

Green Hydrogen Revolution: A Decade of Innovation and Growth (2022-2032)

Hydrogen Renaissance: A Comprehensive Look at the Clean Hydrogen Market 2022-2032

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/EINPresswire.com/ -- Clean hydrogen, a pivotal player in the transition to sustainable energy, is generated through processes like electrolysis using renewable sources. Unlike traditional hydrogen production methods, clean hydrogen production

generates minimal or zero carbon emissions, positioning it as a key solution for decarbonizing various sectors. As governments and industries globally commit to ambitious climate goals, clean hydrogen gains prominence in fostering a green economy. Its versatility spans applications in transportation, industry, and energy storage, making it a cornerstone in the pursuit of a low-carbon future. With ongoing advancements and investments, the clean hydrogen sector is poised to play a transformative role in mitigating climate change and promoting a more sustainable energy landscape. The [clean hydrogen market](#) was valued at \$3.8 billion in 2022 and is estimated to reach \$18.3 billion by 2032, growing at a CAGR of 14.8% from 2023 to 2032.

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Surging commercial viability, expanding hydrogen applications, rising demand as an alternative fuel, and global net-zero targets drive Clean Hydrogen Market trends.”

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The image shows the cover of a report titled "CLEAN HYDROGEN MARKET OPPORTUNITIES AND FORECAST, 2022 - 2032". The cover features a photograph of a hydrogen fueling station with a sign that says "ZERO emissions". The report title is in green and black text. Below the title, it states "Clean hydrogen market is expected to reach \$18.3 Billion in 2032" and "Growing at a CAGR of 14.8% (2023-2032)". At the bottom, it includes the report code "A53698" and the website "www.alliedmarketresearch.com".

Clean Hydrogen Market

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Clean hydrogen is the form of hydrogen that is produced through processes that result in lower carbon emissions (through carbon capture, storage, and utilization (CCUS)) or zero carbon emissions. Climate change and net-zero commitments are major reasons for the shift from fossil fuels to alternatives such as synthetic fuels, renewables, nuclear fusion energy, clean hydrogen,

and others. Several advanced hydrogen technologies are being developed and countries are positioning themselves to become hydrogen superpowers.

Hydrogen is not a direct substitute for coal, oil, and natural gas, but it can help to decarbonize parts of the economy. Clean hydrogen is expected to be the major contributor to the clean energy economy. The net-zero targets to bring down the temperature increase from 2 degrees Celsius to 1.5 degrees Celsius are fueling the growth in alternative fuels. The commitment to bring down carbon footprint through energy transition by reducing primary energy dependence on fossil fuels and non-renewable sources has been a major driver for clean hydrogen market growth. In addition, lower to zero carbon-emitting fuels are being sought for reducing carbon footprint which also adds to market growth.

However, the higher cost and volatile nature of the product restrain the market growth for clean hydrogen. Moreover, the lack of policy frameworks and a complex value chain of the product discourages the clean hydrogen industry growth. Meanwhile, government policy and company strategies will offer lucrative opportunities for market growth. Clean hydrogen production can be done through electrolyzers and carbon capture technologies. flexibility in producing clean hydrogen offers lucrative opportunities for the clean hydrogen industry growth.

The clean hydrogen market size is studied based on type, method, application, and region. By type, the clean hydrogen market is bifurcated into blue hydrogen and green hydrogen. Blue hydrogen dominated the clean hydrogen market share in 2022. Blue hydrogen is a relatively new concept and can refer to hydrogen made either through steam methane reforming or natural gas.

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Blue hydrogen production is far less costly than green hydrogen as the source of electricity for green hydrogen cannot be purely renewable in many instances. However, green hydrogen is expected to grow at a significant rate during the projection years. The development of new green hydrogen plants commitment to the decarbonizing economy, and the development of new efficient technologies encourage the market growth for clean hydrogen

Depending on the method, the market is further classified into electrolysis and carbon capture. The electrolysis segment is further divided into alkaline electrolyzers, polymer electrolyte membrane electrolyzers (PEM), and solid oxide electrolyzers (SOE). The carbon capture segment dominated the market share and is expected to grow at a higher CAGR during the clean hydrogen market forecast period. This is owed to the fact that CCUS technology is cheaper than electrolyzers as the installation and maintenance costs for electrolyzers are quite high.

Competitive Analysis:

The Clean Hydrogen industry's key market players adopt various strategies such as product launches, product development, collaboration, partnership, and agreements to influence the market. It includes details about the key players in the market's strengths, product portfolio, market size and share analysis, operational results, and market positioning.

Some of the major key players in the global Clean Hydrogen market include,

Linde plc
China Petroleum & Chemical Corporation
Saudi Aramco
Iberdrola SA
Air Products & Chemicals Inc.
Enel Green Power Spa
FuelCell Energy Inc
Plug Power Inc.
Orsted A/S, ExxonMobil

By application, the market is divided into industrial, transportation, power, and others. The industrial segment garnered the highest market share for 2021 followed by the transportation segment and is expected to grow at a higher CAGR during the projection period. Hydrogen is used in several industrial processes for metallurgy, chemical feedstock, glass, food & beverages sectors and thus acts as a driving factor for the industrial segment.

However, the transportation segment is expected to follow the industrial segment during the projection period as reducing carbon footprint through synthetic fuels and electric vehicles encourages hydrogen demand which further adds to the increased demand for clean hydrogen.

By region, the clean hydrogen market analysis is done across North America, Europe, Asia-Pacific, and LAMEA (Latin America, the Middle East, and Africa). North America dominated the clean hydrogen market share for 2021, and the same is expected to grow at a higher CAGR during the forecast period. This is owed to several clean hydrogen projects being planned and enforced in countries like the U.S. and Canada.

Asia-Pacific is a large consumer of electric vehicles, which drives the demand for hydrogen fuel cells. China dominated the world hydrogen market being the largest producer as well as consumer of the product. China consumes around 24 million tons of hydrogen annually. In 2017, Japan became the first country to formulate a national hydrogen strategy as part of its ambition to become the world's first "hydrogen society" by adopting the fuel across all sectors.

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Key findings of the study:

- By type, green hydrogen is projected to grow at the highest CAGR of approximately 15.2%, in terms of during the clean hydrogen market forecast period
- By the method, the carbon capture segment dominated the clean hydrogen market share by over 70% in 2021
- By application, the industrial segment is projected to grow at the highest CAGR of approximately 15.0%, in terms of during the clean hydrogen market forecast period.
- By region, North America dominated the clean hydrogen market and is expected to grow at a CAGR of 15.1% during the forecast period

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