

Clean Hydrogen Market Size, Shares, Growth, Segment & Forecast up to 2024 - 2031 | Linde Plc, Air Liquide,

The global clean hydrogen market size was valued at US\$ 3.81 Billion in 2022 and is anticipated to witness a compound annual growth rate (CAGR) of 14.1%

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/EINPresswire.com/ -- Market Overview:

Clean hydrogen can be used as fuel for transportation, residential and commercial heating, power generation and industrial processes. It provides an alternative to fossil fuels helping reduce emissions.

Market Dynamics:

The clean hydrogen market is expected to witness significant growth over the forecast period owing to growing supportive government policies and initiatives towards clean technologies. For instance, the European Union launched the European Clean Hydrogen Alliance in 2020 aimed at developing 40 GW of renewable hydrogen electrolyzers by 2030. This provides an impetus to electrolyzer manufacturing and deployment across the EU nations. Furthermore, adoption of hydrogen fuel cells in transportation modes such as trucks, busses and automobiles is also contributing to the market growth. High production costs and lack of infrastructure remain a challenge, however ongoing research & development and large scale projects are expected to help address these issues in the coming years.

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Technology Advancements are driving down Costs of Clean Hydrogen Production



Clean Hydrogen Market Trend

While hydrogen is still more expensive to produce from renewable energy than fossil fuels, technological advancements are gradually driving down costs. Electrolyzer efficiency has been improving consistently, bringing down the cost per kg of green hydrogen produced. Larger electrolyzer units offering economies of scale are reaching the market. Combined with falling costs of renewable electricity generation, the cost of producing hydrogen through water electrolysis is becoming competitive with 'grey' hydrogen from natural gas. Further innovation is expected to occur as more projects come online and greater experience is gained. Continued R&D in electrolyzer technologies especially solid oxide electrolyzers offering higher efficiencies can significantly reduce costs within this decade, making clean hydrogen competitive for widespread commercial use without subsidies over the longer term. This will open up massive market opportunities for clean hydrogen globally.

High Capital Costs Continue to be a Restraining Factor for Clean Hydrogen Projects

While the outlook for clean hydrogen demand is positive given supportive policies and cost reductions, high upfront capital costs remain a significant challenge restricting more widespread adoption currently. Setting up large-scale green hydrogen production facilities through renewable powered electrolysis involves multi-million dollar investments. Land acquisition, construction of renewable energy plants, electrolyzers and hydrogen storage/transport infrastructure adds to project costs. Obtaining financing for such capital-intensive projects is still difficult compared to conventional technologies despite government support mechanisms. There are also risks around technology performance and the viability of business models in a relatively new market. This high cost of capital continues to pose a restraint on the pace of market adoption unless costs come down substantially through scaled deployment and experience curve effects in the long run.

Expanding Industrial Offtake Potential Provides Major Market Opportunity

While transportation sector garnering much interest for applications of hydrogen like fuel-cell vehicles, coastal and long-haul trucks; industrial offtake potentially provides one of the biggest opportunities. Industries like steel manufacturing, chemicals and refining, which are difficult to transition fully to electricity, can make use of clean hydrogen as fuel and feedstock. Blue hydrogen produced from natural gas with carbon capture is already finding applications in oil refineries. As costs decline, green hydrogen can directly replace grey hydrogen in chemical and steel production, avoiding significant carbon emissions. Retrofitting existing industrial plants and using hydrogen in new plants will support industrial decarbonization goals of many countries. If even 10-15% of hydrogen demand from heavy industry shifts to green hydrogen by 2030, it could create huge clean hydrogen market worldwide. Partnerships between renewable hydrogen producers and industrial offtakers will be critical to unlock this major future growth opportunity.

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- Uniper Se
- Air Products Inc
- Clean Hydrogen System
- Cummins Inc.
- Toshiba Energy Systems & Solutions Corporation
- Nel Asa
- Sgh2 Energy

Market Segmentation:

By Product Type:

- By Technology: Alkaline Electrolyzer, Pem Electrolyzer, Soe Electrolyzer
- By End User: Transport, Industrial, Power Generation, Others

By Applications:

- By Application: Silver-Based Alloys, Electrical and Electronics, Silver-based Chemical Compounds

Key Regions/Countries Classified as Follows:

- » North America (U.S., Canada, Mexico)
- » Europe (Germany, U.K., France, Italy, Russia, Spain, Rest of Europe)
- » Asia-Pacific (China, India, Japan, Singapore, Australia, New Zealand, Rest of APAC)
- » South America (Brazil, Argentina, Rest of SA)
- » Middle East & Africa (Turkey, Saudi Arabia, Iran, UAE, Africa, Rest of MEA)

Key Inquiries Addressed in this Report include:

- What was the size of the Clean Hydrogen Market Market in 2024, and what is the projected value by 2031?
- What is the present global market landscape for the Clean Hydrogen Market Market?
- What strategies offer optimal opportunities for growth maximization in the business?

- What recent trends are shaping the Clean Hydrogen Market Market?
- How does the market share of Clean Hydrogen Market Market revenue, sales, and size vary across specific geographical regions?
- Who are the prominent industry players in the Clean Hydrogen Market Market?
- Which segment of the Clean Hydrogen Market Market is experiencing heightened demand?

The report also delves into the competitive landscape, key players, trade patterns, industry value chain, recent news, policies, and regulations. Should you have any inquiries or require customization options, please don't hesitate to contact us.

In summary, whether you're engaged in manufacturing, distribution, or investment within the Clean Hydrogen Market sector, this report furnishes invaluable insights into market segments, drivers, challenges, investment prospects, regional dynamics, major players, growth strategies, prevailing trends, and hurdles influencing the industry's expansion.

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