

Press release

China permits two new coal power plants per week in 2022

27 February 2022 — Chinese local governments permitted a staggering 106 gigawatts of new coal power capacity in 2022, equivalent to 100 large coal-fired power plants^[1] and the most since 2015. The amount of newly permitted capacity quadrupled from 2021.

Other coal power project activity accelerated as well, with 50% more construction starts and twice as much new capacity announced as in 2021. The capacity of coal power plants that started construction in China in 2022 was six times as large as that in all of the rest of the world combined.

The Chinese energy regulator said in early 2022 that no new coal power plants would be permitted solely for the purposes of bulk power generation. However, the provinces initiating the largest numbers of new coal power projects hardly meet this requirement, as they are among the ones meeting most of the increase in their power needs through coal.

The massive new wave of coal power plants appears to be a response to last summer's electricity shortages, caused by a historic drought and heatwave, and exacerbated by outdated grid management. While China is making rapid progress in scaling up clean energy, the country's power system remains dependent on coal power capacity for meeting electricity peak loads and managing the variability of demand and clean power supply.

The major additions of new coal-fired capacity don't necessarily mean that coal use or CO₂ emissions from the power sector will increase in China. The rapid growth in clean power installations means the other possible outcome is declining utilization of the country's vast coal power fleet, as coal-fired power generation peaks and declines. In any case, hundreds of brand-new coal power plants will make meeting China's climate targets harder and costlier as the owners of the plants have an interest in protecting their assets and avoiding a rapid coal phase-out.

Quotes

“If China is going to meet its climate commitments, as we expect, these new coal power plants are going to end up as short-lived and under-utilized malinvestments. To meet China’s goal of peaking CO2 emissions, the most urgent milestone is to scale up investments in clean power generation to cover all of power demand growth, which means declining demand for power generation from coal,” said Lauri Myllyvirta, Lead Analyst, CREA.

“China continues to be the glaring exception to the ongoing global decline in coal plant development. The speed at which projects progressed through permitting to construction in 2022 was extraordinary, with many projects sprouting up, gaining permits, obtaining financing and breaking ground apparently in a matter of months. This kind of a process leaves little room for proper planning or consideration of alternatives,” said Flora Champenois, Research Analyst, GEM.

Key findings of the report

- 50 GW of coal power capacity started construction in China in 2022, a more than 50% increase from 2021. Many of these projects had their permits fast-tracked and moved to construction in a matter of months. A total of 98 GW of new coal power projects were permitted, more than quadrupling from 23 GW in 2021. Of the projects permitted in 2022, 60 GW were not under construction in January 2023, but are likely to start construction soon, indicating even more construction starts in 2023. In total, 86 GW of new coal power projects were initiated, more than doubling from 40 GW in 2021.
- The largest amount of capacity moved ahead in Guangdong, Jiangsu, Anhui, Zhejiang and Hubei.
- New coal power capacity added to the grid kept steady from 26.2 GW in 2021 to 26.8 GW in 2022. These two years had the lowest annual additions since 2003, reflecting the lower level of construction starts around 2017–2020. Capacity additions will rebound in a few years when projects that broke ground last year begin to come online.
- China has seen a rapid increase in electric peak loads in 2021–2022, with the highest recorded momentary load increasing by 230 GW, due to an increase in the prevalence of air conditioners and exceptionally intense heat waves. This is prompting an increase in coal power plant development as a costly and sub-optimal solution, especially in major electricity demand centres and provinces neighboring them.

- Of China's six regional grids, the South and East grid are the only ones that don't suffer from a clear thermal power overcapacity problem. Yet, 50% of newly announced projects and 40% of construction starts took place in the grids with overcapacity.
- The provinces permitting a large amount of new coal power plants try to justify the projects as “supporting” power capacity to ensure grid stability and the integration of renewable energy. This justification doesn't hold water, however, as the plants are intended to run at baseload utilization, and these specific provinces are laggards in growing clean energy generation to meet their demand growth.
- Avoiding the need for more coal-fired power plants requires improvements in energy efficiency, demand response and investments in storage, as well as improving grid operation.
- Plant retirements slowed down further in 2022, with 4.1 GW of coal-fired capacity closed down in 2022, compared with 5.2 GW in 2021. Policies on closing down small and inefficient plants have been revised to keep these plants online instead as back-up or in normal operation after retrofits.
- The major increase in new coal power plant capacity being built will make it harder and more expensive for China to realize the rapid shift away from coal needed to meet the country's climate targets.

Policy recommendations

- Strictly control new coal power capacity and reject or revoke permits for projects that are not necessary for “supporting grid stability” or “supporting the integration of variable renewable energy”.
- Accelerate investment in clean power generation to fully meet growth in electricity demand and stop increasing bulk power generation from coal.
- Increase investment in electricity storage, flexibility and transmission within grid regions. Create a level playing field for different storage, demand response and generation technologies for meeting peak demand, and enable clean flexibility technologies to scale up.
- Strengthen energy efficiency requirements for A/C units and for new buildings, and introduce a program of large-scale energy efficiency improvements for existing buildings.

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Notes to editors

[1] The size of coal-fired power generating units varies widely; the actual number of permitted units was 168 at 82 different plant sites.

The briefing related to the press release can be found here:

<https://energyandcleanair.org/publication/china-permits-two-new-coal-power-plants-per-week-in-2022>

About the data

The changes in coal power project status analyzed for this briefing are based on the latest January 2023 update of Global Energy Monitor's [Global Coal Plant Tracker](#) (GCPT), with complementary data on retirements, including for units below 30 MW, compiled from the provincial Development and Reform Commission and National Development and Reform Commission in China. The GCPT is an online database that identifies and maps every known coal-fired generating unit and every new unit proposed since January 1, 2010 (30 MW and larger). The tracker uses footnoted wiki pages to document each plant and is updated biannually. GCPT is the most detailed dataset available on the global coal power fleet, and has provided biannual updates on coal-fired generating capacity since 2015.

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Global Energy Monitor (GEM) develops and shares information in support of the worldwide movement for clean energy. By studying the evolving international energy landscape, and creating databases, reports, and interactive tools that enhance understanding, GEM seeks to build an open guide to the world's energy system. www.globalenergymonitor.org

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