

ARKANSAS ENERGY & ENVIRONMENT



WHAT IS VEHICLE TO GRID (V2G)?

The concept of Vehicle to Grid (V2G) is gaining momentum as a way to decarbonize and improve the electrical grid. Vehicles with V2G technology are able to harness bidirectional charging capabilities that can power a home, feed energy back into the electricity grid, and provide backup power in case of a power outage or emergency. Essentially, an EV can serve as a mobile battery on wheels. By taking advantage of off-peak hours or solar-generated power, owners can charge their EVs at a lower cost, and during peak hours, there is the potential for tens of thousands of EVs to simultaneously supply power to the grid. V2G could revolutionize the way the power grid operates.

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HOW DOES V2G WORK?

V2G relies on a vehicle having a bidirectional charger. In contrast to the majority of EV chargers, a bidirectional charger functions like an inverter, converting alternate current (AC) to direct current (DC) while charging and DC to AC when discharging power back to the grid. Most EVs currently use unidirectional charging, where power is taken from the grid and stored in the battery, only a few electric vehicles, like the Ford F-150 Lightning and the Nissan Leaf, are capable of bidirectional charging.

WHAT DOES THE FUTURE HOLD?

Many EV manufacturers are beginning to integrate bidirectional charging into the latest EV models. Hyundai, for instance, is testing V2G charging software on modified Ioniq 5 models as part of two pilot programs. The U.S. Department of Energy has also formed a coalition with Ford, GM, and Lucid, to create a strategy for widespread V2G infrastructure deployment. In the future, V2G technology could transform the way power grids operate with EV fleets serving as both sustainable transportation options and energy storage assets. The continued development of bidirectional charging has the ability to help to decarbonize and strengthen grid resiliency in the future.

NEWS & EVENTS

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