

# Electric vehicle numbers growing in B.C.

## But 'range anxiety' may be holding adoption back

It does require more planning. ... The term I've heard a lot recently is: Range anxiety is real, but only for people who don't drive electric cars. KELLY CARMICHAEL LONGTIME ELECTRIC VEHICLE OWNER

Electric vehicle registrations are surging in B.C., fuelled by hefty provincial incentives, improved technology and desirable packaging.



ANDREW McCREDIE/PNG FILES While thousands of electric cars like the Mazda CX-3 have hit B.C.'s roads in recent years, most vehicles are still powered by gas or diesel.

Mazda CX-3 electric????

But the overall number of hybrid and fully electric cars on the road remains low, relative to their gas- and diesel-powered counterparts, and that could come down to lingering fear over drained batteries.

Since 2011, the province has committed about \$31 million to help build charging stations and make electric vehicles more affordable to buyers. In that year, just 160 electric vehicles and another 22,000 hybrids were registered in the province, according to the Insurance Corp. of B.C.

Since then, electric and hybrid vehicles have infiltrated the lineups of major manufacturers, from Ford and Toyota to Mercedes and Porsche.

Some electric or hybrid vehicles — including the Chevrolet Volt, one of the grand prizes at the Vancouver International Auto Show this year — are on their second or subsequent generation. Meanwhile, Tesla's fully electric Model S has become one of the most attractive cars on the road. By the end of 2015, there were 3,200 electric cars registered in the province, a 1,900 per cent increase in just four years. Hybrids also jumped 63 per cent in that time to 36,000, according to ICBC records.

While the growth is impressive, the overall count relative to conventional autos is less so. Electric and hybrid vehicles account for less than two per cent of B.C.'s 2,297,000 registered passenger vehicles on the road in 2015.

Kelly Carmichael was one of the first people to own a fully electric vehicle in the province. He got his Nissan Leaf in 2011 and has since put about 115,000 kilometres on the car in his daily commute from his home in Surrey to the B.C. Institute of Technology in Burnaby.

Carmichael said he thought some people might still be reluctant to try all-electric vehicles.

"People are just barely becoming familiar with hybrids and starting to trust (that) technology," Carmichael said in an interview. "It's closer to what they're doing, so they don't have to change their behaviour to use a hybrid."

The change in behaviour demanded by electric vehicles comes down to charging and range. But both of those factors are getting easier all the time.

When Carmichael got his Leaf, there was no charging network and vehicle users found one another on Facebook to help each other out. There are now hundreds of charging stations in B.C.

"It's come a long ways," he said. "It was very difficult to make plans to go anywhere. Going out to Chilliwack meant that you would probably be there overnight because there was no charging, and of course coming back would be hard to do in a single day."

Fear of running out of juice partway through a trip is one of the most prevalent concerns about electric vehicle technology. There's even a name for that fear — range anxiety. It's something Carmichael said he's never had during his regular commute (though he sometimes recharges the battery before the trip home in winter, when his heater puts more load on the car).

"It does require more planning, but because you do that planning you learn very quickly what the vehicle's capable of, so you don't have to worry a whole lot," he said. "The term I've heard a lot recently is: Range anxiety is real, but only for people who don't drive electric cars."

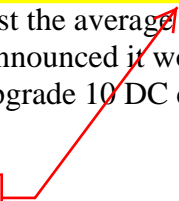
Carmichael's Leaf can drive between 80 and 100 kilometres on a single charge in realworld conditions. Newer Leafs approach 140 kilometres. Tesla's Model S 85D has the longest range of any electric vehicle with about 430 kilometres on a charge.

There are a few different ways to charge an electric vehicle. Some drivers can get away with using a household 120-volt outlet, but a full recharge would take all night, according to the Canadian Automobile Association.

For that reason, some vehicle owners choose to buy a Level 2 charger, which uses a 240-volt outlet. A unit like the one Carmichael has can be purchased and installed for about \$1,500 to \$2,000. There are about 550 public Level 2 stations in the province, according to Plug in B.C., an initiative led by the ministry of energy and mines and BC Hydro. Each takes about three to five hours to fully charge a car, according to CAA.

There are also DC chargers, which take as little as 30 minutes to charge a car, according to CAA. There are 18 of these chargers — excluding Tesla SuperChargers — found in the province, according to CAA.

The majority of Level 2 chargers are completely free. All they require is that a driver join the service network before using one. DC chargers are priced at \$0.35 per kilowatt hour, with a minimum fee of \$2. Carmichael said it would cost the average driver about \$5 to recharge a nearly drained battery. This week the province announced it would help fund Level 2 charging stations in multi-unit residential buildings and upgrade 10 DC charging stations.



Note: BC Hydro typically charges about \$0.10 per kilowatt hour.