

Beware the green car 'big switch'

May 20 2014, by Anne Rahilly

Charging up an electric car can put as much strain on the energy grid as a small family home. So how can we embrace this new technology while keeping an eye on sustainability?

Melbourne School of Engineering staff are undertaking cutting edge research into the design of electric vehicles and their likely impact on the [electricity grid](#).

"When you run your vehicle on electricity, it is only as green as the fuel that was used to generate the electricity," according to Dr Julian De Hoog from the Department of Mechanical Engineering.

"In Victoria, where our generation is predominantly brown coal, you have a situation where electric vehicles and petrol-powered vehicles are roughly on par in terms of environmental impact.

"However, the main advantage of electric vehicles is that you have flexibility regarding where your energy comes from." he said.

While petrol-based vehicles have dominated personal transport over recent years, the electric vehicle is making a comeback. In 2014, nearly every major automaker has an electric or hybrid vehicle on the market.

"Initially, [electric vehicles](#) were quite expensive and had a short travel range. As battery technology improves, however, prices are coming down and travel range is increasing," said Dr Julian De Hoog from the Department of Mechanical Engineering.

Effects on the grid can be mitigated by shifting EV charging from peak times such as 6.00pm, when everyone comes home, to off-peak times such as overnight.

"In Victoria, we have had a mandatory smart meter rollout. A network operator can send a signal to these [smart meters](#), and the smart meters communicate with the vehicles and tell them, "start charging", or "stop charging". said Dr De Hoog.

"If you have a good model of the network then in theory you can find the best possible way of charging as many vehicles as possible."

Provided by University of Melbourne

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