

# Fuel Cell Market: Technologies, Applications, and Growth Opportunities

*Rising adoption of fuel cells in the military applications is a key factor driving fuel cell market revenue growth*

VANCOUVER, BC, CANADA, April 6, 2023 /EINPresswire.com/ -- The global [Fuel Cell Market](#) size reached USD 4.26 Billion in 2021 and is expected to register a revenue CAGR of 22.8% during the forecast period, according to latest analysis by Emergen Research. Rising adoption of fuel cells in military applications across the globe is the key factor driving revenue growth of the market.



Emergen Research Logo

Fuel cells are becoming an attractive option for military applications. Its ability to generate clean, reliable electricity from hydrogen on-site is being used in a variety of ways to assist soldiers in protecting national security while also improving energy efficiency. Hydrogen fuel cells can extend Unmanned Aerial Vehicle (UAV) flight time to approximately eight hours and can be refueled in less than 15 minutes after landing. The fuel cell-powered UAV also requires less maintenance and no lubricants. The Navy's U.S. Naval Research Laboratory and General Motors (GM), developed a long-endurance unmanned undersea vehicle (UUV). The Navy began using fuel cells in UUVs instead of batteries to allow for larger payloads and longer runtimes. On 17 June 2021, General Motors and Liebherr-Aerospace announced to collaborate

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Fuel Cell Market Size – USD 4.26 Billion in 2021, Market Growth – at a CAGR of 22.8%, Market Trends – Increasing trend for the development of hydrogen fueling stations”

*Emergen Research*

on the development of an electrical power generation system based on hydrogen fuel cell technology for aircraft applications. Growing adoption of fuel cell technology in military applications is expected to boost revenue growth of the market during the forecast period.

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### Prominent Players Analyzed in the Report:

Ballard Power Systems, Hydrogenics Corporation, FuelCell Energy, Inc., Bloom Energy, Plug Power, Inc., SFC Energy AG, Ceres Power Holdings PLC, Doosan Fuel Cell America, Intelligent Energy, and Toshiba Energy Systems & Solutions Corporation, among others.

Increasing development of hydrogen fueling stations across the globe is creating ample opportunities for the fuel cell market. According to research, there were 685 hydrogen refueling stations in operation worldwide at the end of 2021. There are already concrete plans in place for 252 additional refueling station locations. Rising adoption of fuel cell vehicles creates high demand for hydrogen fueling stations. On 24 February 2022, Chevron U.S.A. Inc. partnered with Iwatani Corporation of America (ICA) to develop and build 30 hydrogen fueling stations in California by 2026. On 13 June 2022, Amara Raja Power Systems, an India-based power system manufacturing company, was awarded a contract by National Thermal Power Corporation (NTPC) to build India's first green hydrogen fueling station in the Leh district of Ladakh. In the region, NTPC is running a pilot project with five hydrogen fuel cell buses.

### Some Key Highlights from the Report

Polymer Electrolyte Fuel Cells (PEFCs) segment revenue is expected to increase at a steady rate over the forecast period due to the rising adoption of PEFCs in transportation and stationary applications. PEMFCs produce electricity and work on the inverse principle of PEM electrolysis. It is a strong contender to replace alkaline fuel-cell technology.

The transportation segment is expected to register a significantly fast revenue growth rate over the forecast period due to the growing adoption of fuel cells in automotive. Rising awareness of fossil fuel emissions across the globe creates high demand for fuel cell vehicles across the globe. In May 2022, French multinational automobile manufacturer Renault announced to launch electric-hydrogen hybrid concept car.

The market in Asia Pacific accounted for largest revenue share in the global fuel cell market in 2021 due to the growing adoption of fuel cell vehicles in countries across the region, especially in China, Japan, South Korea, and Japan. The government of China is planning to roll out 50,000 fuel cell vehicles by 2025. The hydrogen roadmap outlines the country's fuel cell ecosystem development between 2025 and 2035. The country also intends to produce 200,000 tons of green hydrogen per year by 2025.

Some major companies in the global market report include Doosan Fuel Cell Co., Ltd., Fuel Cell Energy, Inc., SFC Energy AG., Bloom Energy, Kyocera Corporation, Plug Power Inc., Nuvera Fuel Cells, LLC, Nedstack Fuel Cell Technology B.V., Intelligent Energy, Cummins Inc., PowerCell Sweden AB, and Toshiba Corporation.

On 15 March 2022, SFC Energy AG, a Germany-based fuel-cell specialist and Austria-Wolftank

Group of Austria agreed to collaborate on hydrogen fuel cell power supply for critical infrastructure and hydrogen refueling stations in Italy and Austria. As a part of the collaboration, the two companies will offer a system comprised of SFC Energy's hydrogen fuel cell technology and a special hydrogen tank supplied by Wofltank.

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Emergen Research has segmented the global Fuel Cells Market on the basis of Product, Application, End-User, and region:

Product Outlook (Revenue, USD Billion; 2017-2027)

Phosphoric Acid Fuel Cell (PAFC)

Molten Carbonate Fuel Cell (MCFC)

Proton Exchange Membrane Fuel Cell (PEMFC)

Solid Oxide Fuel Cell (SOFC)

Others

Application Outlook (Revenue, USD Billion; 2017-2027)

Portable

Stationary

Transportation

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End-User Outlook (Revenue, USD Billion; 2017-2027)

Defense

Fuel Cell Vehicles

Utilities

Regional Outlook (Revenue, USD Billion; 2017-2027)

North America (the U.S., Mexico, and Canada)

Asia Pacific (China, Japan, India, and Rest of Asia Pacific)

Europe (the U.K., France, Germany, and Rest of Europe)

Latin America (Brazil and Rest of Latin America)

Middle East & Africa (GCC Countries and Rest of Middle East & Africa)

Overview of the Fuel Cells Market Report:

Introduction, Product Scope, Market Overview, and Opportunities

Analysis of the Manufacturers with sales, revenue, and price analysis

Comprehensive analysis of the competitive landscape

Extensive profiling of the key competitors along with their business strategies and market size

Regional analysis of the market along with sales, revenue, market share, and global position

Country-wise analysis of the market along with types, applications, and manufacturing

Strategic recommendations to established players as well as new entrants

In-depth analysis of the risks, restraints, and limitations in the Fuel Cells industry

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