CHINA: WHAT'S BEHIND CHINA'S POWER SHORTAGES?

ENERGY DISRUPTION ADDS TO GROWTH HEADWINDS AND INFLATION PRESSURE

Authors

DONG CHEN
dochen@pictet.com

LING CHEN
lichen@pictet.com

SUMMARY

› Recent power outages in China are mainly a result of the shortage of coal., with the government's climate policies adding to the woes in some regions.

› The situation may improve in the coming months as the government steps up measures to tackle the power shortage, but the disturbance will weigh on near-term growth and add to inflation pressure.

› While we expect China to continue to invest heavily in clean energy to meet its climate goals, coal will still have its place as a stable source of power for the foreseeable future. The recent power crunch suggests that China's road to carbon neutrality could be bumpy.

Recently, many parts of China have experienced a shortage of electricity. Local governments have had to resort to rationing, cutting power supplies to industrial companies during peak hours. In a few extreme cases, acute power shortages have even led to city-wide blackouts. In this note, we try to explain what lies behind the power shortages in China and their possible economic impact.

Power shortages in China started to appear in early 2021, but have spread recently. In our view, several factors may have contributed to this situation: 1) a surge in industrial demand for electricity due to strong exports; 2) a shortage of coal, partly due to government regulations and a reduction in coal imports; and 3) as China transits to a greener economy, the intrinsically volatile nature of renewable energies.

Divergence between industrial production and coal supply

As China was the first country out of the covid crisis and the first where industry returned to full capacity, external demand for Chinese products has been unusually high since 2020. This has led to a strong rebound in Chinese manufacturing. In the first eight months of the year, industrial production in China grew 13.1% year-over-year (y-o-y), which is significantly above the pre-covid level. This has led to a surge in demand for electricity.

However, as the main source of energy for power generation in China (accounting for 57% of the country's energy consumption in 2020), coal supply has failed to keep up with the strong economic recovery. From January through to August, China's domestic coal production increased by only 4.5% y-o-y, much less than the growth in industrial production (*Chart 1*).

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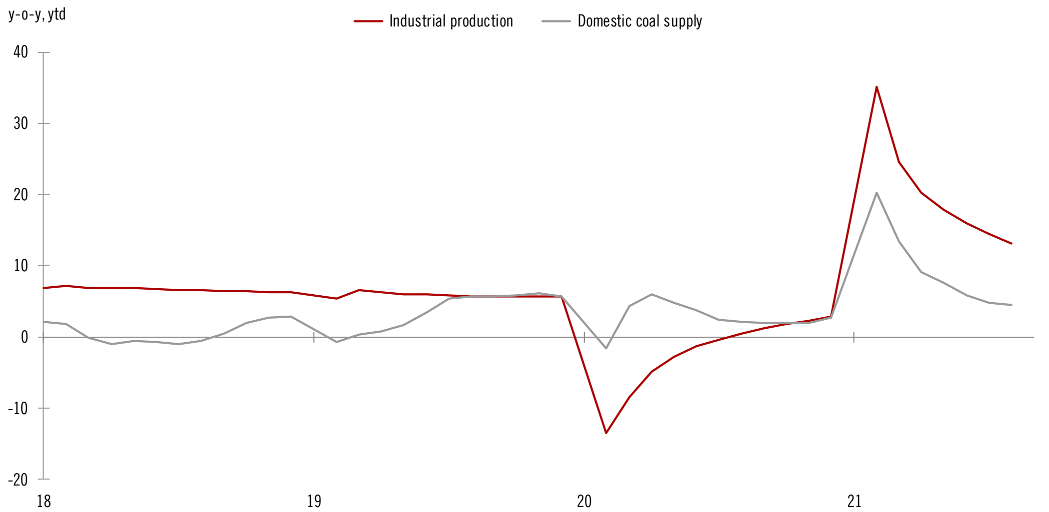
CHART 1: GROWTH IN INDUSTRIAL PRODUCTION AND DOMESTIC COAL SUPPLY



Source: PWM - AA&MR, NBS, Bloomberg, WIND as of September 2021

The slow growth in domestic coal production, which accounts for about 95% of total supply, was largely a result of government intervention. As part of China's ambitious climate goals, the government has been capping coal mining and curtailing investment in brown assets. In addition, increasingly tough safety regulations to reduce fatal accidents and anti-corruption campaigns in major coal-producing regions (such as Inner Mongolia and Shanxi) have restricted coal output and even led to production being suspended in extreme cases.

The tight supply of coal is exacerbated by a drastic decline in imports, which dropped by 19.5% y-o-y in the first eight months of the year *(Chart 2)*. Due to deteriorating relations with Australia, China has restricted coal imports from the latter since late 2020. Australia was China's largest source of imported coal before relations soured, accounting for nearly half of China's coal imports. While coal imports from other countries have increased quite significantly in 2021 (notably from Indonesia, Russia and the US), total imports were still 29 million tonnes lower from January to August than in the same period last year. To make things worse, imports from Mongolia, which accounted for 13.9% of China's coal import last year, have been suspended a number of times due to covid-related border controls. In the first eight months of this year, Mongolia's coal exports to China dropped by 22.5% y-o-y (*Chart 2*).

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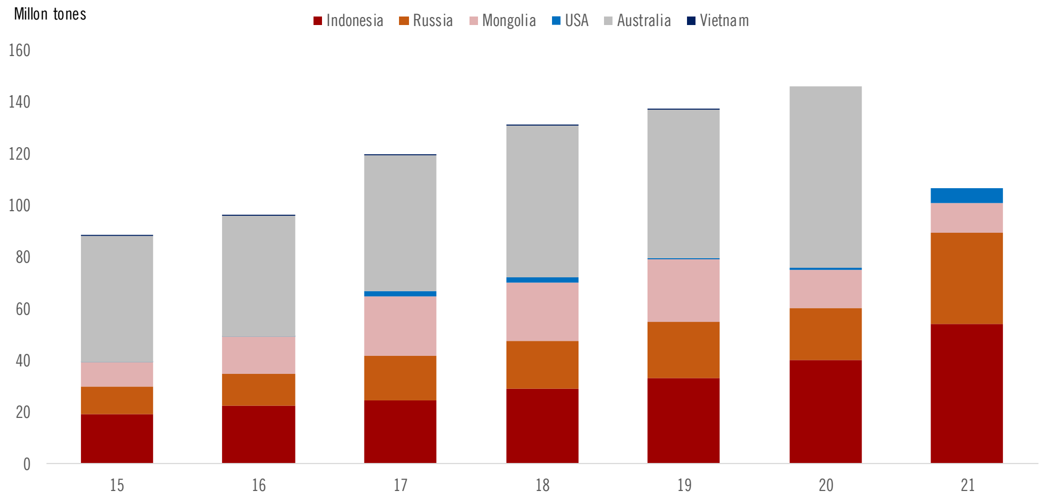
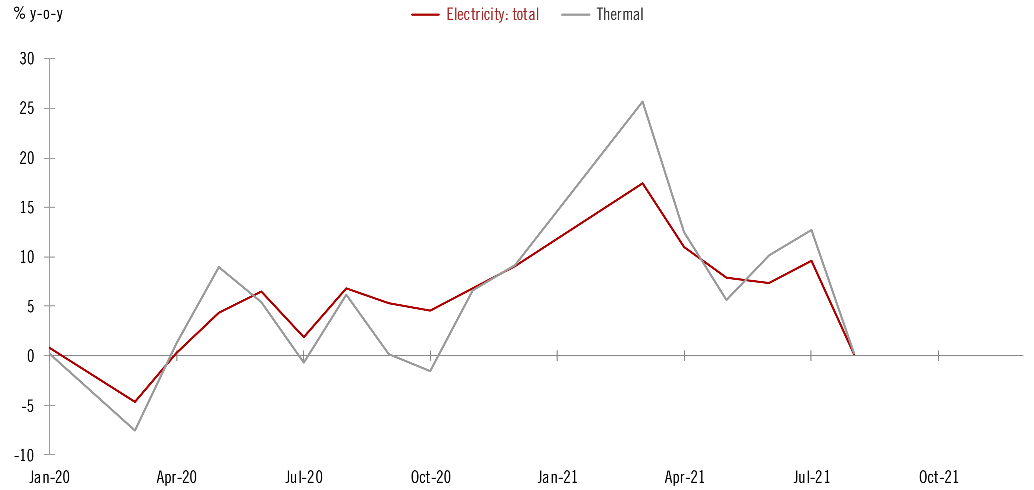
CHART 2: CHINA'S COAL IMPORTS BY SOURCE



Source: PWM - AA&MR, China Customs, WIND as of September 2021

The shortage of coal has sent prices skyrocketing since March. The spot price of thermal coal (5500 kcal/kg) at Qinhuangdao port surged from Rmb599 per metric tonne last September to Rmb942 in June, a 13-year high and close to the record set in 2008. Price quotes have been blocked by the government since July, apparently to reduce speculation. The surge in coal prices has been bad news for thermal power plants, especially as the price of the electricity they produce is regulated. Many of them started to make a loss, which led to a sharp deceleration in power output (*Chart 3*).

CHART 3: GROWTH IN CHINESE POWER GENERATION



Source: PWM - AA&MR, NBS, Bloomberg as of September 2021

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A bumpy road to a green economy

China's climate policies complicate an already difficult situation.

In August, the National Development and Reform Commission (NDRC) called on 10 provinces to increase their efforts to meet the so-called "dual-control" target (the control of aggregate energy consumption and energy use per unit of GDP). Some local governments have resorted to aggressive measures to meet these targets, such as limiting power supply to major carbon emitters. In Guangxi Province, local governments instructed aluminium and cement producers to cut their output in September to about half of the monthly average in H1 2021.

As part of its 14th Five-Year Plan (FYP), China is committed to reducing the economy's carbon intensity (carbon emissions per unit of GDP) by 18% over five years, or nearly 4% per annum between 2021 and 2025. The transition to renewable energies is essentially to reaching these goals. Unfortunately, recent extreme weather in a number of regions and the intrinsic volatility of some renewable energy sources have not been helping (*Chart 4*). For example, China's north-eastern provinces, which rely on wind power much more than the rest of the nation, suffered a serious power crunch because of an absence of wind combined with the coal shortage.

While we expect China to invest in clean energy heavily to meet its climate goals in the coming years, the vulnerability of these renewable sources will likely remain an issue. Thus, until efficient energy storage systems and infrastructure are in place, coal will still have a role to play as a stable source of power. Like other countries on a similar path to carbon neutrality, the road ahead for China could be bumpy.

CHART 4: GROWTH IN POWER GENERATION BY MAIN RENEWABLE SOURCES IN CHINA

Source: PWM - AA&MR, NBS, Bloomberg as of September 2021

Situations may improve but the damage has been done

Facing mounting concerns about heating needs ahead of winter, the government has issued a number of measures to ensure sufficient energy supplies for residential needs. These include boosting domestic coal production by loosening mine-safety regulations,

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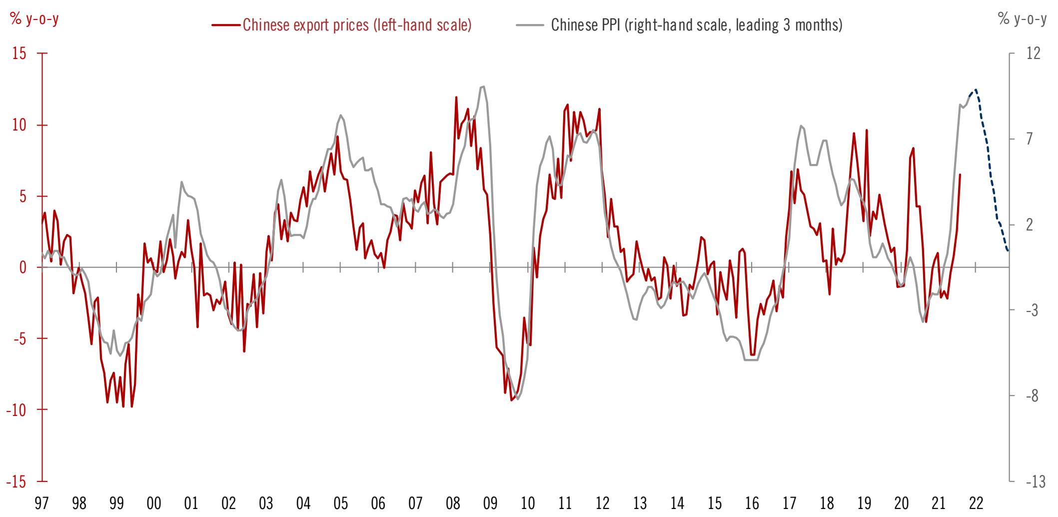
encouraging power generation by liberalising energy prices, and increasing coal imports in an orderly way. In August, the NDRC also approved new coal mines and restarted some shuttered mines in Inner Mongolia and at the same time it urged power plants to increase their coal inventories.

Other factors are at place that could ease the situation. The aggressive measures imposed by local governments to reduce carbon emissions have likely reduced electricity demand. In addition, with the property market cooling, construction activity is set to moderate in the next few months. The resulting fall in electricity use could help ease some of the strains on the system.

But there has been damage to growth. Indeed, the official manufacturing purchasing managers' index (PMI) in China came in at 49.6 in September, down from 50.1 in August. This is the first time this gauge has fallen into contraction territory since February 2020. As the survey likely was conducted before the power crunch really hit at the end of September, the latest PMI reading probably does not fully reflect the slowdown in economic activity.

Energy disruption in China may add to global inflationary pressure. Rising electricity prices and sharp falls in the production of some raw materials (such as steel) will likely lead to further rises in prices, which, in turn, will boost the producer price inflation (PPI) even higher, which reached 9.5% y-o-y in August. While the rise in producer prices has seeped into consumer inflation in China only to a limited extent so far (due to muted domestic demand), the surge in Chinese PPI is clearly being exported to the rest of the world (*Chart 5*). The latest power crunch will likely add to already high global inflation pressure, at least in the short term.

CHART 5: CHANGES IN CHINESE EXPORT PRICES AND PPI



Source: PWM - AA&MR, China Customs, Wind as of September 2021

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