

# **Compressed Hydrogen Energy Storage Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034**

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## **Abstracts**

The Global Compressed Hydrogen Energy Storage Market was valued at USD 15.4 billion in 2024 and is projected to grow at a CAGR of 8.4% during 2025- 2034. The rising demand for sustainable energy solutions is driving the adoption of hydrogen as a key component in decarbonization strategies, especially in sectors where electrification is less viable, such as heavy industries and long-haul transportation. Compressed hydrogen storage is critical for efficient hydrogen handling, enabling its use in zero-emission energy systems.

Governments and corporations worldwide are committing to ambitious climate goals, spurring investments in hydrogen infrastructure and technologies. Compressed hydrogen offers versatile applications in fuel cell vehicles, grid stabilization, and backup power systems. Regions like Europe, North America, and Asia-Pacific are witnessing rapid adoption of hydrogen storage systems due to supportive policies and financial incentives. Hydrogen's role in global energy transition strategies has positioned compressed hydrogen storage as an essential element of the clean energy ecosystem.

The market is segmented by application into transportation, industrial, stationary, and other uses. Among these, the transportation sector is expected to register a CAGR of 9.8% through 2034. The increasing popularity of fuel cell electric vehicles (FCEVs), driven by their longer range and faster refueling capabilities compared to battery-electric vehicles, is a key growth factor. Regulatory measures and incentives aimed at promoting clean transportation solutions are further accelerating market expansion.

U.S. compressed hydrogen energy storage market is anticipated to generate USD 4.3 billion through 2034, fueled by the nation's focus on clean energy initiatives and

decarbonization efforts. The transportation sector, particularly the adoption of hydrogen-powered vehicles, plays a pivotal role in market growth. Additionally, industrial sectors are increasingly turning to hydrogen as a cleaner energy alternative. Advances in high-pressure storage technologies and enhanced compression systems are improving efficiency and driving adoption.

As hydrogen continues to emerge as a cornerstone of sustainable energy systems, the need for reliable and efficient storage solutions becomes paramount. Compressed hydrogen storage is well-positioned to support the growing demand for clean energy, ensuring its availability across various applications. With ongoing innovation and expanding infrastructure, the market is poised for significant growth, reinforcing hydrogen's role in achieving global sustainability goals.

## Contents

### **CHAPTER 1 METHODOLOGY & SCOPE**

- 1.1 Market definitions
- 1.2 Base estimates & calculations
- 1.3 Forecast calculation
- 1.4 Data sources
  - 1.4.1 Primary
  - 1.4.2 Secondary
    - 1.4.2.1 Paid
    - 1.4.2.2 Public

### **CHAPTER 2 EXECUTIVE SUMMARY**

- 2.1 Industry synopsis, 2021 – 2034

### **CHAPTER 3 INDUSTRY INSIGHTS**

- 3.1 Industry ecosystem analysis
- 3.2 Regulatory landscape
- 3.3 Industry impact forces
  - 3.3.1 Growth drivers
  - 3.3.2 Industry pitfalls & challenges
- 3.4 Growth potential analysis
- 3.5 Porter's analysis
  - 3.5.1 Bargaining power of suppliers
  - 3.5.2 Bargaining power of buyers
  - 3.5.3 Threat of new entrants
  - 3.5.4 Threat of substitutes
- 3.6 PESTEL analysis

### **CHAPTER 4 COMPETITIVE LANDSCAPE, 2024**

- 4.1 Strategic dashboard
- 4.2 Innovation & sustainability landscape

### **CHAPTER 5 MARKET SIZE AND FORECAST, BY APPLICATION, 2021 – 2034 (USD MILLION)**

*Compressed Hydrogen Energy Storage Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast...*

- 5.1 Key trends
- 5.2 Industrial
- 5.3 Transportation
- 5.4 Stationary
- 5.5 Others

## **CHAPTER 6 MARKET SIZE AND FORECAST, BY REGION, 2021 – 2034 (USD MILLION)**

- 6.1 Key trends
- 6.2 North America
  - 6.2.1 U.S.
  - 6.2.2 Canada
  - 6.2.3 Mexico
- 6.3 Europe
  - 6.3.1 Germany
  - 6.3.2 UK
  - 6.3.3 France
  - 6.3.4 Italy
  - 6.3.5 Netherlands
  - 6.3.6 Russia
- 6.4 Asia Pacific
  - 6.4.1 China
  - 6.4.2 India
  - 6.4.3 Japan
- 6.5 Rest of World

## **CHAPTER 7 COMPANY PROFILES**

- 7.1 Air Liquide
- 7.2 Air Products
- 7.3 Cockerill Jingli Hydrogen
- 7.4 Engie
- 7.5 FuelCell Energy
- 7.6 GKN Hydrogen
- 7.7 Gravitricity
- 7.8 Hydrogen in Motion
- 7.9 ITM Power

7.10 Linde

7.11 McPhy Energy

7.12 Nel

7.13 SSE

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