

EVs & Home Charging – Things to Consider

Sept 10, 2023 – A resource booklet prepared by [VEVA Government Relations Committeeⁱ](#)

Starting out – before purchasing an EV, think about what you want the vehicle to do:

- a. Commuting, local shopping, family trips around town
- b. Work related uses, longer trips
- c. Anything else?

Most people living in **urban and suburban areas** only drive 35-40 kilometres/day – this includes shopping, commuting, “driving the kids to sports,” etc. By comparison, distances can be much greater in **rural and remote communities**. Take a minute to track how much driving you **actually do now**. This will affect the battery size and range for your EV and how much charging you will need to do. Bear in mind that the more you drive, the more **cost benefits** you will see from owning an EV. This is **particularly important** in rural and remote settings. See [Emotive BCⁱⁱ](#) for a full list of available vehicles.

1. [Individual Homes and Residences](#)

Overnight charging at home

In many cases, overnight charging on a low-speed charger (known as a “Level 1 Charger”) may be adequate. Using the car manufacturer’s dedicated cord & plug and a regular 120 V dedicated outdoor or garage circuit will result in approximately 5-7 km of new range per hour of charging, so 8-10 hours of overnight charging would add 40-70 km of range to your battery.

Faster charging can be achieved with a more powerful circuit

Have a certified electrician check your electrical panel. If it has sufficient capacity, a 220-240 V, 40-50 amp circuit for a dedicated EV charger can be installed. This is known as a “Level 2 Charger” and can support 30-48 km of range per hour of charging, so 8-10 hours of overnight charging would add 240-480 km of range to your battery. EVs generally have onboard electronics that will shut off charging when it reaches the desired “state of charge” (normally set at 80%).

How much will it cost to install an EV charger?

Costs range from:

- a. \$0.00 (if you already have a 120V outdoor receptacle in your home or garage wired on its own circuit for 15amps, and if Level 1 overnight charging is sufficient for your needs). Note: This does not include the cost of the car manufacturer’s dedicated cord and plug if not supplied with the vehicle.
- b. \$1000 to \$2,500 to install the required wiring if you already have sufficient panel capacity to support a Level 2 charger. Options include using the car manufacturer’s dedicated cord and plug with a stove or electric dryer receptacle. Alternatively, an independent Level 2 charger can be installed, and does not require the manufacturer’s cord and plug.
- c. If you need to upgrade your home service in order to support a Level 2 charger, this will add further costs. Options include a new service or load sharing devices.

For Level 2, you should [consultⁱⁱⁱ](#) a licensed electrician to assess the electrical capacity of your home service, and the technical requirements and costs for installing appropriate circuitry.

Charging for hot and cold weather driving

EVs use their battery to heat and cool the cabin. This can reduce range in summer and winter by 10-15% or more. Keep your EV plugged in when you can, until you actually want to drive it.

How much does it cost to charge at home?

Charging at residential BC Hydro and Fortis BC rates is roughly 1/7th the cost of buying gasoline. Public charging (explained below) is costlier than home charging, but you are paying for the convenience of publicly available Level 2 charging.

Solar energy to support home EV charging

There is growing interest in BC in on- and off-grid use of solar photovoltaic cells to generate electricity that can be stored in batteries at home or integrated with the electrical grid. BC Hydro has helpful [information](#)^{iv} on solar power generation.

2. If “Home” is a Condominium – New Condos Have “EV-ready” Parking Stalls Whereas Older (“Legacy”) Condos Likely Won’t

a. EV Charging in New Condos (Multiple Unit Residential Buildings)

[BC Municipalities](#)^v – *Electric Autonomy* Listing of Bylaws

[City of Vancouver](#)^{vi} Bylaw 10908 – Section 10.2.3

*This Vancouver Bylaw was amended on **July 1, 2014**, to include provisions for Level 2 EV charging infrastructure at all residential and commercial buildings. On **March 14, 2018**, the bylaw was updated to raise the percentage of EV-ready parking stalls in MURBs from 20 per cent to 100 per cent. The current bylaw also requires one EV-ready stall for single-family residences with garages and 10 per cent of parking stalls to be EV-ready for commercial buildings.*

b. EV Charging in “Legacy” (pre-2014) Condos – Retrofit Rebates & Revised Strata Property Act

BC historically has provided a variety of rebates to assist with installing Level 2 chargers in older condos. This bears watching to ascertain what rebates are currently available. See: [EV-Ready](#)^{vii}

c. Obtaining Strata Owners Support – “Right to Charge”

On May 11, 2023 the BC government revised the [Strata Property Act](#)^{viii} to streamline the consultation process for obtaining Strata corporation and owners approval and support. Strata owners can now approve some EV charging decisions by majority vote instead of by a ¾ vote. Other changes will be brought into force at a later date by regulation. These regulations will specify criteria and requirements relating to electrical planning reports and requests for and/or approval of installation of EV charging. **BC Hydro** has useful [information](#)^{ix} on how to work with a Strata Council to request EV charging.

d. Low Carbon Fuel Standard (LCFS) Credits for EV Charging – A Valuable Asset for Condos

The BC Government recently (May 2022) changed its legislation to allow condominiums to collect [LCFS Credits](#)^x for EV charging for residential buildings with [5 or more dwelling units](#).^{xi}

3. Public EV Charging – At Work, In Town, On the Road

Many businesses and services now offer public Level 2 charging for a fee through an EV charging service provider. This includes malls, grocery stores, parking facilities, and more, as well as charging at work. Remember, there is an EV charging [etiquette](#)^{xii} for using public chargers.

Public DCFC (Direct Current Fast Charging)

Beyond public Level 2 charging, a number of EV charging service providers now offer “fast charging”. Depending on the capabilities of the vehicle and the charging facilities, most EVs can be charged to 80% in 40 minutes.

PlugShare

To find public DCFC and Level 2 chargers, consult one of the available apps, such as [PlugShare^{xiii}](#). This is a useful tool for locating public charging and ensuring the chargers are working, and is extremely valuable for managing charging when traveling.

Safety and Accessibility



BC Hydro has developed design [guidelines^{xiv}](#) for public safety and accessibility of EV charging stations. Work in this area is ongoing. Remember, EV charging is self-serve, and drivers are generally on their own to plug-in and service their own vehicles. You can use PlugShare to get a sense of how safe and accessible a charging station is.

There remains an acute need to employ universal design principles to design, construct and operate fully accessible EV charging facilities so that all British Columbians can safely and equitably operate electric vehicles. All of us at one time in our lives will require enhanced accessibility for EV charging.

Additional Sources of Information

EV [Advisor Service^{xv}](#) for Strata and Workplaces – Plug In BC

VEVA [Business Members^{xvi}](#)

New Driver Tips from [Emotive^{xvii}](#) – Know Your Plugs and Monitor Ongoing Changes

J1772 only. No fast charging.



Most plug-in hybrids and some older fully-electrics only have J1772. You can use your basic charging

cable, or use a level 2 charging station; however, you cannot fast charge or even connect to a fast charger for trickle charging.

You cannot use Tesla chargers with this connection.

Level 2 chargers are often found at malls, community centres, parkades and homes.



Start your charge.

Some charging stations can be activated with a credit card. Many require a network account, and some are even free.

CCS or CHAdeMO. Fast.



Fully electric vehicles (aside from Tesla) have either CCS or CHAdeMO ports. You can connect to public charging stations, including fast chargers.

CCS includes the J1772 connection, and CHAdeMO vehicles have a separate J1772 port, so you can use everything except for Tesla chargers. Remember, only Tesla vehicles can use Tesla Superchargers and Destination chargers.



Tesla. Superchargers and Destination Chargers.



Tesla vehicles use one plug for all their charging. They can use high speed Tesla Superchargers, slower Wall Connectors for Destination charging, plus Mobile Connectors with a variety of common wall plug adapters. All of those examples are Tesla only.

Tesla vehicles also come with J1772 adapters so they can use public level 2 stations.

Tesla drivers can also purchase CHAdeMO adapters to use at public fast charging stations.



We hope you enjoy your experiences with your new (or current) EV!

We invite you to [join VEVA](#)^{xviii} and share your experiences with other EV drivers across BC. We hold online meetups with members twice a week on Tuesdays and Saturdays and we also host in-person meet-ups in parks and local venues on Saturdays. We regularly feature guest speakers, YouTube videos, and more.

QR Code

This document has **live links** when accessed via the QR code. The notes below have URLs that can be photocopied and shared.

ⁱ <https://veva.ca/EV-POLICY>

ⁱⁱ <https://www.emotivebc.ca>

ⁱⁱⁱ <https://electricvehicles.bchydro.com/charge/questions-to-ask-EV-electrician>

^{iv} <https://www.bchydro.com/powersmart/residential/building-and-renovating/switch-to-solar-energy.html>

^v <https://electricautonomy.ca/2022/05/16/ev-charging-canada-murbs/>

^{vi} <https://bylaws.vancouver.ca/consolidated/10908.pdf>

^{vii} <https://veva.ca/EV-Ready>

^{viii} <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/operating-a-strata/the-environment/electric-vehicle-charging>

^{ix} <https://electricvehicles.bchydro.com/charge/request-EV-charging-in-apartment-strata>

^x <https://veva.ca/BC-LCFS>

^{xi} <https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/renewable-low-carbon-fuels/rlcf-020.pdf>

^{xii} <https://www.bchydro.com/news/conservation/2019/ev-charging-etiquette.html>

^{xiii} <https://www.plugshare.com>

^{xiv} <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/power-smart/electric-vehicles/BCHydro-EV-Fast-Charging-Guidelines.pdf>

^{xv} <https://pluginbc.ca/ev-advisor-service/>

^{xvi} <https://veva.ca/page-1075418>

^{xvii} <https://www.emotivebc.ca/wp-content/uploads/2020/11/Emotive-New-Driver-Tips.pdf>

^{xviii} <https://veva.ca/join-veva>

