

Rising Demand for Low-Carbon Fuel Drives Blue Hydrogen Market to \$3.5 Bn by 2031

Rising clean energy demand and industrial applications drive blue hydrogen market growth, supported by favorable policies and technological advancements.

WILMINGTON, DE, UNITED STATES, August 14, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "Blue Hydrogen Market by Technology (Steam Methane Reforming, Gas Partial Oxidation, Auto Thermal Reforming), by End Use (Power Generation, Chemical, Refinery, Others), by Industry (Ammonia, Methanol, Others): Global Opportunity Analysis and Industry Forecast, 2021-2031" The global blue hydrogen market size was valued at \$0.9 billion in 2021, and blue hydrogen industry is projected to reach \$3.5 billion by 2031, growing at a CAGR of 14.1% from 2022 to 2031.



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The blue hydrogen market is witnessing rapid growth as industries and governments focus on low-carbon alternatives to meet climate targets. Blue hydrogen is produced from natural gas through steam methane reforming (SMR) while capturing and storing the resulting carbon dioxide (CO₂), making it a cleaner alternative to traditional hydrogen production. The rising adoption of hydrogen in industrial processes, power generation, and transportation is driving market demand globally, especially in regions with strong carbon reduction policies.

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1. Growth Drivers:

The demand for blue hydrogen is primarily driven by increasing energy transition initiatives and global decarbonization efforts. Industries such as refining, ammonia production, and steel manufacturing are adopting blue hydrogen to reduce greenhouse gas emissions, supporting the

shift toward cleaner energy solutions.

2. Government Support and Policies:

Government incentives and favorable policies, including subsidies for low-carbon hydrogen and carbon capture and storage (CCS) initiatives, are encouraging investments in blue hydrogen infrastructure. Regions like Europe, North America, and parts of Asia-Pacific are providing regulatory frameworks to accelerate adoption.

3. Technological Advancements:

Ongoing R&D in hydrogen production, CCS technologies, and process efficiency improvements are enhancing the feasibility and cost-effectiveness of blue hydrogen. Innovations in carbon capture, storage, and utilization technologies are expected to reduce emissions and operational costs, making blue hydrogen more competitive with grey hydrogen.

4. Market Challenges:

High production costs, dependence on natural gas, and infrastructure limitations are restraining the market growth. Additionally, the availability and transport of CO₂ storage facilities pose logistical challenges, limiting large-scale adoption in some regions.

5. Opportunities:

Increasing demand for low-carbon fuels in transportation, industrial applications, and power generation presents significant opportunities for blue hydrogen. Collaborative projects between governments, energy companies, and research institutions are further expected to expand the market, especially in regions targeting net-zero emissions by 2050.

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Market Segmentation

The [blue hydrogen market forecast](#) is segmented on the basis of technology, end use, industry and region. On the basis of technology, the market is divided into steam methane reforming, gas partial oxidation, and auto thermal reforming. On the basis of end use, it is classified into power generation, chemical, refinery, and others. On the basis of industry, the market is segmented into ammonia, methanol and others. Region wise, the market is studied across North America, Europe, Asia-Pacific, and LAMEA. Presently, North America accounts for the largest share of the market, followed by Europe and Asia-Pacific.

Regional Analysis

Europe is a leading market for blue hydrogen due to strong decarbonization policies, investments in CCS infrastructure, and adoption of hydrogen in industrial and transport sectors. Germany, the UK, and the Netherlands are at the forefront of blue hydrogen projects, supported by EU climate targets and funding initiatives.

North America is witnessing growing investments in hydrogen production and storage projects,

driven by government incentives and private sector collaboration. Meanwhile, Asia-Pacific, particularly Japan, South Korea, and China, is emerging as a significant market due to industrial demand, renewable energy integration, and long-term hydrogen strategies.

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Blue Hydrogen Market Analysis

The blue hydrogen market is highly competitive with major energy and industrial companies investing in production and CCS infrastructure. Key players include Linde plc, Toshiba Energy Systems & Solutions Corp., AIR LIQUIDE S.A., Uniper SE, Royal Dutch Shell Plc, Reliance Industries Ltd, Equinor ASA, Xebec Adsorption Inc., Siemens AG, Suncor Energy Inc., ATCO Ltd., Air Products Inc., Cummins Inc., CertifHy Canada Inc., Saudi Aramco. These companies are focusing on expanding production capacities and forming strategic partnerships to strengthen market presence.

In addition, collaborations with government bodies and research institutions are driving innovation in carbon capture and storage technologies, enabling cost reduction and efficiency improvements. Emerging regional players are offering niche solutions and engaging in pilot projects to tap into growing industrial and energy sector demand.

Market Segments and Outlook

- The industrial segment dominates the blue hydrogen market due to widespread use in refining, ammonia, and chemical production.
- Europe leads globally, driven by strong decarbonization policies and CCS infrastructure development.
- High production costs and CO₂ storage limitations remain key market restraints.
- Technological advancements in carbon capture and storage are enhancing market feasibility.
- Transportation and power generation sectors are expected to create significant growth opportunities.

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