This factsheet answers your questions about electric vehicles, with a focus on their role in New Brunswick.





Electrifying vehicles, trucks and transit is a crucial step in cutting the pollution dirtying our air and destabilizing the climate. A recent poll found that <u>72 per cent of Canadians</u> expect investments in electric vehicles and electric vehicle infrastructure to increase in the next 20 years. There is, however, a lot of confusion and misinformation about electric vehicles and their climate impact.

#### **MYTH 1**

Buying an electric vehicle is pointless when New Brunswick is still burning coal.

### FACT

Even with electricity generation reliant on fossil fuels, electric vehicles are overall the better option over fossil fuel vehicles.

The amount of greenhouse gases (GHG) produced per kilowatt hour (kWh) of electricity in New Brunswick in 2019 was 260 grams.<sup>1</sup> By comparison, Nova Scotia produced 710 grams of GHG/kWh, and Québec produced 1.7 grams of GHG/kWh. The contrast is because NB and Nova Scotia are coal-burning provinces, while Québec produces its electricity from hydro. NB Power uses fossil fuels for peak demand in the morning (6 a.m. to 9 a.m.) and evening (4 p.m. to 8 p.m.). Electric vehicles that charge overnight help <u>reduce the amount of fossil</u> <u>fuel use</u> for electricity generation.

The <u>Canada Energy Regulator</u> (CER) has calculated the 2018 emissions intensity of electric vehicles for each province and found they outcompete internal combustion engine vehicles even if fossil fuels are part of the electricity mix. The picture improves in provinces with low to no fossil fuels in their electricity mix. Through an interactive map, the CER allows users to see the emissions intensity per province per vehicle in 2018 (the latest year for the CER mapping tool).

1 The main greenhouse gases are carbon dioxide (CO2), nitrogen oxide (N2O) and methane  $CH_4$ 

Using the <u>fuel consumption ratings search tool</u> from Natural Resources Canada, the 2022 Hyundai Kona produces 174 g/km of  $CO_2$  while its counterpart, the Kona Electric, produces just 45 g/km of  $CO_2$  in New Brunswick. Electric vehicles will continue to decrease in carbon intensity as the electricity decarbonizes (as we replace fossil fuels with non-polluting sources such as wind, hydro and solar to generate electricity).

### MYTH 2

The cost of buying and maintaining an electric vehicle is higher than a gasoline car.

### FACT

Electric vehicles are cheaper to own, operate, and maintain and will save you money over the lifetime of the vehicle.

To help with high purchase prices today, there are provincial and federal incentives to lower the barrier for entry into the EV market.

The <u>incentive for zero-emissions vehicles</u> (iZEV) and New Brunswick's <u>Plug-In NB rebate</u> each offer **\$5,000 for eligible electric vehicles**, as well as the provincial incentive of **up to \$750** for a <u>home</u> <u>charger</u>. A resource from the Canadian Automobile Association allows you to <u>compare</u> operating costs among vehicles, including maintenance and fuel/ electricity. In the case of the Kia Niro EV, for example, it is estimated that it can save <u>\$1,865</u> annually in fuel and maintenance costs.

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Myth 2 continued...

#### Total cost of ownership: Lifetime costs

2022 Chevrolet Bolt: \$51,848



2022 Toyota Corolla Hatchback: \$80,058

In addition, a report from <u>Clean Energy Canada</u> calculates the total cost of vehicle ownership using the national average gas price of \$1.35 for 2021. It found that the electric 2022 Chevrolet Bolt lifetime costs were **\$51,848** versus a gas 2022 Toyota Corolla Hatchback at **\$80,058**, or **54 per cent more expensive**. There are additional resources available to calculate the fuel cost savings by switching to an electric vehicle such as **TakeChargeNL**, **ChargeHub**, and **EVAssist**.

#### MYTH 3

The range of an electric vehicle is not long enough to suit my needs.

### FACT:

The range of your electric vehicle depends on the model and battery capacity, driving conditions, and driving behaviour.

Many new models have <u>ranges</u> of more than 400 kilometres, such as the <u>2022 Chevrolet Bolt</u>. Electric vehicles consume their charge faster at higher speeds, such as during highway travel. One <u>analysis</u> of battery capacity found that while EVs consume more power per kilometre at highway speeds, they are more efficient in cities and towns than fossil fuel vehicles.

### MYTH 4

It will take too long to charge my car.

FACT:

The majority of charging will take place at home, overnight, while you sleep.

For daily use, electric vehicle owners will not likely consume a full battery charge. For long distance travel, level 3 direct current fast chargers (DCFC) have a minimum charging capacity of **50 kilowatts** (**kW**) and will charge your battery to **80 per cent capacity** (about 250-320 km for average EVs) in 30 minutes to an hour. Newer DCFC models are even better, with minimum charging capacities in the 100-150 kW range.

It is important to note, however, charging rate and how well an electric vehicle holds a charge depends on make and model and weather conditions.



**MYTH 5** My car won't start in cold weather.

### FACT:

An electric vehicle will reliably start in cold temperatures, especially when it is charged at least <u>15 to 20 minutes</u> to preheat the car before use.

There is more demand on the battery in cold weather to heat the interior of the vehicle, which can drain the battery at a faster rate.



#### **MYTH 6** The battery life is too short.

#### FACT:

Electric vehicle batteries are <u>warrantied</u> for 160,000 km or for eight years.

That is the minimum expected range with the average range being closer to 320,000 km throughout the lifetime of the vehicle.



**MYTH 7** There are not enough available charging stations to meet my needs.

### FACT:

Unless traveling long distances, you will not likely need to use a public charging station.

The range of electric vehicles is more than enough to fulfill the daily needs of most drivers. An at-home charger would be enough to ensure a fully-charged vehicle in the morning. For traveling to different cities and over long distances, there are online tools available to help you find charging stations such as <u>PlugShare</u>, <u>ChargeHub</u> and NB Power's <u>eChargeNetwork</u>. Charging infrastructure will continue to expand as more people transition to electric vehicles.

## MYTH 8

Electric vehicles are more prone to fires and explosions than gasoline vehicles.

### FACT:

The prevalence of car fires is much higher for internal combustion engine vehicles and hybrid-electric vehicles than it is for battery electric vehicles.

Analysts from <u>AutoinsuranceEZ</u> found that **hybrid vehicles were involved in 3,475 fires per 100,000 sold, internal combustion engine vehicles in 1,530, and EVs just 25 per 100,000 vehicles**.

Although electric vehicle fires are less frequent, they can potentially be more problematic as they can be long lasting and difficult to extinguish. AutoinsuranceEZ further reports that because the battery is its own fuel source, it can burn much longer than gasoline and firefighters are not familiar with how to extinguish them. This can be remedied as familiarity with EVs increase and firefighters are better equipped to handle EV fires.

# MYTH 9

The lifetime environmental impact of electric vehicles is the same as gasoline vehicles.

### FACT:

The lifetime emissions of an electric vehicle is much lower than a gas car.

Electric vehicles have a <u>higher initial carbon</u> <u>footprint</u> than their fossil fuel counterparts due to the increased use of rare earth minerals such as lithium and cobalt for the battery. The elimination of tail-pipe emissions, however, give electric vehicles a significant edge in the total carbon footprint. One analysis found that a Tesla Model 3 would have to be driven just <u>22,000 km</u> before it does less harm to the environment than a Toyota Corolla. Considering the battery of 160,000 km and an average range of 320,000 km, they are by far the better option to reduce emissions.



#### **MYTH 10**

Electric vehicle batteries will result in a lot of waste and end up in landfills.

### FACT:

There is a lot of interest in the afterlife of electric vehicle batteries as they can be <u>reused</u> or have their valuable minerals <u>recycled</u>.

As the electric vehicle supply chain market becomes more mature, there is an opportunity to create a circular economy with rigorous <u>recycling</u> regimes to <u>offset the demand for new minerals</u>. For example, the New Zealand-based Battery Industry Group (BIG) developed a <u>circular product stewardship</u> <u>system</u> to ensure batteries are recycled. Québec is likewise considering <u>extended producer</u> <u>responsibility</u> legislation so that lithium-ion batteries do not end up in landfills.

Technological innovations will improve efficiency and reduce demand for rare earth minerals. Tesla has developed <u>cobalt-free batteries</u> which improve the carbon footprint of their vehicles and reduce costs.

### **MYTH 11**

EVs are too new of a technology.

#### FACT:

Electric vehicles are improving every year but that does not mean they are a completely new technology.

The same could be said for gasoline vehicles, new models are released every year with improvements and increases in efficiency. The period of early adoption has passed with the <u>majority of auto</u> <u>manufacturers</u> now offering or have announced plans to offer electric vehicles in their fleet.

An <u>analysis</u> of the electric vehicle market share reported they account for **5.6 per cent of vehicles in Canada**, and today **one out of every 20 newly-registered vehicles is battery electric**. Electric vehicles are here to stay with the Federal Government mandating that all new light duty vehicles and passenger trucks sold in Canada have to be electric by the year <u>2035</u>, with 20 per <u>cent of sales being electric by 2026 and 60 per</u> <u>cent by 2030</u>.

The best way to evaluate electric vehicles for yourself is to test drive one! There are several events across the Atlantic provinces where people can test drive electric vehicles. The New Brunswick Lung Association, through its program Drive Electric Atlantic, will host events in New Brunswick, Prince Edward Island, and Newfoundland in summer 2022 and the Clean Foundation facilitates test drives in Nova Scotia.

Click <u>here</u> for more information on the Conservation Council of New Brunswick's <u>Atlantic Electric Vision</u> for powering our lives.



Conservation Council of New Brunswick

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