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Is New Energy a High Growth Industry in China?



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Key takeaways

- **Energy storage:** The development of large-scale energy storage systems has progressed in leaps and bounds along with the wind and photovoltaic sectors. Local governments have introduced a series of accommodative policies in response to consumption bottlenecks. Coupled with the business model becoming more evident, China's installed capacity for energy storage may achieve a compound annual growth rate ("CAGR") of roughly 75% between 2022 to 2025.
- **Wind power:** Parts of onshore project capacity have been delayed from 2022 to 2023 due to external factors, which may lay the foundation for demand recovery in 2023. In 2023, installed capacity for offshore wind power is expected to surpass 10GW, with a year-on-year growth rate of over 100%, displaying a secular growth trend.
- **New energy vehicles:** Global new energy vehicle sales are expected to achieve a CAGR of around 30% over the next three years, leading to a sustained high rate of growth in the lithium battery industry. The fundamentals, valuations and market sentiment of the lithium battery industry are currently at a low point and therefore the segments such as batteries and structural components, which generate steady earnings, are preferred.
- **Photovoltaic:** The production scale of China's new battery technology is ramping up, and distributed solar power grids will continue to develop, while the construction of large solar energy power stations will be accelerated. As prices of components have gone down, the demand for photovoltaic energy is expected to surge.

The growing need to cope with issues such as rapid climate change and energy security has made new energy the focal point of development for nations across the globe, and China is no exception. Apart from setting targets for peak carbon emissions and carbon neutrality, China has also implemented policies and measures which encourage new energy development, including subsidies, tax concessions and issuance of green bonds. These initiatives help to reduce the investment risk and cost of the new energy industry, while promoting advancement of relevant supply chains. China's new energy sector is currently in a high-growth phase, and numerous opportunities can be found in fields such as energy storage, wind power and photovoltaic energy.

Recent developments in China's new energy sector

China has promoted research & development ("R&D") in and applications of new energy over the past several decades. For example, the R&D, industrialisation and marketing of new energy vehicles have been underway for over 20 years. According to data from the China Association of Automobile Manufacturers (CAAM), domestic sales of new energy vehicles have skyrocketed from less than 10,000 in 2010 to 6.887 million in 2022.¹ This makes China the world's largest new energy vehicle market, with sales volume two times and five times the size of the European and the U.S. market, respectively.

The power battery sector, which is linked to the new energy vehicle industry, has progressed from being policy driven to being driven by market forces. Its prospects have been gradually improving and the industry is currently in the "1 to N" expansion phase. In comparison, the energy storage sector is still in the nascent "0 to 1" development stage, with more room for development in the future and potential for growth.

Development of China's photovoltaic energy sector began to pick up pace in around 2009. The National Energy Administration ("NEA") estimates that between 2011 and 2022 CAGR of newly-installed capacity for photovoltaic energy was approximately 37.56%.² We expect this growth to be at around 25% between 2022 and 2025, demonstrating robust demand growth. China is currently the global leader in terms of market share for critical elements in the sector's supply chain, namely poly-silicon, silicon wafers, batteries, components and inverters.

China made its foray into wind power over 40 years ago. The five-year wind power development direction and primary objective announced in the 13th Five-Year Plan called for better standards and R&D capabilities for wind power generating facilities, signifying that the nation's wind power sector will reach a steady development phase. According to our estimates, installed capacity for onshore and offshore wind power reached 144 GW and 8 GW, respectively during the 13th Five-Year Plan period. This translates into five-year CAGRs of 38.4% and 50.7%, making China the fastest-growing producer of wind power in the world.

With sustainable development and low-carbon economies becoming the primary goal for most societies, the new energy sector has become a pillar in China's policy framework. China ranks among the top globally in terms of energy transition investments, while storage systems, offshore wind power, lithium batteries and other sub-sectors display much growth potential, thanks to technological innovation and market demand.

Which new energy sub-sectors possess high growth potential in mid to long term?

Energy storage: Large-scale energy storage systems

With carbon reduction goals being set and energy transition underway, installed capacity for wind and photovoltaic energy has grown more quickly around the world as these two energy sources are becoming increasingly important in power systems. However, due to climate, geographical and facility limitations, wind and photovoltaic energy supply is more volatile, creating challenges for power grid stability and energy consumption. As crucial flexible resources, large-scale energy storage systems can improve electricity quality and maintain grid stability because of their ability to facilitate swift response and precise controls, leading to greater demand.

With energy transition gaining traction, the number of photovoltaic power stations installed in 2023 is to reach a new high thanks to lower costs, stimulating demand for large-scale energy storage in China and the US. Looking at Bloomberg data and based on our predictions, the newly installed capacity for large-scale energy storage worldwide is expected to be 51.4 GWh in 2023, a year-on-year increase of 178%.³ Projections of global installed capacity in 2022-2025 are 72, 148, 250 and 400 GWh, representing year-on-year growth of 178%, 105%, 69% and 60% respectively.

In China, the development of large-scale energy storage systems has progressed in leaps and bounds along with the wind and photovoltaic sectors. Local governments have introduced a series of accommodative policies in response to consumption bottlenecks. Meanwhile, with the "0 to 1" business model becoming more evident, coupled with the expectations of installed capacity for new energy worldwide and expedited development of energy storage facilities, we foresee that China's installed capacity for energy storage may hit 16.6, 37, 59.8 and 88.7 GWh in 2022-25, which implies a CAGR of roughly 75%. Of the total energy storage capacity installed in China in 2023, large-scale storage is expected to account for nearly 90%. Investors can pay attention to segments related to large-scale storage in Mainland China, such as batteries, inverters, and system integrators and so on.

Wind power: Offshore wind power

Wind power development faced a slew of headwinds in 2022, including the production and delivery of equipment and speed of installation being hampered by the epidemic. It was also affected by equipment upgrades and prolonged approval of wind farm sites. We expect the installation of about 10 GW of onshore capacity to have been delayed from 2022 to 2023 due to external factors, which should lay the foundation for demand recovery in 2023. With the alleviation of the epidemic, cost effectiveness of developing wind power will be greatly enhanced. The total installed capacity for wind power is expected to jump 75% year-on-year to about 77 GW in 2023.

In 2023, installed capacity for offshore wind power is expected to surpass 10 GW, with a year-on-year growth rate of over 100%. It might also display a secular growth trend with growth rates in 2024 and 2025 slated to exceed 30%. Bidding activity for onshore wind power was high in 2022 and it is expected to be in the range of 75-80 GW for the year. Related companies have been able to lower costs by expanding their scale, helping to boost the growth of the internal return rate. In 2023, over 65 GW of capacity is expected to be hoisted and installed, equivalent to a year-on-year growth of over 30%, and capacity connected to the grid may exceed 75 GW, up 88% year-on-year.

Among the core components of wind power generation systems produced by China, all have successfully entered global markets on the back of low manufacturing costs and the advantage of strong delivery capabilities, with bearings being the only exception. Global production capacity for the main shaft and castings used in wind power generation are basically controlled by Chinese supply chains. We recommend keeping an eye on the following opportunities in specific segments:

Marine cables: Rapidly growing sub-sector with good competition and relatively better growth potential among sector leaders.

Towers and pipe pile: May benefit from the positive prospects of the deep-sea offshore wind power sector, and significant increase in export demand.

Castings and forgings: Industry leaders provide products to the global market as they have the required capacity and cost advantage. Sales volume and profit are expected to rise from Q2 2023 onwards.

Blades: As wind turbines get bigger, the production capacity for bigger blades will be relatively under pressure. Demand for carbon fibre will be bolstered as goals for lighter blades are introduced and implemented.

Wind turbine manufacturing: As we enter the low-cost era, companies must control costs to reduce product prices and enhance market competitiveness. The ability to control costs has become an important element of corporate competition. Investors should pay attention to noteworthy companies to see if they can enhance market share and exploit export opportunities through cost advantages.

New energy vehicles: Lithium batteries

According to data of the China Passenger Car Association (CPCA) and Marklines, the sales volume of new energy vehicles in China grew by 143% and 91% year-on-year in 2021 and 2022 respectively, while sales volume in the global market grew by 107% and 62%.⁴ We predict that China's new energy vehicle sales volume may reach 9.001 million in 2023, a 31% year-on-year increase with 1-1.2 million being exported. Generally speaking, vehicle electrification looks set to become a widespread trend. Global new energy vehicle sales are expected to achieve a CAGR of around 30% over the next three years, and the volume could exceed 22 million by 2025 with the corresponding electric vehicle penetration rate standing at approximately 31%, leading to a sustained high rate of growth in the lithium battery industry.

The lithium battery industry mainly involves the batteries themselves and their materials, which include structural components, separators, aluminium foil, copper foil and conductive agents. The fundamentals, valuations and market sentiment are currently at a low point and therefore the segments such as batteries and structural components, which generate steady earnings, are preferred. In addition, 2023 marks the starting point for the industrialisation of various new technologies. We are keen on the structural increments brought forth by technological advancements. Lithium manganese iron phosphate batteries, which could enter the mass production phase in the middle of 2023, deserve investors' attention. Meanwhile, the production of sodium batteries may begin in small batches by mid-2023, with the production scale possibly ballooning to 100 GWh by 2025. Also, since the production of PET copper foil, a type of conductive material, has picked up speed, its penetration rate is expected to reach 10% by 2025.

Photovoltaic

With the price of silicon wafers moving downwards, the continued decrease in supply chain prices has boosted demand for photovoltaic energy. The NEA estimates that the newly installed capacity for photovoltaic energy in China reached 87.41 GW in 2022, a year-on-year increase of 59.13%.⁵ In 2023, the production scale of China's new TOPCon battery technology is ramping up, and distributed solar power grids will continue to develop, while the construction of large solar energy power stations will be accelerated. As prices of components have gone down, the demand for photovoltaic energy is expected to surge.

Benefitting from supply capacity and demand exceeding expectations, the decline of supply chain cost, the increase of project yield, technological advancements and supportive policies, we expect the installed capacity for photovoltaic energy in China to reach 120 GW, 156 GW and 203 GW in 2023-2025, representing a CAGR of around 30%.

1. As of 2022. Source: Production and Sales status of Automotive Industry in 2022, China Association of Automobile Manufacturers.
2. As of 2022. Source: National Electric Power Industry Statistics, National Energy Administration of China.
3. Source: Bloomberg, CCB Principal Asset Management (Hong Kong) Co., Limited.
4. As of 2022. Source: China Passenger Car Association, Global Auto Industry Platform Marklines.
5. As of 2022. Source: National Electric Power Industry Statistics, National Energy Administration of China.

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