

Asia Pacific Green Hydrogen Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2024 – 2032

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Abstracts

Asia Pacific Green Hydrogen Market was valued at USD 4.23 billion in 2023 and is expected to grow at a robust CAGR of 33.5% from 2024-2032. Green hydrogen is produced through water electrolysis using renewable energy sources like wind, solar, and hydropower, ensuring zero carbon dioxide emissions. This eco-friendly production method offers a sustainable alternative to conventional hydrogen generation techniques. Increasingly, industries such as transportation, aviation, and mobility are adopting green hydrogen due to its ability to be stored and transported efficiently, which is anticipated to significantly boost demand. The Asia Pacific green hydrogen sector is segmented by technology, source, application, and country.

In terms of technology, the market is divided into alkaline, PEM, solid oxide, and others. The solid oxide category is projected to exceed USD 1.1 billion by 2032, driven by its high-temperature operation, enhanced efficiency, and potential applications in industries like refineries and waste-to-energy plants. SOEC technology is being explored for decentralized green hydrogen systems, particularly in regions with abundant renewable energy or available waste heat. Additionally, ongoing research and development aimed at reducing the capital and operational expenses of SOEC systems is expected to further stimulate market growth.

When categorized by source, the market is segmented into solar, wind, and other energy sources. The solar segment is expected to grow at a CAGR of over 25.5% by 2032, fueled by advancements in solar power technology, declining costs, and the global focus on reducing carbon emissions. Large solar photovoltaic (PV) plants are increasingly being integrated with electrolyzers to produce green hydrogen. As solar PV costs have plummeted in recent years, the production of green hydrogen has become more economically viable.

The widespread adoption of solar energy at industrial sites and renewable energy hubs,

where solar PV systems are paired with electrolyzers, will significantly drive segment growth. China green hydrogen market is forecast to surpass USD 20 billion by 2032, supported by ambitious national policies aiming for carbon neutrality by 2060. China plans to peak carbon emissions by 2030 and sees green hydrogen as a key factor, particularly in hard-to-decarbonize sectors like heavy industry and transportation. The country is making substantial investments in large-scale green hydrogen initiatives, including pilot projects in steel production that use green hydrogen as a coal substitute. Additionally, China's strong commitment to green hydrogen in the transportation sector, especially for heavy-duty vehicles, is expected to further accelerate market expansion.

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