

# Hydrogen Market : Global Opportunity Analysis and Industry Forecast, 2018-2025

*Hydrogen Market Poised for Growth: Emerging Trends and Key Opportunities in 2025*

PORTLAND, OR, UNITED STATES, December 9, 2024 /EINPresswire.com/ -- Allied Market Research published a report on the global [hydrogen market](#), titled, "Hydrogen Market by Delivery Mode

(Captive, Merchant), By Type (Blue Hydrogen, Grey Hydrogen, Green Hydrogen), By End Use (Refining, Power Generation, Transportation, Food Processing, Others): Global Opportunity Analysis and Industry Forecast, 2023-2032". As per the report, the global hydrogen industry was valued at \$155.9 billion in the year 2022 and is expected to garner \$292.0 billion by 2032, with 6.5% CAGR during the forecast period of 2023 to 2032.

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Hydrogen (H<sub>2</sub>) is a clean, versatile, and energy-dense fuel that is at the heart of the world's transition to a carbon-neutral economy.”

*David Correa*

Hydrogen (H<sub>2</sub>) is one of the most abundant, clean, and versatile energy sources on Earth. As the world moves toward a more sustainable energy future, hydrogen is playing a crucial role in decarbonizing industries, transportation, and energy production. Its ability to store and deliver energy without producing harmful emissions (when used in fuel cells) has made it a key player in the global energy transition.

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Hydrogen is classified by color codes based on how it is produced:

**Green Hydrogen**

Production: Electrolysis of water using renewable energy (like solar, wind, or hydro).

Emission: Zero CO<sub>2</sub> emissions (truly "clean hydrogen").

Application: Energy storage, clean fuel for transport, and decarbonization of industry.

Challenge: High production costs and reliance on renewable energy availability.

**Blue Hydrogen**

Production: Steam methane reforming (SMR) of natural gas, but with carbon capture, utilization,

and storage (CCUS).

Emission: Reduced CO<sub>2</sub> emissions (up to 90% can be captured).

Application: Industrial use, power generation, and as a cleaner alternative to gray hydrogen.

Challenge: Cost of CCUS and availability of infrastructure.

#### Blue Hydrogen

Production: Steam methane reforming (SMR) without capturing CO<sub>2</sub>.

Emission: High CO<sub>2</sub> emissions (most widely used production method today).

Application: Fertilizer production, refining, and industrial processes.

Challenge: Significant carbon footprint, not aligned with net-zero goals.

#### Black Hydrogen

Production: Pyrolysis of methane to produce hydrogen and solid carbon instead of CO<sub>2</sub>.

Emission: No direct CO<sub>2</sub> emissions (solid carbon can be used in industrial applications).

Application: Carbon black production and decarbonization of chemical processes.

Challenge: Requires new technologies and infrastructure.

#### Green Hydrogen

Production: Electrolysis using nuclear energy (pink) or solar/geothermal (yellow/purple).

Emission: Minimal to zero emissions.

Application: Power plants and storage solutions in nuclear-rich regions.

Challenge: Public perception of nuclear energy and its waste.

#### Grey Hydrogen

Production: Gasification of coal (brown) or lignite (black) to produce hydrogen.

Emission: High CO<sub>2</sub> emissions, most polluting form of hydrogen production.

Application: Historically used in industries, but being phased out due to its high environmental impact.

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The green hydrogen segment to experience fastest growth by 2032

On the basis of type, the green hydrogen segment would showcase the highest growth with 6.9% CAGR during the forecast period. The manufacturing process of green hydrogen does not emit any carbon; hence it is sustainable option instead of grey hydrogen. It reduces greenhouse gas emissions and the environmental effect of hydrogen use. The grey hydrogen, on the other hand, held the major share in 2022, accounting for more than four-fifth of the total market share, and is expected to dominate the market during the forecast period. Grey hydrogen currently holds the dominant position in hydrogen production, primarily owing to its abundant availability of natural gas and comparatively low cost. Numerous industrial applications and processes depend on grey hydrogen as a fuel source or feedstock.

The refining segment to maintain its dominance from 2023 to 2032

In terms of end use, the power generation segment would cite a noteworthy growth with 6.8% CAGR during the forecast period. Hydrogen can serve as a fuel source for power generation, providing a promising route towards more sustainable and cleaner energy production. Its application in power generation holds the potential for enhanced air quality, increased energy adaptability and decreased greenhouse gas emissions. On the other hand, the refining segment generated the major share in 2022, contributing to more than two-fifths of the overall market share and is expected to maintain its dominance during the forecast period. Hydrogen plays a vital role in the refining sector, especially in the context of petroleum refining. It is employed for various purposes to enhance the quality of refined products.

Asia-Pacific to witness a fastest growth by 2031

On the basis of regional analysis, the market across Asia-Pacific was largest in 2022, generated the largest share of around half of the overall revenue of the market and is expected to maintain its dominance with 6.7% CAGR by 2032. Due to its renewable energy potential, substantial government support, and high energy demand, the region presents significant prospects for the hydrogen industry. The region's strong commitment to hydrogen as a sustainable energy solution is driving investments, spurring innovation, and promoting research, all with the goal of fully realizing hydrogen's potential across a variety of sectors.

Top players profiled in the global hydrogen market report:

INDIAN OIL CORPORATION LTD.

RELIANCE INDUSTRIES LTD

SHELL PLC.

FUELCELL ENERGY, INC.

LINDE PLC

NEL ASA

PLUG POWER INC.

MESSER GROUP GMBH.

AIR LIQUIDE S.A.

AIR PRODUCTS AND CHEMICALS, INC.

The report offers an in-depth analysis of the prominent players in the global hydrogen industry. These companies have employed various strategies, including launching new products, forming collaborations, expanding their operations, entering into joint ventures, establishing agreements, and more, to enhance their market revenue and maintain highest positions in various regions. The report is a valuable resource for highlighting operational segments, business performance, strategic actions, product portfolios of these market players, effectively illustrating the competitive analysis.

Want to Access the Statistical Data and Graphs, Key Players' Strategies:

<https://www.alliedmarketresearch.com/india-hydrogen-market/purchase-options>

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We are in professional corporate relations with various companies and this helps us in digging out market data that helps us generate accurate research data tables and confirms utmost accuracy in our market forecasting. Each and every data presented in the reports published by us is extracted through primary interviews with top officials from leading companies of domain concerned. Our secondary data procurement methodology includes deep online and offline research and discussion with knowledgeable professionals and analysts in the industry.

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