



## The Environmental Imperative for Electric Vehicles

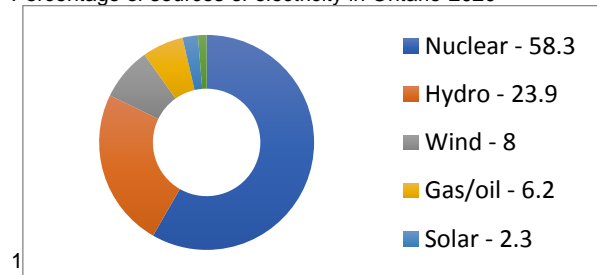
By Ron Fitton

Transportation is a major contributor to carbon emissions in Ontario, at 36%<sup>1</sup>. For anyone now driving a gas-powered vehicle, the biggest-impact single step you can take in reducing your individual carbon footprint is switching to an electric vehicle, assuming of course, similar driving practices. In making this case, we draw on evidence provided by numerous studies comparing the Internal Combustion Engine Vehicle (ICEV) with the Battery Electric Vehicle (BEV) in regard to the operating and manufacturing impacts on the environment of the two types. The unavoidable conclusion, given the enormity of the climate crisis before us, is that this switch to a BEV has become an environmental imperative for anyone currently driving an ICEV.

### Operating:

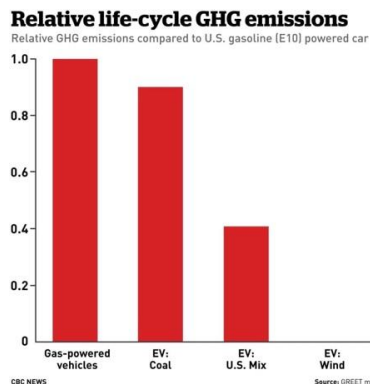
With zero fossil fuels burned to produce power, it seems pretty obvious that the BEV itself will generate lower carbon emissions than the ICEV. But what about the source of the electricity used to charge and operate the BEV? In Ontario we benefit from an electrical system that is greener than much of the rest of North America, thus making the use of electricity to power our electric vehicles that much more important in reducing carbon emissions.

Percentage of sources of electricity in Ontario-2020



The result is that the BEV is using a predominantly 'green fuel' source when operating. Comparison studies indicate that, in Ontario, the BEV generates up to 80% fewer carbon emissions than the comparable ICEV<sup>2</sup>.

One study concludes that even in a region where the available electricity might be generated totally from coal, the BEV generates fewer carbon emissions than the ICEV.



### **Manufacturing:**

Carbon emissions from manufacturing the BEV, with its much larger battery, are approximately 25% higher than from the ICEV; however, the much lower emissions during operation more than offset this gap. A recent Quirks and Quarks program on CBC Radio One captures this issue succinctly<sup>3</sup>.

The evidence seems clear that, for anyone driving an ICEV and looking to make significant reductions in their carbon footprint, the switch to an Electric Vehicle is the right thing to do.



Kia Soul EV

## **The Icing on the (EV) Cake**

We have presented the case for switching to an electric vehicle as an environmental imperative, and for the future benefit of all humankind. We acknowledge that for many current owners of an ICEV, this is no small decision. Turns out however, that in addition to the environmental impact reasons, there are also several other quite positive reasons to do so.

### **Cost of Ownership**

Battery Electric Vehicles (BEV) do cost more to purchase than comparable ICEVs. However, this up-front price difference is overtaken during the years of ownership because of the considerably lower costs of operating and maintaining the BEV.

Recent studies show that over an ownership period of 8-10 years, the total cost of ownership of the BEV is LESS than that of the comparable ICEV. This holds true over smaller size vehicles, small SUV models, and larger luxury sedans<sup>4,5,6</sup>.



Hyundai Kona BEV

### **Convenience**

Imagine starting your car every day with a full tank of fuel. Or, imagine being able to plan ahead on a long trip when and where you will be able to re-fill that fuel tank. Both of these possibilities are now available with the BEV. Surveys show that over 90% of BEVs are charged while at the driver's home overnight (when electricity costs are lowest). Thus, the fuel tank, or battery in this case, is full on startup. Most BEVs today include over-the-air updates on where re-charging stations are available on your route, and all BEVs show real time battery charge level and distance remaining. There are also apps for mobile devices showing charging stations available in your vicinity<sup>7</sup>.

BEV range is increasing with each new model, and today there are at least three available in Canada that qualify for the federal rebate (purchase price under \$55,000 = \$5,000 rebate) and have ranges of more than 400 kilometers: Tesla Model 3, Hyundai Kona, Chevrolet Bolt. Imagine not having to take your car for scheduled maintenance every 5,000km! BEVs often travel over 100,000km before the first maintenance visit. And finally, imagine in winter getting into your BEV which is pre-warmed while still plugged in, using your mobile device before you venture outdoors, and not burning fossil fuel to do so. Now that's green convenience!



Chevrolet Bolt EV

### **Even Lower Cost Option:**

After about ten years of BEVs being available in Canada, there is now a growing supply of quality used BEVs. Prices for a used BEV are as low as \$13,000, with years of service left in the vehicle. To assist you in investigating this lower cost option, Plug'nDrive, an Ontario non-profit organization offers information sessions with no sales pressure, a variety of BEVs for test drives, and a rebate if you do purchase a used BEV<sup>8</sup>.

### **Other Considerations:**

Some considerations in buying a car are more subjective. Does the vehicle suit your lifestyle? Do you like how it handles? Is it comfortable for you and your passengers?

Suffice it to say that there is a growing variety of BEVs in each of these categories (some pictured throughout), so you can be confident about finding the right BEV for you and your needs. The feeling of satisfaction that you will get from making the switch from ICEV, and away from carbon emissions, is another subjective reason that will stay with you for a long while.

There are several organizations whose websites provide and update a list of all BEVs available in Canada<sup>9,10</sup>.



Tesla Model 3

### **What Other Owners Say:**

Owners' experiences are often a very significant part of a new car purchase decision. The EV Society is a non-profit association of BEV owners who are happy to share their stories of making the switch. In addition to hosting BEV displays and information sessions across the country, they have prepared short videos of some of their members discussing their experiences<sup>11</sup>.

### **A Pledge:**

If our information has you convinced, or moving in the direction of a switch to electric, we invite you to consider signing the pledge, that reads, "I pledge that the next car I buy will be an electric car."<sup>12</sup>

Any questions, comments, concerns about switching to an electric vehicle may be directed to:

[operations@beachuc.com](mailto:operations@beachuc.com)

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