

# Global Hydrogen Electrolyzer Market Growing at a CAGR of 37%, projected to Reach \$12.3 Billion by 2030

DALLAS, TEXAS, USA, June 12, 2024 /EINPresswire.com/ -- Key contents of the Global Hydrogen Electrolyzer Market report include

- Market size & Forecast segmented by Geography, Type, Output, Metals and End Use
- Technology trends, Impact of regulations, and Constraints
  - Average B2B Price by Geography and Pricing forecast
  - Competitive landscape and market share of leading vendors
  - Usage of Titanium and Nickel in Various Types of Hydrogen Electrolyzers

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Hydrogen electrolyzer faces competition from alternative technologies and technology barriers, but at present there is no viable alternative to water electrolysis for producing green hydrogen at scale”

*Abhishek Kishor*

As industries worldwide continue their relentless pursuit of safety and compliance with stringent fire safety regulations, the global market for Hydrogen Electrolyzer is set to experience substantial growth. According to the latest market study by Mobility Foresights, the "Global Hydrogen Electrolyzer Market 2024-2030" is expected to

grow from \$1.5 billion in 2023 to \$12.3 billion by 2030, at a compound annual growth rate (CAGR) of 37%.

## Market Overview:

The global demand for Hydrogen Electrolyzer is seeing steady growth mainly due to the ability to produce hydrogen without emission to the environment. The various types of hydrogen electrolyzers have different efficiencies (70-80% with Alkaline Electrolyzer, 80-90% with Polymer Electrolyte Membrane Electrolyzer) but all of them perform better compared with other hydrogen production methods such as gasification (30-40% efficiency) or pyrolysis (20-45%) and is the main reason for the growth

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## KEY FINDINGS

In 2023, the hydrogen industry announced over 1,000 large-scale projects requiring electrolyzer capacities of more than 1 MW. Among these projects, 795 aim to be fully or partially commissioned by 2030 driving the expansion of the electrolyzer market

Key players in the Hydrogen electrolyzer market are Siemens, Cummins, ITM-Power, Next Hydrogen Solutions Inc., Linde Engineering, Topsoe, Unigel, Nel Hydrogen, The Pure Energy Centre, plug power and H-TEC System. These companies are leveraging their expertise and resources to develop advanced electrolyzer technologies and capture market share

Currently due to various research going on to commercialize Hydrogen electrolyzers the cost per KW of electrolysis capacity is high ~\$750 per KW which will drop to under \$390/KW once new technology like SOEC and AEM electrolyzers gets matured

Policy push in the US and Europe is expected to fast-track green hydrogen adoption and thereby accelerate the energy transition. This will translate to a multi-billion-dollar opportunity for electrolyzer manufacturers

From a technological perspective, assembling multiple-layer electrolyzer stacks instead of parallel operating multiple, single-cell electrolyzers decreases the capital investment costs, as the electrolyzer frame and the anolyte circulation loop only has to be built once and any further cell only requires an extra bipolar plate, insulation, and a membrane electrode assembly

Researchers are exploring new catalyst materials like transition metal dichalcogenides (TMDs) and perovskites to enhance activity and durability at lower temperatures, reducing energy consumption. Such research efforts are crucial for addressing challenges and unlocking the full potential of hydrogen electrolyzer.

China held 41% of the overall market in 2023 and is driven by its capability of building Alkaline hydrogen electrolyser at lower cost. China aims to hold majority of the market share by 2030 through Government support

Alkaline electrolyzers are considered a mature and well-established technology for hydrogen production and account for 52% market share. Key players for Alkaline are NEL, John Cockril, and Hydrogen Pro. Alkaline electrolyzers maintain a significant market share, especially in large-scale applications

Typically, in PEM water electrolysis systems, titanium plates are used as promising current collectors due to their unique properties. These properties include good electrical conductivity, mechanical stability, and corrosion resistance under acidic mediums. On average 0.15 Kg of Titanium is used for per KW of electrolysis capacity



In the alkaline water electrolysis process, asbestos diaphragm and nickel materials are used as the electrodes. Nickel is used on the electrode surface for optimum cost, durability, and efficiency. The quantity of pure nickel used in an alkaline electrolyzer is approximately 2 kg/kW of converted energy.

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#### Key Growth Drivers:

**Decarbonization** - Hydrogen is increasingly seen as a promising clean energy carrier. Hydrogen electrolyzer technology enables the generation of hydrogen gas from water and electricity, offering a zero-emission way to produce this important fuel

**Government support** - Governments have announced various forms of subsidies, incentives, and supportive policies for hydrogen electrolyzers and also for green hydrogen production, recognizing their importance in achieving decarbonization and energy transition goals.

**Application** - Hydrogen is being used in an increasingly wide range of applications, such as transportation, power generation, and industrial processes. This is creating new demand for electrolyzers

**Collaborations** - Collaborations between research institutions, the private sector, and government companies are accelerating the development and deployment of electrolyzer technologies through joint ventures, investments, and knowledge sharing.

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#### Regional Insights:

The Asia-Pacific region, led by China, remains the largest market for Hydrogen electrolyzers, driven by its robust manufacturing base and expanding industrial sectors. However, stringent regulations in the European and North American markets are reshaping industry dynamics, with a significant push towards increasing domestic production of hydrogen.

#### Future Outlook:

Despite the challenges, the market is poised for growth, Mainly as Hydrogen Electrolyzer technology is constantly improving, making them more efficient and cost-effective which will make them more attractive to a wider range of users. At the same time, the cost of solar and wind power has been falling rapidly in recent years, making it more economical to produce hydrogen using electrolyzers powered by renewable energy.

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## Reasons to Purchase:

**Strategic Decision Support:** This report offers valuable data on market forecasts, sector trends, and micro and macro details to support strategic decisions.

**Competitive Strategy Development:** Insights into market share and positioning of key market players aid in developing competitive strategies and positioning one's own business effectively

**Risk Evaluation:** Understanding market drivers, restraints, and dynamics helps in assessing potential risks and developing risk mitigation strategies.

**Market Entry and Expansion:** Detailed analysis of segmented market growth, geographic trends, and regulatory frameworks assists businesses in planning market entry and expansion strategies

**Optimal Investment Planning:** The report guides stakeholders in identifying regions and sectors ripe for investment, helping optimize investment strategies.

**Regulatory Impact Analysis:** Provides a detailed understanding of the regulatory landscape and upcoming changes, which are crucial for compliance and strategic planning.

## COMPANY PROFILES

Siemens

Cummins

ITM-Power

Next Hydrogen Solutions Inc.

Linde Engineering

Topsoe

Unigel

Nel Hydrogen

The Pure Energy Centre

plug power

H-TEC System

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#### Media Contact

Company Name: Mobility Foresights

Contact Person: Vishal Giri

Email: [sales@mobilityforesights.com](mailto:sales@mobilityforesights.com)

Phone: +1 217 636 3356

City: Bangalore

State: Karnataka

Country: India

Website: <https://mobilityforesights.com/>

Vishal Giri

Mobility Foresights

+1 217 636 3356

[email us here](#)

Visit us on social media:

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