

# EVing *the* Escarpme





A Tesla electric vehicle charging at a free municipal charging station at Southfields Community Centre in Caledon.

Using an electric vehicle (EV) saves money and reduces fossil fuel use, which helps with climate change, something many of us want to do. Yet for people driving on or near the Niagara Escarpment, EVs can cause challenges. Finding the locations of charging stations is a main concern, but there are other aspects to keep in mind.



▼ A KIA EV charging. EVs can have a licence plate number that begins with GV for “green vehicle.” EVs with this kind of plate have some special privileges.



## Three Levels of Charging Options

### Level 1

Commonly the type of charger that comes with the car, the slowest to charge, in the 10s of hours, can plug into a 120-volt receptacle. They range from about 1.5 to 2.5 kW.

### Level 2

Typically about three to seven times faster to charge than a Level 1, can be home based but needs a 240- volt outlet, and uses the same type of plug to the car as a Level 1. They are about 7kW ranging from 3 to 19kW. Cost to use in public charging stations ranges from free to around \$1.00/hr or \$2.50/charge.

### Level 3

Typically 30 minutes to one hour to charge to 80 per cent full. Not a home-based option. Different automobile makes can have different plugs. Most Level 3 stations are pay-for-use for about \$15-20+v/hour. They range from about 20kW to 350kW.

**T**ravelling the Niagara Escarpment with an EV can be easy, to difficult, depending on where you go. Quickly charging the battery is easy enough in the southern, more populous areas, and more difficult in the northern parts. EV drivers will need to know the charging infrastructure along the Escarpment if they

want to go on a long road trip.

It was a suggestion from one of the readers of this magazine that led to this service piece on EVs. The good news is that locations of charging stations are increasing. It is no surprise that home is the preferred place to charge.

According to Cara Clairman, president and

CEO of Plug'n Drive, “80 per cent of EV owners charge at home, 95 per cent of the time.” Plug'n Drive is a non-profit organization committed to increasing electric vehicle adoption for environmental and economic reasons. Cara adds that many EV drivers go long distance, which is further than a full charge, only a couple of times a year.

Charging away from home is a necessity for long-distance and high-mileage driving.

Along the Escarpment, the fastest charging stations are reasonably plentiful in towns and cities from Owen Sound south to Niagara Falls. There are none on Manitoulin Island, with the nearest to the north in Espanola. As can be expected, charging



▲ Dashboard screen showing the charging progress for a plug-in hybrid. At the top of the left circle, the PHEV stands for plug-in hybrid electric vehicle. The red light at bottom indicates that the car is plugged in.



◀ Remaining range of distance available from the battery, shown on a dashboard.

stations thin out on the Bruce Peninsula, although slower-charging stations are in Tobermory and Wiarton.

Arlene Kennedy of Tobermory owns a 2019 Chevy Bolt which she bought as a demonstration model in 2021. She explains “I have a level-2 charger in my garage that I use overnight, which takes about eight hours

for a full charge, as well as a charger that comes with the car that can be used with any three-pronged domestic outlet, although I understand that takes a good deal longer to get a full charge with. There is a public charger for my type of vehicle here in Tobermory, right beside two chargers for Teslas, which are different.”

### An App for That

Two charging apps that are mentioned by Plug’n Drive are Chargehub, a Canadian company, and Plugshare, which is American-based. Both can use your present location to show you some of the charging stations near you. You can filter out non-relevant stations. They can also create a route for you, showing the

various charging options along it, which can be great for planning a longer trip.

There are at least 10 companies offering EV charging, including Petro Canada, FLO, ChargePoint and Ivy, which is owned by Ontario Power Generation and Hydro One. Some have apps that show only their own stations that may not



◀ Level 1 home charger. This slowest charger comes with the car and can be plugged into a 120-volt, three-pronged outlet.



▼ Level 2 home charger in use. This requires the 240-volt household connection.



show on the main apps. Cara says that FLO has the most chargers, but tends to have higher pricing. To access charging, some stations require a credit card, some want a smart phone, and some a company-specific tap card.

“Some of the companies are collaborating, so a card for one brand will work on another system,” says Cara.

“This is inter-opportunity, but it’s a mixed bag.”

A look at some online charging location websites revealed a comment from one customer who did not see a price, charged the car thinking it was free, and received a bill for \$100!

#### Other Factors

Various conditions can affect

the range you can get between charging. Air conditioning, heating, going up hills and outside temperatures use more power. Most EVs regenerate electricity back to the battery when you coast to a stop or coast downhill, basically reclaiming energy for later use.

“You can generally lose about 20 per cent of your range in temperatures

around minus-five degrees Celsius and as much as 40 to 50 per cent in really cold temperatures like minus 20 to 30 degrees Celsius,” says Cara. “The car is always giving information such as the range remaining. Pay attention to it.” Be aware that a road trip in the summer may not work out the same in the winter.

So what about the extended



## EV Physics 101

**POWER** is force (such as pushing something up a hill) carried out travelling a distance and also the amount of energy transferred within a certain time (such as charging a battery). For EVs, it is measured in Kilowatts (kW).

**ENERGY** for an EV is power stored, or used or gained in a certain amount of time. It is measured in Kilowatt-hours (kWh).

The more power you use in driving the car, the less time you have left before recharging is needed.

The more power available at a charging station, the less time you have to wait when plugged in.

The larger the battery, the more energy it can store, and the longer you can drive, which usually means you can travel a longer distance, but it takes longer to charge.



road trip into Escarpment country? First off, plan your trip. How far are you going? Where and when will you stop for breaks or for the night where you could take advantage of a charging station? Are you staying at a B&B that will allow you to plug your charger in for a slow Level 1 charge? Work on your plan to consider

such factors on range loss as elevation change of going up the Escarpment, having a head wind, using air conditioning or heating. You should even factor in widespread power or internet outages that could strand you and your car for longer than anticipated.

Check out the apps to see what is available where, but know that they may be

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▲ Charging receptacle in car with Levels 1, 2 and 3 options available. On this vehicle, the top round receptacle is used for Level 1 and 2 charging. Both receptacles are used for the fastest, Level 3 charging.

incorrect or the station may actually be out of service or may be being used by someone else. Charging opportunities vary widely depending on where you are along the Escarpment, particularly Manitoulin Island. Level 3 chargers are common in the highly populated areas like the GTA, but at the time of writing, nowhere on

Manitoulin. For Manitoulin, the nearest Level 3 chargers are in Espanola to the north and Owen Sound to the south. There are not even Level 2 chargers shown on the main apps for Manitoulin, leaving you to charge at Level 1 only, perhaps the only option being overnight at your accommodation. The good news is that more chargers

are coming online all the time. Finn's Gas Bar in M'Chigeeng on Manitoulin is planning to install EV charging stations.

Cara points out that Plug'n Drive has an Electric Vehicle Discovery Centre in North York. They offer a test-drive program to try out some EV and Hybrid vehicles. Interestingly, they offer a \$1,000 rebate to

buy a used EV that is only battery, not a Hybrid, when you follow a program they have set up. Yet "the money is running out," she warns. This rebate may soon close.

### Going Electric

Arlene bought her Chevy Bolt EV because "through the Northern Bruce Climate Action Committee work on





▲ Storage in an EV can be available under the front hood as well as in the rear trunk. The engine and battery tend to be less visible in EVs.

a climate action plan, I had an increasing awareness of the need for personal, individual action that might also encourage others to undertake what they can too. The \$5,000 federal purchase incentive was attractive and this car was available at the lot in Owen Sound, so there was no long wait as others have experienced.”

Arlene’s use of the Bolt seems to be positive. “Quiet, instant power, easy to operate, comfortable, a size comparable with my last two vehicles, successive Toyota Prius automobiles,” she notes. “There’s good mileage on a full charge for my needs, such as return trips from Tobermory to Owen Sound.” **NEV**



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