

# Rising Green Fuel Adoption to Push Hydrogen Engine Market Toward \$87.3 Billion by 2040

*Hydrogen-powered engines are redefining clean mobility by offering zero-emission solutions for sectors where electrification faces limits.*

WILMINGTON, DE, UNITED STATES, August 19, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "Hydrogen Powered Engine Market by Installation (OEM, Retrofit), by Technology (Proton Membrane Exchange, Phosphoric Acid Fuel Cell, Others), by Application (Railways, Airways, Roadways, Marine), by

Propulsion (Hybrid, Electric): Global Opportunity Analysis and Industry Forecast, 2030-2040" The global hydrogen powered engine market is expected to be valued at \$34.7 billion in 2030, and is projected to reach \$87.3 billion by 2040, growing at a CAGR of 10.4% from 2031 to 2040.

The hydrogen-powered engine market is gaining momentum as industries and governments increasingly focus on decarbonization and sustainable mobility solutions. Unlike traditional internal combustion engines, hydrogen engines operate using hydrogen fuel, emitting only water vapor as a byproduct. These engines are emerging as a promising alternative for heavy-duty vehicles, marine transport, and industrial machinery, offering high energy density, quick refueling, and compatibility with existing engine platforms.

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The market is primarily driven by the rising demand for zero-emission vehicles and global initiatives to reduce greenhouse gas emissions. Hydrogen-powered engines offer a cleaner substitute to conventional fossil fuel engines, which makes them attractive in sectors like commercial transport, shipping, and off-highway equipment.



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Another major driver is government support through subsidies, regulations, and investments in hydrogen infrastructure. Countries across Europe, Asia, and North America are allocating funds to develop hydrogen refueling stations and promote hydrogen-based technologies.

Technological advancements are also shaping the market. Improvements in hydrogen storage, fuel injection systems, and combustion control mechanisms are enhancing engine efficiency and durability, making hydrogen engines a viable solution for large-scale deployment.

However, the high cost of hydrogen production, limited refueling infrastructure, and competition from hydrogen fuel cells and battery-electric vehicles restrain market growth. Addressing these barriers will require collaboration between automakers, energy providers, and policymakers.

Looking ahead, the market is expected to grow significantly with increasing adoption in heavy-duty and long-haul transport, sectors where battery-electric solutions face limitations. Hydrogen-powered engines are likely to complement fuel cell technologies, driving a diversified hydrogen economy.

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The [hydrogen powered engine market analysis](#) is segmented basis of installation, technology, application, propulsion, and region. By installation, it is divided into OEM and retrofit. By product, it is segmented into proton membrane exchange, phosphoric acid fuel cell, and others. By application, it is divided into railways, airways, roadways, and marine. By propulsion, the market is divided into hybrid and electric. By region, the market is analyzed across North America, Europe, Asia-Pacific and LAMEA.

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Asia-Pacific dominates the hydrogen-powered engine market, with Japan, China, and South Korea leading in hydrogen infrastructure development and early adoption of hydrogen-based mobility solutions. Strong government backing and industrial initiatives support rapid regional growth.

Europe is another major region, driven by the EU's ambitious carbon neutrality targets and investments in hydrogen transport technologies. Meanwhile, North America is witnessing increasing adoption, with the U.S. promoting hydrogen as part of its clean energy transition, supported by infrastructure expansion projects.

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The key players that operate in this hydrogen powered engine market are Aerodelft, Airspace Experience Technologies, Inc., Alisport Srl, Alstom, Apus Group, BAE Systems Plc., Ballard Power

Systems, Bell Textron Inc., Cummins Inc., Deere & Company, Hitachi Ltd., Siemens, Thales Group, Toyota Motor Corporation, Urban Aeronautics Ltd, Wabtec Corporation, and Zeroavia, Inc.

Companies are also collaborating with energy providers and infrastructure developers to address supply chain gaps and accelerate commercialization. Strategic alliances and government-supported demonstration projects are expected to be key growth enablers.

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- Rising demand for sustainable transport is fueling hydrogen-powered engine adoption.
- Asia-Pacific leads the market due to strong government initiatives and infrastructure development.
- Automotive and heavy-duty vehicle segments are the largest adopters.
- High production cost and limited refueling infrastructure remain key challenges.
- Partnerships, R&D, and government support are crucial for market expansion.

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