THREE YEARS LATER:

IMPACTS OF CHINA'S OVERSEAS COAL POWER BAN

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PEOPLE OF ASIA FOR CLIMATE SOLUTIONS

Three years later: Impacts of China's overseas coal power ban

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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.

Three years later: Impacts of China's overseas coal power ban

Key findings

- Despite China's commitment to halt new coal-fired power projects abroad, the past year has witnessed continued new developments in coal power projects, highlighting challenges in fully implementing this pledge.
- In this third year following China's pledge, there has been an additional 5.6 gigawatts (GW) of coal capacity cancelled, compared to the 15.9 GW cancelled between 2022 and 2023.
- Since last year's report, an additional 7.9 GW of China-backed coal plant capacity has become operational, bringing the total operational capacity since the pledge to 26.2 GW — up from 18.3 GW in 2023 and 9.2 GW in 2022.
- In the last year, an additional 3.4 GW from previously unannounced overseas power projects advanced directly into the construction phase and 1.5 GW of capacity for on-grid power generation has advanced into the pre-permit phase in Kyrgyzstan, Zambia and Zimbabwe, in direct violation of the 2021 pledge.
- Additionally, 700 megawatts (MW) of China-backed coal capacity that had been shelved in the past has been pushed forward or revived in the last year.
- Over the three years following the pledge, a total of 42.8 GW of projects have been cancelled, resulting in a total avoided 4.5 billion tonnes of cumulative lifetime carbon emissions.
- However, 52 power plants remain in the permitted, pre-permit, and construction phases, representing a total additional capacity of 49.5 GW. Cancelling these plants could prevent 202.5 million tonnes of carbon dioxide (CO_2) emissions annually, totalling an estimated 5.1 billion tonnes by 2050.
- Captive power, which has long been a grey area in China's coal pledge, continues to be a significant loophole. Since the previous report, 6.8 GW of previously unannounced capacity moved to pre-permit or directly into construction in Indonesia, Zambia, and Zimbabwe. Additionally, 1.5 GW advanced from pre-permit to construction and 1.6 GW became operational in Indonesia.

Contents

Introduction

In September 2021, Chinese President Xi Jinping announced at the United Nations General Assembly (UNGA) that China would stop building new coal-fired power plants abroad whilst stepping up support for developing green and low-carbon energy in developing countries (Volcovici et al., 2021). This commitment marked a significant shift for the world's largest financier of coal plants, with the potential to significantly reduce emissions and health impacts from global coal energy production.

Following the announcement, the Chinese government incorporated these commitments into its 14th Five-Year Plan on Modern Energy Systems, with several key ministries issuing guidelines to halt new coal projects and proceed cautiously with those already under construction. This policy shift has already driven a significant number of project cancellations and suspensions (Gonzalez et al., 2023; Suarez & Wang, 2022).

This third-year update serves to evaluate the pipeline of Chinese-backed coal projects at the plant-level to determine their progress since the UNGA pledge and compliance of Chinese overseas finance institutions and host countries with the pledge objectives, and to summarise the added and still avoidable carbon emissions.

At the time of the announcement, 103 coal plants in 28 countries totalling 102 gigawatts (GW) were in various stages of planning, permitting, or construction with Chinese financing or engineering, procurement and construction (EPC) agreements. Upon completion, these plants would have led to an increase of 430 million tonnes in carbon dioxide (CO_2) emissions annually (Suarez & Wang, 2022). However, China's overseas coal ban has led to significant cancellations and suspensions of these projects amounting to 42.8 GW of capacity and avoiding 4.5 billion tonnes of cumulative CO_2 emissions — highlighting that the ban has huge potential in terms of avoiding CO_2 emissions (Gonzalez et al., 2023).

Whilst China has largely adhered to its overseas coal commitment, some investments in coal capacity abroad persist, highlighting areas where further action is needed to fully meet the pledge. This 2024 report is the third yearly update on commitment to the pledge and provides an updated analysis of the status of the original 103 coal plants, as well as additional plants identified since last year's report, and evaluates their progress in light of China's pledge.

Changes in plant statuses over the past three years

Figure 1 shows the trend in Chinese-backed coal power units over the past 3 years, Figure 2 shows the trends in the status of coal capacity between each year since the pledge, and Figure 3 shows the current status by country.

The following sections present a summary of the plants according to their statuses as of July 2024. Each section also includes a summary of the findings from the previous reports in 2022 and 2023. Notable trends, changes and differences between the previous reports are highlighted.

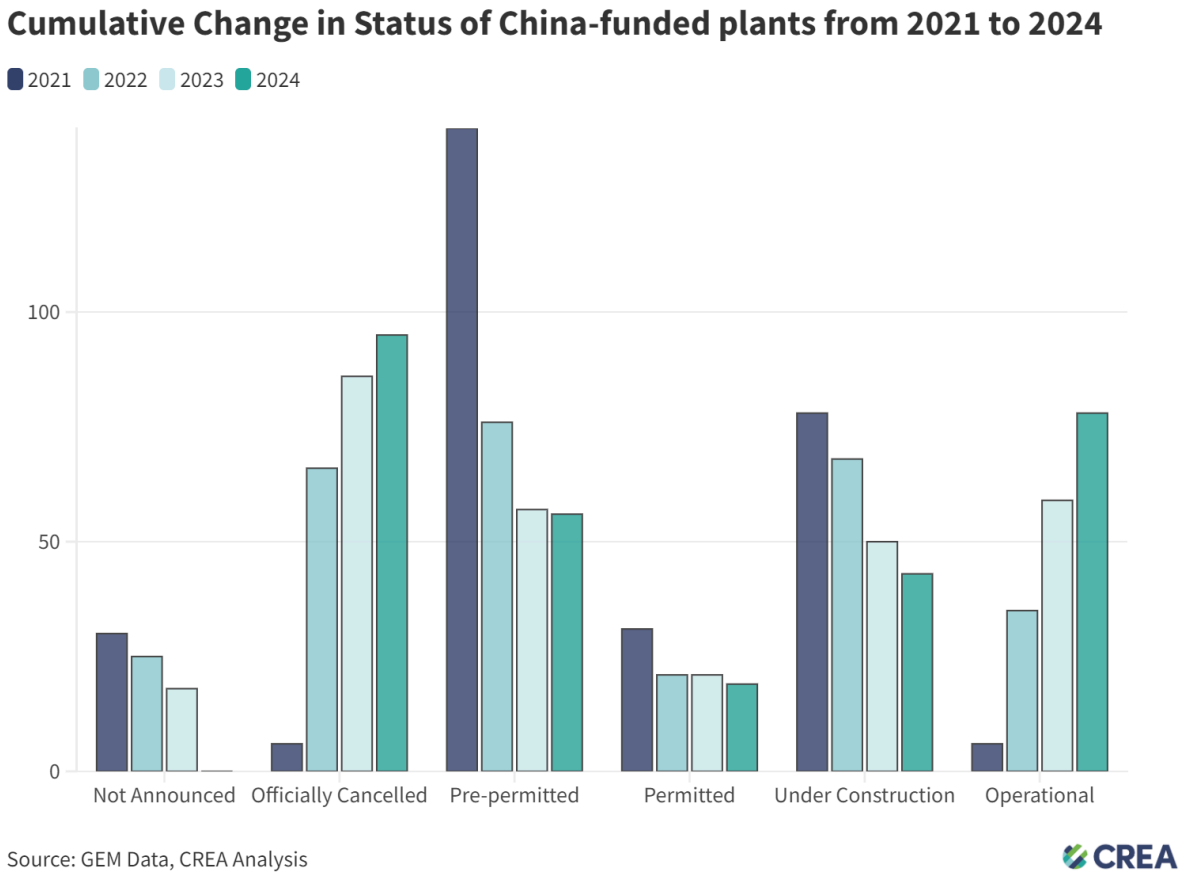

Figure 1: Trends in Chinese-backed coal power at Q3 over the past 3 years

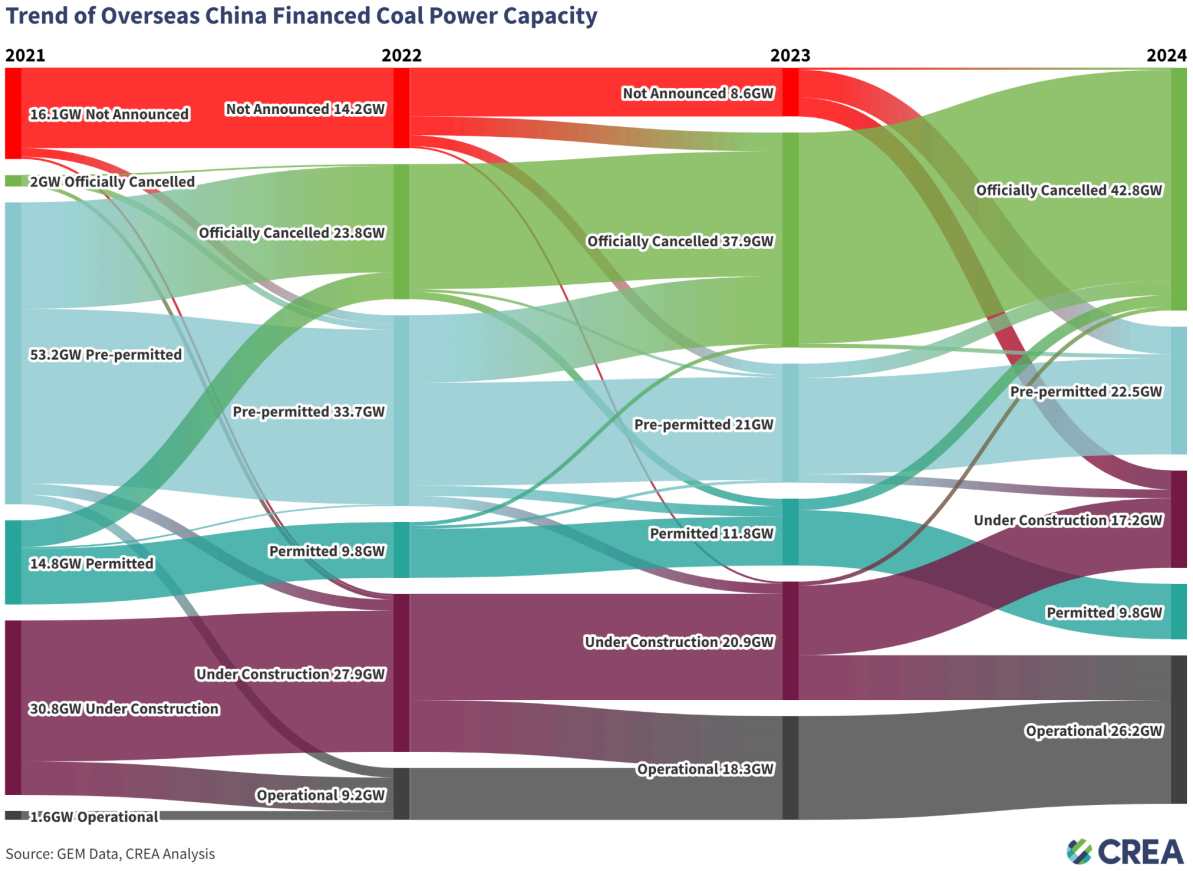

Figure 2: Trend of overseas China finance coal power capacity from 2021 to 2024

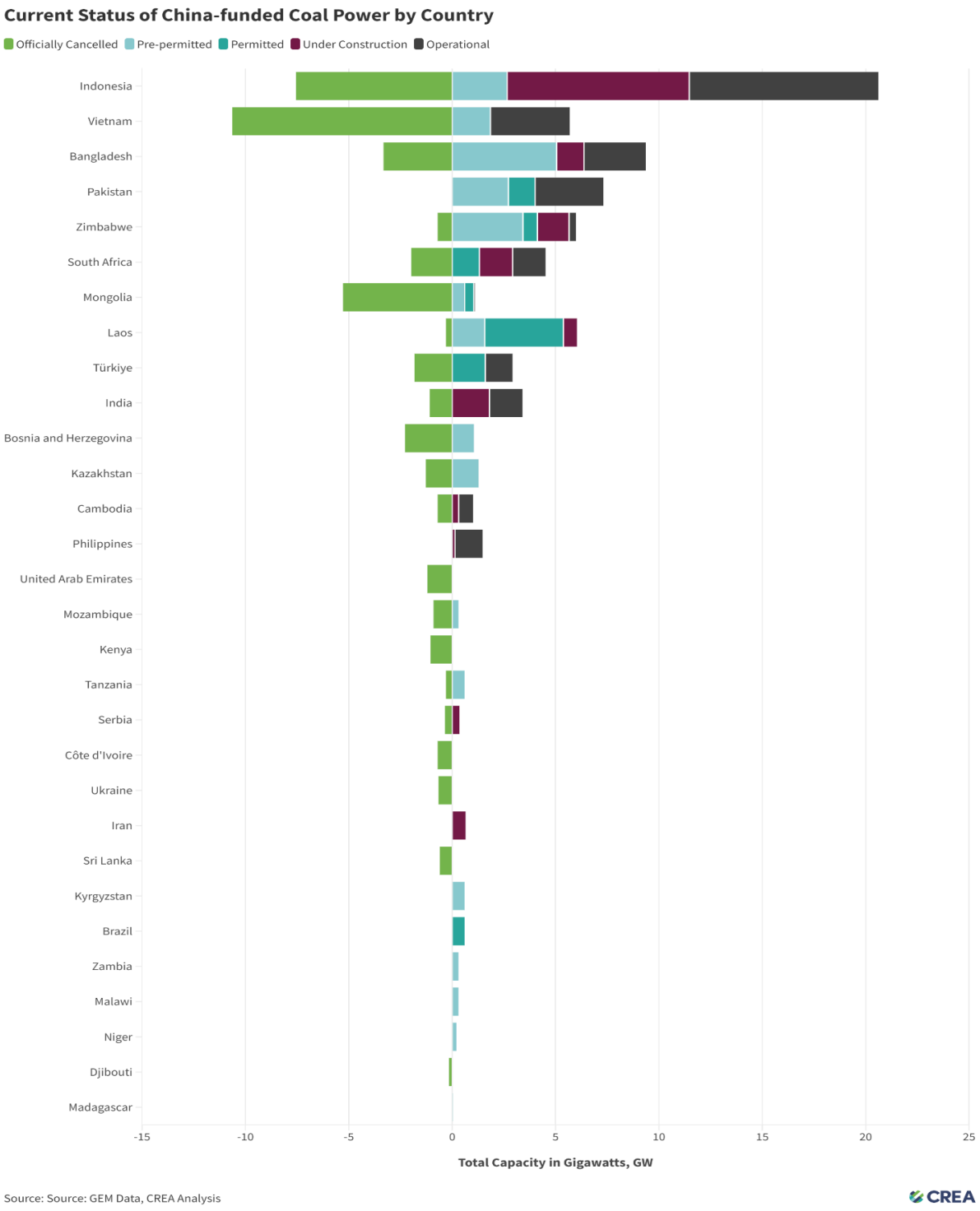

Figure 3: Current status in Chinese-backed coal power by country

Officially cancelled

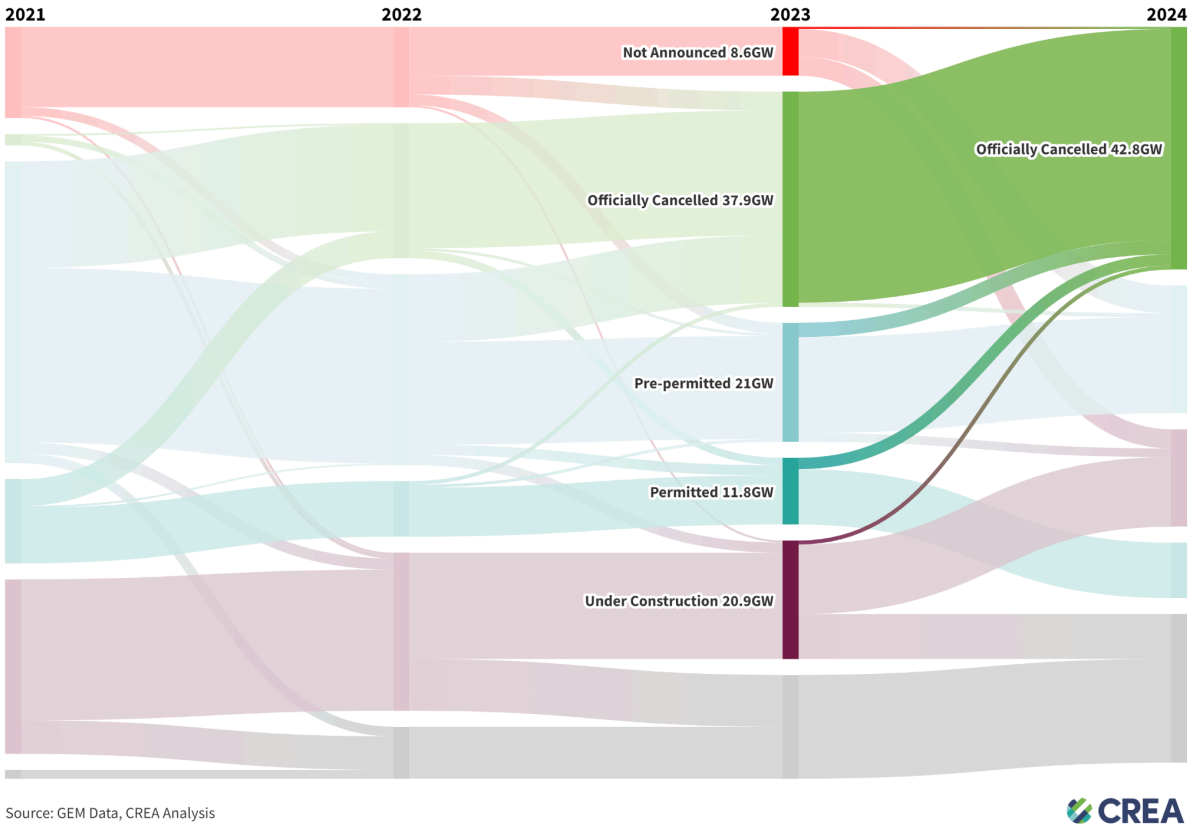

Figure 4: Changes in officially cancelled China-backed coal capacity between 2023 and 2024

Building on the progress of the previous years, this third year following the pledge has witnessed further cancellations of China-backed coal projects. However, these developments have occurred at a slower rate compared to the years immediately following the pledge (Figure 1). Figure 4 shows the coal fired power plants financed by China that have been cancelled as of 2024 and their statuses in 2023. These coal fired power plants have been cancelled without replacement or converted to other fossil fuel sources or renewable energy plants.

Currently, there are 41 Chinese-backed coal power plants (43 GW) which have been cancelled – however, between 2023 and 2024, there has only been an additional 5.6 GW of capacity cancelled compared to the 15.9 GW cancelled between 2022 and 2023. This

reduction in the amount of cancellations would suggest that the majority of coal fired power plants in the pre-permitted or permitted stages have either already been cancelled or moved ahead into construction and operation. As of this report, the largest amount of cancelled Chinese-backed coal power plant capacity is in Vietnam (10.6 GW) , followed by Indonesia (7.6 GW), and Mongolia (5.3 GW).

A notable cancellation since the publication of the previous report includes the planned 2 x 350 MW units of the Botum Sakor power station in **Cambodia**, which had been stagnant in the construction stage since 2021. These units have been replaced by a newly announced 800 MW fossil gas power station, scheduled to begin operations tentatively after 2030 (Varadhan, 2023). This shift may indicate that challenges in securing financing for coal power, following the Chinese ban, are pushing countries to opt for other fossil fuel sources. However, without adequate support for transitioning to renewable energy, many of these projects risk being converted to fossil gas, which could hinder efforts to reduce emissions and delay the necessary shift toward sustainable energy solutions.

Recent reports also suggest that the 200MW Song Hau 2 Thermal Power Plant in **Vietnam** has been terminated, as the Vietnamese government has issued a notice of intention to terminate to the EPC contractor Toyo Ventures (Amin, 2024).

Additionally, both units of the Ilgin coal field power station in **Turkey**, each with a capacity of 250 MW, were cancelled after Park Elektrik, the energy generation subsidiary of Ciner Group, had its electricity generation licence revoked by the Energy Market Regulatory Authority (EMRA) (Bianet, 2022). This suggests that local policies and regulation, alongside the financial pressure from the ban, are playing a significant role in the decision to cancel coal fired power plants.

Pre-permitted

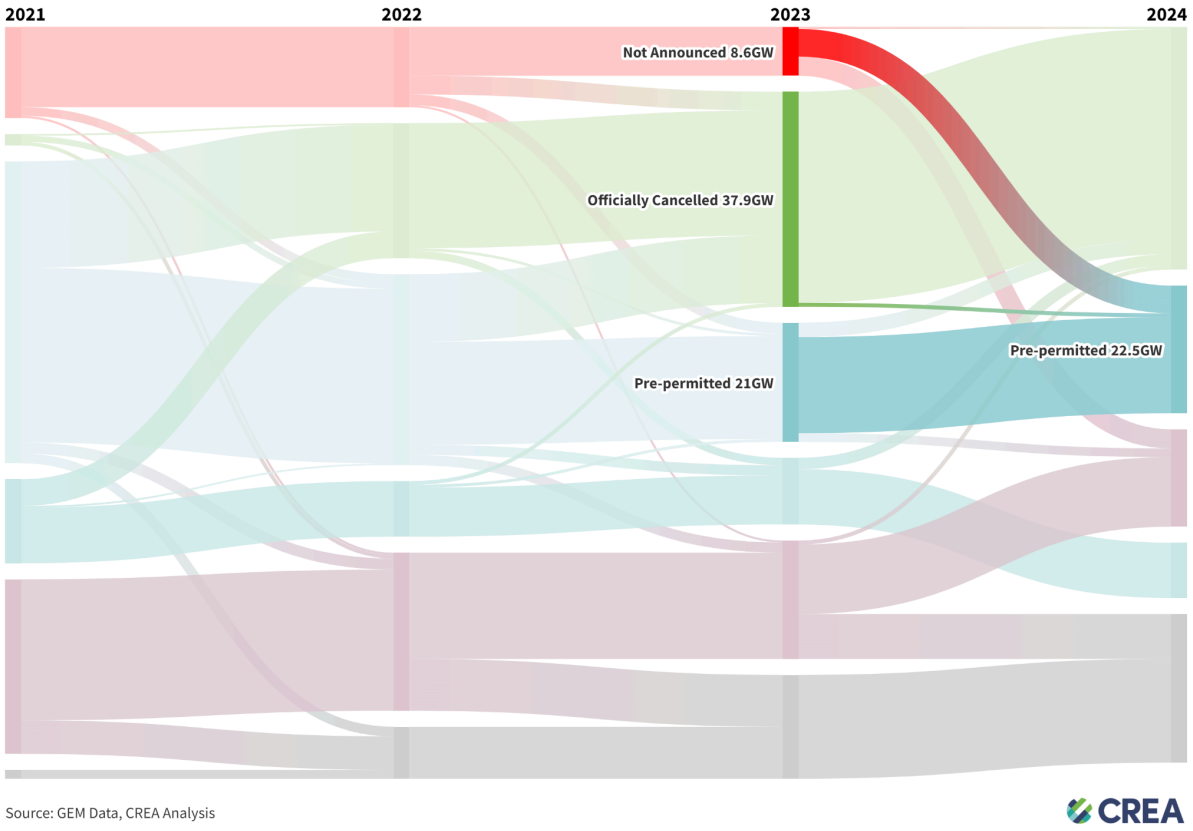

Figure 5: Changes in pre-permitted China-backed coal capacity between 2023 and 2024

Currently, there are 22.5 GW of Chinese-backed coal power plants in the pre-permit phase. Figure 5 shows that the majority (16.9 GW) of these pre-permitted coal fired power plants were also in the pre-permit phase in 2023. Coal power plants classified as under the pre-permit stage are those which have appeared in corporate or governmental planning documents and are still in the process of securing financing and permits. The largest amount of Chinese-backed coal power plant capacity in the pre-permit phase is in Bangladesh (5.1 GW), followed by Zimbabwe (3.4 GW) and Pakistan (2.7 GW), (Figure 3).

New additions in the category this year that raise concern include the 600 MW Phase 2 of the Kara-Keche power station in **Kyrgyzstan** to be constructed by China National Electric Engineering Co. Ltd (Times of Central Asia, 2024) and the 300 MW Mulungwa power station

in **Zambia,** a proposed joint venture between Africa Power Coal Limited and Jiangsu Etern Company Limited (Mulungwa Power Generation Limited, 2024). Additionally, in April 2024, Shandong Dingneng Energy Company announced plans to consider expanding **Zimbabwe**'s Hwange Power Station with Units 9 & 10, adding an additional 600 MW capacity (Harare Post, 2024). These proposed projects represent a clear violation of the 2021 UNGA pledge to halt further investment in coal power.

Captive power has also seen several additions this year including the 720 MW Gweru power station in **Zimbabwe –** which would power a chrome smelter – and in **Indonesia,** the 160 MW PT Tianshan Alumina power station and the 2500 MW Xinyi Group captive power station. The ongoing development of these captive coal fired power plants underscores a significant loophole in the 2021 UNGA pledge to ban overseas financing of coal power plants by China.

Two units which had previously been reported as shelved appear to have been revived and returned to the pre-permitted stage: the 350 MW Unit 2 at the Barisal Power Station in **Bangladesh** and the 350 MW Unit 2 at the Gacko Thermal Power Plant in **Bosnia and Herzegovina.**

Other noteworthy changes this year are the Gazaria (Orion) power plant in **Bangladesh**, where Chinese financing was terminated. The government subsequently sought funding from Cargill Financial Services International Inc. in the US, Siraj Holding LLC in Dubai, and the State Bank of India for their 700 MW coal-powered Unit 1, currently in the pre-permit stage (The Business Post, 2024). Unit 2 of the plant was converted to utilise fossil gas. The changes to this plant illustrate the potential options that host countries may choose when faced with the termination of Chinese financing: to proceed with the construction of the coal fired power plant whilst seeking funds from other sources, or adapting the construction plans to use other fossil fuel sources such as fossil gas. As mentioned earlier, without China's support in facilitating a transition to renewable energy, host countries may increasingly turn to fossil gas to meet their unmet energy needs, which could undermine global climate goals by prolonging reliance on carbon-intensive energy sources and delaying the shift to cleaner alternatives.

In 2022, 32 coal plants (35 GW) in the process of securing financing or permits had been identified for cancellation (Suarez & Wang, 2022). Notable efforts included Vietnam, Mongolia, Laos, and Bangladesh, where project cancellations were expected to have significant environmental and social benefits. In 2023, despite efforts to deter coal power

expansion, large projects with a total capacity of 7.2 GW were revived or progressed in securing financing or permits (Gonzalez et al., 2023).

Permitted

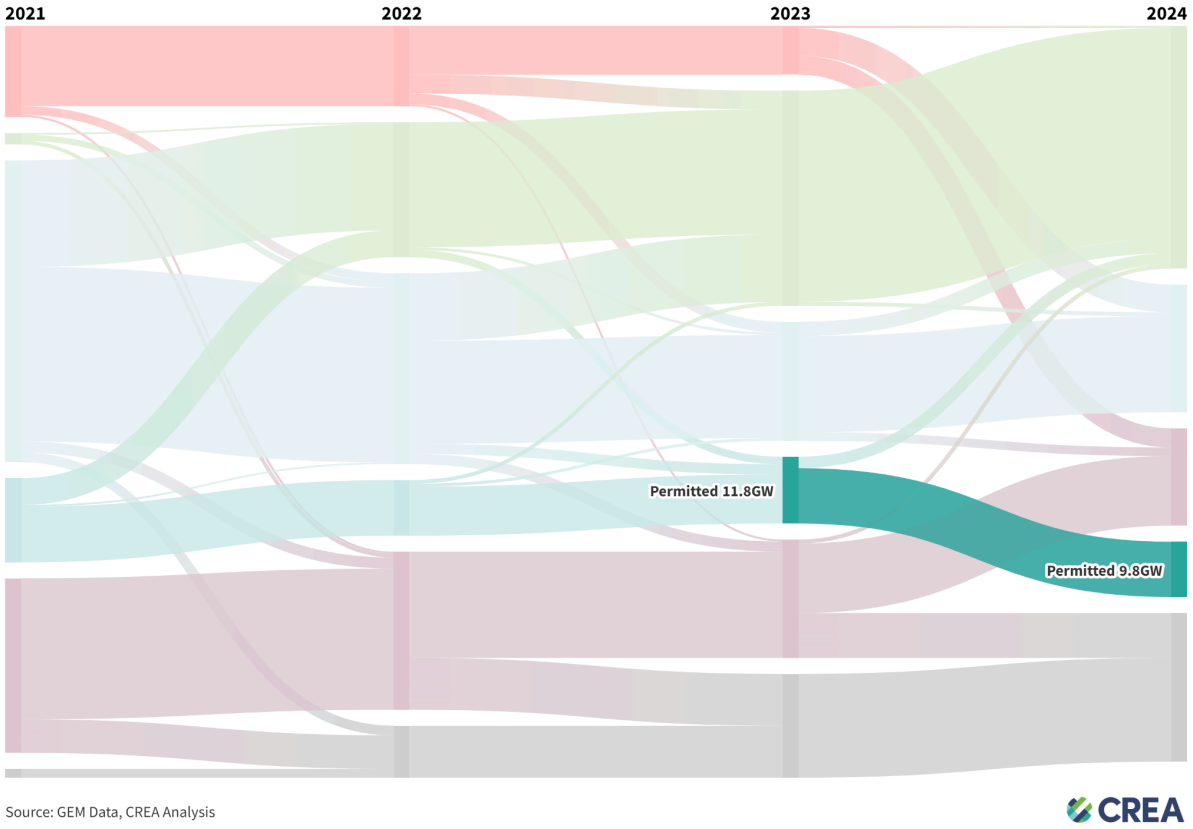

Figure 6: Changes in permitted China-backed coal capacity between 2023 and 2024

Figure 6 shows the permitted coal fired power plants financed by China in 2024, all 9.8 GW of which were also in the permitted phase the previous year. These coal power projects are in the pre-construction phase, and their permitting and/or financing contracts have been signed. As no physical infrastructure is in place yet, it is still possible for contracts to be renegotiated to renewables. The majority of the permitted Chinese-backed coal power plants are in Laos, Turkey, South Africa and Pakistan (Figure 3).

In 2022, there were 16 plants (17 GW) in the permitted phase. **Bangladesh** was noted to have faced costly overcapacity and significant delays in its coal projects, making them prime candidates for conversion to renewables (Suarez & Wang, 2022). **Indonesia** had 4.9 GW of coal projects classified as captive power projects for industrial purposes, including new projects approved post-UNGA commitment. The potential for renewables, especially solar, was emphasised due to significant cost reductions and capacity improvements (Suarez & Wang, 2022).

In 2023, despite the coal ban, two new coal plant projects (1.9 GW) emerged into the permitted phase in Indonesia, located within nickel-related industrial parks. In particular, China Energy Engineering Group Tianjin Electric Power Construction Co., Ltd. won the bid for a 4 × 380 MW project known as PT Halmahera Persada Lygend Nickel Smelter Phase III, and groundbreaking was reported to have begun on the Weda Bay power station. These projects were not disclosed at the time of the 2021 UNGA pledge, underscoring ongoing challenges in enforcing the coal ban (Gonzalez et al., 2023).

Since the 2023 report, there has been no change in the status of the power plants in the permitted category. This is a positive sign, as the plants have not yet moved to the construction phase, leaving potential for conversion to renewable energy. However, it is also cause for concern because these projects have not been outright cancelled and further efforts should be made to prevent these plants from being converted to use other fossil fuels such as LNG.

In **Pakistan**, the four plants totaling 1.3 GW are expected to continue and potentially expand as the country aims to quadruple coal power output and move away from gas fired power plants due to a shortage of LNG imports and foreign exchange difficulties (Peshimam, 2023).

Under construction

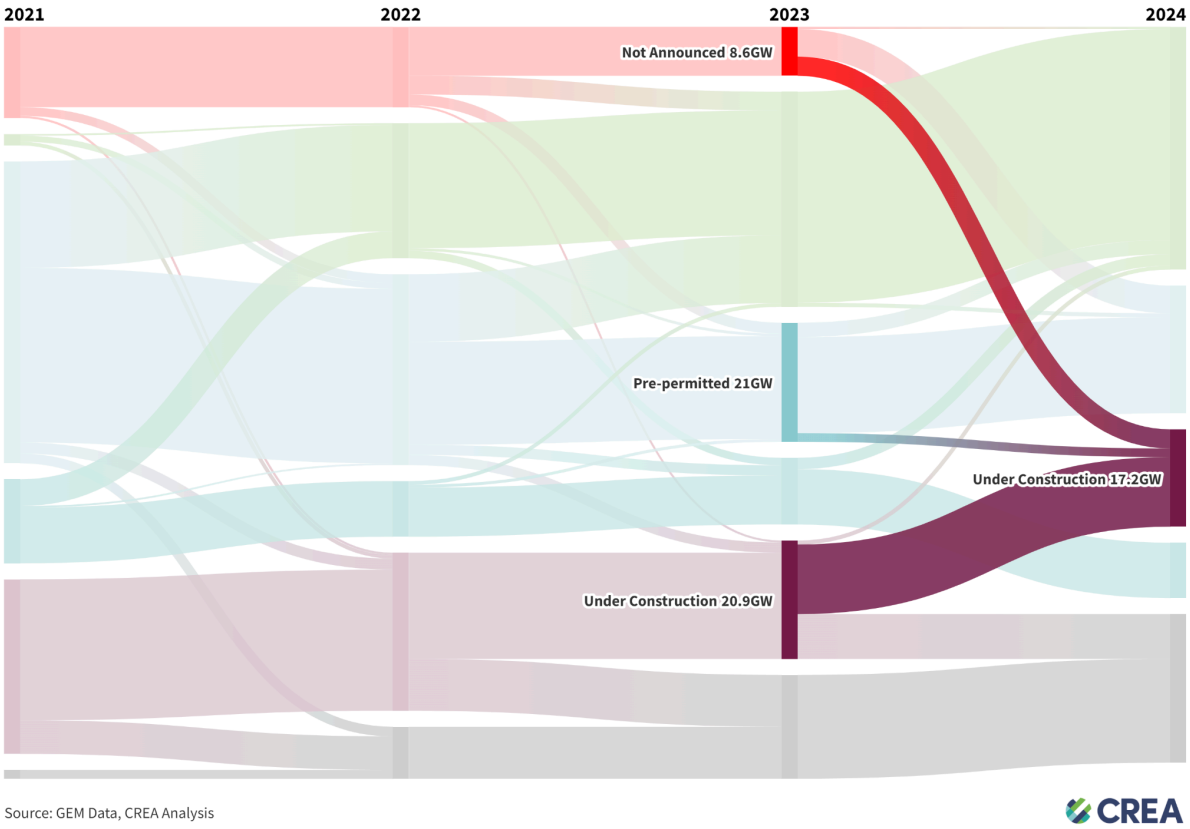

Figure 7: Changes in under construction China-backed coal capacity between 2023 and 2024

Figure 7 shows that the majority (12.3 GW) of coal fired power plants financed by China that are currently under construction were also under construction in the previous year. Most of these ongoing power projects are in Indonesia (8.8 GW), followed by India (1.8 GW), and South Africa (1.6 GW). These projects also account for significant portions of the total capacity.

Over the past year, 3.4 GW of capacity from previously unannounced captive power projects advanced directly into the construction phase. In **Indonesia**, these include the DeLong Nickel Phase II, which has begun construction on five new units totaling 1,350 MW, as well as three additional units at Weda Bay Industrial Park, Units 12, 13, and 14, each

with a capacity of 380 MW (GEM, 2024). In **Zimbabwe**, the Prestige Power Station is among the newly initiated captive power projects, with a total capacity of 1,200 MW.

Additionally, in Indonesia, five more units with a combined capacity of 1,880 MW have moved from the pre-permitted phase to the construction phase at PT Halmahera Persada's Lygend Nickel Smelter Power Station.

In 2022, projects under construction were primarily located in South and Southeast Asia, including Indonesia (7.8 GW), India (3.4 GW), Pakistan (2.6 GW), and Vietnam (2.5 GW), plants which were already under construction at the time of President Xi's announcement. At the time of the 2022 report, it was emphasised that these plants must adopt the highest efficiency standards and international best practices to minimise their carbon footprint and pollution (Suarez & Wang, 2022).

Similar to the current trend, it was also noted in 2023 that there was significant advancement in the progress of several plants under construction based in Indonesia's metal and mining industrial parks. Despite 2.7 GW of capacity at the Nanshan Industrial Park power station being cancelled, Unit 5 of Phase 1 still progressed. Equipment procurement for Units 7-9 of the Sulawesi Labota plant was reported in November 2021 and construction began in 2023 whilst units 10 and 11 in the Weda Bay park were reported to have transitioned from pre-permitted stages to construction following the pledge (Suarez & Wang, 2022).

Operational

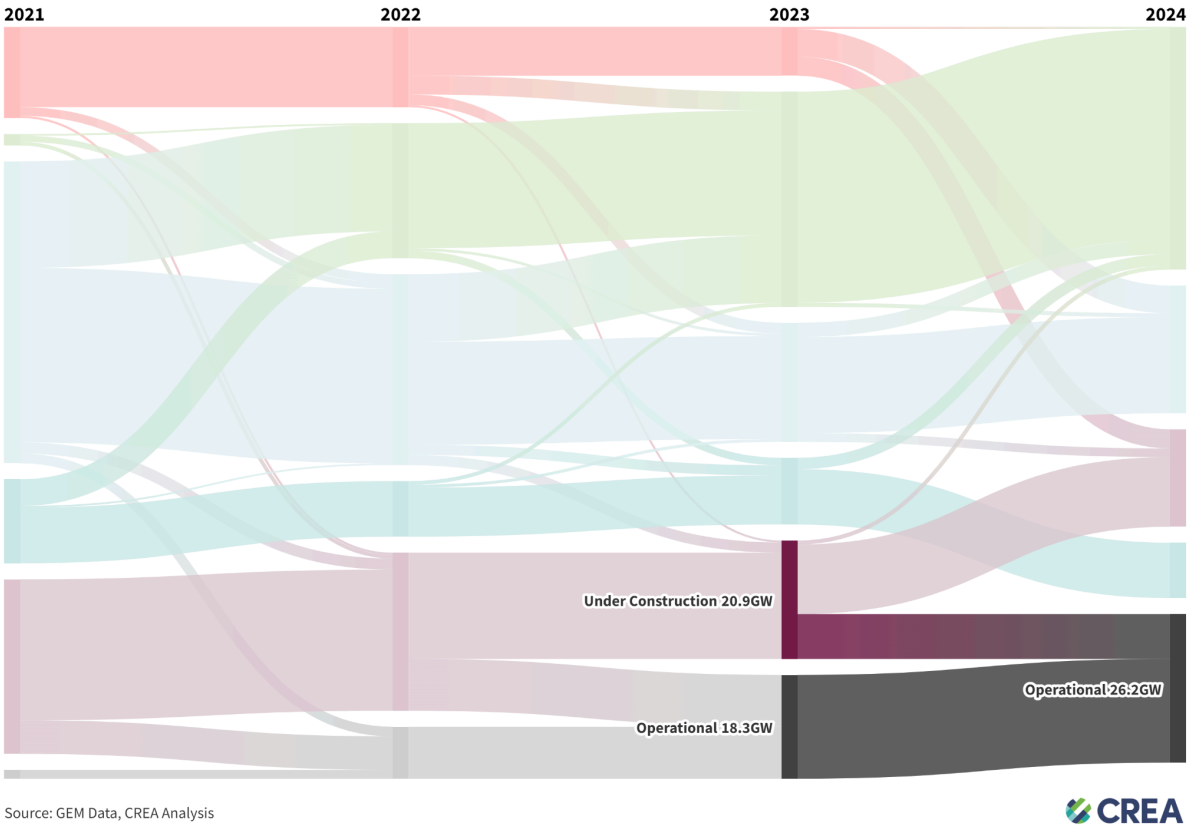

Figure 8: Changes in operational China-backed coal capacity between 2023 and 2024

Figure 8 shows that overall, there is 26.2 GW currently in operation, the majority of which is in Indonesia (9.1 GW), Vietnam (3.8 GW), Pakistan (3.3 GW), and Bangladesh (3.0 GW). All coal-fired power plants financed by China and recorded as operating in 2023 have continued their operations into 2024. Additionally, 7.9 GW of new capacity has completed construction and come into operation this year.

Of the 7.9 GW that was added, 3.2 GW of capacity was from Indonesia, with 1.6 GW from industrial and captive industry expansions, specifically at the DeLong Nickel Phase III power station, Sulawesi Labota power station and Weda Bay power station. The remaining additional capacity was operationalised in Bangladesh (2.6 GW), Vietnam (1.4 GW), and Pakistan (0.7 GW).

Captive power remains a grey area for the pledge, with expansion continuing, especially in Belt and Road Initiative (BRI) countries. In 2023, China's BRI-related investment in metals and mining reached a record USD 19.4 billion, a 158% increase compared to 2022. This was the highest level on record. Investment focused on minerals relevant to the green energy transition, with copper making up the largest share of new project announcements in 2023, followed by lithium, nickel, and uranium (Els, 2024).

Unclassified coal power projects

CREA analysis only included direct investments from Chinese financial institutions into individual coal power projects, or the appointment of an engineering, procurement, and construction (EPC) company. Foreign coal power projects financed indirectly by China were not considered. The analysis focuses exclusively on investments that are publicly identified as directly funding the development of coal fired power plants. Investments made to parent companies, which may be used for coal power development without explicitly labelling the funds for this purpose, are excluded from the results but are described in this section.

The Mmamabula Energy Project in **Botswana** began breaking ground in 2023, with engineering commencing in March 2024. The China EXIM Bank has pledged funding through a bilateral loan and has been financing the Mmamabula coalfield since 2009. If the project proceeds, this would add 2 x 300 MW of coal power capacity.

The Krasnoyarsk CHP-1 and CHP-3 in Russia are owned by Krasnoyarsk CHP-1 JSC and TGC-13, respectively. Both are under the parent company, Siberian Coal Energy Company (SUEK), which received USD 2.3 billion in loans from ICBC and the Agricultural Bank of China. However, it is unclear if these funds are specifically used for CHP-1 and CHP-3.

The Angren Power Station in Uzbekistan received a USD 165.6 million loan from China EXIM Bank for Unit 9. In January 2022, plans were reported to build two new coal-fired units (Units 10 and 11), each with a capacity of 300 MW, by the end of 2025. The 2024 business plan of Thermal Power Stations listed the 300 MW project with China Railway and PowerChina as investment partners. Additionally, Chinese investment is funding the modernisation of the Shargun coal mine, which supplies coal to the Angren and Novo-angren power stations.

Climate implications

The aforementioned changes in status among the Chinese-backed coal power plants will have important repercussions for emissions of CO_2 and the climate. At the time of the pledge to stop financing overseas coal power projects, there were 103 plants at various stages along the development pipeline. If all of these projects had become operational, they could have resulted in 11.1 billion tonnes of cumulative lifetime CO_2 emissions — equivalent to more than three times the annual emissions of the European Union.

Nevertheless, between the 2021 pledge and this report, 32 plants with a combined capacity of 26.2 GW have already begun operations and will be responsible for 3.0 billion tonnes of cumulative CO_2 emissions by 2050. In terms of cancellations and reduced emissions, 41 plants totaling 42.8 GW have been cancelled, effectively avoiding 4.5 billion tonnes of cumulative CO_2 emissions.

The remaining 54 plants totalling 49.5 GW, which are still in the pipeline—either at the pre-permit, permit, or under-construction phase—will be responsible for an additional 5.1 billion tonnes of cumulative CO_2 emissions if they become operational. Figure 9 shows the cumulative CO_2 emissions from the Chinese-backed coal fired power plants and Figure 10 shows the change in emissions every year since the pledge.

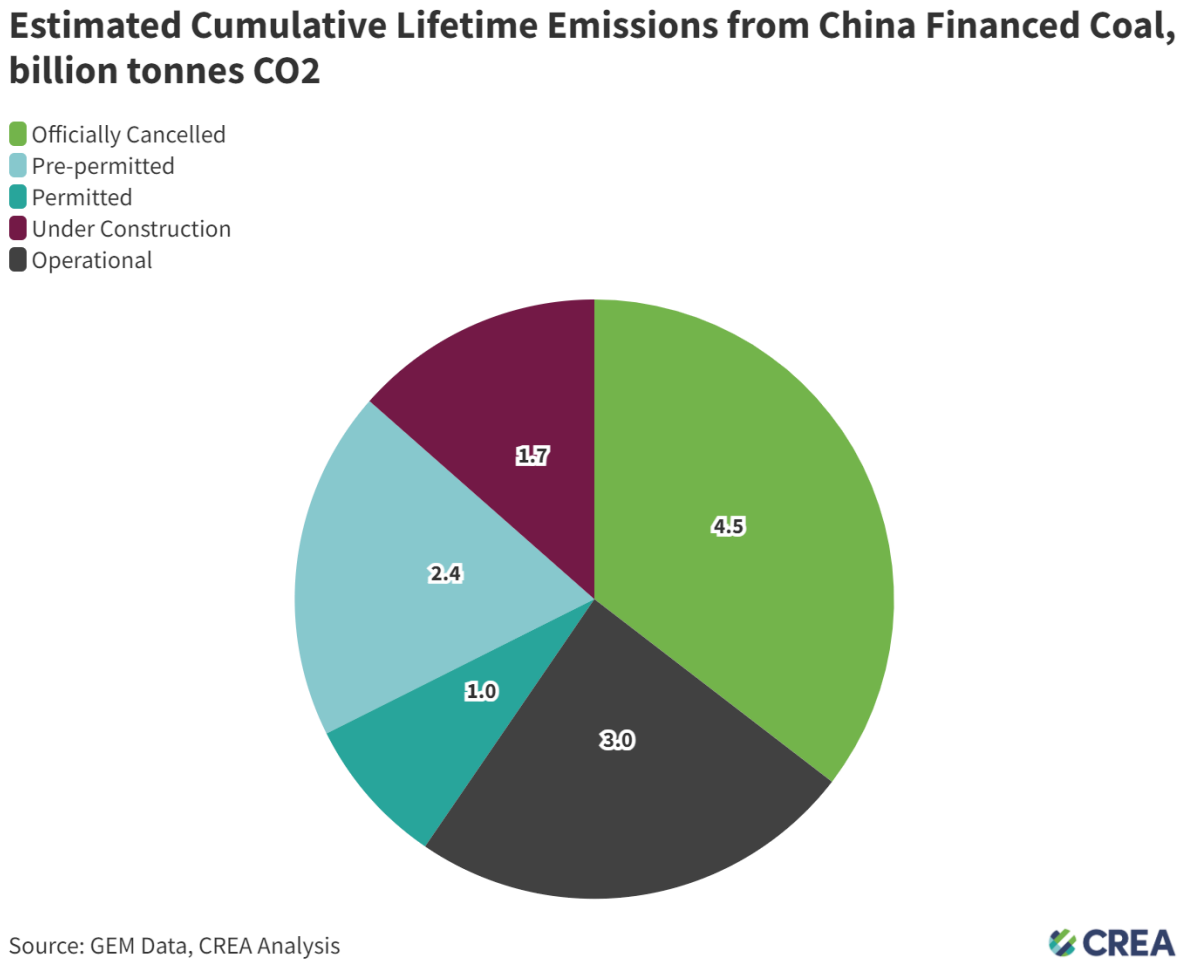

Figure 9: Estimated cumulative lifetime emissions from China-backed coal

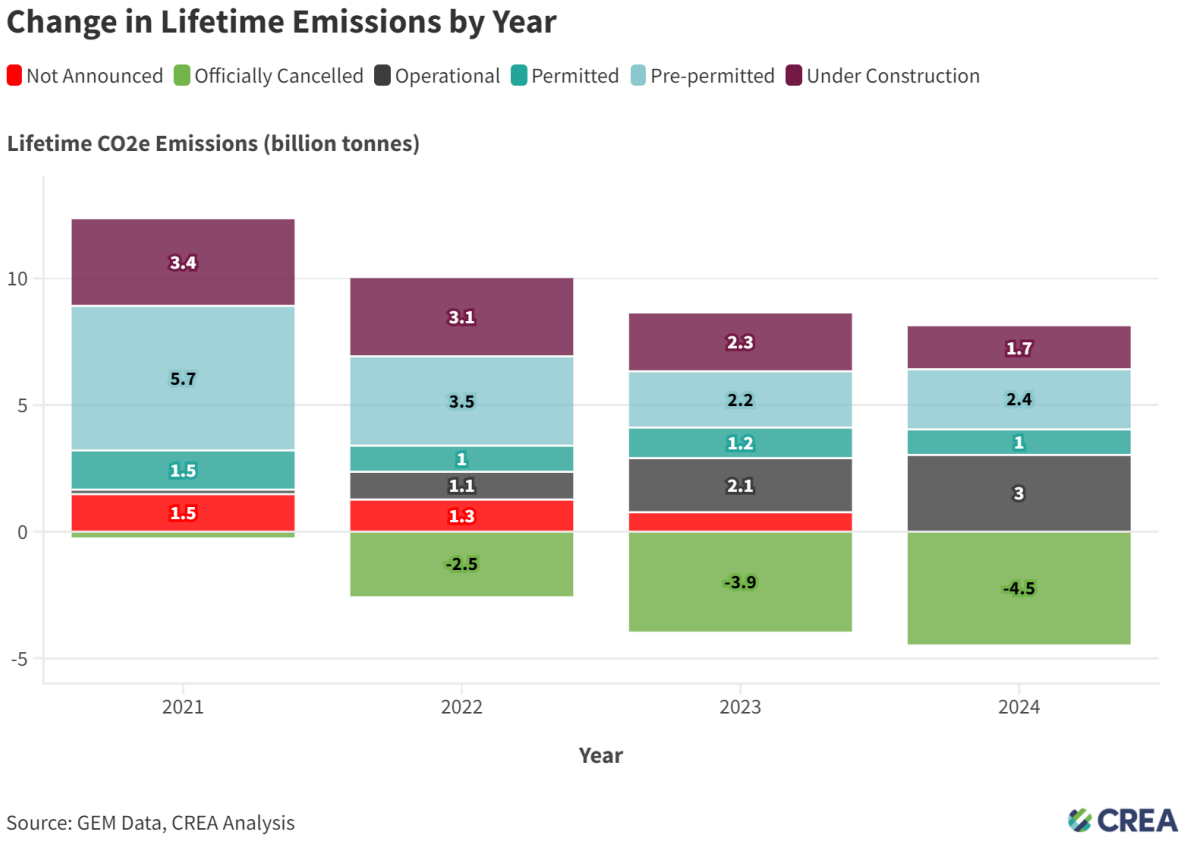

Figure 10: Yearly change in estimated cumulative lifetime emissions from China-backed coal

Renewable energy investments

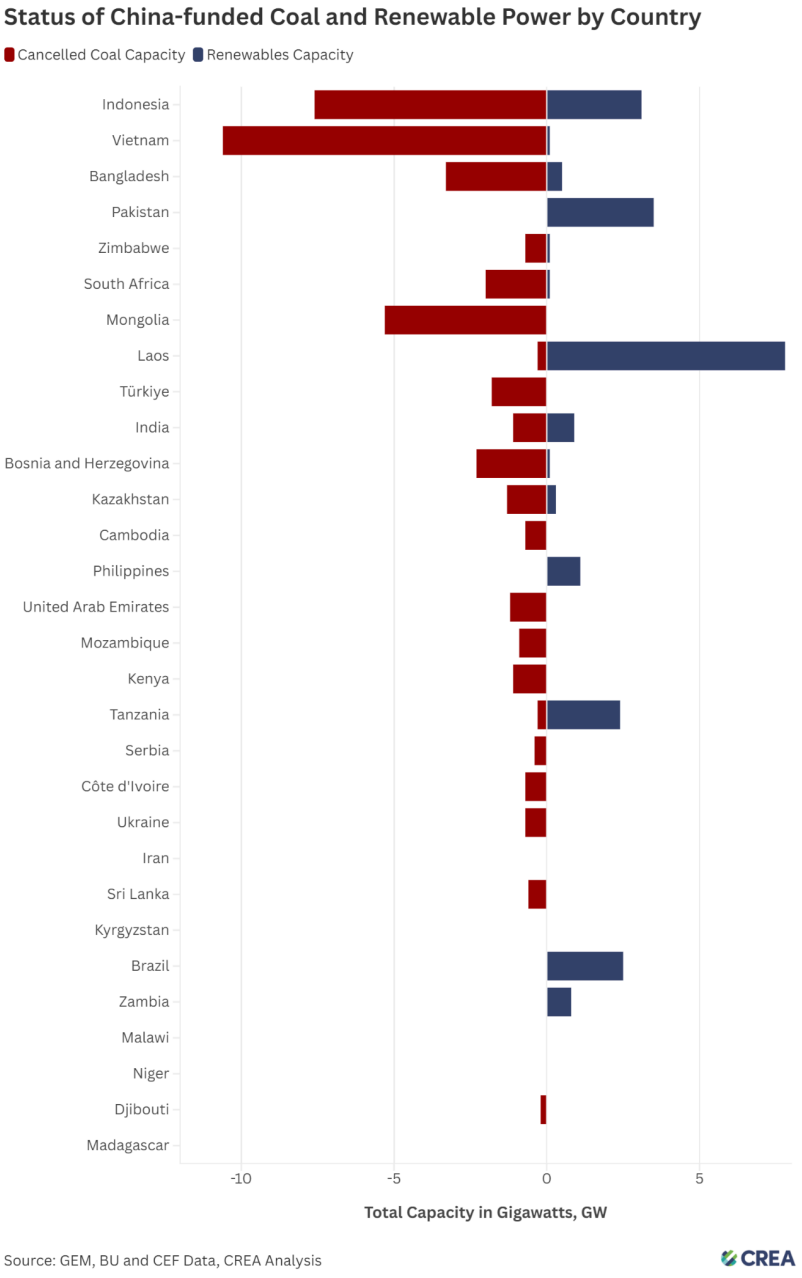

Figure 11: Comparison of cancelled coal capacity with Chinese-funded renewable capacity by country since the 2021 pledge

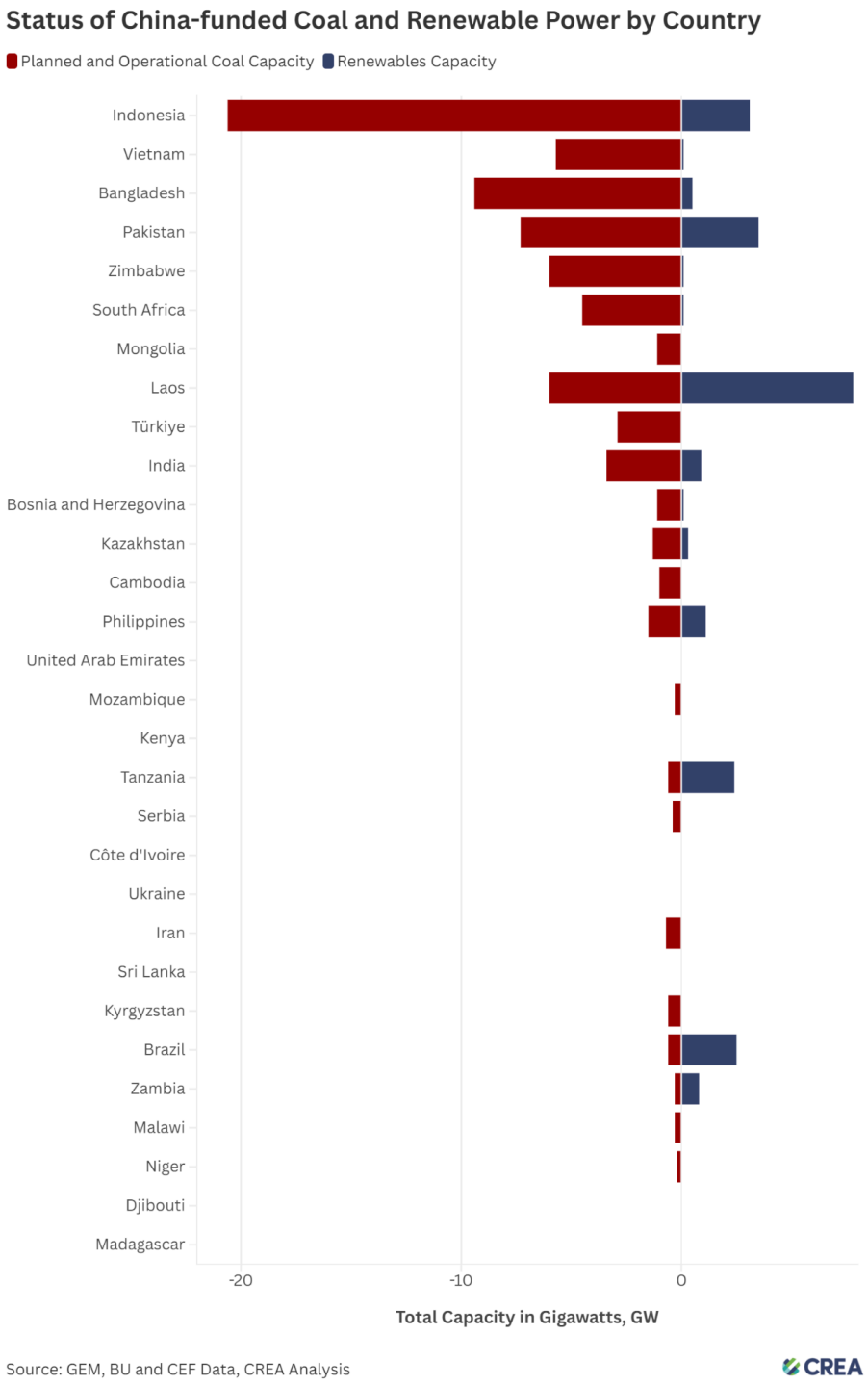

Figure 12: Comparison of planned or operational coal capacity with Chinese-funded renewable capacity by country since the 2021 pledge

Renewable investments in Global South

During his announcement at UNGA 2021, President Xi Jinping also pledged to promote renewable energy development in countries in the Global South. However, Chinese investment into renewables overseas has thus far been falling behind on this pledge. Figure 11 illustrates that the cancelled coal power capacity, measured in gigawatts (GW), is substantially greater than the new investments in renewable energy in the countries of interest since the 2021 pledge. Meanwhile, Figure 12 demonstrates that the planned or operational coal capacity still far surpasses the capacity of new renewable energy.

The renewable energy investment data from the China Global Power Database (Boston University Global Development Policy Center, 2022) and Climate Energy Finance (Buckley et al., 2024) reveals a significant imbalance when contrasted with the officially cancelled coal capacity in various countries. For example, whilst countries like Indonesia and Vietnam have cancelled 7.6 GW and 10.6 GW of coal capacity, respectively, the added or pending renewables capacity in Indonesia is only 3.1 GW, and 0.1 GW in Vietnam; highlighting a significant gap. In Bangladesh, 3.3 GW of coal capacity has been cancelled, yet the renewable investment is just 0.5 GW. Similarly, countries like Zimbabwe, South Africa and Mongolia show minimal renewable investments despite coal capacity reductions.

However, there are some countries where there is a relatively high investment in renewables, such as Laos, which has 6.7 GW of capacity planned or pending. This contrasts with a much smaller cancellation of 0.3 GW in coal capacity, indicating a more robust transition towards renewable energy. Nonetheless, despite such examples, the overall trend suggests that the reduction in coal capacity is not being sufficiently matched by renewable energy investments, raising concerns about the pace and effectiveness of the energy transition in many regions.

Chinese governance of overseas financing

China's overseas financing, particularly within the Belt and Road Initiative (BRI), has evolved significantly, reflecting a growing emphasis on sustainability and alignment with global climate goals. The first decade of the BRI was characterised by investments in large-scale infrastructure projects and mostly fossil fuel projects in the energy sector. However, since Xi Jinping first raised the idea of greening the BRI, China's approach to overseas finance has slowly shifted towards a stronger emphasis on sustainable 'small and beautiful' projects. The Chinese government has progressively introduced a number of guidelines to promote greener investments. The latest guidance issued in 2022 states that the Chinese government will actively play a leading role in improving policy support for green development and incorporated President Xi Jinping's pledge at UNGA 2021 (Global Development Policy Center, 2022).

However, despite the introduction of these guidelines, implementation remains inconsistent. Whilst the governance framework is multifaceted — involving policy banks, state-owned enterprises, and private firms – the effectiveness of the governance mechanisms largely depend on self-reporting and disclosure by private firms. It is the Chinese government's default position that Chinese firms and banks must adhere to recipient country policies (Gallagher & Qi, 2021).

Conclusion

As the world continues to navigate the complexities of the energy transition, China's role remains pivotal. This report sheds light on the progress and challenges of China's overseas coal financing ban, offering insights into the ongoing efforts to mitigate climate change through responsible energy policies.

While China's 2021 coal ban has led to significant progress — with 42.8 GW of projects cancelled — the pace of cancellations has slowed, and 49.5 GW of coal capacity remains under development. These remaining projects pose a substantial risk, with potential emissions of 5.1 billion tonnes of CO_2 by 2050. Additionally, new coal projects continue to emerge, revealing gaps in the enforcement of China's pledge, particularly in captive power projects, which exploit a grey area in the pledge.

By prioritising renewable energy investments, fostering multilateral collaboration, and enhancing transparency and accountability, China can significantly contribute to global efforts to combat climate change whilst supporting sustainable development in host countries. These recommendations provide a pathway for aligning China's overseas energy financing with international climate goals and ensuring long-term environmental and socio-economic benefits.

Recommendations

Given the significant reductions in China-backed coal projects following President Xi Jinping's 2021 UNGA announcement, as well as the notable progress in transitioning some coal plants to cleaner alternatives, it is crucial to build on this momentum to achieve sustainable energy development and carbon neutrality. However, challenges remain, such as the revival of certain coal projects and ongoing construction in specific regions. The following recommendations aim to guide future financing and policy decisions, ensuring continued progress in reducing CO_2 emissions whilst addressing these challenges and supporting host countries' energy needs and economic growth.

Address the captive power loophole: Captive power projects, especially in industrial parks, fall into a particularly grey area of the pledge ban and represent some of the largest continued expansions of coal power. The pledge should be expanded to ensure that these projects incorporate renewable energy solutions and adopt the highest environmental standards. Additionally, efforts should be made to phase out coal-based captive power in favour of cleaner alternatives.

Prioritise renewable energy investments: Financiers should shift their focus towards financing renewable energy projects, such as solar, wind, and hydroelectric power. These investments not only align with global climate goals but also leverage China's existing technological and manufacturing capabilities in the renewable energy sector. Encouraging the transition to renewables in host countries will reduce dependency on fossil fuels and promote sustainable development.

Signal a clear commitment to sustainable energy transition: Host countries should prioritise and clearly signal their desire to transition towards more sustainable energy solutions to address long-term energy security concerns. In the context of increasingly volatile global fossil fuel markets, adopting renewable energy sources will reduce dependency on fossil fuels, stabilise energy costs, and enhance resilience. By demonstrating a strong commitment to cleaner alternatives, host countries can attract greater investment in renewable energy infrastructure and technologies, positioning themselves for sustainable economic growth whilst contributing to global climate goals.

Support transition strategies for host countries: Many countries previously reliant on coal face significant challenges in transitioning to cleaner energy sources. China can play a pivotal role by providing technical and financial support for the development of transition strategies. This includes investing in grid infrastructure, energy storage solutions, and capacity-building programs to enable the integration of renewable energy into national grids. Without this support, countries may proceed with coal projects even without Chinese investment, as their underlying energy needs remain unaddressed.

Avoid transitioning from coal to gas: Whilst fossil gas may appear to be a cleaner alternative to coal, it still contributes significantly to greenhouse gas emissions. Host countries should avoid transitioning from coal to gas, as this would only delay the shift to truly sustainable energy sources. Instead, efforts and investments should focus directly on renewable energy solutions such as solar, wind, and hydroelectric power. This will ensure a more effective and long-lasting reduction in carbon emissions, aligning with global climate targets and avoiding the risks of being locked into another fossil fuel dependency.

Promote transparency and accountability: Transparency in project financing and implementation is essential for building trust and ensuring the responsible use of funds. As observed, several units have entered construction or operation in a short timespan without prior notice. Financiers should establish clear reporting mechanisms and public disclosure requirements for all overseas energy projects. This will allow stakeholders to monitor progress, assess environmental and social impacts, and hold parties accountable for their commitments.

Methodology

In this report, only the Scope 1 direct CO_2 emissions associated with coal combustion for power generation were estimated. For each coal plant unit, carbon dioxide emissions were calculated using a modified version of the Global Energy Monitor (GEM) methodology, which considers the following information:

- Unit capacity in MW.
- Emission factor (kilograms of carbon dioxide produced per gigawatt hours) for each type of coal.
- Heat rate as a measurement of how well a plant performs the task of converting coal into electricity.
- Capacity factor based on the actual utilisation rate of coal plants in each country in 2022.
- An operating life of new coal plants assumed to be until 2050, in line with recommendations for coal phase-out in developing countries by the IEA and IPCC. If the start year for plants that are in the approval stage was not available in the GEM database, 2025 was assumed to be the start date.

Except for the capacity factor and years of operation, individual plant information was obtained from the Global Coal Plant Tracker database (Global Energy Monitor, n.d.). Further details can be found at Estimating Carbon Dioxide Emissions from Coal Plants on GEM.wiki (Global Energy Monitor, n.d.).

Information regarding the financial involvement of Chinese banks and EPCs was determined using a combination of the following sources:

- China Global Power Database (Boston University Global Development Policy Center, 2022)
- AidData's Geospatial Global Chinese Development Finance Dataset (Goodman et al., 2024)
- Global Coal Project Finance Tracker, (Global Energy Monitor, 2024)

Appendix

A. List of plants by status

Table A1. List of plants by status: Officially cancelled as of July 2024

Country	Plant	Capacity (MW)	Annual emissions (million tonnes CO_2)	Lifetime emissions (million tonnes CO_2)
Bangladesh	Patuakhali power station (RPCL/NORINCO) Phase II Units 1 & 2	1320	5.4	102.6
	Phulbari power station (China Gezhouba) Phase II Units 1 & 2	2000	7.8	195
Bosnia and Herzegovina	Banovici power station	350	1.6	40
	Kakanj Thermal Power Plant Units 8 & 9	600	2.8	64.4
	Kamengrad Thermal Power Plant Units 1 & 2	430	2.2	55
	Tuzla Thermal Power Plant Units 7 & 8	900	3.8	102.6
Cambodia	Botum Sakor power station Units 1 & 2	700	3.2	80
Côte d'Ivoire	San Pedro Port power station Units 1 & 2	700	3.0	78
Djibouti	Djibouti power station Units 1 - 3	150	0.6	15
India	JSW Barmer Jalipa Kapurdi power station Units 9 & 10	1080	4.4	110.0
Indonesia	Banyuasin power station Units 1 and 2	240	1.2	34.8
	Delong Nickel Phase II power station Unit 11	380	1.7	42.5
	Jambi-2 power station Units 1 & 2	700	3.2	76.8
	Jawa-5 power station Unit 1	1000	4.0	108
	Nanshan Industrial Park power station Phase II Units 1-6, Phase III Units 1-4 and Phase IV Units 1-8	2700	12.6	365.4
	Qingdao Zhongsheng captive power station Units 3-6	260	1.2	30
	Riau-1 power station Units 1 & 2	600	2.8	61.6

	Sumsel-5 power station Unit 3	350	1.6	43.2
	Tanjung Jati A power station Unit 1 & 2	1320	5.4	132.3
Kazakhstan	Ekibastuz-2 power station Unit 5 & 6	1272	5.0	102.5
Kenya	Lamu Power Project Units 1-3	1050	4.5	112.5
Laos	Houaphanh power station Unit 2	300	1.3	32.5
Mongolia	Shivee Ovoo power station Proposal 1	5280	21.4	535
Mozambique	Nacala power station	200	1.0	28
	Tete power station Unit 1 & 2	700	3.2	80
Serbia	Kolubara B power station Unit 1	350	1.6	41.6
South Africa	Musina-Makhado power station (Other capacity)	1980	7.9	197.5
Sri Lanka	Lakvijaya Power Plant Unit 4 and 5	600	2.8	68.6
Tanzania	Mbeya Coal to Power Project	300	1.4	35
Türkiye	HEMA Amasra power station Unit 1 and 2	1320	5.2	130
	Ilgın power station Unit 1 and 2	500	2.6	65
Ukraine	Slavyansk power station Unit 6a and 6b	660	2.8	68.6
United Arab Emirates	Hassyan Clean-Coal Power Project Unit 3 and 4	1200	4.6	126.5
Vietnam	Cong Thanh power station Unit 1 and 2	660	2.8	70
	Hai Phong Thermal Power Station Phase III Unit 1 and 2	1200	5.0	107.5
	Quang Trach Power Center Unit 2-1 and 2-2	1200	4.6	115
	Quang Tri power station Phase 2 Unit 1 and 2	1200	4.6	101.2
	Quynh Lap power station Phase 1 Unit and 2, Phase 2 Unit 1 and 2	2400	9.2	230
	Song Hau Thermal Power Plant Units 2-1 and 2-2	2000	7.8	195.0
	Vinh Tan power station Phase 3 Unit 1-3	1980	7.8	192.4
Zimbabwe	Binga power station Unit 1A and 1B	700	3.0	79.5

Table A2: List of plants by status: Pre-permitted as of July 2024

Country	Plant	Capacity (MW)	Annual emissions (million tonnes CO_2)	Lifetime emissions (million tonnes CO_2)
Bangladesh	Barisal power station Unit 2	350	1.5	37.5
	Orion power station	700	2.7	64.8
	Phulbari power station (Sinohydro) Units 1-4	4000	15.6	390.0
Bosnia and Herzegovina	Gacko Thermal Power Plant Unit 2	350	1.6	40.0
	Ugljevik power station Expansion Unit 1 and 2	700	3.2	80.0
Indonesia	PT Tianshan Alumina power station	160	0.8	19.4
	Xinyi Group captive power station	2500	10.1	253.2
Kazakhstan	Ekibastuz-2 power station Units 3 and 4	1272	5.0	120.0
Kyrgyzstan	Kara-Keche power station Phase 2	600	2.6	63.9
Laos	Hongsa power station Unit 4	626	2.7	67.5
	Houaphanh power station Unit 1	350	1.6	38.4
	TSBP Sekong power station Unit 1 and 2	600	2.6	65.0
Madagascar	Imaloto Coal power station	30	0.1	2.5
Malawi	Kamwamba power station Units 1-6	300	1.2	30.0
Mongolia	Baganuur power station Units 1 and 2	400	2.0	48.0
	Shivee Ovoo power station Proposal 2	200	1.0	25.0
Mozambique	Ncondezi power station Units 1 and 2	300	1.4	35.0
Niger	Salkadamna power station Phase 1 Units 1-4	200	1.2	30.0
Pakistan	Keti Bandar power station Units 1 and 2	1320	5.6	140.0
	Thar Block VI power station Units 1 and 2	1400	5.8	139.2
Tanzania	Mchuchuma power station Units 1-4	600	2.8	70.0
Vietnam	An Khanh - Bac Giang power station Units 1 and 2	650	3.0	81.0
	Nam Dinh power station Phase 1 Unit 1	1200	5.0	120.0

	and 2			
Zambia	Mulungwa power station Unit 1	300	1.2	30.4
Zimbabwe	Gweru power station Unit 1	720	2.9	75.8
	Hwange power station Unit 9-10	600	2.7	66.8
	Sengwa power station Unit 3-8	2100	9.6	240.0

Table A3: List of plants by status: Permitted as of July 2024

Country	Plant	Capacity (MW)	Annual emissions (million tonnes CO_2)	Lifetime emissions (million tonnes CO_2)
Brazil	Pedras Altas power station Units 1 and 2	600	2.6	62.4
Laos	Boualapha power station Units 1 and 2	2000	7.8	202.8
	Phonesack Xekong power station Phase I-III	1800	7.3	175.3
Mongolia	Tavan Tolgoi power station (Rio Tinto) Unit 1 and 2 (Phase I), Unit 3 (Phase II)	450	2.1	50.4
Pakistan	Gwadar power station Units 1 and 2	300	1.4	35.0
	Jamshoro power station Unit 6	660	2.7	56.7
	Siddiqsons power station	330	1.5	36.0
South Africa	Musina-Makhado power station (Reduced capacity)	1320	5.3	132.5
Türkiye	Kirazlıdere power complex Units 1 and 2	1600	6.2	179.8
Zimbabwe	Sengwa power station Unit 1 and 2	700	3.2	80.0

Table A4: List of plants by status: Under Construction as of July 2024

Country	Plant	Capacity (MW)	Annual emissions (million tonnes CO_2)	Lifetime emissions (million tonnes CO_2)
Bangladesh	Payra power station (BCPCL) Phase II Units 1 and 2	1320	5.2	127.4
Cambodia	Han Seng power station Units 1 and 2	265	1.4	37.8
	Sihanoukville SEZ power station Unit 2	50	0.2	5.8
India	KSK Mahanadi Power Project Unit 4-6	1800	7.2	180.0
Indonesia	Banten Suralaya power station Unit 9 and 10	2000	7.8	191.1
	Delong Nickel Phase III power station Units 8-12	1350	0.0	0.0
	PT Halmahera Persada Lygend Nickel Smelter power station Phase I Unit 3, Phase II Unit 1 and 4, Phase III Units 5-8	1880	8.5	212.5
	Sulawesi Labota power station Unit 1-3 and 8-9	1840	8.3	207.5
	Sumsel-1 power station Units 1 and 2	600	2.8	75.6
	Weda Bay power station Units 12-14	1140	5.1	132.6
Iran	Tabas power station Units 1 and 2	650	2.8	72.8
Laos	Nam Phan power station Units 1 and 2	660	2.8	70.0
Philippines	Concepcion power station	135	0.7	17.5
Serbia	Kostolac power station Phase B Unit 3	350	1.6	43.2
South Africa	Kusile power station Unit 5 and 6	1600	6.2	161.2
Zimbabwe	Hwange power station Unit 8	335	1.5	40.5
	Prestige power station Unit 1 and 2	1200	4.9	121.5

Table A5: List of plants by status: Operational as of July 2024

Country	Plant	Capacity (MW)	Annual emissions (million tonnes CO_2)	Lifetime emissions (million tonnes CO_2)
Bangladesh	Banshkhali power station (S Alam) Units 1 and 2	1320	5.2	140.4
	Barisal power station Unit 1	350	1.5	42.0
	Patuakhali power station (RPCL/NORINCO) Phase 1 Units 1 and 2	1320	5.4	140.4
Cambodia	Sihanoukville CIIDG power station 2 Units 1 and 2	700	3.0	84.0
India	Adani Godda power station Units 1 and 2	1600	6.2	167.4
Indonesia	Bangko Tengah power station Units 1 and 2	1200	4.8	129.6
	Delong Nickel Phase II power station Units 2-10	1705	8.3	240.4
	Delong Nickel Phase III power station Units 2-7	810	4.2	117.6
	Ketapang Smelter power station Phase II Units 1-3	190	0.9	26.1
	Nagan Raya power station Units 3 and 4	400	2.0	54.0
	Nanshan Industrial Park power station Phase I Units 1-6	180	0.6	17.2
	PT Halmahera Persada Lygend Nickel Smelter power station Phase I Unit 2, Phase II Units 2 and 3	330	1.5	41.4
	Qingdao Zhongsheng captive power station Units 1 and 2	130	0.6	16.8
	Sulawesi Labota power station Units 4-7	1520	6.8	173.4
	Sulbagut-1 power station Units 1 and 2	100	0.4	11.2
	Sulut-3 power station Unit 2	50	0.2	5.8
	Wanxiang Nickel Indonesia power station Units 1 and 2	130	0.6	16.8
	Weda Bay power station Units 5-11	2400	10.9	288.0
Mongolia	Erdenet power station	50	0.2	5.8

Pakistan	Jamshoro power station Unit 5	660	2.7	72.9
	Port Qasim Lucky power station	660	2.7	75.6
	ThalNova power station	330	1.6	44.8
	Thar Block I power station Units 1 and 2	1320	5.4	145.8
	Thar Energy Limited power station	330	1.6	44.8
Philippines	Dinginin power station Units 1 and 2	1336	5.2	145.6
South Africa	Kusile power station Unit 4	800	3.1	86.8
	Medupi power station Unit 1	794.8	3.1	89.9
Türkiye	EMBA Hunutlu power station Unit 1 and 2	1320	5.2	145.6
Vietnam	Duyen Hai Power Generation Complex Unit 2-1 and 2-2	1200	4.8	139.2
	Thai Binh Power Center Unit 2-1 and 2-2	1200	4.8	129.6
	Van Phong power station Phase 1 Units 1 and 2	1432	5.6	151.2
Zimbabwe	Hwange power station Unit 7	335	1.5	40.5

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