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In June 2023, China achieved a significant milestone in its transition to clean energy. For the first time, its total installed non-fossil fuel energy power generation capacity surpassed that of fossil fuel energy, reaching 50.9%.

China"s renewable energy push has ignited its domestic energy storage market, driven by an imperative to address the intermittency and variability of renewable energy sources such as wind and solar. The Chinese energy storage industry experienced rapid growth in recent years, with accumulated installed capacity soaring from 32.3 GW in 2019 to 59.4 GW in 2022. China"s energy storage market size surpassed USD 93.9 billion last year and is anticipated to grow at a compound annual growth rate (CAGR) of 18.9% from 2023 to 2032.

The Chinese government is increasingly focused on what it calls "new-type energy storage systems" (NTESS). This category encompasses a range of electricity storage methods, such as electrochemical systems (e.g., batteries), compressed air energy storage, flywheel systems and supercapacitors. However, pumped hydro energy storage--which relies on storing water behind dams to generate electricity when needed--is not included. In 2022, China’s cumulative installed NTESS capacity exceeded 13.1 GW, with lithium-ion batteries accounting for 94% (equivalent to 28.7% of total global capacity).

China is positioning energy storage as a core technology for achieving peak CO2 emissions by 2030 and carbon neutrality by 2060. In July 2021, the National Development and Reform Commission (NDRC) and the National Energy Administration (NEA) jointly published the "Guidance on Accelerating the Development of New-Type Energy Storage," which aims for the installation of 30 GW of new-type energy storage capacity and the transition from early commercialization to large-scale development by 2025. The "New Energy Storage Development Implementation Plan (2021-2025)," issued in March 2022 by the NDRC and NEA, aims to reduce the cost of NTESS by over 30% by 2025 and develop independent and controllable core technology and equipment for NTESS by 2030.

Following central government directives, approximately 30 provinces have unveiled individual plans for deploying NTESS since 2019. These plans collectively aim for a combined capacity of 60 GW, surpassing the NEA"s original 2025 target of 30GW. Localities have reiterated the central government"s goal of developing an integrated format of "new energy + storage" (such as "solar + storage"), with a required energy storage allocation rate of between 10% and 20%.

China has created an energy storage ecosystem with players throughout the supply chain. The upstream players are mainly battery and raw materials manufacturers, with many benefitting from first-mover advantage. Chinese manufacturers have gained a substantial market in this domain. According to SNE Research, CATL had achieved a 43% global market share by 2022. BYD and Eve Energy secured the second

and third positions, with market shares of 12% and 7%, respectively.

The midstream players focused on integrated NTESS are more diversified. They include major battery manufacturers CATL and BYD, photovoltaic companies Trina Solar and Sungrow, and companies with a grid background such as XJ Electric.

The downstream segment is dominated by mainly state-owned enterprises (SOEs) that provide energy storage applications on the power generation, grid, and user sides, such as State Grid, Energy China and CHN Energy. In October 2021, Huawei and SEPCOIII, a subsidiary of PowerChina, were awarded the Saudi Red Sea New City Energy Storage project, the world"s largest energy storage project signed in 2022.

Despite massive investments, the utilization rate for NTESS remains low. The average rate is 6.1%, compared to 15.3% for thermal power plants. The main reasons for the low utilization of the “new energy + storage” application model lie in the overreach of local planning for energy storage construction, cost pressure resulting in more unqualified energy storage projects and the current grid scheduling mechanism, which means high expenses running energy storage facilities. In response to concerns over underutilization of storage, government regulators have reportedly begun exploring the removal of the mandatory integration policy and the optimization of the NTESS operation mechanism.

New energy storage also faces high electricity costs, making these storage systems commercially unviable without subsidies. China’s winning bid price for lithium iron phosphate energy storage in 2022 was largely in the range of USD 0.17-0.24 per watt-hour (Wh). However, the cost of electricity from pumped hydro storage has fallen to USD 0.07 per Wh. On top of electricity prices, safety and security are also key concerns, with energy storage facilities requiring system integration maintenance, error analysis, incident warnings and other emergency-related measures.

On 15 July, national plans for energy storage were set out by the Chinese National Development and Reform Commission and National Energy Administration. The main goals of new energy storage development include:

The guidance covers four aspects:

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