

# Industry development plan for hydrogen energy storage equipment

What is China's long-term plan for the hydrogen industry?

In March 2022, China issued the Medium- and Long-Term Plan for the Development of the Hydrogen Energy Industry (2021-2035) (hereinafter referred to as "Plan"), making the first nationwide mid-to-long-term plan specifically for the hydrogen industry in China.

What are the requirements for the development of hydrogen energy industry?

Some requirements have been proposed in the "Medium and Long-Term Plan for the Development of Hydrogen Energy Industry (2021-2025)", including the establishment of hydrogen safety standards, hydrogen safety technological innovation, safety regulation of the industry chain.

What is a hydrogen energy plan?

The Plan also indicates that it will lead to a high-quality development in the hydrogen energy industry by improving the core technology levels and implementing international cooperation actively in the hydrogen energy technological innovation.

What is a hydrogen-based chemical energy storage system?

A hydrogen-based chemical energy storage system encompasses hydrogen production, hydrogen storage and transportation, and power production using hydrogen as a fuel input<sup>21</sup>. (See Exhibit 12.) The application of HESS centers around the energy conversion between hydrogen and other power sources, especially electricity.

Can hydrogen energy be developed in China's transportation sector?

Meng et al. (2021) and Huang et al. (2024b) reviewed the hydrogen energy development strategy in China's transportation sector and put forward suggestions for the development of hydrogen energy in the transportation sector. Hydrogen safety is one of the hot topic in the development process of the hydrogen energy industry.

How will hydrogen energy industry develop?

A relatively complete development system and policy environment of hydrogen energy industry will be formed, the innovation ability of the industry will be significantly improved, the core technologies and manufacturing processes will be basically developed, and finally a relatively complete supply chain and industrial system will be established.

By 2025, the plan hopes that China will enjoy a relatively complete system and policy environment for the development of the hydrogen energy industry, significant improvements in industrial ...

Subprogram activities support development of hydrogen delivery and storage technologies to enable meeting the goals identified through the ... (FY) 2023, the Hydrogen Infrastructure Technologies subprogram conducted scenario planning for energy storage applications, chemical/industrial applications, and medium-

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and heavy-duty hydrogen fueling ...

Hydrogen energy technology is pivotal to China's strategy for achieving carbon neutrality by 2060. A detailed report [1] outlined the development of China's hydrogen energy industry from 2021 to 2035, emphasising the role of hydrogen in large-scale renewable energy applications. China plans to integrate hydrogen into electrical and thermal energy systems to ...

Hydrogen energy storage, as a highly efficient energy storage method, excels in long-term, large-scale electricity storage, making it ideal for balancing the intermittency and volatility of ...

Accelerating the development of the hydrogen energy industry is crucial for realizing the carbon peaking and carbon neutralization goals and for ensuring national energy security. Hydrogen energy storage has the advantages of cross-seasonal ...

Low-carbon hydrogen will be utilised as one of the new energy storage solutions for the nation's rapidly expanding renewable market; hydrogen fuel cell modules are encouraged to serve the growing telecommunicate ...

energy structure and details the development goals by phase for the hydrogen industry in China. The Plan systematically maps out hydrogen's large-scale applications outside the

The Summit is themed "Energy Storage & Hydrogen Industry Investment, Financing, and Sustainable Development (ESG)", focusing on policy support and planning for new energy storage and hydrogen energy, capital investment and financial services, market

For example, in the Beijing Hydrogen Energy Industry Development Implementation Plan (2021-2025), released in August 2021, the development of the integrated Beijing-Tianjin-Hebei hydrogen energy industry chain is repeatedly mentioned, emphasizing the coordinated management of the production, storage, and transportation applications in the ...

The findings of this study offer insights for national and regional governments in formulating policies for hydrogen industry development. This study also provides future zero-carbon energy system planning and hydrogen equipment selection guidance for regional energy systems and serves as a valuable reference for other countries or regions.

On 23 March 2022, the National Development and Reform Commission (NDRC) published the "Medium and Long-term Plan for Hydrogen Energy Industry Development (2021-2035)". This is the first time China's central government ...

On March 23, the National Development and Reform Commission (NDRC) and the National Energy

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Administration of China Issued the Medium and Long Term Development Plan for Hydrogen Industry (2021-2035) to carry out ...

Hydrogen energy is an important carrier for building a multi-energy supply system based on clean energy in the future. Its development and utilization has become an important direction of a new round of world energy technology reform [6]. As the role value of hydrogen energy in the world energy transformation is increasingly valued, major developed countries in ...

Hydrogen energy is a kind of secondary energy with rich sources, green, low-carbon and wide application. It is gradually becoming one of the important carriers of global energy transformation and development. In order to help achieve the goals of carbon

The National Development and Reform Commission published the Medium and Long-Term Plan for the Development of Hydrogen Energy Industry (2021-2035) [4] to clarify the strategic positioning of hydrogen and identify the stages of hydrogen development. This plan is a key component of China's "1 + N" policy framework to achieve carbon neutrality.

China is currently the largest hydrogen producer in the world, with an annual production output of about 33 million tonnes, but most of the hydrogen comes from fossil fuels. The plan acknowledged that China's hydrogen energy industry is still in its infancy, facing multiple problems such as weak innovation capabilities, low level of technical ...

The Chinese Government also attaches great importance to the development of the hydrogen energy industry. During the National People's Congress of the People's Republic of China and the Chinese People's Political Consultative Conference in 2019, based on various opinions, the statement "to promote the construction of hydrogen refueling facilities" was finally ...

In March 2022, the "Medium and Long-Term Plan for the Development of Hydrogen Energy Industry (2021-2025)" was issued by China's National Development and Reform Commission (NDRC) and National Energy Administration (NEA), which further improved the top-level design of the hydrogen energy industry (NDRC, NEA, 2022). Some requirements have ...

The National Energy Administration of China has listed hydrogen energy and fuel cell technology as a key task of energy technology and equipment during the 14th Five-Year Plan period, and released the White Paper 2020 on China's Hydrogen Energy and Fuel Cell Industry, which expounds the development trend, development prospect and key ...

for specialized equipment for hydrogen energy storage, transport and distribution. Research to pilot hydrogen energy distribution systems in transportation sector at routes and areas with optimal conditions. A vision to 2050 Develop and complete a hydrogen energy infrastructure for storage, transport, distribution and

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a hydrogen energy industry chain covering hydrogen production from renewable energy, hydrogen storage and transportation, hydrogen power supply, hydrogen power and hydrogen raw materials, as well as 16 integrated systems, 47 types of core equipment and 140 key technologies. In addition, the development plan for the National Hydrogen Industry ...

The plan targets green hydrogen production using renewable feedstock resources to reach 100000-200000 tonnes per year by 2025. Besides transport, the plan envisages the ...

With thorough development of technology and the industry, hydrogen energy will play a significant role in achieving these goals. 2. The development trend of China's hydrogen energy industry In recent years, ...

The first research area is hydrogen production technology assessment. Cetinkaya et al. [4] studied the case of hydrogen production in Toronto using the Life Cycle Assessment (LCA) method and found that the daily production of hydrogen from the reforming of coal and natural gas was greater than that from renewable energy sources, but the carbon emissions ...

adoption of hydrogen technologies in its future energy system. China boasts abundant renewable resources and has a massive domestic market for clean energy, providing a conducive environment for the development of a robust new energy industry and economy where hydrogen could have a crucial impact. In recent years, hydro-

The plan targets green hydrogen production using renewable feedstock resources to reach 100000-200000 tonnes per year by 2025. Besides transport, the plan envisages the use of clean hydrogen in other sectors: energy storage, electricity generation and industry. Currently, China is already the world largest producer and consumer of hydrogen.

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Russian hydrogen energy roadmap sector to 2024 (Plan meropriyatij) Approved by RF Government Decree No. 2634-r of 12.10.2020 Russian hydrogen energy development program (Konczepczija razvitiya vodorodnoj e`nergetiki) Approved by RF Government Decree No. 2162-r 05.08.2021 Russian low-carbon hydrogen ...

China's fast-tracking hydrogen industry has finally met with the first national-level planning, as the top economic and energy planners established the long-awaited national hydrogen industry mid-to-long-term development plan.. ...

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This will initiate a new phase of large-scale green hydrogen development. The government's Medium- and Long-Term Plan for the Development of the Hydrogen Energy Industry (2021-2035) defines, for the first time, the strategic importance of hydrogen as an energy source within China's wider national development policy.

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