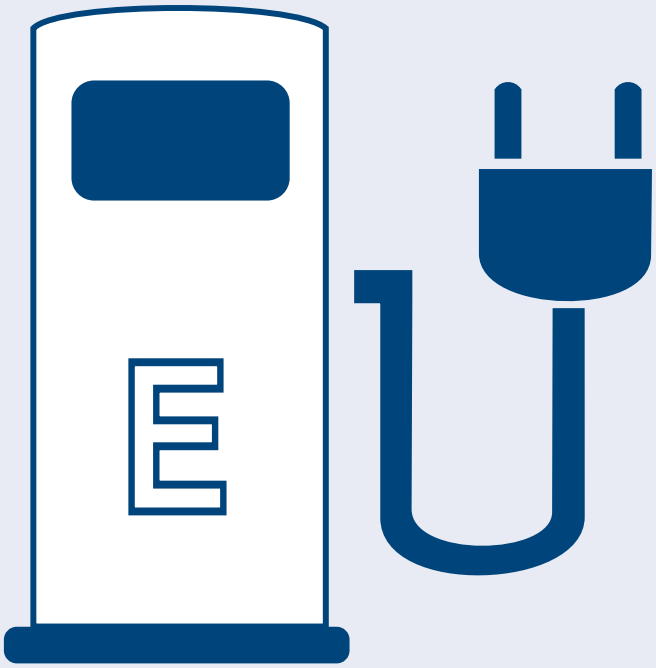
# CONDOS, ELECTRIC VEHICLES & CHARGING STATIONS



As recently as 10 or 15 years ago, discussions about electric vehicles were restricted to car enthusiasts looking for the automotive world's newest innovation. However, the history of electric vehicles dates as far back as the mid-1800s. According to the US Department of Energy, American inventor William Morris developed the first successful and commercially available electric vehicle in the USA in the 1890s. Electric cars sold commercially from 1900 to 1912 accounted for one-third of all vehicles on the road in the USA. The success of Henry Ford's Model T and the discovery of plentiful and cheap oil led to the electric vehicle's decline for several decades.

As the 1970's energy crisis led to increased fuel costs, interest in electric vehicles increased. In 2000, Toyota launched the Prius, considered by many to be the first modern powered electric car, even though it was a hybrid electric vehicle. With the new millennium came the general acceptance that climate change caused by Greenhouse Gases (GHG) needed action on a global scale. According to Environment Canada, the oil, gas and transportation sectors account for the second-largest emission of GHGs. Within that group, freight, heavy-duty trucks, light trucks and passenger cars are the largest emitters of GHGs.

In 2019 Canada's Federal Government developed a point of sale rebate program for certain Zero-Emission Vehicles (ZEVs) and plug-in hybrid electric vehicles (PHEV). Quebec and British Columbia have provincial incentives in addition to the federal incentives. At this time, Manitoba has no provincial incentive program for the purchase of ZEVs. Manitoba Hydro has a program that condominium unit owners can apply to for financing the purchase and installation of EV charging stations.

For this article, I will assume the generation of electricity in Manitoba is a clean source of energy (note that there is some debate about this, taking into account the flooding of forests, subsequent release of mercury into the water, displacement of First Nations communities, etc.) Assumptions vary widely based upon the technology used for electricity generation. For example, in jurisdictions with coal-fired electricity generation, any environmental advantage of owning a ZEV is significantly decreased.

Projected sales of EV's while currently low, are increasing. The International Energy Agency stated in 2010, there were 17,000 ZEVs throughout the world. By 2019 that had risen to 7.2 million, a year-to-year increase of 40%. Every major automobile manufacturer has begun the transition to ZEVs. According to Bloomberg New Energy Finance (BNEF), ZEVs will be 10% of global passenger vehicle sales by 2025, rising to 28% by 2030 and exceed half of all vehicle sales by 2040. In Canada, Quebec's government states that by 2035, all new cars sold in the province must be ZEV. British Columbia is beginning to plan a 2040 ban on gasoline-powered vehicles.

EV's are coming, meaning that Condominium Corporations (CC) might consider beginning a dialogue with unit owners considering the purchase of a ZEV or PHEV. While infrastructure to support EV's is in its infancy in Canada, in 2019, the Federal Government announced a five-year program to develop a national network of *level 2 or higher charging stations* (see inset) called the Zero Emission Vehicle Infrastructure Program. While that program is progressing, CCs might consider their infrastructure needs to accommodate ZEVs.

It appears CC's wishing to consider an on-site electric vehicle (EV) charging will also require a review of their bylaws and rules. Additionally, an electrical contractor will need to determine if there is sufficient load capacity for EV level 1 or 2 charging or even level 3. One Winnipeg Condo Corporation I communicated with decided, after an inspection by an electrical contractor, to install multiple electrical sub-panels to facilitate future level 2 charging sites. Costs can vary greatly depending on the current electrical service of the CC. Generally, the older the building, the greater the cost.

*If a unit owner purchased a ZEV or PHEV, they would be responsible for the cost of installing a charger or electrical outlet by a qualified electrician.*

After deciding to install the additional service and provide EV charging stations, this CC had to amend their bylaws. The amendment contained exact wording to ensure a clear understanding of the bylaws and rules about ZEVs.

Another CC decided that installing sub-panels would be paid for by the CC as a common element improvement. If a unit owner purchased a ZEV or PHEV, they would be responsible for the cost of installing a charger or electrical outlet by a qualified electrician. Based on an electrical use assessment for a typical EV, the unit owner agreed to pay the CC $30 monthly to cover the charging cost. An alternative to a common element fee could be installing a meter; then the unit owner pays to charge their ZEV directly to Manitoba Hydro. This CC amended their bylaws at the next annual general meeting and drew up a change order for the unit owner.

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Points to consider before a condominium unit owner purchases a PHEV or ZEV.

## UNIT OWNER

- Contact your CC Board or property manager before purchasing a PHEV or ZEV. Condo boards have the authority to deny charging or installation of level 2 chargers; don't assume anything.
- Consider costs beyond the purchase of the vehicle for charging stations and professional electrical installation.
- Contact Manitoba Hydro to determine if your CC is ready for charging and that you are eligible for financing.
- Consider legal expenses that might be incurred for your lawyer to review any change orders relative to the installation and use of a charge station for your ZEV or PHEV.

## CONDO BOARDS

- Consider gauging opinions from unit owners about future charging needs and the options available.
- Is your condominium electrical service able to support level 1 or 2 charging of ZEVs and PHEVs? If the answer is not clear, consider an assessment of your electrical service by a qualified electrical contractor.
- Do your bylaws and rules address future demand for PHEVs and ZEVs?
- Charging EVs in the unit owner's designated parking spots might be the optimum answer, but a few shared chargers installed in a central location for use by all owners might be more realistic in the short term.
- Perhaps a multi-year plan for staged installment of EV chargers is a realistic option.
- CCI produced a lunch and learn presentation on Condominium *Corporation Financing: An Alternative to Special Assessment*[1], which is available for review if a board wants to consider a financing plan for EV charging stations.

## ADDITIONAL INFORMATION

CAA has a great deal of information about ZEV's on their website at www.caa.ca/electric-vehicles/charging-stations

Manitoba Hydro also has information about charging stations financing and electric vehicles on this website at http://www.hydro.mb.ca/your_home/electric_vehicles

Companies such as ChargeHub and Flo have excellent websites that unit owners and condo boards can review.
https://chargehub.com/en/index.html#indexCarousel
https://www.flo.com/en-CA/

Many local electrical contractors have experience with electric charging stations and can offer expertise in planning and implementation. Be sure to contract with a Manitoba Hydro registered program supplier. For further information about Manitoba Hydro suppliers, please refer to Hydro's website, https://www.hydro.mb.ca/your_home/suppliers_contractors_retailers/

Transport Canada has an informative website for ZEVs and point of sale rebates at https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles

Bloomberg (BNEF) has an extensive analysis of ZEVs that can be accessed at https://about.bnef.com/electric-vehicle-outlook/


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[1] *Condominium Corporation Financing: An Alternative to Special Assessment (video)* *https://youtu.be/PgrIziMHgik*

**THERE ARE THREE DISTINCT CHARGING LEVELS FOR ELECTRIC VEHICLES, WITH LEVEL 1 BEING THE SLOWEST AND LEVEL 3 BEING THE FASTEST.**

**LEVEL 1 -** uses a 110/120-volt outlet, which is a regular three-prong household socket. Charging a BEV with a level 1 charger could take upwards of 20 hours to achieve about 200 klms of driving.

**LEVEL 2 -** uses a 220 to 240-volt outlet (similar to the outlet for an electric stove/oven) designed for the sole purpose of EV charging. According to currently available sources, Level 2 charging stations can charge from 3 to 7 seven times faster than Level 1 chargers. Charging rates may differ depending on the design of the vehicle's ability to accept a charge. ChargeHub lists over 30 Level 2 charge stations in Winnipeg. Some of the locations can charge multiple vehicles at a time.

**LEVEL 3 -** often called Fast Chargers, are typically 400 volts and will charge your car's battery from empty up to 80% in 30-45 minutes. These chargers are located near major highways and travel routes throughout Canada. ChargeHub reports 8 Level 3 charging stations in or near Winnipeg.