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Solid Oxide Fuel Cell Market - Forecasts from 2021 to 2026

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Abstracts

The solid oxide fuel cell market is projected to have a compound annual growth rate of 24.46%, from US$681.850 million in 2019 to US$3,154.260 mil-lion in 2026. The market of solid oxide fuel cell is expected to drive by increasing investments to promote the sustainable environment, by increasing demand for the renewable sources of energy, and by increasing development of energy-efficient systems to fulfil the additional power demands. Now-a-days, increasing awareness for the sustainable environment by reducing the greenhouse gases emissions, the demand for solid oxide fuel cells is further increasing, which lead to potential growth in the forecast period. In addition to it, the increasing research and development on fuel cell programs, government subsidies are also boosting the demand for the solid oxide fuel cell markets. North America and Europe are having the significant demand for the clean fuel because of the increasing government awareness and strict rules for the carbon emissions into the environment.

By application, the market of solid oxide fuel cell is segmented into stationary, portable, transportation, commercial & industrial, residential and energy storage. Stationary segment is expected to have a significant growth in the forecast period and will have the significant market share as well. The growth of this segment is driven by the increasing demand for the hydrogen-based fuel cells that are used to meet the additional demand of energy. Asia Pacific region is having a potential to grow in this segment, especially, China, India, and South Korea. The segmentation of market by the end-users is done into data centers, military & defense, power generation, automotive, hydrogen generation and others. Among them, the power generation is the significant segment which has the potential growth in the forecast period. The increasing demand for the energy-efficient renewable sources of energy is driving this segment of the market, as power generation is an essential part of all the activities (residential, commercial, and industrial) such as defense & military, data centers, and so on. Following that, data

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centers and military & defense are having the significant potential to grow in the forecast period because of the increasing demand for the data centers in Asia Pacific region, mainly driven by the industrialization.

By region, the solid oxide fuel cell market is having a significant market share in North America along with the potential growth opportunity in the forecast period. This region is mainly driven by the growth opportunities in US and Canada, which is driven by the increasing demand for the research and development for hydrogen generation and increasing demand for the fuel cell power. After North America, Asia Pacific region is having a significant market share and significant potential growth opportunity in the solid fuel cell market, followed by Europe region. By type, the market is segmented into tabular, planar, and thin sheets, where planar segment is expected to have a significant market share as well as significant growth rate in the market. The growth of this market's segment is driven by the features of the planar fuel cells, that are, its easy construction process and geometry.

Covid-19 impact

The pandemic covid-19 has adversely impacted the solid oxide fuel cell market, as it hampered both the production and the consumption markets, where in production market, the manufacturing has been hampered due to the lockdowns. Although, this pandemic has made realize the importance of the energy efficiency and environment sustainability and further boosts the demand for the technology and fuel cells to fulfil the demand of the increasing energy, heat, and power in the market with efficiency. Though, the pandemic has slowed down the economies, and affected the industries severely, but has also gave the boost to the solid oxide fuel cell market.

Recent Developments

In 2019, FuelCell Energy has initiated a project to increase the commercialization of the technology for various uses such as power generation, energy storage, and so on. The project is backed by the Cooperative Agreement issued by US DoE. Bloom Energy collaborated with Samsung heavy Industries to deliver the innovative solid oxide fuel cells mainly for maritime applications with the aim to reduce the 50% emissions from the marine vessels by 2050. Bloom energy is holding the dominant market share in the solid oxide fuel cell market, primarily in Us, South Korea, Japan, and India.

Decarbonization is every government aiming to achieve while fulfilling the increasing demand for heat, power, and transport. This will be assisted by the fuel cells and

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technology which will emit no carbon. Adelan is working on a project, funded by the UK Research and Innovation, to develop the hydrogen-based fuel cells by 2040 to achieve the decarbonization. Doosan Fuel-Cell is developing a Korean-based solid oxide fuel cell to achieve high-efficiency power generation by 2024. Along with it, the company has signed an agreement with Ceres Power, to develop an 800 degree Celsius or higher temperature's solid oxide fuel cell in order to achieve the high-power efficiency

Elcogen is expected to $4.9 billion by 2022 in the solid oxide fuel cell market. Elcogen expected to have a huge potential growth rate in the personal consumption sector for solid oxide fuel cell market for heat and power generation but the major challenge that has to be faced is the high cost of the technology and the higher operating temperatures

APAC to witness lucrative growth

Asia Pacific is expected to have the highest growth in the solid oxide fuel cell market because of the increasing demand for the energy, increasing demand for energy efficient renewable sources of energy to protect the environment, and industrialization and urbanization. In this region, India, China, Japan, and South Korea is having the potential and significant growth opportunities in the forecast period. Japan is having the potential growth due to the increasing demand for the data centers, heat, and power demand for the personal consumption. India is having the investment opportunities, government support, and increasing demand for the heat and power which is driving the demand for the solid oxide fuel cells in the market.

Segmentation:

By Type

Planar

Tubular

Thin film

By End-users

Data centers

Military & defense

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Automotive

Others

By Geography

North America

USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

Germany

Italy

United Kingdom

France

Others

Middle East and Africa

Saudi Arabia

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South Africa

Others

Asia Pacific

China

Japan

South Korea

India

Others

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