Global Energy Monitor

BRIEFING: NOVEMBER 2023

Construction starts on new coal plants on track to hit a record low outside of China since yearly data collection began in 2015

CONTINUING THIS PROMISING TREND CAN ENSURE THE 131 COAL PROJECTS STILL UNDER CONSIDERATION IN THE REST OF THE WORLD NEVER GO INTO CONSTRUCTION

Key points

- Construction on less than 2 gigawatts (GW) of new coal plant capacity started in 2023 outside China, well below the nearly 16 GW annual average for the same set of countries in the last eight years.
- The global proposed coal capacity has collapsed outside of China since 2015, and now, with fewer projects in play, it has reached a plateau with almost no net change in 2023.
- In the first nine months of 2023, 18.3 GW of coal capacity outside of China moved from being proposed (announced, pre-permit, permitted) to shelved or cancelled. This decrease in proposed coal was tempered by 15.3 GW of entirely new proposals under consideration in India (8.6 GW), Indonesia (2.5 GW), Kazakhstan (4.1 GW), and Mongolia (50 megawatts (MW)), and 4.2 GW of previously shelved or cancelled capacity now considered proposed again.
- 110 GW of coal power capacity is still under consideration outside of China, with the top ten countries in terms of cumulative proposed coal making up 83%, led by India, Bangladesh, and Indonesia.
- More than 95 percent of the coal plant capacity starting construction this year was in China.

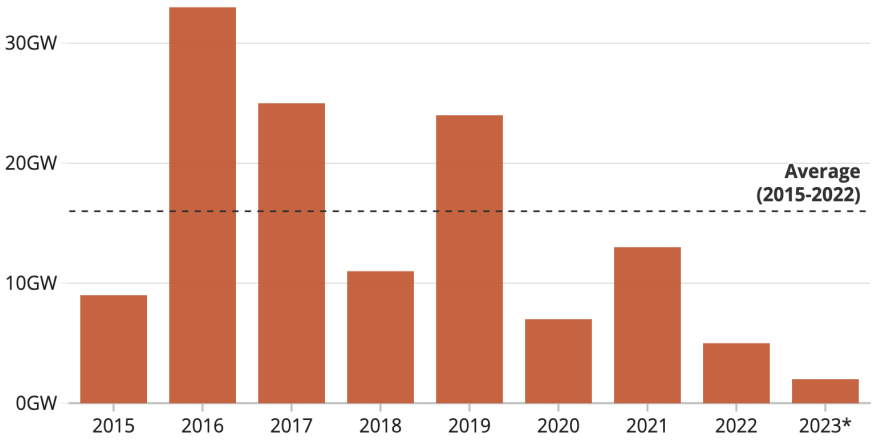
A record low outside of China

A key indicator of coal power capacity growth — new construction starts — looks set to decline outside of China for the second year in a row, according to a quarterly update of Global Energy Monitor's Global Coal Plant Tracker. As of October 2023, construction starts for the year are below 2 gigawatts (GW),

excluding China, well below the nearly 16 GW annual average for the same set of countries in the last eight years (2015 to 2022). This coal construction capacity for 2023 is on track to reach a record annual low since yearly data collection began in 2015 (Figure 1).

Coal plant capacity starting construction outside China is on track for record annual low

Coal-fired power capacity beginning construction outside China, in gigawatts (GW)

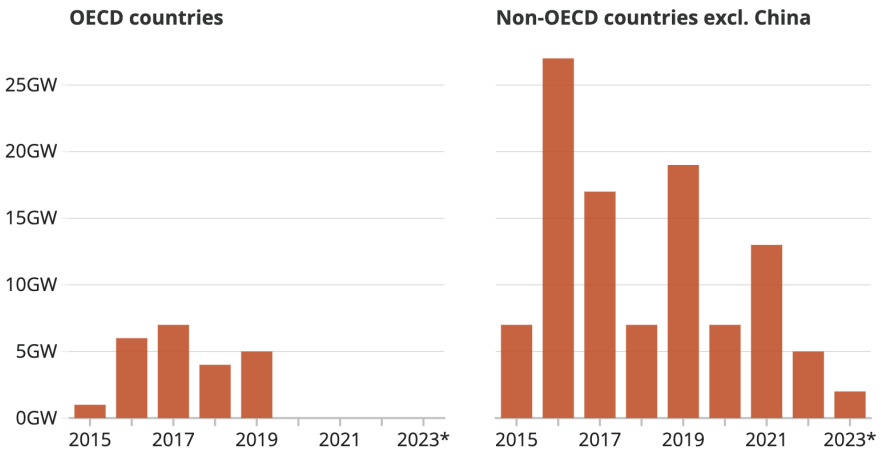


Source: Global Coal Plant Tracker, Global Energy Monitor •
** The capacity for 2023 outside China captures construction starts in the first nine months of the year (Q1–Q3)*

Figure 1

The world's wealthiest nations have seen no new coal plant construction starts since 2019

Coal-fired power capacity beginning construction outside China, in gigawatts (GW)



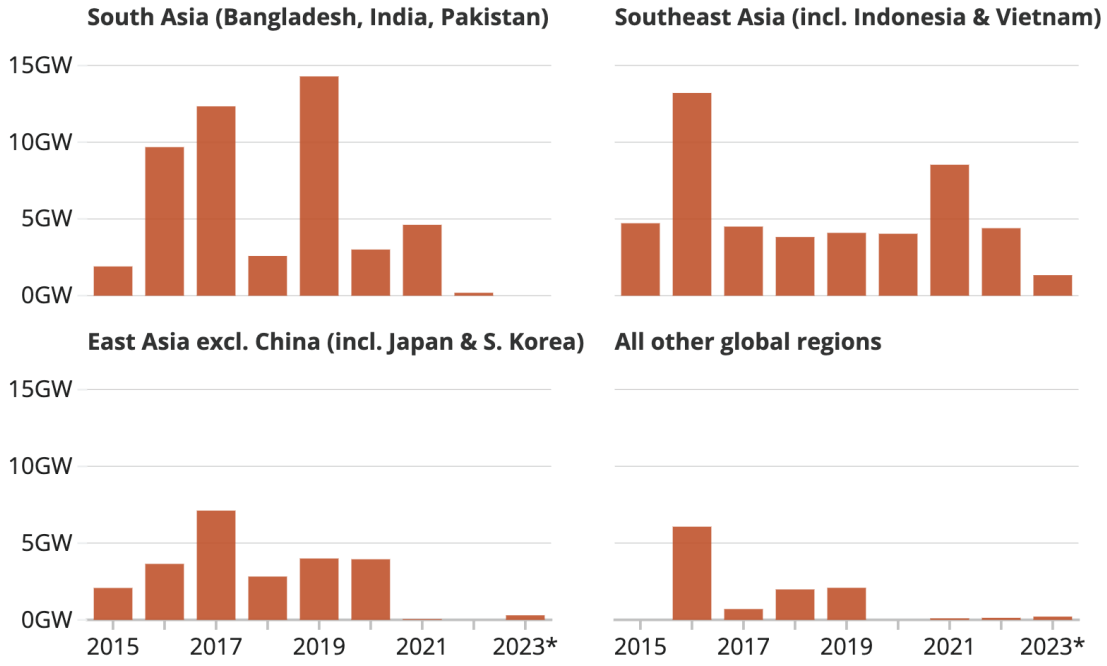
Source: Global Coal Plant Tracker, Global Energy Monitor •
** The capacity for 2023 outside China captures construction starts in the first nine months of the year (Q1–Q3)*

Figure 2

Since 2015, new coal plant construction has been launched in 29 countries (Table 1). Between 2020 and 2022, only eleven countries started new builds, and in the first nine months of 2023, only four countries broke ground on new plants. No coal plant construction has started in Latin America since 2016, and no coal plant construction has started for member countries within The Organisation for Economic Co-operation and Development (OECD), Europe, Africa, or the Middle East since 2019 (Figures 2 & 3).

Even outside China, most new coal plant construction starts since 2015 have been in Asia

Coal-fired power capacity beginning construction outside China, in gigawatts (GW)



Source: Global Coal Plant Tracker, Global Energy Monitor •
** The capacity for 2023 outside China captures construction starts in the first nine months of the year (Q1–Q3)*

Figure 3

Coal plant constructions are underway in a total of 21 countries. Table 1 captures the countries with coal plant capacity already in construction, with the exception of Argentina and Iran, two countries which do not currently have proposed coal plant capacity and only had pre-2015 construction starts. Based on the Global Coal Plant Tracker's full July 2023 data release, beyond China (136.2 GW), total cumulative capacity under construction is highest in Southeast Asia and South Asia, particularly in India (31.6 GW), Indonesia (14.5 GW), Bangladesh (5.8 GW), and Vietnam (5.4 GW). Those four countries alone make up 84% of the 67 GW of coal power capacity under construction outside of China.

Table 1. Countries where coal plants have begun construction since 2015 and/or with announced, permitted, and pre-permitted coal plant capacity

			Coal plant capacity beginning construction, by year (MW)									
Region		Country	2015	2016	2017	2018	2019	2020	2021	2022	Q1 - Q3 2023	Proposed coal plant capacity as of Q3 2023, total (MW)
East Asia	Non-OECD	China	87,570	45,563	19,960	15,035	7,647	20,922	29,794	48,078	37,424*	353,313*
	OECD	Japan	1,110	2,231	2,677	2,824	1,800					500
	Non-OECD	Mongolia		400	35		50	50		300		1,500
	Non-OECD	North Korea			200							none since at least 2017
	OECD	South Korea	170	1,018	4,160		2,100					none since 2019
	Non-OECD	Taiwan	800		49							none since 2018
Europe	Non-OECD	Bosnia & Herzegovina										1,350
	Non-OECD	Bulgaria		53								none since 2016
	OECD	Greece		660								none since 2019
	OECD	Poland			75	1,000	100					none since 2021
	Non-OECD	Serbia					350					none since 2022
	OECD	Türkiye		1,650	510	55	1,320					4,808
Eurasia	Non-OECD	Kazakhstan		636		260				65		5,330
	Non-OECD	Kyrgyzstan		300								600
	Non-OECD	Russia			121				100	70	215	3,968
	Non-OECD	Uzbekistan										600
Latin America	Non-OECD	Brazil										1,326
	Non-OECD	Chile		375								none since 2017
South Asia	Non-OECD	Bangladesh		275	2,640		1,670	1,200	2,640			7,220
	Non-OECD	India	1,248	6,530	8,380	1,600	10,640	1,450	1,980	120		44,693
	Non-OECD	Pakistan	660	2,878	1,320	990	1,980	360		72		4,010
Other	OECD	Australia										1,000
	OECD	United States										400
Southeast Asia	Non-OECD	Brunei				220						none since at least 2014
	Non-OECD	Cambodia			150		100	965				700
	Non-OECD	Indonesia	255	6,497	4,100	2,284	3,895	2,255	5,250	3,07	680	6,850
	Non-OECD	Laos									660	5,376
	Non-OECD	Malaysia		2,000								none since 2016
	Non-OECD	Myanmar		40								none since 2018
	Non-OECD	Philippines	868	1,020	105			818	450			2,390
	Non-OECD	Thailand		655	150							600
	Non-OECD	Vietnam	3,600	3,000		1,320	100		2835	1,330		3,960

Region	Country		Coal plant capacity beginning construction, by year (MW)									Proposed coal plant capacity as of Q3 2023, total (MW)
			2015	2016	2017	2018	2019	2020	2021	2022	Q1 - Q3 2023	
Africa & Middle East	Non-OECD	Botswana										750
	Non-OECD	Eswatini										300
	Non-OECD	Kenya										64
	Non-OECD	Madagascar										30
	Non-OECD	Malawi										900
	Non-OECD	Mozambique										1,200
	Non-OECD	Niger										200
	Non-OECD	Nigeria										600
	Non-OECD	South Africa										2,955
	Non-OECD	Tanzania										800
	Non-OECD	United Arab Emirates		2,400								none since 2018
	Non-OECD	Zambia										300
	Non-OECD	Zimbabwe				670	320					4,570

** For China, the 2023 data only reflects Q1 and Q2 2023 findings; Q3 data will be available with Q4 data in GEM's early 2024 release.*[1]

The "No New Coal" imperative

Governments, utilities, banks, and other stakeholders all have a role to play in helping accelerate the global coal to clean energy transition, starting by ensuring an end to new coal. Pursuing new coal projects diverts financial support and judicious planning efforts away from renewable energy projects, resulting in a lock-in of resources that could otherwise be invested in a true coal to clean strategy. An orderly move towards clean energy will not only help confront the climate crisis, but, if done right, can also raise economic productivity, ensure energy access and energy security, create jobs, and improve environmental and public health outcomes

As U.S. climate envoy John Kerry and International Energy Agency (IEA) chief Fatoh Birol summarized in September 2023, "Tripling renewables without also halting the building of new dirty coal plants would be like training for a marathon while smoking five packs of cigarettes a day."

The IEA has found that the emissions from just the world's existing coal fleet, if left unchecked, would be "the death blow" to the Paris climate agreement goal of limiting global warming to the critical threshold of 1.5

1. Additional notes about this table: (1) Proposed coal plant capacity = units with announced, pre-permit, and permitted statuses; (2) A coal plant construction start is defined to the extent possible as when physical construction has begun (i.e. concrete and steel, not just a ground-breaking ceremony or early site preparation), based on the best available information; (3) Construction starts may also include conversion construction work, such as work converting an oil-fired unit to a coal-fired one; (4) Since 2015, China, India, Russia, and Iran have also seen construction re-starts, meaning under-construction capacity was considered revived after having been presumed on hold or cancelled in the Global Coal Plant Tracker. Table 1 only includes new construction starts; (5) When a country's proposed coal plant capacity as of Q3 2023 involves a single proposed project, the capacity figure links to the related project's wiki. For other proposed project wiki links and summaries, download GEM's October 2023 supplement ; (6) Construction details for a few gigawatts of coal capacity that began operating in the last decade, primarily at small units in Indonesia, are unknown and not captured in this report.

degrees Celsius, so an essential step to meeting climate goals is to "stop making the problem worse." In other words: The world must stop building new unabated coal power plants.

With climate concerns dominating headlines, as well as cheaper and cleaner alternatives, many countries are heeding the call and following suit. However, the end of new coal is far from certain. It is imperative that the current trend of record low coal plant construction starts outside of China continues. In addition, China must take its coal pledge seriously and realign with the rest of the world.

China dominates new coal construction starts

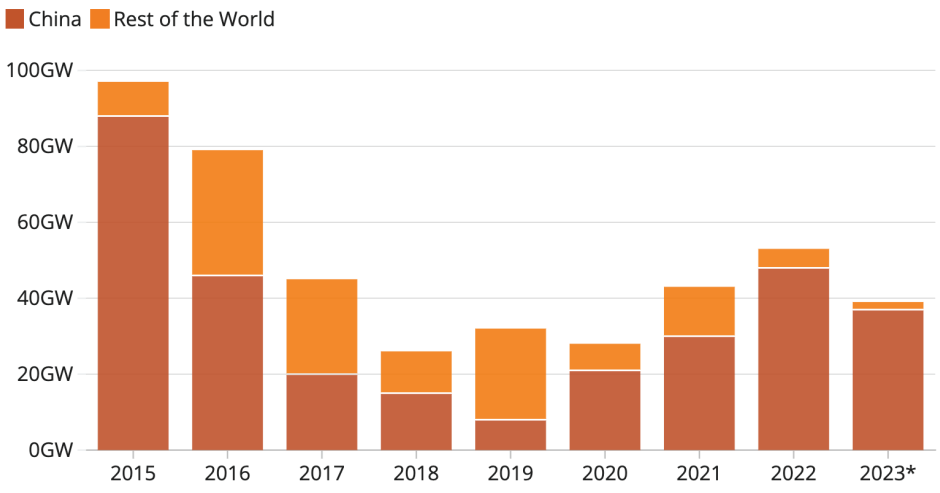
China must "strictly control" construction on new coal plants in line with its own pledge and with the rest of the world. The country is continuing a coal power plant permitting spree that started in 2022, and annual construction starts have increased each year since a low in 2019. A November 2023 analysis by the Centre for Research on Energy and Clean Air and E3G highlighted that Xi Jinping's 2021 pledge to "strictly control" coal-fired power generation projects is being ignored in two ways: 1) Not only have coal power project approvals soared, but 2) authorities are not following or enforcing the National Energy Administration (NEA) policy to control new projects.

In fact, leaders within China have shifted from discouraging these projects to pushing for acceleration. In 2022, regulators set a target to begin construction on 80 GW of new coal power capacity in 2023, and another 80 GW in 2024.

While construction figures for Q3 and Q4 of 2023 will only be available in the Global Coal Plant Tracker's early 2024 release for China, a comparison of the Q1–Q3 figures for the rest of the world (<2 GW) with Q1–Q2 figures for China (37 GW) shows how China's coal construction surge contrasts with global trends (Figure 4).

More than 95% of the coal plant capacity that began construction in the first nine months of 2023 is in China

Coal-fired capacity in construction in China and rest of the world, in gigawatts (GW)



Source: Global Coal Plant Tracker, Global Energy Monitor
** The capacity for 2023 captures construction starts in the first half of the year for China (Q1 & Q2) and in the first nine months of the year for the rest of the world (Q1–Q3)*

Figure 4

The coal pipeline outside of China collapsed to a plateau, with almost no net change in the first nine months of 2023

Coal capacity under consideration has collapsed outside of China since 2015, and now, with fewer projects in play, the pipeline has reached a plateau with almost no net change this year (Figure 5). Between the coal capacity moving to construction (1.5 GW), no longer under active consideration (18.3 GW), and newly under consideration or reconsideration (20 GW), the coal pipeline outside of China reached a plateau in Q3 2023 (Figure 6).

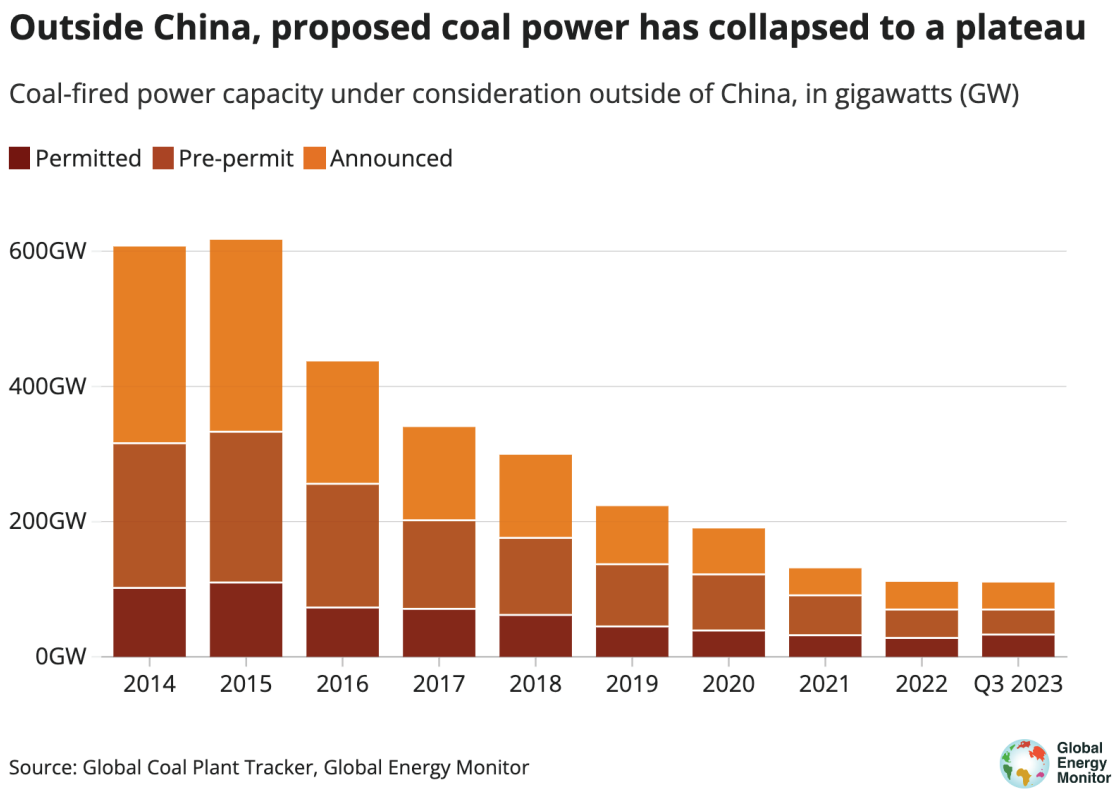
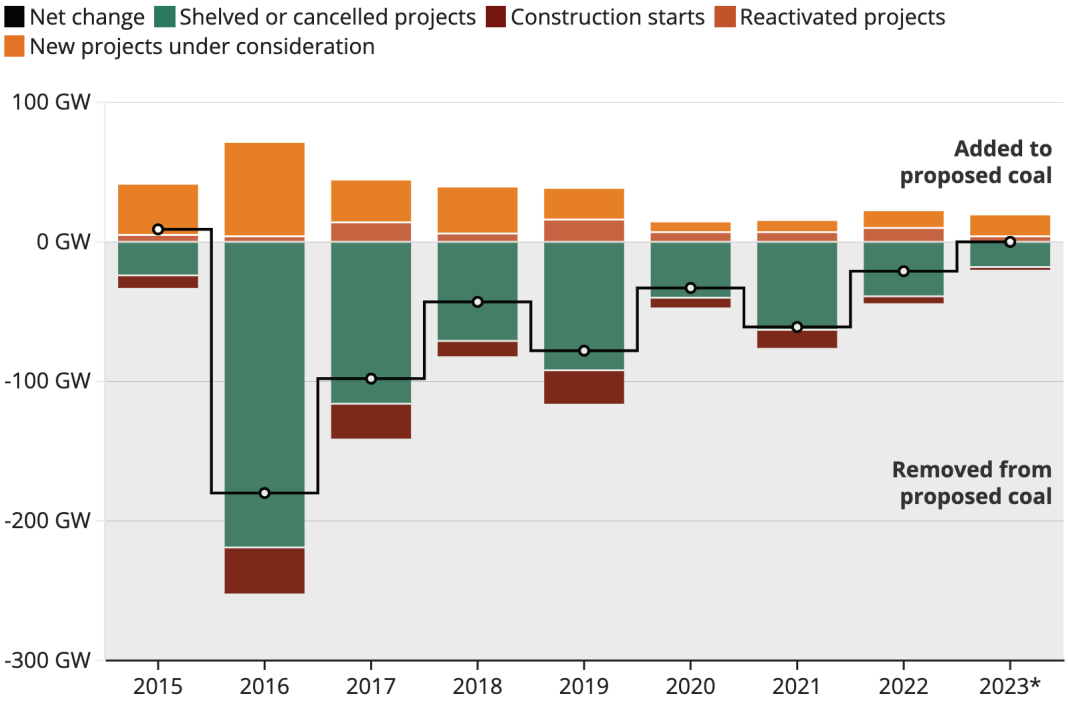


Figure 5

In first nine months of 2023, about as much proposed coal power capacity was added outside of China as was removed

Status changes of proposed coal power outside of China, in gigawatts (GW)



Source: Global Coal Plant Tracker, Global Energy Monitor •
** The capacity for 2023 outside China captures status changes in the first nine months of the year (Q1–Q3)*

The "shelved or cancelled projects" category only captures capacity shifting from announced, pre-permit, or permitted statuses to shelved or cancelled, and not from shelved to cancelled. This "removed" capacity represents progress shifting away from proposed coal. However, the removed capacity from the "construction starts" category does not, as it gets coal capacity one step closer to operation.

Global Energy Monitor

Figure 6

In the first nine months of 2023, 18.3 GW of coal capacity moved from being proposed (announced, pre-permit, and permitted) to no longer being considered under active consideration based on GEM's status definitions: 17 GW moved to shelved and 1.3 GW moved directly to cancelled. Coal plant projects are considered "shelved" when no updates or developments have been identified on the proposed projects for at least two years, and "cancelled" when either a cancellation announcement was made or no updates or developments have been identified for at least four years.

These shifts occurred in ten countries: Bosnia and Herzegovina (-800 MW), Botswana (-600 MW), Brazil (-340 MW), Indonesia (-2,260 MW), Laos (-1,000 MW), Mongolia (-5,280 MW), Serbia (-1,350 MW), Türkiye (-5,630 MW), Ukraine (-660 MW), and Vietnam (-450 MW).

39 GW of additional coal capacity moved from being considered shelved to cancelled, with Vietnam and its new Power Development Plan VIII leading the way in terms of 2023 cancellations (-10,220 MW), followed by India (-6,550 MW), Indonesia (-6,360 MW), the Philippines (-5,256 MW), and nine other

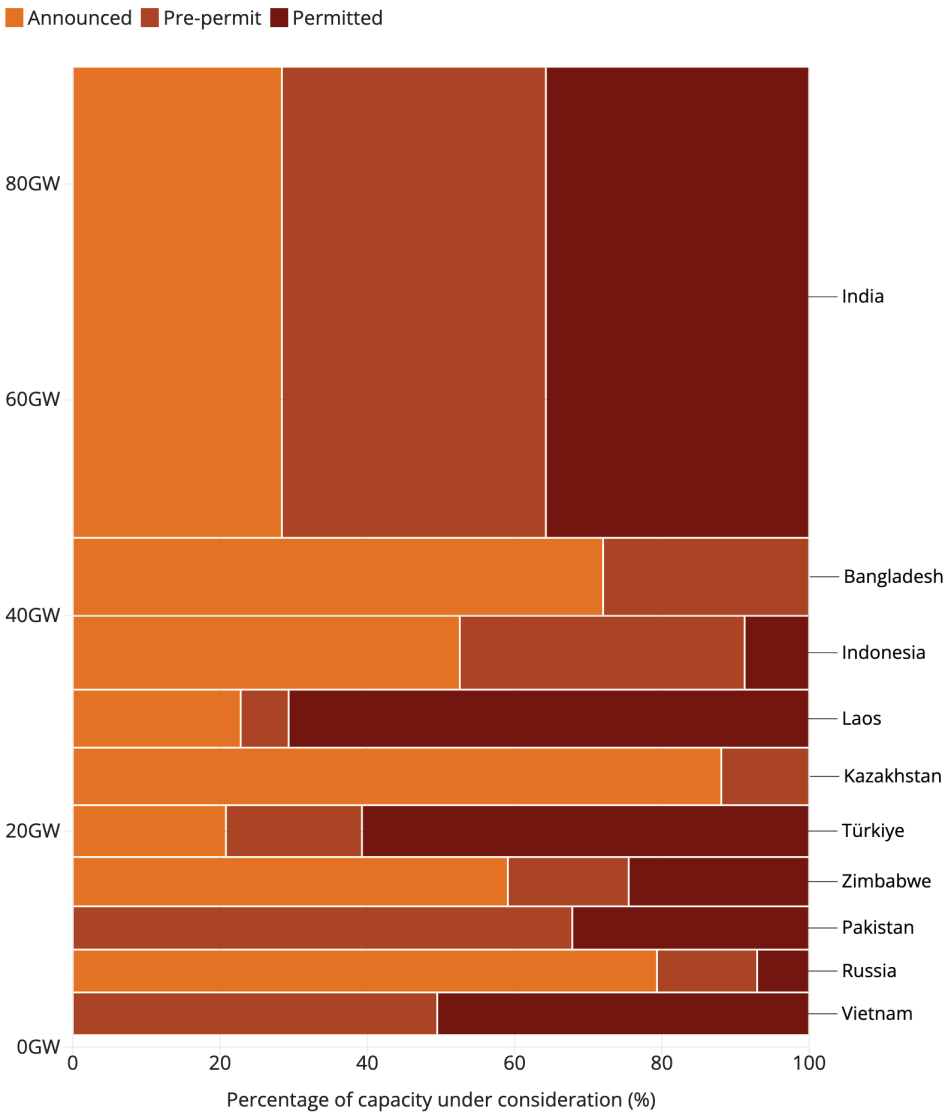
countries. Cancellations totaled less than 32 GW in all of 2022.

As of October 2023, coal is still under consideration (announced, pre-permitted, and permitted) in a total of 32 countries (see Table 1 and summary table). Although coal capacity under consideration is spread to more countries than coal under construction, it is still concentrated: The top ten countries in terms of cumulative proposed coal make up 83% of the 110 GW of coal power capacity under consideration outside of China, with India, Bangladesh, and Indonesia leading the way (Figure 7).

Coal power under consideration outside China

Top 10 countries with most coal-fired power capacity under consideration, by status

How to read this chart:
→ % of prospective capacity by status
↓ height of bars = total proposed capacity, in gigawatts (GW)



Source: Global Coal Plant Tracker, Global Energy Monitor

Figure 7

India, Kazakhstan, and Indonesia lead new proposals coming up in 2023

Unfortunately, the decrease in coal under active consideration was tempered by 15.3 GW of entirely new proposals under consideration in India (8,640 MW), Indonesia (2,500 MW), Kazakhstan (4,078 MW), and Mongolia (50 MW). Inactive coal proposals (4.2 GW) also appeared under potential consideration once again in 2023 in Botswana (300 MW), India (2,200 MW), Nigeria (600 MW), the Philippines (700 MW), and Russia (430 MW).

India

In India, power companies and the Ministry of Environment, Forest and Climate Change's Expert Appraisal Committee ushered in a new coal permitting spree this year. An August 2023 brief summarized new proposals from the first half of 2023 and stranded asset risks. The third quarter of the year saw the surge continue, with projects appearing or progressing in six different states (Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Odisha, and Uttar Pradesh): Adani Raigarh Thermal Power Plant, Anpara-E power station (MUNPL), Binjkote power station, Ib Valley Thermal Power Station, Kajurda power station, Koderma Thermal Power Station, Raikheda power station, and Satpura Thermal Power Station.

Ultimately, four non-captive Indian coal plant projects (4.5 GW) have received permits in the first nine months of 2023, up from zero in all of 2022. Ten other coal plant proposals (12.4 GW) also moved forward in the permitting process by receiving Terms of Reference, and five additional coal plants or expansions (6 GW) have been announced or re-announced so far this year.

There have also been recent updates regarding units presumed cancelled in India that were previously under construction, including at the Lanco Amarkantak, Bijora, and Gorgi power stations.

In November 2023, the Indian Ministry of Power revised its thermal capacity addition plan from 51 GW to up to 77 GW by 2031-32, citing growing demand. The government reportedly has a plan to add 12 GW of new coal capacity by March 2024. Such a move would put India in an unfavorable situation, where simultaneously investing in both coal and renewables will only result in a messier energy transition.

Kazakhstan

In Kazakhstan, 4 GW of coal capacity proposed in 2023 also brings economic and climate risks. As Global Energy Monitor summarized in The Third Pole in August 2023, the country's plans for new coal projects clash with its Carbon Neutrality Strategy, which sets a net-zero carbon goal of 2060 and identifies key technological transformations needed for decarbonization. In a recent Kazakhstan analysis, Carbon Tracker found that continued support for coal will create long-term economic risks and deter investment from economic activity that could diversify Kazakhstan's economy and facilitate a just transition.

Indonesia

After Vietnam and India, Indonesia led globally with nearly 6.4 GW of newly-cancelled coal capacity in the first nine months of 2023. This trend is largely attributed to groups of projects that were announced in the RUPTL 2019 electricity business plan and/or suspended in RUPTL 2021. Based on GEM's status definitions and the lack of apparent updates about these proposed power stations, they were presumed to be cancelled as of October 2023.

However, this trend is soured by a 2.5 GW captive coal plant proposal announced this fall. Plans are progressing to forcibly relocate five villages on Rempang Island for the China-backed industrial park project, which has already been met with substantial and violent opposition.

Captive coal plants in the country have been a major focus of conversation, as the exclusion of off-grid coal plants from Just Energy Transition Partnership (JETP) planning resulted in the delay of a Comprehensive Investment and Policy Plan (CIPP) for the US$20 billion fund. In the draft released in November 2023, off-grid power stations were ultimately formally excluded from the CIPP assessment, as the Government of Indonesia and international partners "cannot say anything definitive until experts complete their work" modeling the landscape of the county's captive fossil fuel projects. Captive coal capacity in Indonesia has increased eightfold over the last decade and represents nearly all of the country's remaining pre-construction coal capacity.

Ultimately, new coal proposals in countries like India, Kazakhstan, and Indonesia must stop. Governments, utilities, banks, and other stakeholders must also ensure that the 131 coal projects (110 gigawatts) still under consideration outside of China never go into construction, and are shelved and cancelled in favor of clean energy alternatives. These two dynamics would ensure record low construction starts are here to stay and the end to new coal remains in sight.

Continued on next page

Background on 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. Users of GEM's data and reports include the International Energy Agency, United Nations Environment Programme, the World Bank, and the Bloomberg Global Coal Countdown. Follow us at www.globalenergymonitor.org and on Twitter/X @GlobalEnergyMon.

Background on the Global Coal Plant Tracker

The Global Coal Plant Tracker is an online database that identifies and maps every known coal-fired generating unit and every new unit proposed since 2010 (30 megawatts and larger). Developed by Global Energy Monitor, the tracker uses footnoted wiki pages to document each plant and is updated biannually, around January and July. In 2023, GEM is also piloting a partial quarterly release covering proposed coal units outside of China.

The Global Coal Plant Tracker supports the Bloomberg Global Coal Countdown, which brings together data from several leading think tanks and research institutions to track the world's remaining planned and existing coal plant units, as well other key metrics, as decision makers across governments and the private sector work together to accelerate the transition to a clean-energy future.

MEDIA CONTACT

Flora Champenois
Research Analyst, Global Coal Plant Tracker
Global Energy Monitor
flora.champenois@globalenergymonitor.org
+1-650-862-7498