California Considers Electric Car V2G Charging Tech for Grid Stability

The idea of using coordinated electric-car charging to stabilize the grid has been discussed for years, but is still in early stages of development. California regulators now hope to bring so-called "vehicle-to-grid" (V2G) technology into focus.

V2G requires cars that can discharge power back into the grid, something that isn't widely available, but the California Public Utilities Commission (CPUC) is expected to issue a decision calling for discussion of the feasibility of V2G, according to **E&E News**.

The potential benefit of V2G is the ability to "balance" the grid by using fleets of electric cars to absorb excess electricity during periods of low demand, and discharge it during periods of high demand. This allows grid infrastructure to operate at a more stable pace, which saves wear and tear, and allows EVs to supplement power plants or renewable-energy sources when demand is especially high.

That could help head off the rolling blackouts California experienced last summer, which forced utilities to use diesel generators to keep the power on. It's one of the scenarios the CPUC plans to highlight at a workshop on V2G tech.

V2G isn't ready for commercialization, however. The CPUC is simply looking at how the technology could fit into its regulatory framework, as well as existing grid infrastructure. The question is whether this will move things forward appreciably beyond previous V2G studies.

Two California utilities have studied V2G. Southern California Edison (SCE) announced plans for a demonstration project last year, while Pacific Gas & Electric (PG&E) announced last month it's working working with BMW on a study involving actual EV owners.

In a pilot program that wrapped up in 2017, the two companies coordinated the timing of charging for some BMW i3 electric cars to lessen the strain on the grid. About 100 i3 owners in the San Francisco Bay Area were enrolled in the program, which ran for 18 months. PG&E and BMW just announced a next-step study of smart-charging systems and EV drivers—essentially seeing what difference it might make to simply change the time that EV owners charge, to smooth the grid load.

While clear regulations and utility cooperation are key elements of a workable V2G system, cars also need the hardware to discharge power back into the grid.

Audi and Volkswagen are testing bi-directional charging hardware in EVs, and Hyundai has said this will be a feature of its new E-GMP modular EV platform. The Nissan Leaf has also had this ability engineered into it—with additional hardware—but right now most of the electric cars on United States roads don't have that capability.

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