



Built for backup, contracted to run:

**China's coal support system
risks crowding out clean power**

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August 2026

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About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution. CREA uses scientific data, research, and evidence to support the efforts of governments, companies, and campaigning organisations worldwide in their efforts to move towards clean energy and clean air, believing that effective research and communication are the keys to successful policies, investment decisions, and advocacy efforts. CREA was founded in Helsinki and has staff in several Asian and European countries.

About Global Energy Monitor

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.

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Key findings

- New coal power plants entering operation in China reached the highest first-half year level since 2016, with 10 GW entering operation for every 1 GW retired, despite a policy shift towards tighter control of new project approvals. China commissioned 30 GW of new coal power, up 43% from last year, while retiring only 2.7 GW. Another 25.4 GW started construction.
- Coal power generation rebounded 3.4% year-on-year in H1 2026, reversing the 2025 decline. The rapid expansion of coal power capacity led to worsening oversupply, reflected both in the increase of wasted wind and solar generation and in falling utilisation of coal power plants.
- The rebound was not evidence of a broad return to coal following LNG shipping disruptions in the Strait of Hormuz. China's combined domestic coal production and imports in fact fell by 1.4% year-on-year in H1 2026, rather than expanding in response to the external energy shock. Growth in clean energy supply and electrification helped offset the fall in oil supply and limit increases in fossil fuel consumption.
- Estimated wind and solar curtailment, including both reported and unreported curtailment, reached 360 TWh in H1 2026, up 49% year-on-year. Had this electricity been absorbed, the additional power supply could have met all demand growth and allowed coal power generation to fall.
- Long-term contracts continue to reserve a substantial share of limited electricity demand for coal power—coal generators in 2026 are still expected to sign annual contracts covering 60-70% of the previous year's delivered electricity, turning a risk-management instrument into a barrier to renewable integration.
- CREA advises phasing out coal power-specific minimum requirements for medium- and long-term contracts in provinces experiencing renewable curtailment or oversupply to help coal transition from a baseload generator towards a flexible backup role.

Key data points for H1 2026

8.6 GW newly permitted

New project approvals remained limited, possibly due to tighter scrutiny under recent control policy.

30 GW newly commissioned

Up 43% year-on-year and the highest first-half recorded since 2016.

274 GW in the pipeline

Equivalent to 22% of China's existing operating coal fleet.

2.7 GW retired

For every 1 GW of coal power retired, more than 10 GW entered into operation.

1,998 utilisation hours

Down 3% year-on-year and the lowest first-half year level since 2021.

60-70% guaranteed in long-term contracts

Annual long-term contract floor alone would equal roughly half of China's total market-based electricity trading volume.

3.4% rebound in coal power generation

Driven by growth in the coal fleet rather than more intensive plant use or Hormuz disruptions.

360 TWh curtailed wind and solar

Enough to meet all of China's electricity demand growth in H1 2026 and allow coal power generation to fall.

Still building into a shrinking market

China entered the 15th Five-Year Plan period with the back end of its coal power pipeline still delivering substantial new capacity, even as policies began to place limiting signals on coal power generation through emphasis on electricity demand growth being met by clean power generation instead.

Progress of new coal power projects and retirements in China

Changes in project status, half-yearly

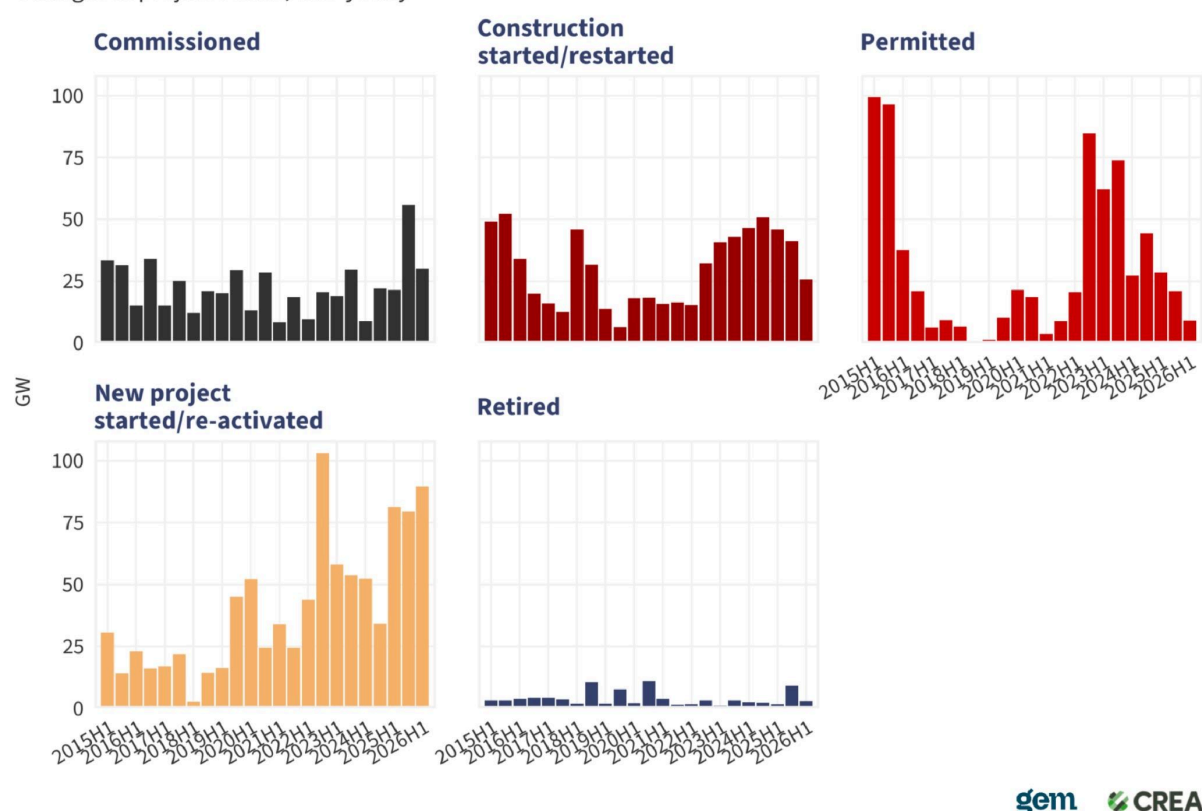


Figure 1 — Progress of new coal power projects and retirements in China 2015-2026 H1

In the first half of 2026, 30 GW of coal power capacity entered operation, 43% more than in H1 2025 and the highest first-half year total recorded since 2016. This ran counter to the trend in the rest of the world, where total coal power commissioning fell 46% year-on-year. Only 2.7 GW was retired. As a result, for every 1 GW of coal power retired, more than 10 GW entered into operation. Most plants reaching operation in 2026 were the result of the

2022-2023 approval surge, which reached an average of around two plants per week¹.

Further additions are already embedded in the project pipeline. Another 25.4 GW started construction during the first half of 2026. Approximately 204 GW of coal power remained under construction, and 70 GW was permitted but had not yet entered construction. Together, the 274 GW of capacity in advanced development was equivalent to around 22% of China's existing, operating coal power fleet. Even in the absence of further approvals, permitted and in-construction projects could sustain substantial coal power capacity growth for several more years if no effective binding measures are taken.

The front end of the pipeline, however, presents a more mixed picture. Developers proposed 70 GW of new coal power projects in H1 2026 and revived another 20 GW of previously shelved proposals, bringing the combined total to about 90 GW, a 25% increase year-on-year. Local governments and project developers have not fully adjusted their investment expectations to the increasingly constrained outlook for coal power.

At the same time, far fewer projects moved through the approval stage. Only 8.6 GW received permits in H1 2026, down 63% year-on-year. A central policy² published on 22 April called for China to “reasonably control the scale of coal power capacity and generation”. While this is softer than previous targets from 2021 that called for coal power consumption to phase down over the 15th Five-Year period, it is the first time generation has been directly targeted. It seems that tighter scrutiny is beginning to influence project approvals, although it has yet to halt new coal development altogether.

The share of power demand growth available to coal is also narrowing. The 15th Five-Year Carbon Peaking Action Plan³ calls for accelerating efforts to ensure that growth in electricity demand is met by additional clean power generation, while more than 274 GW of coal power capacity is already permitted or under construction. Coal power capacity can therefore continue to rise even as the market for additional coal power generation becomes more limited.

¹ CREA and GEM (2023). China permits two new coal power plants per week in 2022. <https://energyandcleanair.org/publication/china-permits-two-new-coal-power-plants-per-week-in-2022/> Analysis.

² Xinhua News Agency (April, 2026). The Opinions on Energy Conservation and Carbon Reduction. <https://www.news.cn/20260422/c0cb9150980a44f7a5ead831afeee9d9/c.html> Policy.

³ Ministry of Ecology and Environment (July, 2026). Action Plan for Carbon Peaking During the 15th Five-Year Plan Period. https://www.mee.gov.cn/zcwj/gwywj/202607/t20260714_1161655.shtml Policy.

Capacity growth, falling utilisation

China's coal power generation picked up in early 2026, but coal power plants were not used more intensively. Coal power generation rose 3.4% year-on-year in the first six months, after having fallen by 1% in 2025. Over the same period, coal power capacity increased 6%, reaching approximately 1,263 GW by the end of June. The rebound was therefore produced by a larger fleet: more coal power plants were generating.

Coal power utilisation fell to its lowest level since 2021. Average utilisation declined from 2,056 hours in the first half of 2025 to around 1,998 hours, a decrease of 2.9%. The combination of rising coal power generation and falling utilisation shows that capacity expanded faster than the amount of electricity generated from it. The fleet produced more energy in total, but less for every gigawatt installed. If all 274 GW of coal power currently permitted or under construction enters operation without substantial retirements, China's coal fleet would reach 1,565 GW. Under the assumption that coal power generation remains at its 2025 level, average utilisation would fall to around 3,680 hours by 2030, equivalent to a utilisation rate of about 42%. Meeting China's 2030 NDC would likely require coal power generation and emissions to decline, pushing utilisation lower still.

Falling utilisation in H1 2026 was not the result of weak power demand. Whole-society electricity consumption rose 5.3% in the first half of 2026. Coal power generation increased, but more slowly than power demand.

Nor should the rebound be read as evidence of a broad return to coal following the disruption of LNG shipping through the Strait of Hormuz. Higher gas prices and reduced LNG availability may have shifted some power generation from gas to coal at the margin. However, China's combined domestic coal production and imports fell by 1.4% year-on-year in H1 2026. Aggregate coal supply therefore contracted even as coal power generation increased, rather than expanding in response to the external energy shock.

Falling utilisation would normally weaken the case for further investment and put pressure on the least competitive plants to retire. Instead, capacity continues to grow while retirements remain limited. The issue is therefore becoming how an expanding fleet continues to secure sufficient generation and revenue despite fewer operating hours. Long-term contracts and capacity payments are becoming central to how this gap is managed.

Coal power capacity factor pathways under current pipeline build-out and emissions constraints

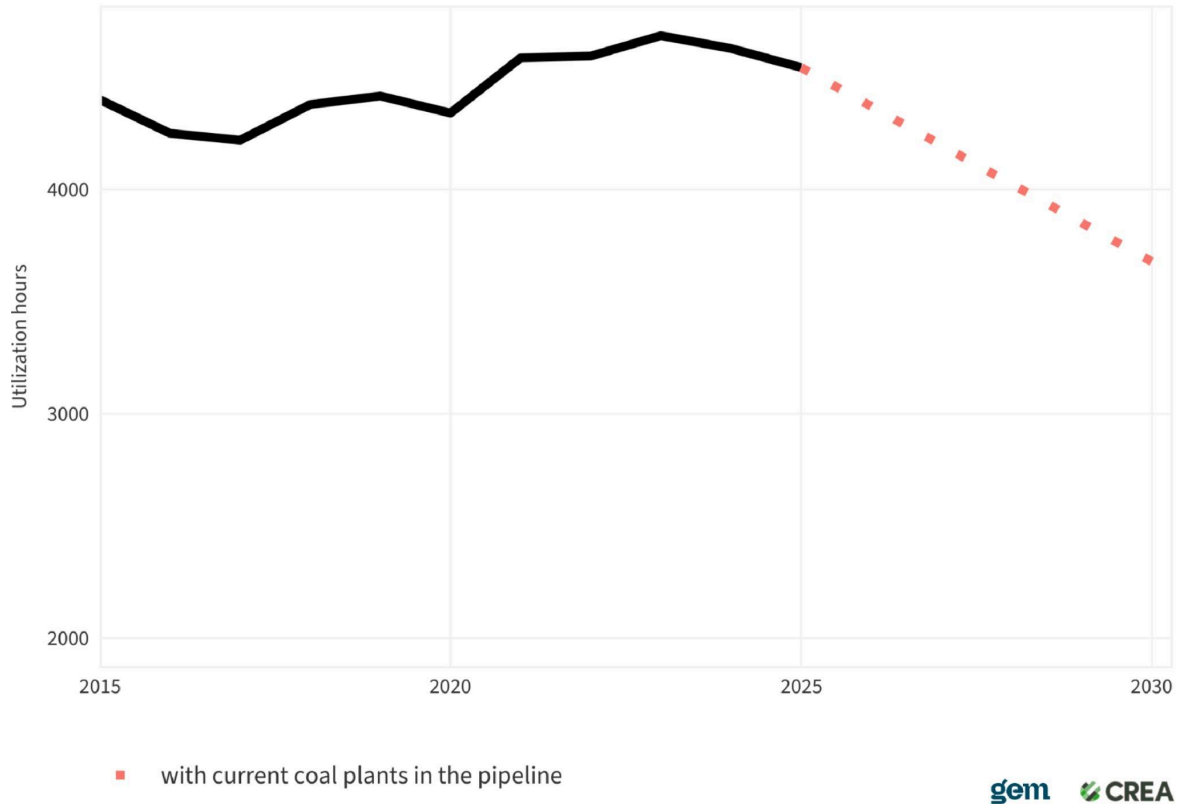


Figure 2 — China’s coal power utilisation hours under current pipeline build-out and emissions constraints

Note: Under China’s 2030 carbon-intensity target, coal power-related emissions would likely decline, implying even lower coal utilisation than shown here.

Coal’s contract floor is crowding out clean power

Long-term contracts are a central part of China’s power market, helping generators and buyers manage price and volume risks. For coal power, however, the rules also prescribe minimum contract volumes. The 15th Five-Year Plan for building a new-type energy

system⁴ calls for additional clean energy generation to cover growth in power demand. If wind, solar, and other clean sources are expected to supply most incremental demand, the generation space available to coal should narrow. Yet, mandatory coal power contract volumes work in the opposite direction by reserving a substantial share of electricity sales for coal in advance.

From 2023 to 2025, coal power generators were required to sign annual contracts covering at least 80% of the previous year's actual generation and raise coverage through monthly and shorter-term contracts to at least 90%⁵. The rules also linked full contracting to priority access to coal supplies and transport capacity. For 2026, the annual requirement was lowered to 70% of the previous year's actual on-grid electricity. Provinces may reduce it as coal power capacity payments rise, but in principle not below 60%⁶. Through subsequent contracts, coal power generators must still ensure that monthly-and-above contracts cover at least 80% of expected market-based on-grid electricity each month. The percentages are lower than before, but they continue to provide coal generators with a large commercial floor.

The national scale of this contract requirement is substantial. Using the national thermal-power plan own-use rate of 5.7% as a proxy, coal power delivered to the grid in 2025 can be estimated at around 5,430 TWh. A 60-70% annual contract requirement would therefore amount to approximately 3,260-3,800 TWh. This is equivalent to 49-57% of all electricity traded through China's power markets in 2025. Such extensive coal power contract coverage can become a problem when wind and solar generation is high and coal output needs to fall.

Reported and estimated unreported wind and solar curtailment reached 360 TWh in H1 2026, up 49% year-on-year. The combined curtailment rate rose from 19.7% to 26.1%. Curtailed wind and solar generation alone exceeded the 258 TWh of power demand growth, while hydropower generation rose by another 49 TWh.

⁴ CREA (June, 2026) China's new energy plan leaves emissions loose

<https://energyandcleanair.org/chinas-new-energy-plan-leaves-emissions-loose/> Analysis.

⁵ National Development and Reform Commission (December 2022) 关于做好2023年电力中长期合同签订履约工作的通知 https://www.ndrc.gov.cn/xxgk/zcfb/tz/202212/t20221222_1343756.html Policy.

⁶ China Energy Storage Alliance (December 2025) 关于做好2026年电力中长期合同签约履约工作的通知 https://www.cnesa.org/policy/detail/?column_id=6&id=7683 Analysis.

Reported and estimated unreported curtailment

Half-yearly

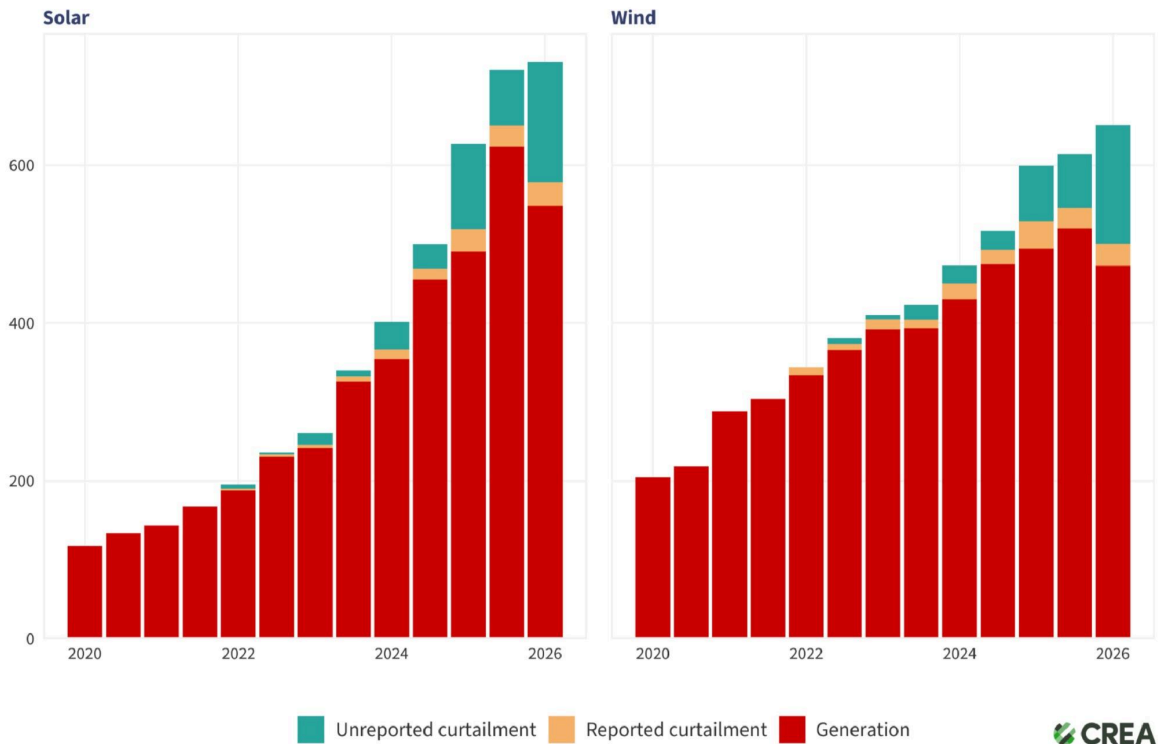


Figure 3 — Reported and estimated unreported wind and solar curtailment in China in H1 2026

On a national energy basis, available clean electricity was therefore sufficient to push down coal power generation. Not every unit of curtailed electricity could have displaced coal at the same time and place. However, the figures show that the rebound in coal power generation reflected limits in grid integration, dispatch, and power trading rather than a national shortage of clean electricity. Yet, additions of new energy storage slowed to 17 GW in H1 2026, 26% below the level recorded a year earlier, even as 30 GW of new coal power was commissioned.

Curtailment was concentrated in major power-exporting provinces. At the end of June, estimated 12-month wind and solar curtailment rates were around 15-30% in Inner Mongolia, Xinjiang, Qinghai, Gansu and Ningxia, compared with less than 3% in Guangdong, Zhejiang, Jiangsu and Anhui. The five exporting provinces accounted for 46% of estimated curtailment in June, yet their thermal generation still increased by 2.7% year-on-year. Thermal power output did not decline in the provinces where renewable

curtailment was most concentrated.

New coal power plants in China from 2021 to 2026

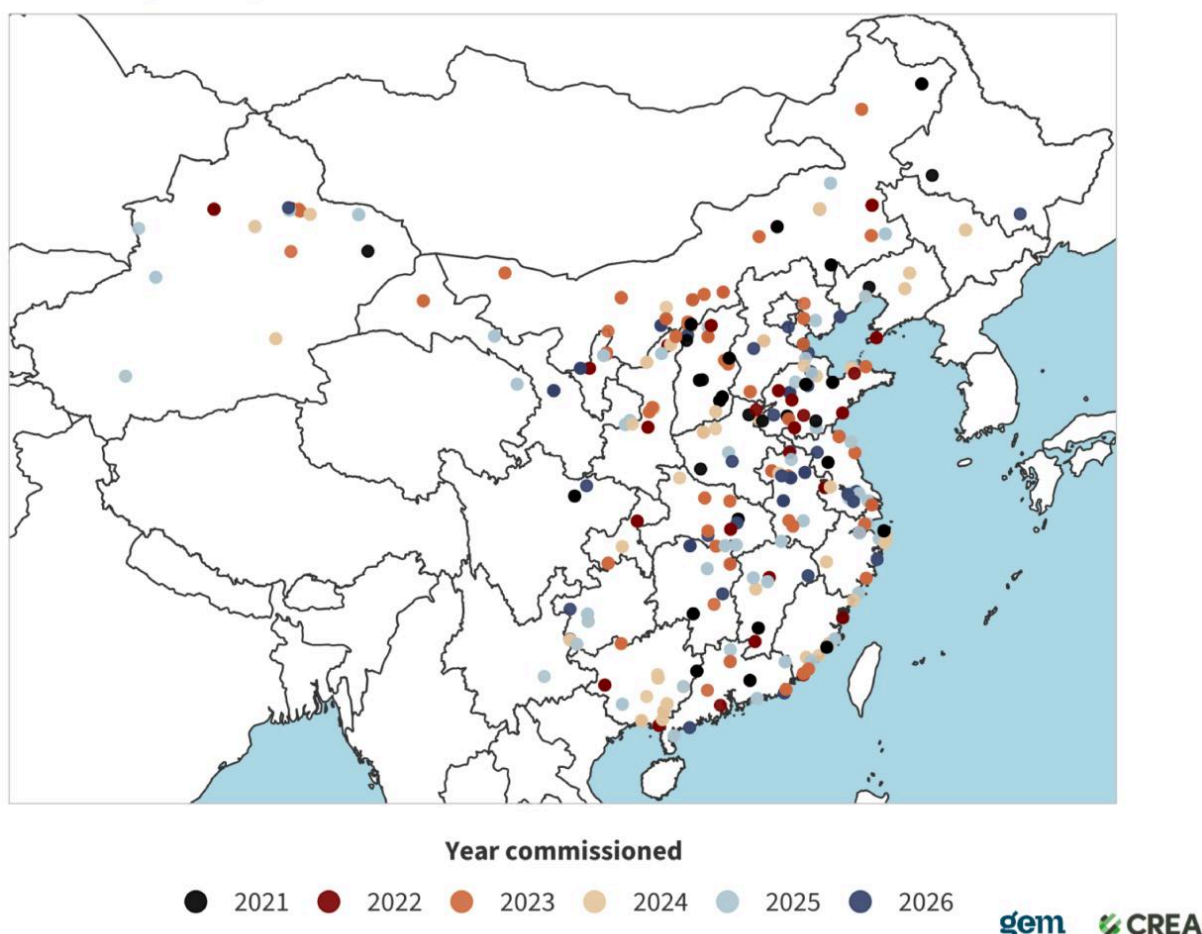


Figure 4 — New coal power plants in China from 2021 to 2026 H1

China's coal power capacity has also continued to expand on both sides of the power trade. Around 57 GW came online in the five exporting provinces between 2022 and mid-2026, while another 60 GW was added in the four large eastern markets. In exporting provinces, coal competes with renewables for local dispatch and transmission capacity. In importing provinces, additional local coal generation can reduce demand for clean power imports from other provinces. Mandatory coal power contract volumes can reinforce this pattern by securing space for local coal power generation before surplus renewable electricity is able to compete across provincial borders.

Technical constraints are part of the problem. Once a coal power unit is running, it can only

reduce its output to a certain minimum level without shutting down. Shutting down and restarting is costly, increasing fuel use, equipment wear, and operating costs. Long-term contracts can reinforce this rigidity by shielding a large share of coal power sales from low spot prices. Where contracts remain linked to delivery curves or deviation penalties, reducing output below contracted positions can also carry a direct commercial cost. Coal power units may therefore remain online at minimum load even during periods of high wind and solar output, leaving less room for renewable generation.

In July 2026, the National Development and Reform Commission released a draft national measure on medium-and long-term contracts for energy supply security⁷. It states that provincial contract ratios should take account of power supply and demand, generator reliability, electricity-user characteristics, and renewable integration needs. It also requires companies participating in spot markets to continue meeting energy-security contracting obligations. This is an important acknowledgement that contract coverage cannot be set independently of renewable absorption, but it also creates a risk that administratively determined minimum ratios will become a standing feature of the market.

Paid for capacity, protected on energy

China is beginning to pay coal power for being available rather than for running continuously. From 2026, provinces must allow eligible coal power plants to recover at least 50% of a nationally standardised fixed cost through capacity payments, equivalent to RMB 165 per kilowatt per year, and may raise the proportion further where coal power utilisation is particularly low⁸. The government describes the purpose of the mechanism clearly: dispatchable plants should generate when the system is tight and run less at other times, leaving more room for renewable power. These payments are recovered from industrial and commercial consumers through system operating charges.

⁷ National Development and Reform Commission (July 2026). 关于向社会公开征求《能源保供中长期合同管理办法(试行)(公开征求意见稿)》意见的公告
<https://yylxbsgw.ndrc.gov.cn/htmls/article/article.html?articleId=2c97d16c-9324f814-019f-5fd50f19-0135#iframeHeight=806> Draft policy.

⁸ National Development and Reform Commission (January 2026). 国家发展改革委、国家能源局有关负责人就完善发电侧容量电价机制答记者问
https://www.ndrc.gov.cn/xxgk/jd/jd/202601/t20260130_1403520.html Press Conference.

Each 1 GW of eligible coal power capacity receives	The 25.8 GW coal power commissioned in H1 2026 would correspond to
RMB 165 million per year	around RMB 4.3 billion
at the minimum 2026 capacity-payment rate.	in annual capacity payments if all of it were eligible.

However, this capacity mechanism has been added without removing coal's protection in the energy market. Mandatory long-term contract requirements continue to place a large share of coal power sales under contract. Even where contracts are settled financially, it still reduces coal power generators' exposure to low and volatile spot prices. Coal power plants can therefore receive one revenue stream for remaining available and a second layer of protection against the commercial consequences of selling less electricity.

This combination can weaken two signals that an increasingly oversupplied market should send: low or zero spot prices should encourage coal power plants to reduce output when renewable power is abundant; and persistently low utilisation should also discourage further investment and put pressure on coal power plants that are no longer needed to retire. Capacity payments are intended to preserve system reliability without suppressing these market signals. Mandatory contract coverage can soften these signals further by protecting coal power revenues even when market conditions indicate that less coal power generation and capacity are required.

Capacity and energy payments should therefore have more clearly separated functions. Plants needed for reliability should be compensated for dependable peak capacity and assessed against actual availability and performance during system stress. Energy-market revenues should depend on market conditions, while coal generators should be free to use voluntary financial contracts to manage price risk. A coal power plant paid to stand ready should not also require an administratively protected claim on ordinary electricity sales.

China's coal buildout as a lock-in warning, not a template for energy security

China's continued coal power construction does not mean that coal is regaining its former position in the power system. As noted above, coal power generation rose by 3.4% year-on-year in H1 2026, but its share of total generation fell to 49.7%, the first time that coal had supplied less than half of China's electricity in a first-half year period⁹. According to the National Energy Administration (NEA), renewable generation reached 41.2% of total output, while wind and solar generated electricity equivalent to 24.6% of whole-society consumption. Coal power output increased in absolute terms while continuing to lose structural share, as power demand and clean generation expanded faster.

Nor should the current buildout be interpreted as a single, coherent national decision that additional coal capacity is the preferred response to power demand, renewable variability, or energy-security risks. Most plants entering operation during 2025-2027 originated in the 2022-2023 approval surge and had already secured financing, equipment orders, and local administrative commitments before the current policy cycle began. Approval authority for thermal power projects is exercised by provincial governments, albeit within national planning frameworks. The division of responsibility helps explain why local project development can continue after national policy priorities have begun to change. Once construction starts, projects become particularly difficult to reverse.

Clean energy is increasingly presented within China's own policy framework as an energy security resource, rather than solely as a decarbonisation measure. In 2024, Chinese President Xi Jinping pointed out that, in addressing China's energy-development challenges, "the way out is to vigorously develop new energy", while calling for renewable development to be coordinated with national energy security¹⁰. The NEA subsequently described high-quality renewable development as fundamental to guaranteeing energy security¹¹. Against the backdrop of Hormuz Strait transport disruption, Premier Li Qiang

⁹ National Energy Administration (July 2026). 国家能源局举行新闻发布会 介绍2026年上半年全国能源形势 <https://www.nea.gov.cn/20260730/6c60113d8ba5471eb0045cb7b314dee8/c.html> Press Conference.

¹⁰ Ministry of Ecology and Environment (March 2024). 习近平在中共中央政治局第十二次集体学习时强调：大力推动我国新能源高质量发展 为共建清洁美丽世界作出更大贡献 https://www.mee.gov.cn/ywdt/szyw/202403/t20240301_1067419.shtml News.

¹¹ National Energy Administration (August 2024). 章建华：以高质量新能源发展有力保障高水平能源安全 https://www.nea.gov.cn/2024-08/15/c_1310784478.htm Opinion.

has also argued that strengthening energy security requires optimising the energy mix, accelerating technological innovation, and building a new, greener energy system¹².

Clean electricity is already strengthening China's energy security. Import-dependent coastal regions accounted for 38% of China's clean electricity growth between 2020 and 2025. Expanding clean power in coastal demand centres reduces exposure to imported fuels, volatile prices, and shipping disruptions¹³. Transport electrification is extending these energy security benefits beyond the power sector. China's EV (electric vehicle) fleet displaced 33.7 Mtoe (Million tonnes of oil equivalent) of oil consumption in H1 2026, equivalent to around three weeks of crude oil imports, providing a substantial buffer against the disruption to shipments through the Strait of Hormuz¹⁴.

But China's coal and clean-energy policies are not yet internally consistent. A 274 GW coal power pipeline remains permitted or under construction; capacity payments and mandatory coal contracts continue to support coal power revenues; and renewable curtailment shows that grid, dispatch, and market reforms have not kept pace with clean energy deployment. National policy is attempting to redirect the system, but the project pipeline and coal-support mechanisms are slowing that adjustment.

China's experience shows how decentralised approvals, local investment incentives, legacy commitments, and revenue protections can keep capacity growing after national priorities and power system needs have changed. It is a warning about policy lag, overbuilding, and lock-in, rather than a template for other countries seeking cheaper and more secure energy.

¹² People's Daily (April 2026). 李强主持国务院第十九次专题学习

https://paper.people.com.cn/rmrb/pc/content/202604/21/content_30152196.html News.

¹³ Dialogue Earth (May 2026). What drove China's historic drop in power-sector emissions?

<https://dialogue.earth/en/energy/what-drove-chinas-historic-drop-in-power-sector-emissions/> Analysis.

¹⁴ CREA (July 2026). China H1 2026 Air quality review: EV-related oil cuts emerge as a new driver for China's clean air progress <https://energyandcleanair.org/china-h1-2026-air-quality-review/> Analysis.

Policy recommendations

- **Set explicit peak years for power sector emissions and coal consumption.** Publish a clear timetable for peaking power sector emissions and coal consumption during the 15th Five-Year Plan period. Align coal power planning and power market reform with these milestones so that additional clean energy generation supplies incremental electricity demand while coal power generation enters a sustained decline.
- **End net growth in coal power capacity during the 15th Five-Year Plan period.** Halt permits for new coal power projects and reassess projects that have already been permitted. Any exception should be based on a transparent provincial capacity-adequacy assessment showing that the identified reliability need cannot be met more efficiently through grid expansion, interprovincial trade, storage, demand response, or clean generation.
- **Phase out coal power-specific minimum requirements for medium- and long-term contracts.** During the transition, mandatory minimum contract ratios should be lowered or suspended in provinces experiencing renewable curtailment, prolonged zero- or negative-price periods, or system oversupply. Once these requirements are removed, contract volumes should be determined voluntarily by generators, electricity users, and retailers according to their risk-management needs.
- **Separate payments for reliability from protection of coal energy sales.** Capacity payments should reward dependable availability, ramping capacity, start-up performance, and delivery during periods of system stress, rather than installed coal capacity alone. China should move to a technology-neutral reliable-capacity mechanism that allows storage, demand response, and other flexible resources to compete on equal terms.
- **End “retire-and-rebuild” coal power schemes.** Coal units retired because they are ageing, inefficient, inflexible, or persistently underused should not create an entitlement to build an equal or greater amount of new coal capacity. Retirement policy should deliver a measurable decline in the coal fleet, rather than serving as a mechanism for replacing old plants with new ones. Where a genuine reliability or heating need remains, it should be assessed independently and met through the lowest-cost available combination of grids, storage, demand response, clean dispatchable resources, and heat-sector alternatives.

About the data

The changes in coal power project status analysed for this briefing are based on the July 2026 update of Global Energy Monitor's [Global Coal Plant Tracker](#) (GCPT) and the historical 2014–2025 information available upon request. The GCPT is an online database that identifies and maps every known coal-fired generating unit and every new unit proposed since 1 January 2010 (30 MW and larger). The tracker uses footnoted wiki pages to document each plant and is updated biannually.

Power generation from wind and solar plants was calculated from the provincial monthly capacity and utilisation data reported by the China Electricity Council (CEC). When capacity utilisation and reported curtailment were unavailable, they were calculated as the complement of provincial monthly offtake rates released by the National New Energy Consumption Monitoring and Early Warning Center. Then, reported curtailment and estimated values (predicted based on weather conditions) were used to estimate total curtailment. The prediction used regression models on reported monthly utilisation and weather conditions 2020–2023. Weather data used included hourly temperature, wind speed, solar irradiation, and humidity at solar and wind plants per province. Weather data was sourced from [NASA Power](#) and [CFSv2](#) and plant locations were from GEM.