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## ELECTRIC VEHICLES

### Car warranties pose unexpected hurdle for EV owners

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A federal advisory group is urging the Department of Energy to study electric vehicles' impact on the grid, including their potential use as emergency power sources.

"Increasingly, we're going to have little generators sitting in our driveways," said M. Granger Morgan, an engineering professor at Carnegie Mellon University and a member of DOE's Electricity Advisory Committee.

There's just one snag — pulling stored electricity back out from electric vehicles' batteries could pit owners against car manufacturers.

"At the moment, if I use that [battery] to run my refrigerator and a few lights, I violate the warranty on my vehicle," Morgan said during a teleconference of the 32-member advisory group yesterday.

The advisory committee agreed to call on DOE to "assess the circumstances under which manufacturers might waive warranty conditions to provide power under emergency conditions," such as during a major blackout.

The group approved five recommendations related to EVs, pushing DOE to research various economic and technical challenges as well as market opportunities for utilities.

"As EV adoption levels and grid integration become material, there is a need to better understand the pros and cons of alternative use cases that support different business models and provide different benefits for the grid, new businesses and the public," said the group's Smart Grid Subcommittee, led by professor Marilyn Brown of the Georgia Institute of Technology.

The subcommittee carried out an industry survey to inform its recommendations to DOE. Brown cited experts' "strong concerns" about degrading batteries by introducing bidirectional charging.

"On the other hand, some respondents suggested that damage to batteries could be reduced and better battery quality could be maintained with proper monitoring," she said.

EVs aren't yet popular enough in the U.S. to stress the bulk power grid. But a recent report from Bloomberg New Energy Finance projected plug-in vehicles could account for 9 percent of global power demand by 2050.

As such cars grow more common, they could introduce interoperability and even cybersecurity challenges, Brown pointed out.

On Friday, a top U.S. intelligence official alluded to hacking concerns with "behind-the-meter" technologies that increasingly interact with the distribution grid.

"You see that more and more things are being put into the hands of consumers," said Joyce Corell, who leads the supply chain directorate at the National Counterintelligence and Security Center. "In general cyber terms, that's just an expanding attack surface. So whenever you have an expanding attack surface, there's that potential for more vulnerabilities or that things can happen."

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