

# Hydrogen Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025-2034

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## Abstracts

The Global Hydrogen Market reached a valuation of USD 204.5 billion in 2024 and is projected to grow at a CAGR of 12.2% between 2025 and 2034. The increasing emphasis on decarbonization is driving the shift toward low-carbon hydrogen production, particularly for its applications in manufacturing ammonia, methanol, and various other chemicals. The demand for hydrogen continues to surge, fueled by the rising adoption of clean energy solutions and the need for alternative fuels in industrial processes. Governments worldwide are implementing policies, financial incentives, and mandates to accelerate the transition toward low-emission fuel sources. The industry is also witnessing a rise in hydrogen demonstration and pilot projects, reinforcing its role in the evolving energy landscape. Both public and private sector initiatives are contributing to the expansion of the entire hydrogen value chain. The growing focus on carbon capture and storage technologies is further supporting the market, making hydrogen a critical component of the clean energy transition.

Petroleum refineries are a major contributor to hydrogen consumption, with the segment projected to surpass USD 419 billion by 2034. The rising need for hydrogen in refining processes, particularly for desulfurization in diesel and gasoline production, is driving its market growth. The ongoing shift toward cleaner refining techniques is expected to further enhance hydrogen adoption in this sector. The agricultural and industrial sectors are also boosting hydrogen demand, given its essential role in ammonia production for fertilizers and methanol use across various industries. The need for large-scale hydrogen production continues to rise, with efforts to integrate low-carbon hydrogen into these applications gaining traction. The adoption of hydrogen across multiple industries is being propelled by technological advancements and increasing investment in clean energy solutions.

Hydrogen is also gaining traction in other industries, including steel production, transportation, power generation, and infrastructure development. The push for cleaner manufacturing and the drive to reduce carbon footprints are encouraging industries to transition to low-cost renewable hydrogen. As more industries streamline their operations to align with sustainability goals, the demand for hydrogen as an energy carrier is set to rise.

In terms of type, the grey hydrogen segment accounted for approximately 73.8% of the market share in 2024. The high consumption of crude oil and efforts to upgrade refining capacities have maintained the dominance of this segment. However, ongoing initiatives aimed at reducing emissions and increasing the use of clean hydrogen are expected to influence future market dynamics.

The U.S. hydrogen market recorded values of USD 15.8 billion in 2022, USD 17.3 billion in 2023, and USD 18.7 billion in 2024. North America represented around 11.5% of the total revenue share in 2024, with significant contributions from government initiatives promoting hydrogen adoption. Strategic investments, decarbonization efforts, and advancements in hydrogen infrastructure are driving market expansion across the region.

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