Hydrogen Storage Market Trends: Enabling a Green Energy Future

Hydrogen Storage Market Worth $8.6 Billion by 2032

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According to a new report published by Allied Market Research, the hydrogen storage market size was valued at $2.8 billion in 2022, and is estimated to reach $8.6 billion by 2032, growing at a CAGR of 12.7% from 2023 to 2032.

Hydrogen storage is a key enabling technology for the advancement of hydrogen and fuel cell technologies in applications including stationary power, portable power, and transportation. Hydrogen has the highest energy per mass of any fuel; however, its low ambient temperature density results in a low energy per unit volume, therefore requiring the development of advanced storage methods that have potential for higher energy density.

> “Increased demand for low-emission fuel and increased demand from various end-use industries are the upcoming trends of the hydrogen storage market.”
>
> *Allied Market Research*

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The Asia-Pacific hydrogen storage market size is projected to grow at the highest CAGR of 14.2% during the forecast period.

Asia Pacific region, a robust confluence of policy directives, industrial growth, and technological advancements has propelled a pronounced growth in the demand for hydrogen storage solutions. Japan has positioned itself as a front-runner in the global hydrogen economy.

Major players operating in the global hydrogen storage industry report are Air Liquide, Linde Plc, Worthington Industries Inc, Luxfer Holdings PLC, Hexagon Composites ASA, Chart Industries,

Inc., INOXCVA, Hbank Technologies Inc., PRAGMA INDUSTRIES and Steelhead Composites.

Increase in rate of adoption of hydrogen as a clean energy carrier and the need for efficient and reliable storage solutions are positively impacting the hydrogen storage system market development.

The hydrogen storage system business includes various stakeholders, including technology providers, equipment manufacturers, infrastructure developers, research institutions, and government entities.

Hydrogen storage system refers to the industry involved in the development, manufacture, and distribution of technologies and infrastructure required for the safe and efficient storage of hydrogen.

Hydrogen storage systems play a critical role in enabling the utilization of hydrogen as an energy carrier for various applications.

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Hydrogen energy storage encompasses a range of storage technologies and solutions such as compresses gas storage, liquid storage, metal and chemical hydride storage, and solid-state storage.

Some of these applications are in the domain of hydrogen energy, and no other alternatives can compete with hydrogen, such as heavy and long-distance transport (e.g., heavy-duty trucks, ships, and planes), as well as energy-intensive manufacturing sectors (e.g., ferrous, and nonferrous metals, petroleum refining, chemicals, and cement).

These sectors are difficult to electrify, and other alternatives (for instance bio energy) that cannot cater to the demand with the current technology. Therefore, various industries have adopted hydrogen as a replacement for fossil fuels to decarbonize and meet the need for energy.

This is estimated to offer significant hydrogen storage system market opportunities for vendors during the forecast period. Hydrogen energy is important for supporting energy security and renewable energy, zero emission pathway, and economic growth.

The transportation sector is a significant contributor to greenhouse gas emissions. Hydrogen fuel cells have gained attention as a zero-emission alternative for various modes of transportation, including cars, buses, trucks, and trains.

Hydrogen storage systems enable the safe storage and efficient delivery of hydrogen to fuel cell vehicles, thereby boosting the adoption of this clean transportation solution.

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Analysis of the latest hydrogen storage system industry research report reveals that hydrogen fuel cell powered electric vehicles have been gaining traction among automakers for the last few years.

Advances in hydrogen fuel cell technology are expected to drive the development of hydrogen energy storage and expansion of hydrogen storage infrastructure.

Hydrogen is an ideal option for an energy-intensive manufacturing sector, grid electrical supply, heavy and long-distance transport, and gas networks.

It is a key ingredient for producing chemicals. Usage of fossil fuels leads to carbon emissions; therefore, several industries are adopting hydrogen as an alternative for fossil fuels.

On the basis of type, the market is categorized into cylinder, merchant, on-site, and on-board. The cylinder segment is estimated to display the highest growth rate, in terms of revenue, from 2023 to 2032.

On the basis of storage, the market is bifurcated into material-based hydrogen storage and physical hydrogen storage. The physical segment is estimated to display the highest growth rate, in terms of revenue, registering a CAGR of 13.4% from 2023 to 2032.

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On the basis of end-use industry, the market is classified into chemical, oil refineries, automotive & transportation, metalworking, and others. The chemical segment is estimated to display the highest growth rate, in terms of revenue, from 2023 to 2032.

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