

Unlocking China's green potential: policies, progress, and investment insights

China is transforming its energy landscape, with clean energy capacity expanding at an unprecedented pace. This is the latest in a series of country analyses, where **TEI Times** examines China's generation and consumption profiles, policy, emissions targets and potential for a future increase in foreign participation in domestic decarbonisation projects.

China is making significant strides in its climate action, with ambitious goals to peak CO₂ emissions before 2030 and achieve carbon neutrality by 2060. The nation is rapidly transforming its energy landscape, with clean energy capacity expanding at an unprecedented pace.

Despite challenges such as regulatory complexities and geopolitical hurdles, China offers a compelling investment environment bolstered by political stability, a vast market, and robust supply chains.

So how are China's decarbonisation commitments shaping its approach to a greener future? What transformations are occurring in the energy mix, and how do they reflect the country's commitment to sustainability? Could the policies and incentives in place truly attract foreign investment into China's green transition?

Decarbonisation commitments

China's climate action has progressively intensified in recent years. At a high level, the objective is for CO₂ emissions to peak before 2030 and to reach carbon neutrality by 2060. The short-term objectives include non-fossil fuel sources accounting for about 25 per cent of primary energy consumption, cutting energy consumption per unit of GDP by about 13.5 per cent, and installing about 1200 GW of solar and wind generation capacity by 2025. In the near term, climate action will certainly accelerate further.

For example, the 'Action Plan for Energy Conservation and Carbon Reduction (2024-2025)', Document [2024] No. 12, released by the State Council in May 2024, mandated all provinces to prepare and publish their respective carbon peaking roadmaps by the end of 2025.

Two other government bodies announced a 2025-2027 low-carbon retrofit programme in July 2024. This initiative mandates a CO₂ emissions reduction of 20 per cent by 2025 and 50 per cent by 2027, against a 2023 baseline. It launched low-carbon upgrade pilot projects at selected coal plants and lays the groundwork for these plants to add carbon capture, utilisation, and storage (CCUS) after 2027.

Specifically, these plants will have to match the emissions of a gas fired power plant (420 grams CO₂/kWh) if they wish to remain in operation, effectively mandating CCUS retrofits.

Energy mix

In 2024, China reported GDP growth of 5 per cent, compared to a growth in electric power output of 6.7 per cent to 10 087 TWh. Output from fossil fuel sources rose by less than 2 per cent, a rate below that of any other energy source. Hydropower had a share of 14 per cent, and its output rose by almost 11 per cent during the year. Wind generation accounted for nearly 10 per cent of output, rising by 13 per cent year-over-year. Solar PV, with a share of 8.3 per cent of output, saw a huge surge in generation of almost 44 per cent in 2024. The capacity of wind and solar PV rose at remarkable rates, 18 per cent and 45 per cent, respectively.

Over the next few years, the generation mix will continue to shift considerably away from coal fired generation. Solar and wind capacity will continue to grow at a staggering pace. The steady decline of the share of output from coal plants will not stop. Gas fired power plants will be added, but only moderately, as they will be principally used as a bridging fuel. Nuclear capacity will also increase as the number of large-scale plants grows, and there could also be some additions from small modular reactors (SMRs) if the various pilot projects are successful. The country is also rapidly expanding and modernising its grid network, including huge investments in ultra-high-voltage transmission, along with smart grid and energy storage solutions.

Investment environment

China is not a straightforward destination for overseas investors seeking energy transition-related projects and solutions. Some of the challenges include formidable domestic players, evolving regulations (typically consistent but not always transparent), capital controls, and highly dynamic geopolitical hurdles. Despite these challenges, China can be an attractive investment target. Factors that somewhat de-risk the investment include political stability, a huge and rapidly growing market, local partnership (even majority owned joint ventures) and supply chains that are unmatched in size and sophistication. Additionally, the permitting process is generally fast-paced, such as for utility-scale solar PV projects.

In terms of financing, green loans can be secured at 25 to 50 basis points below the loan prime rate (currently 3.35 per cent, for example). Although foreign-invested enterprises admittedly face more hurdles than domestic



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ones in securing bank loans, in the first half of 2025 they were able to have an 11 per cent share of loans for low-carbon projects from China's six policy banks, according to one domestic media source.

Another financing option is the rapidly growing domestic green finance ecosystem. For example, one could attempt to issue onshore green bonds, despite the highly stringent approval process. One can also use a blend of domestic and offshore finance, such as issuing green bonds in Hong Kong.

Policies and incentives

The Chinese government deploys a robust collection of policies and incentives to encourage investments related to the energy transition. Climate action is a national strategic priority for the central government, providing ministries and local governments alike with a high level of motivation.

The existing Renewable Portfolio Standards push industries to switch to clean energy consumption. There are a variety of tax incentives, such as value-added tax rebates, corporate tax reductions, exemptions on some import duties for certain equipment, and accelerated depreciation for specific sub-industries.

China has published a Catalogue of Encouraged Industries for Foreign Investments to promote overseas investors' involvement in areas such as electrolyzers above 5 MW, CCUS equipment, SMRs, and grid-scale batteries. At the local government level, foreign-invested enterprises can participate in obtaining grants for project development, R&D centres, and the like, as well as potentially obtaining preferential land use treatment and infrastructure support.

Investors backdrop

While foreign direct investment in China's energy transition is not booming, there is interest on the part of foreign investors, as shown by several examples over the past five years.

Saudi Arabia's ACWA Power invested \$312 million to develop a 132 MW solar PV and 200 MW wind power portfolio in Guangdong and also committed to developing over 1 GW of similar projects across China (2024). France's Air Liquide constructed two blue hydrogen facilities in Shanghai (2023). Shell previously announced a plan to invest in a green hydrogen production project with a capacity of 20 MW in Hebei Province (2020). Germany's Siemens partnered with the Chinese firm Guofo Hydrogen for the production of electrolyzers and green hydrogen (2025). France's TotalEnergies is collaborating with Chinese partners on the development of clean energy products such as sustainable aviation fuel, green power, hydrogen, and carbon capture (2025). Germany's ZF Friedrichshafen AG launched a project in Shenyang, Liaoning Province, which will manufacture products such as new powertrains for electric vehicles (2021).

It is realistic to be bullish about a future increase in foreign participation in domestic decarbonisation projects in China, based on three likely future trends.

First, there could be a revival or re-acceleration of the Chinese economy, which has been in the doldrums at least since the beginning of the COVID pandemic. Second, the 'geopolitical hurdles' will likely become less demanding as the pendulum swings towards a more cooperative and collaborative relationship with China. Third, China will continue to open its doors to foreign investors, such as by expanding the scope of the Catalogue of Encouraged Industries for Foreign Investments. However, the country will also have to work hard on changing perceptions regarding access to its markets.

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Electricity generation reached over 10 000 TWh in 2024, with non-fossil fuel generation accounting for almost 40 per cent of total output

