

ELECTRIC VEHICLE Q&A

GENERAL

What are the benefits of owning an electric vehicle (EV)?

Electric vehicles are cheaper to drive and own, durable, convenient, quiet and have a balanced and responsive driving experience.

What is the difference between a battery electric vehicle and a plug-in hybrid electric vehicle?

A battery electric vehicle uses electricity exclusively to move the vehicle. A plug-in hybrid electric vehicle uses both an electric motor and a gasoline engine to move the vehicle. Traditional hybrid vehicles are fuel efficient, but they are not considered zero emission vehicles and do not plug in.

How far can an EV go on a single charge?

EV ranges can vary between 160 kilometres and 500 kilometres. Most EVs available in Nova Scotia have over 300 kilometres of range, which is far more than the average daily commute for residents living in the Halifax Regional Municipality.

What is regenerative braking?

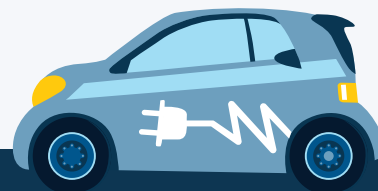
Regenerative braking is when an EV uses its drivetrain to slow the vehicle instead of the brakes. This reduces wear on your brakes and adds a small amount of charge to your battery.

How do EVs perform in snow or cold temperatures?

EVs handle winter driving conditions very well. The battery weight in the centre of the vehicle keeps balanced pressure on the wheels for improved traction. EVs warm up quickly and often have heated steering wheels and seats. Most EVs do lose range as temperatures drop below freezing as they use energy to warm the cabin to make it comfortable for drivers and passengers. EVs with heat pumps do not see the same drop in range.

How can I maximize my range?

Maximize your range by reducing speed, using defensive driving practices and using your regenerative braking. In some EVs, you can also reduce your heat or air conditioning.



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What is the warranty on an EV?

EVs get the same three-year, 60,000-kilometre comprehensive warranty as gasoline vehicles, and have an eight-year, 160,000-kilometre warranty on the battery and drivetrain. On average, batteries are only seeing a 12 per cent loss of range over 300,000 kilometres.

Where do I take my car for servicing?

Many dealerships in Nova Scotia can service EVs and some independent shops are offering EV repair and maintenance services.

What kind of maintenance does my EV need?

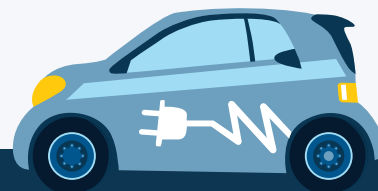
EVs require little routine maintenance because they lack many of the parts that degrade in a gasoline vehicle. Regular maintenance that comes with owning a gas vehicle can be avoided with EVs, including oil and oil filter changes, air intake filter changes, and replacing your spark plugs, timing belt, fuel pump or alternator, to name only a few. Reduced maintenance is one of the reasons why EVs are typically less expensive to operate than gas vehicles.

CHARGING ELECTRIC VEHICLES

How long does it take to charge an EV on the different types of chargers?

The type of charger you use will dictate how quickly your EV will charge.

- A Level 1 charger, which plugs into a standard wall socket, will add seven to nine kilometres of range per hour. It takes several days to recharge a depleted battery, but if you charge regularly, you can keep a battery topped up.
- A Level 2 charger, which uses the same wiring as a dryer or stove, will add 30 to 40 kilometres of range per hour. The average commuter driving distance for Halifax is 60 to 80 kilometres round trip. With this average distance, the driver would be able to plug in twice a week, on average, and wake up with a full tank.
- A Level 3 charger, which is a fast, commercial-grade charger, will add hundreds of kilometres of range per hour. Depending on a variety of factors, including temperature, charging capacity and battery charge status, most EVs can reach 80 per cent charge in 20 to 60 minutes. The Level 3 chargers the municipality is installing as part of their public charging initiative have a capacity of 175 kWh, meaning that, depending on the EV, you could charge from 20 per cent to 80 per cent in as little as 20 minutes. As EV technology develops, more makes and models will be able to charge at this speed.



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What does it cost to charge my EV?

The average size of an EV battery is about 60 kWh and will cost about \$10 to charge overnight at home if you are filling up from a low battery. Public Level 2 charging stations may require a small fee per hour or be free. Currently, Level 3 charging stations range between \$15 per hour for a 50 kW charger, to \$45 per hour for a 175 kW charger in Nova Scotia. These stations typically charge per minute, so you are only billed for the amount of time used.

How do I charge my electric vehicle if I live in a multi-unit condo or apartment building?

Approach your condo board or landlord about having suitable wall outlets or Level 2 chargers installed in your building. If that is not possible, there is a growing number of public chargers in Nova Scotia that you can use. You can use [plugshare.com](https://www.plugshare.com) to find a Level 2 or DC Fast Charger near you. If you are a owner or developer, you can find support with programs like efficiencys.ca/evcharging or cleanfoundation.ca/transportation/evboost.

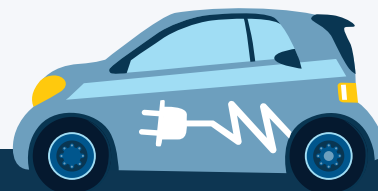
How much do home charging stations cost?

A Level 2 home charging station typically will cost \$500 to \$1,500, depending on the features you choose. Installation of that charger will typically cost an additional \$500 to \$1,500 if no upgrades are needed to your home electricity service. Please consult a licensed electrician before installing a Level 2 home charger.

ENVIRONMENTAL BENEFITS

What if we still burn fossil fuels like coal to make the electricity that powers my EV?

Our electricity grid continues to get greener as time goes on and we rely more on renewable energy sources. Emissions from EV charging will continue to go down as more renewable energy is brought online. Even with the current system for generating electricity in Nova Scotia, electric vehicles still produce fewer emissions than an equivalent gasoline vehicle, largely thanks to the 90 per cent efficiency of an electric motor (compared to the 25 per cent efficiency of a gasoline engine).



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What happens to an EV's battery at the end of its life?

After an EV battery's predicted lifespan of 500,000 to 600,000 kilometres ends, it can be repurposed in second-life applications. Most are used to store energy from solar panels and wind farms. Nova Scotia also has the advantage of Dalhousie's Renewable Energy Storage Laboratory, a globally recognized expert in this field.

Does the mining for battery materials outweigh the benefits of driving EVs compared to gas?

The lifecycle benefits of driving an EV outweigh the negative impacts done from battery mineral extraction, especially when compared to oil extraction. Batteries powering EVs continue to improve, and many have reduced the need for resource-heavy materials.

