



FACTSHEETS SERIES ON CHINA ENERGY TRANSITION UPDATE

FOSSIL FUEL'S PRODUCTION, CONSUMPTION AND IMPORTS CONTINUED TO FLUCTUATE IN 2023

Coal

- Domestic coal production grew 3.4%, slowing down compared to 2022.
- Coal consumption grew 5.6%.
- Coal import grew 61.8%.
- Coal generated 5,350 TWh of electricity (58.2% of the total).

In 2023, China's domestic coal production was 4.71 billion tonnes, an increase of 3.4% year-on-year. From 2014 to 2016, as the Chinese government promoted the development of renewable energy and restricted coal consumption to reduce air pollution, the growth rate of China's coal production was negative. It then remained

at around 4% till 2019 and dropped to 1.4% in 2020. In the summer of 2021 and 2022, the southern region experienced a shortage of hydropower due to severe drought, therefore the Chinese government decided to increase coal production to 12.6 million tonnes per day, and built up 620 million tonnes of reserves, which resulted in a significant increase in coal production in 2022 (+10.5%). It is important to note that the average quality of domestic coal deteriorated in 2022 and 2023 due to the increase in production. As a result, the average calorific value of coal used has declined and thus the growth of coal consumption in energy terms – more relevant for the assessment of CO₂ emissions – is lower than in mass terms.

Figure 1 China's coal domestic production, import and consumption from 2015 to 2023

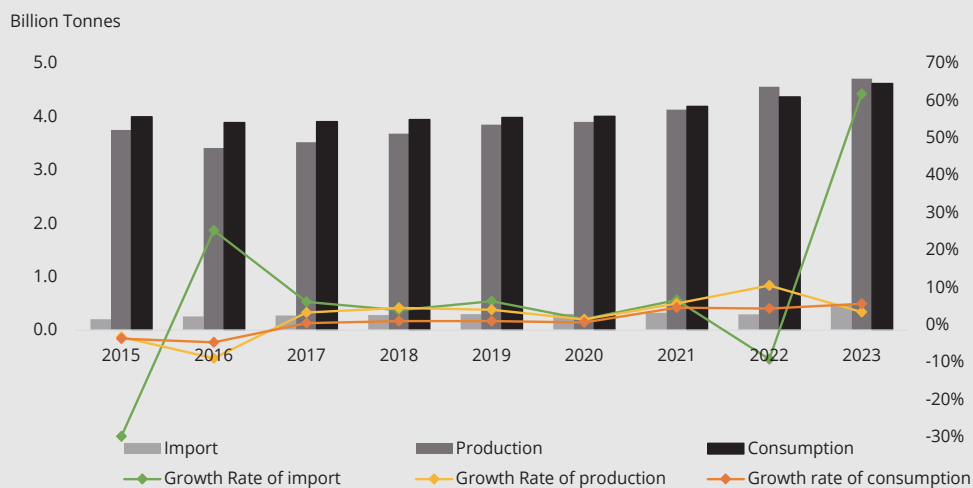
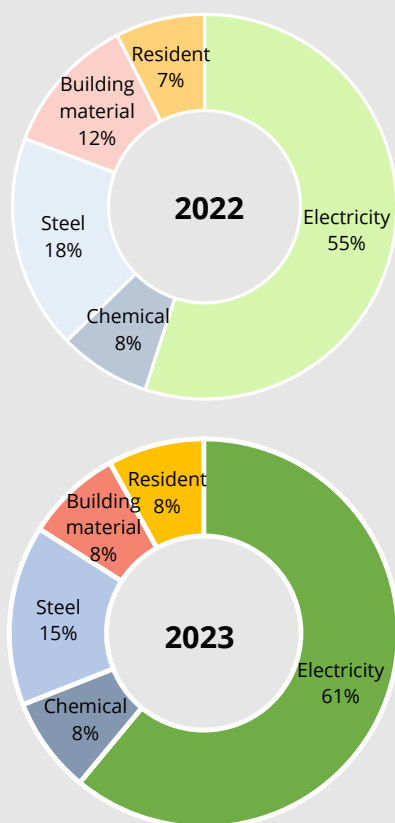


Figure 2 Breakdown of coal consumption in 2022 and 2023



Source: Xueqiu internet, February 2023; Meijingwang, January 2024

Global coal supply also continued to grow while coal prices returned to more normal levels after exceptionally tight coal markets and unprecedented price levels in 2022. China's coal imports have increased significantly in 2023, with total coal imports reaching 474 million tonnes (+61.8% year-on-year), while coal import expenditure was 372.3 billion CNY (+30.4% year-on-year). China's main coal imports came from Indonesia, Russia and Mongolia. The significant increase in coal imports was mainly due to the Chinese government's strategy of using coal as back-up and introducing a zero-tariff policy on coal imports as an incentive since May 1, 2022. On January 1, 2024, the Chinese government reinstated tariffs on coal imports: according to the new policy, the normal tax rate is 20%, the MFN (Most Favored Nation) tax rate is 3% for anthracite, coking coal and lignite, and 6% for other coal. According to the IEA's forecasts, China's coal imports are expected to fall by 110 million tonnes between 2024 and 2026.¹

China's coal consumption increased from 4.4 billion tonnes in 2022 to 4.6 billion tonnes in 2023, the annual growth rate was 5.6%, 1.3% higher than the previous year. However, in China coal is still used in a variety of industries and accounted for 55.3% of the total consumption of all forms of energy in 2023, a decrease of 0.7% from 2022.²

The share of coal used for electricity generation has increased sharply from 55% in 2022 to 61% in 2023, while coal consumption in the steel and building material sectors continued to decline as in 2022, which is mainly due to the ongoing downturn in China's real estate market.

In 2023, China's installed capacity of coal-fired power plants fell below 40% for the first time, and non-fossil energy sources exceeded 50%. However, coal-fired electricity generation still accounted for 56.6% and China will continue to rely on it, as energy security is a key priority for the Chinese government. There are also issues with the national electricity grid which make the integration of large shares of volatile renewables more challenging.³

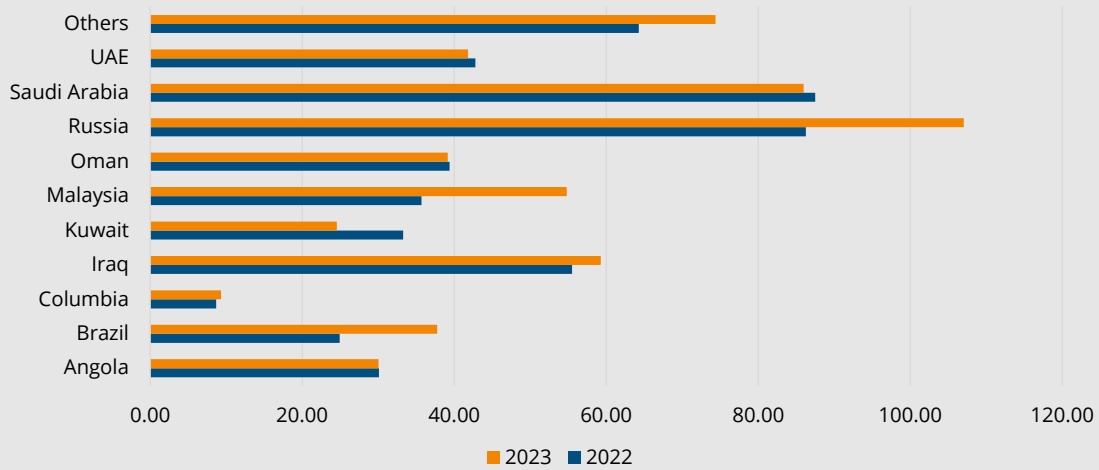
Oil

- Domestic oil production grew 2.1%
- Oil consumption increased 9.1%
- Oil import increased 11%

China's crude oil imports have exceeded 500 million tonnes each of the past five years, peaking at 542 million tonnes in 2020. Thereafter, imports declined due to reduced import quotas in 2021-2022 and high volatility in international oil prices. In 2023, China's crude oil imports reached 564 million tonnes with a growth rate of 11%, indicating the economic recovery after the end of the pandemic and setting a new record. Russia, Saudi Arabia and Iraq were the main suppliers. Although the volume of crude oil imports increased, the value of imports in USD decreased to \$337.4 million (-7.7%) due to the decline in international oil prices and the signing of a long-term import contract with Russia.⁴

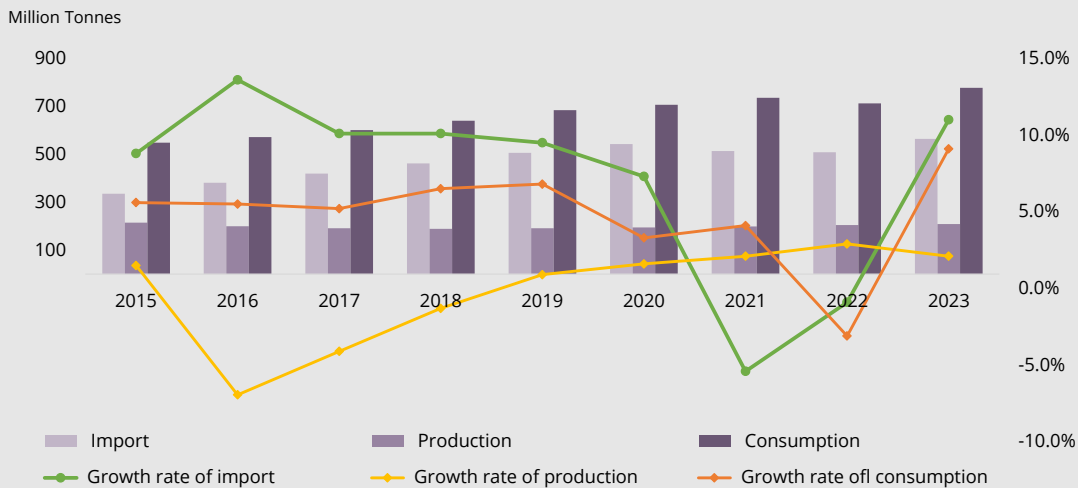
China's domestic production of crude oil increased year-on-year and is expected to reach 209 million tons in 2023, a growth rate of 2.1%, slightly lower than the rate of 2.9% in 2022. China's crude oil consumption has maintained a steady growth rate of about 6% since 2015. It fluctuated due to the impact of the pandemic in 2020-2022 and recovered annually to 777 million tons in 2023, an increase of 9.1% from 712 million tons in 2022. The accelerated development of NEVs will further reduce oil consumption. According to forecasts, China's domestic market share of NEVs is expected to reach 10%, 50% and 80% in 2025, 2040 and 2050, and oil consumption will peak by 2030.⁵

Figure 3 China's crude oil imports by countries



Source: China Administration of Customs, 2024, and GIZ analysis, April 2024

Figure 4 China's crude oil domestic production and consumption from 2015 to 2023



Source: China National Bureau of Statistics, 2024, and GIZ analysis, April 2024

Gas

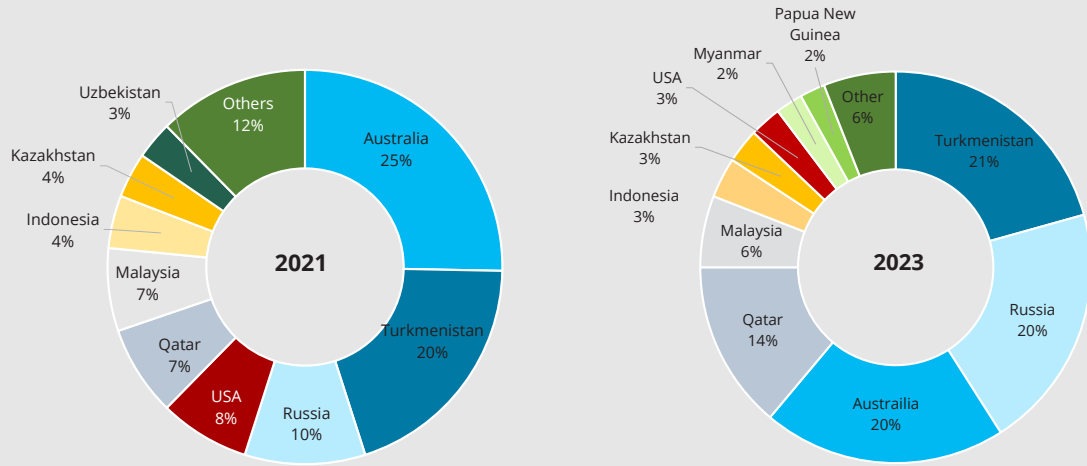
- Domestic gas production rose to a new high of 232 billion m³.
- After a brief decline in 2022, gas consumption increased by 7.2% in 2023.
- Australia's share of imports fell by 20%, while the share of imports from Russia doubled.

In 2023, China's gas imports reached 166 billion m³, reversing the decline in imports in 2022. Imports were just 1 billion m³ below the import peak in 2021 and the growth rate reached 9.9%. Import mainly came from Turkmenistan, Russia, Australia and Qatar, accounting for 75% of all imports. Of these, LNG imports amounted to 98.4 billion m³, an increase of 12.4% year-on-year, while pipeline imports increased 6.2% year-on-year.⁶ LNG imports accounted for 59.4% of total imports.

Despite the increase in imports, the cost of total imports fell by 3.4% compared to the previous year. In USD value LNG imports fell by 9.4% and imports of pipeline natural gas rose by 13.9%.⁷

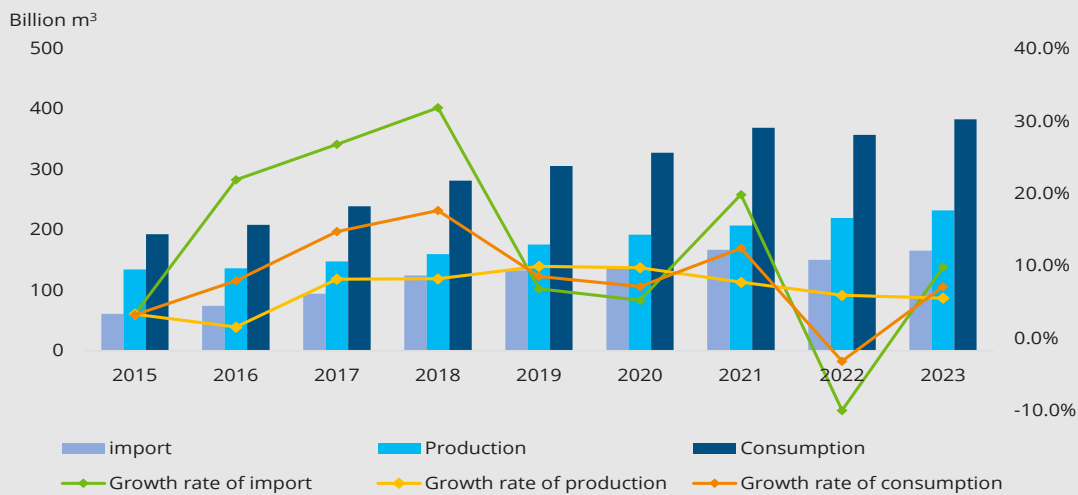


Figure 5 China's gas imports by countries in 2021 and 2023x



Source: NetEase, and GIZ analysis, April 2024

Figure 6 China's gas domestic production, import and consumption from 2015 to 2023

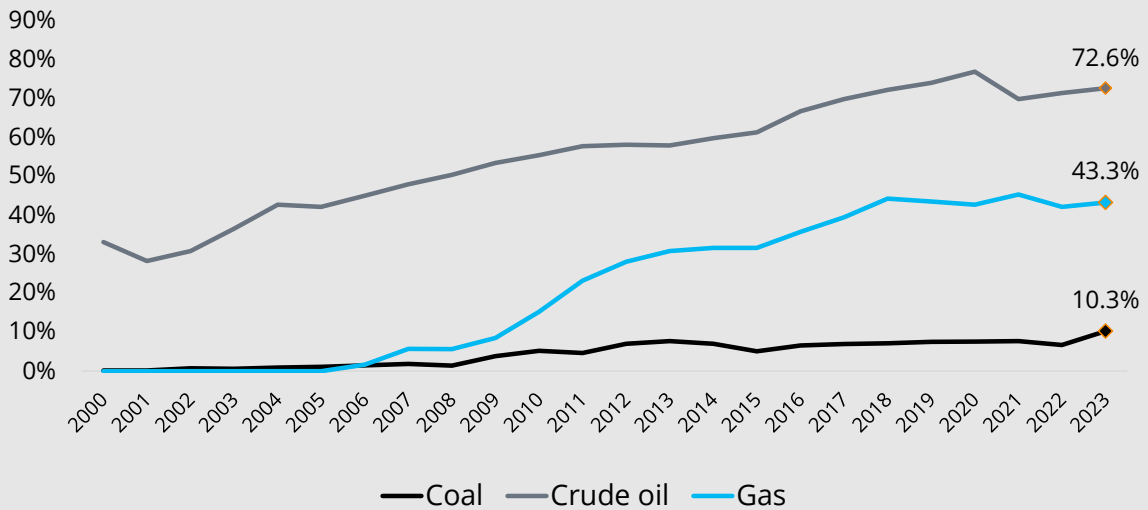


Source: China National Bureau of Statistics, 2024, and GIZ analysis, April 2024



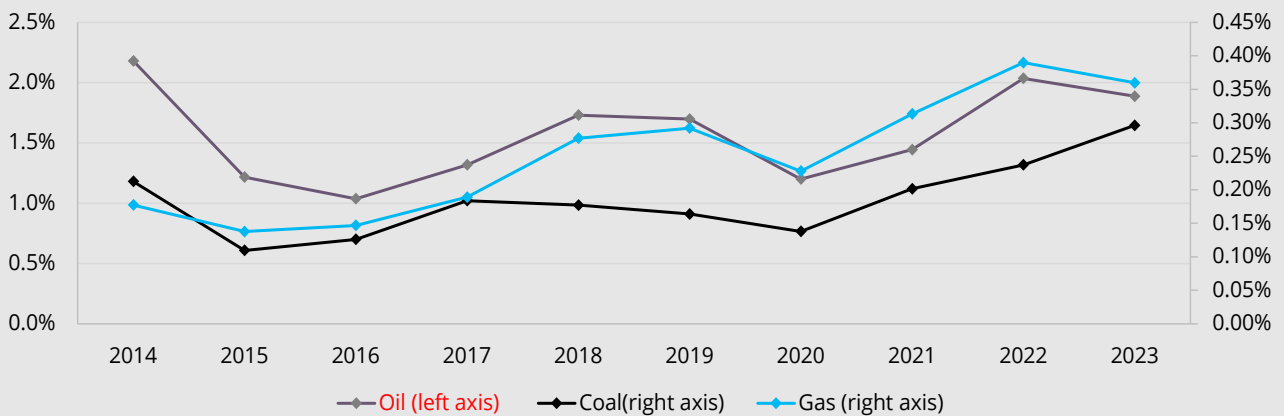
In 2023 China's gas production was 232 billion m³, an increase of 5.6% compared to 220 billion m³ in 2022. The annual production growth rate has exceeded 8% since 2017, and even reached 10% in 2019, after which it slowed down. Annual gas consumption in 2023 was 384 billion m³, an increase of 7.2% compared to 358 billion m³ in 2022. Since 2015, the consumption growth rate has been constant at about 10%, but declined in 2022. The share of consumption by urban residents increased to 33%, while gas consumption in industry, power generation and chemical production decreased to 42%, 17% and 8% respectively.⁸

Figure 7 Fossil energy import dependency rate



Source: General Administration of Customs of China, 2024, and GIZ analysis, April 2024

Figure 8 Share of oil, coal and gas import volume in annual GDP of China



Source: General Administration of Customs of China, 2024, and GIZ analysis, April 2024

China is heavily dependent on oil imports, and both oil and gas are subject to significant fluctuations in 2021-2022. In 2023, import dependence of all fossil fuels has increased, with coal in particular increasing from 6.7% in 2022 to 10.3%, after being around 7% over the past decade.

As a share of GDP, coal import costs have grown faster than the overall economy in the past 3 years. The unusual volatility for oil and gas in 2023 was due to price fluctuations caused by global energy shortages and geopolitical influences. China's goal of reaching carbon peak by 2030 and carbon neutrality by 2060 will not change, and the share of fossil energy will gradually reduce in the coming years.



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Note: All the data quoted in this paper are from official sources to the extent possible. Due to different statistical methods, some data differ from each other, and individual revisions have been made compared with last year's version, or adjustments have been made according to the actual situation. For data that does not affect the overall judgment, the original cited data is retained.

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