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Southeast Asia Green Hydrogen Market: Current Analysis and Forecast (2025-2033)

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Abstracts

Green Hydrogen is low-carbon hydrogen that facilitates decarbonization by substituting for fossil fuel-powered hydrogen in industries, power generation, and transportation. Green hydrogen will help nations and corporations reduce greenhouse gas emissions while also promoting the adoption of renewable energy.

The Southeast Asian Green Hydrogen market is expected to exhibit a growth rate of 56.00% during the forecast period (2025-2033F). The major factors contributing to the growth of the Southeast Asia green hydrogen market are the high potential of renewable energy, increasing concerns about energy security, and significant government efforts in favor of low-carbon technologies. The decreasing prices of electrolyzers as well as renewable power, and the increasing demand of industries in search of cleaner feedstock fuels make production easier, and further adoption is being accelerated by the rising demand. The growth of project development and technological advancements is also being driven by regional collaboration in ASEAN and a rise in international investment. On February 21, 2024, Honeywell announced that it signed a Memorandum of Understanding (MoU) with The Green Solutions Group Corporation (TGS) on the Tra Vinh Green Hydrogen project, Vietnam's first green hydrogen plant in the Mekong Delta.

Based on electrolyzer, the market is segmented into proton exchange membrane electrolyzer, alkaline electrolyzer, solid oxide electrolyzer, and others. Among these, the alkaline electrolyzer market held the dominant share of the green hydrogen market in 2024, due to its affordable and developed technology for producing hydrogen at scale. They are reliable and easily scalable, making them suitable for industrial and government-supported projects. This will motivate businesses to invest in hydrogen infrastructure and

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increase production. On November 15, 2023, Asahi Kasei, Gentari Hydrogen Sdn Bhd, a wholly-owned subsidiary of PETRONAS clean energy arm Gentari Sdn Bhd (Gentari), and JGC Holdings Corporation (JGC) announced the completion of a detailed feasibility study for the production of up to 8,000 tonnes per year of green hydrogen using a 60 megawatt (MW) class alkaline water electrolyser system. The parties also signed a memorandum of understanding (MOU) for a front-end engineering design (FEED) study for the said project. This project is supported by the Green Innovation Fund for Large-scale Alkaline Water Electrolysis System Development and Green Chemical Plant Project by Japan's New Energy and Industrial Technology Development Organization (NEDO).

Based on source, the Southeast Asian Green Hydrogen market is segmented into solar energy, wind energy, and others (hydropower, geothermal, and hybrid of solar & wind). Among these, the wind energy market is expected to grow at a significant CAGR during the forecast period (2025-2033). Wind power is an important development driver since it can provide low-cost and renewable energy that can be used in the production of hydrogen. The high wind resources in Indonesia, Vietnam, and the Philippines can facilitate the continuity and clean energy supply that will lower the cost of operations. This will make the companies consider combining hydrogen production with local renewable energy development.

Based on end-user, the market is segmented into refining, ammonia, and others (methanol, iron & steel, etc.). Among these, the refining segment held the dominant share of the Southeast Asia green hydrogen market in 2024. The refining industry serves as a major driver of adoption by establishing the direct need for green hydrogen as an alternative to traditional feedstocks, which are cleaner. Southeast Asian companies are using hydrogen to decarbonize their refining processes and to comply with regulations. The industrial project needs to speed up the development of projects and stimulate investments in mass hydrogen planting.

For a better understanding of the market adoption of the Southeast Asian Green Hydrogen market, it is analyzed based on its regional presence in Southeast Asia, including Indonesia, Thailand, the Philippines, Vietnam, Malaysia, Singapore, and the Rest of Southeast Asia. Indonesia is expected to grow at a significant CAGR during the forecast period (2025-2033). The presence of renewable energy sources such as solar, wind, and hydropower that lower the

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production cost also drives the growth of green hydrogen in Indonesia. Additionally, the industrial and utility adoption is driven by the government's move on the energy transition roadmap and incentives for low-carbon technologies. Also, commercialization is being accelerated by large-scale projects, foreign investment, and international partnerships. Moreover, the market uptake is further enhanced by the strategic positioning of the country in the export of its products in the region and increased industrial demand in refining and ammonia industries. On April 16, 2025, PT HDF Energy Indonesia, a subsidiary of HDF Energy, signed a Memorandum of Understanding (MoU) with the Ministry of Transportation (MoT), state-owned electric utility PT PLN (Persero), and ferry operator PT ASDP Indonesia Ferry (Persero). The agreement outlines a joint study to decarbonize Indonesia's maritime sector using locally produced green hydrogen. The study will be conducted in collaboration with, and co-funded by, the International Maritime Organization (IMO).

Some major players running in the market include PTT Public Company Limited, Pertamina New & Renewable Energy, Sembcorp Industries, Petroliam Nasional Berhad (PETRONAS), ACWA POWER, SunGreenH2, PLN Nusantara Power (PLN NP), Siemens Energy, Linde PLC, and The Green Solutions Group.

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