenous Off-Diesel Initiative, Northern Responsible Energy Approach for Community Heat and Electricity) creates confusion about eligibility, requires duplicative applications, and imposes high administrative burdens on communities with limited staff capacity.

3.3 Residents of MURBs face split incentives and higher costs and complexities installing EV chargers

For most Canadians, home charging will be relatively straightforward to install, and will provide a convenient and low-cost way to recharge. But for the one-third of Canadians who live in multi-unit residential buildings (MURBs), things are likely to be more difficult. Today, for example, just 12 per cent of EV owners live in MURBs—in fact, drivers are more than 50 per cent less likely to own an EV if they live in a MURB (Zhang and Kanduth 2024).

Ensuring MURBs are EV-ready is significantly cheaper to do during construction, but developers are not consistently providing this benefit. Though some municipalities—and the province of Quebec—have introduced policies requiring new builds to be EV-ready, policies remain inconsistent across Canada. In areas where regulations aren't in place, developers are mostly not proactively installing chargers (Electric Autonomy Canada n.d.; SWITCH Energy 2025).

Retrofitting existing MURBs is more expensive and more complex—analysis from Clean Energy Canada suggests it can cost three to four times more to retrofit rather than build during construction (CEC 2026b). But these retrofits need to happen to make EVs accessible to residents. The ownership structures of condos can make it difficult for the entire building to be retrofitted simultaneously, although this is the cheapest way to retrofit. An incremental approach can use electrical capacity inefficiently and make future expansion more expensive, unfairly disadvantaging later adopters who may have to pay for electrical capacity upgrades or who may not be allowed to install a charger (Dunsky n.d.). Landlords and renters experience split incentives between who bears the costs of the upgrades and who reaps the benefits of EV charging.



Many of the existing policies aimed at MURBs offer funding for the installation of chargers rather than the electrical upgrades required to be EV-ready. The electrical upgrades are often the most expensive aspect of the upgrade and, additionally, it may not be necessary to install chargers in all parking spots at the same time (Dunsky n.d.).

NRCan numbers assume that policies will require all new MURBs to be EV-ready by 2030 and that 60 per cent of existing MURBs will be retrofitted to provide an additional 3.2 million charging ports by 2035 (Dunsky 2024). Current policies and funding do not put Canada on that trajectory (Electric Autonomy Canada n.d.). If these home charging spaces aren't available, significantly more community charging will be needed, and EVs will remain less accessible and more expensive to MURB residents.

3.4 EV charging could be an asset for the grid, if it's built to enable flexible electricity demand

The electrification of passenger transportation means a significant shift in energy demand from fossil fuels (gasoline and diesel) to electricity. If EV charging is not managed, much of this additional demand will likely occur during daily system peaks—around 6 to 9 p.m. as drivers return home and plug in their EVs. This is most acutely an issue for L2 home chargers, as they are projected to be the majority of future chargers and have a higher power draw than L1 chargers. Dunsky figures, for example, estimate L2 home chargers to be 84 per cent of the total charging network in 2040. In this scenario, extensive and costly grid upgrades and additional electricity generation would be required to meet this increased peak demand (Sarda et al 2024).

Unmanaged L2 charging can affect both the bulk grid by adding to the system peak and, more acutely, the local distribution grid due to its comparatively high and irregular power demands (Tayri and Ma 2025). Distribution grids have been described as “the primary bottleneck for EV integration” (Li and Jenn 2024). High levels of unmanaged charging has the potential to overload transformers, cause frequency distortions, create voltage imbalances, lead to power factor issues, and cause grid congestion (Tayri and Ma 2025). These impacts will be felt most in residential rather than commercial areas, owing to the preponderance of home charging (Li and Jenn 2024). Flexibility incentives for the bulk grid can inadvertently cause congestion at the distribution level. For example, if EVs respond to lower tariff prices during bulk-grid off-peak hours, or lower electricity prices due to high renewables generation, this could increase congestion in the distribution grid due to synchronized EV charging (Gonzalez Venegas et al 2021).

But EVs have a key advantage over other sources of electricity demand growth—because there is a separation between electrical draw and energy use, EVs are a highly flexible load. Canadians drive an average of 50 kilometres a day (NRCan

2024), significantly less than the typical EV range of 400 kilometres or more, and passenger vehicles are parked up to 97 per cent of the time (Thunder Said Energy 2022). An L2 charger can recharge this average distance in about two hours, so if charging is managed, it can be shifted away from peak demand times (Mastoi et al 2022). Dunskey estimates that if half of passenger EVs participate in some form of load-management program (managed charging is a form of load management), this could reduce peak residential EV demand by up to 48 per cent (Dunskey 2024). Because grids are built to meet peak demand, this shift reduces the need for additional generation and grid infrastructure buildout (Larkin 2026).

Emergent technologies like vehicle-to-grid (V2G)—in which power flows bidirectionally between the grid and the EV battery—can support load balancing and demand response, increasing grid stability and resilience (Sarda et al 2024). But even unidirectional managed charging can be a net benefit to the grid by offsetting costs and spreading fixed system costs over a larger user base (Dunskey 2024).

Even with high enrollment in managed charging, EVs will still add demand to the grid, and utilities need to plan for this. Utilities are experienced at load forecasting and well equipped to do this planning—provided that there is sufficient policy certainty to assess likely demand growth. Dunskey reports that utilities were supportive of the EVAS because it provided policy certainty and allowed them to plan and invest (Dunskey 2024). The removal of the EVAS and related weakening of the British Columbia and Quebec provincial targets may make it harder for utilities to forecast and invest appropriately.

EVs have the potential to be an asset to the grid—but without strong uptake of managed charging and clear planning, they will become a problem.



An EV driver charges their vehicle.

4

Policy implications

For each of the barriers described in Section 3, there are multiple potential solutions.

Many of these options are complementary, and a portfolio of policies may be required to deliver a reliable, equitable charging network. This section considers how Canadian policy could address those barriers, drawing on policy literature, interviews with experts, and international examples.

4.1 For all policy interventions, impact depends on certainty and predictability

We heard one clear message both in the literature and in expert interviews: policy certainty and clear direction are vital to support the growth of the EV charging market.

Uncertainty exacerbates all of the individual policy problems—it keeps Canada locked in the chicken-and-egg dynamic for longer, lowers the forecast utilization in rural areas, decreases likelihood of developers predicting demand for charging in MURBs, and disincentivizes utilities to forecast load growth from EVs. Overall, it reduces the ability of all market actors to plan effectively.

This certainty was previously provided by the EVAS, which was repealed earlier this year. The federal government has set an equivalent vehicle fleet emissions goal of EVs accounting for 75 per cent of sales by 2035 and 90 per cent sales by 2040—and pledged to strengthen greenhouse gas emissions standards to meet this target. Modelling indicates a standard between 40 and 62 grams of emissions per mile would have a good chance of reaching this target (Thorn 2026) and that meeting it could attract more than \$20 billion investment in Canadian EV charging infrastructure between now and 2035 (Sharabura 2026).

4.2 Policy incentives for both EVs and their charging infrastructure are necessary to escape the chicken-and-egg dynamic

EVs will always depend on the presence of EV chargers, and vice versa. Long-term and durable policy signals that drive demand for EVs—such as setting clear sales targets and stringent tailpipe emissions standards—can provide the private sector with the confidence to continue investing in EV charging. Policy that supports the availability and reliability of EV charging over the long term—such as requiring EV-readiness in building codes—can in turn spur EV sales.

Financial support may be necessary, especially early in the transition. The literature indicates that subsidies can enable self-sustaining growth in the early years of commercializing new technologies ([Salmenkaita and Salo 2010](#)). Subsidies to both EVs and their charging infrastructure can be effective in addressing the co-ordination failure between charging providers and EV drivers ([Shi et al 2021](#); [Brozynski and Leibowicz 2022](#)). In Canada, the federal Zero Emissions Vehicle Infrastructure Program, the Charging and Hydrogen Refuelling Infrastructure initiative, and the Electric Vehicle Affordability programs are all existing mechanisms capable of delivering this financial support.

DCFC charging providers use electricity differently from other commercial or industrial customers with predictable loads. The current rate structure in most utilities means that public chargers are only likely to be profitable in locations with high utilization. This is a challenge in the early years of the transition given the lower number of EVs on the road and can inhibit the private sector buildout of public charging infrastructure. Creating specific electricity rates for EV charging providers that reduce or remove the demand charge component could reduce this barrier.

EV drivers need to know that the charging infrastructure available works reliably and is easy to use. While in the later years of the transition sufficient market competition may ensure high levels of reliability and ease, in the early years, unreliable or confusing chargers can slow EV demand. Some jurisdictions have taken a more proactive policy approach—such as regulating payment methods or the percentage of time chargers are available to use—to address these issues. Conversely, additional regulation on charging providers early in the transition could act to suppress the market.

International and Canadian examples

- ▶ In Norway, the global EV leader, the government provided significant subsidies for both EVs and charging infrastructure and provided a long term-signal of policy intent. These subsidies became more targeted as the market transitioned—for instance, in 2016, public charging subsidies were broadly available (EV sales at 29 per cent), but by 2022, when the sales share for EVs reached 89 percent, subsidies were limited to areas without a commercial basis ([Ministry of Transport 2023](#); [StatBase n.d.](#)).
- ▶ In Ontario, the Ontario Energy Board has set a flat discount of 83 per cent of transmission demand charges through a new Electric Vehicle Charging rate ([HydroOne 2026](#)).
- ▶ In the United States, access to government funding through the National Electric Vehicle Infrastructure Program is contingent on maintaining 97 per cent uptime performance ([Caltrans n.d.](#)).
- ▶ In the United Kingdom, new public charging ports must support contactless payment via a debit or credit card ([Office for Zero Emissions Vehicles 2024](#)).

4.3 Ongoing government support may be the only way to make charging accessible to rural and remote communities given long-term low-utilization projections

Canada is a vast country with a population concentrated in urban centres close to its southern border. This means that even in a future where all cars on the road are EVs, public charging infrastructure in some places would be rarely used—and, therefore, be unlikely to attract private sector investment—so an ongoing policy response may be required in these areas. The policy levers available may differ regionally—for example, where Crown-corporation utilities already run large charging networks, it may be reasonable for provincial governments to mandate them to provide charging in rural and remote areas. In other regions where charging is currently provided by the private sector, direct federal or provincial funding—for example, through a dedicated funding stream in the ZEVIP—may be more viable.

The characteristics of rural and remote areas will impact charging requirements. EVs have lower driving ranges in cold climates, so chargers may need to be located closer together than in warmer regions. Rural and remote areas are also more likely to have lower grid capacity (or even not be connected to the grid), so assessing local distribution grid readiness and potentially upgrading it—or installing a charger with a lower power draw—may be necessary. Specific consideration should be given to the EV charging requirements of Indigenous communities, many of which are rural or remote.

In designing appropriate policy responses, governments will want to balance equity considerations with prioritizing infrastructure that will actually be used. This could mean dedicated funding for rural and remote areas for which motivated communities can apply (rather than mandating the installation of a charger in a community with no EVs) or coupling support for charging infrastructure with education, skills training, and support for EVs.

International and Canadian examples

- ▶ In **Norway**, the government set a target of installing a DCFC every 50 kilometres on major highways including in rural areas ([Yatsura 2025](#)).
- ▶ In **British Columbia**, the Go Electric Public Charger Program prioritizes gaps in DCFC chargers in rural, northern and Indigenous communities, offering grant funding of up to 90 per cent for Indigenous communities and 75 per cent for other applicants ([Plug In BC 2026](#)).

4.4 Installation of EV charging in MURBs is stalling and requires different policy responses

It is much cheaper to ensure that MURBs are EV-ready during their construction rather than a later retrofit, but today, regulation is largely absent or left to municipalities to fill the gaps ([Electric Autonomy Canada n.d.](#)). A consistent regulatory framework would give developers clarity while avoiding later costs and making EVs more accessible to more Canadians ([CEC 2026b](#)). For example, this could be achieved through amendments to federal or provincial building or electrical codes.

Nonetheless, retrofits will be necessary to make charging available in existing MURBs. The costs and complexities of these retrofits, coupled with split incentives on who bears the costs and the benefits, means that government financial support will likely be needed ([Dunsky n.d.](#)). The most cost-effective way to offer this support is by making an entire building EV-ready, while individual chargers can be added as residents need them. This support could be provided through a specific funding stream within the ZEVIP or by expanding CHRI criteria to make MURB retrofits eligible, or through provincial programming. In some existing buildings, retrofits may be technically infeasible or prohibitively expensive, in which case it could be more appropriate to prioritize L2/DCFC community charging in nearby neighbourhoods.

For both new and existing buildings, assessing the electrical capacity requirements and ensuring that charging is managed will reduce total electricity demand, reduce the need for capacity upgrades, and lower costs ([Pembina n.d.](#)).

International and Canadian examples

- ▶ In **Quebec**, all new MURBs must be equipped with infrastructure to allow for L2 charging in all parking spaces ([Gouvernement du Québec. n.d. a](#)).
- ▶ In **British Columbia**, the government offers grant funding for EV-ready plans, EV-ready infrastructure, and chargers ([BC Hydro. n.d. a](#)).
- ▶ In the **European Union**, “right to plug” legislation allows tenants and condo owners the right to install a charger, often at their own cost, where feasible and safe ([Rajon Bernard 2024](#)).

4.5 Managed charging makes EVs an asset to the grid and keeps electricity costs low

Managed charging makes EV demand flexible. Charging can be managed at both the building level—through an EV energy management system (EVEMS), which controls how many chargers within a building are active at a given time, ensuring the building remains within its capacity limits and potentially avoiding the need to upgrade those limits ([McEwen 2021](#))—and at the grid level, with utilities moving charging away from local or system peaks.

Utilities will need to consider how to best maximize managed charging. Early pilot programs show promise; for example, Hydro-Québec’s [Hilo](#) program automated smart devices (including L2 chargers) and saved a total of 2,330 megawatts (MW) in 2024-2025, rewarding participating households with an average of \$205. Designing programs so that demand response occurs automatically rather than requiring customers to actively participate increases effectiveness ([Bailey et al 2024](#)). As EV adoption increases, governments and electricity regulators will need to assess whether pricing incentives and opt-in policies are sufficient or whether a more stringent regulatory approach could be required ([Burlig et al 2026](#)).

Designing managed charging policies that consider impacts at both the bulk and distribution-grid levels could avoid unintended consequences; for example, a time-of-use rate, which incentivizes all customers to begin charging when the price lowers, may create a second peak at the distribution grid, while a time-of-use rate that randomizes charging start times may avoid this ([Pohl et al 2025](#)).

Bidirectional charging—i.e., vehicle-to-grid—can increase the ability of EVs to function as grid assets ([Yu et al 2026](#)). Technology is rapidly developing in this space, and efforts to support interoperability between products, increase standardization of communication protocols, and align Canadian and international standards could support its rollout ([Taylor et al 2025](#)).

In addition to managing capacity through managed charging, electricity demand could be lowered through the provision of Level 1 charging. While this is not

suitable for all drivers, a study has shown that it is entirely sufficient for 29 per cent of drivers, with another 53 per cent requiring only a few additional DCFC charges per year (Fried et al 2024).

Utilities are capable of preparing for increased demand, provided they know to expect it. So clarity on future EV trajectory would enable utilities to plan for it and make it a grid asset that can help keep costs low and thus incentivize increased electrification.

International and Canadian examples

- ▶ In the **United States**, managed charging can reduce distribution grid upgrades by 30 per cent (Wood et al 2024).
- ▶ In the **United Kingdom**, all new home and workplace L2 chargers must be smart and set to charge off-peak by default, though users can override and set alternate timings. Charging is randomized +/- 10 minutes to reduce distribution grid impacts (The Electric Vehicles (Smart Charge Points) Regulations 2021).
- ▶ In **British Columbia**, FUTURi Power smart panels manage electrical devices across the home to avoid costly service upgrades (BC Hydro 2026).

After installing a home EV charger, a technician demonstrates its use.

5

Policy recommendations

Building out the EV charging network is an ambitious but achievable goal. A functioning charging network is essential for Canadian households to make the switch to EVs.

EVs support Canada's efforts to meet its policy objectives—on electrification and on net zero—and are a healthier and more affordable technology for all Canadians. Our analysis shows that in many places in Canada, the EV charging market is functioning well, but governments should act where market barriers and policy failures risk impeding progress.

A forthcoming federal charging strategy is an opportunity to address critical barriers. Done right, a charging strategy can mobilize private investment into Canada's charging network, unlocking a growing market for EVs. At the same time, not all of the recommendations set out below can be achieved through a charging strategy—the federal government should consider EVs and their charging infrastructure holistically to work with the provinces and territories for policies that fall under their jurisdiction.

Overall, we propose an approach that tackles both the supply and demand sides of the chicken-and-egg problem, combining broad, economy-wide regulatory approaches, specific changes to regulated electricity markets, and targeted funding support. This combination can deliver both benefits for consumers and emissions reductions while limiting fiscal costs for taxpayers. Below, we make a series of recommendations, targeted at both federal and provincial/territorial governments.

RECOMMENDATIONS

- 1. The federal government should set and maintain sufficiently stringent tailpipe standards to put Canada on track to reach its goal of 75 per cent EV sales by 2035 and 90 per cent EV sales by 2040.**

The federal government has already committed to meeting these goals by introducing stronger greenhouse gas emissions standards—these should be implemented without delay. Long-term policy certainty on the transition to EVs—combined with continued incentives for EVs and funding for charging infrastructure in the early stages of the transition—can help escape the chicken-and-egg dynamic and enable the private sector and households to purchase charging infrastructure. Failure to do so would slow the EV charging buildout, require more chargers to be government funded, or both.

- 2. The federal government should provide dedicated support for charging infrastructure in rural and remote communities and in MURBs.**

The private sector is unlikely to build chargers in rural and remote areas due to persistent low utilization or in MURBs due to higher costs and complexity. This is an equity issue—without targeted support EVs may not be a viable choice for the 30 per cent of Canadians who live in MURBs or those who live or work in rural and remote areas. Funding could be provided by recapitalizing the ZEVIP and creating dedicated carve-outs for chargers in these locations. MURB retrofits could be suitable for financing, as they face high upfront costs but also high utilization once built. Expanding the eligibility criteria of the CHRI could give MURB owners access to finance.

- 3. Provincial and territorial governments should regulate all new MURBs to be EV-ready.**

It's up to four times cheaper to make MURBs EV ready during initial construction than a later retrofit—making it the most cost-effective and non-disruptive way to get EV charging into these buildings. EV chargers can then be purchased and installed by residents when they purchase an EV. Amending provincial/territorial building codes or electricity codes could deliver this outcome.

- 4. Provincial and territorial governments should direct regulators to enable rate design that makes demand charges economically viable at all stages of the transition.**

Provincial governments can provide regulators with direction on policy priorities. Demand charges can make up the majority of EV charging providers' power bills if utilization is low. This can make expanding public charging uneconomic early in the transition to EVs. Reducing demand charges while balancing the need for utilities to be able to recoup their costs, would enable the private sector to provide

public charging at earlier stages of market maturity. This could be done by linking demand charges to utilization so that charges increase in line with profitability or by setting a specific rate for EV providers.

5. Provincial and territorial governments should direct regulators to maximize managed charging for Level 2 chargers.

Level 2 chargers represent close to 90 per cent of chargers projected to be required by 2040, the majority of which will be in people's homes. If this charging is not managed, it will increase peak demand and cost utilities and ratepayers. But because there is a separation between energy draw and use, this demand is flexible. If charging is managed, it can support EVs to function as an asset to the grid. This can be accomplished through smart time-of-use rates, demand management incentives, or by regulating off-peak charging as default, combined with smart EVEMs or smart panels.

Acknowledgments

The Canadian Climate Institute gratefully acknowledges the time and expertise of the stakeholders we interviewed for this report. This included experts from industry, industry associations, academia, think tanks, consultancies, NGOs, and municipalities.

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Recommended Citation

Larkin, Zoe. 2026. Leading the Charge: How Canadian governments and businesses can build a reliable, equitable, and smart EV charging network. Canadian Climate Institute.

<https://climateinstitute.ca/wp-content/uploads/2026/09/Leading-the-Charge-EV-charging-network.pdf>.

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