Vehicle-to-Grid (V2G) Technology

April 18, 2025 • vajiramandravi.com

Vehicle-to-Grid (V2G) Technology Latest News

Recently, the Kerala State Electricity Board (KSEB), in partnership with IIT Bombay, has launched a pilot V2G project to test its feasibility in the state.

What is Vehicle-to-Grid (V2G) Technology?

- **Vehicle-to-Grid (V2G)** is a set of technologies that enable **Electric Vehicles (EVs)** to send **stored electricity back to the power grid** when they are not in use.
- When an **EV is idle and connected via a bi-directional charger**, it can act as a **decentralised battery energy storage system**, contributing electricity to the grid.
- V2G supports both **charging (Grid to Vehicle – G2V)** and **discharging (Vehicle to Grid – V2G)** of EV batteries, creating a **two-way energy flow**.
- EV batteries act as a **load** on the grid during charging, which can be managed using tools like **Time of Use (ToU) tariffs** and **smart charging** to reduce stress during peak hours.

- During discharging, EV batteries serve as **distributed energy sources**, providing electricity during **peak demand periods** or when **renewable energy (RE)** is low.
- V2G is part of a broader framework including **Vehicle to Home (V2H)** and **Vehicle to Vehicle (V2V)** applications, but **V2G is the most widely explored use case** globally.

Source: TH
