Shift of Focus Towards Clean and Renewable Energy to Reduce Carbon Emission is Driving the Growth of Fuel Cells Market.

Global Fuel Cells Market to Surpass CAGR of 27.8% During 2023 – 2031; says Absolute Markets Insights

Fuel Cells Market

HOUSTON, TEXAS, UNITED STATES, July 24, 2023 /EINPresswire.com/ -- Fuel cells are devices that produce energy using electrochemical redox processes rather than burning. In a nutshell, they immediately transform the chemical energy of fuels like hydrogen or methane into electrical energy by mixing them with oxygen. Fuel cells are particularly efficient because chemical energy does not need to be transformed into thermal or mechanical energy first. Aside from lowering energy losses, fuel cells are also less harmful than traditional combustion, with much lower carbon emissions. The global fuel cells market accounted for US$ 2.9 Bn in 2022.

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Fuel cells provide a number of advantages over traditional combustion-based technologies that are now employed in many power plants and automobiles. Fuel cells have better efficiency than combustion engines and may directly transfer the chemical energy in fuel to electrical energy with efficiencies surpassing 60%. When compared to combustion engines, fuel cells emit little or no pollution. Because there are no carbon dioxide emissions from hydrogen fuel cells, they solve significant climate issues. Thus due to high energy conversion efficiency, making them an efficient energy generation option is boosting the growth of the global fuel cells market.

The Rapid Adoption of Green Technologies Aids the Growth of the Global Fuel Cell Market. Many prominent governments and organizations have highlighted hydrogen's vital role in the storage of volatile renewable energy sources, as well as as a vector for linking many industries, in

recent years. Hydrogen is a perfect fuel for fuel cells, and its position in future energy systems will surely be defined by improvements in efficiency, cost reduction, and long-term stability of fuel cell layers and systems.
Around 45,000 fuel cell vehicles are already on the road worldwide, while the number of stationary fuel cell installations has surpassed 400,000 units. These statistics illustrate that fuel cell technology solutions are widely employed. Concurrently, current R&D initiatives integrate improved materials and manufacture of cutting-edge technology with novel design methodologies and operational tactics. These novel advancements aim to improve reliability and efficiency at a reduced cost, so that fuel cells may not only replace existing techniques without subsidies, but also compete with other potential energy options. Hence with the continued government support and collaborations and partnerships amongst the market participants will boost the growth of the global fuel cell market in the future.

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Which Type Had the Highest Share In The Global Fuel Cells Market in 2022?
Polymer electrolyte membrane (PEM) fuel cells had the highest share in the global fuel cells market in 2022. PEM fuel cells offer a high power density, wherein they can deliver a significant amount of power relative to their size and weight. This characteristic makes them well-suited for applications where space and weight are important considerations, such as in automotive and portable electronic devices. Beside compared to some other fuel cell types like solid oxide fuel cells (SOFCs), PEM fuel cells operate at relatively low temperatures, usually below 100 degrees Celsius. This lower temperature enables them to start up quickly and can simplify system design and materials selection, which has led to the rise in demand for polymer electrolyte membrane fuel cells. Furthermore, scientists are focusing on the synthesis and development of next-generation higher-performance PEMs with high conductivity. Researchers at Nagoya University in Japan will created a novel ultra-high-density sulfonic acid polymer electrolyte membrane for fuel cells in April 2023, which may be utilised in cars and combined heat and power systems.

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Based on Region Segment, Which Region is anticipated to be the Fastest Growing Region in the Fuel Cells Market During the Forecast Period?
Asia Pacific region is estimated to be the fastest growing region in the fuel cell market during the forecast period 2023-2031. Many countries in Asia, including Japan, South Korea, and China, have implemented supportive policies and incentives to promote the adoption of fuel cell technology. These policies may include subsidies, tax incentives, and research grants, encouraging both the development and deployment of fuel cell systems in various applications. Several Asian countries have been actively pursuing hydrogen economy initiatives to promote the use of hydrogen as a clean energy carrier. Fuel cells, especially hydrogen fuel cells, play a crucial role in these strategies, leading to increased investment in research, development, and deployment of fuel cell technology. As part of this initiative, Panasonic will conduct a demonstration test of a

cold/heat/electricity solution utilising pure hydrogen fuel cells in Wuxi, China, in March 2023, expanding the deployment of hydrogen fuel cells outside Japan. Thus with such initiatives Asia Pacific region holds huge potential for the growth of fuel cells market in te upcoming years.

Key Developments in the Global Fuel Cells Market

- In January 2023, Plug Power Inc. and Johnson Matthey have formed a strategic alliance to boost Plug's supply chain and fulfil rising demand for fuel cells and electrolyzers.
- In February 2022, Honda Motor Co. stated this year that it will begin production of a new hydrogen fuel cell system developed in collaboration with General Motors Co. and progressively increase sales over the next decade in order to boost its hydrogen business.
- In August 2022, BMW and Toyota have collaborated to create hydrogen fuel cell automobiles. As early as 2025, the two will begin producing and marketing hydrogen fuel cell automobiles created in collaboration.

Some of the players operating in the global fuel cells market are:

- Alstom
- Ballard Power Systems.
- Bloom Energy
- Blue World Technologies ApS
- Doosan Fuel Cell Co., Ltd.
- ElringKlinger AG
- Intelligent Energy Limited
- Johnson Matthey
- Nedstack Fuel Cell Technology BV
- Nuvera Fuel Cells
- Plug Power Inc.
- SFC Energy AG
- SolydEra SpA
- TW Horizon Fuel Cell Technologies
- Other market participants

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Global Fuel Cell Market
By Type

- Polymer Electrolyte Membrane (PEM) Fuel Cells
- Solid Oxide Fuel Cells (SOFC)
- Molten Carbonate Fuel Cells (MCFC)
- Phosphoric Acid Fuel Cells (PAFC)
- Alkaline Fuel Cells (AFC)
- Direct Methanol Fuel Cells (DMFC)
- Reversible Fuel Cells

By Source
o Hydrogen
o Methanol
o Biogas
o Natural Gas
o Hydrocarbons
By Application
o Transportation
o Portable Power
o Stationary Power

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By Region
o North America (U.S., Canada, Mexico, Rest of North America)
o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe
o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific
o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)
o Latin America (Brazil, Argentina, Rest of Latin America)

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