THE STRAITS TIMES INTERNATIONAL EDITION

News analysis

China’s great green march: Meeting 2030 energy target over 5 years early boosts climate fight

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A boat passes wind turbines at the northern end of Pingtan island in south-east China’s Fujian province on May 24, 2024. PHOTO: AFP

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SINGAPORE – In a matter of weeks, China could achieve an ambitious green energy target more than five years early, a milestone that not only boosts global efforts to fight climate change, but also helps China wean itself off polluting coal.

By the end of July, China is predicted to reach a 2030 target to install 1,200 gigawatts (GW) of wind and solar capacity, said a forecast by Climate Energy Finance (CEF), a Sydney-based think-tank, on July 2.

And that forecast looks very achievable, energy analysts told The Straits Times, as China races to meet key climate targets and growing electricity demand.

China has been on a tear, installing increasingly larger and record amounts of green energy in recent years.

In 2023, it accounted for more than half of the world’s new wind and solar installations. That same year, it installed more solar capacity (217GW) than the 200GW of solar the United States has installed to date. And in the first five months

of 2024, China installed a further 79.2GW of solar – bringing its total wind and solar capacity to just over 1,150GW.

As that investment continues, cheaper renewable energy is expected to meet and exceed all of China's annual growth in electricity demand, leading to less reliance on coal, its main source of energy for electricity generation.

It should also help accelerate green energy investment globally, aided by China's vast manufacturing capacity for wind turbines and solar panels that has driven down prices and made renewable energy cheaper than fossil fuels in most nations.

Given the scale and impact of everything China does, achieving the 1,200GW target will act like a gravitational pull, said Ms Xuyang Dong, a China energy policy analyst at CEF and the report's lead author.

"It will incentivise other great powers to go faster in this global technology and investment race-to-the-top renewable energy competition, which will be good news for the world," she told ST.

China needs to continue its green energy expansion. It is the world's top greenhouse gas polluter and has the world's largest fleet of coal power plants, which are a huge source of emissions fuelling climate change. And it is still building new coal plants. China generates about 60 per cent of its electricity from coal, and electricity demand grew 6.9 per cent during the first five months of 2024, year on year.

China's rapid expansion of renewable energy capacity has played a crucial role in curbing global emissions growth, analysts say. Without it, China's carbon dioxide (CO_2) emissions – nearly a third of all CO_2 emissions from human activities – would have been much higher.

Dr Muyi Yang, a senior electricity policy analyst focusing on China at Ember, a London-based energy think-tank, said: "China's rapid expansion of renewable energy capacity has played a crucial role in curbing global emissions growth.

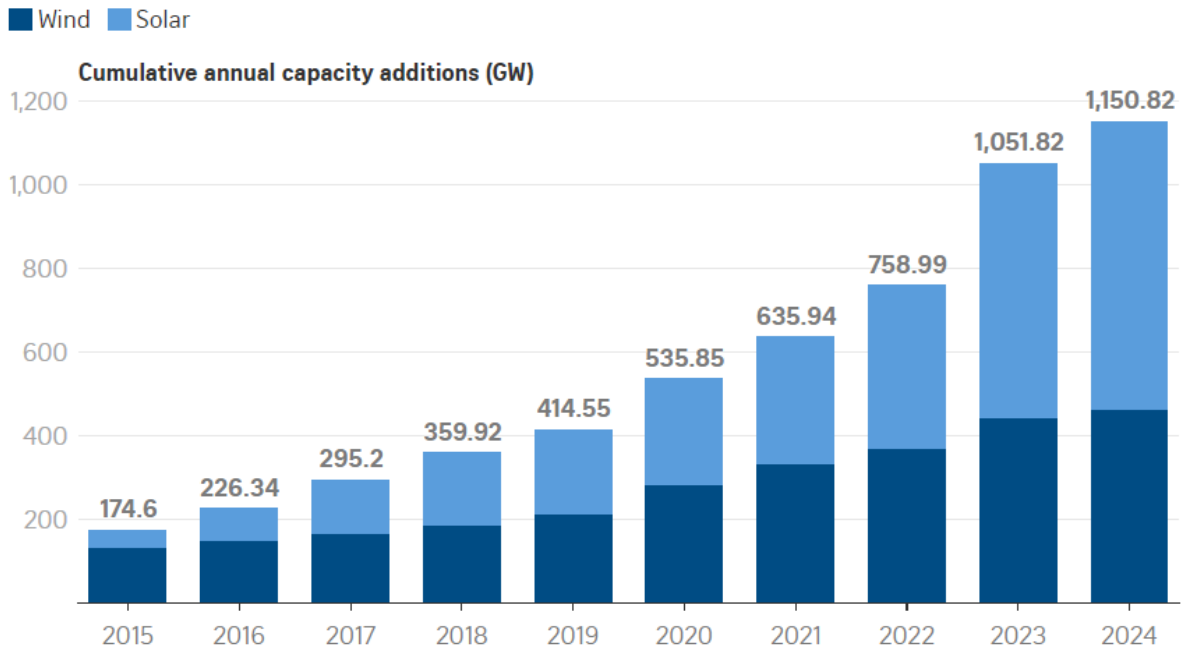
“Without the substantial increase in wind and solar generation since 2015, China’s carbon emissions from power generation would have been 21 per cent higher in 2023.”

He said China’s rapid build-up of renewable energy capacity has led to a relative decline in coal-powered generation. Forecasts by the International Energy Agency also indicate that China is approaching the point where coal power will begin to decline absolutely.

Some analysts have said China’s CO_2 emissions might have already peaked, mainly due to rapid wind and solar investment.

China's electric dreams

China has been installing increasingly larger amounts of wind and solar capacity each year to meet its growing needs. In 2023, out of the 462 gigawatts (GW) of wind and solar capacity installed globally, 293GW of this was installed in China. And in the first five months of 2024, China installed a further 99GW of wind and solar.



NOTE: Data for 2024 is from January to May.

Chart: STRAITS TIMES GRAPHICS • Source: NATIONAL BUREAU OF STATISTICS OF CHINA, ESTIMATES FROM CLIMATE ENERGY FINANCE,

China also needs to cut coal use to achieve key climate targets. President Xi Jinping

has pledged that China will reach its carbon emissions peak before 2030 and become "carbon neutral" before 2060.

The country also needs to lower its carbon intensity, which refers to CO2 emissions per unit of economic output. China set a series of climate targets as part of its 14th five-year plan that runs from 2021 to 2025, including cutting carbon intensity by 18 per cent from the 2020 level during this period. But it is not on track.

Achieving this target would mean CO2 emissions falling between 4 per cent and 6 per cent by 2025 from 2023 levels, according to an analysis published in February 2024 by Mr Lauri Myllyvirta, senior fellow at the Asia Society Policy Institute.

"The carbon intensity commitment is the one that most directly limits CO2 emissions," Mr Myllyvirta told ST. "Meeting the CO2 intensity commitments requires the addition of very large amounts of clean energy, as cleaning up energy supply is the most important way of meeting the targets."

So where is China heading? By the end of 2024, total wind and solar capacity could reach 1,310GW, according to a recent forecast by the China Renewable Energy Engineering Institute, a government research body.

Based on the current trajectory, "we could end up at about 2,200GW by 2030", said Dr Jorrit Gosens, research fellow at the Australian National University's Crawford School of Public Policy in Canberra. "I think there is every reason to assume they'd be able to go beyond that even," he told ST.

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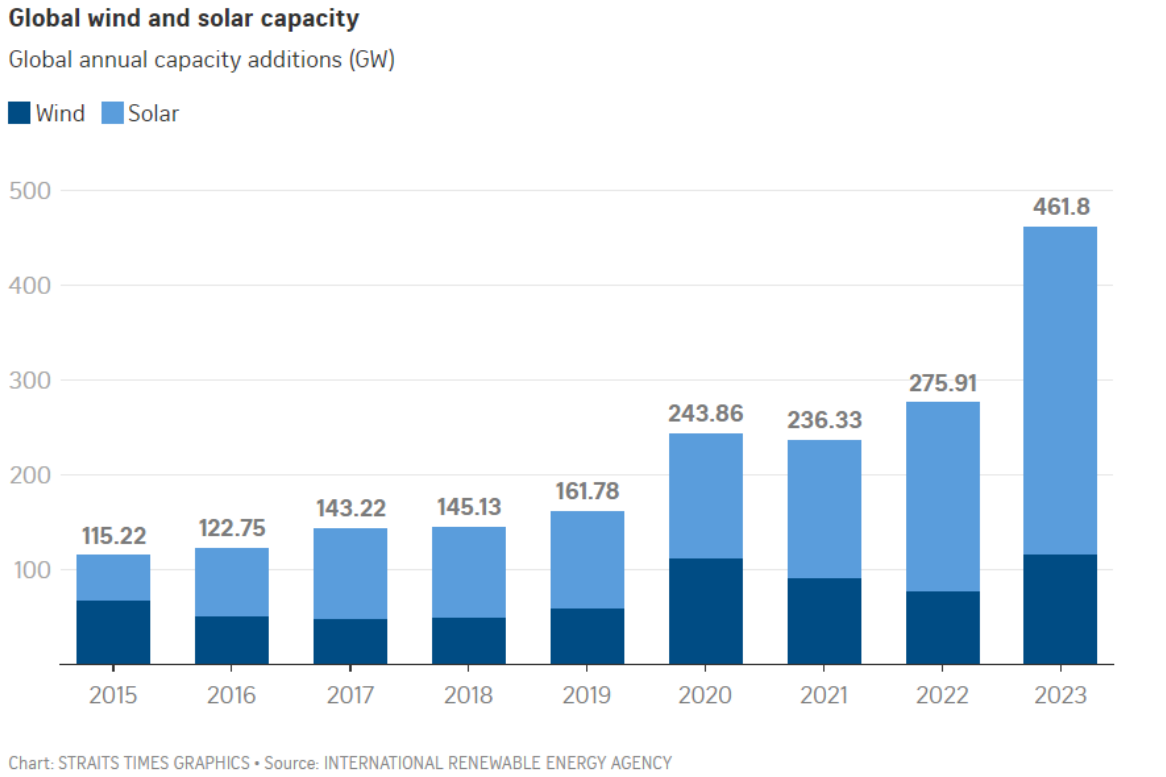

But can China's electricity grid absorb all that green energy, with large peaks and troughs depending on when the wind blows and the sun shines?

Dr Gosens and other analysts say yes, provided that it keeps investing in the grid, battery storage and grid reforms.

There have been issues around what is called curtailment – when wind and solar power plants are temporarily unplugged from the grid to prevent overloading. But China has imposed limits – a maximum of 10 per cent curtailment – and also mandated that all new projects have a clear customer for the green energy.

Mr Myllyvirta said: "Building new power lines and adding new energy storage capacity is already happening and is something China is very good at, so that won't be the bottleneck."

The greatest challenge, he said, was that peaking China's CO_2 emissions means the coal mining and coal power industries will face a decline in demand when they have recently added a lot of new capacity. "Opposition from these powerful industries needs to be overcome to keep the clean energy boom going."

Related to this, millions of coal workers also need support to transition to a green economy.

This involves coal mining and supply, logistics, coal chemicals and related equipment manufacturing, said Dr Yang, upon which whole communities rely.

“Green industrialisation may be part of the solution. But it is also important to recognise that coal-dependent regions may not have a clear advantage over other regions in the clean energy economy,” he said.

This means support for economic diversification, investments in new industries and retraining, and reskilling programmes to reduce the risks of social tension, he added.

Ensuring a just transition is among the lessons from China’s great green march.

Ms Dong said: “China is the first and the only one to ramp up renewable energy at this speed and scale. It brings opportunities and hope, as well as provides the rest of the world with lessons to learn from.”

This is especially so for developing countries, which are looking to leapfrog fossil-fuel dependence and move faster into zero-emissions energy, she added.

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