Automotive Fuel Cell System Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 116 pages | Mordor Intelligence

AVAILABLE LICENSES:

- Single User License $4750.00
- Team License (1-7 Users) $5250.00
- Site License $6500.00
- Corporate License $8750.00

Report description:

The automotive fuel cell system market was valued at around USD 1.8 billion in 2021, and it is expected to reach USD 14.2 billion by 2027, registering a CAGR of 40.06% during the forecast period.

The outbreak of COVID-19 has not impacted the market as severely as it had impacted the other automotive segments. The demand experienced a decline during the lockdown, but it is expected that the market will gain momentum in 2021 and that the high growth will continue during the forecast period.

The pandemic COVID-19 outbreak has not had as severe an impact on the market as it has on other vehicle categories. Demand suffered during the lockdown period, but it is projected that the market will regain pace in 2022 and that significant growth will continue throughout the forecast period.

With the growing environmental concerns, governments and environmental agencies are enacting stringent emission norms and laws, which are expected to increase the manufacturing cost of fuel-efficient diesel engines in the coming years. As a result, the new commercial vehicle diesel engines segment is expected to register a sluggish growth rate during the short term.

Additionally, conventional fossil fuel-powered commercial vehicles, especially trucks and buses, are responsible for increasing transportation emissions. The advent of fuel cell commercial vehicles, which are considered low or zero-emission vehicles, is anticipated to reduce vehicular emissions emitted by heavy commercial vehicles.

Moreover, initiatives by government bodies around the world to opt for green energy mobility in order to curtail and curb transportation pollution is a key factor that is projected to drive the fuel cell system market in the near future.

Automotive Fuel Cell System Market Trends

Government Initiatives for Clean Energy is Driving the Market

Government initiatives throughout the world to choose green energy mobility in order to restrict and reduce transportation pollution is a crucial driver that is expected to boost the fuel cell commercial vehicle market in the near future. Several governments are already laying out plans throughout the world to encourage FCEVs on the road will also help the automotive fuel cell industry grow.

In February 2022, Japan's Ministry of the Environment announced that it would support local governments and companies in the establishment of a hydrogen business consortium. The ministry has been jointly implementing a hydrogen supply chain platform that generates low-carbon hydrogen and utilizes it in the region with certain companies and local governments. It aims to realize the hydrogen supply chain platform after conducting demonstrations across Japan by around 2030.
In February 2022, the Indian Ministry of New and Renewable Energy announced that it implemented the "Renewable Energy Research and Technology Development" program to support research in various aspects of renewable energy, including inter-alia hydrogen-based transportation and fuel cell development. The ministry listed some of its major development. IISc has established a production plant for high purity hydrogen generation through biomass gasification. ARCI Centre for Fuel Cell Technologies is setting up an integrated automated manufacturing line for producing 20 kW PEM Fuel Cell stacks.
In January 2022, the German government announced support for the CryoTRUCK project for hydrogen trucks. The testing specialist IABG and the Technical University of Munich are jointly developing a CRYOGAS hydrogen gas tank with a refueling system for hydrogen trucks in long-distance transport. The three-and-a-half-year CryoTRUCK project, which has a total budget of more than EUR 25 million, will develop and validate a first-generation technology for cryogenic compressed hydrogen gas (CRYOGAS) storage and refueling system in heavy-duty fuel cell trucks.

Such initiatives are driving the market forward by increasing the adoption of fuel-cell transportation. However, the major obstacle to the introduction of a wide range of fuel cell vehicles in the global market is the lack of hydrogen infrastructure. Factors for fewer hydrogen refueling stations around the world are the involvement of high investment and conventional production methods of hydrogen, which is leading to high emission levels and making it difficult to be in line with the stringent Energy Policy Act.

Establishing a new hydrogen refueling infrastructure is extremely costly (but not any costlier than establishing a methanol or ethanol infrastructure). Hydrogen that is produced from natural gas can be cheaper than gasoline. Hydrogen produced from water and electricity via hydrolysis is more expensive than gasoline using conventional methods unless low-cost off-peak electricity is used or solar panels are employed.

Europe Expected to Witness High Growth Rate

The European Union plans to reduce GHG emissions from the transportation sector significantly. As a result, several countries in Europe have identified the implementation of innovative technologies, such as fuel cells (primarily PEMFC), as a way to meet these objectives. This, in turn, is expected to provide a significant opportunity for the fuel cell manufacturers involved in the market in the near future.

In Europe, the market is driven by the JIVE (Joint Initiative for hydrogen Vehicles), which seeks to deploy new zero-emission fuel cell buses and refueling infrastructure across five countries by 2020. Fuel cell electric buses are the major application of fuel cell systems in the region and global market, and through the JIVE program, the number of these buses is expected to increase in the

coming years.

In March 2021, Solaris delivered the first of a total of 15 hydrogen buses ordered in 2020 by public transport operator Regionalverkehr Koln GmbH (RVK) in Germany. The purchase of hydrogen-powered Solaris buses is under the JIVE 2 project, with the support of the Federal Ministry of Transport and Digital Infrastructure (BMVI) and the NIP2 program (National Innovation Program for Hydrogen and Fuel Cell Technology). The Solaris Urbino 12 hydrogen vehicles use a set of 70 kW fuel cells, by which the bus can cover up to 350 km on a single refill.

Various companies based out of Europe are active in the automotive fuel cell system market.

In March 2021, Robert Bosch GmbH announced that it was planning to develop automotive fuel cell (FC) system components and commercialize them by 2022. In addition to FC stacks, which are under development, the company stated that it would be developing integrated systems that combine the key components of fuel cell vehicles (FCV), including hydrogen gas injectors and air valves.
Moreover, in March 2021, Daimler Truck AG and the Volvo Group founded a fuel-cell joint venture. The Volvo Group acquired 50% shares in the existing Daimler Truck Fuel Cell GmbH & Co. KG at a value of around EUR 0.6 billion. The new joint venture, Cellcentric GmbH & Co. KG, is expected to be the world's leading manufacturer of fuel cells.

The companies active in the region are constantly working on new materials and new fuel cell technologies. They are also spending on the expansion of their facilities. These trends are expected to continue in the coming years, as some companies have indicated their focus on fuel cell technology by announcing their upcoming investments.

Automotive Fuel Cell System Market Competitor Analysis

The automotive fuel cell system market is dominated by players such as Ballard Power Systems Inc., Doosan Fuel Cell Co. Ltd, Hydrogenics, and Nedstack Fuel Cell Technology BV. These companies have been expanding their businesses using new and innovative technologies to have an advantage over their competitors.

In February 2021, Ballard Power Systems signed a non-binding memorandum of understanding (MOU) with Chart Industries Inc. for the joint development of integrated system solutions, which include a fuel cell engine with onboard liquid hydrogen ("LH2") storage and vaporization for the transportation industry mainly for heavy-duty applications, including buses, trucks, rail, and marine vessels.
In February 2021, ACCIONA SA and Plug Power Inc. signed a memorandum of understanding (MOU) to launch a 50-50 joint-venture (JV) headquartered in Madrid. This JV will be a leading green hydrogen platform serving clients in Spain and Portugal, which will provide cost-efficient green hydrogen to multiple end markets.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

Table of Contents:

Automotive Fuel Cell System Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 116 pages | Mordor Intelligence

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4750.00
	Team License (1-7 Users)	$5250.00
	Site License	$6500.00
	Corporate License	$8750.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2026-02-27
		Signature