

## Six years with an electrical car have proven it's reliability

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Six years ago, I took delivery of my all electric car - one of the first in Canada. It was a leap of faith into the future with a lot of uncertainty.

When I first ordered it and waited years for the car to finally arrive many questions were in my head. Would I run out of charge? How and where would I charge it? When would I have to replace the battery? Would the car last? How would it be in the winter? How would I get it serviced?

Six years on (and 178,000 kilometres. driven) every one of these questions has been answered in a positive way. In fact, most were answered in the first month of ownership when I realized I would never own a gas car again. Electric is simply too compelling.

Would I run out of charge? Nope. Truth is you charge your car every day at home (10 seconds to plug in) and leave with a full tank every morning. My car can go well over 350 kilometres. on a 90% charge. My commute is about 25 kilometres. so 50 kilometres. return. If I run around a bit doing errands I might use up to 100 kilometres. in an average day. I plug it in when I get home and the car is full 3 hours later (unless I tell it to wait for the cheapest overnight rates).

When we first got the car there were so few places to charge (it will charge on a normal 120V normal plug but that is very slow) that you really had to plan if you were going long distances. Now there are high speed chargers everywhere and often they are the best parking spots. We don't even think about it. The car can even tell you where the chargers are.

This past winter we drove to Florida and back and the trip was incredibly easy and chargers are placed with restaurants so the car was ready to go before we were. After 3+ hours of driving I am ready for a short break. Most incredibly, with the option I got with my car, the total price of fuel for the entire trip: \$0. Florida and back for free.

When would I have to replace the battery? This was a big concern before I bought the car. I even thought about getting battery insurance. When I first got the car it would travel 420 kilometres. on a full charge. Today a full charge will take me 390 kilometres. That is an amazingly small drop over 6 years and 178,000 kilometres. Most of the drop was in the first year. For cars sold today the battery chemistry improved on the chemistry in my car. Clearly my battery will outlast the car itself. In fact I believe my battery will have value when the car is done. Even if it has only 70kWh of energy capacity left that is enough to run my house almost 2 days! I find that amazing.

Would the car last? Well a typical gas car has more than 2,000 moving parts. My car has 20. The drive train has no transmission. Simply the drive train is battery to inverter to motor to wheel. That is it. Recently an electric drive train from Tesla ran for 1.6 million kilometres (yes 1 million miles) and when taken apart it looked like new.

Electrical motors have been running for a lot longer than gas engines in factories. What is missing in an electric drive train compared to a gas car? How about gas tank and fuel pump, oil pump, radiator, transmission, cams, valves, belts, exhaust and a bunch of smaller parasitic parts. In this case simpler is much better and much more reliable.

How would it be in the winter? Turns out, also amazing. One thing that is true about batteries is that they are heavy. That helps traction in bad weather. Also, electrical motors respond near instantaneously so torque can be applied or removed much faster than a gas car so that the traction control is fantastic. One drawback is that, like a gas car, range is reduced in the winter due to many factors but it is pronounced with electric cars. I have learned that my range is reduced by up to 20% if the battery starts very cold. Fortunately you can, for very cheap, while the car is plugged in ask the car to preheat the battery so range loss for that reason is highly reduced. Finally with the bottom of the car being perfectly flat and protected, salt corrosion is highly reduced.

How would I get it serviced? The simple answer to that is: what service? I take it in once a year for inspection but beside that I only have to replace/replenish wiper blades, tires, washer fluid and the cabin filter.

That is not to say there have been no issues. This was an early car from a brand new company but all items have been covered by the 8-year warranty. The biggest issue I have had is, since I have not gone to a gas station in 6 years I had to buy my own squeegee to get the bugs off in the summer. Oh, and the breaks even last much longer since when you take your foot off the accelerator pedal the motor runs backward so now it is a generator and the battery is recharged by slowing the car.

It is well known that traditional dealerships make the majority of their profits from servicing your car ? how they deal with the electric future I have no idea ? a new business model for them is needed.

So it turns out that none of my worries came true.