

Green Hydrogen Market Trends: Electrolysis, Storage & Transportation

Green Hydrogen Market Worth US\$ 143.8 billion by 2032 | Europe Growing by UK, Netherlands, Ireland, Germany, France, Italy, Denmark

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According to a new report published by Allied Market Research, the <u>green</u> <u>hydrogen market</u> size was valued at \$2.5 billion in 2022, and is estimated to



reach \$143.8 billion by 2032, growing at a CAGR of 50.3% from 2023 to 2032.

Green hydrogen, also known as renewable hydrogen, is a form of hydrogen produced using renewable energy sources, such as solar, wind, or geothermal power. Furthermore, the demand

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Key trends include Advancements in renewable energy integration, and rising demand across industries such as transportation and energy storage."

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for proton exchange membrane electrolyzer is anticipated to witness growth during the forecast period, owing to economic growth in emerging markets continues to surge.

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In 2023, Asia-Pacific accounts for the largest green hydrogen market share, followed by Europe and North

America.

The major players operating in the global <u>green hydrogen industry research</u> are Green Hydrogen Systems, Air Liquide, Shell plc, Enapter S.r.l., Plug Power Inc., Ballard Power Systems, Linde plc, Reliance Industries, GAIL (India) Limited and Adani Green Energy Ltd.

The green hydrogen market is expected to be driven by factors such as the promising growth of

the food and beverages, medical, chemical, and petrochemical industries.

Demand for power generation has escalated due to global population growth, coupled with urbanization and industrialization, leading to increase electricity consumption.

The food and beverage segment are projected to manifest a CAGR of 51.6% from 2023 to 2032, and has significant proportion in green hydrogen market size. Rise in the food and beverage industry significantly influences the green hydrogen market, primarily due to intensive energy demand of the industry.

Food and beverage production requires substantial energy for processing, packaging, refrigeration, and transportation. Green hydrogen presents a sustainable solution to meet these escalating energy demands, especially in processes were direct electrification not efficient.

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Rise in living standards and technological advancements also contribute to higher energy needs, especially in emerging economies where electricity access has expanded rapidly.

Ongoing R&D efforts focus on enhancing electrolyzer efficiency, durability, and scaling up production, leading to cost reductions and improved performance. This trend aligns with ambitious governmental targets and corporate commitments aimed at fostering the green hydrogen industry, spurring innovation and market growth.

Increasingly stringent regulations and carbon pricing mechanisms incentivize to transition of industries into low-carbon alternatives, propelling its market penetration. These converging green hydrogen market trends collectively position green hydrogen as a pivotal player in the sustainable energy landscape, driving a fundamental shift toward cleaner, more resilient energy systems across the globe.

the electrification of transportation and heating sectors, driven by the push for cleaner energy sources, further amplifies the demand for power generation. This growth in demand provides a significant opportunity for the green hydrogen market.

Green hydrogen emerges as a versatile solution as traditional energy sources struggle to meet these escalating demands while maintaining environmental sustainability.

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This symbiotic relationship between the rise in demand for power generation and the need for clean energy solutions positions green hydrogen as a key player in meeting the escalating energy needs sustainably.

The push toward decarbonization and the reduction of greenhouse gas emissions in the transportation sector amplifies the appeal of green hydrogen market opportunities.

Carbon Solutions, a greenhouse gas reduction consultancy, in May 2023, stated that less than 1% of the 10 million metric tons of hydrogen produced in the U.S. at present counts as green hydrogen. Instead, 76% is derived from natural gas or coal, and 23% is a by-product of petroleum refining or other chemical processes.

Globally, the hydrogen market is about 96 million metric tons per year. The report from Carbon Solutions puts number of <u>electrolyzers</u> operating in the U.S. at just 42, with a combined hydrogen production capacity of about 3,000 tons per year.

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The U.S. Department of Energy (DOE) aims to have 10 million tons of clean hydrogen flowing per year by 2030, 20 million tons by 2040, and 50 million tons by 2050. About half that production is expected to come from renewably powered electrolysis. The U.S. government is projected to invest \$8 billion in several hydrogen hubs across the country by 2026 and produce about 250 times as much hydrogen per day.

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David Correa Allied Market Research + 1800-792-5285 email us here Visit us on social media: Facebook X LinkedIn YouTube

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