

## **Solid Oxide Fuel Cells Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

Market Report | 2023-01-23 | 100 pages | Mordor Intelligence

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### **Report description:**

The solid oxide fuel cells market was valued at USD 384.86 million in 2020, and it is expected to reach USD 2300.50 million by 2027, registering a CAGR of more than 24.5% during the forecast period (2022-2027). The COVID-19 pandemic had a mixed effect on the fuel cells market. In some countries, like India, project delays were witnessed in the deployment of fuel cells in the transportation and commercial sectors. For example, the goals of the National Hydrogen Energy Roadmap could not be achieved in 2020 due to the pandemic. On the other hand, in Europe, the market for SOFC-based fuel cells witnessed an acceleration due to the high deployment of the technology in medical centers and residential micro-CHP systems. The SOFC market is likely to grow in the future due to the energy conversion efficiency of the cells compared to other power generation sources and long-term stability. However, the market can be constrained due to the current high cost of the technology compared to alkaline fuel cells.

### **Key Highlights**

CHP (Combined Heat and Power) systems are expected to dominate the market in the coming years due to the suitability of the cells for high-temperature applications.

The technological milestones create ample opportunities for the market. For instance, Phillips 66 Company received a USD 3 million grant from the US Department of Energy (DOE) to develop high-performance reversible solid oxide fuel cells. The company will collaborate with the Georgia Institute of Technology to demonstrate the feasibility of this system for hydrogen and electricity generation. ?

The Asia-Pacific region is likely to have the major share in this evolving scenario due to the favorable government policies for cleaner power supply sources.

### **Solid Oxide Fuel Cells Market Trends**

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## CHP Systems Expected to Dominate the Market

Solid oxide fuel cells are best suited for stationary power generation systems for homes and businesses. However, their high-temperature efficiency distinguishes them from other fuel cells used for such purposes, making them best suited for cogeneration systems or combined heat and power systems.

The United States and Europe witnessed a constant acceleration in the installed micro-CHP systems, which reduced carbon-dioxide emissions to a great level. In the United Kingdom, the CO<sub>2</sub> emissions were recorded at around nine metric ton in 2010, which were reduced to around four metric ton with the qualifying CHP systems.

The technology is gaining momentum in the residential sector and the institutional segment. In November 2020, Cummins Inc. announced that it received two federal grants of a total of USD 4.6 million to advance the commercialization of solid oxide fuel cell (SOFC) technology in the United States to help commercial and industrial customers minimize their carbon impact while providing energy resiliency and cutting costs in their businesses by installing fuel cell-based CHP systems.

Furthermore, in March 2020, after developing the CHP system with Ceres' solid oxide fuel cell technology in the United Kingdom, MIURA CO. LTD announced the maintenance support for the deployment in the Japanese market, targeting the commercial building sector.

? Such developments are expected to boost the demand for CHP systems in the future.

## Asia-Pacific to Dominate the Market

Asia-Pacific is expected to have the highest growth in the deployment of fuel cells due to the government's support for sustainable sources in the domestic energy mix. Japan is leading in the region with vast applications of fuel cells, ranging from backup services for data centers and combined heat and power systems for homes.

In 2020, the Japanese government published the "Green Growth Strategy Through Achieving Carbon Neutrality in 2050", which states that the country aims to introduce up to 3 million ton of hydrogen before 2030 and up to 20 million ton before 2050. The high hydrogen availability acts as a catalyst for the country's fuel cells market's growth.

China has also witnessed a rise in its hyper-scale platforms, which has accelerated the growth of data centers in the country. China has 50 internet users per 100 population, indicating scope for development and the connectivity ecosystem, thus driving the solid oxide fuel cells market. Amazon Web Services is investing USD 1.6 billion to set up two data centers in India, with much of the investment going toward high-end computer and storage units.

Such developments are likely to elevate the growth of the solid oxide fuel cells market in the region.

## Solid Oxide Fuel Cells Market Competitor Analysis

The solid oxide fuel cells market is fragmented. Some of the major companies in the market include Mitsubishi Hitachi Power Systems Ltd, DuPont de Nemours Inc., Bloom Energy Corp., Sunfire GmbH, Convion Ltd, and Elcogen AS.

Additional Benefits:

The market estimate (ME) sheet in Excel format

3 months of analyst support

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