

Technological Advancements in Hydrogen Production is Supporting the Growth of the Global Hydrogen Infrastructure Market

The Global Hydrogen Infrastructure Market was valued at USD 4.9 billion in 2022, and is projected to reach USD 13.2 billion by 2032

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Research published a report, titled, 'Global Hydrogen Infrastructure Market By Production (Steam Methane

Reforming, Coal Gasification, Electrolysis, and Others), By Storage (Compression, Liquefaction, and Material Based), By Delivery (Transportation, Refinery, Power Generation, and Hydrogen Refueling Stations) - Global Trend Analysis and Industry Forecast, 2023-2031" According to the report, the global hydrogen infrastructure market was valued at USD 4.9 billion in 2022, and is projected to reach USD 13.2 billion by 2032, with growing CAGR of 10% from 2023 to 2031.



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Hydrogen infrastructure refers to the network of facilities, technologies, and systems that enable the production, transportation, storage, and utilization of hydrogen as an energy carrier. Hydrogen infrastructure development is crucial for the broader adoption of hydrogen as a clean energy solution. It plays a pivotal role in enabling the transition to a low-carbon energy system and addressing challenges such as reducing greenhouse gas emissions, diversifying energy sources, and achieving energy security.

Global Hydrogen Infrastructure Market Snapshot

Market Size Value in 2022 USD 4.9 Billion

Market Size Forecast by 2031 USD 13.2 Billion

Growth Rate CAGR of 10% from 2023 to 2031

Historical Data 2015 – 2021

Base Year for Estimation 2022

Forecast Period 2023 - 2031

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Factors Driving the Global Hydrogen Infrastructure Market

Many governments are implementing policies and incentives to support the development of hydrogen infrastructure. This includes funding research and development, providing grants for infrastructure deployment, and setting targets for hydrogen production and utilization. The number of nations with policies that actively encouraging investments in hydrogen technology is growing, as is the number of industries targeted. Today, there are around 50 objectives, requirements, and policy incentives in place that directly promote hydrogen, with the majority of them focusing on transportation. National governments have increased their investment on hydrogen energy research, development, and demonstration in recent years which will boost the growth of the global hydrogen infrastructure market during the forecast period.

Global Hydrogen Infrastructure Market Restraints

A fundamental barrier to widespread acceptance of hydrogen energy as a mainstream energy source is a lack of production, storage, transportation, and distribution infrastructure. As a result, although it is critical to invest in R&D to reduce manufacturing costs, it is also critical to expand infrastructure. Furthermore, infrastructure must be able to withstand high pressure in order to store and transport hydrogen, which can be costly and difficult to deploy. For transportation, for example, hydrogen is compressed to nearly 700 bar. This necessitates the use of sophisticated compressors and large storage containers. Despite these challenges, ongoing research, technological advancements, policy support, and collaboration among governments, industries, and research institutions are driving progress in the global hydrogen infrastructure market.

Trends in the Global Hydrogen Infrastructure Market

It is estimated that by 2030, hydrogen consumption will be growing at a modest and stable rate due to several specialised uses in the industrial, transportation, energy, and construction sectors. Governments and companies have long seen hydrogen as a highly revolutionary tool in the search of sustainable energy.

The availability of competitively priced hydrogen stations in areas where cars will be deployed remains a major barrier to the adoption of this technology. Thus, to solve this issue, the US Department of Energy (DOE) has formed H2USA, a public-private partnership including government agencies, automakers, hydrogen suppliers, fuel cell companies, national labs, and other stakeholders. H2USA is committed to expanding hydrogen infrastructure in order to provide additional transportation energy alternatives to Americans. Hence such initiatives are all contributing to the growth of the global hydrogen infrastructure market.

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Key Takeaways from the Global Hydrogen Infrastructure Market

- Steam-methane reforming is a popular commercial hydrogen generation process, with the

largest share of the global hydrogen infrastructure market in 2022. Its reformation accounts for approximately all of the hydrogen generated commercially in the United States. Steam-methane reforming is a technique used by commercial hydrogen generators and petroleum refineries to extract hydrogen atoms from carbon atoms in methane. According to the studies, it has been estimated that due to the ongoing high cost of production, 48% of current hydrogen production is by steam reforming of natural gas (SR), 18% via coal gasification, and just 4% via electrolysis.

- In terms of storage, the compression segment accounted for more than three-fifths of the global hydrogen infrastructure market in 2022. During the projected years, it is also predicted to expand at the fastest CAGR of 10.1%. Compression has benefits over traditional systems that use gaseous or liquid hydrogen. This includes, in particular, decreased maintenance costs, increased dependability, and increased safety.

- Asia Pacific region has dominated the hydrogen infrastructure market. The Asia Pacific area, which experienced the first substantial breakthroughs in this sector, is still leading the way, with Japan and South Korea making the most progress towards becoming hydrogen societies.

However, with a slew of new hydrogen efforts launched by China and Singapore, it is evident that other countries in the area are beginning to recognise its potential. For example, the Japanese government recently announced plans to revamp its hydrogen policy in late May 2023, with the country aiming to raise its current 2 million-tonne hydrogen supply to 12 million tonnes by 2040.

Recent Developments in the Global Hydrogen Infrastructure Market

- In January 2023, Equinor ASA and RWE AG have developed a strategic energy collaboration that involves the production and delivery of blue and green hydrogen. Equinor and RWE have planned a series of investments to establish specialized offshore hydrogen projects throughout the pipeline and progressively scale up the renewable (green) hydrogen part of German imports in anticipation of this infrastructure.

- In February 2023, GenH2, a U.S.-based hydrogen infrastructure solutions, announced a collaboration with Norwegian-based HYDS to produce Green Liquid Hydrogen in Norway and the rest of the Nordic market. The solutions, which are based on GenH2's integrated hydrogen liquefaction technology and storage system, will be marketed and sold through Liquiline.

Key Companies in the Global Hydrogen Infrastructure Market

- o Air Liquide
- o Ballard Power Systems
- o Cummins, Inc.
- o DNV GL
- o Engie SA
- o ITM Power PLC
- o Linde
- o McPhy Energy S.A
- o Nel ASA
- o Plug Power Inc.
- o Shell Group

- o Siemens Energy
- o Other market participants

Key Segments Profiled in the Global Hydrogen Infrastructure Market

By Production

- o Electrolysis
- o Coal Gasification
- o Steam Methane Reforming
- o Others

By Storage

- o Compression
- o Liquefaction
- o Material Based

By Delivery

- o Transportation
- o Refinery
- o Power Generation
- o Hydrogen Refueling Stations

By Region

- o North America (U.S., Canada, Mexico, Rest of North America)
- o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe)
- o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific)
- o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)
- o Latin America (Brazil, Argentina, Rest of Latin America)

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