Global Energy Monitor

Boom and Bust Coal 2025

Tracking the Global Coal Plant Pipeline

April 2025

Global Energy Monitor, CREA, E3G, Reclaim Finance, Sierra Club, SFOC, Kiko Network, CAN Europe, WKB, DHORA, Trend Asia, PRIED, Chile Sustentable, POLEN Transiciones Justas, Bankwatch, INSAPROMA, AJTN, and ARAYARA

ABOUT THE COVER

Ratcliffe-on-Soar Power Station, viewed from Long Eaton railway station. On September 30, 2024, the power station was shut down. It was the last coal plant in the UK, making the UK officially coal-free. Photo by Matt Buck via Flickr under Creative Commons license (March 2012). Some rights reserved.

GLOBAL ENERGY MONITOR

Global Energy Monitor (GEM) develops and analyzes data on energy infrastructure, resources, and uses. We provide open access to information that is essential to building a sustainable energy future. For more information, visit www.globalenergymonitor.org.

CENTRE FOR RESEARCH ON ENERGY AND CLEAN AIR

CREA is an independent research organization focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution. We use scientific data, research and evidence to support the efforts of governments, companies and campaigning organizations worldwide in their efforts to move towards clean energy and clean air. For more information, visit www.energyandcleanair.org.

E3G

E3G is an independent climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action. For more information, visit www.e3g.org.

RECLAIM FINANCE

Reclaim Finance is an NGO affiliated with Friends of the Earth France. It was founded in 2020 and is 100% dedicated to issues linking finance with social and climate justice. In the context of the climate emergency and biodiversity losses, one of Reclaim Finance's priorities is to accelerate the decarbonization of financial flows. Reclaim Finance exposes the climate impacts of financial players, denounces the most harmful practices and puts its expertise at the service of public authorities and financial stakeholders who desire to bend existing practices to ecological imperatives. For more information, visit reclaimfinance.org.

SIERRA CLUB

The Sierra Club is America's largest and most influential grassroots environmental organization, with millions of members and supporters. In addition to protecting every person's right to get outdoors and access the healing power of nature, the Sierra Club works to promote clean energy, safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and legal action. For more information, visit www.sierraclub.org.

SOLUTIONS FOR OUR CLIMATE

Solutions for Our Climate (SFOC) is a nonprofit organization established in 2016 to address the social and environmental impacts of climate change. SFOC conducts research on solutions for reducing greenhouse gas emissions and expanding renewables, and coordinates campaigns with both domestic and international organizations to address the climate crisis. For more information, visit www.forourclimate.org.

KIKO NETWORK

Kiko Network is a Japanese environmental NGO that tackles climate change by working with local communities, conducting research, and making proposals at the national and international level. In working towards an exit from coal-fired power in Japan, Kiko Network is also tracking the status of Japan's coal-fired power plants. For more information, visit kikonet.org/en/.

CLIMATE ACTION NETWORK EUROPE

Climate Action Network (CAN) Europe is Europe's leading NGO coalition fighting dangerous climate change. With over 200 member organisations active in 40 European countries, representing over 1,700 NGOs and more than 40 million citizens, CAN Europe promotes sustainable climate, energy and development policies throughout Europe. For more information, visit caneurope.org.

WATERKEEPERS BANGLADESH

Waterkeepers Bangladesh (WKB) works to protect the water and water bodies of Bangladesh including its forest resources through enforcement, fieldwork, and community action. For more information, visit waterkeepersbangladesh.org.

DHORITRI ROKHHAY AMRA

Dhoritri Rokhhay Amra (DHORA) recognises the urgency of addressing Bangladesh's challenges and is committed to championing environmental protection and resilience-building efforts across the country. For more information, visit dhora.org.

TREND ASIA

Trend Asia is an independent civil society organization that acts as an accelerator of energy transformation and sustainable development in Asia. Their mission is to reinforce,

enrich, amplify, intensify, cultivate, and co-lead the ecosocionomics movement in Southeast Asia. For more information, visit trendasia.org.

POLICY RESEARCH INSTITUTE FOR EQUITABLE DEVELOPMENT

Policy Research Institute for Equitable Development (PRIED) is an independent public interest think-tank that develops evidence-based research to contribute towards sustainable and equitable development and to make a low carbon future possible. Their mission is to accelerate Pakistan's transition from fossil fuels and large hydroelectric projects to renewable sources of energy and to ensure economic, social, and climatic justice during this transition so that every Pakistani enjoys equal access to renewable, reliable and affordable sources of energy. For more information, visit https://www.priedpk.org/.

CHILE SUSTENTABLE

Created in 1997, Fundación Chile Sustentable is an initiative of environmental organizations and academics dedicated to the analysis, design, and impact of new public policies on water, energy, and biodiversity in support of Chile's transition to a green, democratic, and socially equitable society capable of restoring ecosystems and facing the climate crisis. It has substantially contributed to the energy transition in Chile. For more information, visit www.chilesustentable.net.

POLEN TRANSICIONES JUSTAS

POLEN Transiciones Justas is a nonprofit climate-progressive think tank in Colombia, focused on creating a post-fossil and just future. Through research and social dialogue, POLEN Transiciones Justas develops socially accepted and policy viable strategies for decarbonization, democratization, and labor and economic reorientation. For more information, visit www.polentj.org.

ARAYARA International Institute

Over more than 30 years, the ARAYARA International Institute (a nonprofit Brazilian CSO) has developed a new generation of activism for the fair energy transition. With a strong focus on defense of human rights, promotion of racial equality, health, education and innovation of social technologies, ARAYARA's work encompasses energy, climate and anti-fossil initiatives, enabling public policies, legislation, litigation, knowledge production, communication, campaigns and advocacy that pave the way for a fair energy transition and the reduction of GHG emissions. ARAYARA operates in all Brazilian states and in some Latin American countries. For more information, visit www.arayara.org.

BANKWATCH

CEE Bankwatch Network is the largest network of grassroots environmental groups in central and eastern Europe and a leading force in preventing dubious public investments that harm the planet and people's well-being. The banks and funds we watch are often obscure but always important entities that function outside the realm of public scrutiny. Together with local communities and other NGOs we work to expose their influence and provide a counterbalance to their unchecked power. For more information, visit www.bankwatch.org and follow on BlueSky @ceebankwatch.bsky.social.

INSAPROMA

The Institute of Lawyers for the Protection of the Environment (INSAPROMA) has been defending vulnerable communities against pollution and ecosystem degradation for nearly 24 years through environmental and climate litigation, awareness campaigns, and education. The key to drastically reducing environmental and climate impacts is to comply with existing legislation and apply it equally to the entire population, whether authorities or not. For more information, visit https://www.insaproma.com/complementos/en/home.html.

AFRICA JUST TRANSITION NETWORK

The Africa Just Transition Network (AJTN), formerly known as Africa Coal Network (ACN), works with 88 organisations in 25 African countries and is recognised in the region and beyond. It continues to strengthen and support various national and grassroots coal struggles, bringing them together through various platforms. The Network strives to grow the demand for a coal phaseout — and other forms of dirty energy — for a just transition across Africa. For more information, visit https://groundwork.org.za/the-groundwork-coal-campaign/africa-coal-network/.

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ABOUT 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 January 1, 2010 (30 MW and larger). Developed by Global Energy Monitor, the tracker uses footnoted wiki pages to document each plant and is updated biannually. For further details, see Tracker Methodology.

PRODUCTION

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FURTHER RESOURCES

For additional data on proposed and existing coal plants, see Summary Data on the GEM website, which provides over 20 tables providing results from the Global Coal Plant Tracker (GCPT), broken down by province, nation, and region. For links to reports based on GCPT data, see Reports & Briefings on the GEM website. To obtain primary data from the GCPT, see Download Data on the GEM website.

PRIMARY CONTACT

Christine Shearer
Project Manager, Global Energy Monitor
christine.shearer@globalenergymonitor.org

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Global Energy Monitor, Centre for Research on Energy and Clean Air (CREA), E3G, Reclaim Finance, Sierra Club, Solutions for Our Climate, Kiko Network, Climate Action Network (CAN) Europe, Waterkeepers Bangladesh, Dhoritri Rokhhay Amra (DHORA), Trend Asia, Policy Research Institute for Equitable Development (PRIED), Chile Sustentable, POLEN Transiciones Justas, CEE Bankwatch Network, The Institute of Lawyers for the Protection of the Environment (INSAPROMA), Africa Just Transition Network (AJTN), and ARAYARA International Institute

Executive summary

In 2024, coal power hit a new milestone: The world opened the lowest amount of new coal power capacity in twenty years. Retired coal power in the European Union (EU27) grew fourfold, while the United Kingdom (UK) shut down its last coal plant — becoming the sixth country to phase out coal power entirely since the 2015 Paris climate agreement.

Yet 2024 also marked another milestone: record high construction starts for coal plants in China, following on the heels of the country's 2022 to 2023 coal plant permitting resurgence. The year 2024 was also a record high for new coal plant proposals in India, as the government renewed the country's support for coal power after a multiyear slowdown.

Outside of China and India, capacity under development decreased for the tenth year in a row. Just eight countries proposed new coal plants in 2024,

and twelve countries since 2023. In the wealthier 38 countries comprising the Organization for Economic Cooperation and Development (OECD), coal plant proposals are down from 142 in 2015 to five today. Indonesia's president announced the country would phase out coal power by 2040, while the Malaysian government committed to a coal power phaseout by 2044. Brazil is home to the last coal plant proposal over 0.1 gigawatts (GW) in Latin America, which has been stalled for years.

Although OECD countries are moving away from new coal plants, retirements in the bloc need to more than triple — from 19 GW in 2024 to 70 GW annually through 2030 — in order to meet the international Paris climate agreement. Over 200 GW of that capacity is already over 40 years of age, beyond the average global retirement age of 37 years.

Key developments of 2024

- At 44 gigawatts (GW), 2024 marked the lowest level for newly operating coal power in 20 years, since 2004. The capacity commissioned was nearly 30 GW below the annual average for 2004 to 2024 (72 GW).
- Still, the 44 GW of new coal power capacity added was higher than the 25.2 GW retired, leading to a net increase in the global coal fleet of 18.8 GW. Outside of China, coal power capacity decreased by 9.2 GW, as retirements (22.8 GW) exceeded additions (13.5 GW).
- Retirements in the EU27 increased fourfold over 2023, from 2.7 GW to 11 GW, led by Germany (6.7 GW). Elsewhere in Europe, the UK shut down its last coal plant and became the sixth country to phase out coal power since the 2015 Paris climate agreement.

- Retirements in the U.S. fell to 4.7 GW in 2024, the lowest level since 2014. While nearly half of the remaining U.S. coal power capacity is planned to retire by 2035, utilities including PacifiCorp, Duke Energy, and Georgia Power are delaying or withdrawing planned retirements.
- Coal power capacity under development outside of China and India decreased for the tenth year in a row, falling over 80% from 445 GW in 2015 to 80 GW in 2024. Ten countries now account for 96% of coal power capacity development.
- At 94 GW, China had the highest year for construction starts since 2015, stemming from its 2022 to 2023 permitting boom. If not curtailed, the wave of new coal plants could undo President Xi's pledge to strictly limit the growth in coal consumption through 2025.
- 2024 was also a record year of new coal plant proposals in India (38 GW), with India and China alone accounting for 92% of all newly proposed coal power capacity across the globe in 2024 (107 of 116 GW).
- Proposed coal capacity in Indonesia has decreased by 90%, from 49.7 GW in 2015 to 4.9 GW in 2024. President Prabowo has said that Indonesia will phase out coal power by 2040, although significant planning remains to make this a reality, particularly with the country's continued pursuit of new captive coal plants.
- In Africa, Zimbabwe and Zambia are seeing increases in proposed coal power capacity, much of it sponsored by Chinese companies despite the government's 2021 pledge to stop building new coal plants abroad.
- New coal proposals have dwindled in Southeast Asia due to coal phaseout pledges in Indonesia and Malaysia, a moratorium on coal plant permitting in the Philippines, and the development of just transition planning in Vietnam.

- Latin America is nearing zero coal proposals, with only Brazil and Honduras proposing new coal plants, proposals which have lingered for years. In 2024 Panama committed to phasing out coal power in two years, by 2026.
- In the 38 countries comprising the Organization for Economic Cooperation and Development (OECD), coal plant proposals are down from 142 in 2015 to five today. Still, annual coal capacity retirements in OECD countries need to more than triple in order to meet the international Paris climate agreement (from 19 to 70 GW).
- Laggards in the OECD for phasing out coal power include the Japanese and Korean governments, which are promoting the use of ammonia co-firing at their coal plants despite the technology being expensive and inefficient for large-scale power generation.

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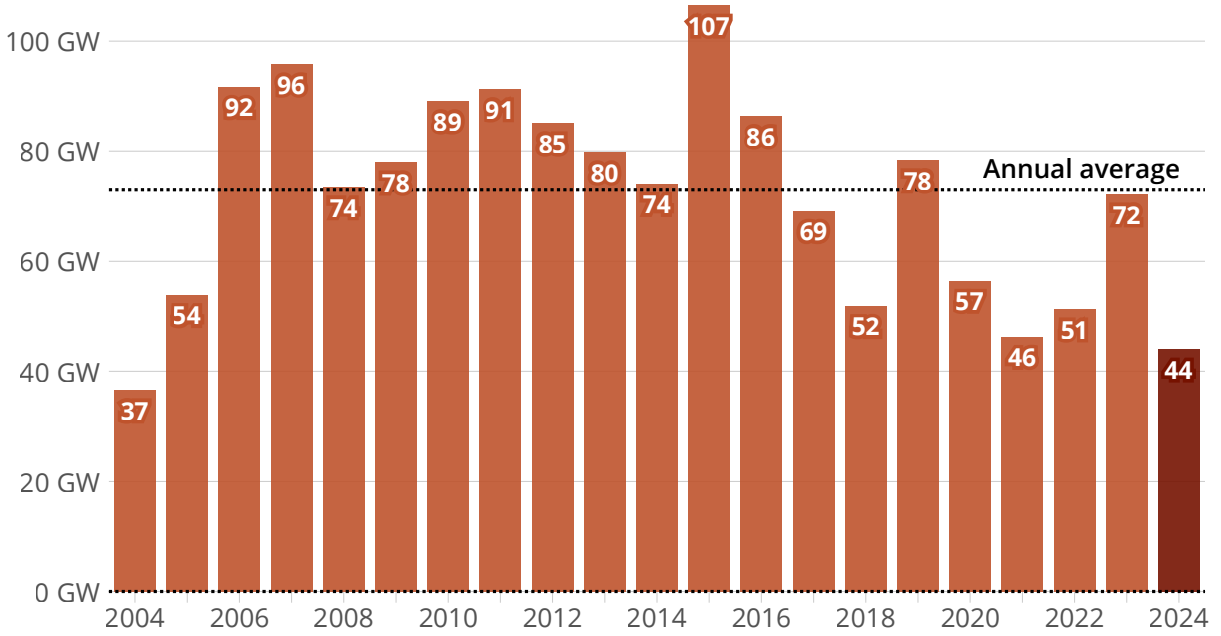
Global data summary

In 2024, newly operating coal power capacity hit its lowest level in twenty years. In all, 44 GW of new coal power capacity began operating, the smallest amount since 2004 (Figure 1). The capacity commissioned was nearly 30 GW below the annual average for 2004 to 2024 (72 GW).

Coal power capacity added in 2024 hits lowest level in two decades, well below annual average

Coal-fired power capacity commissioned by year, in gigawatts (GW)



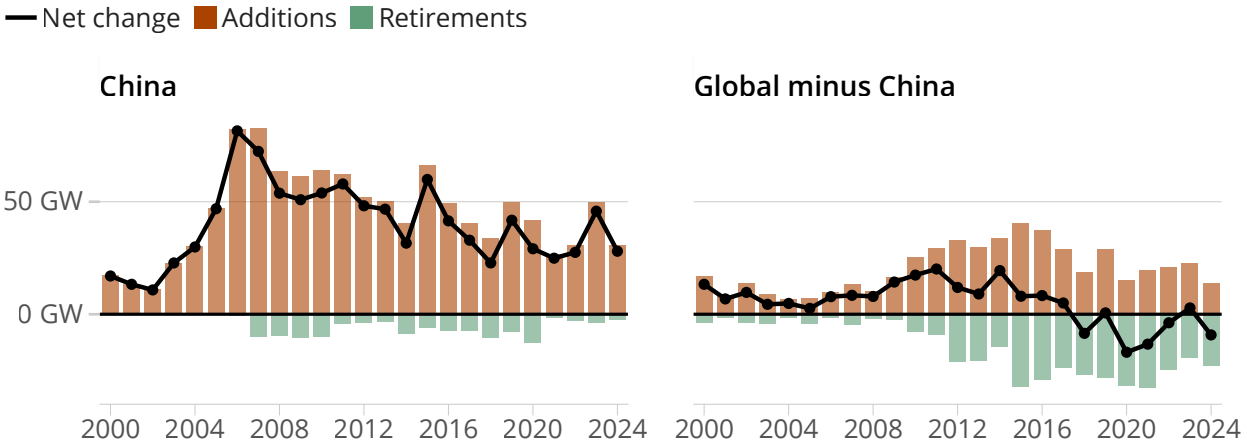
Source: Global Coal Plant Tracker, January 2025

Figure 1

Still, the 44 GW added globally exceeded the 25.2 GW retired, growing the global coal fleet by 18.8 GW in 2024. Outside of China, 13.5 GW was commissioned and 22.8 GW retired, for a net decrease of 9.2 GW, the biggest fall outside China since 2021 (Figure 2).

While coal power in China continues to grow, coal power outside China sees biggest decrease since 2021

Annual change in coal-fired power capacity, in gigawatts (GW)



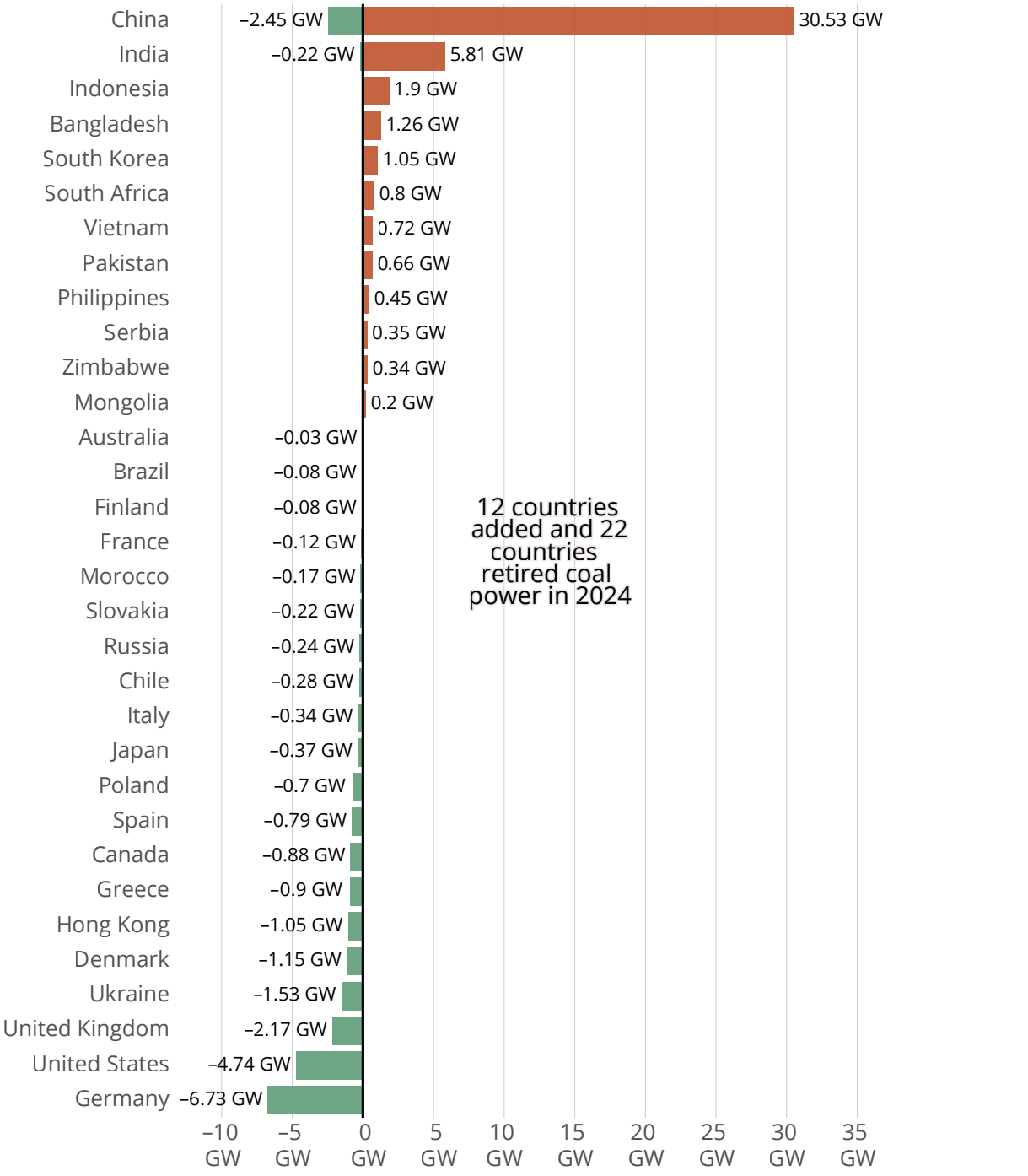
Source: Global Coal Plant Tracker, January 2025

Figure 2

China commissioned 30.5 GW of global coal power capacity in 2024, down from 49.8 GW in 2023, but still making up 70% of the global total. Other countries that opened new coal plants in 2024 included India (5.8 GW), Indonesia (1.9 GW), Bangladesh (1.3 GW), and South Korea (1.1 GW); seven other countries commissioned less than 1 GW each (Figure 3).

More countries retired coal than added coal in 2024, but overall more capacity was added than retired

Newly added and retired operating coal-fired power capacity in 2024, in gigawatts (GW)



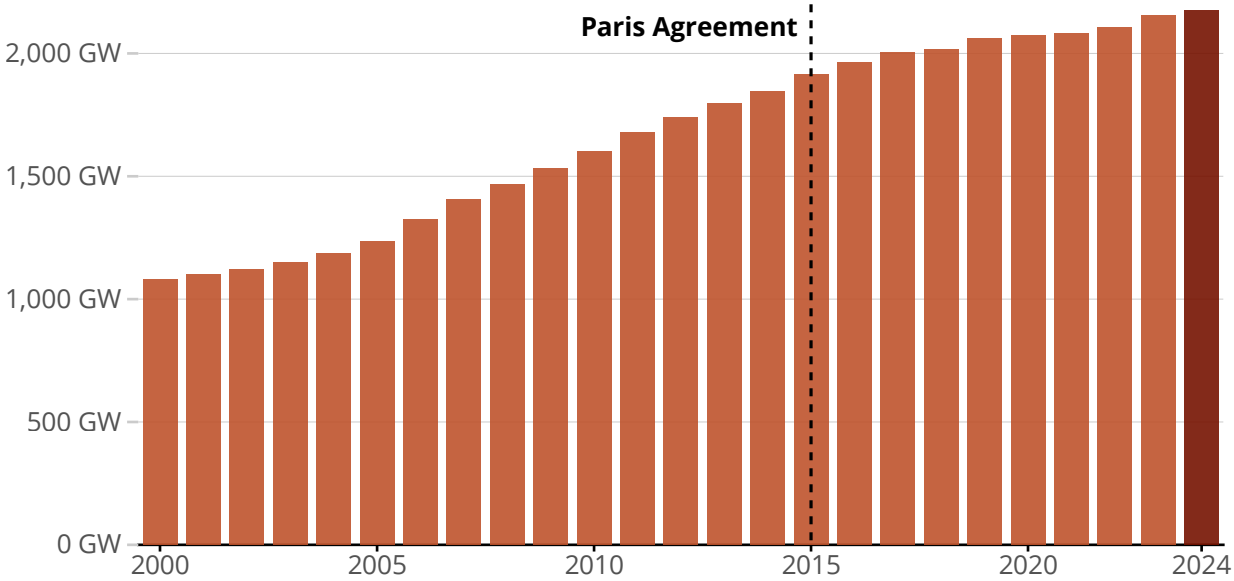
Source: Global Coal Plant Tracker, January 2025

Figure 3

In all, 22 countries retired coal power in 2024, nearly double the twelve countries that added coal power. Still, the capacity additions were significantly higher, growing the operating global coal fleet by 0.9%, from 2,156 GW in 2023 to 2,175 GW in 2024 — and over 13% since the 2015 Paris climate agreement (1,916 GW) (Figure 4).

Global coal power capacity continues growing despite Paris Agreement, increasing by 0.9% in 2024

Total operating coal-fired power capacity globally, in gigawatts (GW)



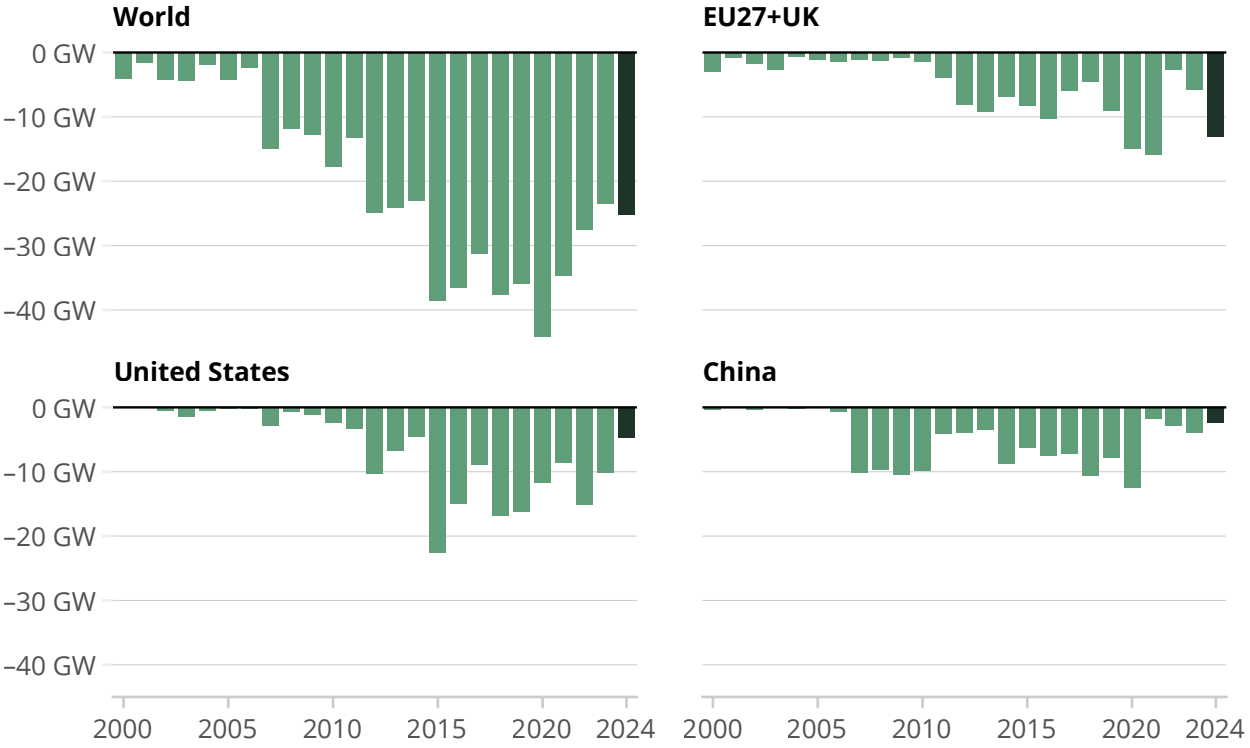
Source: Global Coal Plant Tracker, January 2025
Note: Operating capacityincludes both operating and mothballed coal power units

Figure 4

Globally, retired coal power capacity increased by 7% in 2024, to 25.2 GW total (Figure 5). The rise in retirements was primarily driven by the EU27 and UK, which together increased retired capacity by 130% in 2024, to 13.2 GW. The UK closed its last coal plant in 2024, eliminating coal power entirely from its grid.

Retirements pick up in Europe but stall in the U.S. and China

Coal-fired power capacity retired annually, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 5

In China, retirements during the country's 14th Five Year Plan (FYP, 2021–2025) remain low, averaging 4 GW per year.[1] With just over 16 GW of capacity retired since 2021, the country will not meet the government's target of 30 GW retired by the end of the 14th FYP unless retirements in 2025 are nearly equivalent to 2021 through 2024 combined.

Retirements in the U.S. fell to 4.7 GW in 2024, the lowest level since the 2015 Paris agreement. Over the coming decade, U.S. utilities are slated to retire 100 GW of coal power capacity, which would leave 94 GW still operating in 2035, with an average age of 51 years. Even at their advanced age, and with studies showing

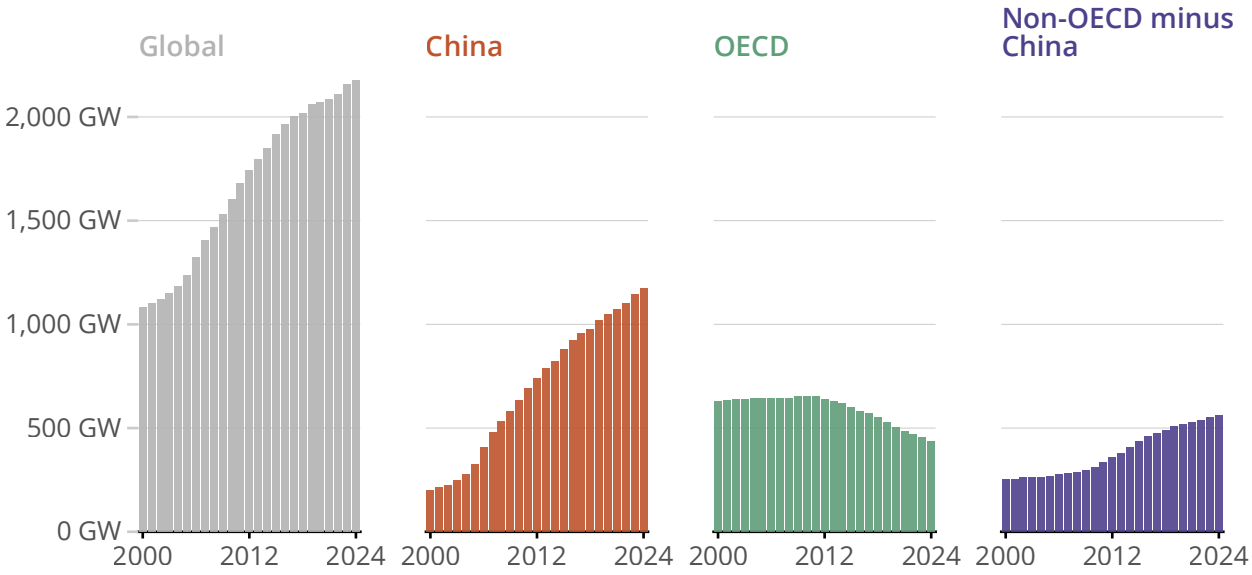
1. Total includes 11.2 GW of units retired over 30 megawatts (MW) since 2021, which are included in the Global Plant Tracker (GCPT), as well as 5 GW of units retired under 30 MW, which are not included in the GCPT and were tallied separately from various government reports.

that it would be cheaper to replace all but one coal plant in the U.S. with solar and wind power, utilities including PacifiCorp, Duke Energy, and Georgia Power are trying to further prolong the operating lives of their coal plants — bolstered by the Trump administration's policy support for fossil fuels.

In all, the wealthier 38 countries comprising the OECD retired 19 GW of coal power capacity in 2024, with capacity in the region peaking in 2010 (Figure 6).

While coal power capacity peaked in the OECD in 2010, it is still on the increase globally, especially China

Total operating coal-fired power capacity by region, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Operating capacityincludes both operating and mothballed coal power units

Figure 6

According to the Net Zero scenario of the International Energy Agency (IEA), as well as analyses by Climate Analytics, keeping warming below 1.5 degrees Celsius (1.5°C) means that coal power should be virtually phased out in advanced economies by 2030 and the rest of the world by 2040. This would require OECD countries to more than triple annual retired capacity to 70 GW per year in order to phase out the region's 437 GW coal fleet by 2030.

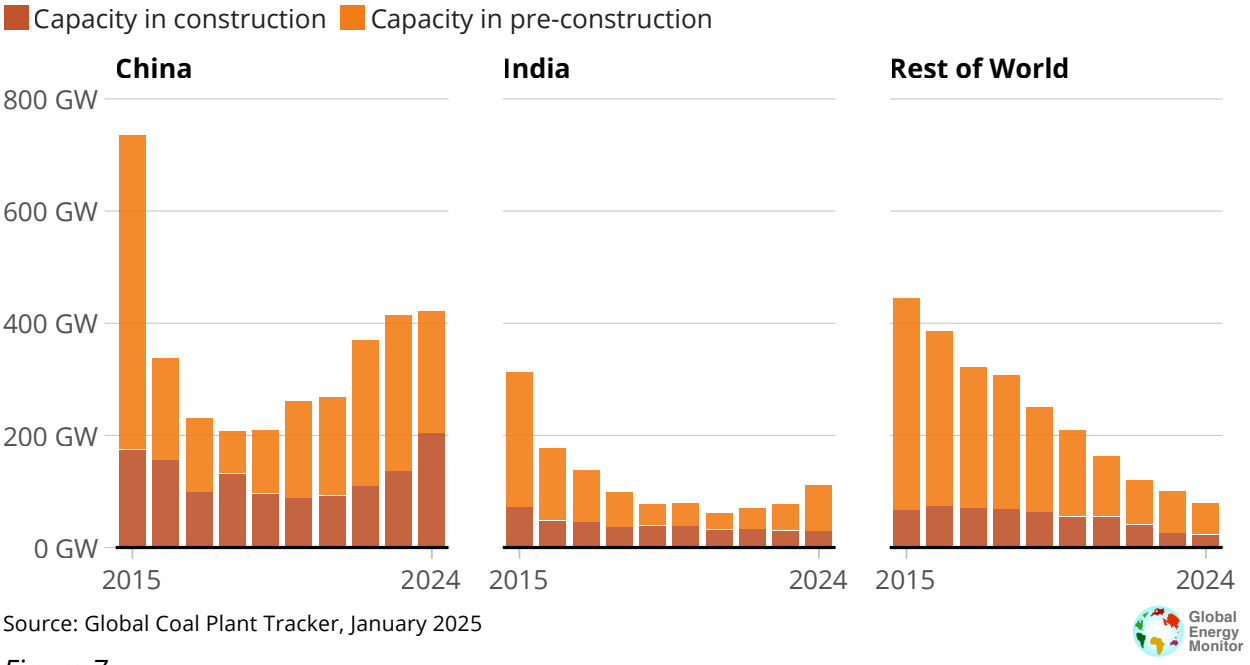
Currently, over 200 GW of coal power capacity in the OECD is over 40 years of age — beyond the global average retirement age of 37 years. OECD countries with younger plants, including Japan and South Korea, are looking to prolong the use of their plants through “clean coal” technologies, including ammonia co-firing, despite high costs and uncertain emission reductions.

Future additions to the global coal fleet depend on capacity under development, comprising coal plant proposals in both pre-construction (354.6 GW) and construction stages (256.8 GW).

For the fourth year in a row, global capacity under development grew in 2024, from 592.9 GW to 611.3 GW, driven by a record year for construction starts in China (Figure 7). However, capacity in pre-construction (announced, pre-permit, and permitted) decreased for the first time in three years, driven by declining proposals in China and despite a record year for new proposals in India.

China and India drive increase in coal power capacity under development

Coal-fired power capacity in different states of development, in gigawatts (GW)



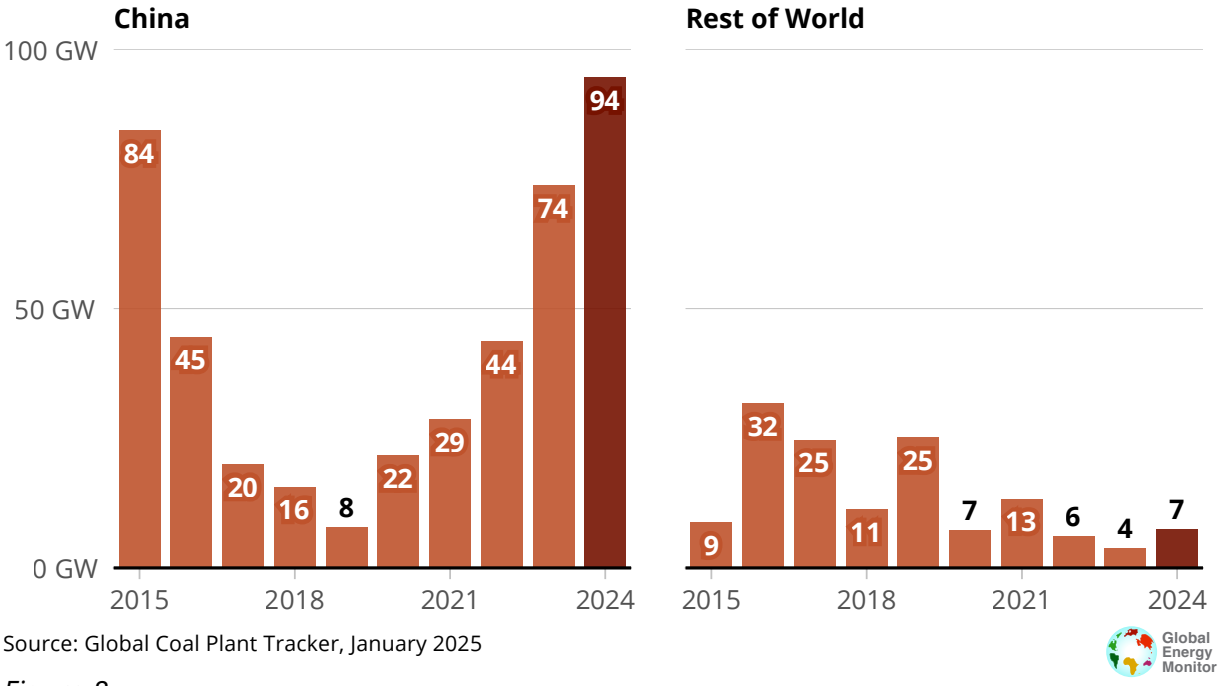
Source: Global Coal Plant Tracker, January 2025

Figure 7

Global construction starts for coal power totaled 101.9 GW in 2024, a 30% increase over 2023 (77.4 GW). About 93% of the activity (94.5 GW) took place in China, the highest in the country since 2015 (Figure 8). The surge follows a permitting boom in 2022 and 2023 during which over 200 GW of coal capacity in China was granted the necessary permits for construction — an amount that exceeds the entire U.S. coal fleet.

China has record year for construction starts while rest of world continues to slow

Coal-fired power capacity that began construction by year, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

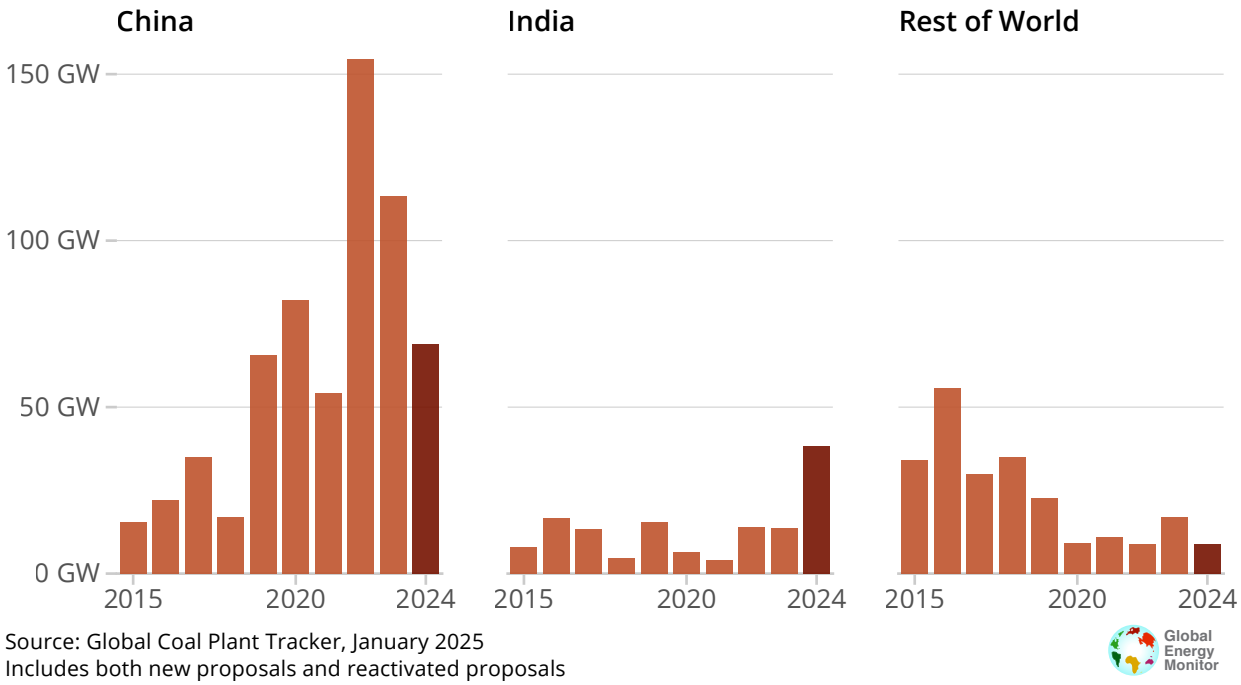
Figure 8

Outside of China, construction starts in 2024 remained low at 7.4 GW of capacity across eight countries, led by India (3.2 GW), Zimbabwe (1.2 GW), and Indonesia (1.1 GW); the remaining five countries totaled less than 1 GW each (Mongolia, Philippines, Russia, Vietnam, and Zambia).

Capacity in pre-construction fell by 11% in 2024, from 398.7 GW to 354.6 GW (Figure 9). The decline was largely due to a slowdown in new proposals in China for the second year in a row, falling by more than half, from 154.4 GW in 2022 to 68.9 GW in 2024. The decline potentially signals a slowdown in future coal plant proposals in the wake of China's record-breaking solar and wind additions, in which more capacity was installed in 2023 and 2024 than by the rest of the world combined.

New proposals slowing in China but increasing in India

Newly proposed coal power capacity by year and region, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Includes both new proposals and reactivated proposals

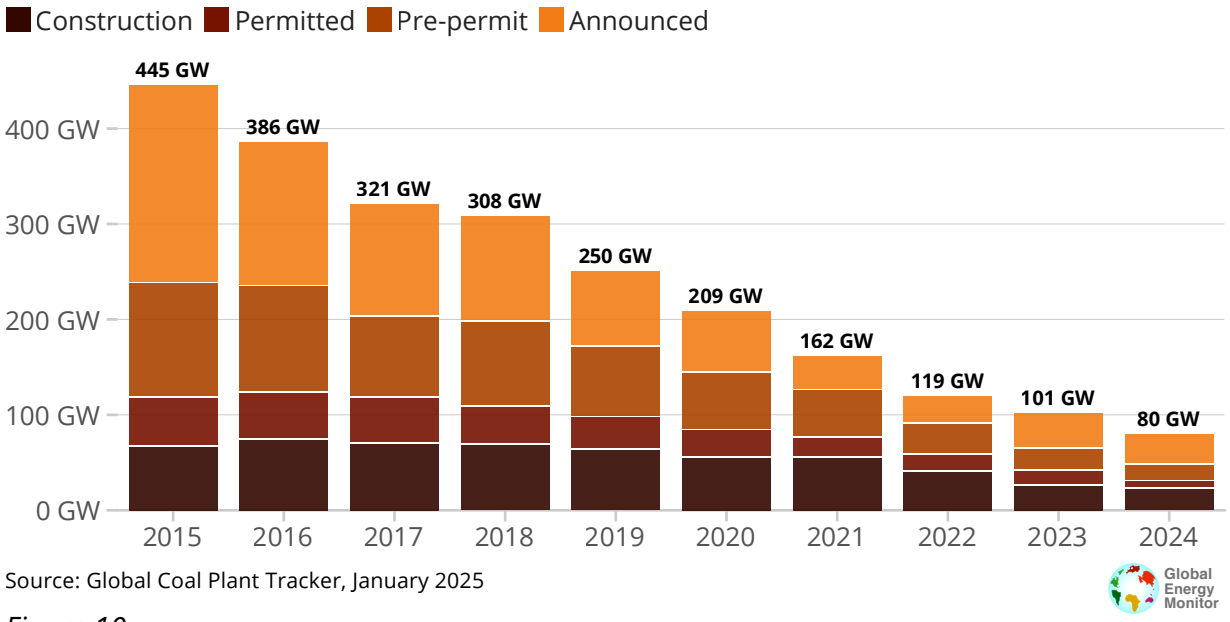
Figure 9

In India, new proposals in 2024 increased to the highest level on record, totaling 38.4 GW. The Indian government has said that the country will phase down coal power (but likely not before 2040) and has laid out ambitions to install over 90 GW of new coal power capacity by 2032, in addition to 500 GW non-fossil power capacity by 2030.

New proposals outside of China and India totaled 8.8 GW in 2024, the lowest since 2015. In all, capacity under development outside China and India has decreased every year since 2015, falling another 21% in 2024, from 101 GW to 80 GW (Figure 10).

Coal power development outside China and India has decreased every year since 2015

Coal-fired power capacity outside China and India by status, in gigawatts (GW)



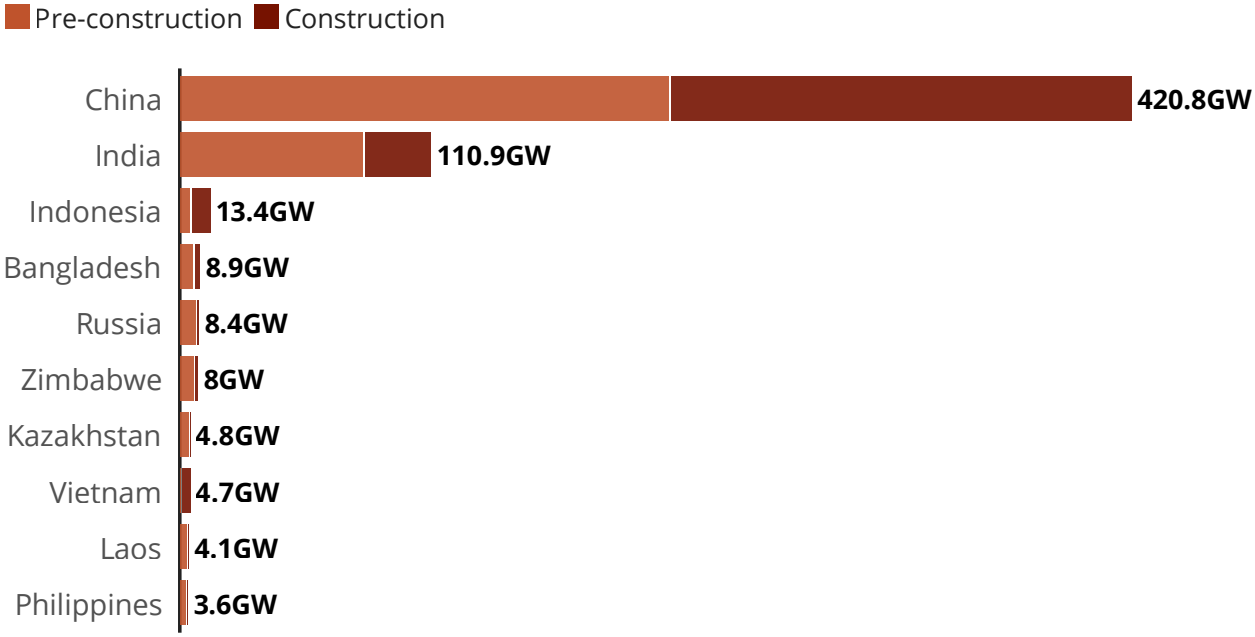
Source: Global Coal Plant Tracker, January 2025

Figure 10

The decline outside of China and India has led to the growing concentration of coal power development in a shrinking number of countries. Just eight countries proposed coal plants in 2024, and just twelve total countries have proposed coal plants since 2023. Ten countries now account for 96% of coal power capacity under development, and China and India alone account for 87% (Figure 11).

Just 10 countries account for 96% of global coal plant development

Coal-fired power capacity in pre-construction (announced, pre-permit, permitted) and construction status by country, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: The remaining 4% of capacity is spread across 28 countries

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Figure 11

Of the top ten countries, the governments of Indonesia and Vietnam plan to phase out coal power by 2040 to 2050 — albeit with unresolved loopholes regarding captive coal capacity for industrial self-use — while the Philippines has put a moratorium on new coal plant permits, and Bangladesh has not had a new coal plant proposal since 2019. With nearly half the top ten countries unlikely to see a significant expansion in coal proposals in the coming years, the pipeline for new development will concentrate even further, leaving China and India increasingly isolated if they do not change course.

Looking backwards and forwards: Ten years of GCPT data and analysis

The year 2025 marks ten years since the first edition of *Boom and Bust: Tracking the Global Coal Plant Pipeline* was released in 2015. During that time, Global Energy Monitor and partners have strived to track nearly every coal plant and proposal in the world through the Global Coal Plant Tracker (GCPT) and have documented the results through the annual Boom and Bust reports, becoming a key source for coal plant data globally.

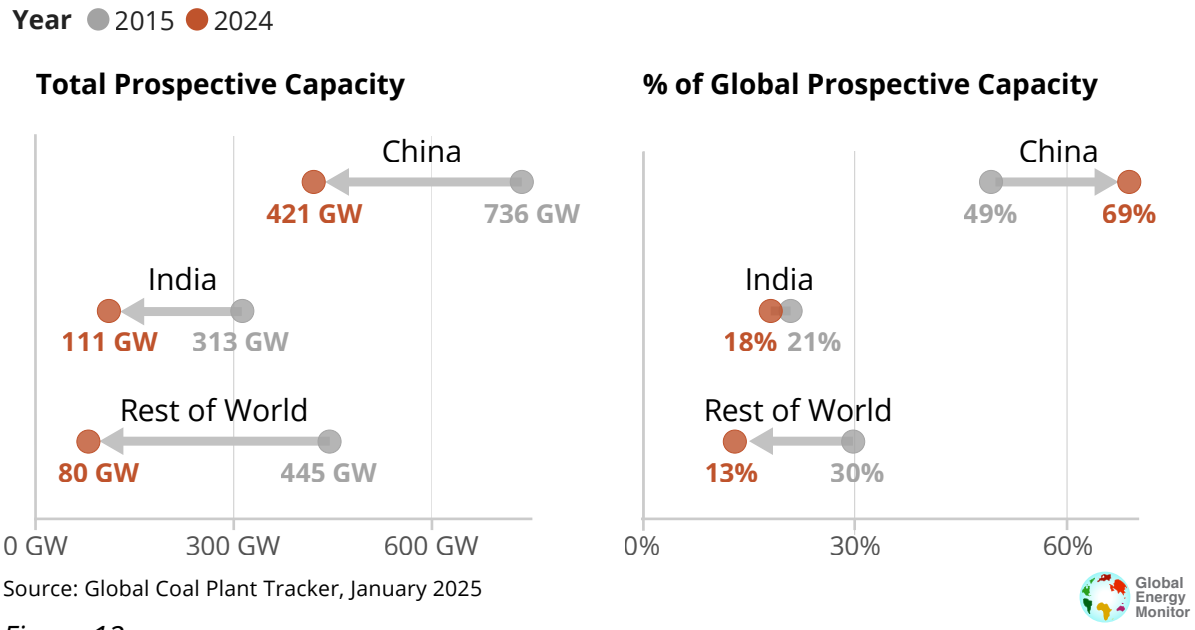
Having tracked and analyzed the major trends in global coal power capacity over the past decade, GEM can offer a ten-year retrospective on the sector's biggest developments and identify signals of what lies ahead.

Since 2015, there has been a dramatic drop in proposed coal power capacity across the globe. Coal power capacity under development (including both construction and pre-construction) has decreased by nearly 60%, from 1,494 GW in 2015 to 611 GW in 2024. Of that capacity, over 55% was cancelled, one-third was commissioned, and the rest remains under development (some Sankey diagrams of our data showing changes over time include WRI and E3G).

China increased its share of the total development from 49% in 2015 to 69% in 2024. India's share remained steady, decreasing slightly from 21% in 2015 to 18% in 2024. Meanwhile, the share in the rest of the world more than halved, from 30% in 2015 to just 13% in 2024 (Figure 12).

Coal power capacity under development is decreasing and getting more concentrated

Change in coal-fired power capacity under development (construction and pre-construction) since 2015.



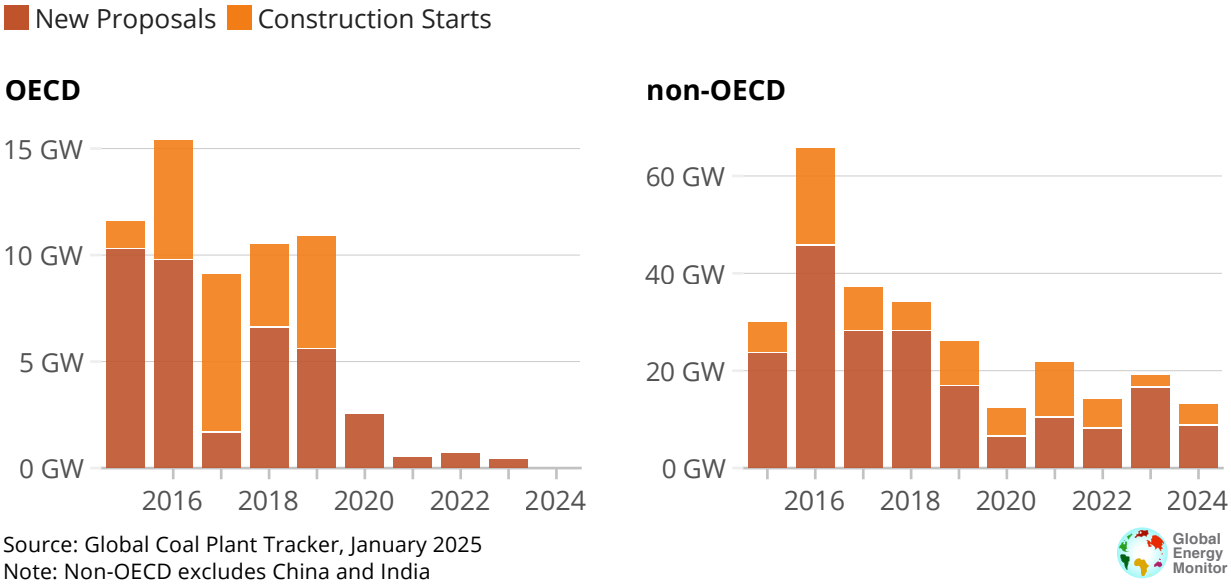
Source: Global Coal Plant Tracker, January 2025

Figure 12

The decline outside of China and India took place in both OECD and non-OECD countries. Excluding China and India, new proposals and construction starts by year both peaked in non-OECD countries in 2016 and have since fallen by over 80%. New annual proposals in the region dropped from 45.8 GW in 2016 to 8.8 GW in 2024, while construction starts dropped from 19.9 GW in 2016 to 4.2 GW in 2024. The OECD, meanwhile, had no new coal plant proposals in 2024, and no coal plant has broken ground in the OECD since 2019 (Figure 13).

Outside China and India new coal is decreasing, in both OECD and non-OECD countries

Coal-fired power capacity outside China and India by status, in gigawatts (GW); each region on its own scale, highlighting trend changes



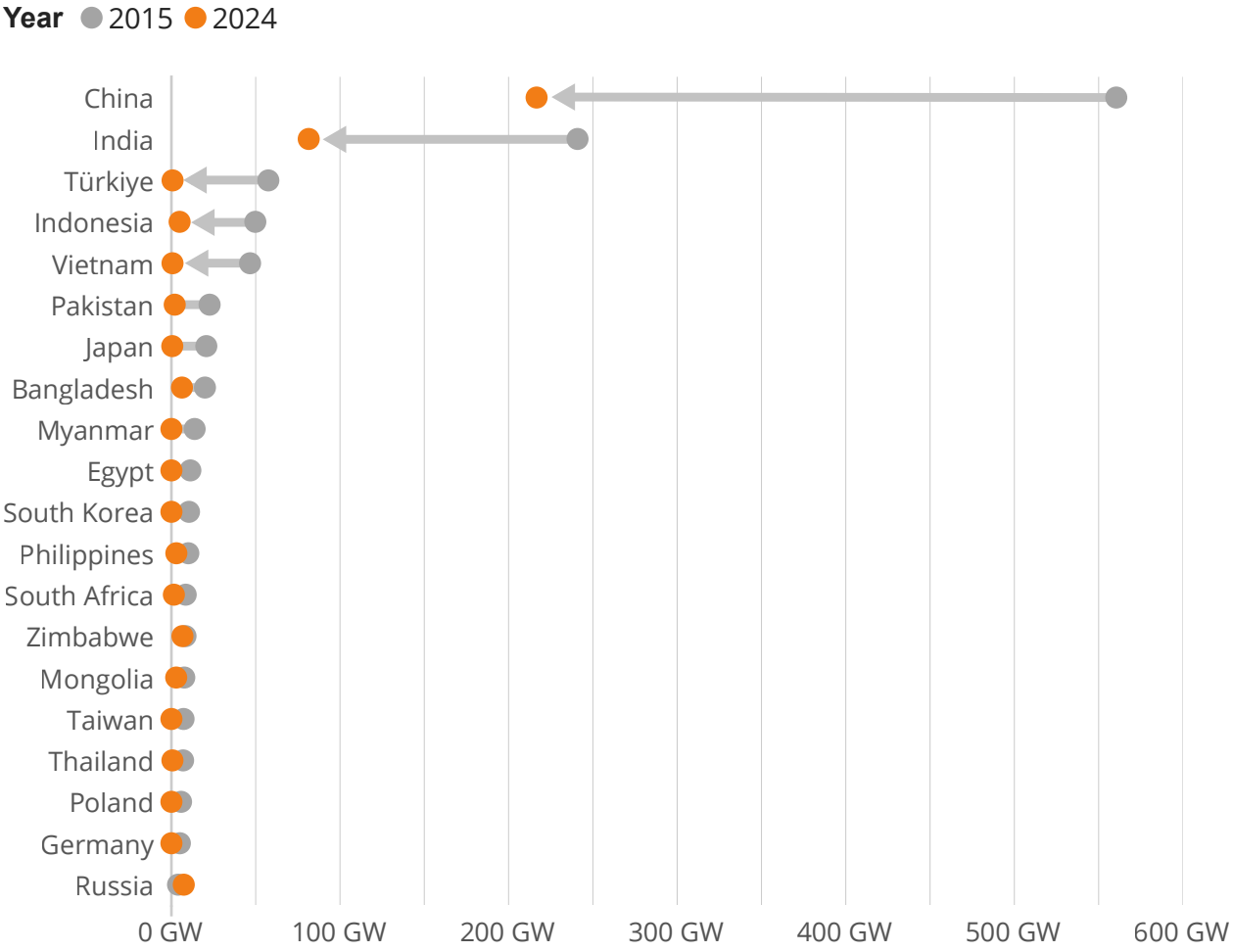
Source: Global Coal Plant Tracker, January 2025
Note: Non-OECD excludes China and India

Figure 13

Of the top 20 countries with coal plant proposals in 2015 (pre-construction), all but Russia have decreased their total proposed capacity. Six of the 20 countries (Myanmar, Egypt, South Korea, Taiwan, Poland, and Germany) have completely eliminated all pre-construction proposals (Figure 14).

Of the top 20 countries with coal plant proposals in 2015, all but Russia have seen decreases

Change in proposed coal power capacity (announced, pre-permit, and permitted) from 2015 to 2024, in gigawatts (GW)



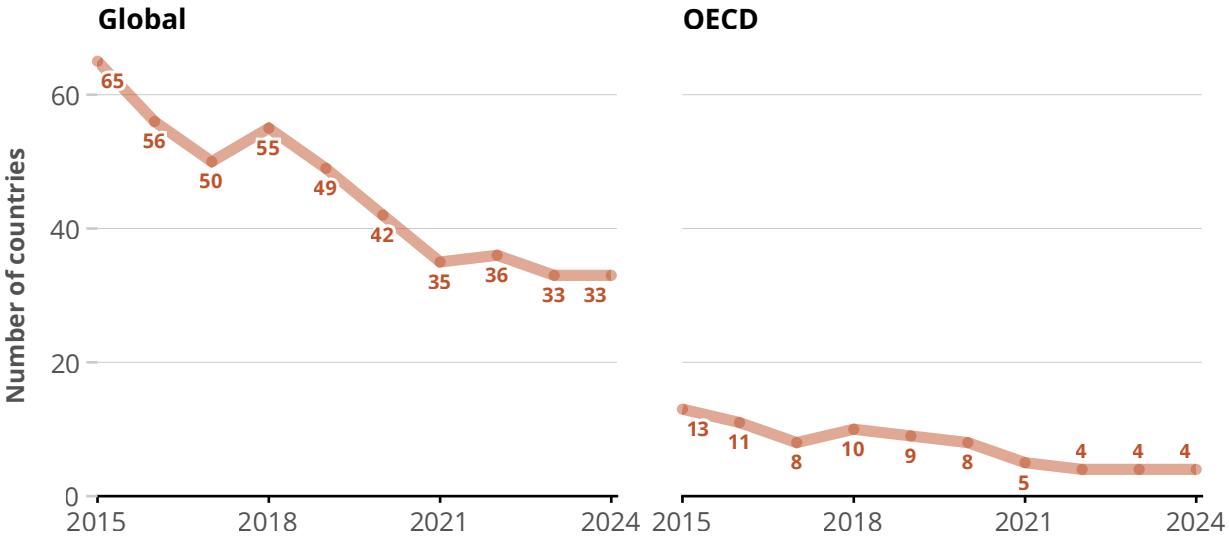
Source: Global Coal Plant Tracker, January 2025

Figure 14

As the world moves away from coal, the number of countries with coal plant proposals has grown more concentrated. In 2015, there were 65 countries with at least one coal plant proposal; in 2024, there were 33, a nearly 50% decline. The drop has been more dramatic in OECD countries, where four countries are proposing new coal plants in 2024, down from thirteen in 2015 (Figure 15).

Number of countries with coal plant proposals has nearly halved since 2015 and decreased threefold in the OECD

Number of countries with coal plant proposals (status announced, pre-permit, permitted) by year



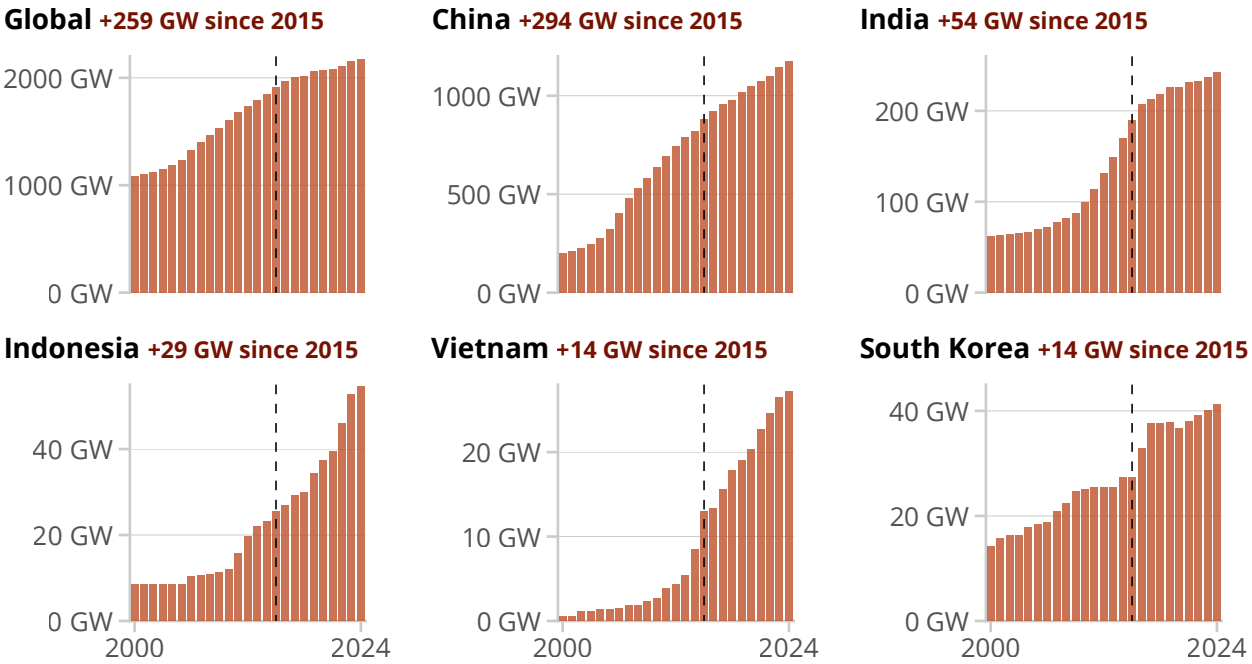
Source: Global Coal Plant Tracker, January 2025

Figure 15

In contrast, operating capacity continues to increase steadily. The global coal fleet has grown over 13% since 2015, from 1,916 GW to 2,175 GW. In all, 37 countries have increased their coal power capacity since 2015, led by China (294 GW), India (54 GW), Indonesia (29 GW), Vietnam, and South Korea (each 14 GW) (Figure 16).

China and India lead the countries that have added the most coal power capacity since 2015

Operating coal-fired power capacity globally and in the five countries where it has increased most since 2015 (dashed lines), in gigawatts (GW); each country on its own scale, highlighting trend changes



Source: Global Coal Plant Tracker, January 2025

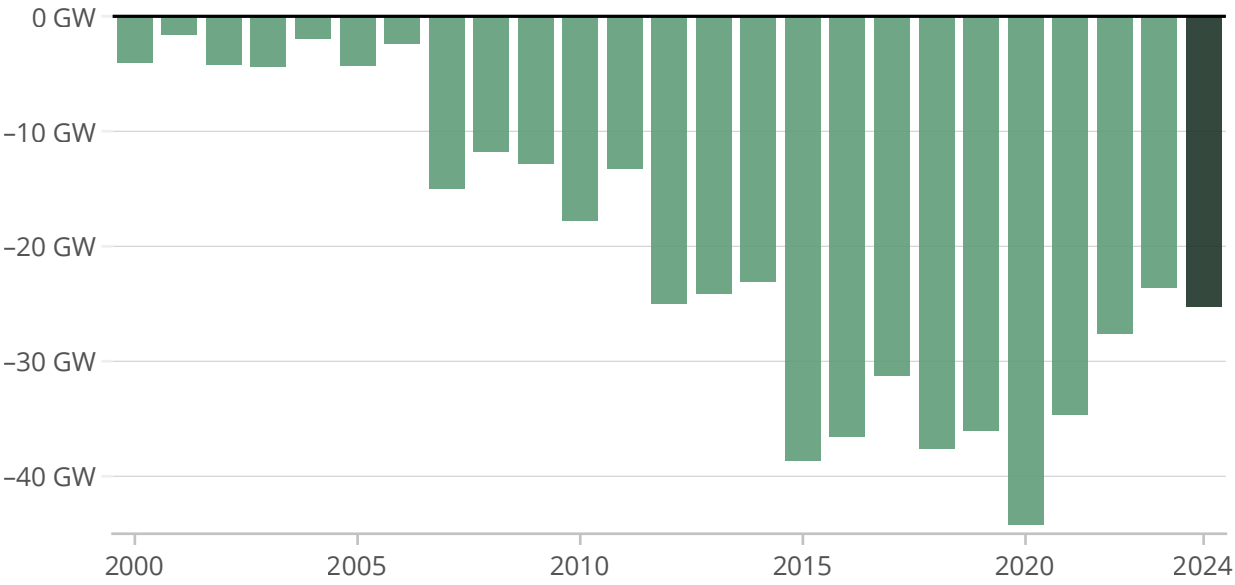
Figure 16

The growth has been consistently dominated by China, which for four of the past five years has single-handedly driven the increase in global coal power capacity by outpacing net declines in the rest of the world.

The number of countries retiring coal power capacity has increased from 17 in 2015 to 22 in 2024. Yet the annual amount retired actually decreased from 38.6 GW in 2015 to 25.2 GW in 2024, due to a slowdown in the U.S. and China. Annual coal power retirements globally are about one-fifth of what they need to be to phase out coal power by 2040 and keep warming below 1.5°C, in line with the IEA's Net Zero by 2050 scenario (Figure 17).

Coal power capacity retirements grow 7% in 2024, but need to increase five-fold to meet international climate goals

Global coal-fired power capacity retired annually, in gigawatts (GW)



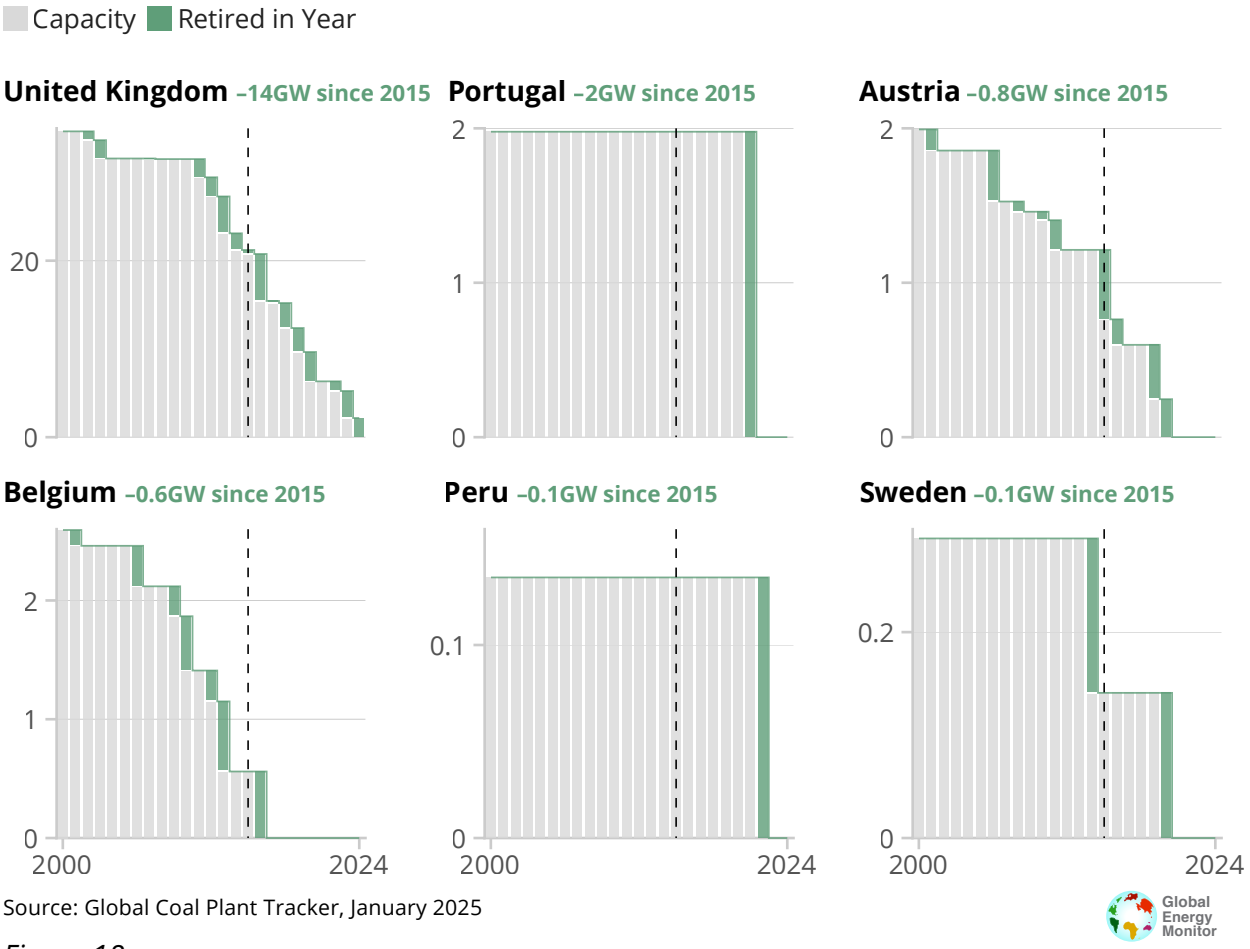
Source: Global Coal Plant Tracker, January 2025

Figure 17

In all, 30 countries have decreased their coal power capacity since 2015, six of which have eliminated it completely, including the UK — home to the world's first coal plant (Figure 18). Ten EU countries, including Spain, France, Italy, and the Netherlands, plan to follow suit by 2030.

Six countries have eliminated their coal power capacity since the 2015 Paris Agreement

Operating coal-fired power capacity in countries where it has been phased out since 2015 (dashed lines), in gigawatts (GW); each country on its own scale, highlighting trend changes



Source: Global Coal Plant Tracker, January 2025

Figure 18

Looking forward ten years to 2035, countries with coal proposals will fall even further. Legal rulings, coal permit moratoriums, and just transition plans are expected to end proposals for new grid-connected coal power plants in Indonesia, the Philippines, South Africa, and Vietnam, while captive coal proposals will face growing competition from green industrial developments. Rising electricity costs will likely sink new projects in countries like Bangladesh and Pakistan, while

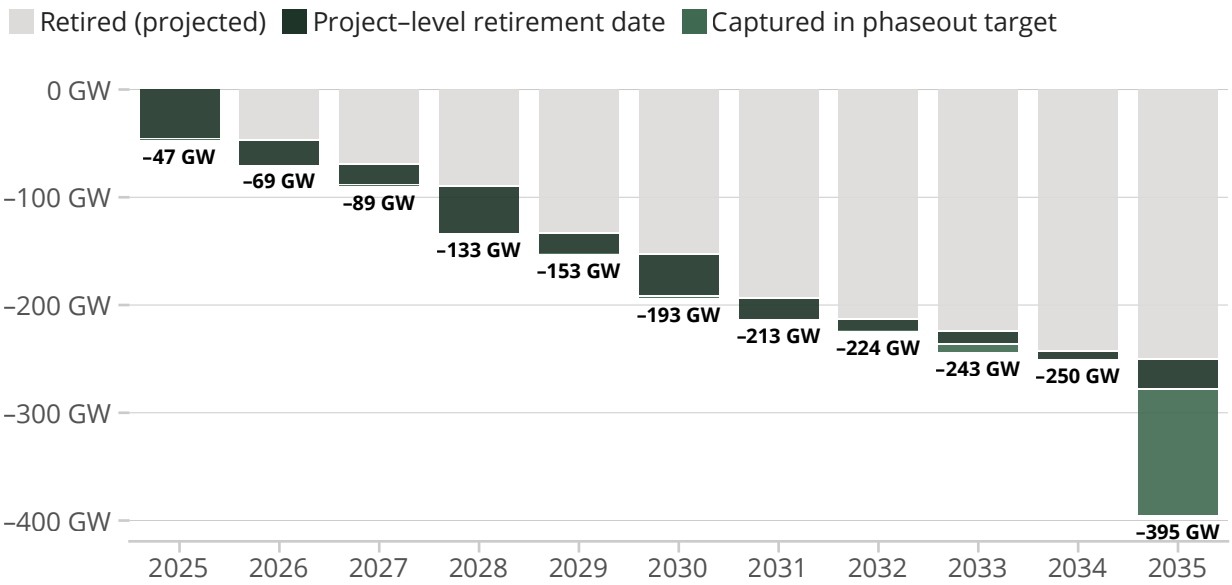
subsidies that have kept coal plants afloat in countries such as Brazil and Türkiye will erode.

Even China may see an end to new proposals, given the country's record-breaking solar and wind additions in 2023 and 2024 and the government's pledge to peak emissions "well before" 2030. As China pivots away from coal, its overseas financing of coal development will also dry up in favor of clean energy, affecting regions throughout its Belt and Road Initiative (BRI), including Africa and Asia.

The year 2035 is also crucial for the Paris climate agreement (Figure 19), as advanced economies should have phased out coal power by 2030, and the rest of the world by 2040, to keep warming below 1.5°C, according to the IEA Net Zero scenario.

Nearly 400 GW of coal power capacity, two-thirds of which is a project-level commitment, is projected to retire in the next decade

Global coal power capacity planned to retire from 2025 to 2035, in gigawatts



Source: Global Coal Plant Tracker, January 2025

Figure 19

By 2035, all but three EU countries (Bulgaria, Germany, and Poland) should be coal-free, based on their phaseout pledges and policies. Germany may be coal-free as well if the country meets its more ambitious 2030 coal phaseout goal. Any coal plants left operating in Bulgaria and Poland will face high operating costs from the region's emissions trading system, lowering their operating rates.

The Group of Seven (G7) countries should also largely be coal-free, based on a historic agreement made in 2024 to end the use of "unabated" coal power by 2035. However, the deal leaves some flexibility for coal-dominant countries like Japan and Germany to miss the target. At previous G7 meetings, Japan opposed the group's adoption of an ambitious coal phaseout goal and supported the omission of any abated coal capacity.

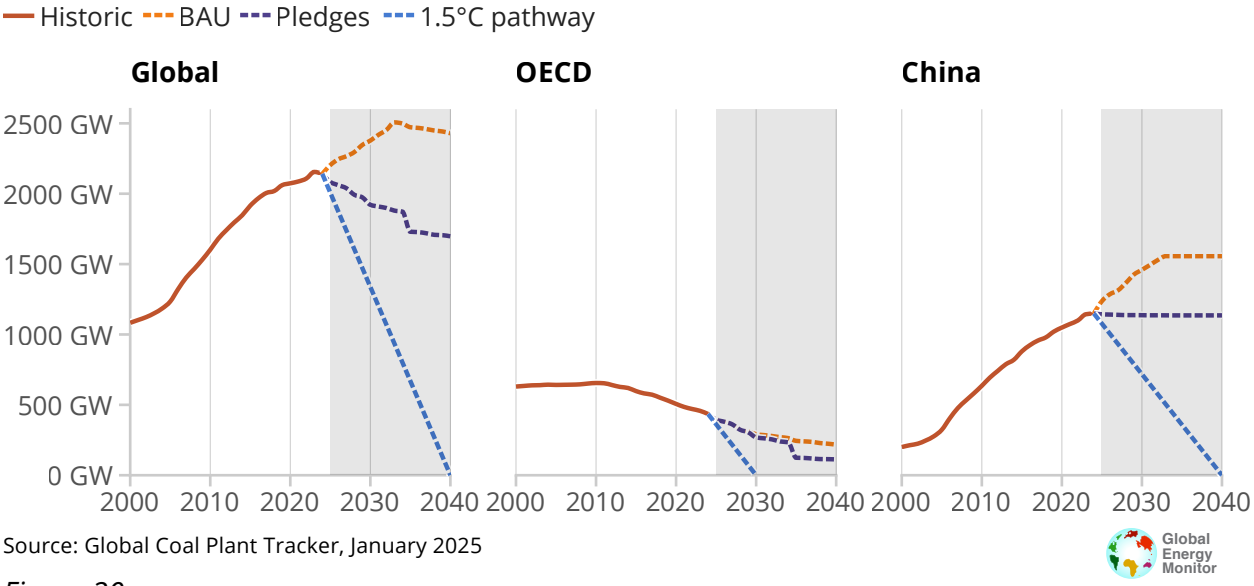
While the Intergovernmental Panel on Climate Change (IPCC) has suggested that only emission reduction rates of 90% or more be considered "abated," governments such as Japan and South Korea are pursuing ammonia co-firing as an abatement strategy, despite actual emission reductions from the technology falling well short of the 90% threshold unless the ratio of coal to ammonia is almost entirely the latter.

Under the second term of the Trump administration, the U.S. is also resisting the shuttering of its coal fleet. However, poor economics and the advanced age of the country's fleet (averaging over 50 years by 2035) mean that the plants will face an uphill battle to stay online beyond the country's 2035 coal phaseout pledge.

Still, phaseout pledges and planned retirement dates at the project level fall short of Paris-aligned 2030 to 2040 coal phaseout goals, while the "business as usual" commissioning of planned coal power capacity would continue to increase capacity through 2030 (Figure 20).

Planned retirements and pledges are not on track to meet the Paris climate agreement

Coal capacity to 2040 based on all proposals being built (BAU) and planned retirements and commitments being met (Pledges), compared to a 1.5°C pathway



Source: Global Coal Plant Tracker, January 2025

Figure 20

According to the Global Coal Plant Tracker, 1,780 GW of existing coal power capacity could remain in operation in 2035, comprising operating capacity that does not have a project-level retirement date and is not covered by a national coal phaseout commitment. Of this capacity, the average plant would have been operating for 29 years by 2035, and for 44 years outside of China.

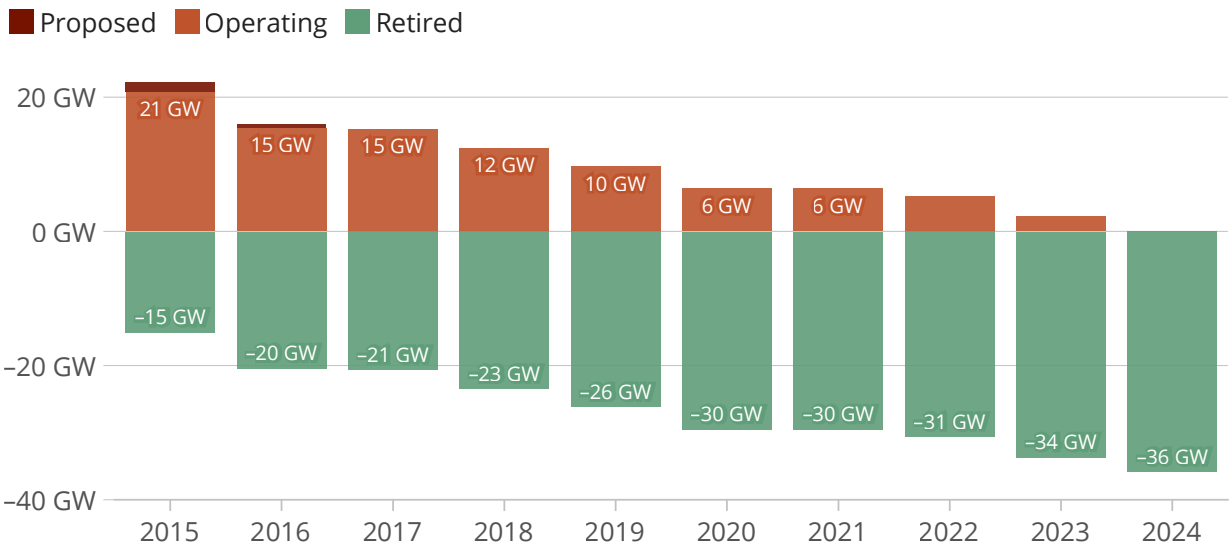
This future is not inevitable, however. GEM's Global Solar and Wind Power Trackers project a combined 1,212 GW of utility-scale renewable energy capacity to be operationalized by 2035, with thousands of gigawatts of other clean energy also under development through the next decade. Canceling new coal capacity proposals and planning for a shorter lifetime for coal plants, combined with reducing utilization rates to back up increasing amounts of renewable power, could help put the Paris climate agreement on track.

UK leads the way on coal phaseout

In 2024, the UK delivered on its promise to phase out coal power with the closure of the country's final operating coal plant in September, becoming the first G7 country and advanced economy to do so (Figure 21). Coal's decline in the UK was rapid, plunging from nearly 30% of UK power capacity in 2010 to zero today. The UK's success comes as a result of stable government policy with bipartisan political support, effective regulations, and targeted support for renewable energy. As a global leader in coal diplomacy, the UK has set an example for advanced economies to follow. Since establishing the Powering Past Coal Alliance (PPCA) with Canada in 2017, the UK has played a pivotal role in driving diplomatic momentum for the coal-to-clean transition.

The UK ended coal proposals in 2018 and closed its last coal plant in 2024

UK coal power capacity by status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Retired includes capacity retired since 2010.

Figure 21

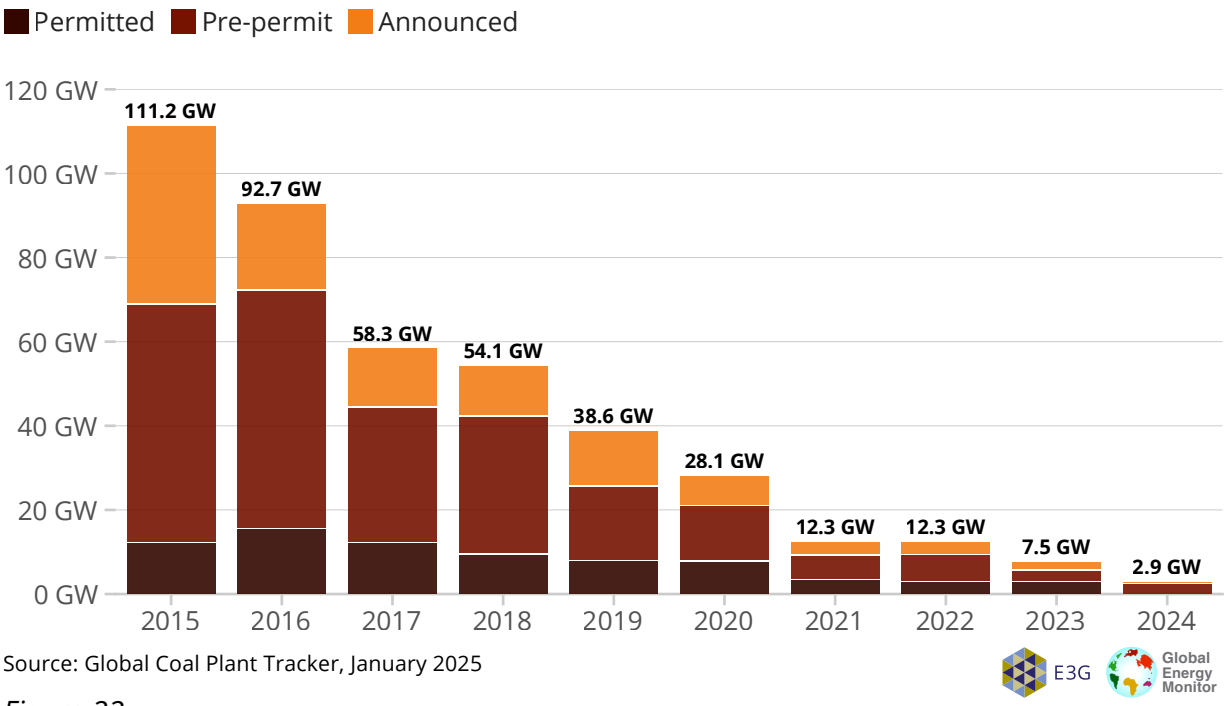
This milestone has been part of a global shift. To date, 76 governments have committed to end the construction of coal plants, while 36 countries have cancelled all of their coal proposals since 2015. The remaining pre-construction proposals are spread across 33 countries, 42% (fourteen) of which have just one project. Six countries have phased out coal power entirely since the 2015 Paris climate agreement. Of the 78 countries that still have operating coal plants, over 40% (33) have just one or two coal plants remaining.

Currently, there are no projects under construction in any G7 countries. Similarly, advanced economies (OECD/EU27) have not initiated new coal plant constructions since 2020. The landscape has changed dramatically from 2015, when 43 coal-fired units were being built in the OECD/EU27 compared to two today, comprising the 1.1 GW Unit 2 of the Samcheok power station in South Korea and the 0.1 GW Pulawy power station in Poland. South Korea also commissioned Unit 1 of Samcheok in 2024, adding 1.1 GW to its coal fleet — the last coal plant that will be built in the country, according to the government.

For pre-construction, only the U.S., Australia, Türkiye, and Japan still have new planned coal projects in the OECD/EU27. Globally, the OECD/EU27 is leading in achieving the "no new coal" milestone, with only 2.9 GW of planned coal capacity left in 2024 — a drastic 97% reduction from planned capacity a decade ago (Figure 22). In the OECD, coal plant proposals are down from 142 in 2015 to five today. All but one coal proposal in the OECD/EU27 include plans to lessen or "abate" emissions through carbon capture and storage (CCS), raising project costs and decreasing the likelihood of being competitive against clean alternatives.

The OECD and EU27 are getting closer to no new coal

Coal-fired power capacity in OECD and EU27 countries by status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 22

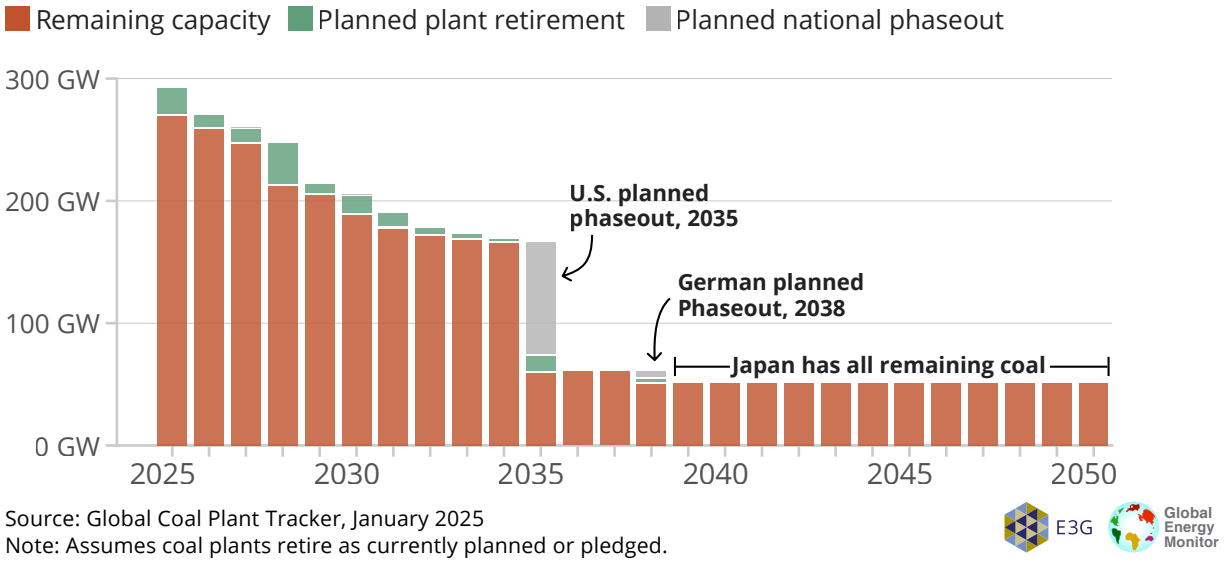
Transitioning away from coal, however, entails both the cancellation of new coal projects and the retirement of existing plants. Of the 25.2 GW retired globally in 2024, 19.2 GW was retired in the OECD and 15.3 GW retired in the G7. The individual countries to retire the most coal capacity were Germany (6.7 GW) and the United States (4.7 GW), followed by China (2.4 GW). While the G7 and OECD are leading on coal plant retirements, the pace needs to be accelerated to put the world on a pathway to no more than 1.5°C of warming, requiring wealthy countries to phase out unabated coal power by 2030, according to the IEA's Net Zero scenario.

The G7 countries currently operate 292 GW of coal capacity and retired 86 GW in the last five years (since 2020). In 2024, they collectively committed to achieving a net-zero power system by 2035, a target that is incompatible with continued reliance on unabated coal. Meeting this commitment will require an immediate

acceleration of coal retirement and phaseout plans across the G7 countries. For Germany, this means meeting its more ambitious 2030 phaseout goal rather than its formal phaseout year of 2038, and for the U.S. it means accelerating planned plant-level retirements to meet its country-level coal phaseout commitment of 2035. The U.S. also has two CCS coal proposals (2 x 0.4 GW) that are in early stages of planning and could be cancelled to accelerate the shift away from coal. For Japan, meeting the commitment means planning for the shutdown of its coal plants, which are currently the only coal power capacity in the G7 not planned for phaseout (Figure 23).

Current G7 retirement and phaseout plans need to be sped up to meet the region's pledge for a net-zero grid by 2035

Coal power capacity in G7 countries by status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Assumes coal plants retire as currently planned or pledged. Does not assume a plant lifetime.

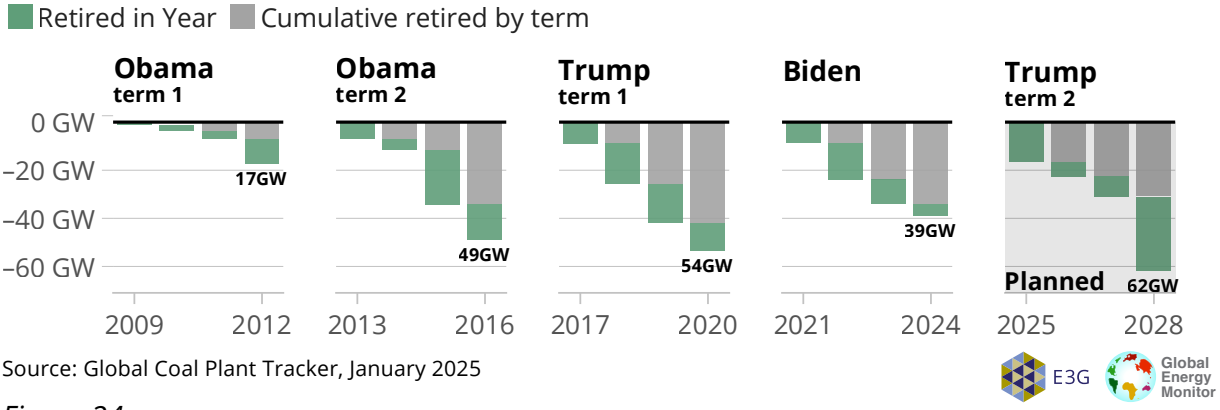
Figure 23

There is uncertainty regarding the U.S. coal commitments given the recent return of Donald Trump as president. Despite Trump's support for coal, however, more coal was retired during Trump's first term (averaging 13.4 GW/year) than during either of Obama's terms (8.3 GW/year) or Biden's (9.7 GW/year) term. Trump's

first term shows the difficulty of counteracting the declining economic feasibility of coal power in the U.S., coupled with the advanced age of the country's coal plants. And the trend is set to continue: Between 2025 and 2028, about 62 GW of operating coal capacity in the U.S. is scheduled for retirement (Figure 24). Most of these coal plants became operational in the 1970s and have reached an average age of 50 years, long past the global average operational lifespan of 37 years. Even with Trump in power, the U.S. still has a 2035 target to achieve a net-zero power system and remains aligned with the coal-to-clean transition for now.

More coal power capacity retired under Trump's first term than Obama or Biden's terms — a trend set to continue

U.S. coal retirements under the Obama, Trump, and Biden presidencies, in gigawatts.



Source: Global Coal Plant Tracker, January 2025

Figure 24

More broadly, the OECD and EU27 have retired 115.8 GW of capacity since 2020. However, these retirements represent only one-fifth of the OECD/EU27's operating coal fleet — which remains at a sizable 445.7 GW. There is significant work still to do on retiring the coal fleets at a pace in line with country phaseout commitments and international climate commitments. Given that coal plants across the OECD/EU27 countries have reached an average age of 37 years — the average global age for retirement — many are approaching the end of their commercial lifespans, presenting substantial economic and technical reasons for accelerating retirements and following the UK's lead.

Private finance coal policy trends

The slowdown seen in 2023 in the number of new or updated coal policies adopted by major financial institutions continued in 2024, with only 22 major financial institutions making coal policy moves. By the end of 2024, 46% of the 318 main financial institutions covered in the Reclaim Finance Coal Policy Tracker had at least a basic coal policy.

The same drivers creating headwinds for progress on coal at financial institutions seem to have been at play in 2024 as in the previous year:

- Most policy changes were updates of existing policies rather than new ones;
- Many major financial institutions consider that they have already sufficiently addressed coal and have turned their attention to oil and gas, even though their coal policies still contain significant loopholes;
- Instead of strengthening their fossil fuel policies, many financial institutions have turned their climate policy focus to sectoral or cross-portfolio decarbonisation targets. However, for banks, these targets often only cover lending, not the issuance of new bonds and shares (although members of the Net-Zero Banking Alliance are supposed to issue "facilitated emission" targets in 2025) and mostly do not exclude coal developers. Only 50 major financial institutions have adopted restrictions regarding coal developers;
- Geopolitics has also played a role. The war in Ukraine and related concerns over energy security have influenced policy decisions, especially in Asia, with very few new or updated policies being adopted in this region in 2024;
- The anti-ESG movement in the U.S. also had some impact, particularly in North America, in the adoption of coal policies by financial institutions in this region.

Despite this slowdown, there were some positive developments. Eight banks — HSBC, Standard Chartered, DBS, UOB, OCBC, Mizuho, SMBC, and QNB — added provisions to their coal policies allowing for the financing of coal plant retirements.

A key highlight in 2024 was the adoption of new restrictions on the financing of metallurgical (met) coal.[2] Thirteen major financial institutions now have some met coal restrictions. These include:

- French bank Société Générale, which excluded financing for all met coal projects, including infrastructure projects, as well as a commitment to not take on any new clients that derive more than 50% of revenues from met coal extraction.
- Swiss insurer Zurich excluded financing of new met coal mines at the project level. It also excluded finance for companies planning met coal mining expansion, making it the first major financial institution, and the first one outside of France, to restrict corporate finance for met coal expanders.
- Australian bank NAB excluded finance for new greenfield met coal mining projects.

On the negative side, the only major financial institution that backtracked on its coal policy in 2024 was Australia's Macquarie bank, which partially rolled back its metallurgical coal mining restrictions.

Private sector financial support for the thermal coal industry remains high. In May 2024, Urgewald's Still Banking on Coal report revealed that commercial banks provided US$470 billion in loans and underwriting to the coal industry between January 2021 and December 2023. An analysis of the financial support of 638 banks showed that only around 140 have significantly decreased their

2. Metallurgical coal refers to different types of coal — including coking and non-coking coal — used in steelmaking.

lending and underwriting services for the coal industry since 2016. Of these banks, 423 have maintained their financing at roughly the same level over this time period, while 75 banks have actually increased their support for the coal sector.

Similarly, Urgewald's Investing in Climate Chaos report published in July 2024 revealed that as of May 2024, US$1.2 trillion was invested by 5,260 institutional investors in bonds and shares of companies on the Global Coal Exit List (GCEL). Many of these investors claim to be engaging with the coal industry to push them to transition, but their engagement efforts have had little impact. Over 95% of companies on the GCEL have failed to set a coal exit date, and 40% are still planning to develop new coal assets. Such investments in these companies directly undermine the energy transition and enable continued coal development.

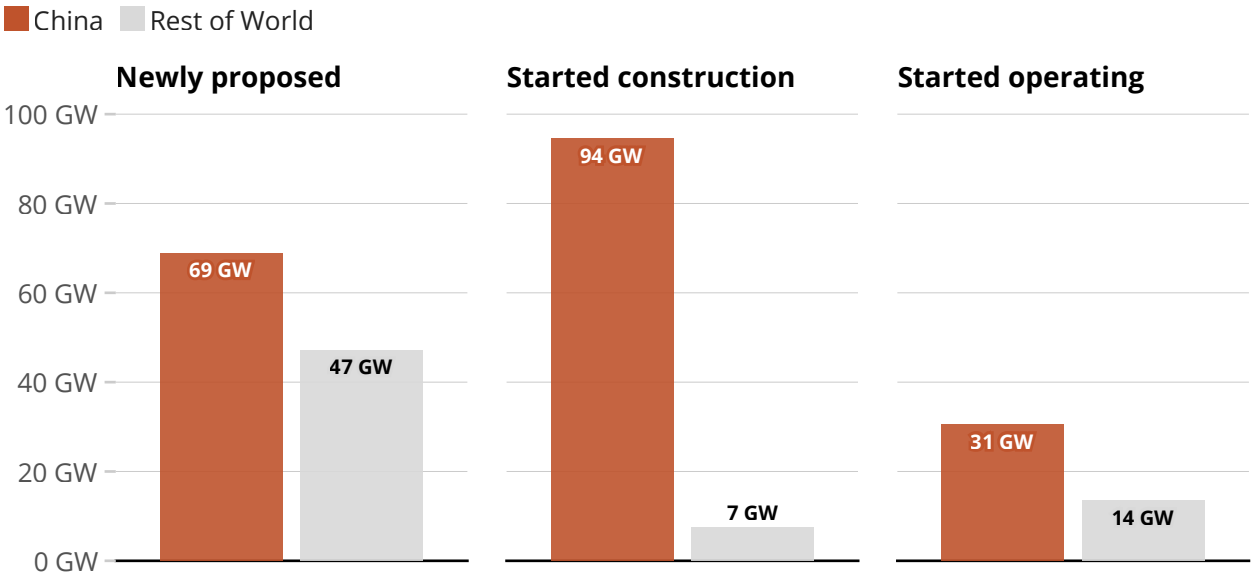
Country/Regional analysis

China sees highest construction starts in a decade

At 1,175 GW, China is home to 55% of the world's coal power capacity and 69% (421 GW) of all global coal power capacity under development. In 2024, China continued to dominate global coal trends, with new proposals, commissioning, and construction starts all higher in China than the rest of the world combined (Figure 25).

Proposals, construction starts, and coal capacity brought online in 2024 are higher in China than the rest of the world combined

Coal-fired power capacity by status and region, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Newly proposed includes both new proposals and reactivated proposals

Figure 25

China's 94 GW of construction starts in 2024 were higher than any year since 2015. The boom in construction followed a resurgence in coal plant permitting from 2022 to 2023, when more than 200 GW of coal power was approved for construction — more than the entire coal fleet of the U.S.

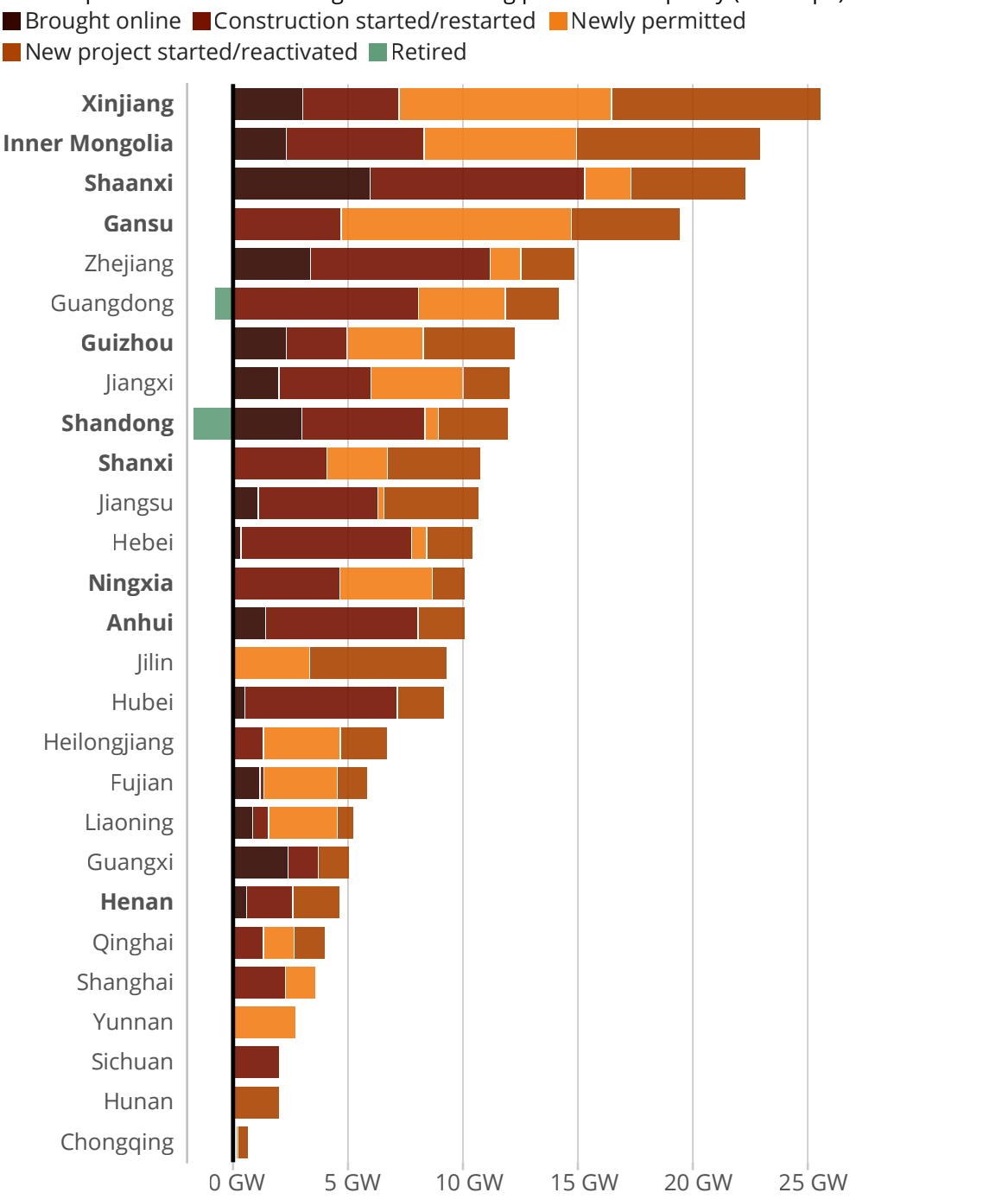
China's permitting and construction spree contradicts President Xi's pledge to strictly control coal power projects as well as government guidance that new coal plants during the country's 14th Five Year Plan (2021–2025) be built to back up growing but variable renewable power generation. China installed record amounts of renewable energy capacity in 2023 and again in 2024, bringing total solar and wind capacity up to 890 GW and 520 GW, respectively. China's clean energy growth was sufficient to fully cover the country's electricity demand growth from March to December 2024, once post-COVID stimulus spending to boost industrial growth cooled. The rapid expansion highlights China's leadership in renewables — but has yet to displace the country's parallel leadership in coal power.

China's coal permitting spree also followed widespread power shortages in China from late 2021 to early 2022, when a drought drastically reduced the country's hydropower output, exposing the grid's lack of flexibility. Although some authorities argued more coal power was needed to "firm up" the country's power system and prevent such shortages in the future, a more flexible grid would have reduced the need for additional coal capacity. Since 2022, most coal permits have been issued in regions with more than enough coal capacity to meet peak demand. A CREA-GEM analysis of China's permit data found that more than three-quarters of all newly approved coal power projects in 2024 were financed by coal mining companies or energy groups with coal mining operations. Major coal-producing provinces including Xinjiang, Inner Mongolia, Shaanxi, and Gansu are commissioning and building the most new coal power, effectively creating new demand for their supply (Figure 26).

China's major coal-producing provinces lead coal development in 2024

Status changes in coal-fired power capacity in 2024 by province, in gigawatts

Bolded provinces: those with highest coal-mining production capacity (>50 mtpa).



Source: Global Coal Plant Tracker, January 2025
Note: Categories are not mutually exclusive–e.g. plants that both obtained permits and started construction are included in both categories.

Figure 26

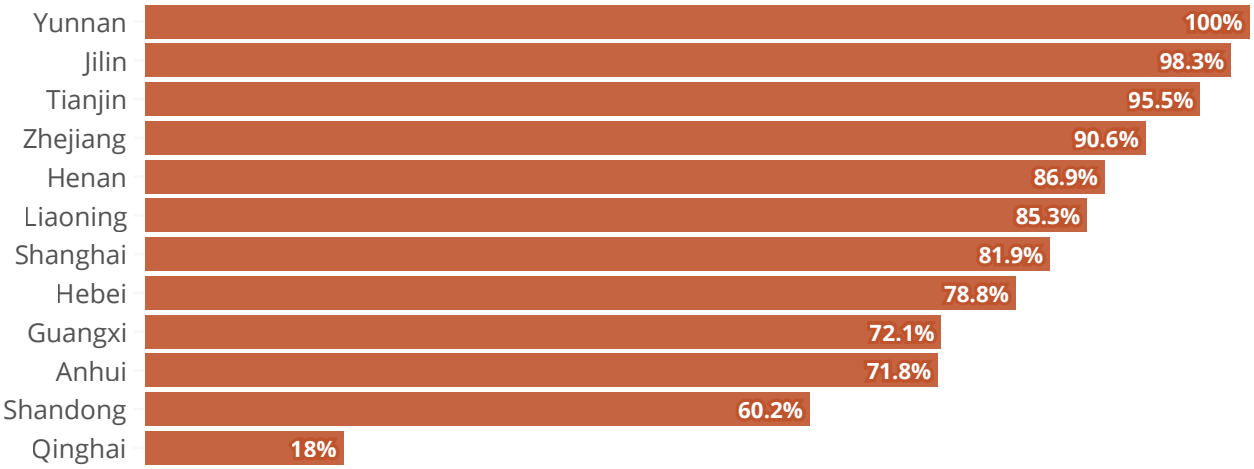
The expansion in new coal power is also encouraged through government policy. Since 2020, long-term power purchase agreements (PPAs) have required coal power plants to secure contracts covering at least 80% of their projected annual output. The PPAs essentially guarantee baseline utilization rates and compel electricity buyers to fulfil their coal power obligations under the agreements even when cleaner and cheaper energy options like solar and wind are available. Long-term PPAs also encourage the continued building of coal, as nearly all new coal plants secure purchase agreements before becoming operational.

Coal power is further supported through the country's coal capacity payment mechanism, which came into effect on January 1, 2024. The mechanism is meant to cover the plant's fixed operating costs so they are ready to meet demand peaks and support growing electricity generation from variable wind and solar power. While the mechanism is only available to coal units and not other demand peak solutions such as energy storage or demand response, the national guidelines limit coverage to coal units that meet certain criteria, including energy efficiency, environmental, or flexibility standards. Despite the restrictions, an analysis by GEM found that most participating provinces were able to include anywhere from 70% to 100% of their coal power capacity in the mechanism (Figure 27). Such policy and financial support for coal — including older and less efficient plants — may be contributing to the country's recent slowdown in retirements, which have averaged just 4 GW a year since the start of the 14 FYP in 2021.

The continued pursuit of coal plants by primarily Chinese mining companies is in direct contradiction with President Xi's pledge to strictly control coal power projects and strictly limit the increase in coal consumption within the 14 FYP and phase down its use during the 15 FYP, between 2026 and 2030. A wave of new coal plants could also prolong the country's pledged CO_2 emissions peak before 2030, which is key to eventually lowering global emissions.

Most coal power eligible for China's coal capacity payment mechanism, despite policy restrictions

Share of coal power capacity by province enrolled in China's coal capacity payment mechanism (%)



Source: Global Coal Plant Tracker, January 2025
Note: Chart shows the 12 provinces with a publicly available list of the plants receiving capacity payments.

Figure 27

Policy reforms could help tilt the country's energy system toward clean power. Such reforms include reducing the share of coal power covered by long-term PPAs, limiting or ending new coal plant approvals, and creating more incentives for battery storage, flexible demand, and a robust spot market to enhance system flexibility and the large-scale integration of renewables. In addition, China should formulate a national roadmap with a detailed timetable and plan for coal-fired power retirement to eliminate obsolete capacity and shut down inefficient and high-emission coal-fired power units, particularly those below 0.3 GW. These reforms, coupled with ambitious coal consumption and emission reduction targets in the country's 15 FYP (2026–2030) and an updated national climate plan, could help put China on a decisive path away from coal and toward decarbonisation.

India proposes most new coal plants in a decade

India is second globally in operating coal-fired capacity (243 GW) and capacity under development (111 GW), following China. The Indian government has committed to "phase down" the use of coal, but has not set a formal timeline for when such a phase down in generation or capacity will begin. Instead, the government is planning a coal expansion, saying coal use in the country will likely not peak until 2040 — the year that unabated coal power should be phased out globally to meet the 1.5°C target of the Paris climate agreement, according to the IEA's Net Zero scenario.

The country had seen notable declines in coal proposals and commissioning following a coal plant investment bubble that went bust in the early 2010s, drying up coal plant funding and demand and leading to hundreds of gigawatts of cancellations and coal plants frozen in construction. Yet the government is again encouraging and fast-tracking the development of large coal plants, citing the need to meet the country's growing electricity demand — not just from economic growth but also increasing cooling demand from climate-fueled heat waves, with cooling estimated to have driven nearly half of the 10% annual increase in electricity demand during the April 2024 heat wave. The power ministry directed generators using imported coal to operate at maximum capacity in 2024 to meet the demand, leading to record high coal power generation in 2024 — and a new high for India's CO_2 emissions at 1.2 billion metric tons. A government panel was formed in 2024 to monitor progress toward the goal of adding 93 GW of new coal power capacity by 2032.

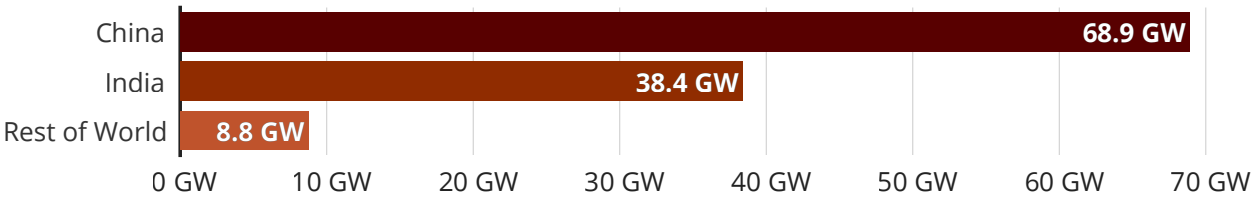
While the Indian government has renewed its support for coal, the country also added 28.6 GW of renewable capacity in 2024, a record high. Still, the country needs to roughly double the amount of annual renewable builds to meet its 500 GW non-fossil capacity by the 2030 target. Had the country doubled its solar and wind capacity additions to 60 GW in 2024, and used it at national average utilization rates, the increase in generation would have been sufficient to cover an estimated 90% of the country's 5.8% growth in power demand in 2024 — particularly more

wind power to complement non-solar hour demand. According to a 2025 report by the Council on Energy, Environment, and Water (CEEW), if India meets its 2030 non-fossil target then only a small fraction of the proposed new coal capacity is needed to meet demand, even if demand exceeds government projections. The report also highlights that a high renewable energy growth scenario of 600 GW non-fossil by 2030 was the most cost effective route to meeting demand. With the IEA reporting that solar PV with batteries are cheaper in India than building new coal plants, shifting the country's investments from coal power to solar, wind, and batteries could help the country meet its entire load growth with clean energy at lower electricity costs — and more quickly than coal, given that coal plants in India take on average 7 to 9 years after first being proposed to come online.

When it comes to new coal capacity proposals, the resurgent support for coal has put India on the heels of China, the country that for the past several years has been the isolated global leader in continued coal plant development. Combined, India and China accounted for 92% (107.3 GW) of all newly proposed coal power capacity on the globe in 2024 (116.1 GW) (Figure 28). (While China remains the main proponent of new coal plants, China is also the global leader in clean energy, commissioning thirteen times as much solar and wind power capacity in 2024 (357 GW) as India (28.6 GW).)

China and India behind over 90% of all newly proposed coal-fired capacity in 2024

Coal-fired capacity proposed in 2024, in gigawatts (GW)



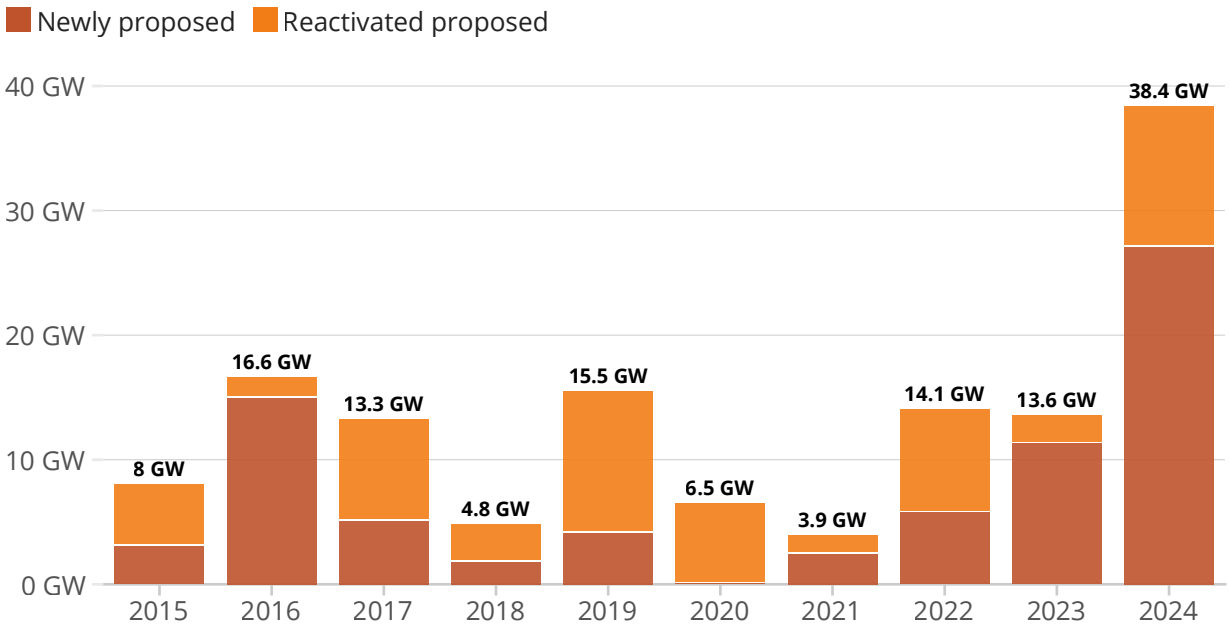
Source: Global Coal Plant Tracker, January 2025
Note: Includes both new proposals and revived proposals.

Figure 28

India itself made up one-third of new global coal proposals in 2024, comprising 27.2 GW of new proposals and 11.2 GW of reactivated proposals, for a combined total of 38.4 GW — the country's highest year for new coal plant proposals since at least 2015 (Figure 29). About 60% (22.1 GW) of the 38.4 GW of new proposals are sponsored by state-owned entities (SOEs) using public funds, according to GEM's Global Energy Ownership Tracker. Of the 16.3 GW of newly proposed non-SOE capacity, 60% (9.6 GW) is sponsored by India's Adani Power, a company that has faced multiple corruption charges and has close ties to top members of the Indian government. The 38.4 GW of new proposals has increased India's total pre-construction coal plant capacity by over 75% from 2023, to 81.4 GW in 2024.

New and revived coal proposals in India hit record high

Newly proposed coal power capacity by status and year, in gigawatts (GW)



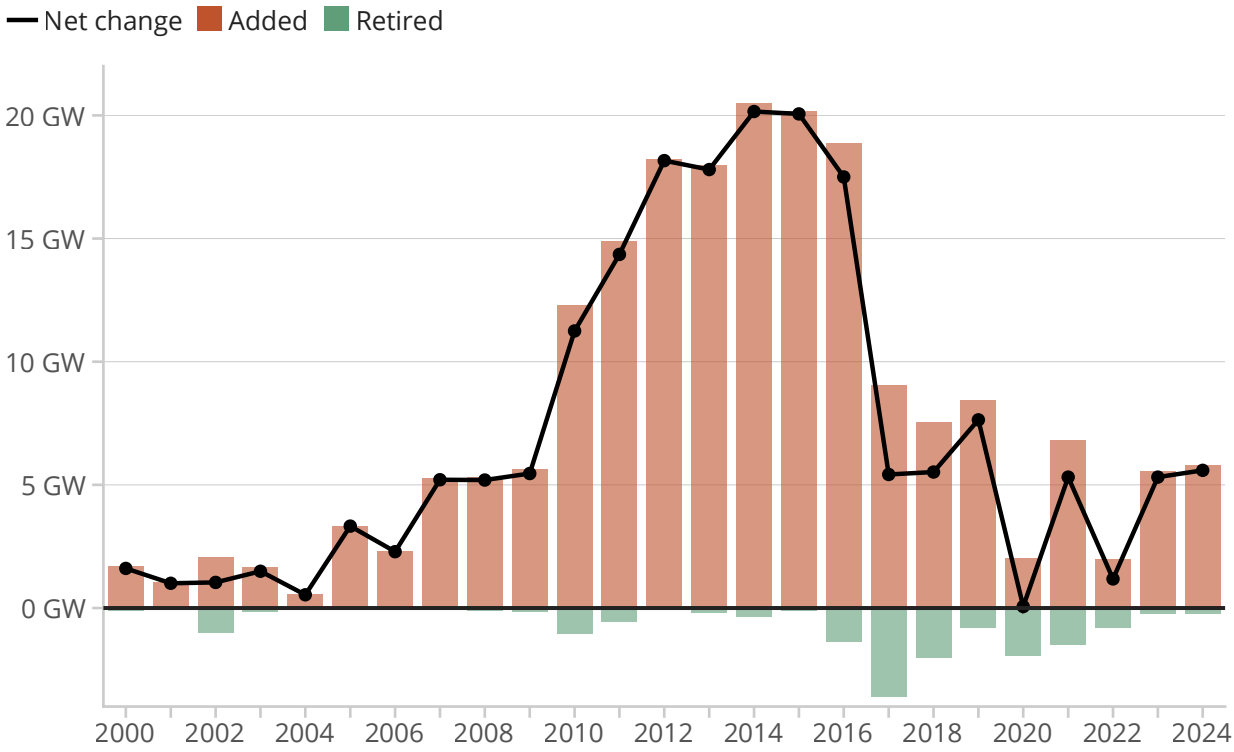
Source: Global Coal Plant Tracker, January 2025
Note: Reactivated proposals were shelved or cancelled and then revived

Figure 29

Operating capacity also saw a small increase for the year. In 2024, India added 5.8 GW of new coal-fired capacity and retired 0.2 GW for a net increase in capacity of 5.6 GW — the highest growth in India's coal fleet since 2019 (Figure 30). Retirements remained sluggish, with 2024 tied with the 0.2 GW retired in 2023 as the lowest retired since 2015. The decline in retirements follow 2023 guidance by India's Central Electricity Authority (CEA) advising power utilities not to retire any thermal power capacity until 2030, despite retirements from 2017 to 2022 being less than half of what was originally anticipated by the CEA (11 GW of 23 GW).

India sees highest net growth in operating coal fleet since 2019

Coal-fired power capacity added and retired each year and the net change, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 30

The low retirements are notable given the amount of older capacity operating in India without mandated pollution controls. Despite regulations passed in 2015, just 8% of coal plants in India have equipment for sulfur dioxide (SO_2) and nitrogen oxide (NOx) removal, due to regulatory delays following heavy lobbying pressure from major Indian power companies including Adani Power. Emissions of these pollutants lead to the formation of fine particulate matter (PM2.5), contributing to the Airpocalypse haze events in the country and the premature deaths of an estimated hundred thousand Indian residents a year. In December 2024, the most recent of a series of emissions compliance extensions granted an additional three years of emissions leeway to all thermal power stations, and offered total exemption from SO_2 emissions compliance for coal plants set to retire by 2030 — the same year through which utilities have been encouraged by the government to keep their coal plants operating.

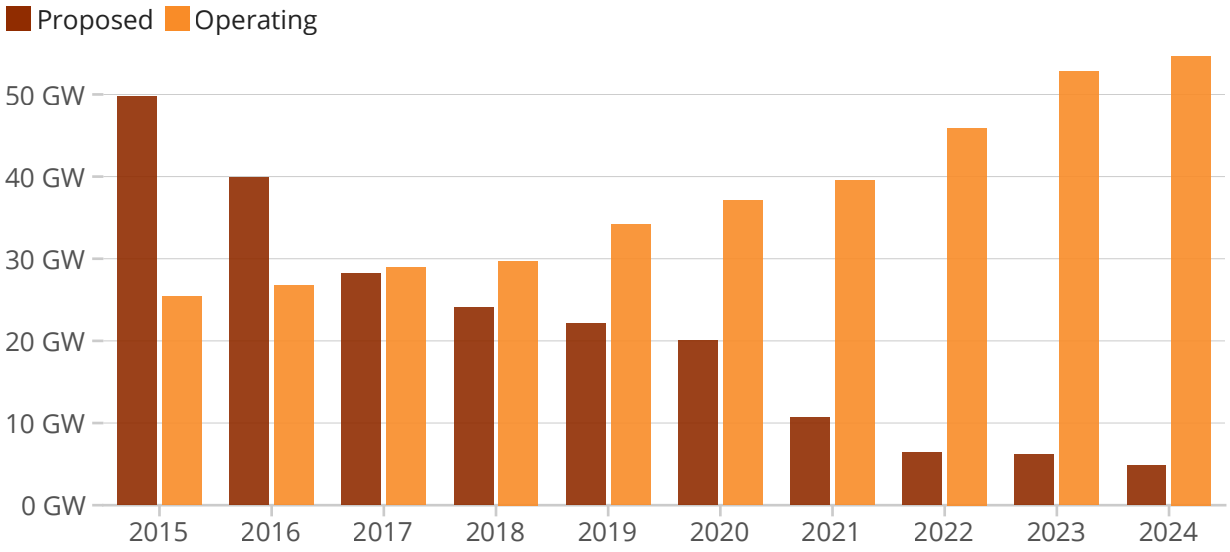
India has also promoted new coal power in Africa, particularly in coal-rich southern countries. In Zimbabwe, for example, Jindal Steel and Power announced plans to expand the Hwange power station by 1.2 GW, as well as refurbish the coal plant's six existing units built in the mid-1980s. The two projects at Hwange are valued at US$5 billion, the largest single investment that Zimbabwe has reportedly ever seen. Jindal is also continuing to develop the recently revived and expanded proposal for the 0.6 GW Mmamabula Energy Project in neighboring Botswana. In Zambia, India-based Nava Limited began construction on a 0.3 GW expansion at the Maamba power station, which was permitted promptly amid a drought-fueled energy crisis across the country.

Indonesia's captive coal surge conflicts with its just transition goals

Indonesia operates the fifth-largest coal plant fleet in the world (54.7 GW). Proposed coal-fired capacity has decreased by 90% in the last decade, from 49.9 GW in 2015 to 4.9 GW in 2024, as stagnant annual economic growth over the past decade has led to a proportionate increase in electricity absorption by consumers. Despite the stable uptake of grid-connected power, the number of operational coal plants across the country continues to increase (Figure 31), with the majority coming from captive power plants linked to energy-intensive industries.

Indonesia's proposed coal capacity is down 90%, but operating capacity doubled in 10 years

Annual coal-fired capacity in Indonesia by status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

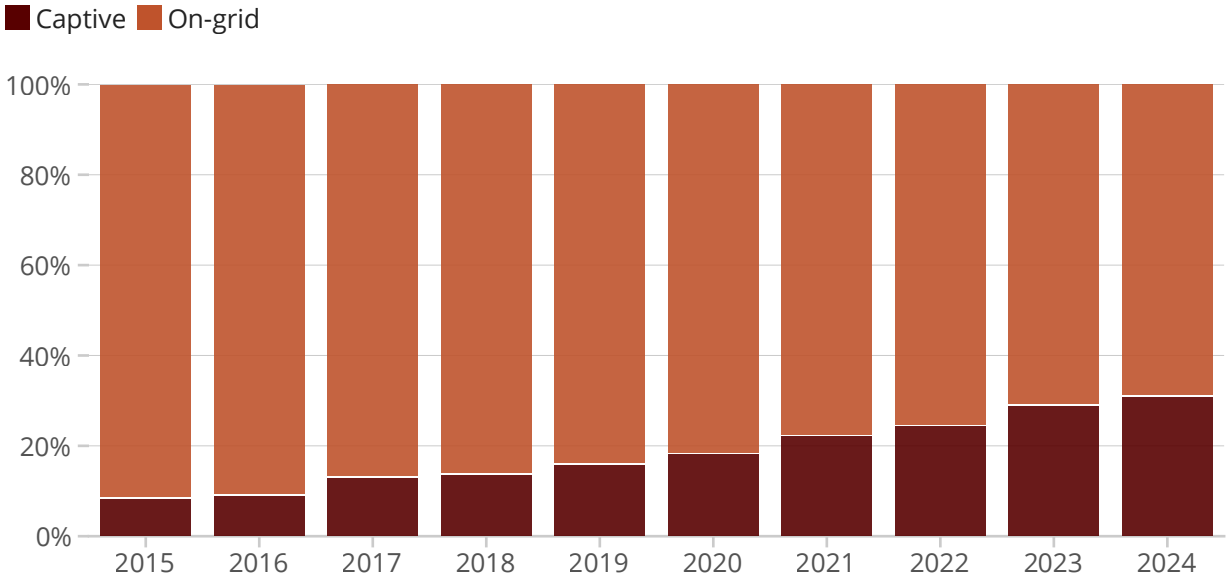
Figure 31

Indonesia took a major step in initiating a transition away from coal power with the issuance of Presidential Regulation 112/2022, designed to halt the deployment of new coal plants after 2022 and set a 2050 national coal phaseout target. Exemptions to the 2022 moratorium, however, apply to both on-grid coal plants

outlined in the existing electricity supply plan and captive coal plants designed to support national strategic activities and "added-value" industries. The latter continues to make way for significant additions of new coal capacity in the country (Figure 32), and 2024 data show that captive coal plants accounted for over 80% of the 1.9 GW new capacity additions in Indonesia. An additional 1.1 GW of coal capacity entered construction in 2024, all of which is planned for captive use.

Captive coal's share of the total coal capacity in Indonesia has nearly quadrupled in ten years, from 8% to 31%

Percentage of Indonesia's total operating coal capacity, by year



Source: Global Coal Plant Tracker, January 2025

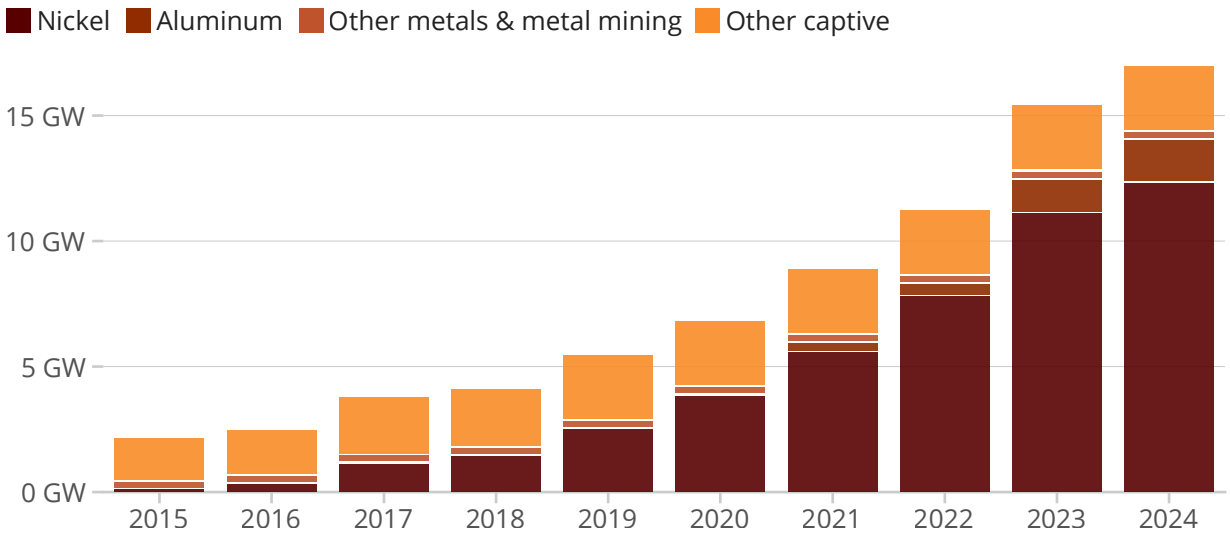
Figure 32

According to the Global Coal Plant Tracker, Indonesia has 130 captive coal units of 30 megawatts (MW) or larger in operation and an additional 21 captive coal units in pre-construction and construction. The significant captive capacity in Indonesia is largely attributed to the metal processing sector (Figure 33), more than tripling the operating captive capacity in the country between 2019 (5.5 GW) and 2024 (16.6 GW). The industrial sector accounts for nearly half of Indonesia's total energy consumption, boosted by the continued prioritization

of industrial parks, nickel and aluminum smelters, and other national strategic projects through Indonesia's green investment taxonomy. Additionally, captive capacity continues to be an apparent loophole to China's commitment to cease coal plant development abroad, and captive coal plants have yet to be reconciled in Indonesia's broader energy transition planning from late 2023.

Nickel processing industry now dominates Indonesia's captive coal fleet

Operating captive coal capacity by sector, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 33

Indonesian President Prabowo Subianto, who took office in late 2024, initially brought optimism by announcing plans to shut down all fossil-fueled power plants within the next fifteen years, by 2040. However, his statement was subsequently refuted by his climate envoy and brother, Hashim Djojohadikusumo. Hashim argued that shutting down all coal-fired power stations by 2040 would be "economic suicide," claiming that his brother's statement was incorrect and misquoted.

To date, fossil fuel power plants represent 85% of Indonesia's total energy mix. Unfortunately, the president's ambitious remark at the November 2024 G20 Summit does not align with Indonesia's existing regulatory context. The recently released National Electricity Plan for 2024–2060 outlines the addition of 26.7 GW of new coal plant capacity over the next seven years, of which 75% would consist of captive plants.

The government's aim to incorporate a net zero by 2060 commitment is incompatible with the parallel plan for increased coal-fired capacity. Indonesia's coal plants are slated to continue operating through the defining transition decades until 2060, utilizing co-firing and carbon capture and storage (CCS) technology. The national plan explicitly mentions a preference for retrofitting coal plants to run on ammonia, biomass, and possibly nuclear rather than decommissioning them, a strategy that has been claimed to abate emissions, lower costs, and prioritise security and resilience.

Critics highlight that the expansion of biomass use could lead to accelerated deforestation and greenhouse gas emissions in Indonesia. Meanwhile, the effectiveness of CCS remains unproven, with no CCS plant to date hitting its target capture rate. Plus, the high cost of its installation and use would impact operational expenses and electricity prices. Both approaches prolong the reliance on coal rather than prioritizing its phaseout.

The early retirement of coal plants in Indonesia is central to the country's Just Energy Transition Partnership (JETP) program, aiming to phase out coal power, specifically including the Cirebon-1 power station and Pelabuhan Ratu power station. However, since the JETP's launch in 2022, the program has made limited progress and has faced several setbacks. The U.S. was initially a key JETP leader, but the country was replaced by Germany and Japan in February 2025 following the withdrawal of the U.S. under the second Trump administration. The U.S. had

pledged US$2 billion, nearly 10% of the total US$21.6 billion fund. It remains unclear whether previously allocated funds will be reversed as the program proceeds under new leadership.

The Asian Development Bank's Energy Transition Mechanism (ETM) program, which will finance the early closure of Cirebon-1, failed to meet its financial close target by December 2024 due to a suite of bureaucratic, regulatory, and business challenges. The funding allocated for the early retirement of Cirebon-1 is US$300 million. Financing is intended to cut seven years off of Cirebon-1's operational lifespan, resulting in the creation of hundreds of thousands of jobs and avoiding thousands of pollution-related deaths. The Ministry of Energy and Mineral Resources (MEMR) did reiterate its intention to follow through with the early retirement in February 2025, with the replacement of the plant using renewable energy alternatives avoiding an air pollution-related burden of up to US$3.7 billion.

In 2024, corruption and bribery scandals evolved at several coal plants in Indonesia. Incidents of alleged bribery at plants under development have related to currying favor, missing coal supply, and most recently mismanagement of projects with PPAs with the State Electricity Company, PT Perusahaan Listrik Negara (PLN). Preliminary investigations surrounding alleged corruption at the long-stalled Parit Baru power station began in early 2024 and were ongoing as of early 2025. Investment in the "incomplete and nonfunctional" power station reportedly caused an estimated loss of over IDR 1 trillion (US$80 million), funds that could have been allocated for more strategic electricity system development.

Indonesia's transition away from coal is further complicated by its rising coal production. Compared to 2016, coal production has increased by 82%. Indonesia produced a record 831 million tons of coal in 2024, 17% above the MEMR's target. Over half of the coal produced in 2024 was exported. Indonesia continues to be

one the world's largest coal suppliers, meeting demand from China and other Southeast Asian countries.

The production target for 2025 remains high, and ongoing expansion is expected following a new, special regulation granting religious organizations and "micro, small, and medium enterprises" the ability to obtain coal mining concessions without bidding, unlike regular companies. Two major Islamic organizations, representing Indonesia's majority-Muslim population, have accepted the government's offer. The new regulation further facilitates coal exploitation and has sparked student protests.

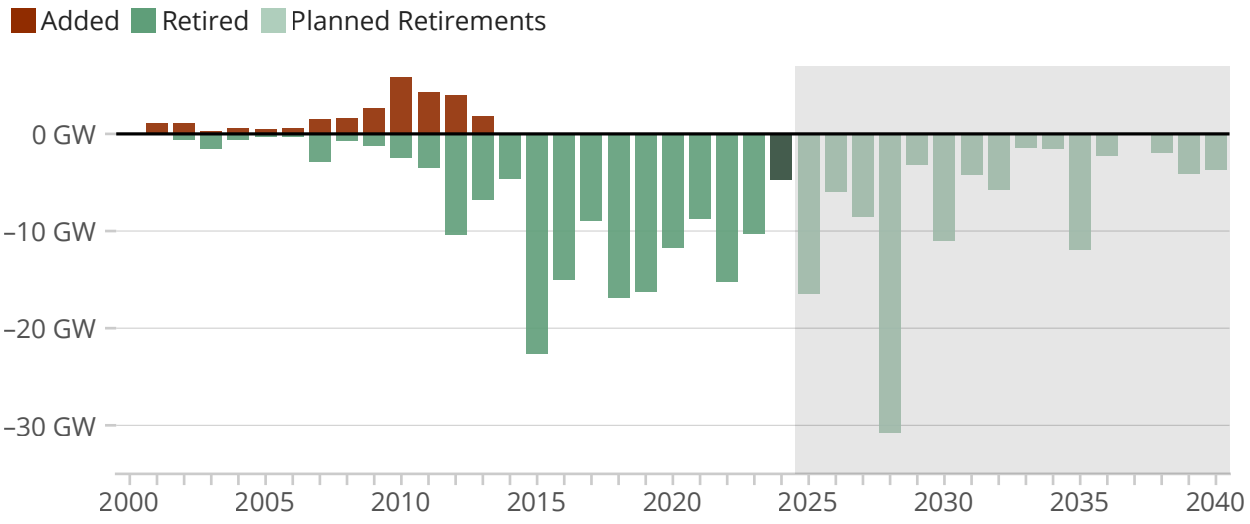
Transparency around coal-related information remains a challenge for advocacy efforts and energy planning. Activists filed lawsuits in 2024 demanding access to coal plant emissions data from PLN, claiming that emissions data should be publicly available. Accessing this data requires a lengthy and uncertain legal battle, while the public continues to face the health and financial impacts of pollution. A lawsuit has also been filed against the World Bank Group, a key coal plant financier in the country, urging the group to address the negative environmental and social consequences caused by the continued use of coal. As Indonesia works to follow through with a transition to alternative energy sources, clear communication and information availability will be as critical as physical infrastructure upgrades.

U.S. coal power continues its decline even as some utilities hang on

The U.S. operates a coal fleet totaling 194.1 GW of capacity, the third largest in the world behind China and India. In 2024, just 4.7 GW of coal capacity was retired or converted to another fuel in the U.S., a ten-year low since the Paris Agreement in 2015 (Figure 34). Despite the decade low, coal's hold in the country has weakened over the last decade.

After a strong decade of coal retirements, in 2024 U.S. retires a record low 4.7 GW since the Paris Agreement

Coal-fired power capacity added and retired in the United States (2000–2024) and planned retirements through 2040, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

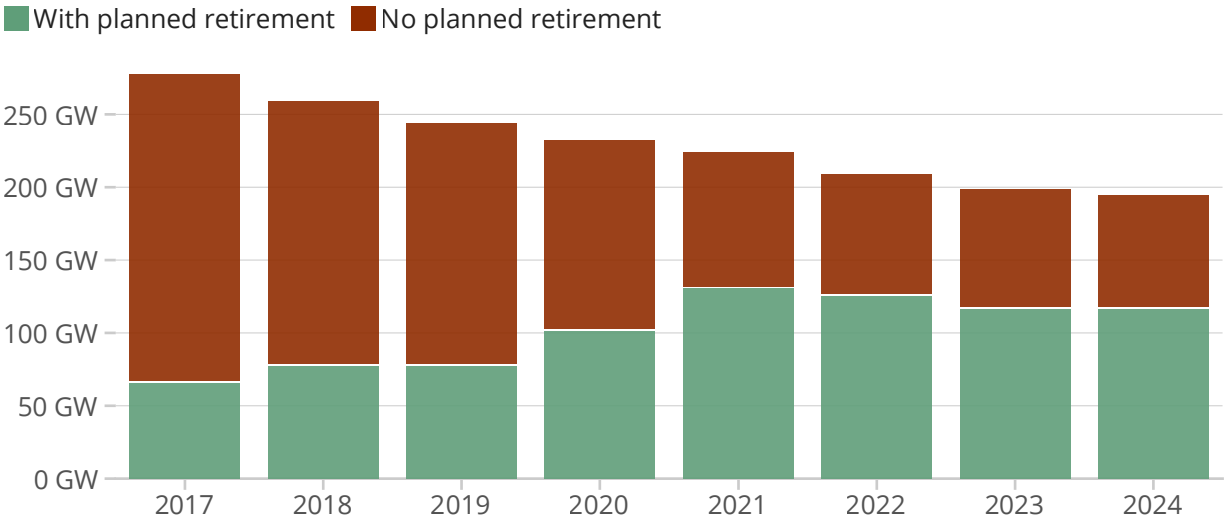
Figure 34

Between 2015 and 2024, 130.1 GW of coal capacity was retired, and since 2017, nearly three-quarters of the units that were retired went offline either on time or ahead of schedule. The operating capacity that remained increasingly set a date for future retirement. In 2017, just 24% (66.4 GW) of the country's operating coal capacity had a planned retirement date, whereas by 2024, 60% (116.9 GW) of capacity was slated for retirement (Figure 35). Analysis of Sierra Club and

GEM data shows that in 2024 alone, 10.3 GW of coal capacity was given newly announced or expedited retirement dates. A significant announcement came in March 2024 when the Sierra Club Beyond Coal Campaign and its partners secured coal retirement dates for Merrimack Station and Schiller Station, the last coal plants in New Hampshire. Following decades of grassroots advocacy and legal action, all of New England will be coal-free in 2028.

Planned coal retirements in the U.S. ramp up as more than half of current operating capacity is slated to retire

Operating coal-fired power capacity in the U.S. with and without planned retirement dates, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Global Energy Monitor

Figure 35

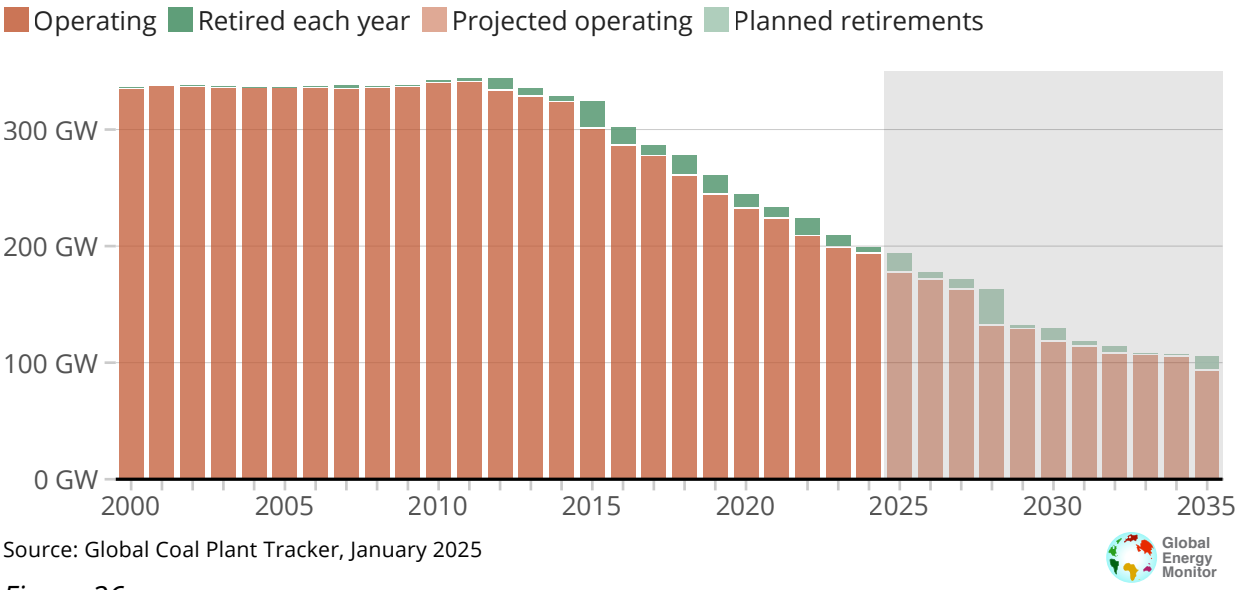
In addition to establishing new coal retirement plans, many U.S. utilities have accelerated existing plans for future retirements. Between 2017 and 2024, 29.6 GW of operating capacity had its planned retirement brought forward by an average of six years. DTE Electric and the Tennessee Valley Authority (TVA) sped up the retirement schedule for 4.4 GW and 4.3 GW of coal capacity, respectively, with an average planned retirement before 2030. Included in the TVA's accelerated retirement timeline are nine coal units at the 1.7 GW

Kingston Fossil Plant. In April 2024, the company announced plans to end coal-fired generation at the plant in 2027 and replace it with 1.5 GW of fossil gas, as well as small amounts of battery storage and solar power. While community advocates welcomed pending plans to exit coal at the Kingston plant, they criticized the proposed switch to gas and subsequently sued the TVA for failing to consider cheaper clean energy sources before spending US$275 million on the new gas project. In contrast, DTE Electric's accelerated coal retirement schedule is part of the company's clean energy transition plan that will boost renewable energy and storage technologies and retrain coal plant employees.

Over the coming decade, U.S. utilities are slated to retire 100.4 GW of coal capacity (Figure 36). That would leave 93.7 GW of coal capacity operating in 2035, which will be 51 years old on average — fourteen years beyond the current global average retirement age. Coal retirements must pick up their pace for the U.S. to meet its national commitment to phase out unabated coal power by 2035, and for U.S. utilities to avoid sinking more money into aging coal power facilities and falling behind in the global clean energy transition already underway. The U.S. government under the Biden administration advanced the country's move from coal to clean, reaching an agreement with other G7 nations to phase out existing unabated coal power by 2035, and issuing billions of dollars for clean energy programs nationwide under the Inflation Reduction Act. The new Trump administration is poised to reverse course as it considers dismantling environmental regulations targeting fossil fuels, envisions restarting coal plants that have already retired, and attempts to impede renewables development. Even with Trump's efforts, energy analysts predict U.S. coal generation will continue to decline and fall out of the market's favor. Previous attempts at a revival were largely unsuccessful as more coal power capacity retired under Trump's first term (53.6 GW) than under either Obama's first (17.5 GW) or second term (49.1 GW) or the Biden administration (38.8 GW) (Figure 24).

U.S. utilities plan to retire 100 GW of coal power by 2035, leaving 94 GW remaining with an average age of 51 years

Coal-fired power capacity by status in the United States (2000–2024) and projected operating and retired through 2035, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 36

Still, some U.S. utilities are clinging to coal, with a recent NY Times analysis of GEM data showing 28 states postponing coal plant closures. Between 2017 and 2024, 25.4 GW of coal capacity saw previously scheduled plant-level retirements delayed or withdrawn entirely. The companies behind the delays include PacifiCorp, Duke Energy, and Georgia Power. In a midyear update to its Integrated Resource Plan (IRP), PacifiCorp outlined plans to delay retiring its remaining coal units at the Jim Bridger Steam Plant in Wyoming and instead retrofit the nearly 50-year old units with carbon capture technology. The retrofit was expected to cost up to US$1 billion per unit while extending the lifetime of each coal unit by only two years. By early 2025, PacifiCorp released a draft 2025 IRP that removed planned retirements for Jim Bridger altogether, citing a need for "low-cost firm capacity." In late 2024, Duke announced they would postpone closing coal units at Indiana's Gibson Generating Station until 2038, backtracking on company plans to exit coal

by 2035. Gibson incidentally racked up US$105 million in extra costs from 2021 to 2023, according to a 2024 study by Grid Strategies, by running when cheaper sources of electricity were available on the country's Midwest energy market. Both Duke and Georgia Power attribute their delayed coal retirements to projected growth in electricity demand driven in part by energy-hungry data centers. As these utilities hang on to coal, and coal plants become increasingly more expensive to run than renewables, the excess costs will ultimately be passed on to utility customers.

Attempts to establish "clean coal" with carbon capture and storage (CCS) technologies are also proving costly. At Milton R. Young Station in North Dakota, a controversial project aiming to retrofit coal units with carbon capture comes with a price tag of US$2 billion. Even without CCS, the plant is estimated to cost twice as much to run than building the equivalent generation from regional wind power, with the plant racking up US$38 million in losses from 2021 to 2023. The U.S. also hosts two proposals for new coal plants — the most in any OECD country — with both including plans for CCS projects backed by the Department of Energy. The CONSOL Energy Mining Complex power station in Pennsylvania expects to have project designs completed by the end of 2025, while developers of the Susitna power station in Alaska are seeking local support for the proposed coal plant and coal mine. According to an analysis by Stanford University, prolonging coal power with CCS comes with an opportunity cost of both higher energy prices and health costs from more air pollution, when cleaner and more efficient sources of electricity already exist.

EU27 retirements grow fourfold

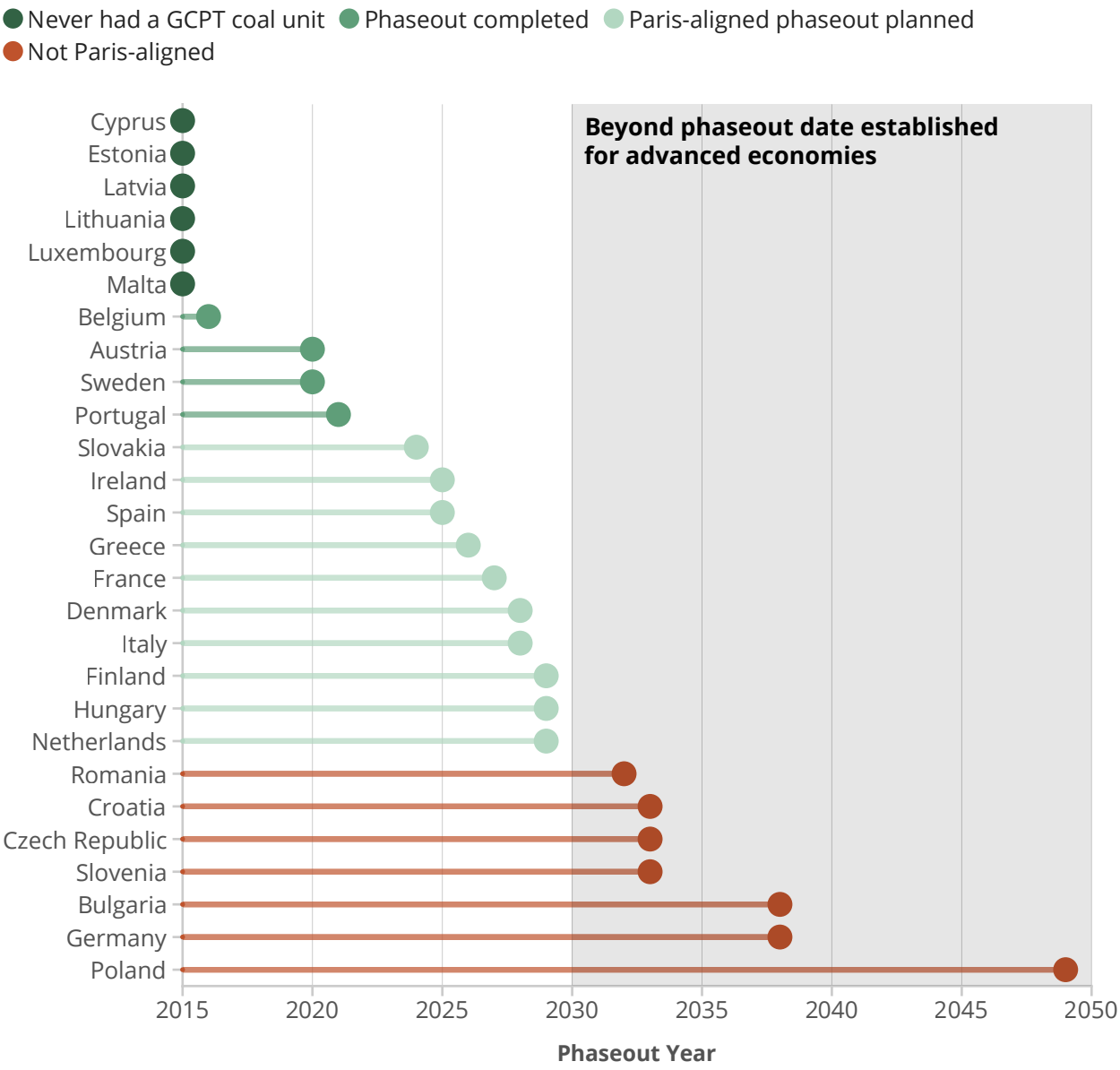
The European Union (EU) is leading the way in the global coal phaseout. Coal power capacity retirements, which had temporarily stalled for two years following gas shortage concerns in the wake of Russia's invasion of Ukraine, greatly accelerated in 2024. The capacity retired in the EU (11 GW) quadrupled in 2024 compared to 2023 (2.7 GW). The EU's operating capacity shrunk by a record 12.4% in 2024, the largest percentage decrease since data collection began in 2014. A further 2.7 GW of capacity was mothballed, meaning that it was taken out of operation but not formally retired.

The EU coal plant retirements took place in nine countries: Denmark, Finland, France, Germany, Greece, Italy, Poland, Slovakia, and Spain. Germany stood out with over half of the retired capacity (6.7 GW) in the EU across 22 units. Denmark followed with 1.1 GW retired across three units. Overall, the EU represented 43.7% of the capacity retired globally in 2024.

All but three EU countries are planning to be coal-free by 2033, and both Ireland and Spain are expected to complete their coal phaseout in 2025 (Figure 37). The EU leads the world in coal plant retirements, which is unsurprising given that existing coal capacity in the region has an average operating age of 41 years, beyond the average global retirement age of 37 years. Even still, project-level retirement dates do not yet align with national phaseout plans and the Paris Agreement in some countries.

20 EU countries have a Paris-aligned coal phaseout target

Target year for final coal plant retirement, by EU27 country



Source: Global Coal Plant Tracker, January 2025

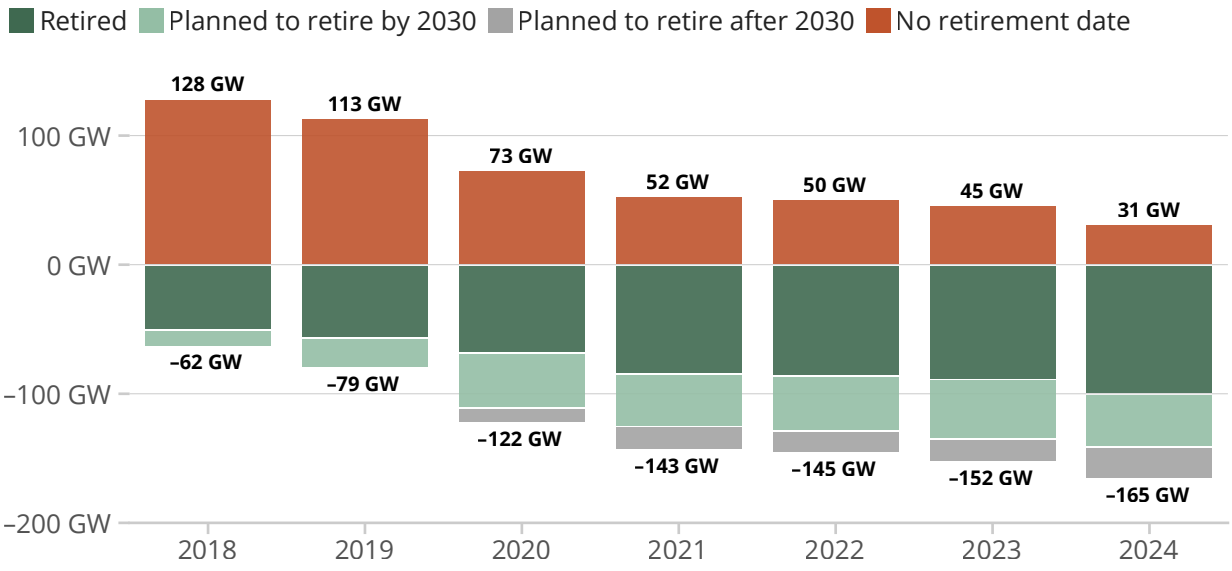
Figure 37

According to the Global Coal Plant Tracker, the number of operating coal units in the EU with a project-level retirement date has increased sixfold since 2018. As illustrated in Figure 38, however, 37% (24 GW) of the total capacity now planned for retirement (64.9 GW) is slated to be decommissioned after 2030, the

Paris-aligned phaseout date established for advanced economies, according to the IEA's Net Zero scenario. Another 30.9 GW of capacity has no specific project-level retirement date, Paris-aligned or otherwise; nearly 40% (12 GW) of this capacity is in Poland, where the government has said that it does not currently intend to phase out coal until 2049.

Paris-aligned coal plant retirement ambition is increasing in the EU

Capacity (in gigawatts) retired since 2000 or planned to retire in EU countries



Source: Global Coal Plant Tracker, January 2025

Figure 38

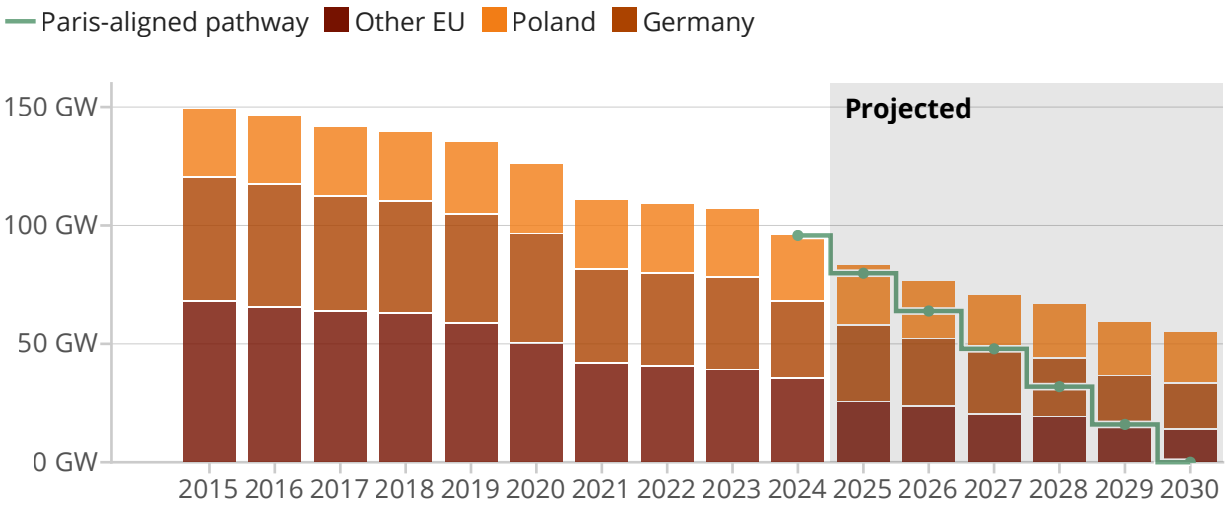
Several EU countries did accelerate project-level retirement dates in 2024. Finland's Naantali CHP power station Unit 3 saw its planned retirement brought forward from 2027 to 2024. Greece's Agios Dimitrios power station and Ptolemaïda power station both had retirement dates brought forward to 2024 and 2026, from 2025 and 2028. Additional coal-fired units were slated for a conversion to a different fuel, such as Hungary's Oroszlány power station and Ireland's Moneypoint power station.

Other countries have seen project-level retirement dates pushed backwards. For example, coal plants in Germany declared to be "system relevant" have seen planned decommissioning dates delayed to 2031, including Unit 7 at the GKM (Mannheim) power station — previously expected to be mothballed in 2023 — as well as units at the Staudinger power station and Weiher power station. The retirements beyond 2030 conflict with the stated ambition in Germany's 2020 Coal Exit Law to advance the country's planned coal phaseout date from 2038 to 2030. It remains to be seen whether the German conservative opposition party elected in February 2025 will maintain the 2030 goal given its historic reluctance to accelerate climate targets. The country has retired 33.2 GW of capacity since 2000, but over half of the remaining operating capacity in Germany is not slated to retire on the Paris-aligned timeline.

As established national phaseout targets grow nearer, the alignment of project-level retirement dates is critical. Ten EU countries are expected to completely phase out coal between 2024 and 2030, retiring 18.7 GW of operating and mothballed capacity (Figure 39). As of January 2025, over 90% of the capacity in these countries has a project-level retirement date established before the end of the decade. Companies and governments can effectively follow through with these plans, utilizing policy levers such as subsidies as needed, to avoid missing targeted deadlines as they grow nearer. Slovakia, for example, had 2024 as its established coal phaseout year. However, some capacity in Košice, Slovakia, appeared to remain in operation as of January 2025.

Gap remains between the EU's coal phaseout plans and a Paris-aligned pathway

Operating and mothballed capacity in EU countries based on planned retirements and phaseout commitments, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Assumes Germany phases out coal power by 2038, the country's formal coal phaseout year, although a more ambitious 2030 target has been proposed but not legislated.

Figure 39

No new coal plants have been proposed in the EU since 2018, and no coal plants have entered construction in the last five years. Nearly all EU countries have joined the PPCA, calling for the dual pledges of no new coal and a just coal phaseout. Bulgaria, Poland and Romania are the only national governments in the EU with coal power that have yet to join the PPCA, but even these three countries have evidenced the inevitable market shift away from coal power.

In Poland, five subnational governments have joined the PPCA, including Katowice in January 2025, the largest remaining coal production region in the country. Utilities in Poland have predicted that many coal plants are naturally reaching the end of their economic life as alternative fuel types become cheaper, despite the country's phaseout target still officially being decades away, in 2049. In February 2024, Poland's newly elected government dropped the country's lawsuits against

EU climate initiatives after signaling increased ambitions around emissions reductions and coal phaseout.

In Romania, the country's electricity transmission system operator has outlined its intention to close all coal plants by 2026, according to August 2024 reporting. The plan would phase out coal six years earlier than the 2032 commitment made by the government three years prior and referenced again in January 2025. Romania has eleven operating coal units, three of which are already scheduled to retire in 2025. A unit at the Rovinari power station was refurbished in line with EU environmental standards in October 2024 and has a project-level retirement date of 2030.

In Bulgaria, coal miner protests delayed a Parliament debate on the country's climate neutrality roadmap in April 2024. Operation paused at the Maritsa Iztok-3 power station in early 2024, and nearly all employees were fired by July 2024 due to soaring generation costs. But, in November 2024, Bulgaria's interim Energy Minister announced plans to restart two units at the plant in 2025, exemplifying the country's need for a strategic energy plan. Analysis by CREA has found that stronger climate ambition and an accelerated coal phaseout in Bulgaria would result in massive public health and economic benefits.

Overall, many EU countries are moving swiftly towards an energy transition away from coal. Solar power eclipsed coal in the EU's energy mix for the first time in 2024, with coal now ranked as the sixth largest fuel type, providing less than 10% of the EU's electricity. The EU also unveiled the assessment for a new climate target of 90% emissions reductions by 2040 (over 1990) in February 2024, a marginal improvement from previous targets but still aiming for net-zero emissions by 2050. Though the June 2024 EU election resulted in a less climate-friendly Parliament, coal power is naturally becoming untrenched among the member countries, even those without ambitious policy goals. All signs point towards coal's continued decline and eventual elimination from the EU power mix, resigning the region's old and unprofitable coal fleet to history.

Japan and South Korea plan to prolong coal use through ammonia co-firing

Japan and South Korea, both member countries of the OECD, each have one coal plant under development: in Korea, a 1 GW unit at the Samcheok power station planned for completion in 2025, and in Japan, the 0.5 GW GENESIS Matsushima Project planned for the Matsushima power station. Each country has also pledged to phase out unabated coal power: Japan in the first half of the 2030s or a "timeline consistent with keeping a limit of 1.5°C temperature rise" as part of the broader G7 agreement, and South Korea by 2050. Both are also at the forefront of promoting a suite of dubious "decarbonization" coal technologies domestically and abroad — technologies that are expensive and unlikely to deliver the deep emission cuts needed for climate stability.

In June 2024, the governments of Japan and South Korea jointly agreed to accelerate efforts for the use of ammonia and hydrogen as "emission reduction" technologies, including co-firing ammonia at coal plants. South Korea plans to introduce 20% ammonia co-firing across more than half of its 41 GW coal fleet by 2030, maintaining ammonia as a secondary fuel through 2050. Japan has tested ammonia co-firing at five coal units of its 55 GW coal fleet and has stated that its goal is to ultimately reach 100% ammonia-fueled plants by 2050. Both countries have also been promoting use of the technology in coal plants abroad, including in Chile, India, Indonesia, the Philippines, South Africa, Taiwan, and Thailand. The Japanese government also partnered with officials in Bangladesh to include plans for ammonia co-firing in the country's national energy plan, sparking strong opposition from local groups.

Support for ammonia co-firing is premised on the idea that the fuel is emissions free and, by substituting it for coal, can reduce carbon emissions. Yet, while ammonia does not generate end-use emissions of carbon when burnt, the

production process itself is highly energy intensive, regardless how it is made (Table 1). Green ammonia made from renewable energy offers the most promise for reductions, but even 50% co-firing of green ammonia with coal results in higher CO_2 emissions than a combined cycle gas plant, even before accounting for emissions from transport. Ammonia can also "slip" unburned from the plant boiler into the atmosphere, increasing emissions of ultrafine particulate matter with adverse health effects.

Ammonia type	Definition
Gray/brown ammonia	Gray ammonia is produced using hydrogen derived from natural gas — and brown from hydrogen derived from coal — through a process called steam methane reforming, without capturing the resulting carbon dioxide emissions.
Blue ammonia	Similar to gray or brown ammonia, but incorporates carbon capture technology to sequester a portion of the CO_2 emissions generated during production. While this reduces the overall carbon footprint, the effectiveness depends on the capture rate and the lifecycle emissions of the process.
Green ammonia	Produced by electrolyzing water to obtain hydrogen, using renewable energy sources such as wind or solar power.

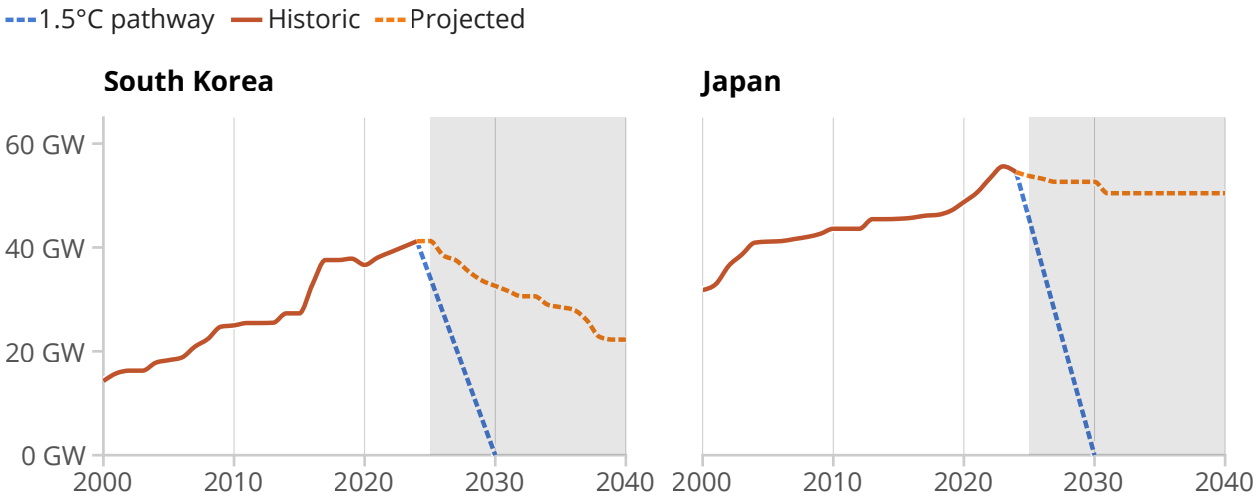
Table 1: Ammonia production methods.

Source: Rocky Mountain Institute, "Clean Energy 101: Ammonia's Role in the Energy Transition."

While pursuing the same technology, the domestic strategies for the use of ammonia have key differences in Japan and South Korea, neither of which are compatible with the Paris climate agreement (Figure 40). South Korea has 20 GW of operating coal plant capacity scheduled to retire by 2040 and a further 12.8 GW scheduled to retire by 2050 — long past the 2030 to 2040 timeframe put forth by the IEA and others to hold warming below 1.5°C. Co-firing coal plants with ammonia will not fill this gap in ambition, as studies by the IPCC suggest emission reduction rates of 90% or more are needed to qualify as "abated," far above the reductions possible from 20% ammonia co-firing.

Planned coal plant retirements in South Korea and Japan are not on track to meet the Paris climate agreement

Cumulative coal power capacity through 2040 based on planned retirements compared to a 1.5°C pathway, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Projected capacity based on planned retirements, and therefore does not include Japan's plan for phasing out "inefficient" plants by 2030 unless there is a specific unit-level retirement date.

Figure 40

Japan, conversely, has resisted setting scheduled retirement dates for its coal fleet, covering less than 4 GW of its coal plant capacity. Japan's Ministry of the Environment (METI) did announce in October 2024 that "inefficient" coal plants (previously defined by METI as "below supercritical") would be retired by 2030, covering an estimated one-fifth of the country's operating capacity and comprising mainly smaller and older subcritical plants. However firm closure dates for each unit have not been set, and the proposal was challenged in March 2025 by the Federation of Electric Power Companies of Japan, which are seeking exceptions to the 2030 retirement date. For its younger coal plants, the Japanese government appears to be delaying their planned retirement beyond the mid-2030s based on the idea that the plants will eventually switch to 100% ammonia — a risky and expensive prospect.

Co-firing with ammonia also significantly raises the cost of running a coal plant, including both retrofitting the plant and securing the ammonia to use as fuel. According to Bloomberg NEF, a carbon tax of at least US$300 per ton is needed to make clean ammonia co-firing at a 20% blend rate economically viable in 2030, or nearly four times the current EU emissions allowance. Data submitted by Korea Western Power for co-firing 20% ammonia at its Taean power station Units 9 and 10 estimated the total construction cost to retrofit the plant at US$421 million and the fuel costs at US$1.82 billion from 2030 to 2047 — exceeding by 1.5 times the estimated cost of compensating plant owners for a full 2035 coal phaseout in the country (US$1.4 billion).

To address the high costs, the Korean government is subsidizing the use of ammonia co-firing through its Clean Hydrogen Portfolio Standards, which encourage power providers to secure long-term power contracts for ammonia co-firing through government subsidies. But in the 2024 round of bidding, only one project — Unit 1 of the Samcheok Green power station — came in below the government's ceiling price, making up a tenth of the total power generation offered for tender by the government. According to industry analysts, even though the government's ceiling price was estimated to be more than four times the current wholesale power price in South Korea, bidders likely decided ammonia costs were still too high to profitably deliver power below the cap. The Japanese government is similarly covering the price gap between ammonia and coal, offering companies US$20 billion in subsidies over fifteen years from the start of power supply. The subsidies currently categorize all ammonia as "non-fossil energy," including ammonia made from fossil fuels (i.e. gray or brown); such projects must eventually lower emissions, but by a yet-to-be set deadline.

Using large amounts of ammonia for power production would also raise global demand for the resource, with the Japanese government alone projecting the use of 30 million tons of ammonia by 2050, more than is traded globally today. Building out domestic commercial production of ammonia instead would require large amounts of energy — either clean energy that could be used more efficiently to directly displace coal-fired generation instead, or from significant imports of gas or coal combined with carbon capture (blue ammonia), creating a new source of fossil fuel import dependency given the limited fossil resources of both countries.

Critics argue that the use of clean ammonia makes more economic sense for technologies with limited options for lowering emissions, such as fertilizer and chemical production, aviation, and long-duration storage — all markets where ammonia could be used more effectively and economically, rather than for power generation where competitive, clean options to replace fossil fuels already exist.

OECD countries Türkiye and Australia down to one coal proposal each

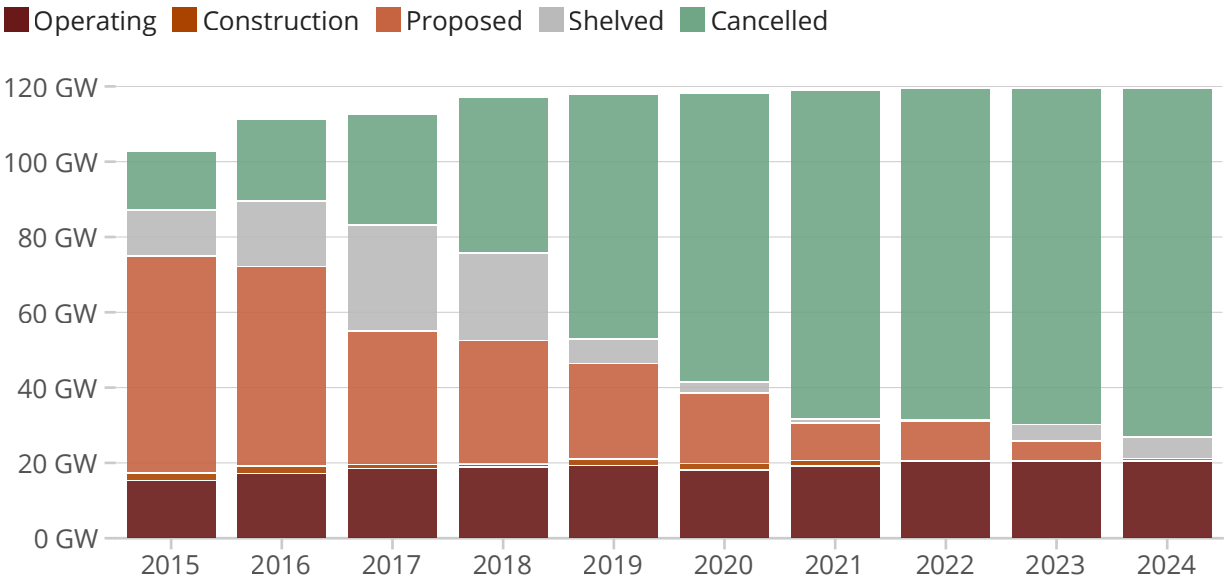
Along with the three coal plant proposals in the U.S. and Japan, there are two remaining proposals in OECD countries: one in Türkiye and one in Australia. Both countries have coal mining operations, although Türkiye's lignite reserves are primarily for domestic use, while Australia is the world's largest exporter of coal after Indonesia. The Australian government in 2024 pledged support for no new coal and has committed to net zero emissions by 2050, and Türkiye by 2053 without any commitment regarding new coal. But to date, neither government has committed to a coal phaseout.

Türkiye

Coal power expansion in Türkiye has collapsed almost completely, with just two units in active development standing in the way of the country joining the rest of the OECD in eliminating all unabated coal plant proposals. As shown in Figure 41, Türkiye has seen a 90% reduction in pre-construction coal capacity in just two years and a nearly 99% reduction since 2015. Over 92 GW of coal power capacity has been cancelled in Türkiye since 2010, nearly five times more than has reached commercial operation. Yet, with zero coal-fired capacity retired over the same time period, Türkiye currently stands in opposition to OECD trends as the only country in the organization actively increasing coal power generation.

Cancelled coal capacity has increased sixfold in Türkiye since 2015

Coal-fired capacity in Türkiye by status, in gigawatts (GW)



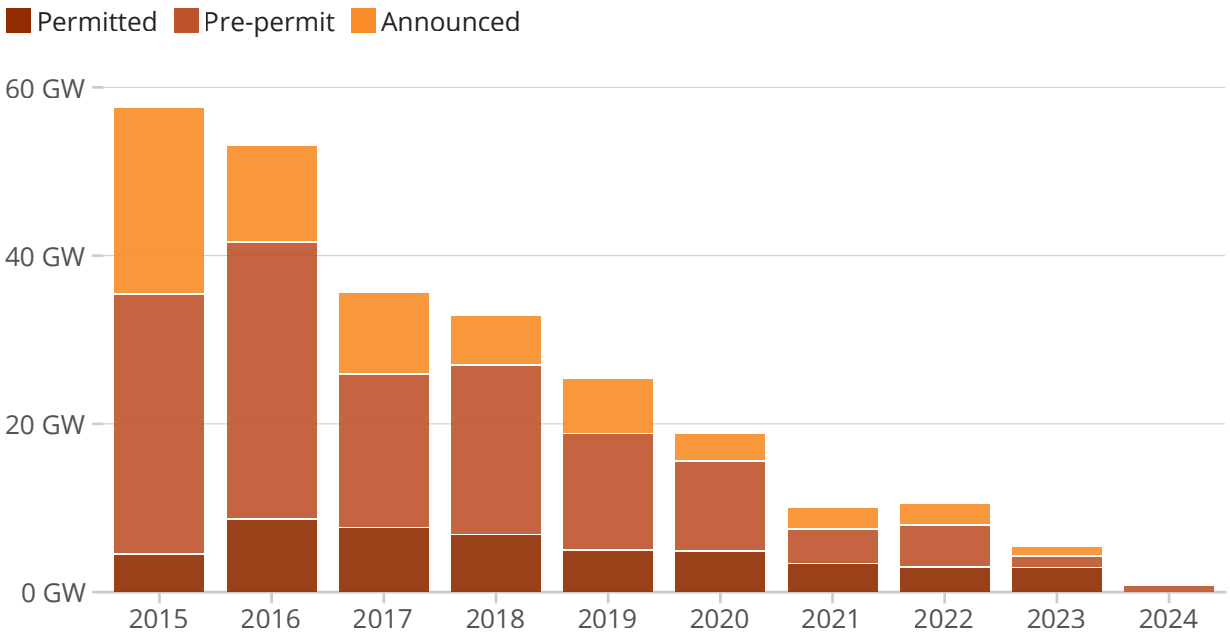
Source: Global Coal Plant Tracker, January 2025

Figure 41

A two-unit expansion of the massive Afşin-Elbistan power complex in Kahramanmaraş, Türkiye was announced in early 2022 — the last coal plant proposal remaining in Türkiye and the only coal-fired capacity proposed in the country since 2020 (Figure 42). Despite widespread opposition to the expansion due to environmental and public health issues, Türkiye's Ministry of Environment, Urbanization and Climate Change approved the Environmental Impact Assessment (EIA) for the project in December 2024. The units would reportedly be built by 2028 and are planned to operate beyond 2060. Though the EIA was approved, the expansion project needs to be licensed by Türkiye's Energy Market Regulatory Authority before construction could begin. The expansion is planned for a heavily populated area and is estimated to cost US$2.6 billion in health impacts, raising human rights concerns from the surrounding community and conflicting with the country's 2053 net-zero target.

One 0.7 GW coal proposal remains in Türkiye as of January 2025

Coal-fired capacity in Türkiye by status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 42

Türkiye's domestic lignite reserves are unsuitable for baseload power generation, ultimately resulting in greater emissions, lower utilization rates, and higher energy costs. The country has sent mixed signals around the exploitation of these domestic reserves, which have a lower caloric value than other coal types. Türkiye also imports roughly 40% of its coal supply for power needs from abroad.

Rather than substituting domestic coal with imported coal, Türkiye can pivot to prioritize development of its significant and largely untapped renewable energy potential. The country's leadership has recently shown some encouraging progress in its renewable energy development, with over 4.5 GW of prospective utility-scale solar and wind in development. In October 2024, Türkiye's Ministry of Energy and Natural Resources announced a new energy transition roadmap that increases the renewable capacity target by nearly 50% by 2035 compared to previous renewable targets, quadrupling current capacity. The plan foresees faster permitting and investment in transmission infrastructure, though problems could arise if the hastened process is not coordinated thoughtfully at the local level.

It is not yet clear how and when Türkiye's leadership will join the rest of the OECD in phasing out new unabated coal and phasing down existing coal. Critical to a coal phaseout are equity considerations, including adequate employment availability for the former coal plant workforce. For example, the Yatağan power station was privatized, and, in August 2024, 184 employees were dismissed from the power station and Yatağan coal mine. With layoffs at several coal plants seen across Türkiye in 2024, the trend underscores the importance of considering the social dimensions of a clean energy transition.

Australia

In 2024, Australia under Prime Minister (PM) Anthony Albanese of the Labor Party signed the call for no new coal plants at COP29. The country is home to one coal plant proposal — the "high emissions low efficiency" Collinsville power station in Queensland — but the proposal exists more on paper than in reality. While the timeline on sponsor Shine Energy's website indicates plans for the plant to commence construction next year, the project has no federal approval, no local approval, and no financing, and its application for grid connection was withdrawn.

The Collinsville project is the last of the 5 GW of new coal power capacity proposed in 2019 under the pro-coal leadership of former PM Scott Morrison of the Liberal-National Party (LNP). The other proposals have all been shelved or cancelled, despite government programs at the time designed to underwrite the proposed capacity. The country's last coal plant, the Bluewaters power station, was built over fifteen years ago, in 2009. The LNP itself has pivoted from promoting new coal plants in favor of keeping existing coal plants online longer and supporting new nuclear while opposing solar and wind energy.

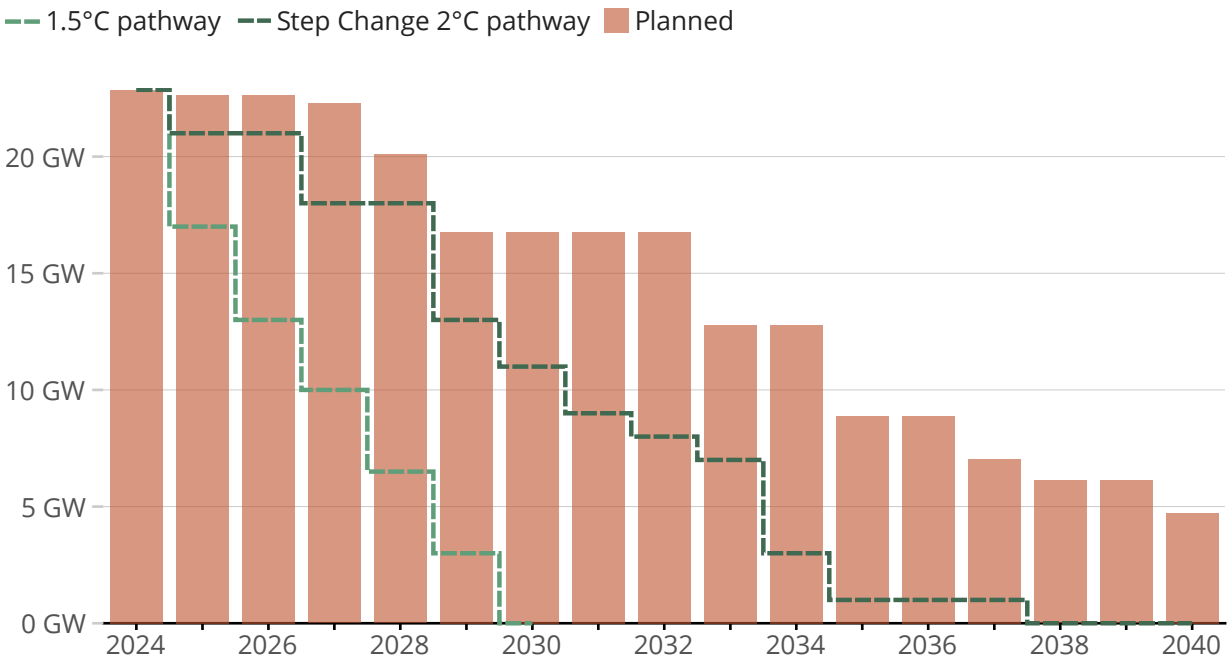
Instead of new coal, solar PV power has taken off in the country, growing by an average 27% per year over the past decade. Solar, wind, and hydro now provide over one-third of the country's power demand, driving down coal's share from 64% in 2015 to 46% in 2023. The decrease has helped coal-powered states legislate emissions reduction targets for the first time, including a 75% reduction in Queensland by 2035 and a 70% reduction in New South Wales by 2035 (over 2005 levels), with most planned emission cuts from retiring coal power.

Despite the growth of clean energy, 40% of Australia's coal capacity is still scheduled to be online in 2035 (8.8 GW) — the year that coal power capacity is reduced to just 1 GW in the country's Step Change scenario limiting warming to 2°C, before being phased out entirely in 2038 (Figure 43). The Paris Agreement

calls for limiting warming "well below" 2°C, aiming for 1.5°C, requiring advanced economies like Australia to phase out coal power even faster, by 2030, according to the IEA's Net Zero scenario.

Australia needs to speed up planned coal plant retirements to meet its Step Change 2°C scenario

Planned operating coal power capacity compared to the 2°C STEPS and a 1.5°C scenario, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Projected operating capacity based on 2024 planned retirement dates.

Figure 43

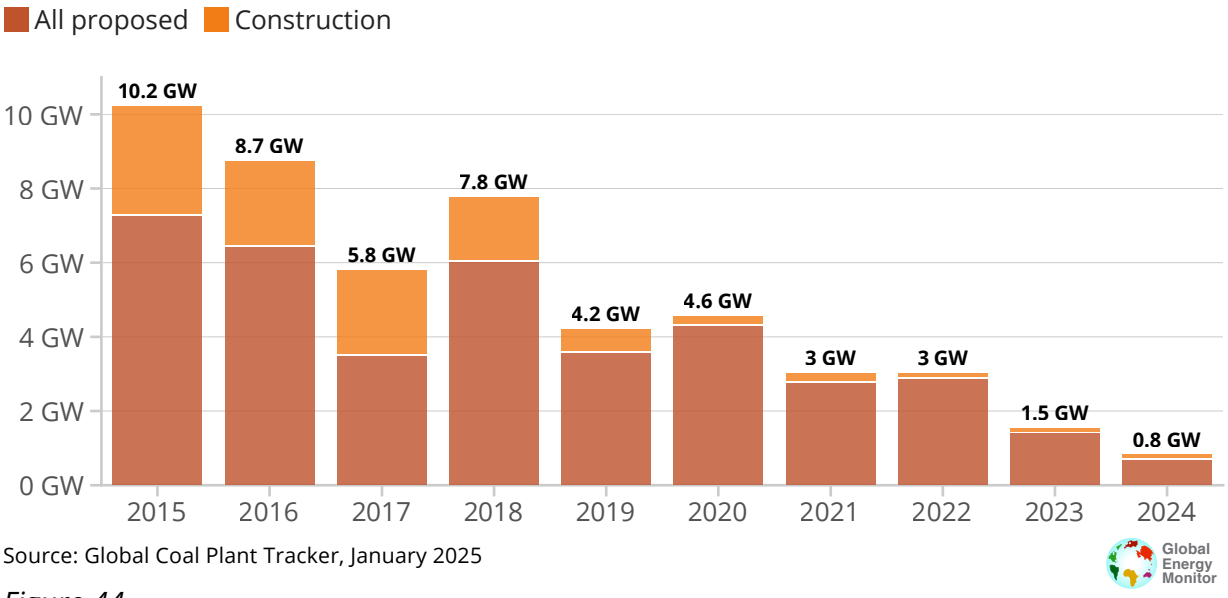
While the Albanese Labor Government has supported efforts to transition the country from coal to renewables, it has also ruled out limits on Australian coal exports. Australia is second only to Indonesia in terms of coal exports and third for proposed new coal mining capacity, behind coal giants China and India. The country's domestic CO_2 emissions are estimated to be 60% below its emissions from coal exports — a contradiction that will only grow as the country aims to lower domestic emissions but not coal exports.

Latin America's proposals diminishing but subsidies keeping coal afloat in Brazil

For the second year in a row, no new coal-fired power generation units were commissioned in Latin America in 2024. No coal plant proposals in the region have advanced in the permitting process since 2019, nor have any coal plants begun construction since 2016. In addition, 0.7 GW was shelved in 2024 — reducing coal power capacity under development to 0.8 GW in 2024 (Figure 44). Coal plant proposals have struggled for viability in Latin America as the region's rich renewable resources make renewable energy projects highly competitive alternatives.

Latin America's proposed coal capacity under development drops below 1 GW in 2024

Proposed coal capacity (announced, pre-permit, and permitted) and capacity under construction by year, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 44

While a single coal plant remains under construction at Argentina's Río Turbio power station, the first unit built at the site has been mothballed due to the company's outstanding debt and expired permits, and construction of the second unit has been stalled for years.

Brazil is home to one of the two coal plant proposals in pre-construction in Latin America, which remained stalled and unpromising in 2024. The 0.6 GW Pedras Altas (Ouro Negro) power station, originally proposed in 2015 under Chinese funding, has performed poorly in Brazil's national energy auctions from 2019 to 2022, consistently losing out to more competitively priced renewable energy sources and natural gas projects.

Additional shelved coal projects in the country have failed to progress in recent years: A proposal for the 0.7 GW Nova Seival power station was formally withdrawn and cancelled by its owners in February 2025 following the suspension of its environmental license in 2022, and a proposed expansion unit at the Pampa Sul power station appeared to be abandoned when the coal plant's existing unit was transferred to new owners in 2022.

With the only remaining projects stalled by economic infeasibility or environmental litigation, Brazil is in a prime position to formally call off the proposals and commit to "no new coal" before hosting COP30 in November 2025 — and set an example for the BRICS region comprising Brazil, Russia, China, India, and South Africa, among other members, with Brazil assuming the presidency of the intergovernmental organization for the year.

A single additional coal plant proposal remains active in Latin America at the small but controversial Puente Alto Energy power station in Honduras. The proposal's validity was initially disputed in 2022 as being counter to the country's decarbonization commitments, and local opposition against the power station continued into early 2024 when community members publicly protested the project.

Two Latin American PPCA member nations, Colombia and Mexico, each have a single shelved coal plant proposal remaining. The La Luna power station in Colombia and Coahuila power station in Mexico have been omitted from each of their home countrys' national planning documents since 2021 and 2022, and

neither project is expected to proceed. In light of Colombia joining the PPCA's Call to Action to commit to no new coal in 2023, the shelved La Luna power station is unlikely to be revived. In Mexico, recently elected president and climate scientist Claudia Sheinbaum has promised to boost renewable energy production and invest in decarbonization but has yet to announce specific decarbonization plans or commit to no new coal.

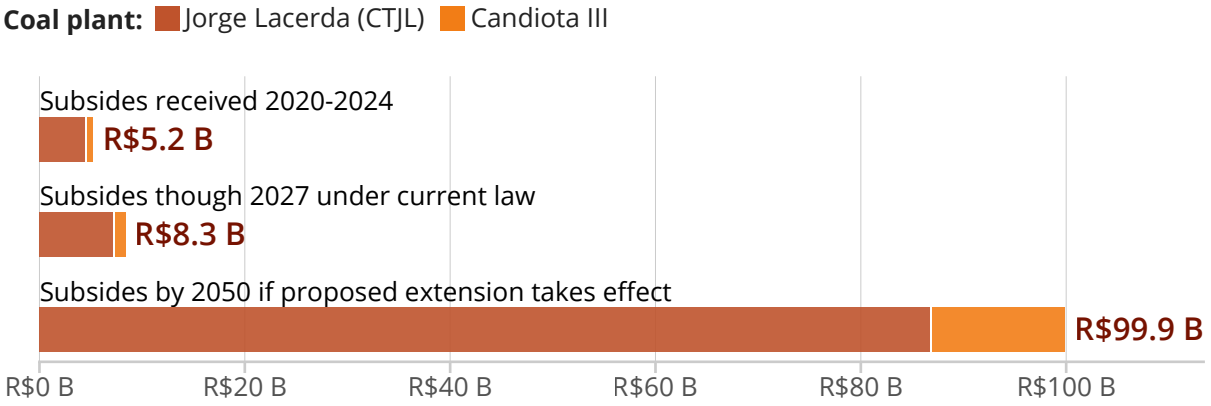
In terms of operating coal power capacity, Brazil's 3.1 GW coal plant fleet produces only about 2% of the nation's total power generation, with the majority of the country's power sector still dominated by hydroelectric power and a growing share of renewable energy generation by wind and solar. Despite the higher operating costs of coal plants, the Brazilian coal lobby has helped ensure the plants are kept in operation through major government subsidies and long-term public power contracts, claiming that the fuel's production and consumption is justifiable as a backup fuel due to the instability of hydropower during droughts. Over the period of 2020 to 2024, the Brazilian government spent an average of R$1.07 billion (US$185 million) annually on coal-fired electricity generation subsidies. Government subsidies for fossil fuels also continue to outweigh those for renewables, despite the latter attracting more foreign investment, with the government spending 4.5 times more on fossil fuel subsidies than renewables in 2023.

Although the Brazilian government's own Committee for Monitoring and Evaluation of Public Policy (Conselho de Monitoramento e Avaliação de Políticas Públicas) has recommended that the original coal subsidy expiration date of 2027 be adhered to, legislative attempts threaten to keep coal subsidies in place until as late as 2050. In 2022, federal and state policies proposed maintaining coal subsidies and use under the guise of just energy transition policies. A federal law establishing the Just Energy Transition Program under former President Bolsonaro faces opposition and litigation for instituting a subsidy extension that

would prolong operation of the 0.9 GW Jorge Lacerda power station through 2040. In the coal mining state of Santa Catarina, state-sponsored tax and credit incentives for coal plants were passed under the umbrella of being a "Just Energy Transition" policy. In a pending Supreme Court lawsuit against the Santa Catarina government, the policy has been charged with violation of Brazil's National Policy on Climate Change, the national constitution, and the Paris Agreement.

After an offshore wind bill was approved by the Senate and sent to Brazil's Chamber of Deputies in 2022, the deputies added several unrelated amendments to the bill, stipulating provisions for fossil fuel subsidies. In early 2025, President Luiz Inácio Lula da Silva ("Lula") ratified the wind bill but vetoed the clauses extending subsidies and contracts for coal and natural gas plants. However, Lula's vetoes could still be overridden by the Brazilian Congress — which has thwarted the president's environmental efforts before — potentially placing R$92 billion (US$16 billion) in contracted coal plant subsidies back on the table. The extension of coal subsidies is on top of the estimated R$8 billion (US$1 billion) that will already be paid by consumers for coal subsidies from 2020 to 2027, the year they are currently scheduled to expire (Figure 45).

Extension of Brazil's coal subsidies could reach R$100 billion (US$17 billion) by 2050 for two coal plants



Sources: Câmara de Comercialização de Energia Elétrica, Arayara and National Consumers Front

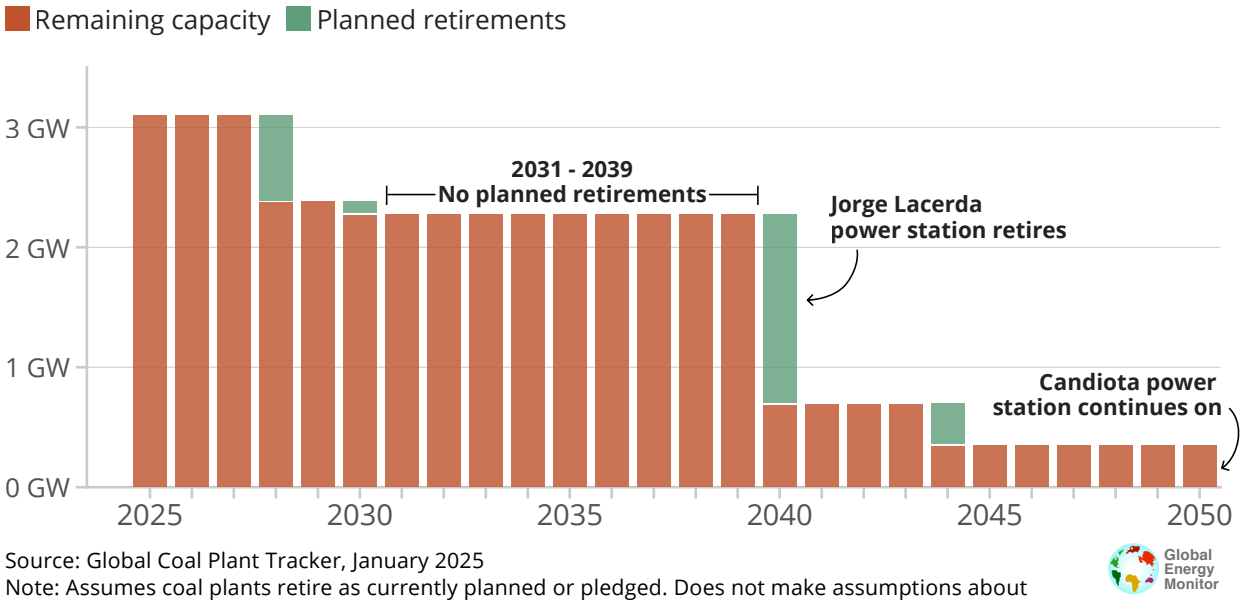
Figure 45

Should the fossil fuel clauses be instituted into law, the subsidies would support the continued operation of coal plants through 2050 — extending the planned retirement of the Jorge Lacerda plant by a decade — and mandate the contracting of two additional coal plants in government energy auctions over the same time period: the 0.4 GW Presidente Médici Candiota power station, which has been identified as one of the country's leading greenhouse gas emitters, as well as the 20 MW Figueira power station, which is currently under litigation for breaches of environmental and climate law.

In 2024, new climate commitments in Brazil acknowledged the need to accelerate the energy transition but fell short of a coal phaseout or phasedown. In November 2024, following severe climate-driven drought and flooding in the country over the past two years, Brazil's updated version of its Nationally Determined Contribution (NDC) increased the country's emissions reduction targets for 2035. However, rather than taking a stance against coal, both the updated NDC and a 2024 Pact for Ecological Transformation (Pacto pela Transformação Ecológica) emphasize the adoption of "clean coal" technologies as efforts to gradually transition Brazil away from coal plants — most of which are planned to continue operating until 2040 (Figure 46).

Under current schedule, most of Brazil's coal fleet will continue operating until 2040

Remaining coal capacity and planned retirements, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025
Note: Assumes coal plants retire as currently planned or pledged. Does not make assumptions about capacity additions or plant lifetime.

Figure 46

Rather than continuing to prop up coal power at the expense of the electricity bills of all Brazilian residents, implementing state-level just energy transition policies in Brazil could attract international investment in renewable energy and transmission expansion projects with long-term returns — and ensure that public funding and coal workers' livelihoods are not stranded in the unprofitable and fading coal power industry.

In 2024, several other Latin American countries made progress toward coal phaseout commitments, and 0.4 GW of coal-fired capacity was retired in the region. Chile, one of nine PPCA member nations in Latin America and the Caribbean, led the region in coal retirements by shutting down both units of the 0.3 GW Nueva Tocopilla power station over a year in advance of its previously scheduled closure date. This completed the closure of eleven coal-fired power plants in Chile, out of 28 operating in 2018. By 2025, nine additional coal plants,

representing over 2.1 GW of installed capacity, are committed to retirement. This will leave eight coal-fired units (1.7 GW) across three power plants still operating without a committed closure date prior to 2040, the nationally committed phaseout date.

Despite the success of Chile's phaseout strategy since 2018, a November 2024 draft of the country's new Decarbonization Plan was met with criticism for its endorsement of a proposal by Guacolda Energía to begin co-firing ammonia with coal at all five units of the Guacolda power station (0.8 GW) — perpetuating the combustion of coal for electricity generation and increasing generation costs and NOx emissions, with negative impacts on the health of the population and environment.

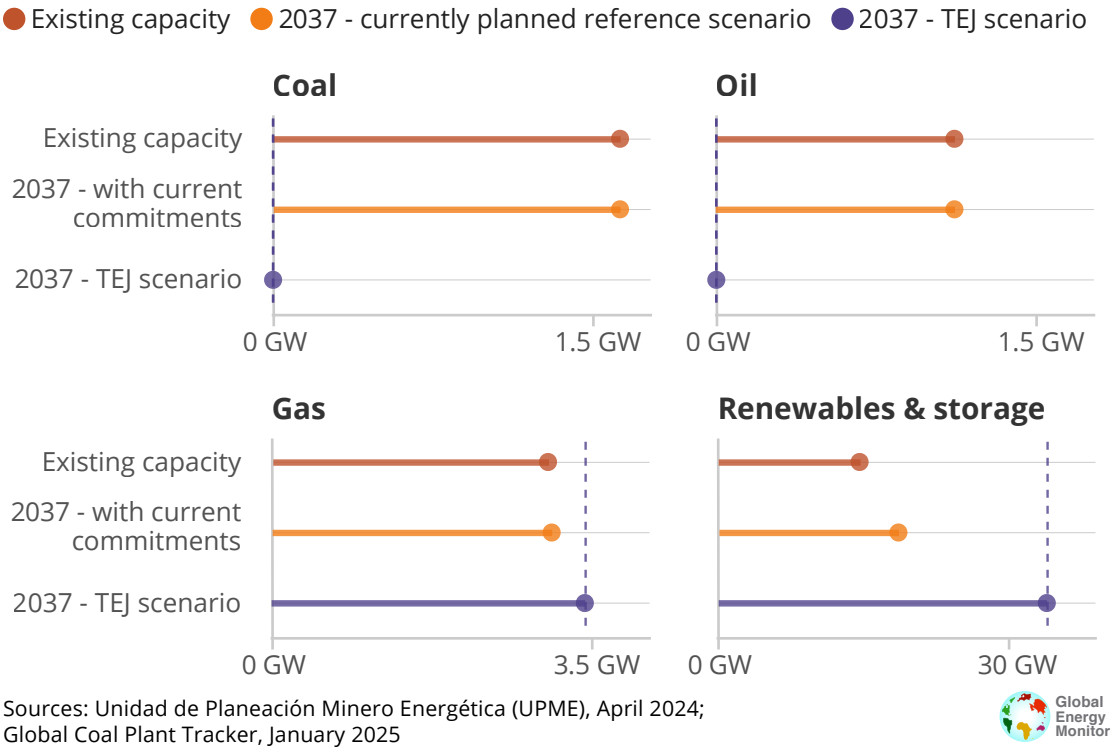
Colombia joined the PPCA in 2023, committing to a phased elimination of coal-fired electricity generation by 2030. As a member of the Organisation for Economic Co-operation and Development (OECD), the country should phase out coal-based power generation by 2030 in line with its climate commitments under the Paris Agreement. However, achieving this target requires more ambitious efforts from the national government, as Colombia still operates fourteen coal-fired generation units across five plants (Gecelca, Termoguajira, Termopaipa, Termozipa, and Termotasajero).

Notably, no new coal-fired power generation units were commissioned in 2024, and no plans for new coal-fired assets have been announced or made public. After pressure from civil society organizations (CSOs), the updated Indicative Generation Expansion Plan 2023–2037 of the Mining and Energy Planning Unit (UPME) introduced Scenario No. 4, titled Just Energy Transition (TEJ), which excludes any new coal-fueled generation infrastructure and envisions the complete phaseout of existing coal capacity by 2037. While the TEJ scenario is seven years short of the

pledged 2030 phaseout date, it removes the 1.6 GW of coal power still planned to operate by 2037 in the plan's original scenarios (Figure 47).

Colombia's current commitments fall short of TEJ Scenario

Currently planned reference scenario for 2037 compared to existing capacity and TEJ scenario targets, for coal, oil, gas, and renewables & battery storage



Sources: Unidad de Planeación Minero Energética (UPME), April 2024; Global Coal Plant Tracker, January 2025

Figure 47

Additionally, the executive summary of Colombia's Roadmap for the Just Energy Transition, published by the presidency in February 2025, includes several references to the need for a gradual coal phaseout. The document acknowledges Colombia's vulnerability to global market uncertainties surrounding thermal coal and fossil fuels, and notes that declining investment and generation costs of renewables could lead to the displacement of older, inefficient coal plants, particularly those near potential renewable energy development sites. More specifically, the roadmap outlines an action plan, the Transition of Coal-Fired Power

Plants (Transición de las carboeléctricas), which states that, as critical milestones for energy security, reliability, and sufficiency with nonconventional renewable energy sources (FNCER) are met, firm energy obligations (OEF) for coal plants will no longer be extended, promoting their gradual exit from Colombia's electricity system.

The roadmap also details technical support measures for the conversion of Gecelca and Gensa, the state-majority-owned coal power companies. It proposes a comprehensive transition model for these companies and the creation of a government-backed credit line to facilitate the transition of coal plants toward renewable energy deployment, along with an exploration of alternative financing sources such as carbon bonds and other mechanisms. Workforce retraining initiatives are also mentioned as part of the broader just transition strategy for coal plant employees.

Despite these efforts, as noted in *Boom and Bust 2024*, a major obstacle to phasing out coal-fired power plants in Colombia remains the lack of viable alternative business models. In particular, the absence of a regulatory framework that incentivizes renewable energy projects to replace coal-based generation (such as bankable and attractive long-term PPAs, as well as ensuring the provision of essential complementary services currently supplied by coal plants) presents a critical challenge. Developing such a framework is key to meeting the country's goal of phasing out coal power by 2030. While several CSOs have submitted proposals to the national government, including the Ministry of Mines and Energy, UPME, and other key decision-makers, these recommendations have yet to be translated into concrete policy measures by the relevant authorities.

Panama, a member nation of the PPCA since 2023, has committed to phasing out coal power completely in 2026, per its updated NDC submission for 2025. Panama's only remaining operative coal plant, the Cobre Panamá power station, has been mothballed since early 2024, following fuel shortages and the expiration

of its license in March. With less than two years remaining before the country's nationally committed coal phaseout date, the coal plant was expected to continue operating through the "Preservation and Safe Management" (P&SM) phase of the associated Cobre Panamá copper mine, before the coal plant's final retirement.

In the Dominican Republic, just over one gigawatt of coal-fired power capacity remains in operation. At the 0.8 GW Punta Catalina power station — the Dominican Republic's largest coal plant — progress toward transitioning from coal to renewable energy has been slow, with a single 40 megawatt (MW) solar plant currently under development at the site. Local organizations such as the National Committee to Fight Climate Change (CNLCC) and the Institute of Lawyers for the Protection of the Environment (Insaproma) continue to push for a full transition of the plant's 0.8 GW capacity to renewables by 2028, arguing that coal-generated power in the country costs nearly four times as much per kilowatt hour (kWh) as power generated by renewable energy sources.

South Asia's coal development dwindles outside India due to coal-related debt

Outside of India's record-breaking new coal proposals, political and economic crises in 2024 dampened power sector development in South Asia. Pakistan and Bangladesh both remain in the top fifteen countries for total coal capacity under development globally (thirteenth and fourth, respectively). However, both governments are reckoning with coal-related debt issues and cross-border disputes that make power sector management challenging and are sinking the pursuit of new coal plant proposals.

Pakistan

High power costs in Pakistan have resulted from several simultaneous market pressures, including the devaluation of the Pakistani rupee, a mammoth national debt inherited by the country's newly elected government, exorbitant capacity

payments being made to independent power producers, and high technical and administrative losses in the electricity distribution system. The cost of power generation increased by over 15% in 2024 compared to the year prior and set a record high in April 2024.

In the coal sector, costly imports are magnifying these issues, with the utilization rate of imported coal power plants dropping each year since 2022. Coal import costs have contributed to continued controversies around the exploitation of Pakistan's domestic coal reserves. In mid-2024, Pakistan's Federal Board of Revenue issued a tax credit for companies directly linked to coal mining in Sindh Province, raising questions about the beneficiaries of the move. Meanwhile, a mining lease was rejected by a local community in Khyber Pakhtunkhwa Province. At the same time, the government claimed that Chinese officials had agreed to convert the Sahiwal, Hubco, and Port Qasim power stations to utilize coal from the Thar region of Sindh, but the Chinese authorities have yet to issue an official statement about the reported agreement. On the other hand, reports suggest that they have rejected Pakistan's claim regarding alleged cost savings.

A contract was still awarded to an entity affiliated with the Pakistan Army to build a rail line connecting Thar coal mines to the national rail system and Port Qasim power station. The economic and technical feasibility of the venture, however, remains contentious. The central reason for the project's infeasibility is that local financiers are hesitant to participate in the expansion of Thar coal because it is lignite, a low-calorie coal type that is less efficient and emits more pollutants than other types of coal. Chinese and other foreign investors are similarly unwilling to invest more money into the expansion of coal mines in Thar.

Critics also argue that the involvement of other countries, especially China and foreign financial institutions, in the management and contractual agreements of

Pakistan's domestic coal mining ultimately undermines perceived energy security or independence benefits of its utilization.

Several ongoing coal development projects in Pakistan are part of the China-Pakistan Economic Corridor (CPEC), a struggling partnership that is part of China's broader Belt and Road Initiative. The Gwadar power station, a flagship CPEC project that remains hampered by requests from the Chinese sponsor to raise its negotiated tariff price, has been proposed in various forms ranging from imported coal-fired to solar-powered to domestic coal-fired over the last ten years.

In May 2024, Pakistan's Minister of Planning promised that a groundbreaking ceremony at the Gwadar power station would take place by the end of the year, but the following month Chinese insurers stated that Pakistan owed Chinese companies US$1.7 billion and threatened a moratorium on additional investments in the Gwadar project. Pakistan hoped to renegotiate the debt structure, but the power station's Letter of Support from Pakistan's Private Power and Infrastructure Board expired on December 31, 2024. In early 2025, Pakistan's government announced that it may scrap the Gwadar power station altogether because of the existing power capacity glut.

Elsewhere in Pakistan, other coal-fired power projects remain similarly hedged. The commissioning of Unit 5 at the Jamshoro power station was delayed in mid-2024 due to issues with procuring coal and its financial sponsor Asian Development Bank's (ADB) subsequent refusal to convert the project to 100% domestic coal, as the change would violate the project's Environmental Impact Assessment. The government also told the Senate Standing Committee on Economic Affairs that it has abandoned plans to seek funding from ADB to build Unit 6 at the same power station due to the mounting price of delays. Though the committee was also told that Unit 5 had been commissioned in December 2024, the deadline was reportedly missed because of incomplete civil works at the site.

Pakistan has not proposed new coal plant capacity since 2020, allowing the opportunity for alternative energy types to fill the gap in the country's energy needs. Between 14 GW and 17 GW of solar capacity was installed in Pakistan in 2024 alone, more than double the country's total operating coal capacity. While vital to meet citizens' everyday electricity needs, the pivot away from grid-provided power could exacerbate the energy system's existing cost and tariff negotiation challenges.

Bangladesh

Ongoing turmoil and political unrest in Bangladesh were only exacerbated by the country's power crisis in 2024. The new interim government formed in August 2024 must grapple with the escalating dollar shortage, mounting debts at its domestic power stations, and the country's loss-making deal to purchase expensive power from Adani's Godda power station in India. Civil society organizations have called for an overhaul of Bangladesh's Integrated Energy and Power Master Plan to address overcapacity, over-reliance on imported fossil fuels, and the proposed buildout of costly and technologically unproven ammonia and hydrogen co-firing at existing power stations as promoted by the Japanese government.

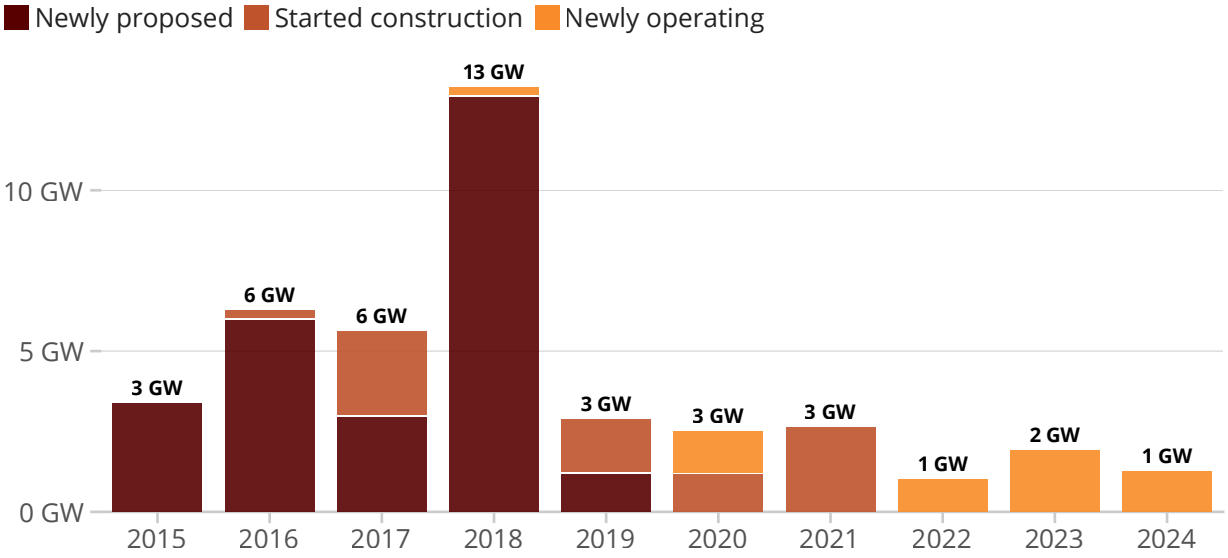
Despite sufficient nameplate capacity to meet power demand, Bangladesh dealt with fuel supply gaps and load shedding throughout 2024. More load shedding and outages are predicted for 2025 due to the continued inability to make debt payments to power producers and secure adequate fuel supply ahead of summer heat. At the Matarbari power station, construction and cost overruns initially delayed Phase I's commissioning, with Units 1 and 2 officially operating as of December 2023 and 2024, respectively. Despite the project's implementation, operation halted in mid-2024 following a court-related coal import ban to Matarbari and a consequential lack of coal supply. In September 2024, six senior managers were arrested for alleged corruption and embezzlement. At

the Banshkhali power station, the sizable capacity installed in late 2023 was not maximizing generation in 2024, operating at low levels due to grid constraints and the same coal supply deficit as Matarbari and several other coal-fired power stations in the country.

In 2024, two new coal-fired units began operating in Bangladesh (1.3 GW). The country ranks fourth globally for total coal-fired capacity under development, behind only China, India, and Indonesia. However, as shown in Figure 48, no new capacity has been proposed since 2019, and construction has not started on a new coal unit since 2021. Twice as much coal capacity was cancelled in 2024 as started operating in 2024, and much of the capacity under development did not advance during the year. For instance, financing for the Orion power station was reportedly reallocated to a solar project in September 2024, and the Payra power station Phase II has been stalled at 22% construction progress for years.

Bangladesh's large coal capacity under development was all proposed in 2019 or earlier

Coal-fired capacity in Bangladesh by status change, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 48

Meanwhile, coal mining in Bangladesh saw varied activity in 2024. The Barapukuria coal mine was at risk of suspending operations as of November 2024. The mine's storage yard lacked space, as the Barapukuria power station was operating at a limited capacity due to mechanical issues. The mine's operation was heavily opposed due to environmental issues and corruption allegations. A planned mine associated with the Phulbari power station secured a US$1 billion financing contract with PowerChina in March 2024, and developers expected the power station to become "attractive" in parallel with the four-year mine agreement. But, locals continue to oppose the project, calling for the mine's permit to be cancelled and for compensation for damages experienced by the project's opponents.

Bangladesh has not yet established a planned coal phaseout year or a carbon neutrality target. In September 2024, a coalition of 75 organizations proposed that the country adopt a "no coal" policy for 2027, demanding that a plan be established for a legally binding just energy transition plan. Protests across the country have commanded the urgent need to end coal use, led in Cox's Bazar in early 2025 by salt farmers and the citizen organization DHORA. With coal plants such as the Rampal power station found to be producing significant water pollution and fly ash in Bangladesh, planning for the accelerated development of renewable energy alternatives will address the country's simultaneous energy, economic, and environmental concerns.

Southeast Asia proposes no new coal plants in 2024 outside of Indonesia

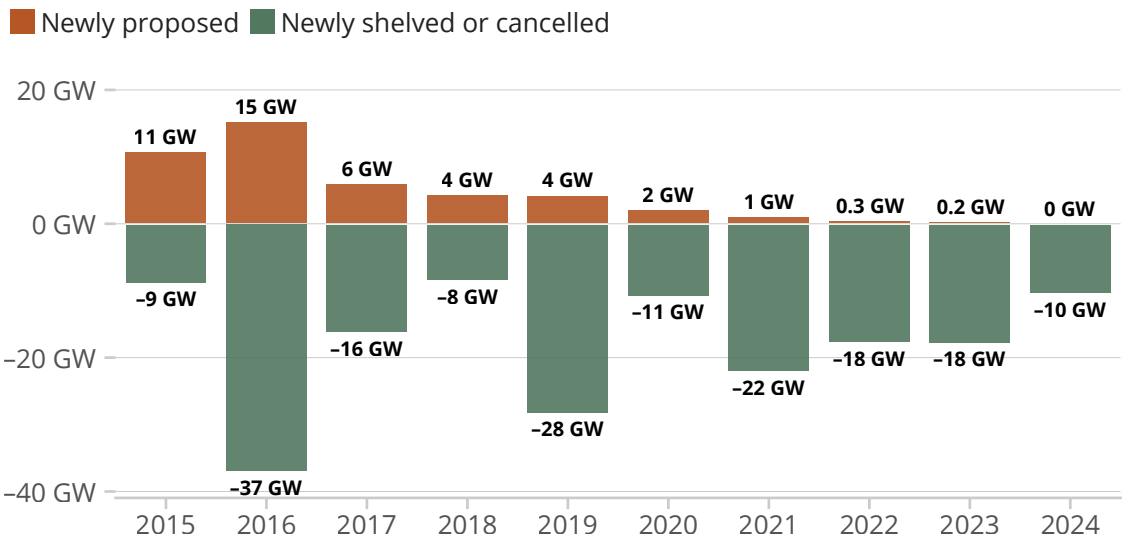
Coal remains a major source of energy in Southeast Asia, but the fuel's development momentum has slowed significantly in the region. No pre-construction coal units progressed in Laos, Thailand, Cambodia, or Malaysia in 2024. Malaysia has committed to a coal phaseout, Cambodia announced in 2024 that it will not build another coal plant, and Thailand looks positioned to axe its last coal plant

proposal. Vietnam, meanwhile, continues to pursue a just energy transition away from coal, and the Philippines has put a moratorium on new coal permits, albeit with some exceptions.

As shown in Figure 49, nearly 12 GW of capacity was shelved or cancelled in Southeast Asia throughout the year, 10.3 GW of which was outside of Indonesia. Papua New Guinea has no planned or operating coal capacity, and Myanmar and Brunei each have no planned coal capacity and a small operating capacity. Coal is cemented as a losing investment in the region, indicating that these countries can soon change course from commissioning their last coal plants to pursuing a just energy transition.

Since 2016, stalled projects are greatly outpacing new proposals in Southeast Asia

Annual coal-fired capacity in Southeast Asia (excluding Indonesia) by status change, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 49

Vietnam

Activity in Vietnam's coal sector in 2024 centered around the impact of the country's Power Development Plan VIII (PDP8), released in May 2023, and its prescriptions for the country's long-term energy strategy to 2050. Vietnam was led only by China and India for coal capacity cancellations in 2024 (3.4 GW), and the number of pre-construction units in Vietnam has collapsed from 43 to two in just three years since 2021. The Vietnamese government has recently reiterated plans from PDP8 to cease the development of coal power projects after 2030 in pursuit of its Just Energy Transition Partnership (JETP), an agreement between Vietnam and partner countries to support an equitable transition towards a clean energy system. At the end of 2024, Vietnam's Ministry of Industry and Trade also requested a formal update to PDP8, with a fresh focus on utility-scale renewable energy capacity, storage, and grid flexibility.

In June 2024, the deadline established in PDP8 for projects "behind schedule, facing difficulties in changing shareholders, arranging capital" was upheld. Several affected projects either pivoted to LNG or abandoned development progress. Meanwhile, Song Hau II power station sponsor Toyo Ventures, a company with no coal plant experience, sought to beat the deadline by achieving a partial financial close for the plant in mid-2024. However, the MOIT terminated the project's contract in July 2024, likely because the financing agreement made with the Export-Import Bank of Malaysia was not for the full project cost. In January 2025, Toyo Ventures issued a dispute against the MOIT's determination. If the termination is upheld, the country will have only one pre-construction coal plant proposal remaining, the An Khanh - Bac Giang power station. There has also been renewed discussion in early 2025 of reviving the already cancelled Quang Tri-1 power station, which may be re-proposed using a different fuel than coal.

As coal loses strategic importance in Vietnam's energy sector on the development side, operating capacity has not yet caught up to the fuel's deprioritization.

Vietnam's thermal coal imports increased by 31% in 2024, and the country plans to maximize generation at its coal plants in 2025 because of anticipated rapid demand growth. Coal remains centered in Vietnam's power mix, while prospective wind and solar plans indicate significant future renewable capacity.

A July 2024 government decree permits direct power purchase agreements between private entities for renewable energy projects, opening the door for rapid expansion in the renewable energy sector. Optimistically, the policy could allow Vietnam's energy transition to circumvent implications of the U.S. being the largest funder of its JETP Agreement, the status of which is in question following the U.S.'s volatile policy changes in early 2025 under the second Trump administration.

Vietnam's December 2023 Resource Mobilization Plan (RMP), intended to operationalize the country's JETP strategy, prioritized coal-to-alternative conversions rather than coal plant retirements. The transition of coal power generation is one of eight scope categories in the RMP, and JETP projects selected in 2024 have not yet advanced, as Vietnam has yet to receive any financing from partner countries. Vietnam crucially needs capital investment to propel its energy transition, particularly for the rapid phaseout of its freshly minted coal fleet. But, beyond investment, energy transition advocates stress that Vietnam and its JETP partners must work to prioritize the necessary justice and public participation components of its just energy transition to ensure its success.

Philippines

Since the Department of Energy (DOE) instituted a moratorium on new coal plants in the Philippines in 2020, the total capacity of pre-construction coal plant proposals has reduced by approximately 55%. In the four years following the moratorium, 8.3 GW of proposed coal capacity was cancelled, and only 0.2 GW of proposed capacity advanced in the permitting process. However,

exemptions stipulated by the policy have allowed for a handful of old project proposals to proceed with development. Two old coal plant proposals with a combined capacity of 1.4 GW were revived in 2024 and are awaiting certificates of exemption from the moratorium.

The Atimonan power station proposal has pivoted between coal and LNG multiple times since its original proposal in 2015, with recent statements from developers indicating intent to revert the proposed fuel to coal. A proposed expansion of the Toledo City power station was initially issued a permit in 2012, but had not appeared to progress according to company documents or government reports until its apparent revival in late 2024. Project developers expect the DOE to issue exemptions to their projects, as had been done for a proposed expansion at the Therma Visayas power station in early 2024.

Other coal plant proposals amounting to 1.5 GW remain under gradual development, with several projects stalled due to transmission line constraints affecting existing and planned power infrastructure and distribution. In May 2024, SMPC announced its decision to shelve a proposed 0.7 GW expansion of its Calaca power station until it could solve issues related to transmission line right-of-way and project financing.

While the Philippine government has publicly communicated support for a coal phasedown, including "encouraging a voluntary early and orderly decommissioning or repurposing of existing coal-fired power plants," it has also said the decision is largely up to the owners of the country's primarily privately owned coal fleet. Two coal plants in the Philippines currently have scheduled retirement dates. Under the Accelerating Coal Transition (ACT) program, Climate Investment Funds (CIF) have been secured to help accelerate the retirement or repurposing of the Mindanao Steag power station, the Philippines' only coal plant with

government ownership, to 2027. At the Puting Bato power station, owners plan to use transition credits to accelerate the plant's closure, possibly as early as 2030.

Laos

Laos is a major coal supplier in Southeast Asia, exporting both power generated using coal and coal itself. In July 2024, a six-kilometer conveyor belt to transport coal from Laos to Vietnam was approved by the People's Committee of Quang Tri Province. Local reporting on the sizable infrastructure project notes additional plans for mining in Sekong Province as well as ongoing plans for new coal plants: the Sekong (EPIC), TSBP Sekong, and Phonesack Xekong power stations. The first two of these proposals lack clarity around financing and other details, with no known development progress in several years.

Only the Phonesack Xekong proposal has seen progress, and the project is expected to enter construction in 2025. As of September 2024, the power station is planned to consist of six units commissioned between 2028 and 2030. Another project, the Nam Phan power station, is under construction. The two-unit plant is slated to begin operating in 2025, but there was no update on the project's status in 2024 beyond minor changes visible on Planet satellite imagery.

Concern over the environmental and public health impacts of Laos' coal industry increased in 2024. The country's prime minister raised concerns about mining activities designed to fuel coal plants domestically and abroad. Coal transported through Laos by road creates simultaneous business and environmental concerns, leading to escalated opposition in Laos and its neighboring countries.

Thailand

Thailand's long-awaited Power Development Plan (PDP) update is expected to focus on renewable energy development and formally abandon legacy coal capacity listed in the country's 2018 PDP. As of November 2024, the draft of

PDP 2024 projects renewables and biomass to account for 51% of total power generation by 2037.

New coal capacity remains under consideration at the Mae Moh power station, with a new unit intended to replace two other aging units; however, a feasibility study to instead refurbish the units was underway as of November 2024, potentially superseding plans to replace them. Should the replacement proposal at Mae Moh be cancelled, Thailand would have no new coal under development.

Cambodia

In October 2024, the Cambodian government announced a commitment to stop building new coal plants and prioritize wind power development. The country has two units under construction at the Han Seng power station, a project that had no known development progress in 2024 beyond changes visible on Planet satellite imagery. The plant would presumably be the country's last coal plant, bringing the total to four. To date, the Cambodian government has not committed to a formal coal phaseout, and none of its three existing coal plants have a planned retirement date.

Malaysia

In Malaysia, promising signs of an accelerated coal phaseout were apparent through the year. In June 2024, Malaysia's Prime Minister proclaimed that coal capacity in the country would be halved by 2035 and retired completely by 2044. Over half of Malaysia's operating coal plant capacity already has a planned retirement date between 2026 and 2033, and the Sejingkat and Balingian power stations were slated to be converted to biomass as part of the state of Sarawak's plan to restructure its energy mix. The Export-Import Bank of Malaysia's intended involvement in Vietnam's Song Hau II coal plant contrasts the country's otherwise progressive trend away from the fuel.

Russia, Central Asia, and Mongolia buck global coal trends through the continued pursuit of new coal plants

Russia has recently emerged as one of the top countries for coal plant development. Altogether, the country has 7.3 GW proposed and another 1 GW of coal power under construction, placing Russia fifth globally in terms of coal power capacity development. At over 37 GW, the country also ranks eighth for operating coal power capacity and third for global coal exports, after Indonesia and Australia.

Coal development is also growing throughout central Asia and Mongolia, backed by both Russian and Chinese companies. Together, Russia, Mongolia, and central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan) are joining China and India in bucking global trends through the continued pursuit of new coal plants.

Russia

In 2024, 2.5 GW of coal power was newly proposed in Russia, more than any other country except China and India. The proposed capacity stems from the updated General Scheme of Power Assets Allocation up to 2042 released in late 2024 by the Russian government. The plan highlighted new coal power capacity planned in Siberia and the Far East to address growth in power demand and back up seasonal hydropower. While some of the previous coal proposals did not appear in the updated scheme and were considered "shelved," several new coal plants were announced.

During 2024, 0.7 GW of additional capacity was announced at the existing Irkutsk-11 power station to cover a power deficit in the area, according to the General Scheme. In the same region, the Russian metals giant EN+ Group plans to build the EN+ Mugunsky power station with up to 3 GW of capacity and using domestic coal from its Tulunugol-Mugunsky Coal Mine. At the Primorsky power station in the Far East, an additional 0.4 GW unit was announced in late 2024.

Furthermore, plans to build a new nuclear facility in the Krasnoyarsk region were abandoned in favor of building a 1 GW coal plant to "preserve the domestic coal industry," according to government planning documents.

Russia now has over 1 GW of coal power capacity under construction, with 0.7 GW that started construction in 2024, including two units at the Partizanskaya power station in Russia's Far East that will supply electricity to Russian railways to increase the throughput capacity of the Trans-Siberian Railway as part the country's reorientation to the east.

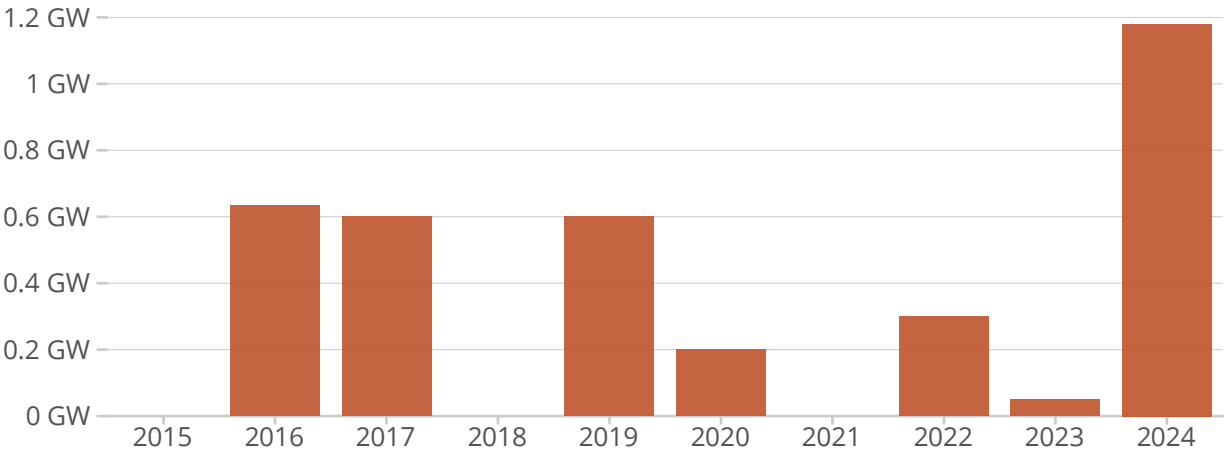
The modernization of aging equipment and transition to gas have been the overriding themes for Russian coal plants in the last decade. In 2024, only 0.2 GW of capacity was retired or transitioned to gas, with another 2 GW planned for retirement or transition to gas from 2025 to 2027. However, early 2025 saw cancellations of modernization plans across thermal power plants due to rising equipment costs, supply chain issues, and financing difficulties. Meanwhile, Russian companies have been sponsoring proposals in the neighboring countries of Mongolia and Kazakhstan.

Mongolia

Coal development in Mongolia surged in 2024 as 1.2 GW of coal capacity was newly proposed, the highest since 2015 and substantially more than the 50 MW proposed in 2023 (Figure 50). The new coal projects include the 0.3 GW New Century City power station, a combined heat and power plant that will serve a new satellite city under development outside Ulaanbaatar, and the 0.3 GW Ulaanbaatar-5 power station, a coal plant that has been proposed in at least two other iterations over the last sixteen years.

New coal power proposals surge in Mongolia

Newly proposed coal-fired power capacity (announced, pre-permit, permitted) in Mongolia, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 50

These new proposals from 2024 bump Mongolia's total pre-construction coal capacity to 2.8 GW, putting the country tenth globally. Proposed capacity in Mongolia had been slowly declining from a high of 7.7 GW in 2018 before plunging in 2023, when the 5.3 GW Shivee Ovoo power station was shelved. The remaining proposals include a 0.3 GW expansion at the Ulaanbaatar-3 power station, planned in collaboration with Russia's Ministry of Energy and Russian energy company Inter RAO Export.

Construction starts in Mongolia also picked up in 2024, with 0.4 GW of coal projects beginning construction, the second-highest in a decade. This includes the 0.7 GW Bayan power station, which will be Mongolia's first supercritical coal-fired power plant. In a matter of months from the initial proposal in August 2024, project developers obtained licenses and land and started building the power station's first unit. The project is a public-private partnership between the Mongolian government and China-based Kasen Power Green Energy.

A combined 0.2 GW of coal capacity began operating in Mongolia in 2024, another high within the last decade. The newly operating units at the Dornod

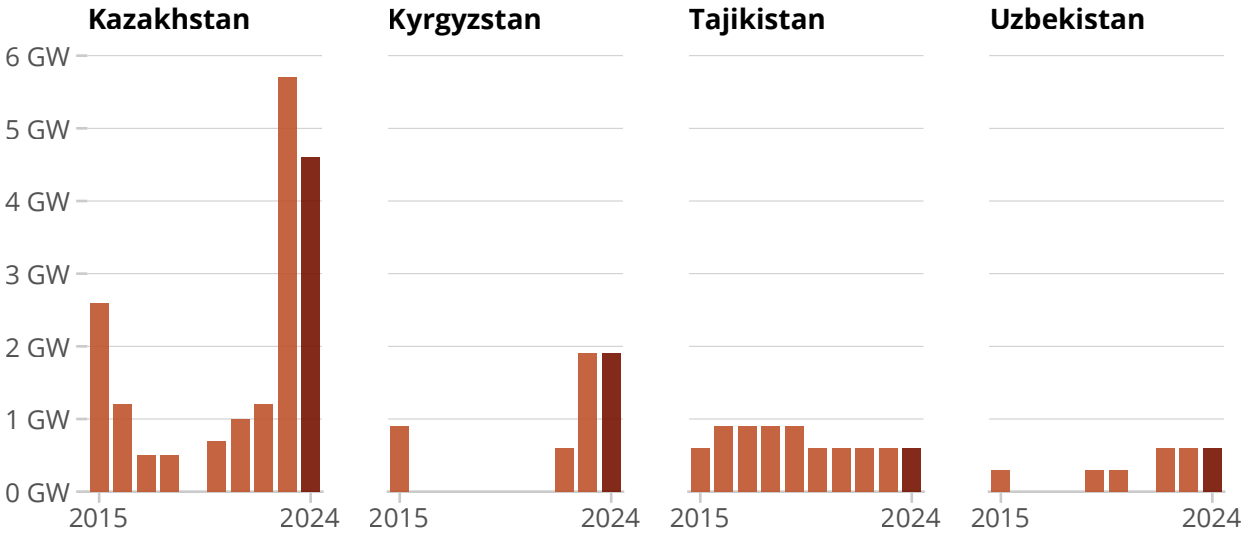
and Buuruljuut power stations bring the country's total installed coal capacity to 1.1 GW. Most of that operating capacity is in Ulaanbaatar, where aging coal plants often struggle to meet demands for electricity and district heat while contributing to the city's worsening air quality — recently ranked as the fourth-worst in the world, according to the Air Quality Index. If all of Mongolia's proposed coal projects are built, its operating capacity will more than triple, making the country's ambitions to curtail air pollution harder to achieve.

Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan

Central Asia countries continue to propose coal capacity, which remained as high as 45% of the existing power plant fleet, as of January 2025. Kazakhstan leads the region in terms of proposed coal power capacity, supported by Russian companies. However, after a flurry of new capacity announcements in the past two years, only minor changes to plans in the region were recorded in 2024 (Figure 51).

Proposed coal capacity drops in Kazakhstan, holds steady elsewhere Central Asia, but is still well above pre-2023 levels

Pre-construction (announced, pre-permit, and permitted) coal-fired power capacity, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 51

Kazakhstan has 4.8 GW of coal capacity under development as of the end of 2024, a decrease from 5.9 GW a year ago, as some previously announced projects have disappeared from government plans. Several other projects though have progressed during the year. An engineering, procurement, and construction agreement with a Russian company was signed in 2024 to build two additional units with over 1 GW of capacity at the Ekibastuz-2 power station, although construction has not yet begun. Agreements are also in place with the Russian public energy company Inter RAO to build three coal-fired combined heat and power coal plants in northeast Kazakhstan, totalling nearly 1 GW of capacity. Project planning and preparations are taking place across all three projects, with some construction starts expected in 2025.

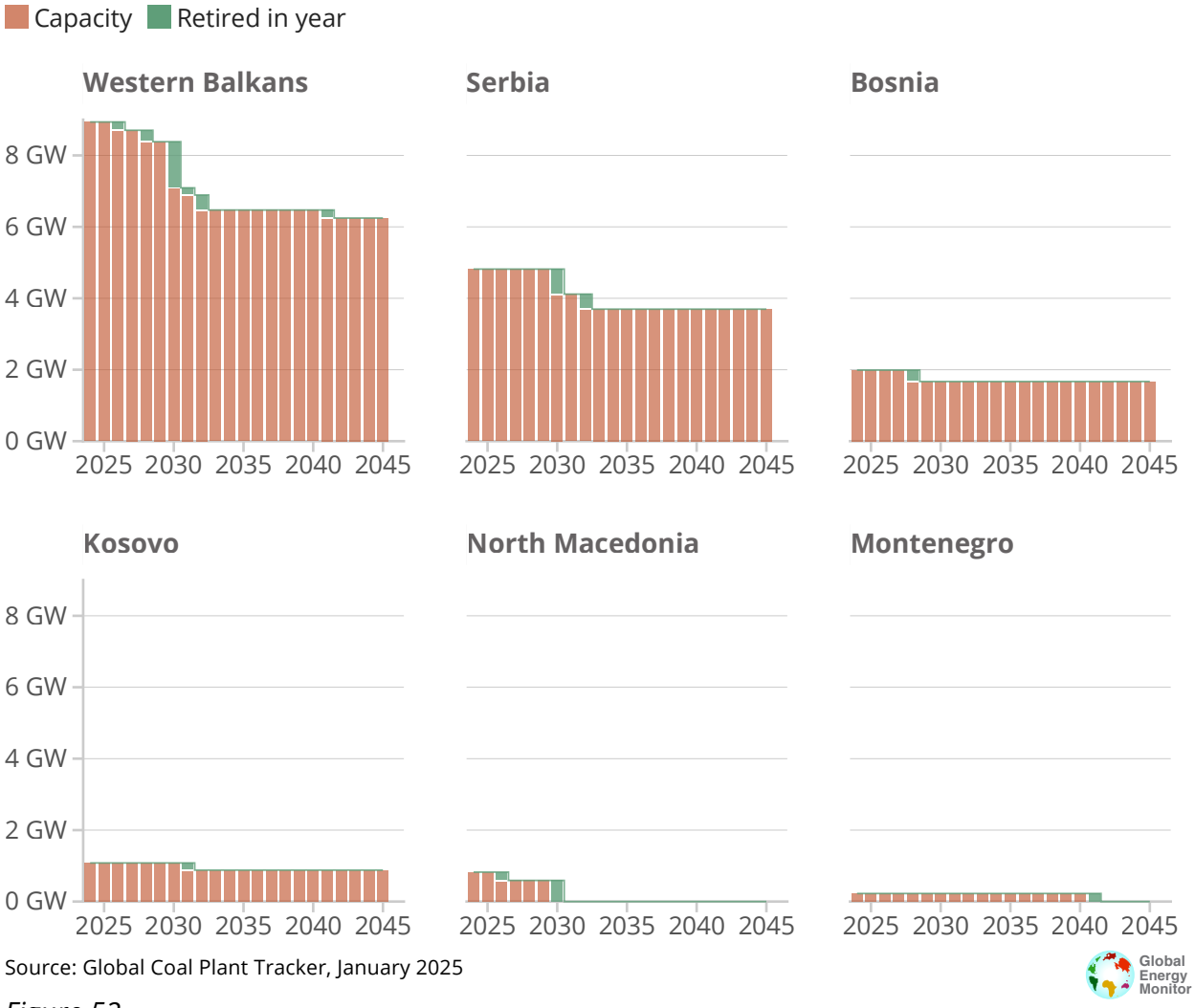
Kyrgyzstan, Tajikistan, and Uzbekistan jointly have 3.1 GW of coal capacity proposals. With no news during the year, they are not in active implementation. In early 2024, a memorandum was reportedly signed between the Ministry of Energy of Kyrgyzstan and China National Electric Engineering to build a 0.6 GW unit at the Kara-Keche power station, although later news suggested that this could be built as a gas unit.

Western Balkans delays coal plant retirement plans and phaseout timelines

In 2024, the Western Balkan countries saw further delays in finalizing the National Energy and Climate Plans (NECPs) required under the Energy Community Treaty as well as a further push-back of coal plant retirement dates and coal phaseout timelines. Several coal plants in the Western Balkans continue to operate despite noncompliance with the EU's air pollution standards, and none of the countries have concrete plans to achieve compliance or to close them. Current retirement plans will leave Western Balkan countries with over 6 GW of operating capacity in 2045, namely in Serbia, Bosnia, and Kosovo (Figure 52).

Current retirement plans have Bosnia, Kosovo, and Serbia with operating coal capacity past 2045

Total operating and mothballed capacity by country, in gigawatts (GW); each country on its own scale, highlighting trend changes



Source: Global Coal Plant Tracker, January 2025

Figure 52

North Macedonia

While North Macedonia is the regional leader in terms of energy transformation and building up solar capacity, the reality and the actions of the government are clashing with the stated climate goals. North Macedonia's two coal-fired power stations, the Bitola and Oslomej power stations, continue to exceed allowed emissions values by multiple times. The 0.1 GW Oslomej should have

retired already in 2021 as per original plans, but the power station continued to operate in 2024 at reduced capacity. The country's commitment to phase out coal generation by 2027 has slipped into 2030 due to concerns over energy security, and the new government has hinted that a coal phaseout may be pushed back to as late as 2050. While solar capacity is being developed at both sites, new coal mines to supply the plants are also planned.

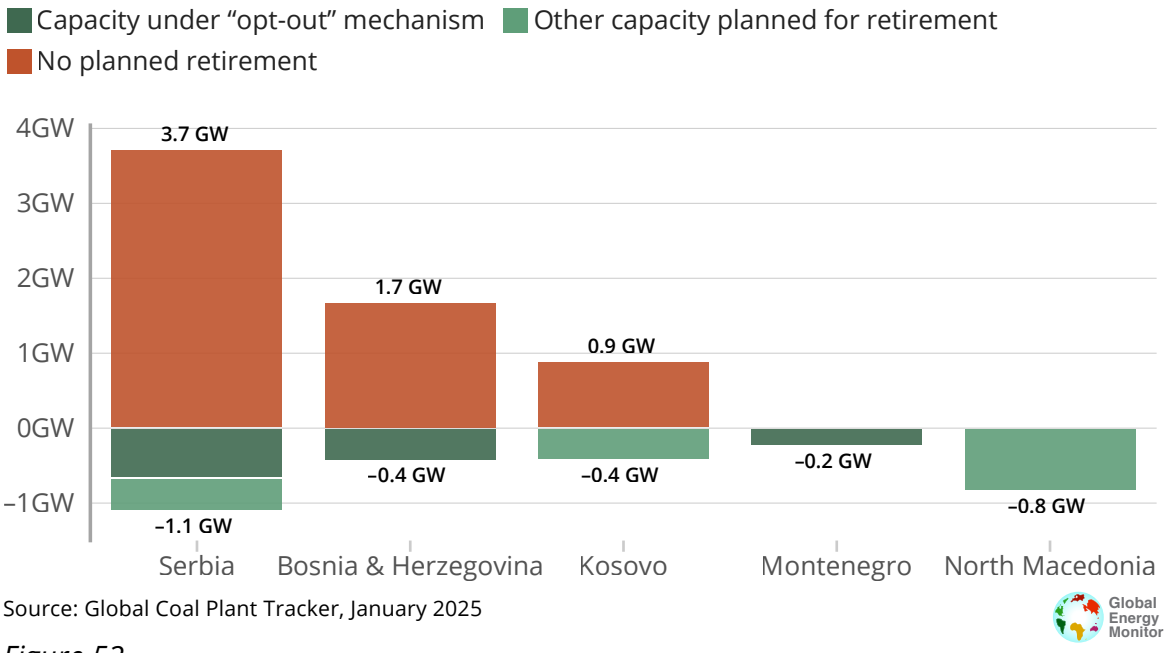
Bosnia and Herzegovina

Both the Gacko and Ugljevik power stations in Republika Srpska are still proposing expansions. The draft NECP released in 2023 foresaw no new coal capacity, although the country has not yet submitted its final NECP.

Three units at the Tuzla and Kakanj power stations in the Federation of Bosnia and Herzegovina (Tuzla 3, Tuzla 4, and Kakanj 5) are subject to the "opt-out" mechanism — an agreed-upon scheme under the EU's Large Combustion Plants Directive whereby without pollution control investments, the plants had to limit operating hours to 20,000 and close by the end of 2023 (Figure 53). However the units continued to operate in 2024, with the retirement of Tuzla 4 and Kakanj 5 postponed to 2028, while the closure date of Tuzla 3 remains uncertain, as does a controversial plan to build a new biomass plant at the site. There is no proposed coal phaseout date for the remaining coal units, which add up to 1.7 GW of coal capacity.

About half of planned retirements in Western Balkans closing due to EU "opt-out" pollution rules

Capacity by country and retirement status, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 53

Montenegro

The Pljevlja power station is the only coal-fired power station in Montenegro. An "opt-out" mechanism for the plant was agreed to in 2018, but it exceeded the operating threshold of 20,000 hours already in 2020. In response, a "modernization" project was launched to bring the plant in line with EU's pollution standards, with China's Dongfang Electric International Corporation selected as the contractor in 2019. However the main works have been repeatedly delayed and are slated to start in 2025. In a move that is deemed illegal, Montenegro amended the national laws to allow the plant to continue operating, with retirement expected in 2030–2035. In December 2024, Montenegro submitted its draft NECP, indicating further delays and the expected closure of the plant in 2041.

Serbia

Serbia has the largest coal capacity in the region with six operating coal plants totaling 4.8 GW, including a new 0.4 GW unit at the Kostolac B power station, commissioned in late 2024. In July 2024, Serbia adopted the final NECP, which indicates no more new coal plants. Three coal plants totaling 0.7 GW of capacity had to be retired by the end of 2023 in line with the "opt-out" mechanism; nevertheless all of the units continued to operate in 2024. The Kolubara A and Morava power stations are now planned to be retired by 2030. As for Kostolac A, the final NECP showed the plant in operation until 2045 while the new Strategy on Energy Development until 2040 referred to the necessity of additional investments in pollution control. Two units at the Nikola Tesla power station A (which is not under the "opt-out" mechanism) were initially slated for retirement by 2027, but the final plan also indicated these units in operation until 2045. Overall, the final NECP highlighted that coal power plant capacities will be maintained and will not be dismantled until 2045, although the share of coal generation should decline from 62% in 2024 to no more than 25% by 2030.

Kosovo

Like other parts of the Western Balkans, Kosovo has obligations under the Energy Community Treaty and both of its coal plants (the 0.6 GW Kosovo A power station and the 0.7 GW Kosovo B power station) are in breach of pollution limits. 2028 is the date for full compliance with the emission limit values under the EU pollution laws. One unit at the three-unit Kosovo A was planned to be refurbished by the end of 2024, with one or two units expected to operate in a strategic reserve mode from 2028 to 2030. The third unit was to be permanently closed once refurbishment was complete. However, this plan is shrouded in uncertainty. While the announcement of delayed refurbishment of Unit A3 was made in early 2025, there was no decision to refurbish or phase out another unit. As for Kosovo B,

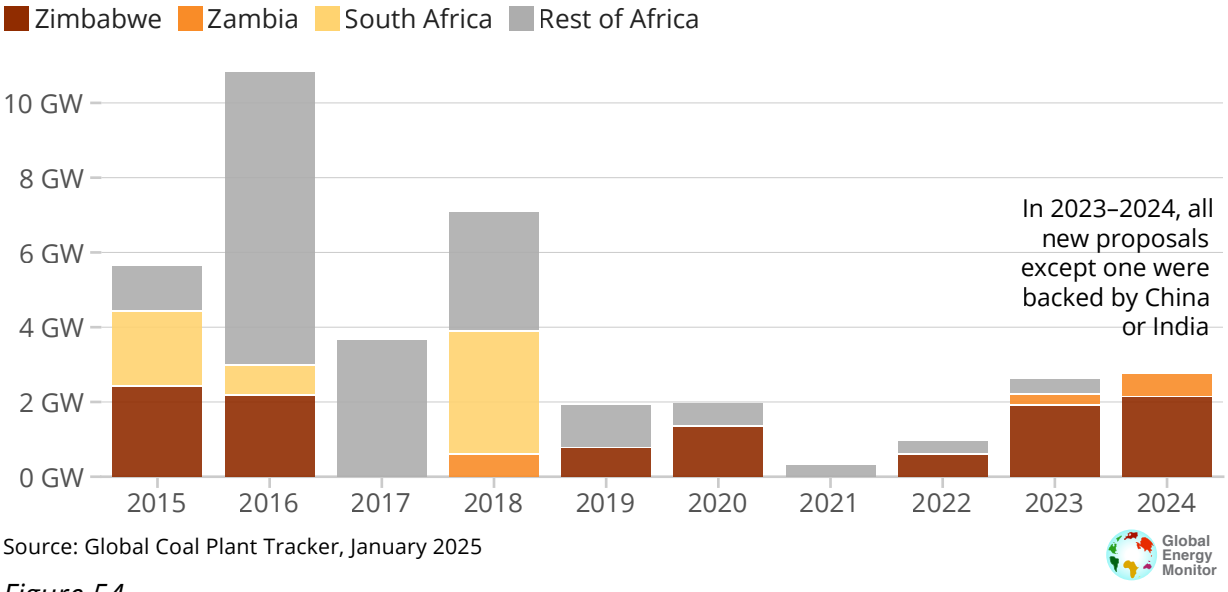
there are plans to refurbish both units by the end of 2026, with a view to maintain security of supply and decrease emissions.

Africa coal power makes gains in Zimbabwe and Zambia but stumbles in South Africa

Just a few countries in Africa accounted for most of the coal activity across the continent in 2024. Newly proposed coal capacity rose for the third year in a row to 2.8 GW, with only two countries hosting the new proposals in 2024: Zimbabwe (2.2 GW) and Zambia (0.6 GW) (Figure 54). These neighboring countries are each facing an energy crisis as the Kariba Dam hydroelectric plant, which supplies both countries with most of their electricity, contends with record-low water levels amid a severe drought. Notably, all 2.8 GW of the newly proposed capacity are backed by either Chinese or Indian companies.

New coal power proposals pick up in Africa, driven by Zimbabwe and Zambia

Newly proposed coal-fired power capacity (announced, pre-permit, permitted) in Africa by country, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 54

Zambia is considering a proposal for a 0.6 GW coal plant by the Wonderful Group, a Chinese-owned company that manufactures ceramic tiles and fertilizer. In Zimbabwe, a combined 1.8 GW of new coal capacity was announced at the Hwange power station, the country's largest power plant. China-based Shandong Dingneng New Energy proposed a 0.6 GW expansion at Hwange early in 2024, while India-based Jindal Steel and Power proposed a 1.2 GW expansion at the same plant in the latter half of the year. Making up the remaining new coal capacity proposals in Zimbabwe are the Zhongjin Heli Energy power station and HCCL Lubimbi power station, which also appear to involve Chinese companies as owners or partners.

Zambia and Zimbabwe also hosted Africa's 1.5 GW of construction starts in 2024, the highest recorded for the continent over the last ten years at least. Under a "streamlined" licensing process, Zambia's Energy Regulation Board issued a construction permit for a 0.3 GW expansion at the Maamba power station to help address the country's energy shortfalls. Foundation work on the expansion began in August 2024. In Zimbabwe, the 1.2 GW Prestige power station also started construction with support from Xintai Resources of China. The captive coal plant is projected to cost US$1.2 billion over ten years and will be part of a metallurgical special economic zone.

An additional boost for coal in Zimbabwe came in late 2024, when the country's president and representatives from several Chinese companies held a groundbreaking ceremony for Titan New Energy's proposed 0.7 GW coal plant in Hwange. While original plans for a lower-capacity project appear to date back to 2019, a partnership agreement between Titan New Energy and the Zimbabwe Electricity Supply Authority was formally signed at the September 2024 Forum on China-Africa Cooperation Summit.

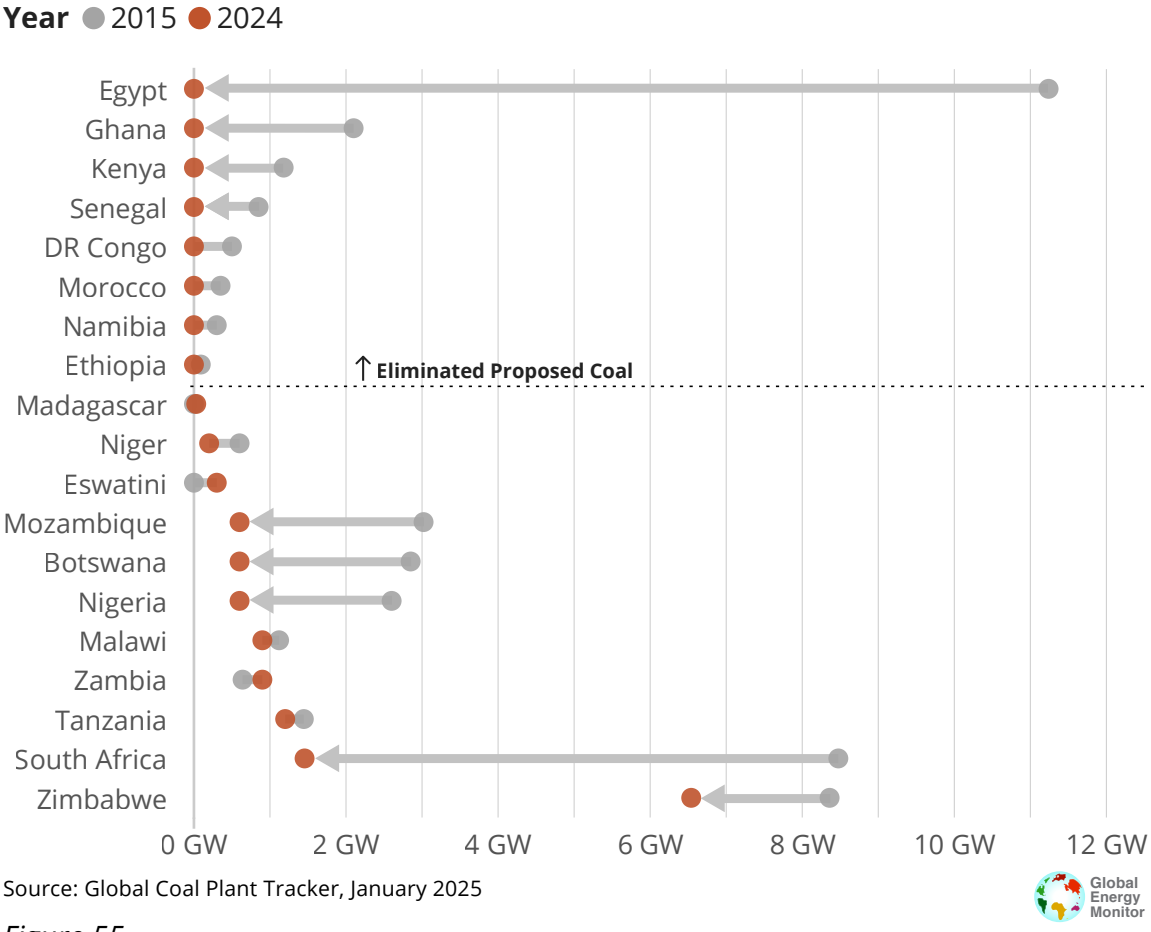
These new coal proposals in Zimbabwe and Zambia add to a growing list of power plants that Chinese companies appear to be actively developing since China's 2021 pledge to stop financing overseas coal projects. Captive coal plants and expansion projects in particular seem to be slipping through apparent loopholes in the original moratorium — although the Chinese government has not laid out any specific exemptions to its pledge and some new proposals do not appear to fall into any apparent loophole.

For their part, the government of Zimbabwe is inviting investments from China, aiming to ease nationwide power shortages and spur economic and industrial growth. Reactions to these coal projects from local residents are more mixed. While some community members are hopeful that foreign investments will bring jobs and business to local communities, others say coal projects are threatening livelihoods and destroying the environment. In coal-rich Hwange, where residents routinely bear the brunt of air and water pollution from coal mines and power plants, over 500 families were forced to relocate when commercial coal-burning triggered an air pollution crisis in late 2024.

Despite the uptick in new proposals in Zimbabwe and Zambia, proposed coal capacity across all of Africa sits at 13.3 GW and has been largely steady since 2021, as new proposals advance into construction or, more commonly, are cancelled; since 2015, all but three countries in Africa reduced their proposed coal capacity, and eight countries eliminated their proposals altogether (Figure 55). Zimbabwe is home to 6.5 GW of coal capacity under consideration, ranking first in Africa and fourth globally behind China, India, and Russia. South Africa has 1.5 GW of proposed coal capacity, and Tanzania has 1.2 GW. Over the last decade, operational capacity across the continent has been slowly climbing to 52 GW. This includes a combined 1.1 GW of newly operating coal power at the long-delayed Kusile power station in South Africa and at the Hwange power station in Zimbabwe.

Sixteen countries in Africa reduced or eliminated their proposed coal in the last decade

Change in proposed coal power capacity (announced, pre-permit, and permitted) from 2015 to 2024, in gigawatts (GW)



Source: Global Coal Plant Tracker, January 2025

Figure 55

Coal power's biggest tumble in Africa came out of South Africa, when late in 2024, landmark constitutional litigation against the South African government's 2019 decision to procure 1.5 GW of new coal-fired power succeeded. The youth-led #CancelCoal climate constitutional challenge was launched by the African Climate Alliance, the Vukani Environmental Justice Movement in Action, groundWork (gW), and Friends of the Earth SA, represented by the Centre for Environmental Rights, against the former Minister of Mineral Resources and the National Energy Regulator of South Africa. The applicants argued that the government's 1.5 GW

of planned coal projects in the 2019 Integrated Resource Plan (IRP) threatened several constitutional rights, including the rights to life, dignity, and equality, as well as best interests of children. The High Court held that there was no evidence that the Minister and NERSA adequately considered the health and environmental impacts of coal power on the rights of children and future generations and declared the proposal unlawful and invalid.

South Africa's current draft IRP, expected to be published in early 2025, contains no new coal power. However, the government has signaled that the new IRP will delay closures at several existing coal plants in the name of energy security. These deferred retirements would come on top of previous plans by state-owned utility Eskom to extend the lives of three older coal plants in its fleet. Whether these postponed retirements will affect South Africa's multi-billion-dollar Just Energy Transition Partnership (JETP) remains uncertain, as the country seeks to renegotiate its JETP deal to allow for the retirement delays and enable its continued dependence on coal.

Appendices

Appendix 1: Coal power capacity in development and operating by country/area (MW)

Country/Area	Announced	Pre-permit	Permitted	Announced + Pre-permit + Permitted	Construction	Shelved	Cancelled (since 2010)	Operating	Mothballed	Retired (since 2000)
Albania	0	0	0	0	0	0	800	0	0	0
Argentina	0	0	0	0	120	0	0	375	120	0
Australia	0	945	0	945	0	0	13,436	22,829	0	8,675
Austria	0	0	0	0	0	0	800	0	0	1,993
Bangladesh	5,200	1,050	0	6,250	2,640	0	30,925	6,035	0	0
Belarus	0	0	0	0	0	0	1,400	0	0	0
Belgium	0	0	0	0	0	0	1,100	0	0	2,865
Bosnia and Herzegovina	0	1,050	0	1,050	0	650	3,500	2,090	0	0
Botswana	0	600	0	600	0	1,800	5,550	732	0	0
Brazil	0	0	600	600	0	1,066	4,990	3,101	0	594
Brunei	0	0	0	0	0	0	0	220	0	0
Bulgaria	0	0	0	0	0	0	2,660	4,569	540	1,380
Cambodia	0	0	0	0	265	0	5,580	1,455	0	0
Canada	0	0	0	0	0	0	1,500	3,081	300	16,314
Chile	0	0	0	0	0	0	9,527	3,826	0	1,690
China	58,620	37,130	120,858	216,608	204,208	81,232	593,977	1,171,359	3,185	125,760
Colombia	0	0	0	0	0	1,125	1,710	1,646	0	0
Croatia	0	0	0	0	0	0	1,300	217	125	0
Czech Republic	0	0	0	0	0	0	1,380	7,404	55	3,038
Côte d'Ivoire	0	0	0	0	0	0	700	0	0	0
DR Congo	0	0	0	0	0	500	0	0	0	0
Denmark	0	0	0	0	0	0	0	411	0	4,644
Djibouti	0	0	0	0	0	0	150	0	0	0
Dominican Republic	0	0	0	0	0	0	2,040	1,064	0	0
Egypt	0	0	0	0	0	0	15,240	0	0	0
El Salvador	0	0	0	0	0	0	370	0	0	0

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Appendix 1: Coal power capacity in development and operating by country/area (MW) — *Continued*

Country/Area	Announced	Pre-permit	Permitted	Announced + Pre-permit + Permitted	Construction	Shelved	Cancelled (since 2010)	Operating	Mothballed	Retired (since 2000)
Eswatini	0	300	0	300	0	0	2,100	0	0	0
Ethiopia	0	0	0	0	0	90	0	0	0	0
Finland	0	0	0	0	0	0	385	1,160	125	2,502
France	0	0	0	0	0	0	0	1,907	0	6,849
Georgia	0	0	0	0	0	0	300	0	0	0
Germany	0	0	0	0	0	0	20,413	29,701	2,642	33,202
Ghana	0	0	0	0	0	0	2,100	0	0	0
Greece	0	0	0	0	0	0	1,250	1,985	0	3,953
Guadeloupe	0	0	0	0	0	0	0	64	0	38
Guatemala	0	0	0	0	0	0	300	439	0	83
Guinea	0	0	0	0	0	0	330	0	0	0
Honduras	100	0	0	100	0	0	0	105	0	0
Hong Kong	0	0	0	0	0	0	0	5,060	0	1,550
Hungary	0	0	0	0	0	0	3,080	884	250	515
India	27,030	32,410	22,000	81,440	29,480	2,015	588,094	242,563	582	16,311
Indonesia	3,600	1,260	0	4,860	8,583	1,700	51,530	54,684	0	55
Iran	0	0	0	0	650	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	915	0	0
Israel	0	0	0	0	0	0	1,260	4,325	0	575
Italy	0	0	0	0	0	0	6,795	5,190	0	5,810
Jamaica	0	0	0	0	0	0	1,140	0	0	0
Japan	0	500	0	500	0	0	12,177	54,167	1,081	3,314
Kazakhstan	2,724	1,920	0	4,644	130	1,597	2,376	13,421	130	210
Kenya	0	0	0	0	0	64	2,676	0	0	0
Kosovo	0	0	0	0	0	0	830	1,290	0	190
Kyrgyzstan	1,860	0	0	1,860	0	0	0	813	0	150
Laos	1,600	0	1,800	3,400	660	2,976	300	1,878	0	0
Latvia	0	0	0	0	0	0	435	0	0	0
Madagascar	0	30	0	30	0	0	0	120	0	0

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Appendix 1: Coal power capacity in development and operating by country/area (MW) — *Continued*

Country/Area	Announced	Pre-permit	Permitted	Announced + Pre-permit + Permitted	Construction	Shelved	Cancelled (since 2010)	Operating	Mothballed	Retired (since 2000)
Malawi	500	400	0	900	0	0	3,220	0	0	0
Malaysia	0	0	0	0	0	0	4,900	13,280	0	0
Mauritius	0	0	0	0	0	0	110	195	0	0
Mexico	0	0	0	0	0	1,400	1,850	5,378	0	0
Moldova	0	0	0	0	0	0	0	0	1,400	0
Mongolia	1,050	1,330	450	2,830	530	5,280	3,410	1,145	0	0
Montenegro	0	0	0	0	0	0	1,664	225	0	0
Morocco	0	0	0	0	0	0	1,670	4,092	0	165
Mozambique	300	300	0	600	0	750	4,670	0	0	0
Myanmar	0	0	0	0	0	0	21,225	150	40	0
Namibia	0	0	0	0	0	0	550	120	0	0
Netherlands	0	0	0	0	0	0	1,311	3,500	0	4,265
New Caledonia	0	0	0	0	0	0	180	370	0	0
New Zealand	0	0	0	0	0	0	0	750	0	250
Niger	0	200	0	200	0	0	500	30	0	0
Nigeria	0	0	600	600	0	30	5,579	285	0	0
North Korea	0	0	0	0	0	0	300	3,250	450	0
North Macedonia	0	0	0	0	0	0	730	824	0	0
Oman	0	0	0	0	0	0	1,200	0	0	0
Pakistan	0	1,650	300	1,950	82	1,320	24,863	8,298	150	0
Panama	0	0	0	0	0	0	0	0	306	120
Papua New Guinea	0	0	0	0	0	0	52	0	0	0
Peru	0	0	0	0	0	0	135	0	0	135
Philippines	0	2,655	270	2,925	635	700	15,880	12,492	0	197
Poland	0	0	0	0	100	0	22,923	27,857	0	8,400
Portugal	0	0	0	0	0	0	0	0	0	2,028
Romania	0	0	0	0	0	0	5,705	2,260	645	4,780
Russia	7,035	295	0	7,330	1,045	2,350	11,751	37,312	0	10,459

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Appendix 1: Coal power capacity in development and operating by country/area (MW) — *Continued*

Country/Area	Announced	Pre-permit	Permitted	Announced + Pre-permit + Permitted	Construction	Shelved	Cancelled (since 2010)	Operating	Mothballed	Retired (since 2000)
Senegal	0	0	0	0	0	0	850	155	0	0
Serbia	0	0	0	0	0	0	2,795	4,785	32	0
Slovakia	0	0	0	0	0	0	885	274	0	1,219
Slovenia	0	0	0	0	0	0	0	1,069	0	535
South Africa	0	0	1,455	1,455	800	2,580	15,830	44,224	2,470	1,180
South Korea	0	0	0	0	1,050	0	7,500	41,195	0	3,480
Spain	0	0	0	0	0	0	800	2,115	0	11,677
Sri Lanka	0	0	0	0	0	0	5,900	900	0	0
Sudan	0	0	0	0	0	0	600	0	0	0
Sweden	0	0	0	0	0	0	0	0	0	291
Syria	0	0	0	0	0	0	0	0	60	0
Taiwan	0	0	0	0	0	0	14,000	18,116	1,000	2,362
Tajikistan	600	0	0	600	0	0	650	400	0	0
Tanzania	400	800	0	1,200	0	120	1,445	0	0	0
Thailand	0	0	600	600	0	0	10,726	6,138	0	675
Türkiye	0	688	0	688	0	5,750	92,258	20,473	545	0
Ukraine	0	0	0	0	0	660	2,060	4,742	15,203	3,683
United Arab Emirates	0	0	0	0	0	0	5,470	0	0	1,200
United Kingdom	0	0	0	0	0	0	9,968	0	0	35,857
United States	400	400	0	800	0	0	28,168	194,131	0	165,866
Uzbekistan	600	0	0	600	0	0	300	2,493	0	241
Venezuela	0	0	0	0	0	0	2,800	0	0	0
Vietnam	0	650	0	650	4,043	5,730	60,895	27,239	0	0
Zambia	0	600	300	900	300	0	1,940	330	0	0
Zimbabwe	4,970	0	1,570	6,540	1,470	1,700	7,840	1,670	0	0
Total	**116,589**	**87,163**	**150,803**	**354,555**	**256,791**	**123,185**	**1,804,563**	**2,143,346**	**31,436**	**501,323**
Percent China	*50%*	*43%*	*80%*	*61%*	*80%*	*66%*	*33%*	*55%*	*10%*	*25%*

Source: Global Coal Plant Tracker, January 2025

Appendix 2: Status changes in 2024 by country/area (MW)

Country/Area	Newly proposed 2024	Revived proposed 2024	Started construction 2024	Resumed construction 2024	Newly operating 2024	Retired 2024	Cancelled 2024
Albania	0	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0
Australia	0	0	0	0	0	34	0
Austria	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	1,260	0	2,640
Belarus	0	0	0	0	0	0	0
Belgium	0	0	0	0	0	0	0
Bosnia and Herzegovina	0	0	0	0	0	0	0
Botswana	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	76	0
Brunei	0	0	0	0	0	0	0
Bulgaria	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0
Canada	0	0	0	0	0	880	0
Chile	0	0	0	0	0	277	0
China	56,564	12,310	94,487	3,320	30,525	2,450	4,680
Colombia	0	0	0	0	0	0	460
Côte d'Ivoire	0	0	0	0	0	0	0
Croatia	0	0	0	0	0	0	0
Czech Republic	0	0	0	0	0	0	0
Denmark	0	0	0	0	0	1,149	0
Djibouti	0	0	0	0	0	0	0
Dominican Republic	0	0	0	0	0	0	0
DR Congo	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0
Eswatini	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0
Finland	0	0	0	0	0	80	0

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Appendix 2: Status changes in 2024 by country/area (MW) — *Continued*

Country/Area	Newly proposed 2024	Revived proposed 2024	Started construction 2024	Resumed construction 2024	Newly operating 2024	Retired 2024	Cancelled 2024
France	0	0	0	0	0	122	0
Georgia	0	0	0	0	0	0	0
Germany	0	0	0	0	0	6,729	0
Ghana	0	0	0	0	0	0	0
Greece	0	0	0	0	0	900	0
Guadeloupe	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0
Guinea	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0
Hong Kong	0	0	0	0	0	1,050	0
Hungary	0	0	0	0	0	0	0
India	27,180	11,200	3,200	1,320	5,810	220	3,553
Indonesia	160	0	1,140	0	1,902	0	1,600
Iran	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0
Israel	0	0	0	0	0	0	0
Italy	0	0	0	0	0	336	0
Jamaica	0	0	0	0	0	0	0
Japan	0	0	0	0	0	372	0
Kazakhstan	589	0	0	0	0	0	116
Kenya	0	0	0	0	0	0	0
Kosovo	0	0	0	0	0	0	0
Kyrgyzstan	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0
Latvia	0	0	0	0	0	0	0
Madagascar	0	0	0	0	0	0	0
Malawi	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0
Mauritius	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0

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Appendix 2: Status changes in 2024 by country/area (MW) — *Continued*

Country/Area	Newly proposed 2024	Revived proposed 2024	Started construction 2024	Resumed construction 2024	Newly operating 2024	Retired 2024	Cancelled 2024
Moldova	0	0	0	0	0	0	0
Mongolia	1,180	0	380	0	200	0	0
Montenegro	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	165	0
Mozambique	0	0	0	0	0	0	0
Myanmar	0	0	0	0	0	0	0
Namibia	0	0	0	0	0	0	0
Netherlands	0	0	0	0	0	0	0
New Zealand	0	0	0	0	0	0	0
Niger	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	0
North Macedonia	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0
Pakistan	0	0	0	0	660	0	660
Panama	0	0	0	0	0	0	0
Papua New Guinea	0	0	0	0	0	0	52
Peru	0	0	0	0	0	0	0
Philippines	0	1,416	350	0	450	0	0
Poland	0	0	0	0	0	697	0
Portugal	0	0	0	0	0	0	0
Romania	0	0	0	0	0	0	0
Russia	2,535	170	730	0	0	236	1,000
Senegal	0	0	0	0	0	0	0
Serbia	0	0	0	0	350	0	1,350
Slovakia	0	0	0	0	0	220	0
Slovenia	0	0	0	0	0	0	0
South Africa	0	0	0	0	800	0	1,500
South Korea	0	0	0	0	1,050	0	0

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Appendix 2: Status changes in 2024 by country/area (MW) — *Continued*

Country/Area	Newly proposed 2024	Revived proposed 2024	Started construction 2024	Resumed construction 2024	Newly operating 2024	Retired 2024	Cancelled 2024
Spain	0	0	0	0	0	785	0
Sri Lanka	0	0	0	0	0	0	0
Sudan	0	0	0	0	0	0	0
Sweden	0	0	0	0	0	0	0
Syria	0	0	0	0	0	0	0
Taiwan	0	0	0	0	0	0	0
Tajikistan	0	0	0	0	0	0	0
Tanzania	0	0	0	0	0	0	0
Thailand	0	0	0	0	0	0	0
Türkiye	0	0	0	0	0	0	3,190
Ukraine	0	0	0	0	0	1,532	0
United Arab Emirates	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	2,172	0
United States	0	0	0	0	0	4,744	0
Uzbekistan	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0
Vietnam	0	0	110	0	716	0	3,360
Zambia	600	0	300	0	0	0	0
Zimbabwe	2,150	0	1,200	0	335	0	600
Total	**90,958**	**25,096**	**101,897**	**4,640**	**44,058**	**25,226**	**24,761**
Percent China	*62%*	*49%*	*93%*	*72%*	*69%*	*10%*	*19%*
Percent China and India	*92%*	*94%*	*96%*	*100%*	*82%*	*11%*	*33%*

Source: Global Coal Plant Tracker, January 2025