

Global PEM Electrolyzer Market Size Study & Forecast, by Application (Green Hydrogen Production, Power-to-Gas) by Capacity Range (Below 1 MW, 1-5 MW) and Installation (Centralized, Decentralized) and Regional Forecasts 2025-2035

<https://marketpublishers.com/r/G2029137FDD8EN.html>

Date: January 2026

Pages: 285

Price: US\$ 3,750.00 (Single User License)

ID: G2029137FDD8EN

Abstracts

The Global PEM Electrolyzer Market is valued at approximately USD 0.65 billion in 2024 and is projected to grow at a striking CAGR of 30.42% over the forecast period 2025-2035, based on historical data from 2023 and 2024. PEM (Proton Exchange Membrane) electrolyzers are pivotal in producing high-purity hydrogen through water electrolysis, offering a sustainable alternative to fossil fuel-derived hydrogen. Their role in decarbonizing energy-intensive sectors, supporting renewable integration, and enabling the transition toward a hydrogen-based economy is fueling market expansion. Government incentives, strategic investments, and technological innovation in PEM materials and systems are accelerating commercial deployment, while the global push for net-zero emissions further reinforces demand.

The increasing focus on green hydrogen production and power-to-gas applications is driving the need for high-efficiency, scalable electrolyzer systems. As nations commit to reducing carbon emissions, PEM electrolyzers are being deployed both in centralized large-scale plants and decentralized facilities closer to end-users, providing flexibility in hydrogen production. Moreover, advances in stack durability, energy efficiency, and integration with renewable energy sources are fostering adoption across industrial, transportation, and utility sectors. Despite high upfront costs, the long-term benefits of clean hydrogen generation continue to attract substantial investment and collaboration across the private and public sectors.

The detailed segments and sub-segments included in the report are:

By Application:

Green Hydrogen Production

Power-to-Gas

By Capacity Range:

Below 1 MW

1-5 MW

By Installation:

Centralized

Decentralized

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

Rest of Europe

Asia Pacific

China

India

Japan

Australia

South Korea

Rest of Asia Pacific

Latin America

Brazil

Mexico

Middle East & Africa

UAE

South Africa

Rest of Middle East & Africa

Green hydrogen production is poised to dominate the market, accounting for the largest

Global PEM Electrolyzer Market Size Study & Forecast, by Application (Green Hydrogen Production, Power-to-Gas)...

share, as industries increasingly adopt hydrogen to decarbonize operations and meet stringent emission regulations. The surge in renewable energy deployment worldwide has amplified the demand for PEM electrolyzers to convert excess renewable electricity into clean hydrogen, ensuring both energy storage and grid stability. Meanwhile, power-to-gas applications, which allow conversion of electricity into hydrogen for injection into gas grids or storage, are emerging as a high-growth opportunity, particularly in regions seeking to balance renewable energy intermittency.

Small-to-medium capacity electrolyzers (Below 1 MW) are currently leading in revenue, driven by their rapid deployment potential, lower capital expenditure, and suitability for decentralized hydrogen production projects. However, larger electrolyzers (1-5 MW) are witnessing accelerated adoption in industrial and utility-scale projects due to economies of scale and higher operational efficiency, signaling a nuanced growth trajectory across different capacity segments.

North America retains the largest market share, bolstered by policy frameworks promoting hydrogen infrastructure, technological advancements, and active investment from both private and governmental entities. Europe is closely following, driven by ambitious EU hydrogen strategies and extensive renewable integration initiatives. Asia Pacific is projected to be the fastest-growing region over the forecast period, powered by rising energy demand, supportive governmental policies in China, India, and Japan, and significant investments in large-scale green hydrogen projects.

Major market players included in this report are:

Siemens Energy AG

Nel ASA

Plug Power Inc.

ITM Power Plc.

Thyssenkrupp AG

McPhy Energy S.A.

Ballard Power Systems

Hydrogenics Corporation

Enapter GmbH

Proton OnSite

Doosan Fuel Cell Co., Ltd.

Tecna S.p.A.

Praxis Automation

FuelCell Energy, Inc.

Air Liquide S.A.

Global PEM Electrolyzer Market Report Scope:

Historical Data – 2023, 2024

Base Year for Estimation – 2024

Forecast period - 2025-2035

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent to up to 8 analysts' working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values for the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within the countries

involved in the study. The report also provides detailed information about crucial aspects, such as driving factors and challenges, which will define the future growth of the market. Additionally, it incorporates potential opportunities in micro-markets for stakeholders to invest, along with a detailed analysis of the competitive landscape and product offerings of key players.

Key Takeaways:

Market Estimates & Forecast for 10 years from 2025 to 2035.

Annualized revenues and regional-level analysis for each market segment.

Detailed analysis of the geographical landscape with country-level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of the competitive structure of the market.

Demand side and supply side analysis of the market.

Contents

CHAPTER 1. GLOBAL PEM ELECTROLYZER MARKET REPORT SCOPE & METHODOLOGY

- 1.1. Research Objective
- 1.2. Research Methodology
 - 1.2.1. Forecast Model
 - 1.2.2. Desk Research
 - 1.2.3. Top Down and Bottom-Up Approach
- 1.3. Research Attributes
- 1.4. Scope of the Study
 - 1.4.1. Market Definition
 - 1.4.2. Market Segmentation
- 1.5. Research Assumption
 - 1.5.1. Inclusion & Exclusion
 - 1.5.2. Limitations
 - 1.5.3. Years Considered for the Study

CHAPTER 2. EXECUTIVE SUMMARY

- 2.1. CEO/CXO Standpoint
- 2.2. Strategic Insights
- 2.3. ESG Analysis
- 2.4. key Findings

CHAPTER 3. GLOBAL PEM ELECTROLYZER MARKET FORCES ANALYSIS

- 3.1. Market Forces Shaping The Global PEM Electrolyzer Market (2024-2035)
- 3.2. Drivers
 - 3.2.1. Surging Government incentives
 - 3.2.2. technological innovation in PEM materials
- 3.3. Restraints
 - 3.3.1. Shortage Of Skilled Professionals
- 3.4. Opportunities
 - 3.4.1. increasing focus on green hydrogen production

CHAPTER 4. GLOBAL PEM ELECTROLYZER INDUSTRY ANALYSIS

- 4.1. Porter's 5 Forces Model
 - 4.1.1. Bargaining Power of Buyer
 - 4.1.2. Bargaining Power of Supplier
 - 4.1.3. Threat of New Entrants
 - 4.1.4. Threat of Substitutes
 - 4.1.5. Competitive Rivalry
- 4.2. Porter's 5 Force Forecast Model (2024-2035)
- 4.3. PESTEL Analysis
 - 4.3.1. Political
 - 4.3.2. Economical
 - 4.3.3. Social
 - 4.3.4. Technological
 - 4.3.5. Environmental
 - 4.3.6. Legal
- 4.4. Top Investment Opportunities
- 4.5. Top Winning Strategies (2025)
- 4.6. Market Share Analysis (2024-2025)
- 4.7. Global Pricing Analysis And Trends 2025
- 4.8. Analyst Recommendation & Conclusion

CHAPTER 5. GLOBAL PEM ELECTROLYZER MARKET SIZE & FORECASTS BY APPLICATION 2025-2035

- 5.1. Market Overview
- 5.2. Global PEM Electrolyzer Market Performance - Potential Analysis (2025)
- 5.3. Green Hydrogen Production
 - 5.3.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035
 - 5.3.2. Market size analysis, by region, 2025-2035
- 5.4. Power-to-Gas
 - 5.4.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035
 - 5.4.2. Market size analysis, by region, 2025-2035

CHAPTER 6. GLOBAL PEM ELECTROLYZER MARKET SIZE & FORECASTS BY CAPACITY RANGE 2025-2035

- 6.1. Market Overview
- 6.2. Global PEM Electrolyzer Market Performance - Potential Analysis (2025)
- 6.3. Below 1 MW
 - 6.3.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035

- 6.3.2. Market size analysis, by region, 2025-2035
- 6.4. 1-5 MW
 - 6.4.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035
 - 6.4.2. Market size analysis, by region, 2025-2035

CHAPTER 7. GLOBAL PEM ELECTROLYZER MARKET SIZE & FORECASTS BY INSTALLATION 2025–2035

- 7.1. Market Overview
- 7.2. Global PEM Electrolyzer Market Performance - Potential Analysis (2025)
- 7.3. Centralized
 - 7.3.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035
 - 7.3.2. Market size analysis, by region, 2025-2035
- 7.4. Decentralized
 - 7.4.1. Top Countries Breakdown Estimates & Forecasts, 2024-2035
 - 7.4.2. Market size analysis, by region, 2025-2035

CHAPTER 8. GLOBAL PEM ELECTROLYZER MARKET SIZE & FORECASTS BY REGION 2025–2035

- 8.1. Growth PEM Electrolyzer Market, Regional Market Snapshot
- 8.2. Top Leading & Emerging Countries
- 8.3. North America PEM Electrolyzer Market
 - 8.3.1. U.S. PEM Electrolyzer Market
 - 8.3.1.1. Application breakdown size & forecasts, 2025-2035
 - 8.3.1.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.3.1.3. Installation breakdown size & forecasts, 2025-2035
 - 8.3.2. Canada PEM Electrolyzer Market
 - 8.3.2.1. Application breakdown size & forecasts, 2025-2035
 - 8.3.2.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.3.2.3. Installation breakdown size & forecasts, 2025-2035
- 8.4. Europe PEM Electrolyzer Market
 - 8.4.1. UK PEM Electrolyzer Market
 - 8.4.1.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.1.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.4.1.3. Installation breakdown size & forecasts, 2025-2035
 - 8.4.2. Germany PEM Electrolyzer Market
 - 8.4.2.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.2.2. Capacity Range breakdown size & forecasts, 2025-2035

- 8.4.2.3. Installation breakdown size & forecasts, 2025-2035
- 8.4.3. France PEM Electrolyzer Market
 - 8.4.3.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.3.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.4.3.3. Installation breakdown size & forecasts, 2025-2035
- 8.4.4. Spain PEM Electrolyzer Market
 - 8.4.4.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.4.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.4.4.3. Installation breakdown size & forecasts, 2025-2035
- 8.4.5. Italy PEM Electrolyzer Market
 - 8.4.5.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.5.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.4.5.3. Installation breakdown size & forecasts, 2025-2035
- 8.4.6. Rest of Europe PEM Electrolyzer Market
 - 8.4.6.1. Application breakdown size & forecasts, 2025-2035
 - 8.4.6.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.4.6.3. Installation breakdown size & forecasts, 2025-2035
- 8.5. Asia Pacific PEM Electrolyzer Market
 - 8.5.1. China PEM Electrolyzer Market
 - 8.5.1.1. Application breakdown size & forecasts, 2025-2035
 - 8.5.1.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.5.1.3. Installation breakdown size & forecasts, 2025-2035
 - 8.5.2. India PEM Electrolyzer Market
 - 8.5.2.1. Application breakdown size & forecasts, 2025-2035
 - 8.5.2.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.5.2.3. Installation breakdown size & forecasts, 2025-2035
 - 8.5.3. Japan PEM Electrolyzer Market
 - 8.5.3.1. Application breakdown size & forecasts, 2025-2035
 - 8.5.3.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.5.3.3. Installation breakdown size & forecasts, 2025-2035
 - 8.5.4. Australia PEM Electrolyzer Market
 - 8.5.4.1. Application breakdown size & forecasts, 2025-2035
 - 8.5.4.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.5.4.3. Installation breakdown size & forecasts, 2025-2035
 - 8.5.5. South Korea PEM Electrolyzer Market
 - 8.5.5.1. Application breakdown size & forecasts, 2025-2035
 - 8.5.5.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.5.5.3. Installation breakdown size & forecasts, 2025-2035
 - 8.5.6. Rest of APAC PEM Electrolyzer Market

- 8.5.6.1. Application breakdown size & forecasts, 2025-2035
- 8.5.6.2. Capacity Range breakdown size & forecasts, 2025-2035
- 8.5.6.3. Installation breakdown size & forecasts, 2025-2035
- 8.6. Latin America PEM Electrolyzer Market
 - 8.6.1. Brazil PEM Electrolyzer Market
 - 8.6.1.1. Application breakdown size & forecasts, 2025-2035
 - 8.6.1.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.6.1.3. Installation breakdown size & forecasts, 2025-2035
 - 8.6.2. Mexico PEM Electrolyzer Market
 - 8.6.2.1. Application breakdown size & forecasts, 2025-2035
 - 8.6.2.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.6.2.3. Installation breakdown size & forecasts, 2025-2035
- 8.7. Middle East and Africa PEM Electrolyzer Market
 - 8.7.1. UAE PEM Electrolyzer Market
 - 8.7.1.1. Application breakdown size & forecasts, 2025-2035
 - 8.7.1.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.7.1.3. Installation breakdown size & forecasts, 2025-2035
 - 8.7.2. Saudi Arabia (KSA) PEM Electrolyzer Market
 - 8.7.2.1. Application breakdown size & forecasts, 2025-2035
 - 8.7.2.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.7.2.3. Installation breakdown size & forecasts, 2025-2035
 - 8.7.3. South Africa PEM Electrolyzer Market
 - 8.7.3.1. Application breakdown size & forecasts, 2025-2035
 - 8.7.3.2. Capacity Range breakdown size & forecasts, 2025-2035
 - 8.7.3.3. Installation breakdown size & forecasts, 2025-2035

CHAPTER 9. COMPETITIVE INTELLIGENCE

- 9.1. Top Market Strategies
- 9.2. Siemens Energy AG
 - 9.2.1. Company Overview
 - 9.2.2. Key Executives
 - 9.2.3. Company Snapshot
 - 9.2.4. Financial Performance (Subject to Data Availability)
 - 9.2.5. Product/Services Port
 - 9.2.6. Recent Development
 - 9.2.7. Market Strategies
 - 9.2.8. SWOT Analysis
- 9.3. Nel ASA

- 9.4. Plug Power Inc.
- 9.5. ITM Power Plc.
- 9.6. Thyssenkrupp AG
- 9.7. McPhy Energy S.A.
- 9.8. Ballard Power Systems
- 9.9. Hydrogenics Corporation
- 9.10. Enapter GmbH
- 9.11. Proton OnSite
- 9.12. Doosan Fuel Cell Co., Ltd.
- 9.13. Tecna S.p.A.
- 9.14. Praxis Automation
- 9.15. FuelCell Energy, Inc.
- 9.16. Air Liquide S.A.

List Of Tables

LIST OF TABLES

Table 1. Global PEM Electrolyzer Market, Report Scope

Table 2. Global PEM Electrolyzer Market Estimates & Forecasts By Region 2024–2035

Table 3. Global PEM Electrolyzer Market Estimates & Forecasts By Segment
2024–2035

Table 4. Global PEM Electrolyzer Market Estimates & Forecasts By Segment
2024–2035

Table 5. Global PEM Electrolyzer Market Estimates & Forecasts By Segment
2024–2035

Table 6. Global PEM Electrolyzer Market Estimates & Forecasts By Segment
2024–2035

Table 7. Global PEM Electrolyzer Market Estimates & Forecasts By Segment
2024–2035

Table 8. U.S. PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 9. Canada PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 10. UK PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 11. Germany PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 12. France PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 13. Spain PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 14. Italy PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 15. Rest Of Europe PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 16. China PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 17. India PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 18. Japan PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 19. Australia PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

Table 20. South Korea PEM Electrolyzer Market Estimates & Forecasts, 2024–2035

.....

List Of Figures

LIST OF FIGURES

- Fig 1. Global PEM Electrolyzer Market, Research Methodology
- Fig 2. Global PEM Electrolyzer Market, Market Estimation Techniques
- Fig 3. Global Market Size Estimates & Forecast Methods
- Fig 4. Global PEM Electrolyzer Market, Key Trends 2025
- Fig 5. Global PEM Electrolyzer Market, Growth Prospects 2024–2035
- Fig 6. Global PEM Electrolyzer Market, Porter's Five Forces Model
- Fig 7. Global PEM Electrolyzer Market, Pestel Analysis
- Fig 8. Global PEM Electrolyzer Market, Value Chain Analysis
- Fig 9. PEM Electrolyzer Market By Application, 2025 & 2035
- Fig 10. PEM Electrolyzer Market By Segment, 2025 & 2035
- Fig 11. PEM Electrolyzer Market By Segment, 2025 & 2035
- Fig 12. PEM Electrolyzer Market By Segment, 2025 & 2035
- Fig 13. PEM Electrolyzer Market By Segment, 2025 & 2035
- Fig 14. North America PEM Electrolyzer Market, 2025 & 2035
- Fig 15. Europe PEM Electrolyzer Market, 2025 & 2035
- Fig 16. Asia Pacific PEM Electrolyzer Market, 2025 & 2035
- Fig 17. Latin America PEM Electrolyzer Market, 2025 & 2035
- Fig 18. Middle East & Africa PEM Electrolyzer Market, 2025 & 2035
- Fig 19. Global PEM Electrolyzer Market, Company Market Share Analysis (2025)

.....

I would like to order

Product name: Global PEM Electrolyzer Market Size Study & Forecast, by Application (Green Hydrogen Production, Power-to-Gas) by Capacity Range (Below 1 MW, 1-5 MW) and Installation (Centralized, Decentralized) and Regional Forecasts 2025-2035

Product link: <https://marketpublishers.com/r/G2029137FDD8EN.html>

Price: US\$ 3,750.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G2029137FDD8EN.html>