



Press release

Standard Chartered report shows China's challenging path to net zero

China needs to invest CNY 127-192 trillion by 2060 to reach carbon neutrality goal

20 May 2021, Hong Kong – China needs to invest a total CNY 127-192 trillion by 2060, equivalent to CNY 3.2-4.8 trillion of related investment per year to reach its carbon neutrality goal, according to Standard Chartered Global Research team's new report titled "China – A challenging path to net zero".

With the focuses on the challenges of achieving carbon neutrality goal by 2060, likely path to peak emissions and net zero, transformation needed to reduce emissions, opportunities and costs, impact on foreign trade and investment and the role of green finance, the special report found that:

- China has pledged to achieve peak emissions by 2030 and carbon neutrality by 2060. This is an extremely challenging goal, given the country's energy-intensive growth model and coal-dominant energy mix, and its short window to achieve net zero.
- Gross emissions likely to peak at 10.8-11.6 gigatonnes (Gt) around 2030 as China balances its medium-term growth ambition and the binding target to cut carbon intensity.
- Decarbonisation will require a major transformation of China's economy, featuring a growing share of services, low-carbon and high-tech manufacturing in GDP, and a shift to renewable energy. Substantial investment opportunities will arise from this potential transformation, together with the need to mitigate short-term transition costs.
- China's strong manufacturing capability and economies of scale put it in a good position to bridge the gap between R&D and mass deployment of renewable energy in a financially viable manner.
- The financial sector has a key role to play via funding green investment, managing climate change and industry transformation risks, and facilitating carbon pricing.

Decarbonisation to become the impetus of China's transformation

China has pledged to achieve peak carbon emissions by 2030 and carbon neutrality by 2060, in support of the Paris Agreement goal to limit global warming. The country is the world's largest source of carbon emissions, contributing nearly 30% of the global total in 2019. In this light, China's commitment is crucial to the global effort to prevent climate change from reaching the point of no return.

Cutting net emissions to zero in 40 years is an extremely challenging task, however. China's economic size is likely to double in 15 years, and faster growth is normally positively correlated with emissions. In addition, China is the world's factory, and its growth model is highly energy intensive. Furthermore, the carbon intensity of the country's energy mix is high, with 57% of primary energy consumption in 2020 contributed by coal. Furthermore, if it is to meet its target, China has only 30

years to move from peak to net zero emissions, compared with about 70 years for the EU and over 40 years for the US.

The higher the peak, the steeper the downhill path

Given the challenges, China will need to reach peak emissions as soon as possible and also, ideally, subdue the peak emissions level. The research estimates that gross carbon emissions will peak at 10.8-11.6Gt around 2030, assuming growth averages 5.5-6.0% annually from 2021-25, c.5% from 2026-30 and c.4% from 2031-35. The upper bound of the emission forecasts reflects a decline in carbon intensity by 3.9% per year up to 2030, as required by the 14th Five-Year Plan (FYP). The lower bound is predicated on a more ambitious cut in carbon intensity of 4.6% per year, which is feasible, based on the country's track record of beating targets set in previous FYPs. To achieve a lower peak, China would need to strictly end approvals of all unabated coal power plants and expand clean energy capacity, while also increasing energy efficiency.

On reaching peak emissions, the research suggests that China would need to speed up decarbonisation by achieving carbon neutrality in selected areas by 2050. To lower its energy intensity, it will need to move steadily away from energy-intensive industries such as steel and petrochemicals and increasingly towards modern services and low carbon and high-tech manufacturing. China also needs to transform the power sector by phasing out unabated coal power generation and shifting to wind, solar, nuclear and hydro power, which have a low carbon footprint. To achieve overall net zero by 2060, in addition to increasing forest coverage, China will need to increase carbon capture and storage (CCS) capacity to help absorb emissions from hard-to-abate sectors such as industrial processing and transportation.

A major transformation into a low-carbon economy

China's path to carbon neutrality will likely entail structural changes across the economy, with a substantial impact on several industries, in particular electricity and heating, manufacturing, construction, and transport, which together accounted for nearly 90% of total emissions in 2018. Standard Chartered expects the government to gradually phase out coal-fired power plants and increase the competitiveness of wind and solar power; strengthen mandatory energy efficiency targets for industries to encourage low-carbon manufacturing; implement thermal efficiency standards for new buildings and retrofit existing buildings to improve energy efficiency; and strengthen fuel economy standards for cars and promote the adoption of new energy cars, including by increasing electric vehicle (EV) charging points.

In terms of the energy mix, the government aims to increase the share of non-fossil fuels in primary energy consumption to c.25% by 2030 from 15.3% in 2019. To achieve carbon neutrality by 2060, Standard Chartered estimates China's fossil fuel consumption needs to fall to c.15%, which can largely be absorbed through CCS, with 75% of total energy consumption to be met by renewable energy and 10% by hydrogenic energy.

Seizing opportunities and mitigating costs

According to the research, China's strong manufacturing capability and economies of scale put it in a good position to bridge the gap between R&D and mass deployment of renewable energy in a financially viable manner. China's mass production capability turned solar panels into the cheapest clean energy source from a high-cost energy option. The country should be able to achieve similar results for a broader range of renewable energy and industrial processes. China could become a major exporter of clean energy and clean-energy producing equipment once the bulk of the world's energy is 'manufactured' (i.e., produced via solar panels or wind turbines) instead of extracted from the ground. China's transition to a 'green economy' offers vast infrastructure investment opportunities, including in ultra-high voltage transmission lines, flexible electricity grids and EV charging stations.

On the other hand, while decarbonisation is likely to boost national incomes long-term by limiting the financial impact of climate change-related damages, the economic transformation required may lower growth during the transition, especially in countries with fast economic growth and heavy

reliance on high-carbon energy, according to International Monetary Fund. China's transition to a low-carbon economy could initially slow industrial production and increase producer prices, which will likely spill over to the rest of the world, given its key role in the global supply chain. Over time, increased investment in renewable energy, advanced manufacturing and new infrastructure should lift output and return inflation to normal levels as capacity resumes. In the meantime, China would need to find ways to mitigate the impact of carbon tariffs and promote carbon mitigation in its outbound investment.

The financial sector has a key role to play

The research estimates that to reach its carbon neutrality goal, China needs to invest a total CNY 127-192 trillion by 2060, equivalent to CNY 3.2-4.8 trillion of related investment per year. Green finance sources, including green loans, bonds and equity financing, have immense potential to fund clean energy investment. Standard Chartered expects the People's Bank of China (PBoC) to support green finance through relending, lowering banks' capital charges for green assets and making green bonds eligible collateral in its lending operations.

China's financial institutions may have an important role in managing risks related to climate change and the transition to a low-carbon economy, including by assessing the exposure of their current investment portfolios to these risks and exploring ways to mitigate and diversify these risks. The central bank has highlighted relevant risks to financial stability and plans to incorporate climate risks into macro-prudential assessment.

Correctly pricing carbon for its effect on pollution and global warming would increase the cost of fossil fuels while boosting the adoption of low-carbon alternatives. An effective way to price carbon emissions is through emissions-trading systems in which firms are required to purchase allowances to offset their emissions. China plans to launch a nationwide emissions trading market this year.

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