COAL SUPPLY CHAINS: NO BRIGHT OUTLOOK FOR AUSTRALIA

Jorrit Gosens

IN SEPTEMBER 2020, President Xi Jinping announced a commitment by the People's Republic of China (PRC) to achieve net-zero carbon emissions by 2060, with an intermediate target of peaking carbon emissions by 2030. This is a considerable challenge given that China is still the biggest user of coal globally, by some margin.

In 2019, China was responsible for about 55 percent of the total global consumption of thermal coal (used primarily for electricity generation) and about 60 percent of global consumption of coking coal (used in steelmaking). The bulk of this is supplied by domestic mines; imports made up 7.2 percent of thermal coal consumption and 13 percent of coking coal consumption in 2019.[1] Despite this relatively large dependency on domestic suppliers, China has faced difficulties in sourcing secure and affordable supplies of coal for its power and steel plants over the past few years. Prices for thermal coal in seaborne markets spiked to more than US$400 per tonne in early May 2022[2] — the highest price in at least fifty years[3] and about five or six times as expensive as usual. Prices for coking coal similarly jumped, to about US$600 per tonne, or four times usual prices. This came at a

time when Chinese power and steel plants were already scrambling to find alternative suppliers after the unofficial import ban on Australian coal in late 2020, which was instigated by the Australian government's insistence on an investigation into the origins of the COVID-19 pandemic.[4] The country supplied about 20 percent of China's thermal coal imports and 40 percent of coking coal imports in 2019.

There were also disruptions in electricity supply in different parts of China in both 2021 and 2022, leading to power rationing, and affecting both industrial production and residential consumption.[5]

In mid-2022, *Bloomberg*'s sources claimed that China was considering lifting its ban on Australian coal imports: the compounding energy crises had Beijing so desperate, rumour had it, it was willing to look past its political strife with Canberra for the sake of renewed access to Australian coal.[6] That storyline, however, does not match the underlying causes of the energy crises, nor recent developments in Chinese energy markets.

Volatile spot prices for seaborne coal have affected all coal-importing countries and have been due mostly to supply issues.[7] Consumption levels of coal, both globally and in China, have returned with unexpected rapidity to levels seen before the COVID-19 crisis, while supply has not kept up. This is due in part to COVID-induced mine closures and transport disruption — again, both globally and in China. Just as Australian exporters soon found new buyers for their coal after the Chinese import ban,[8] Chinese buyers quickly managed to find new suppliers. For thermal coal, China turned to Indonesia — a supplier of relatively cheap coal that was already fulfilling much of China's needs (see Figure 1). China replaced Australian high-quality coking coal with imports from the United States and Canada, at high cost, although Beijing has since been working to reduce dependence on these suppliers. Supplies from Russia have increased, too, though those are of different, lower-quality types of coking coal that would not compete with Australian hard coking coal. In short: Beijing's insistence on cutting Australian imports had some upward effect

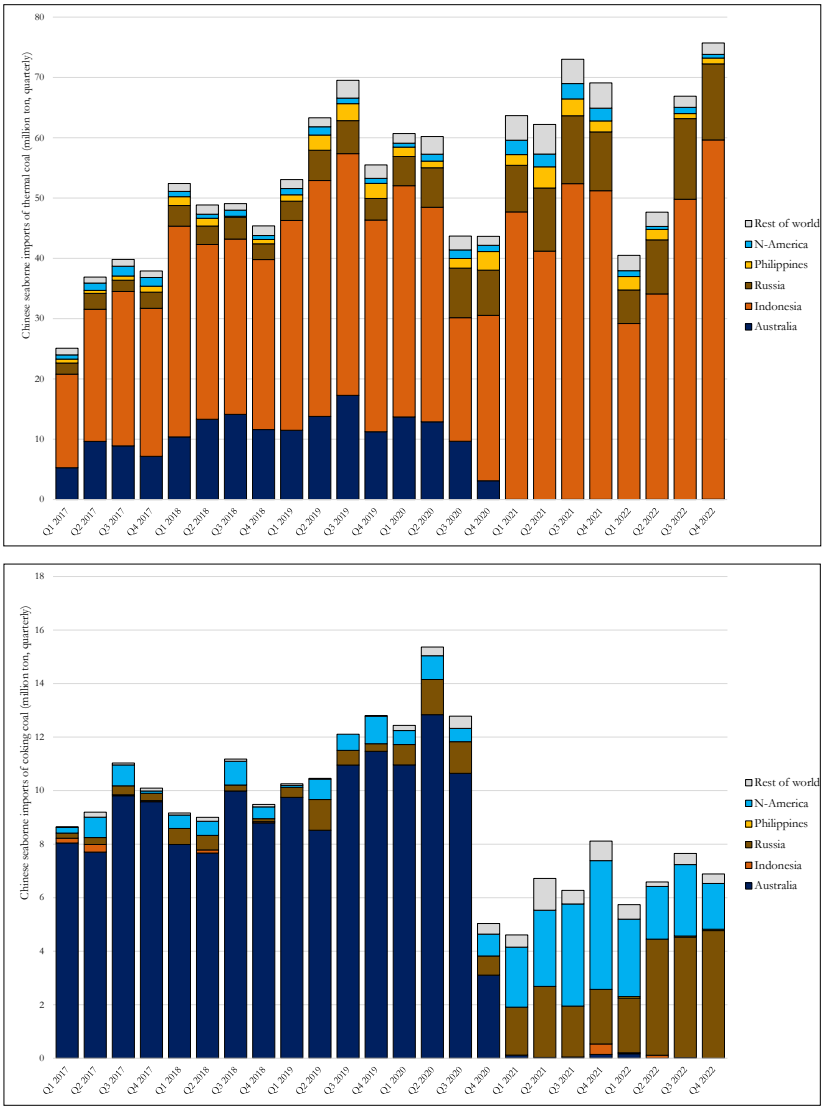

Figure 1: Chinese seaborne imports of thermal coal (top) and coking coal (bottom) (million tonnes, quarterly)

Source: Data from Kpler (graph created by author)

Note: This does not include overland imports from Mongolia or Russia.[9]

on the prices that its domestic consumers had to pay, but the bulk of those price increases were due to causes that have raised prices for all importers in global coal markets.

The power shortages in the summer of 2021 were largely tied to the high prices in international coal markets, as well as reduced domestic production due to both COVID-induced mine closures and heavy rainfall flooding mines in key coal-producing areas.[10] This led to power shortages due to an ongoing but incomplete liberalisation of energy markets in China.[11] Coal prices are allowed to fluctuate according to market dynamics, although the National Development and Reform Commission — the market and pricing regulator — can intervene, mainly with regards to levels of coal production or imports,[12] when prices fall or rise beyond a specified range.[13]

Power prices, on the other hand, are more strictly regulated: market dynamics may cause fluctuations of no more than 20 percent above or below provincial-level benchmark prices.[14] This is already more generous than the limit of 10 percent above benchmark prices in place until October 2021. That change was enacted after coal-fired power plants — faced with rising fuel costs but limited ability to recoup these through higher electricity prices — stopped producing power to prevent operating at a loss, in some cases claiming a need for maintenance. Decarbonisation policy also contributed to the power shortages, as local cadres sought to adhere to emission targets, even if that meant shuttering factories or denying power to big consumers.[15]

The summer of 2022 saw further power shortages, this time during the longest and hottest heatwave in recorded history. This led to increased power demand from air-conditioning use throughout China, at the same time as the south-western provinces in particular experienced shortfalls in electricity generation.[16] In these provinces, power production largely relies on hydropower, which was severely hampered by the drought that saw even the water flow of the Yangtze River — the world's third-largest river, an important source of drinking water, a vital shipping conduit, and a crucial source of hydroelectricity — drop to 50 percent below a five-year average.[17] Supplies of Australian

coal would have done little to relieve either power crisis. While the crisis in 2021 was related to the high cost of imported coal globally, the crisis in the summer of 2022 would not have been solved with more Australian coal. Domestic production of the fuel was already back at record levels, but the power networks in the south-west needed water, not coal, to operate.

Wider developments in China's coal markets have further reduced the need for imported coal in general. First, while Chinese COVID-19 stimulus measures have typically spurred carbon-intensive economic activity, the growth of coal-fired power consumption appears to be plateauing. Throughout the first six months of 2022, coal-fired power consumption was down 3.9 percent, or roughly forty-five megatonnes.[18] Since then, the strong heatwave over summer saw drastically reduced hydropower, which created additional, though temporary, demand for coal-fired power. For the full year, coal-fired power production was up 0.9 percent — equivalent to an increase of roughly twenty megatonnes.

The future looks brighter, as provincial governments have announced plans for renewables that, when added together, would result in 1,200 gigawatts of solar and wind generation installed by 2025 — a level targeted by the national government for 2030.[19] China has always been a big market for solar photovoltaics, with fifty-five gigawatts of installations in 2021 alone — equal to about one-third of the global total.[20] Over the first eight months of 2022, Chinese investment in solar photovoltaics was up by a whopping 323.8 percent on the previous year.[21] Nuclear energy will also contribute to decarbonising power generation, but much more marginally than renewables, with an official target of seventy gigawatts by 2025 — up from fifty-five gigawatts by the end of 2022.[22] Steel output also appears finally to have peaked, down 2.1 percent from the previous year,[23] which is equivalent to an annual reduction in coking coal consumption of fifteen megatonnes. Continuing concern about the health of the real estate sector — one of the biggest consumers of steel — will certainly weaken the outlook for future steel demand. To put those numbers in

perspective, over the period 2018 to 2020, China's average annual imports of thermal coal were about 225 megatonnes and imports of coking coal were about seventy-five megatonnes.

Chinese plans for improved energy security further reduce the need for coal imports. Domestic production of coal was up by 9 percent over 2022, or an astonishing 371 megatonnes of additional coal output[24] — well more than total Chinese imports in a typical year.

Combined with expected reductions in consumption, this will lead to massively increased stockpiles or drastically reduced imports, and probably both. On top of this, in late 2019, China opened the Haoji Railway,[25] which can carry 200 megatonnes of coal from China's key coalmining centre of Ordos in Inner Mongolia to its central provinces — the ones most badly hit by the 2021 power shortages. This cuts the delivery costs of coal and lessens the need for imports.[26] Another new railway links China's steelmaking heartland in Hebei with the Tavan Tolgoi mine complex in neighbouring Mongolia, which supplies high-quality and cheaply mined coking coal.[27] Again, this will lessen reliance on seaborne coal imports.[28]

In summary, China is reducing and will continue to reduce its consumption of coal. It will source the coal that it does consume increasingly from domestic mines, as well as from Mongolia, which has few other markets to which to sell given its geography, and from Russia, which is constrained in its exports by the international sanctions due to its invasion of Ukraine.

Recent indications that China is ready to drop the import ban[29] will not be because it is desperate for Australian coal, but because it no longer needs it.

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