

## Electric car buyers not swayed by access to public chargers

Home charging is more important as a marketing tool, rSFU researchers say

BY SHAWN CONNOR, SPECIAL TO THE VANCOUVER SUN MARCH 11, 2015 2:03 PM



"There was no evidence that having extra chargers around is creating demand," for electric cars, according to Jonn Axsen, assistant professor at Simon Fraser University's School of Resource and Environmental Management.

**Photograph by:** handout

For cities seeking to increase the use of electric vehicles, public chargers may not be the answer.

A new Canada-based study shows increased awareness of public chargers might not increase consumer demand for electric vehicles.

"Are people who are more aware of chargers more likely to want an electric vehicle? There is a relationship there," said Jonn Axsen, assistant professor at Simon Fraser University's School of Resource and Environmental Management.

"But once you control for other factors, such as income and whether people are interested in the vehicles in the first place, the effect is weak or non-existent. In other words, the installation of public chargers might not be the best way to encourage growth in the electric vehicle market."

Along with grad students Joseph Bailey and Amy Miele, Axsen recently completed a study that sought to test his hypothesis that access to home charging is more important for building the market for electric or hybrid vehicles than public charging.

The study collected information from 1739 new-vehicle buying households in Canada, with 536 from British Columbia. Respondents were asked about awareness of public charging in their region, and about their over-all interest in purchasing a plug-in electric vehicle.

"There was a lot of confusion to start with," Axsen said. "But once we get people to speed, so they understand what we're talking about, we found they are most interested in the plug-in hybrid-type vehicles: the Chevrolet Volt or the Toyota Prius. It's something you can drive with electric power, and gas if you want."

Electric and hybrid vehicles can be charged via three different levels of charger. Most homes have both Level 1, a simple household outlet for things such as lamps, and Level 2, which has a higher capacity and is used for appliances.

The third level is the DC Fast Charger, which is an industrial-grade charger. Even with a DC, charging a depleted vehicle can take 20-30 minutes.

"People are concerned about adapting to that kind of charging," Axsen said. "But if they already have home-charging, they like the fact they don't need to go to a gas station; they can just plug-in overnight

and they're ready to go in the morning."

Public chargers are mostly Level 2 or, potentially, DC Fast Chargers. Public chargers are usually found in places such as shopping malls, city halls and schools.

"It's kind of random," Axsen said. "I think a lot of the installation has been wherever it's been easier to get permits."

The data collected by Axsen shows British Columbia's Clean Energy Vehicle program — which installed almost 500 public chargers when the survey was conducted in 2013 — was largely successful in increasing charger awareness. Almost one-third of British Columbian respondents had seen at least one public charger, compared with only 13 per cent of respondents in the rest of Canada.

"There was no evidence that having these extra chargers around is creating demand," Axsen said. "But if people have home access, that is an important factor. If you're going to be investing in charging infrastructure, the home seems to be the most important base for that. This can be done by having new building codes that make it easy for home chargers to be installed."

Axsen says the biggest market opportunity is not with the pure electric vehicles, but with the plug-in hybrids.

Once the battery is depleted, a hybrid can run on gas. But Axsen and his team found only 20 per cent of the new-car buyers they surveyed knew this.

"It gives you flexibility," he said. "As long as people have a regular outlet at home, within 25 or 50 feet of where they park their car, they're fine. Our national survey found more than half of new vehicle buyers already park their car within 25 feet of an electrical outlet. A lot can happen without installing any more infrastructure."

The study, entitled *Is awareness of public charging associated with consumer interest in plug-in electric vehicles?*, was recently published in the peer-reviewed journal *Transportation Research Part D: Transport and Environment*, and presented in February to the National Academy of Sciences' Transportation Research Board in Washington, D.C. The research was funded by grants provided by the Social Sciences and Humanities Research Council of Canada, and Natural Resources Canada.

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