

# **Hydrogen Generators Market Forecasts to 2032 – Global Analysis By Product Type (On-site Hydrogen Generators and Portable Hydrogen Generators), Process, Delivery Mode, Capacity, Source Type, Application and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Hydrogen Generators Market is accounted for \$1.18 billion in 2025 and is expected to reach \$1.86 billion by 2032 growing at a CAGR of 6.7% during the forecast period. Hydrogen generators are innovative solutions that enable the on-site production of hydrogen gas using processes like electrolysis and steam methane reforming. These systems reduce dependence on large storage facilities and frequent deliveries, offering a more sustainable and reliable hydrogen supply. Increasing global emphasis on clean energy is accelerating their use in sectors including chemicals, refining, food processing, and electricity generation. Known for delivering high-purity hydrogen, they enhance productivity while supporting environmental goals. Moreover, expanding applications in fuel cells, emergency power, and transportation underline their importance in advancing the hydrogen ecosystem and driving efforts toward carbon neutrality and energy transition worldwide.

According to the International Energy Agency (IEA), data from its Global Hydrogen Review 2022 shows that global hydrogen demand reached 94 million tonnes in 2021, and is projected to grow significantly, especially in clean hydrogen applications. Electrolysis-based hydrogen production is expected to scale up rapidly, with over 130 projects announced globally.

Market Dynamics:

Driver:

## Rising demand for clean energy

Growing global interest in sustainable energy is significantly driving the hydrogen generators market. Governments worldwide are enforcing stricter environmental rules and establishing net-zero emission policies, fueling the adoption of hydrogen as a clean energy carrier. On-site hydrogen generation systems address challenges related to bulk storage and logistics, providing reliable and eco-friendly supply. Their integration into renewable power, energy storage, and various industrial operations boosts market appeal. Moreover, hydrogen's rising importance in reducing carbon emissions from industries such as cement, steel, and refining further strengthens adoption. Incentive programs and large-scale green hydrogen investments are accelerating commercialization, reinforcing the market's expansion worldwide.

## Restraint:

### High capital and operational costs

The hydrogen generators market faces major limitations due to the high costs linked to both installation and operation. Electrolysis systems, in particular, demand advanced infrastructure, costly materials, and large amounts of energy, especially when reliant on renewable power. Such expenses reduce hydrogen's competitiveness against traditional fossil fuels or other affordable alternatives. Many small and mid-sized enterprises struggle to invest in hydrogen generators because of budget restrictions. Furthermore, elevated electricity tariffs in numerous countries make hydrogen generation more expensive. These financial challenges hinder market penetration, particularly in emerging economies where funding opportunities are scarce, thereby restricting faster commercial adoption worldwide.

## Opportunity:

### Expanding role in mobility solutions

Hydrogen-based transportation is creating strong opportunities for the hydrogen generators market. Vehicles powered by hydrogen fuel cells, such as commercial trucks, public buses, rail networks, and future aircraft, need dependable high-purity hydrogen. On-site generation systems can provide this supply efficiently, reducing the burden on centralized storage and logistics networks. Government initiatives and investments by automotive manufacturers in hydrogen infrastructure further expand the

market scope. With global policies aimed at cutting transport emissions, demand for hydrogen in mobility is expected to surge. Flexible and scalable, hydrogen generators are positioned to become essential in fueling the growing transition to clean transportation.

Threat:

#### Competition from alternative energy technologies

The hydrogen generators market faces a considerable threat from rival energy solutions such as biofuels, battery storage systems, and natural gas. The sharp decline in battery prices and technological progress in electric vehicles are diverting attention away from hydrogen-based mobility. Biofuels remain attractive for industries due to existing supply chains and relatively affordable infrastructure, while natural gas is still widely available at lower costs. These competing technologies often appeal more to cost-conscious markets, slowing hydrogen generator adoption. As a result, competition from established and emerging alternatives continues to hinder the large-scale deployment of hydrogen generators, posing risks to long-term growth.

Covid-19 Impact:

The outbreak of Covid-19 created both challenges and opportunities for the hydrogen generators market. In the short term, lockdowns disrupted supply chains, slowed manufacturing, and delayed several hydrogen-related projects worldwide. These interruptions increased costs and reduced deployment. Yet, the crisis also highlighted the importance of clean and resilient energy systems, leading governments to push for green recovery initiatives. Supportive policies and investments boosted interest in hydrogen as a sustainable fuel. With economic activities resuming, demand for hydrogen generators began to recover strongly. The pandemic ultimately reinforced hydrogen's strategic importance, positioning generators as vital tools in advancing global carbon neutrality.

The on-site hydrogen generators segment is expected to be the largest during the forecast period

The on-site hydrogen generators segment is expected to account for the largest market share during the forecast period because of its capacity to deliver hydrogen directly where it is required. This approach minimizes reliance on external supply chains, lowers transportation expenses, and avoids safety concerns linked to large-scale storage. Key

industries such as chemicals, refining, food and beverage, and energy production increasingly favor on-site systems for consistent access to high-purity hydrogen. Their compatibility with renewable power sources also strengthens sustainability efforts. Offering operational reliability, independence from third-party suppliers, and long-term economic advantages, on-site hydrogen generators have become the preferred choice for diverse industrial and commercial applications, ensuring strong adoption globally.

The electrolysis segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the electrolysis segment is predicted to witness the highest growth rate, driven by increasing focus on green hydrogen production. By using electricity—ideally from renewable resources—this process splits water into hydrogen and oxygen without emitting carbon. Its sustainability benefits make it a preferred choice for clean energy transitions and renewable integration. Industries and governments are actively adopting this technology to support decarbonization and energy storage needs. Ongoing advancements in electrolyzer efficiency, declining renewable power costs, and strong policy incentives further enhance its market potential. As a result, electrolysis is emerging as the most rapidly expanding method for hydrogen generation.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, driven by favorable policies, strong technological base, and rising industrial applications. The region's well-established hydrogen infrastructure, coupled with active investments in clean and green hydrogen, fuels market leadership. Major industries such as chemicals, refining, energy, and food processing increasingly rely on on-site hydrogen generation. The presence of major companies and strategic partnerships also support market expansion. Furthermore, integration of renewable energy with hydrogen generation aligns with sustainability and decarbonization objectives. Backed by government incentives and funding, North America maintains its dominance as the leading regional market for hydrogen generators.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. This expansion is fueled by substantial clean energy investments, robust policy support for hydrogen-based solutions, and the ongoing development of industries seeking reliable and sustainable energy. Nations such as China, Japan, South Korea,

and India are spearheading large-scale hydrogen projects, ranging from production facilities to advanced storage and supply systems. The region's strong commitment to achieving renewable energy targets and lowering carbon emissions is further propelling adoption. Rising demand from transport, power generation, and electronics sectors significantly contributes to Asia-Pacific's rapidly expanding market potential.

### Key players in the market

Some of the key players in Hydrogen Generators Market include Linde plc, Air Liquide S.A., Air Products and Chemicals, Inc., Cummins Inc., Nel ASA, Plug Power Inc., ITM Power PLC, Siemens Energy AG, McPhy Energy S.A., Toshiba Energy Systems & Solutions Corporation, Element 1 Corporation, Millennium Reign Energy LLC, MVS Engineering, Peak Scientific Instruments and F-DGSI.

### Key Developments:

In June 2025, Linde announced it has signed a new long-term agreement with Blue Point Number One, a joint venture between CF Industries, JERA and Mitsui & Co. Under the terms of the agreement, Linde will supply industrial gases to Blue Point's 1.4 million metric tons low-carbon ammonia plant in Ascension Parish, Louisiana.

In March 2025, Nel ASA has signed an EPC collaboration agreement that allows SAMSUNG E&A to offer its customers complete hydrogen plants of its own design using Nel's electrolyzers. In a separate transaction, SAMSUNG E&A will purchase 10% of newly issued Nel ASA shares through a direct placement, implying a post transaction ownership of 9.1%. As a result of this transaction, SAMSUNG E&A will become the largest single shareholder in Nel.

In February 2025, Cummins Inc announced a multi-year extension of its current agreement with Chrysler Group LLC. Cummins will supply 6.7-liter Turbo Diesel engines for Ram Heavy Duty pickups and Chassis Cab trucks while continuing to grow its partnership with Chrysler, which began 21 years ago. Cummins has produced more than 1.7 million Cummins Turbo Diesel engines for Dodge Ram Heavy Duty trucks since 1989.

### Product Types Covered:

On-site Hydrogen Generators

## Portable Hydrogen Generators

### Processes Covered:

Electrolysis

Steam Methane Reforming (SMR)

Coal Gasification

Other Processes

### Delivery Modes Covered:

Captive

Merchant

### Capacities Covered:

Low Capacity (500 Nm<sup>3</sup>/h)

### Source Types Covered:

Grey Hydrogen

Blue Hydrogen

Green Hydrogen

### Applications Covered:

Chemical Processing

Fuel Cells

Petroleum Recovery

Power Generation

Transportation

Metal Processing

#### Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants

- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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##### Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

##### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

##### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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