

Fuel Cell Vehicle-to-Grid (V2G) Market to Reach USD \$3.26 Billion by 2029 at 28.2% CAGR

The Business Research Company's Fuel Cell Vehicle-to-Grid (V2G) Global Market Report 2025 – Market Size, Trends, And Global Forecast 2025-2034

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Fuel Cell Vehicle-to-Grid (V2G) Global Market Report 2025

How Big Is The [Fuel Cell Vehicle-to-Grid \(V2G\) Market](#) In 2025?

The expansion of the fuel cell vehicle-to-grid (V2G) market has been phenomenal in the recent past. The projections indicate that the market will surge from \$0.94 billion in 2024 to approximately \$1.21 billion in 2025, representing a compound annual growth rate (CAGR) of 28.6%. This significant expansion during the historical period is due to factors such as the growing need for clean energy, increased emphasis on zero-emission transportation, heightened governmental backing for hydrogen infrastructure, escalated investments in fuel cell technology, and the advent of initial V2G projects utilizing fuel cell vehicles.

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In the forthcoming years, the fuel cell vehicle-to-grid (V2G) market is anticipated to experience a substantial surge, with its value increasing to \$3.26 billion in 2029 at a compound annual growth rate (CAGR) of 28.2%. This expected growth during the forecast period is likely to be driven by factors such as the proliferation of hydrogen refuelling services, wider adoption of fuel cell electric vehicles, governmental support for eco-friendly transportation, and a mounting requirement for energy decentralisation. The forecast timeframe also expects to see substantial trends such as improvements in bidirectional charging systems, advancements in hydrogen

storage solutions, the emergence of heavy-duty vehicles powered by fuel cells, innovating vehicle-grid communication protocols, and the creation of mobile fuel cell power units.

Download a free sample of the fuel cell vehicle-to-grid (v2g) market report:

<https://www.thebusinessresearchcompany.com/sample.aspx?id=29069&type=smp>

What Are The Key Driving Factors For The Growth Of The Fuel Cell Vehicle-to-Grid (V2G) Market?

The growth of the fuel cell vehicle-to-grid (V2G) market is projected to be accelerated by the rapid implementation of smart grids. Smart grids represent an advanced power network that employs digital instruments to distribute and control electricity in a more reliable and efficient manner. The escalating demand for more dependable electricity supply, which helps avoid power disruptions and provides constant energy to households and commercial establishments, is the primary driving force behind the surge in smart grids. Fuel cell V2G systems facilitate these smart grids, bolstering bidirectional energy movement between vehicles and the power network, thus augmenting the stability and reliability of the grid. These systems efficiently manage renewable energy and offer adaptive energy management, enhancing the overall effectiveness and robustness of the electrical system. As reported by the International Energy Agency (IEA), a French intergovernmental agency, in July 2023, the global electricity grid investments are on the rise. By 2030, Europe has committed to investing EUR 584 billion (including EUR 170 billion for digitalization), while China plans to invest USD 442 billion (2021–2025), Japan is set to fund USD 155 billion (2022), and the US is expected to contribute USD 10.5 billion (2022) towards grid modernization. Hence, the continued establishment of smart grids is fuelling the growth of the fuel cell V2G market.

Who Are The Key Players In The [Fuel Cell Vehicle-to-Grid \(V2G\) Industry?](#)

Major players in the Fuel Cell Vehicle-to-Grid (V2G) Global Market Report 2025 include:

- Toyota Motor Corporation
- TotalEnergies SE
- Ford Motor Company
- BMW Group
- Honda Motor Co. Ltd.
- Mitsubishi Corporation
- Hyundai Motor Company
- Nissan Motor Corporation
- Kia Corporation
- Panasonic Corporation

What Are The Prominent Trends In The Fuel Cell Vehicle-to-Grid (V2G) Market?

Leading corporations in the fuel cell vehicle-to-grid (V2G) market are directing their efforts towards the creation of sophisticated products such as bidirectional charging systems to fortify grid resilience, heighten energy self-sufficiency among consumers, and optimize the use of green energy. Bidirectional charging systems are state-of-the-art mechanisms which let the energy to be channeled both towards and from the battery of an electric vehicle. This facility empowers

the vehicle to electrify a home (V2H) or revert electricity to the grid (V2G). To illustrate, Star Charge, an eminent EV charging solutions provider based in China, introduced the Halo bidirectional DC charger in Australia in July 2025. The 22 kW AC and 22 kW DC wall charger named Halo is equipped with Vehicle-to-Everything (V2X) technology, thus facilitating a multitude of applications from providing home standby power to grid services. It is crafted with the capability of automatic toggling between charging and discharging scenarios, facilitating unimpeded energy management and enhancing energy protection for domestic users and business operations.

What Segments Are Covered In The Fuel Cell Vehicle-to-Grid (V2G) Market Report?

The fuel cell vehicle-to-grid (v2g) market covered in this report is segmented –

- 1) By Vehicle Type: Passenger Vehicles, Commercial Vehicles, Buses, Other Vehicle Types
- 2) By Technology: Proton Exchange Membrane Fuel Cells, Phosphoric Acid Fuel Cells, Solid Oxide Fuel Cells, Other Technologies
- 3) By Power Rating: Below 100 kW, 100–200 kW, Above 200 kW
- 4) By Application: Peak Power Supply, Emergency Power, Frequency Regulation, Other Applications
- 5) By End-User: Residential, Commercial, Industrial, Utilities

Subsegments:

- 1) By Passenger Vehicles: Sedans, Sport Utility Vehicles, Hatchbacks, Coupes, Luxury Vehicles
- 2) By Commercial Vehicles: Light Commercial Vehicles, Medium Commercial Vehicles, Heavy Commercial Vehicles, Delivery Vans, Pickup Trucks
- 3) By Buses: City Buses, Intercity Buses, Shuttle Buses, Tourist Coaches
- 4) By Other Vehicle Types: Two Wheelers, Three Wheelers, Off Road Vehicles, Special Purpose Vehicles

View the full fuel cell vehicle-to-grid (v2g) market report:

<https://www.thebusinessresearchcompany.com/report/fuel-cell-vehicle-to-grid-v2g-global-market-report>

Which Region Is Expected To Lead The Fuel Cell Vehicle-to-Grid (V2G) Market By 2025?

In 2024, North America dominated the global market for Fuel Cell Vehicle-to-Grid (V2G) as the largest region. The report on the Fuel Cell Vehicle-to-Grid (V2G) market for 2025 forecasts growth in this region. The areas included in the study comprise of North America, Asia-Pacific, Western Europe, Eastern Europe, South America, the Middle East and Africa.

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