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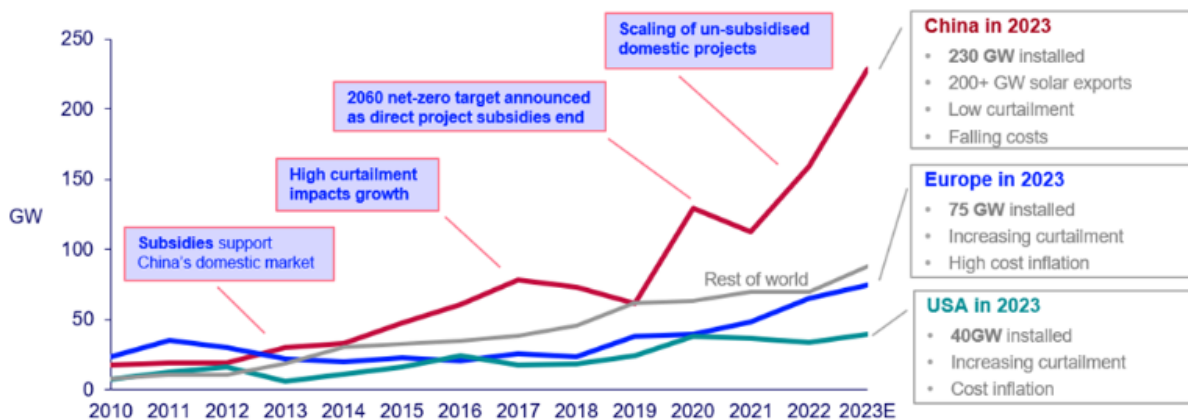
The Myth of China’s Decarbonization Path

As of the time of this writing, climate envoys of more than 200 countries are in intensive talks at COP 28 to find language on fossil fuels that can bring the two-week climate summit to a successful close. As the world’s largest two emitters, China and the US jointly committed recently to triple global renewable energy capacity by 2030 and expedite the transition away from fossil fuels. The ongoing negotiations between these two countries are seen as key to the success of this COP event.

Particularly noteworthy is China's recent pledge to achieve "meaningful absolute power sector emission reduction" within this decade, marking the first time the country has set reduction targets on a sectoral basis. This significant commitment underscores China's vital role in shaping the global decarbonization trajectory.

But to many observers, the way China is currently decarbonizing its economy is confusing at best, if not contradictory. On one hand, the country has emerged as a global leader in renewable energy deployment, surpassing the combined efforts of its US and European counterparts in 2023 with a record-breaking 230 gigawatts (GW) of wind and solar power capacity. This remarkable achievement reflects China's commitment to transitioning towards a cleaner energy future.

Annual additions of wind and solar capacity in China and other markets (GW)



Source: Global solar PV market outlook update Q3 2023 Wood Mackenzie, Global wind power market outlook update Q3 2023 Wood Mackenzie. Note: Solar capacity is denoted in GW dc.

Source: Wood Mackenzie

On the other hand, China appears to be unable to overcome its coal addiction as it keeps building coal power plants one after another. In the year 2023 alone, 97.3 GW of fresh coal power capacity started being built, with another 75.6 GW receiving permits for future construction. Simultaneously, 73.4 GW of newly completed capacity added to its pre-existing coal generation capacity. This apparent inconsistency raises the following question: What motivates China to move in conflicting directions by building new coal power plant capacity while committing to decarbonize its power sector?

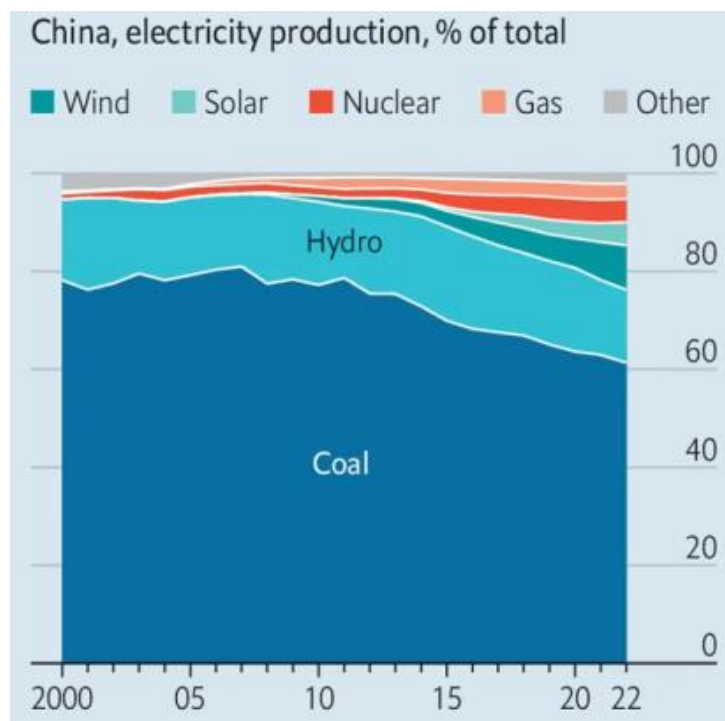
The explanation resides in China's concerns about energy security and adequacy. Despite a substantial increase in solar and wind installations nationwide, the inherent unpredictability of renewable energy outputs remains a challenge. The imbalance in the geographic distribution of solar and wind resources makes it even harder for China to deliver power generated from renewable sources where it is needed the most. The bulk of the country's solar and wind resources are located in the west. But the power they generate is needed mostly in the east, where the country's industrial hubs and megacities are to be found. Therefore, to meet the country's surging energy demand, especially during times of extreme weather events, securing means of stable energy sources as a contingency measure is arguably more of a necessity than a choice.

Being the world's largest energy-consuming country, China's hands are tied when it comes to natural resources. The absence of ample reserves of oil and natural gas compelled the country to seek alternatives, and coal emerged as the most accessible choice. The country's coal reserves ranks fourth globally at approximately 130 billion tons, after the US, Russia and Australia. As coal historically contributed about 80% of the country's electricity generation, its power grid has been also largely designed and built with coal in mind, making it even more convenient for China to continue going down this path.

A recent announcement of China establishing a coal mine production capacity reserve system of 300 million tons (6.6% of 2022 production) is another clear indication that China is not prepared to walk away from coal anytime soon. However, it does not imply a dismissal of China's climate commitments. Rather, the crucial aspect lies in how coal is positioned within its power generation capacity.

It is important to note that China's reliance on coal has consistently decreased over the past decade, dropping from nearly 80% to the current 60%. The drop was largely attributable to the surge in solar and wind installations.

Additionally, China is outpacing other nations in constructing nuclear power plants. With a commitment to tripling renewable capacity by the decade's end, the role of coal is poised to diminish further, gradually transitioning to a backstop for meeting peak demand or when renewable power generation is insufficient.



Source: *The Economist*

Even before the new coal power plants were approved, the utilization rate of existing coal power plants was on the decline. The influx of new capacity will only drag down the utilization rate even further. Recurring large-scale blackouts over recent years have compelled the government to prioritize a stable energy supply. These blackouts were the driving motivation behind the decision to add coal power generation capacity that is specifically designed with a low utilization rate in mind. In fact, the declining utilization

rate coupled with high raw material costs have caused many of China's coal power plant operators to incur losses.

To encourage the development of such new capacities for contingency purposes, the government has recently introduced a capacity mechanism. Under this mechanism, operators will receive payments that will not be solely based on the amount of electricity they generate but also on their installed capacity. This new mechanism will be implemented in 2024. Payments will be in the form of tariffs paid to coal-fired power producers by the grid company, the money to be collected from industrial and commercial end-users through a surcharge.

China's approach to decarbonization is therefore complex and multifaceted. It reflects the country's dual priorities of energy security and climate commitments. As China charts its path towards a low-carbon future, it must strike a delicate balance between these competing priorities. However in the short-term, the continued use of coal appears inevitable.

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