

Green Hydrogen Electrolyzer Market to Hit \$17.9B by 2031, Driven by Global Clean Energy Goals | DataM Intelligence

Green hydrogen electrolyzer market set to soar from \$2.2B (2023) to \$17.9B (2031), driven by decarbonization, innovation & global clean energy push.

AUSTIN, TX, UNITED STATES, June 10, 2025 /EINPresswire.com/ -- The [green hydrogen electrolyzer market](#) reached USD 2.20 billion in 2023 and is projected to grow to approximately USD 17.9 billion by 2031, expanding at an impressive compound annual growth rate (CAGR) of 29.9% during the forecast period from 2024 to 2031.



This remarkable growth is being driven by strong international commitments to carbon neutrality, the need for improved energy security, and the global shift toward clean energy systems. As nations strive to reduce their reliance on fossil fuels, green hydrogen produced through water electrolysis powered by renewable energy has emerged as a vital pillar of the clean energy transition.

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With the market set to grow from \$2.2B in 2023 to \$17.9B by 2031, green hydrogen electrolyzers are powering a global shift to clean energy and cutting CO₂ by hundreds of millions of tons.”

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Key Market Drivers

Supportive Policy Frameworks

Governments worldwide are offering generous subsidies, tax credits, and investment plans to promote green hydrogen production. Policies encouraging the adoption of

zero-emission fuels are pushing industries to transition from gray or blue hydrogen to green

hydrogen.

Industrial Decarbonization Goals

Heavy industries like steel, ammonia, and petrochemicals are adopting green hydrogen to replace fossil fuel-based energy sources, supporting net-zero carbon targets.

Technological Advancements

Innovations in PEM (Proton Exchange Membrane), alkaline, and solid oxide electrolyzers are enhancing efficiency, reliability, and scalability. New modular and containerized systems are reducing installation complexity and operational costs.

Strategic Collaborations and Investments

Global companies are entering partnerships to scale manufacturing, improve supply chains, and develop large green hydrogen projects. These collaborations are reducing risks and accelerating commercialization.

Recent Developments:

In 2024, Siemens Energy secured a contract to deliver a 280-megawatt electrolysis system for a green hydrogen plant in Emden, Germany, operated by utility provider EWE. Scheduled to begin operations in 2027, the facility is expected to produce up to 26,000 tons of green hydrogen annually, potentially cutting CO₂ emissions by approximately 800,000 tons per year in sectors such as steel manufacturing. The project will utilize Siemens Energy's advanced PEM electrolysis technology, known for its efficiency and adaptability to renewable energy sources, with the electrolysis stacks manufactured at the company's Berlin gigawatt factory.

Meanwhile, in 2022, Shell commenced operations at one of the world's largest hydrogen electrolyzers in Zhangjiakou, China, through a joint venture with Zhangjiakou City Transport Construction Investment Holding Group. The 20-megawatt electrolyzer began production ahead of the 2022 Winter Olympics, supplying green hydrogen for fuel cell vehicles used during the event. The partnership plans to expand capacity to 60 megawatts over the next two years to further support clean mobility initiatives.

Major Companies in the Market

Bloom Energy

Cummins Inc

Green Hydrogen Systems

H-TEC SYSTEMS GmbH

Hysata

ITM Power PLC

Nel ASA

Next Hydrogen

Ohmium

Siemens AG

Market Segmentation:

By Type: Polymer Electrolyte Membrane (PEM) electrolyzer, Alkaline Water Electrolyzer, Solid Oxide Electrolyzer.

By Capacity: Low (Up to 500kW), Medium (500kW-2,000kW), High (More than 2,000kW).

By Application: Power Plants, Steel Plant, Electronics and Photovoltaics, Industrial Gases, Energy Storage or Fueling for FCEV's, Power to Gas, Energy, Others.

By Region: North America, Europe, South America, Asia Pacific, Middle East, and Africa.

Regional Outlook

Asia-Pacific

The Asia-Pacific region dominates the global electrolyzer market, accounting for nearly half of global revenue. Countries like China, Japan, South Korea, and India are leading the charge with strategic policies, large-scale investments, and infrastructure development. Japan and South Korea are particularly focused on hydrogen fuel cell vehicles and long-term energy imports, while China is scaling up both domestic production and global exports of electrolyzers.

North America

North America, especially the United States, is the fastest-growing region in this market. With a strong regulatory push and aggressive tax incentives, the region is projected to hold over 18% market share by the end of the forecast period. Federal initiatives are spurring the creation of hydrogen hubs and industrial partnerships, positioning the U.S. as a significant player in green hydrogen technology.

Europe

Europe continues to invest heavily in green hydrogen, driven by its ambitious decarbonization goals and energy independence strategy. European nations are prioritizing electrolyzer

manufacturing to reduce reliance on imports and secure their own hydrogen supply chain. Countries like Germany, France, and the Netherlands are at the forefront of this movement.

Latest News – USA

In the United States, momentum is rapidly building for green hydrogen. Plug Power, one of the country's most active players in this space, reported significant quarterly growth in electrolyzer revenue despite missing broader revenue expectations. The company's performance reflects both the opportunity and the growing pains of scaling clean energy tech.

Latest News – Japan

Japan continues to take bold steps in green hydrogen adoption. In early 2025, ITM Power and Sumitomo Corporation completed the installation of a cutting-edge 2 MW PEM electrolyzer at Tokyo Gas's Yokohama Techno Station. This project marks a key milestone in Japan's hydrogen roadmap, reflecting the country's ambition to be a global hydrogen pioneer.

The Japanese government recently reaffirmed its hydrogen commitment with a comprehensive 15-year strategy. This includes over \$20 billion in subsidies aimed at developing infrastructure, expanding fuel cell vehicle networks, and importing green hydrogen from Australia and the Middle East. Japan's strategy is built around both domestic production and global supply partnerships, showcasing a forward-thinking energy model.

Conclusion

The green hydrogen electrolyzer market is at a transformative point in history. With rapid technological progress, strong government support, and a clear mandate to decarbonize, electrolyzers are set to play a central role in the global energy transition. As the market scales, leaders in Asia, Europe, and North America are carving out unique paths, but the common destination remains a sustainable, hydrogen-powered future.

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