JUMP IN THE BOX

V2X in a Box: Fermata Energy offers turn-key bidirectional charging solutions that turns EVs into valuable grid resources reducing EV ownership costs. Our platform optimizes the value of vehicle-to-grid exports to support a more reliable, affordable, and resilient grid. Customers earn thousands of dollars a year with our V2X solution. There are dozens of V2X pilot and commercial projects across the country. Fermata Energy has projects in over 20 states across the country. Bidirectional charging is more prevalent in Europe and is expanding rapidly in Japan. We are at an transition point to scale V2X today with many new bidirectional capable EVs coming to market in addition to numerous new bidirectional chargers coming to the North American market.

Bidirectional charging and vehicle-to-everything (V2X) technology solve several key challenges in modern grid management, primarily revolving around grid stability, renewable energy utilization, and energy storage.

- Grid Stability: Traditional grids are designed for unidirectional energy flows from power plants to consumers. As electricity generation shifts towards more intermittent renewable sources like solar and wind, maintaining a stable and reliable grid becomes increasingly complex. The bidirectional flow with V2X allows EVs to act as mobile energy storage units that can discharge electricity back to the grid during peak demand periods or when there is a shortfall in generation. This helps in balancing supply and demand, ensuring grid stability.
- Renewable Energy Utilization: Integrating renewable energy into the power grid is challenging due to its variable nature--solar and wind power resources don't produce electricity at a constant rate. V2G can mitigate this issue by storing excess renewable energy in EV batteries when supply exceeds demand. This stored energy can then be released back into the grid when renewable generation decreases or demand spikes, maximizing the use of green energy and reducing reliance on fossil-fuel-based peaking power plants.
- Energy Storage and Infrastructure Cost: Developing infrastructure for large-scale energy storage is costly and resource-intensive. V2G leverages the existing battery capacity of EVs, turning each vehicle into a potential storage unit. The distributed nature of V2X resources also reduces or avoids costly grid upgrades. These capabilities reduce the need for additional infrastructure investments and lowers the overall cost of the energy transition.
- In summary, bidirectional charging and V2X technology provide a critical solution to the problems of grid instability, inefficient renewable energy use, and the high costs associated with building dedicated grid infrastructure, making energy systems more flexible, efficient, and sustainable.