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Independent Thinking

China’s climate challenge ahead

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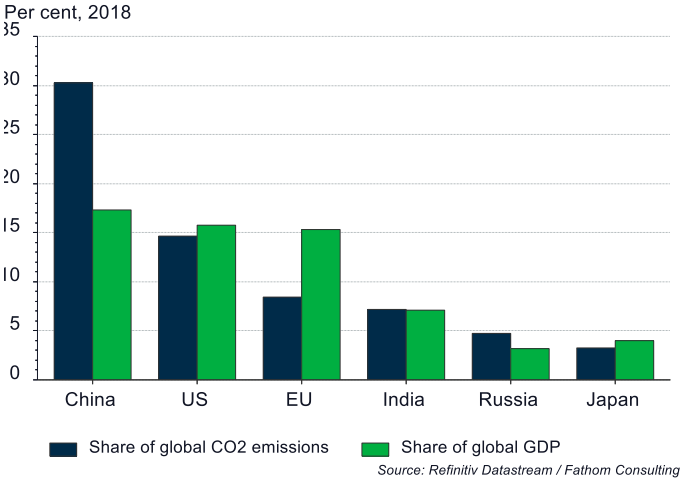
China is the world’s largest emitter, accounting for 30 per cent of the world’s CO2 emissions in 2020. China’s current target is for emissions to peak before 2030 and to achieve carbon neutrality by 2060. Both goals are widely considered inadequate and inconsistent with the Paris goals of limiting global warming to below 2.0°C, and preferably to 1.5°C, compared to pre-industrial levels. To get even close to the Paris goals, net zero needs to be achieved by 2050 and emissions need to start falling now, not in nine years’ time. China will need to change its energy mix and reduce its reliance on coal.

Global CO2 emissions and GDP



The burning of coal, a highly polluting and CO2-intensive fossil fuel, makes up around two-thirds of China’s electricity consumption. Coal’s share in China’s electricity mix has fallen in recent years, and the share of electricity derived from renewable sources continues to rise, but the shift away from coal needs to happen faster in order to meet the Paris goals. What is more, China continues to commission new coal-powered plants even though the IEA concluded in a recent report that if the world is to reach net zero by 2050, then new oil, gas or coal developments must cease this year.

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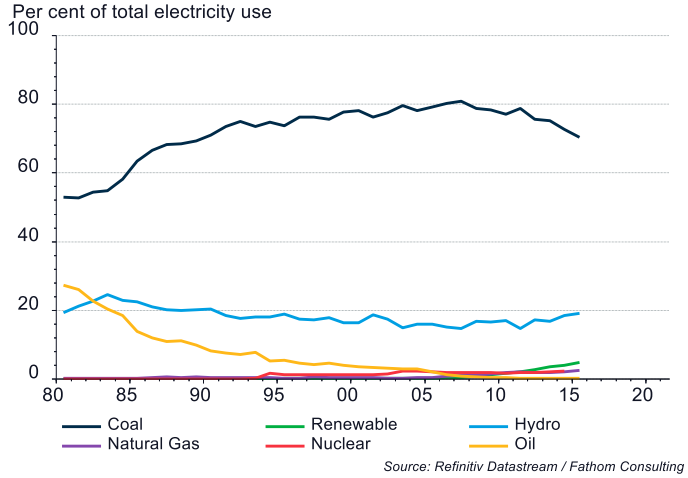
China electricity mix

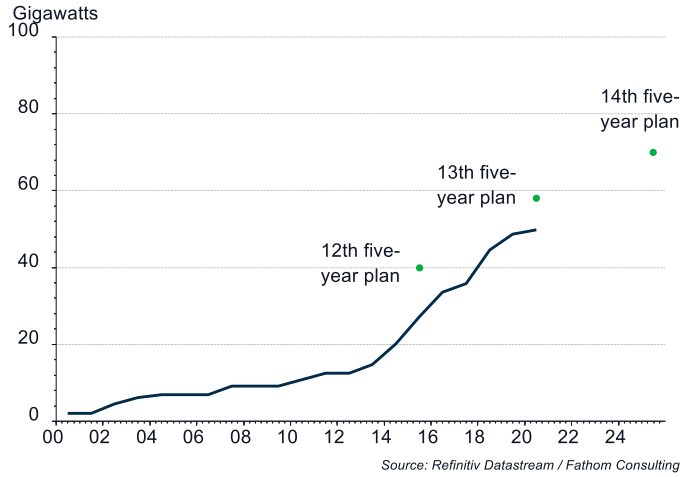


Source: Refinitiv Datastream / Fathom Consulting

Coal is a relatively cheap and abundant source of energy, especially in China, which helps explain the lack of progress in this area. But political issues and a disconnect between the central government's climate objectives and the short-term objectives of local governments are other reasons for this lack of progress. It remains to be seen whether the country can reverse course, increase its climate ambition, and take the necessary actions. While China's economic rise has been hugely impressive, it has been less successful in implementing economic reforms, such as rebalancing away from export and investment-led growth, raising concerns over its ability to clean up its energy mix.

A key part of China's energy plans is the development of nuclear capacity, particularly in the coastal regions. This would be a step in the right direction with respect to decarbonising its energy mix, and it would help the country with a wider economic objective of improving energy self-sufficiency, but it would not be sufficient to service the bulk of China's energy demand. It is also noteworthy that China has persistently undershot the nuclear targets set in recent five-year plans.

China nuclear power installed capacity



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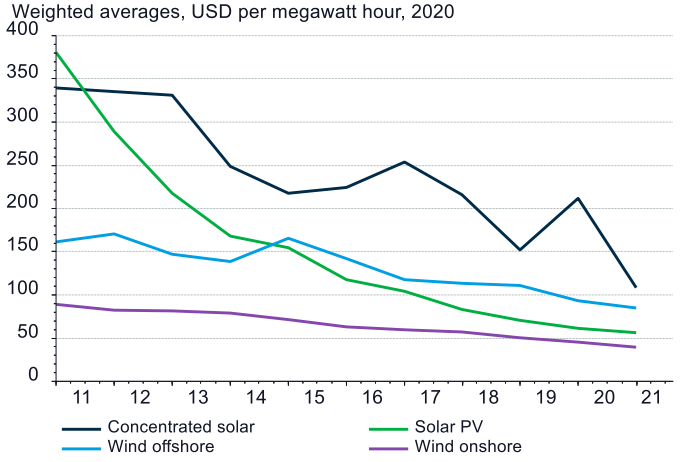
One factor that could significantly boost China's energy transition is the falling cost of renewable energy, which is becoming an increasingly cost-effective alternative to fossil fuels. Moreover, China is a global leader in the production of components used in renewable energy production, such as wind turbines and solar panels. It has successfully acquired and obtained access to many of the natural resources used in the production of these components, such as lithium and copper, giving it the potential to become a global powerhouse in renewable energy.

Levelised cost of energy

Weighted averages, USD per megawatt hour, 2020



Source: Refinitiv Datastream / IRENA / Fathom Consulting

But a few factors are holding back a more aggressive adoption of renewable energy in China. For a start, the distance between the best locations for renewable energy assets (mountainous regions for hydro and sunny, windy regions in the north and north-west for solar and wind) and China's centres of economic activity (low-lying coastal regions in the south and east) is vast. China needs to modernise its grid network to bridge this gap. A further problem for the deployment of most renewable energy sources is the erratic nature of supply, and storage. While these present challenges, they also present huge investment opportunities, both in terms of modernising and increasing grid connectivity and for investment in emerging green technologies, such as developing vanadium flow batteries (an alternative technology that does not use lithium).

There is increasing international pressure on China to increase its decarbonisation ambitions, including political pressure ahead of COP26 in November and economic pressure such as the threat of carbon border taxes from advanced economies. With a large share of economic activity located in low-lying coastal cities, vulnerable to sea level rise and storm damage, China also has a self-interest in limiting global warming.

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For more information about our climate economic research agenda (including thoughts, comments and suggestions) and a discussion on how we can help your organisation navigate these tricky questions please feel free to get in touch.

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