



REPORT SEPTEMBER 2021

NO NEW COAL BY 2021 THE COLLAPSE OF THE GLOBAL COAL PIPELINE

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E3G is an independent climate change think tank accelerating the transition to a climate safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2018 E3G was ranked the fifth most globally influential environmental think tank for the third year running.

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Cover image

2021 sees the sun setting on coal power. Photo taken at Fiddler's Ferry power station, UK, by Phil Gradwell, 2014.



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Global Energy Monitor

Global Energy Monitor (GEM) develops and shares information on fossil fuel projects in support of the worldwide movement for clean energy. Current projects include the Global Coal Plant Tracker, the Global Fossil Infrastructure Tracker, the Global Coal Mine Tracker, the Global Steel Plant Tracker, the Europe Gas Tracker, the Portal Energético para América Latina, the Global Gas Plant Tracker, the Global Oil and Gas Extraction Tracker, the CoalWire newsletter, and GEM.wiki. For more information, visit www.globalenergymonitor.org.

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Ember's objective is to accelerate the global electricity transition from coal to clean. We turn data into action: we gather, curate and analyse data on the global power sector, and then we use it to support high impact policies, empower campaign organisations and shape the global narrative.

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EXECUTIVE SUMMARY

The global pipeline of proposed coal power plants has collapsed by **76%** since the Paris Agreement in 2015, bringing the end of new coal power into view.

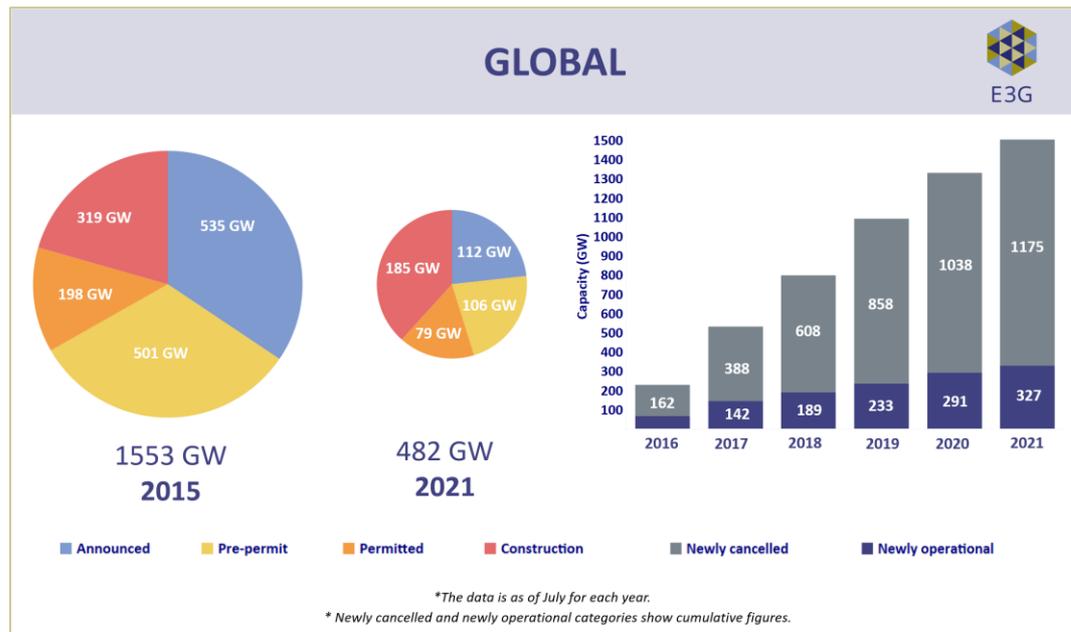


Figure 1: Reduction in size of the global coal project pipeline (left) and year-on-year tracking of projects that were cancelled or newly operational (right).

United Nations Secretary General Guterres has called for ‘no new coal by 2021’, while COP President Designate Alok Sharma has called for COP26 in November 2021 to ‘consign coal to history’. COP26 provides the ideal moment for governments to turn off the tap of new coal construction.

Since 2015, **44** governments (27 in the OECD & EU, 17 elsewhere) have already committed to no new coal, opening a pathway for remaining countries that are yet to act. We find that a further **40 countries** (8 in the OECD & EU, 32 elsewhere) are without any projects in the pre-construction pipeline and are in a position where they could readily commit to ‘no new coal’.

Globally, 1,175GW of planned coal-fired power projects have been cancelled since 2015. Accelerating market trends have combined with new government policies and sustained civil society opposition to coal. The world has avoided a 56% expansion of the total global coal fleet (as of June 2021), which would have been equivalent to adding a second China (1,047GW) to global coal capacity.

As of July 2021, China and the countries with the next five biggest pre-construction pipelines (India, Viet Nam, Indonesia, Turkey, and Bangladesh) account for **over four-fifths of the world's remaining pipeline**. Action by these **six countries** could remove **82%** of the pre-construction pipeline. The remaining pre-construction pipeline is spread across a further **31** countries, **16** of which have just one project. These countries could follow global momentum and many of their regional peers in ending their pursuit of new coal-fired power generation.

The dynamic within the **OECD & EU** has already moved on to accelerating the retirement of existing coal power generation, with **56% of operating capacity** either closed already since 2010 or scheduled to close by 2030. The pipeline of proposed coal power plants in OECD & EU countries has collapsed by **85%** since 2015. The remaining proposed projects in OECD & EU countries make up just **6%** of the global pre-construction pipeline. Australia, Colombia, Mexico, Poland, and Turkey are under pressure to follow their OECD & EU peers.

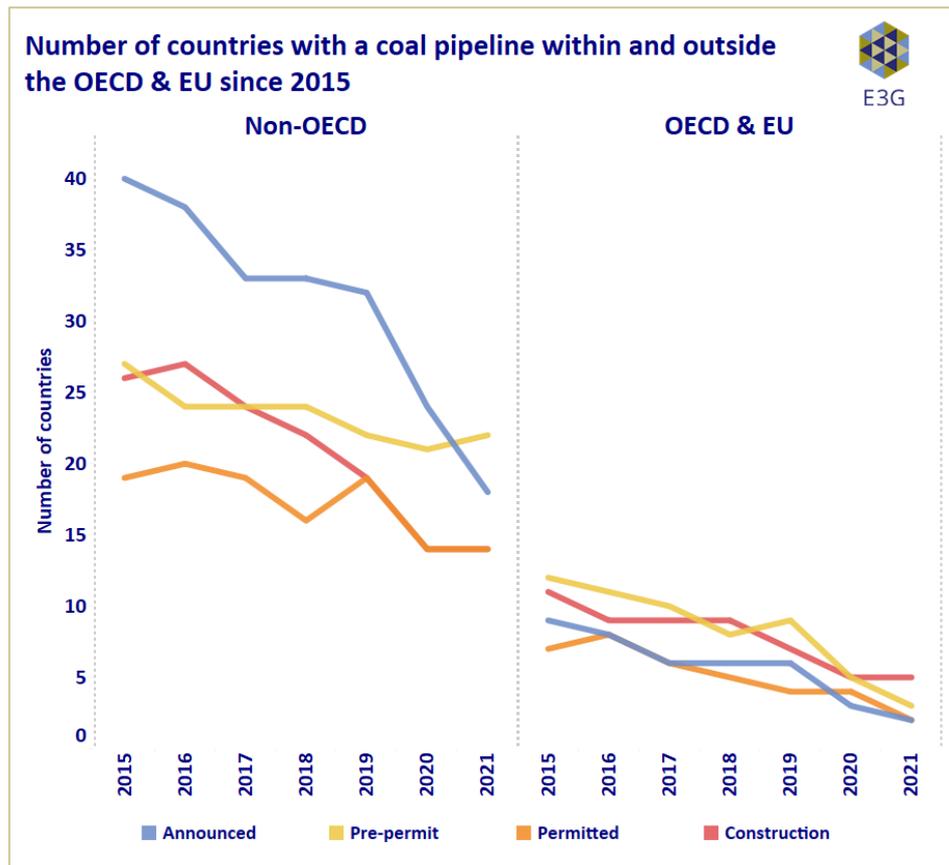


Figure 2: Declining numbers of countries with a coal pipeline within and outside the OECD & EU since 2015, by pipeline status



Among non-OECD countries (excluding China), the pre-construction pipeline has collapsed by **77%** since 2015, with a cancellation ratio of over 5:1. **27 countries** have ended the development of new coal power generation through project cancellations and / or policy commitments since 2015. This shift away from coal is being reflected in governments' political commitments, policy frameworks, and NDC submissions, for example in Pakistan, Malaysia, and Sri Lanka. They are serving as regional pathfinders that other countries can follow.

The group of non-OECD countries is home to **39%** of the remaining global pre-construction pipeline, **80%** of which is located in just **nine countries**. Four of these governments (Bangladesh, Pakistan, Indonesia and Viet Nam) have already indicated some form of restriction on new coal construction, which can be further clarified and tightened ahead of COP26. The remaining **20%** of the non-OECD pipeline is spread across small projects in **22 countries**, many of which could readily commit to no new coal and pursue clean alternatives instead.

The international community can further support these countries in moving away from coal through provision of public and private clean energy finance; support to develop flexible grid infrastructure; and technical and capacity assistance to bolster regulatory and policy frameworks that accelerate the transition from coal-to-clean. COP26 will be a key moment for OECD & EU members and China to demonstrate that such support is available now for all countries that are willing to shift from dirty coal to clean energy.

China alone is home to almost **53% of the capacity under construction** and **55% of the pre-construction pipeline**. China has, however, seen a **74%** reduction in the scale of its project pipeline, with 484GW of cancellations since Paris. President Xi has announced an intention that China will 'strictly control' new coal growth, but this has yet to be reflected in sectoral Five-Year Plan (FYP) policies. China is also isolated as the last remaining major provider of public finance for overseas coal projects, following Japan and South Korea's recent commitments to end coal finance. An end to Chinese finance would facilitate the cancellation of over 40GW of pipeline projects in 20 countries.

The collapse of the global coal pipeline and the rise of commitments to 'no new coal' are progressing hand in hand. Ahead of COP26, governments can collectively respond to UN Secretary General Guterres' call for 'no new coal by 2021'. Global trends are positive: governments can seize this moment to confirm their commitment to move from coal to clean energy.



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INTRODUCTION

The structural transformation of the global electricity sector is accelerating, with countries increasingly steering away from coal power generation. The trend away from coal is reflected in both the rate of retirements of existing coal-fired power stations in the OECD & EU, and the collapse of the global pipeline of new projects everywhere.

Our analysis finds that since the Paris Agreement in 2015, the global pipeline of proposed new coal power plants has contracted by 76%. The economics of coal have become increasingly uncompetitive in comparison to renewable energy, while the risk of stranded assets has increased. Governments can now act with confidence to commit to ‘no new coal’.

The consumption of thermal coal for power generation accounts for around a fifth of global greenhouse gas emissions,¹ making the continued operation of the existing global fleet of coal power plants the biggest single risk to keeping below the 1.5c threshold set out in the Paris Agreement in 2015. Adding new coal power plants makes no sense: when in a hole the first task is to stop digging.

United Nations Secretary General Antonio Guterres has **called** for ‘no new coal by 2021’, while COP26 President Designate Alok Sharma has **called** for COP26 to ‘consign coal to history’. COP26 offers a global moment for governments to individually and collectively turn off the tap of new coal construction.

This report analyses the dynamics of the global coal pipeline since 2015, tracking the collapse of the capacity pipeline and the increasing number of countries with no plans for new coal. It demonstrates how ‘no new coal’ is within reach globally. A rapidly shrinking group of laggard countries are still currently pursuing new coal. They are increasingly in the spotlight and under peer pressure to follow the global trend and cancel their project pipelines.

Coal needs to exit, not expand

Coal is currently the single largest contributor to climate change, and the **most polluting** fossil fuel. The **Intergovernmental Panel on Climate Change** (IPCC), **International Energy Agency** (IEA) and other bodies have made it abundantly

¹ Including LULUCF: emissions related to land-use, land-use change and forestry.



clear that ending the burning of thermal coal for power generation is central to keeping the world on track for a below 1.5c warming pathway.

The IPCC 2021 Special Report on 1.5 **models** estimate that coal use needs to fall 79% by 2030 (on 2019 levels); twice as fast as for oil and gas. The IPCC analysis also shows that while various pathways exist for the phase-out of oil and gas, for coal the picture is starker, with a roughly four-fifths drop in use required by 2030 in all scenarios that achieve a below 1.5c outcome.

Previous analysis of the **IPCC's 2018 Special Report on 1.5c** breaks down the differentiated pathways for different economic country groupings and establishes target phase-out dates for OECD & EU and non-OECD countries. This concludes that to remain on a 1.5c pathway would require a coal exit by **2030 at the latest in the OECD & EU**, and **2040 in the rest of the world**.

The **IEA's 2021 Net Zero 2050** report sets out even more clearly how achieving net zero by the middle of the century would require no new investment in coal-fired power infrastructure without carbon capture, utilisation and/or storage (CCUS) technology, as of 2021.

Delivering 'no new coal' will not get the world onto a 1.5c pathway in isolation, but the scientific consensus is clear: **there is no room in the global carbon budget for new coal infrastructure**. An end to new coal and a rapid phase out of existing capacity is the fundamental foundation of all pathways to a below 1.5c future.

Adding new coal power plants would risk locking in high emissions for several decades, raising energy costs in many countries in the process. Moreover, adding emissions to an already constrained carbon budget would require even faster closures of the existing fleet to keep warming within 1.5c.

Global supply chains are increasingly seeking electricity supplies that are either coal-free or 100% renewables. Government commitments to no new coal are an indicator of their capacity to catalyse investment in clean energy systems that are fit for the future, while also demonstrating recognition of the most effective way to **build back better** from the impacts of Covid-19.



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METHODOLOGY

The analysis in this report uses coal capacity data sourced and aggregated by **Global Energy Monitor's Global Coal Plant Tracker**. Our analysis focuses on two key metrics. Firstly, the size of coal power plants (either existing or proposed) measured in gigawatts (GW) of capacity. Secondly, we assess the number of countries positioned at different stages of the transition from coal to clean energy.

Both the scale of capacity and the numbers of countries matter. The distribution of coal use and proposed future construction are highly concentrated, so some countries have an outsized impact on global trends. But all countries need to act, with early movers opening up space for others to follow. As additional jurisdictions pivot away from coal, they reaffirm to neighbours and peers that coal is no longer a sensible energy investment.

Throughout this paper we refer to the pre-construction 'pipeline' of projects. This is an aggregation of various statuses of coal-fired power projects, as characterised by **Global Energy Monitor's Global Coal Plant Tracker** database:

- > **Announced:** Proposed plants that have been described in corporate or government plans but have not yet taken concrete steps such as applying for permits or acquiring land. These are coloured light blue on our charts, to reflect 'blue sky' status.
- > **Pre-permit development:** Plants that are seeking environmental and other regulatory approvals and pursuing other developmental steps such as securing land and water rights. Coloured yellow, to reflect tentative status.
- > **Permitted:** All necessary environmental and other regulatory approvals have been received but the project has not yet begun construction. Coloured orange, to reflect increased risk of progression.

These statuses can be seen as a continuum from least likely to most likely to be built. The poor economics of coal and increasing difficulties of financing new projects means that those still at the 'announced' stage are unlikely to be built. Projects at the pre-permit stage are also frequently abandoned either for commercial reasons or in response to government policy changes. Finally, projects at the permitted stage may face legal, financial, and regulatory hurdles to cancellation. In some cases, for example, a government may have signed a



Power Purchase Agreement (PPA) to buy electricity from a proposed project, and as such be contractually obliged to buy the power, and legally responsible for the developer and investors' foregone revenue if they decide not to build the project. Plants that have permitted status may be harder for countries to abandon without legal or financial assistance (potentially from donor countries and / or international institutions).

In this report we also touch on the dynamics of plants that have progressed beyond the pre-construction pipeline stages outlined above:

- > **Construction.** This refers to cases where all necessary approvals have been received, the project is financially commissioned, potential power purchase agreements have been signed and the project has begun construction. Although unusual, it is not impossible for plants to still be cancelled or converted to another fuel source once construction has begun. Legal challenges that disrupt or delay the construction process, for example, may result in plants no longer being financially viable to go into operation. This status is coloured red in our charts, to reflect the risk of the project becoming operational.
- > **Shelved** projects are those where sufficient evidence is found to indicate that a project is no longer moving forward, but not enough to declare it definitively cancelled. Projects where construction has been put on hold are designated "shelved", as are those that show no activity over a period of 2 years is categorized as "Shelved" unless there is evidence to the contrary.
- > **Cancelled** projects are those that have either been halted for several years, or for which an official cancellation announcement has been made. Capacity will often move from shelved to cancelled as projects that had once been under consideration are no longer economically viable, but do on rare occasions move back into pipeline statuses. Coloured grey, to reflect the dormant status of the projects.

To enable full year-on-year comparisons, this analysis uses data from GEM's July bi-annual updates for each year from 2015 onwards, which provides an accurate picture as of the end of June of each year. Using a July benchmark allows us to use the most up-to-date data as of July 2021. The years presented in the following graphics cover the period July 2015 to July 2021, starting with the data from the GEM update preceding the negotiation of the Paris Agreement. The data presented in the following charts is for the 12 months from July to June, rather than the calendar year.



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THE COLLAPSE OF THE GLOBAL PIPELINE AND THE RISE OF ‘NO NEW COAL’

Previous analysis by E3G has highlighted that global coal power trends are now clearly divided into three blocs, each with distinct dynamics: China, OECD & EU countries, and the remaining non-OECD nations.

China alone is home to over half the world’s operating coal capacity. 2020 saw **China’s** position as the world’s major coal-pursuing nation **become further entrenched**, as the scale of new plants entering operation offset a retreat from coal across the rest of the globe. China commissioned 76% of the world’s coal in 2020, up from 64% in 2019. 2021 saw a 12.5GW net increase in the amount of operating coal worldwide - the lowest annual rate of increase since 2015, at less than a 1% rise. This was the result of a net increase of 29.8GW in China offsetting retirements in the rest of the world.

Dynamics have already shifted away from coal in the **OECD & EU**, which is home to a quarter of the world’s operating coal capacity. Here, the focus is now on the accelerated retirement of existing coal power plants. 56% of the OECD & EU operating fleet has either closed since 2010, or is scheduled to close by 2030, while 62% of OECD & EU countries are members of the Powering Past Coal Alliance (PPCA).

The **non-OECD** countries beyond China are home to the remaining quarter of operating coal capacity. This group has seen a slow-down in the growth of new coal and increasing recognition in leading countries that existing coal power plants will need to close over the coming decades.

Our analysis for this paper identifies that these three groups each have a distinct story in respect to the growing momentum towards no new coal. We first look at the global picture, then explore the groupings in turn.

The global coal pipeline has collapsed since 2015

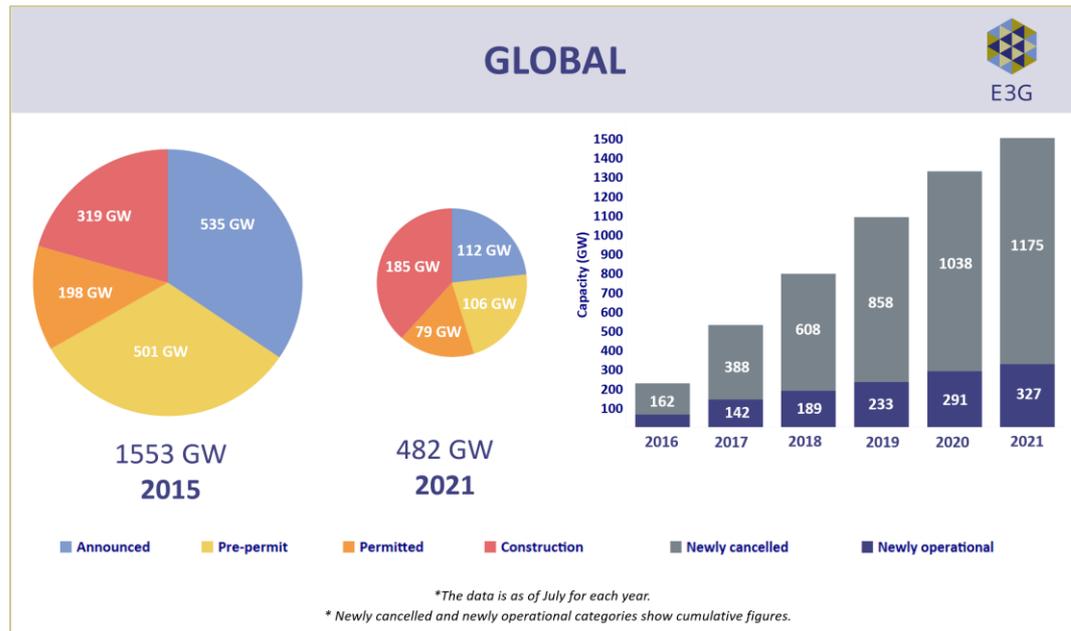


Figure 3: Reduction in size of the global coal project pipeline (left) and year-on-year tracking of projects that were cancelled or newly operational (right).

Since the negotiation of the Paris Agreement the global coal project pipeline has imploded. Since 2015, the size of the pipeline of pre-construction projects has fallen by **76% globally** (Figure 3), with declines of **85% in the OECD & EU**, **77% in non-OECD** (outside of China), and **74% in China**. China's share of the total global pre-construction pipeline has increased every year since 2015, up from 50% to 55% in 2021. The OECD & EU share has fallen to 6% and the non-OECD to 39%.

Globally, **1,175GW** of planned coal-fired power projects have been cancelled since 2015. Accelerating market trends have combined with new government policies and sustained civil society opposition to coal. The world has avoided a 56% expansion of the total global coal fleet (as of June 2021), which would have been equivalent to adding a second China (1,047GW) to global coal capacity. Cancelled plants include **484GW** in China, **552GW** in non-OECD countries (excluding China), and a further **139GW** in OECD & EU countries. This compares to only **327GW** of new coal entering into operation during the same period. Cancelled plants exceed newly operational by **3.6:1**, with ratios of 6:1 for OECD & EU, 5.3:1 for non-OECD, and 2.4:1 for China.

Globally, **44 countries** (see Table A in annex for full list) have made a commitment to not initiate any new coal construction, primarily through joining

the **Powering Past Coal Alliance**,² but also through national policy statements. **27** of these are OECD & EU members, with a further **17** in the rest of the world.

40 further countries (8 OECD, 32 elsewhere) are in a position where they could readily commit to no new coal (see Table B in annex for full list). **36** of these have no projects in the development pipeline or under construction, making feasible an immediate commitment to no new coal. A further **4** countries (Japan, South Korea, the United Arab Emirates and Kazakhstan) are currently constructing plants but have no further pipeline and could similarly commit to no new coal beyond plants currently under construction.

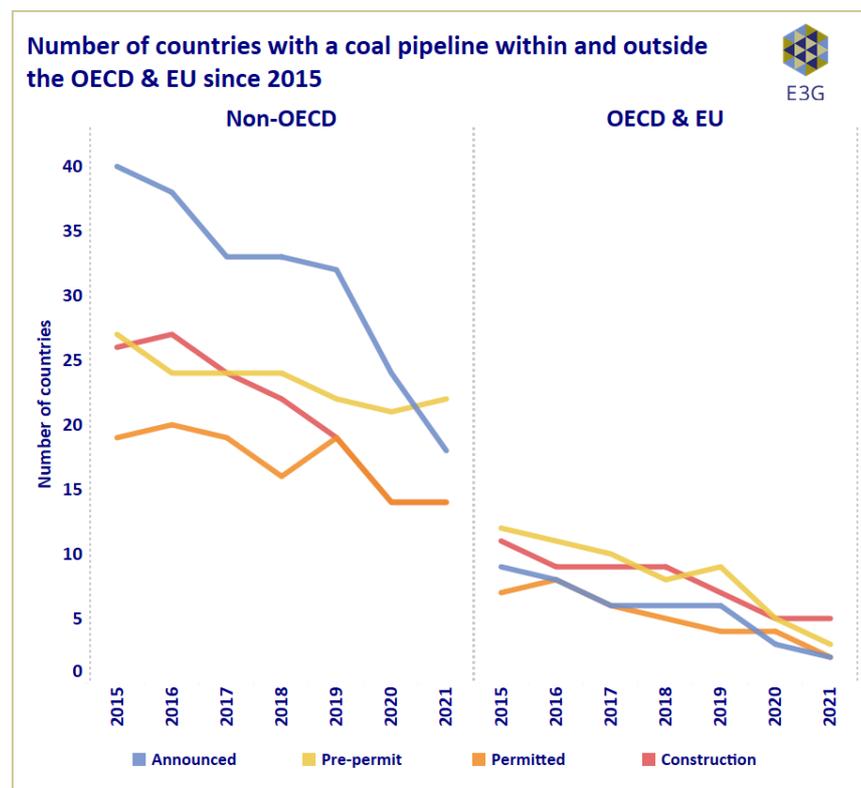


Figure 4: Declining numbers of countries with a coal pipeline within and outside the OECD & EU since 2015, by pipeline status

As of July 2021, **37** countries are still considering new coal-fired power stations, (see Table C in annex for full list). This is a **43% fall** since 2015, when there were 65 countries. Figure 4 illustrates the contraction in the number of countries considering new projects at each stage of the development pipeline through to construction. In the non-OECD, the collapse in the number of countries with

² Full disclosure: In Summer 2019 PCCA co-chairs Canada and the UK selected E3G and The Pembina Institute to host the independent secretariat team for the PCCA. The analysis in this report reflects E3G's assessment of global trends and does not represent the views of the PCCA.

‘announced’ projects shows how the pipeline is drying up, with ever-fewer new projects being initiated. In the OECD & EU, the collapse of the pipeline across all categories has left just a handful of countries still considering new coal.

China and the countries with the next five biggest pre-construction pipelines (India, Viet Nam, Indonesia, Turkey, and Bangladesh) account for **over four-fifths of the world’s remaining pipeline**. Action by these **six countries** could remove **82%** of the remaining pre-construction pipeline. The remaining 18% of the pre-construction pipeline is distributed across a further **31 countries**, of which 24 countries have less than 2.5GW of new capacity under consideration. 16 of these countries only have one project left in the pipeline; cancelling these projects would leave these countries with no new coal under consideration (see Table D in Annex for full list).

The number of countries with new projects under construction has almost halved since Paris, down from 38 to 20. **185GW** of capacity is under construction, some of which may yet be cancelled or converted. Recent **analysis** also finds that new coal construction starts have slowed to a trickle everywhere but China since early 2020, with only four countries (India, Indonesia, Viet Nam and Cambodia) starting any significant building of new plants.

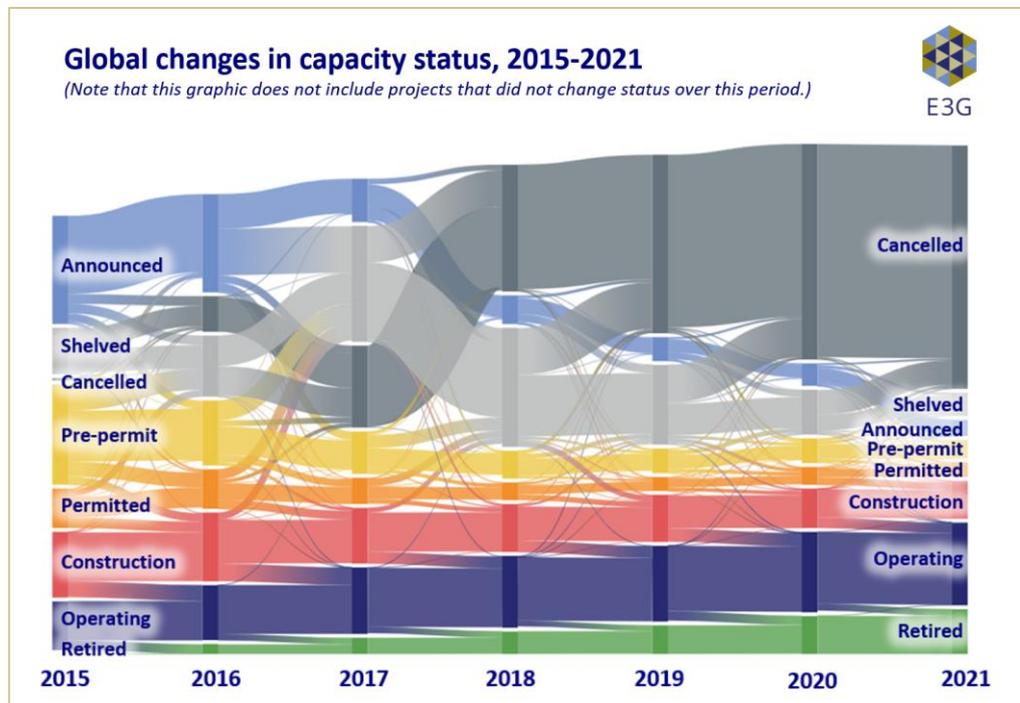


Figure 5: Sankey diagram showing global changes in capacity status, 2015-2021. Note that graphic does not include projects that did not change status over this period.



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Although a few exceptions exist, a shelved project is more likely to be cancelled than going back into the pipeline of projects under development. As shown in Figure 5, most coal projects in the global pipeline have been either shelved or cancelled since 2015. More than 80% of the cancelled capacity (1175GW) was initially classified as shelved due to lack of progress. The remaining 20% was directly cancelled with an announcement by the project developer and / or government.



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THE OECD & EU IS ALREADY BEYOND 'NO NEW COAL'

Headlines

- > The new coal pipeline in OECD & EU has collapsed by **85%** since 2015, with 139GW of projects cancelled.
- > Cancellations outnumber new plants entering into operation by 6:1.
- > The OECD & EU is now home to just 6% of the remaining global pipeline.
- > 12 OECD & EU countries have considered new coal projects since 2015 but no longer have projects under development.
- > Five OECD & EU countries have coal projects in the pre-construction pipeline; all are unlikely to proceed.

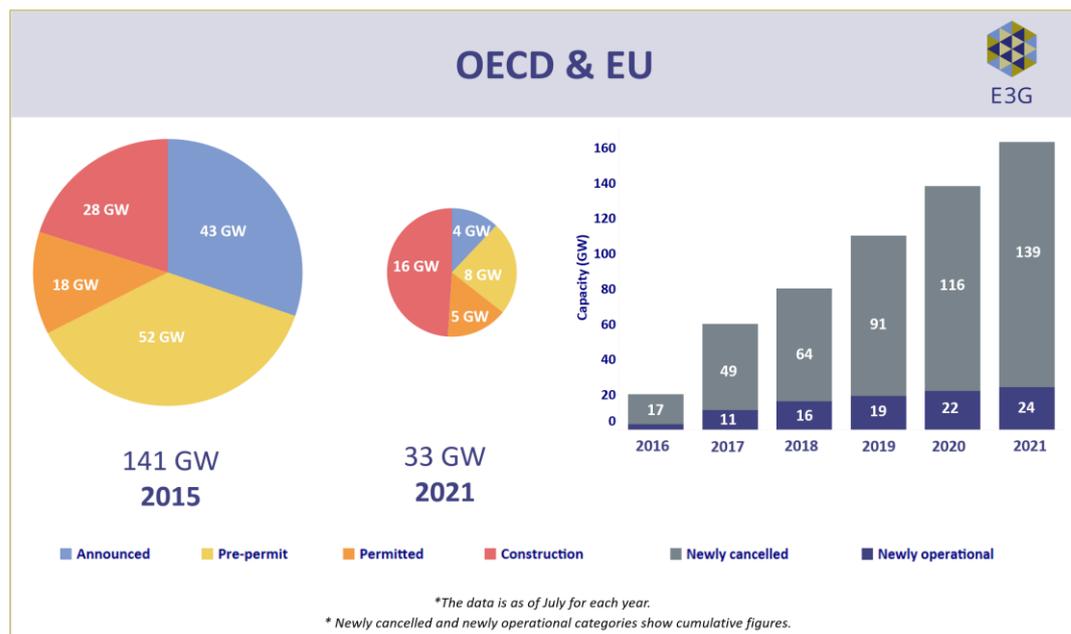


Figure 6: Reduction in size of the OECD & EU coal project pipeline (left) and year-on-year tracking of projects that were cancelled or newly operational (right).

The primary coal transition dynamic underway across the OECD & EU is the accelerating retirement of existing coal power generation, with **56% of capacity** either closed already since 2010 or scheduled to close by 2030.

This dynamic is also reflected in respect to the collapse of the new coal pipeline. Almost **four-fifths** of OECD & EU countries have either formally committed to no new coal (**64%**) or have no projects under development (**14%**). This includes 12 countries that have considered new coal power generation since 2015, but which no longer have projects under development, as shown by Figure 7 below.

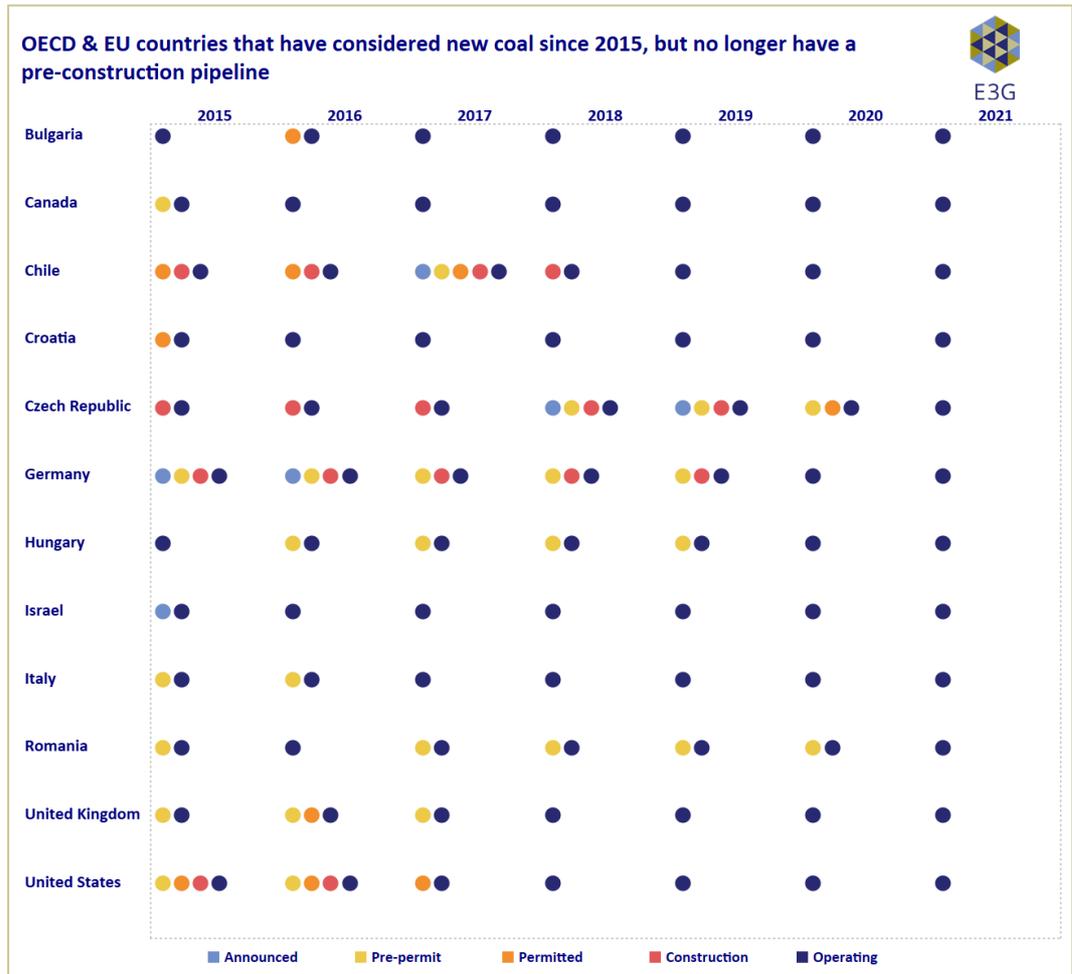


Figure 7: OECD & EU countries that have considered new coal since 2015, but no longer have a pre-construction pipeline, as of July 2021.

Since 2015, just **24GW** of new projects entered operation across the OECD & EU, compared to **139GW** that were cancelled, giving a ratio of nearly **6:1**. Only a handful of projects remain that have been proposed but have not yet entered construction, in Australia, Colombia, Mexico, Poland and Turkey. (Figure 8).

Leaders

The UK's advocacy for 'consigning coal to history' at COP26 is based on a **domestic track record of transitioning away from coal power generation**. In



2009 the UK government committed to a policy of ‘no new coal without CCS’, acting on advice from the newly created independent advisory body the **Committee on Climate Change**. This effectively put an end to ~15GW of proposed new coal power plants. In 2015, just ahead of Paris negotiations, the UK became the first national government to commit to a coal phase out, by 2025 (now accelerated to 2024). At the same time, the UK announced that it would not proceed with funding for CCS projects that had been developed under a government competition process. These projects appear as subsequently suspended and ultimately cancelled in the GEM tracker, as in Figure 7 above.

In 2017, the UK and Canada co-created the **Powering Past Coal Alliance** (PPCA), with members committing to no new coal plants; ending financing of coal power generation; and to delivering a coal phase out in line with Paris Agreement timeframes. 62% of OECD & EU governments are now members of the PPCA, including governments that had recently constructed or considered new coal power plants such as The Netherlands, Germany, and Greece.

The Netherlands had seen three new coal power plants enter into operation as recently as 2015. However a **2016 decision** by Parliament subsequently required the closure of all coal plants in line with national emissions targets. This demonstrated the risks to utilities of building new coal power plants whose emissions would be incompatible with legally binding climate commitments. A successful **court challenge** resulted in these new coal power plants needing to close with less than 15 years of operations.

Germany joined the PPCA in 2019 following the **recommendations** of the coal commission and ahead of legislating its coal exit law. The controversial coal plant Datteln IV completed its construction process and entered into operation, after a decade of legal challenges and technical delays. However in August 2021 a court ruled that some of its permits were **invalid**, and pressure is growing for the plant to cease operations. Germany’s coal exit law resulted in the cancellation of the last remaining coal plant under development. The current national election campaign has seen all parties engage with the need for an accelerated timeframe for Germany’s domestic coal phase out from **2038 to 2030**.

Greece announced its commitment to a coal phase out at the UN Climate Action Summit of 2019 despite having a coal power plant under construction at the time, marking a massive shift in policy direction. The utility company PPC is now developing plans to convert the coal power plant to gas **by 2025** instead of 2028.

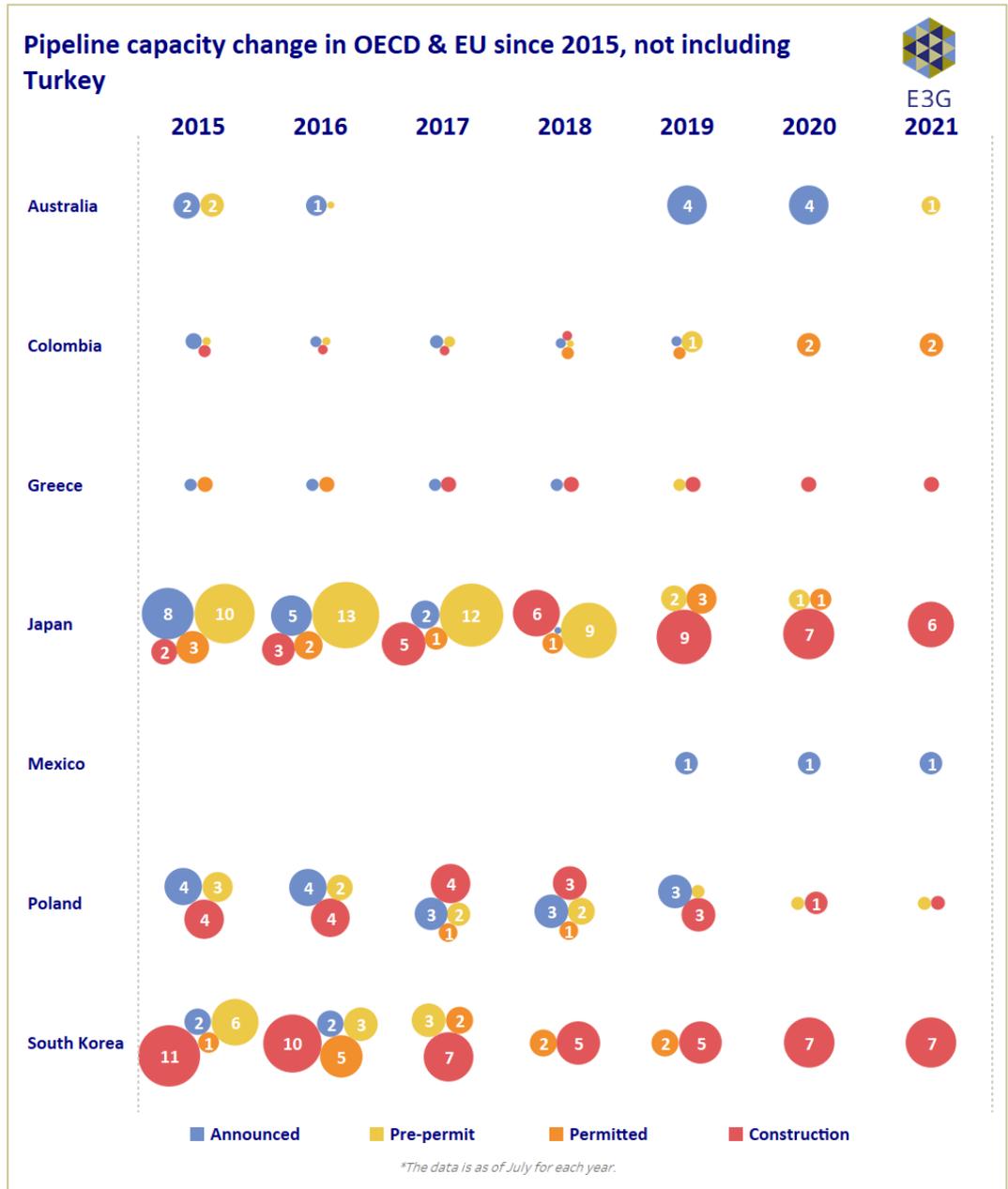


Figure 8: Pipeline capacity change in OECD & EU since 2015, not including Turkey

Movers

In 2019, the Government of **Chile** and its electricity sector agreed to no longer pursue new coal without CCS, and to phase out the existing coal fleet. At the time, an exit date of 2040 was agreed, but political debate is now on how this will be brought forward, as 65% of existing coal capacity will close by 2025.

Figure 7 shows how the Trump Administration failed to ‘bring back coal’ in the **USA**, with no coal power plants under development. The Biden Administration is



now aiming to introduce a requirement for a **carbon free power sector** by 2035, which would require coal power generation to be phased out by around 2030.

Japan and South Korea are currently still constructing new coal power plants and are ranked at the bottom of E3G's OECD & EU progress tracker as a result (Figure 25, in annex). However, both are taking steps away from coal at home and abroad.

Following the cancellation of two projects in the first half of 2021 **Japan** no longer has any plants in its pre-construction pipeline. Japan has seen one of the biggest reductions in capacity among OECD & EU countries since 2015, with 12GW cancelled. Civil society groups and local residents continue to push for projects in Kobe and Yokosuka to be abandoned rather than completed.

South Korea has seen close to 6GW of cancellations since 2015. The government has committed to no new coal plants entering into construction, with discussions continuing as to whether the four units under construction at Samcheok and Gangreung coal power plants will be cancelled or converted to gas. South Korea is now actively debating the **speed and timeframe for coal phase out** and the headline targets of its emissions reduction goals.

Laggards

Investing in new coal-fired projects in 2021 is economically, socially, environmentally, and politically foolhardy, with just five countries in the OECD & EU still considering new coal. **Australia, Colombia, Mexico** and **Poland** all have a small pre-construction pipeline (<1.6GW each) of planned projects. However, in reality the financing, regulatory, and political conditions in these countries make it likely that none of these projects will come to fruition. As such, these countries are well-positioned to formally cancel their pipelines and align with the rest of the OECD & EU in recognising the move towards a coal-free future.

In **Australia**, utility companies do not want to build new coal power plants and the energy market operator is planning for coal phase out. However strong political support for coal exports has seen the government **controversially offer public finance** to a project developer proposing a new coal plant, despite their lack of experience. The only project under development as of July 2021 is at 'pre-permit' stage and has no prospect of progress in real world. Given its **abundant** renewable energy resource, Australia should be global leader in clean energy, but current policies and politics are holding back investment, leaving Australia lagging behind its OECD peers.



The **loss** of export markets has resulted in **Colombia's** coal industry proposing new domestic power plants, unironically trying to justify them on the basis of **increased risk of climate impacts** on Colombia's hydro power generation. Proposed projects have secured permits but have stalled ahead of financial close. As a recent member of the OECD, the Colombian Government can align with the broader trend away from coal and confirm that no new coal plants will be built.

Mexico's previous government instituted a series of energy market reforms, including the promotion of renewables. It recognised the need for the phase out of coal power generation, and joined the PCCA at its launch in 2017, but without yet having set a phase out date in national policy. President Andrés Manuel López Obrador ('AMLO') subsequently entered into office in December 2018, with his administration seeking to **reverse** many of the previous energy market reforms. The government aims to strengthen the national electricity company CFE and oil company Pemex, while **also increasing coal purchasing from smaller producers**. The government has put forward **controversial proposals** that would prioritise the dispatch of coal and fuel oil in the electricity market, which have been challenged in the courts. An idea for a new **1400MW coal power plant** in Coahuila was publicised in 2018 but remains at 'announced' stage and has no prospect of progress in real world. As with Australia, Mexico could be a global leader in clean energy, but current policies and politics are holding back investment. A recommitment to no new coal would be a first step towards rebuilding confidence in the sector.

Although Poland still nominally has two projects under development, efforts **to build new coal plant Ostroleka C have collapsed** over legal challenge and the withdrawal of investors from the project. Following another legal ruling and several power outages at Poland largest power plant Belchatow, plant owner PGE **has now published a plan to close the entire plant by 2036** with the two associated mines closing soon after. At the same time Poland has witnessed a rapid growth in its renewables capacities, in particular roof-top solar PV and offshore wind. Under its current EU National Climate and Energy Plan it aims for a tripling of renewable capacities by 2030. Despite challenging domestic politics around coal retirements, Poland is well placed to make a formal commitment to no new coal.



E3G

Box 1: Turkey's project pipeline is the fifth largest globally

Turkey alone accounts for 73% of the remaining OECD & EU pre-construction pipeline (12.14GW). Yet a huge 69GW of planned projects have been cancelled since 2015, including 8GW in the first half of 2021 alone.



Figure 9: Pipeline capacity change in Turkey since 2015

Turkey's national energy policy remains pro-coal, to the point of offering feed-in-tariffs for lignite (brown coal) power plants. The government promotes coal power in **strategy** and policy documents, and currently has no plans for a coal phase-out or an end to new coal construction.

But the real economy is ahead of Government policy. The pipeline of projects has almost **halved** within the last year and shrunk by **79%** since 2015. Cancellations have risen consistently, outpacing newly operational capacity by nearly **11:1**, driven by the poor economics of coal power.

Turkey is the sole OECD & EU country receiving Chinese finance. Yet **EMBA Hunutlu**, a **1.3GW** Chinese-financed coal plant under construction, may not make a profit for at least 20 years and is highly likely to end up as a stranded asset. Recent **analysis** suggests no new coal-fired generation is required under a cost-effective energy transition strategy.

Pressure is growing on Turkey to exit coal from both domestic business groups and civil society. The possible economic implications of an EU carbon border adjustment mechanism (CBAM) have caused fear among the business community. An increasing number of **actors** are now calling for the government to set up a decarbonisation roadmap, as increasing costs could seriously affect export-dependent sectors.

As a result of changing political, economic, and social circumstances, government policy and reality are diverging. Turkey can take advantage of the global collapse of the coal pipeline and cancel its remaining projects.



E3G

CHINA: HOME TO OVER HALF THE WORLD'S COAL PIPELINE

Headlines

- > China accounts for 55% of the world's pre-construction pipeline (163GW), in addition to hosting over half of the world's operating coal fleet.
- > China has, however, seen a **74%** reduction in the scale of its project pipeline, with 484GW of cancellations since Paris.
- > Project cancellations outnumber newly operational capacity by 2.4:1, a much lower figure than in the rest of the world.
- > Coal industry groups have proposed expanding coal capacity by a further 350GW, but recent analysis shows that China can meet its energy security goals with no net new coal, keeping its emissions goals on track.
- > China is isolated as the last major provider of public finance for overseas coal plants, with over 40GW of coal in 20 countries in the pre-construction pipeline.

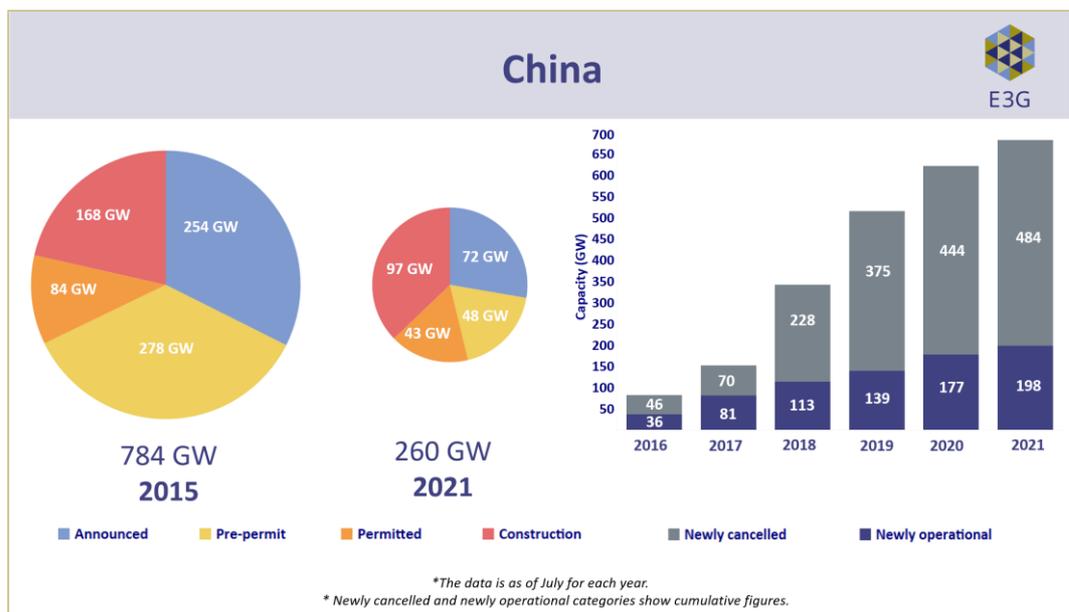


Figure 10: Reduction in size of the coal project pipeline in China (left) and year-on-year tracking of projects that were cancelled or newly operational (right).

China **continues to dominate** the global coal power landscape. China’s operating capacity grew in 2020, with a net increase of 38GW **offsetting retirements** in the OECD & EU.

However, even with its continued pursuit of coal in recent years, China has also seen a 74% reduction in the scale of its project pipeline. **484GW** have been cancelled since Paris, in relation to only **198GW** which became operational (a ratio of **2.4:1**), as shown in Figure 10.

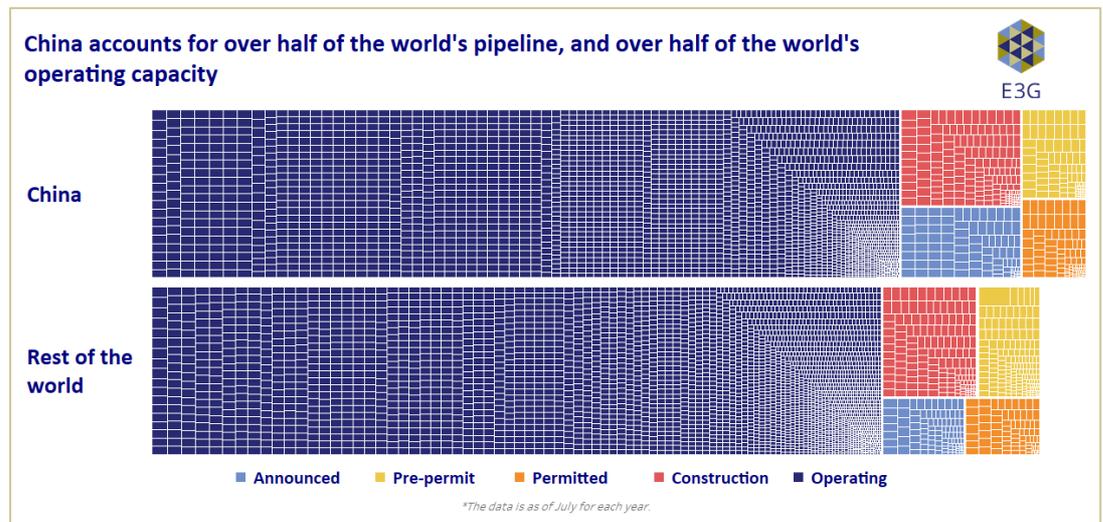


Figure 11: China accounts for over half of the world's pipeline, and over half of the world's operating capacity.

In response to the Covid crisis and its economic impacts, Chinese Provinces have sought to increase industrial activity. 15GW of new coal power capacity started construction in the first half of 2021, while 24GW of new projects were announced or re-activated from previous suspension. China’s pre-construction pipeline now surpasses that of the rest of the world combined. China's pipeline now stands at **163GW**, or **55%** of the global pipeline, as shown in Figure 11.

This increase in project development activity is further illustrated in Figure 12 below, showing the post-Covid growth in the pipeline in 2020 and 2021. This growth stands in contrast to President Xi’s statement at President Biden’s **Leaders’ Summit on Climate** in April 2021 that China would “strictly control” coal consumption growth in the 14th Five-Year Plan period (2021-2025). It should be noted, however, that this indicator refers to overall coal consumption (including by industry sectors) and does not refer directly to coal power capacity.

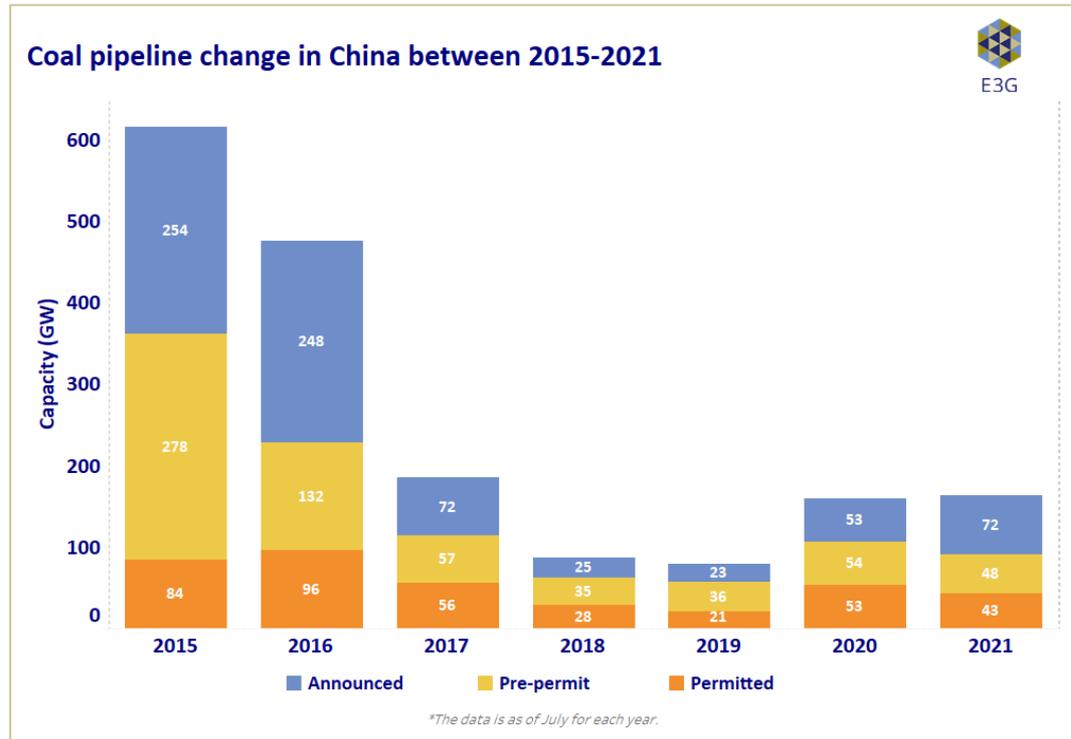


Figure 12: Coal pipeline change in China between 2015-2021.

The continued construction of new coal power capacity would risk exacerbating the already low load factors for operating power plants, which could be further reduced unless there is a parallel effort to retire existing capacity. The IEA has identified that there is a need for electricity market reforms to prioritise efficient dispatch and properly integrate carbon price signals.

Industry groups have pushed for continued growth in coal power capacity. Research institutes affiliated with **State Grid Corp** have argued that a 350GW expansion of coal capacity is necessary to safeguard China’s energy security. Analysis from **NRDC**, however, shows that capping China’s coal capacity at 1,100GW by 2025 (53GW more than currently operating) will allow China to meet its future energy demands. Given that 39GW of coal capacity has started construction or was announced in the first half 2021, China may already be in a position to commit to no (net) new coal power, with any new additions matched with retirements.

There continue to be mixed signals in the relationship between national and sub-national coal dynamics. Since China announced its carbon neutrality target, the central government has increased scrutiny of local government’s performance on energy intensity and consumption targets, with implications for the project pipeline. The government’s official watchdog on environmental policies



published a scathing review of the National Energy Administration's policies, calling out the agency's failure to square its coal power policy with the country's low-carbon energy strategies. Meanwhile, the National Development and Reform Commission (NDRC) recently announced that it will pause approvals of high-emission projects in nine provinces that failed to meet their energy intensity target in the first half of 2021.

In a recent politburo meeting, President Xi laid out China's economic priorities for 2021 H2 and urged officials to pursue China's peak carbon and carbon neutrality plans in an "orderly" manner. He said that policymakers should avoid "campaign-style" carbon reduction measures. Chinese policy analysts suggest this is a call to put some brakes on "**blanket policies**" by some local bureaucrats in the name of carbon neutrality that have impacted energy security, industrial output and local employment.

Box 2: An end to public finance would accelerate global shift

Since Japan and South Korea committed to end the provision of public overseas finance for new coal, China has become isolated as the **last major provider of public finance** for coal projects. **IEEFA** analysis in July 2021 found that, of the top 10 countries for new coal plants outside China, 56% of the capacity is being supported by China, either financially or through engineering contracts. More broadly, China is supporting coal-fired power projects in **nineteen** non-OECD countries plus Turkey see (*Table 1*) below, across 46 new coal projects.

Pressure is growing for China to follow its East Asian peers and commit to ending overseas coal finance. Given Chinese public finance is often seen as key to de-risking projects for other investors, such a decision would potentially accelerate the cancellation of over 40GW of pipeline projects spread across 20 countries. Four countries (Cambodia, Djibouti, Kenya and Madagascar) have only a single, Chinese-financed plant under consideration, without which they would have no further pipeline.

There are signals that an end to Chinese investment in overseas coal projects may be coming to an end. The Deputy Governor of the People's Bank of China **said** in a recent public event that China would "strictly control new coal power investment overseas", while Industrial and Commercial Bank of China (ICBC), the biggest state-owned bank in China, has **stated** that

it would raise the share of renewables in its loan book and develop a “roadmap and timeline to phase out coal” in its financing.

Despite this, China has not yet made a formal pledge to end support for coal abroad. A commitment to end international coal finance, for example at the G20 Leaders’ Summit in October 2021, would also lend credibility to China’s status as a global climate leader. It also offers an easier first step for Beijing to signal goodwill on coal before it is ready to make similar pledges on domestic coal.

Country	OECD / EU	Number of coal plants	Capacity (GW)
Bangladesh	No	6	10.31
Bosnia & Herzegovina	No	2	0.70
Botswana	No	1	0.30
Brazil	No	1	0.60
Cambodia	No	2	1.40
Djibouti	No	1	0.15
Indonesia	No	6	3.86
Kenya	No	1	1.05
Laos	No	2	2.40
Madagascar	No	1	0.10
Malawi	No	1	0.30
Mongolia	No	2	0.60
Mozambique	No	2	1.00
Pakistan	No	3	0.96
Serbia	No	2	1.05
South Africa	No	1	3.00
Sri Lanka	No	1	0.30
Turkey	Yes	1	0.50
Viet Nam	No	8	9.23
Zimbabwe	No	3	3.50

Table 1: Countries with coal projects financed by China.



E3G

NON-OECD: COUNTRIES MOVING AWAY FROM NEW COAL

Headlines

- > The pipeline of proposed coal power plants in non-OECD countries (excluding China) has contracted by **77%** since 2015.
- > 552GW of coal power projects were cancelled over this period, compared to 105GW which went into operation; a ratio of 5.3:1.
- > 27 non-OECD countries that had previously considered new coal power generation no longer have any projects in the pipeline.
- > The 189GW of projects remaining as of July 2021 is heavily concentrated, with 80% located in just nine countries.
- > South-East Asia (42%), South Asia (32%) and Sub-Saharan Africa (13%) collectively account for 87% of the non-OECD pipeline.

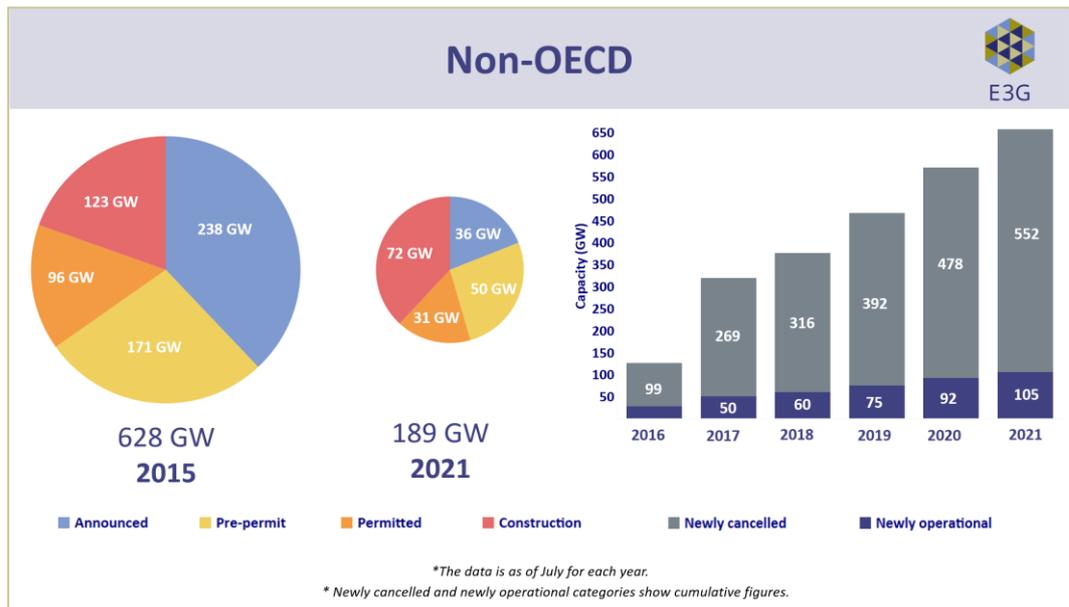


Figure 13: Reduction in size of the non-OECD coal project pipeline (left) and year-on-year tracking of projects that were cancelled or newly operational (right).

Outside the OECD & EU and China, the dominant dynamic sees the once-large coal pipeline rapidly shrinking as countries pivot from coal to other energy sources. Overall, this group has seen 552GW of cancellations, compared to only

105GW of newly operational capacity – a ratio of 5.3:1. This amounts to a 77% decline in the size of the project pipeline since 2015. 117GW remains in the pre-construction pipeline, in addition to 72GW currently under construction.

Since 2015, **27 non-OECD countries** have ended the development of new coal power generation through project cancellations and / or policy commitments, totalling at least 58GW of capacity.

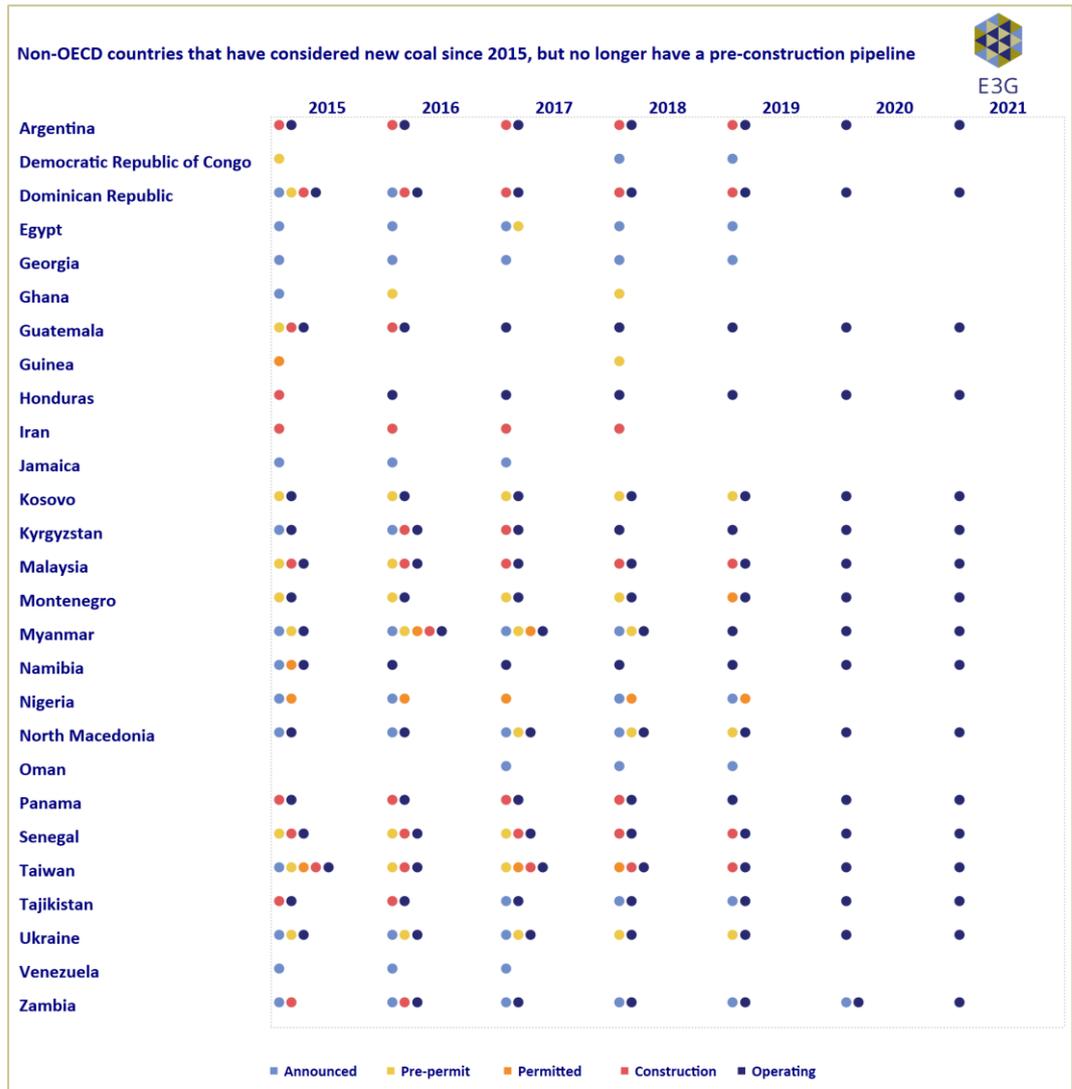


Figure 14: Non-OECD countries that have considered new coal since Paris, but no longer have a pre-construction pipeline as of July 2021.

This shift away from coal is also starting to be reflected in political commitments and governments’ national policies and Nationally Determined Contribution (NDC) submissions. By recognising that coal is a bad bet for economic growth (in

addition to its detrimental impact on climate), these countries are positioning themselves positively for the growing demand for coal-free electricity across global supply chains.

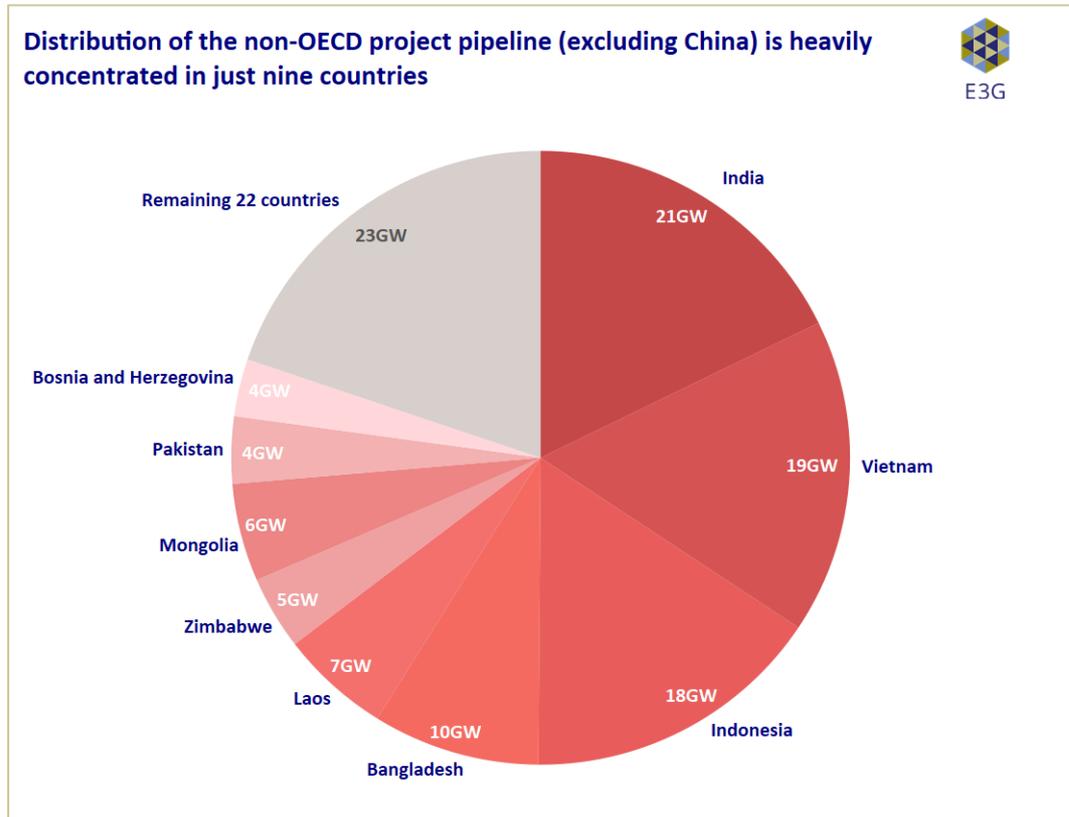


Figure 15: Distribution of the non-OECD project pipeline (excluding China) is heavily concentrated in just nine countries.

The remaining pipeline in the non-OECD is heavily concentrated. Figure 15 shows the distribution of the non-OECD pre-construction pipeline, highlighting that **80%** of the non-OECD pre-construction pipeline is now located in just **nine** countries (India, Viet Nam, Indonesia, Bangladesh, Laos, Mongolia, Zimbabwe, Pakistan, Bosnia & Herzegovina). Four of these governments, collectively accounting for nearly 45% of the non-OECD pipeline (Bangladesh, Pakistan, Indonesia, and Viet Nam), have recently indicated restrictions on new coal construction, which are in the process of being further clarified and translated into policy. We discuss these developments and the implications for the remainder of the global coal pipeline further below.

The remaining **20%** is spread across small projects in **22 countries**. The international community has a particularly important role to play in supporting these countries in moving away from coal, through provision of public (and



private) clean energy finance; support to develop flexible grid infrastructure; and technical and capacity assistance to bolster regulatory and policy frameworks that encourage a transition from coal-to-clean. COP26 will be a key moment to show this support is available for countries that are willing to take this next step.

Collectively, **South-East Asia**, **South Asia**, and **Sub-Saharan Africa** account for 87% of the total pipeline capacity in non-OECD countries outside China. These regions include 23 countries out of the 31 non-OECD countries that still have a pre-construction pipeline. The following sections provide a detailed assessment of coal pipeline dynamics within these three regions. We first look at the rest of the non-OECD.

Non-OECD progress

Leaders

Beyond the three regions covered in detail below, 20 non-OECD countries³ have pivoted away from the pursuit of new coal power generation since 2015 and have no remaining projects in the pipeline or under construction.

Egypt had a pipeline of over 15.3GW of proposed new capacity in 2017 but has since cancelled all of this in a full pivot away from new coal power. This included the cancellation of plans for what would have been the **second-largest coal-fired power station on the planet** – the 6.6GW **Hamrawein** project. Instead, its cancellation leaves Egypt fully coal-free. As host of COP27 in 2022, Egypt can advocate for other countries to commit to no new coal, speaking from the strong foundation of its own experience.

By joining the PCCA **in 2021**, **North Macedonia** and **Montenegro** confirmed that their aging coal power plants would not be replaced by new coal power, setting an example to neighbours in the Balkans that are currently still pursuing new coal power projects.

Movers

Eight non-OECD countries outside South-East Asia, South Asia and Sub-Saharan Africa are still planning to construct new coal projects: Bosnia and Herzegovina, Brazil, Djibouti, Mongolia, Morocco, Russia, Serbia and Uzbekistan (Figure 16). These eight account for a combined 15GW of capacity in the pre-construction pipeline, which is 5% of the global total, or 13% of the non-OECD total (excluding

³ Argentina, Belarus, Dominican Republic, Egypt, Georgia, Guatemala, Honduras, Iran, Jamaica, Kosovo, Kyrgyzstan, Montenegro, North Macedonia, North Korea, Oman, Panama, Taiwan, Tajikistan, Ukraine and Venezuela.



China), however some of the group are beginning to show signs of pivoting away from coal.

Morocco has a strong track record on renewable energy, however the announcement of a new **350MW** coal project in 2019 undermines the country's **progressive** climate credentials. Cancelling this project would reduce the **risk** of any potential EU CBAM, given Morocco's existing coal-fired electricity **exports** to Europe.

Russia has a substantial but ageing operating fleet of over 43GW, however only two new projects are currently proposed, leaving Russia with a small pipeline of 1.7GW. By committing to no new coal Russia can position itself for the phase out of its existing coal generation.

Laggards

In the Balkans, **Bosnia and Herzegovina**, which has a pipeline of 2.4GW, and **Serbia** (1.3GW) are pushing ahead with pipeline projects, both with the support of Chinese finance. This is in spite of considerable **financial challenges**, the need for alignment with EU pollution standards, the prospect of future carbon prices, and the implications of any future carbon border adjustment mechanism **in the European Union**.

Brazil is at risk of further defying the global trend in continuing to pursue coal while its peers and neighbours move towards a coal exit. An **announcement** from the Brazilian Government in August 2021 indicates that it is seeking to extend coal use over the coming decades out to 2050. Yet proposed new coal projects have failed to secure contracts in electricity sector auctions **since 2014**, highlighting the lack of an economic case for coal expansion.

The three projects proposed in Brazil sit alongside two in Colombia and one in Mexico as the last in the pipeline for the whole of the Americas. All of them are located in coal-producing regions where industry interests are seeking to prolong coal extraction. Governments in each country have a critical role to play in enabling a Just Transition through economic diversification and support to workers and communities. Action from these three governments would position the whole of the Americas for the transition out of coal power generation.

Mongolia now has the eighth largest coal pipeline (6GW) in the world; however, most projects are still in the earlier stages, with 93% (5.58GW) not even at pre-permitted status. A declining pipeline since 2017 is backed up by Mongolia having a relatively high rate of cancellations, with 5.7GW being cancelled for every 1GW going into operation. Meanwhile, there are suggestions the Government has recognised the global shift away from coal power, and intends to diversifying the economy away from coal production because of **declining**

demand. Mongolia should now apply this logic domestically, and reap the **socio-economic benefits** of cancelling its large remaining coal pipeline.

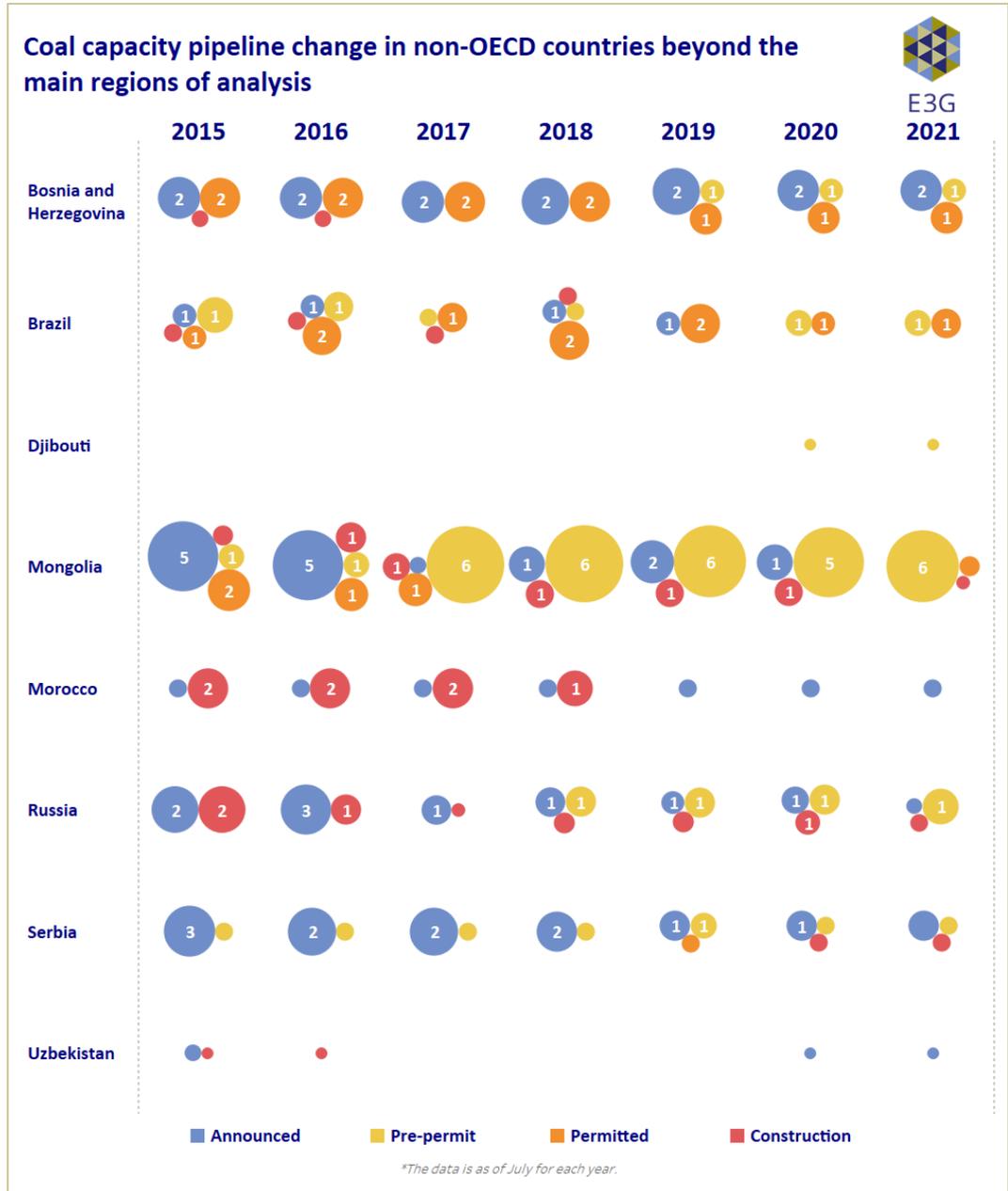


Figure 16: Coal capacity pipeline change in non-OECD countries beyond the main regions of analysis (South-East Asia, South Asia, Sub-Saharan Africa and China).

South-East Asia

Headlines

- > South-East Asia has seen a **63%** decrease in the scale of the pipeline of proposed coal power plants since 2015.
- > This represents a ratio of 3.1:1 between projects cancelled (102GW) and those that went into operation (33GW).
- > The remaining 49GW of pre-construction pipeline is spread across seven countries. This is 42% of the non-OECD and 16% of the global pipelines.
- > Regional leaders like Malaysia no longer have any projects under development, while others like Philippines and Viet Nam are moving away from new coal.
- > Cambodia, Indonesia, Laos, and Thailand can follow the lead of their regional peers and commit to no new coal construction.

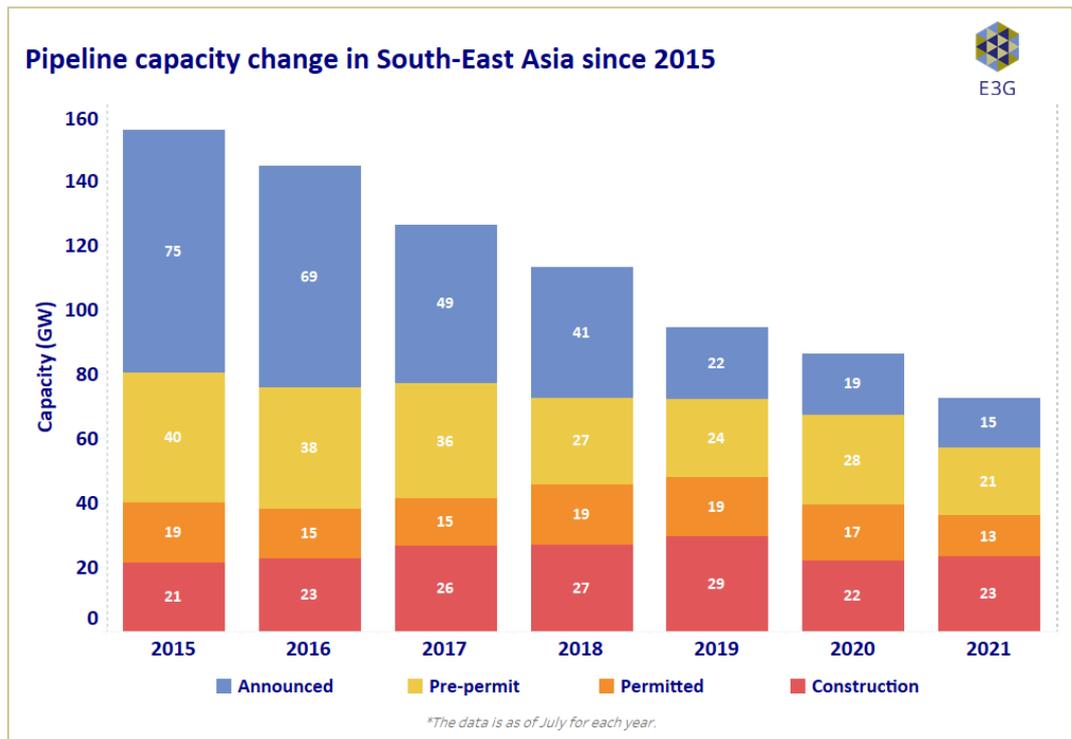


Figure 17: Pipeline capacity change in South-East Asia since 2015

In 2015, 11 countries (Cambodia, Indonesia, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand and Viet Nam) in South-East Asia were considering new coal, with a pre-construction pipeline of **134GW**. This has now

reduced to 9 countries, with a pipeline of **49GW**, a **63%** decrease (Figure 18). This represents a ratio of **3.1:1** of projects that were cancelled exceeding those that eventually entered into operation. The remaining pre-construction pipeline accounts for 16% of the global pre-construction total, or 42% in the non-OECD, with an average of 7GW per country.

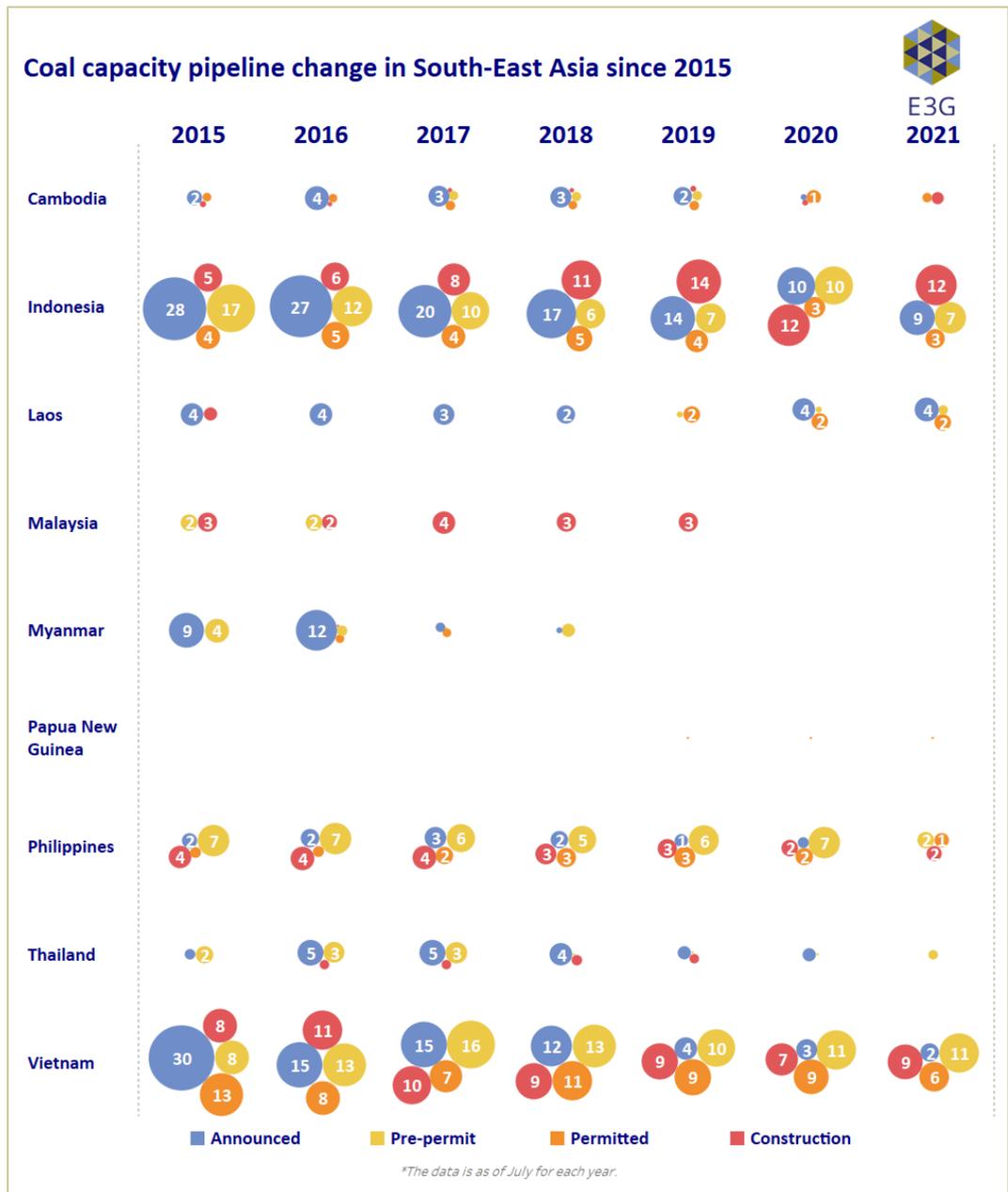


Figure 18: Coal capacity pipeline change in South-East Asia since 2015.



Movers

The Philippines' pre-construction pipeline has fallen 65% since July 2020 alone. The Government has given strong indications that its previous pursuit of coal is at an end, with an **announcement in October 2020 by the Energy Ministry** of a moratorium on the permitting of new coal-fired power projects. It is not yet clear how this moratorium will be formalised, and there is **pressure** from civil society to extend it to plants which have already received permits or are under construction. This move to restrict new coal construction has since been complemented by a government commitment to massively **scale up** renewable energy capacity. In July 1.5GW of planned coal projects were **cancelled** by utility SMC followed by a **further 800MW** in August. Pressure from **civil society** continues, advocating for a cancellation of the remainder of the coal pipeline.

Indonesia, home to 4% of the global coal pipeline in 2015, has recently **announced plans to stop building new coal** fired power plants after 2023. However **analysis** suggests that this commitment excludes over 100 new projects which have yet to be built. This could result in close to 35GW of new capacity being added to Indonesia's operating fleet in line with plans first published in 2016. However the challenges of overcapacity on parts of the grid; proposals to introduce more co-firing, biomass, and CCS into existing plants; plus PLN's **pledge** in May 2021 to be net zero by 2060; all combine to suggest a number of these proposed projects may not go forward in reality. Questions remain as to whether the headline commitment to 'no new coal' will result in any proposed coal plants being paused or cancelled prior to entering into construction, or whether it will encourage the initiation of projects prior to 2023.

Indonesia has taken the encouraging step of recognising the need for an eventual phase out of coal power generation alongside its 2060 net zero commitment. The new Energy Long Term Strategy and RUTPL 10-year power supply development plan will be key policy statements for Indonesia to show international leadership on delivering a just energy transition towards net zero and an opportunity to bring forward the timeframe for its net zero commitment.

Viet Nam has a pre-construction coal pipeline of 19.4GW. This remains the third largest in the world, however Viet Nam has seen a positive trend with the cancellation of 33GW since 2015. The current draft of the Eighth Power Development Plan (PDP8) contains a scale back of new coal capacity from previous iterations, and states that **no new coal-fired power plants will be built** beyond those already under construction or planned for completion by 2025 or sooner. PDP8 still projects that up to 17GW of coal will come online in the next



decade. The plan remains in draft form and has been delayed, so ambition may be increased following **recommendations** that it can act more proactively on coal, including calls from civil society for further cancellations of new coal plants.

The progress in these countries reflects the increasing recognition by policymakers across the region that coal is a poor energy investment. The Philippines, Indonesia and Viet Nam can follow the lead of peers such as Malaysia in formalising these signals, cancelling projects that have not yet entered construction, and considering converting those being built to alternative fuel sources.

Laggards

Regional neighbours **Thailand**, **Cambodia** and **Laos** are yet to signal a formal move away from their respective coal pipelines. **Laos's** 6.7GW pre-construction pipeline is now the seventh largest in the world, putting it at risk of being one of the last countries still pursuing new coal and endangering its ability to attract inward investment from global supply chains that are increasingly requiring coal-free electricity and / or 100% renewables.

Thailand and **Cambodia** are pursuing smaller projects totaling 655MW and 700MW respectively, however Thailand has scrapped 4GW since 2015, and both countries have just one project left in the pipeline. They can position themselves for a clean energy investment pathway through cancelling these final projects and committing to no new coal alongside Malaysia.

The clear **socio-economic advantages** of transitioning to a low-carbon energy system are bolstered by the considerable potential for low-cost renewable energy. Laos benefits from aligned seasonal **solar** and **hydroelectric** potential, and **transboundary power-pooling** between these three neighbours could provide a low-cost, stable electricity system.

South Asia

Headlines

- > South Asia has a pre-construction pipeline of 37.4GW, with India's 21GW pipeline accounting for 56% of this.
- > The pipeline has contracted by **87%** since 2015, with cancelled capacity outnumbering capacity going into operation by a ratio of 6.6:1.
- > Three out of four countries in South Asia (Sri Lanka, Bangladesh and Pakistan) are showing leadership in cancelling projects and making political statements that they will no longer pursue new coal power.
- > Significant socio-economic headwinds to new coal in India have led to State-level commitments to no new coal, opening a pathway for national progress.

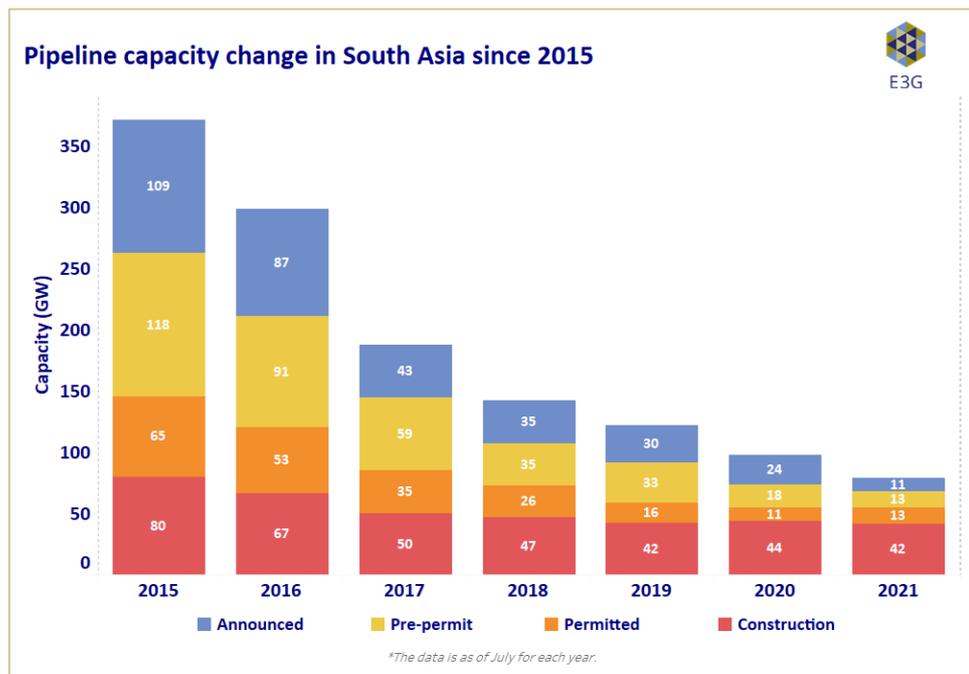


Figure 19: Pipeline capacity change in South Asia since 2015

South Asia accounts for 32% of the non-OECD pipeline (outside China), however this is an 87% decrease in the scale of the pipeline since 2015 (from 292GW to 37GW). Four countries in South Asia have previously considered or are currently considering coal: Bangladesh, India, Pakistan and Sri Lanka. Together, they account for **13%** of the global pre-construction pipeline (37.4GW). India alone is home to **7%** (21GW) of the global pipeline, which is 56% of the South Asian total. As in South-East Asia, coal has faced significant headwinds since Paris, and three of the four countries have either made public commitments to end the pursuit of

new coal or are cancelling their remaining pipeline at pace. Collectively, the regional pipeline has contracted by 87% since 2015.

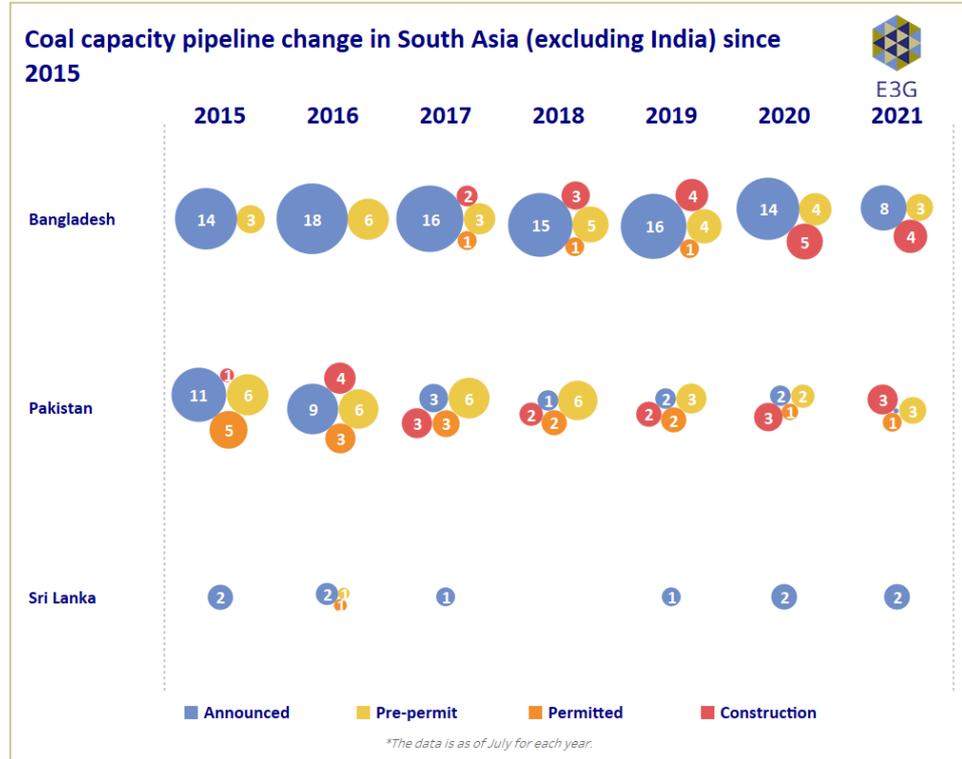


Figure 20: Coal capacity pipeline change in South Asia (excluding India) since 2015.

Leaders

Having considered new coal-fired power projects for a number of years, **Sri Lanka** is now leading the way in South Asia. Sri Lanka’s updated **NDC** in June 2021 was ground-breaking for the region in that it formally commits Sri Lanka to no new coal. The NDC also targets a growing proportion of renewable electricity by 2030. The 2GW of capacity still under consideration has been at an early stage of development for some time and will now not proceed.

In December 2020, **Pakistan’s Prime Minister** Imran Khan announced at the **Climate Ambition Summit** that the government **would not have any more power based on coal**. As with Indonesia and other countries, the challenge now is for Pakistan to formalise this intent and confirm the cancellation of its remaining pre-construction pipeline projects.

Movers

As recently as July 2019 **Bangladesh** had a pre-construction pipeline capacity of **21GW**, which was then the sixth largest in the world, in addition to **4GW** of



capacity under construction. Since then, however, the pipeline has collapsed, with **10 plants scrapped** in the first half of 2021 alone, due to concerns about fuel costs, overcapacity, limited land availability, and the increasingly challenging task of in **attracting finance**. This leaves Bangladesh with a pipeline of 10GW. Bangladesh’s position as chair of the Climate Vulnerable Forum (CVF) sees it in a **global leadership role**, with fellow CVF members **advocating for an end to new coal construction**.

As outlined in the box below, India is moving slowly away from coal at a national level, however considerable progress is being made at the state level. Between 2019 and 2021, public officials from four Indian states (Gujarat, Chhattisgarh, **Maharashtra**, and Karnataka) **announced** their intention to not build new coal power plants. According to a **2019** study, many more states have the potential to move away from new coal power due to a combination of socio-economic and environmental factors, particularly the rapidly increasing cost competitiveness of new renewables.

Box 3: Poor economics brings an end to new coal within reach for India



Figure 21: Pipeline capacity change in India since 2015

India’s pre-construction pipeline of **21GW** is the second largest in the world. India is currently constructing **34GW** of new coal capacity, more than the next seven countries combined. This is on top of India’s considerable existing operating fleet of **233GW** (11.3% of the global total).

Yet since 2015, India has seen over **326GW** of projects cancelled, a **92%** decrease in the pipeline. This includes more than **250GW** of capacity that had previously been shelved. This means that almost **7GW** have been scrapped for every 1GW that has gone into operation. Conditions are now ripe for India’s remaining pipeline to not continue into construction.

The cost implications of building new coal are **starker in India** than in many other countries, with clear evidence that even a country with large domestic



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coal reserves **can struggle** to make coal-fired power economically viable. Average coal plant load factors have **fallen consistently**, from 61% in 2018 to 53% in 2021, making it more expensive to run existing plants and highlighting the **folly of building new coal**. Meanwhile, renewable tariffs in India are some of the lowest in the world, reaching a record low of Rs. 1.99/kWh (US\$ 0.026/kWh) in **December 2020**. This is cheaper than the majority of the existing Indian coal fleet, and all the new coal projects. Renewables backed by storage are also **increasingly competitive**.

India's power distribution companies ('discoms') are already in dire financial health, with debt expected to touch **US\$ 80 billion in FY22**. Even the under-construction pipeline of coal projects (34GW) face major stranded asset risk according to **IEEFA's** June 2021 study. Stressed and stranded assets are already a reality, for example the **seven-plus coal power** units totalling 7410MW that have either been ordered to be liquidated or are heading for liquidation, six of which were in early stages of construction. **Most private developers** have **little appetite for coal** and are instead pivoting to **renewables**, making it increasingly hard to fund new coal projects. **Recent analysis** also suggests that India may not even need additional coal capacity to meet its future electricity demand and could even begin retiring older coal plants and still meet **demand projections**.

Collectively, lower than expected power demand growth, cheaper renewables, falling load factors, and difficulty in securing finance highlight the headwinds and risks to continued pursuit of new coal in India.

While Indian national political debate has hesitated to engage in discussion on the pivot away from coal now underway, progress is being made at the sub-national level. Several states are now considering a move away from new coal. Senior government officials in **Gujarat, Chhattisgarh, Maharashtra**, and in **Karnataka** have all signalled their intent to not pursue new coal power projects.

India's pursuit of coal has typically been justified on energy security, affordability, and development arguments, but new coal does not make economic sense for India anymore. **Renewable energy can deliver these outcomes better, quicker and cheaper**, and without the negative socio-economic, health, and environmental impacts of coal.

Sub-Saharan Africa

Headlines

- > Sub-Saharan Africa has a pipeline of 15GW (5% of the global total), down **47%** since 2015.
- > Over this period seven countries have fully scrapped their pipeline.
- > This leaves 13 countries still considering coal, but with only South Africa and Zimbabwe currently constructing new plants.
- > Chinese financial institutions are involved in 13 projects in eight countries, totalling 11.4GW of planned capacity (76% of the total pipeline in the region).

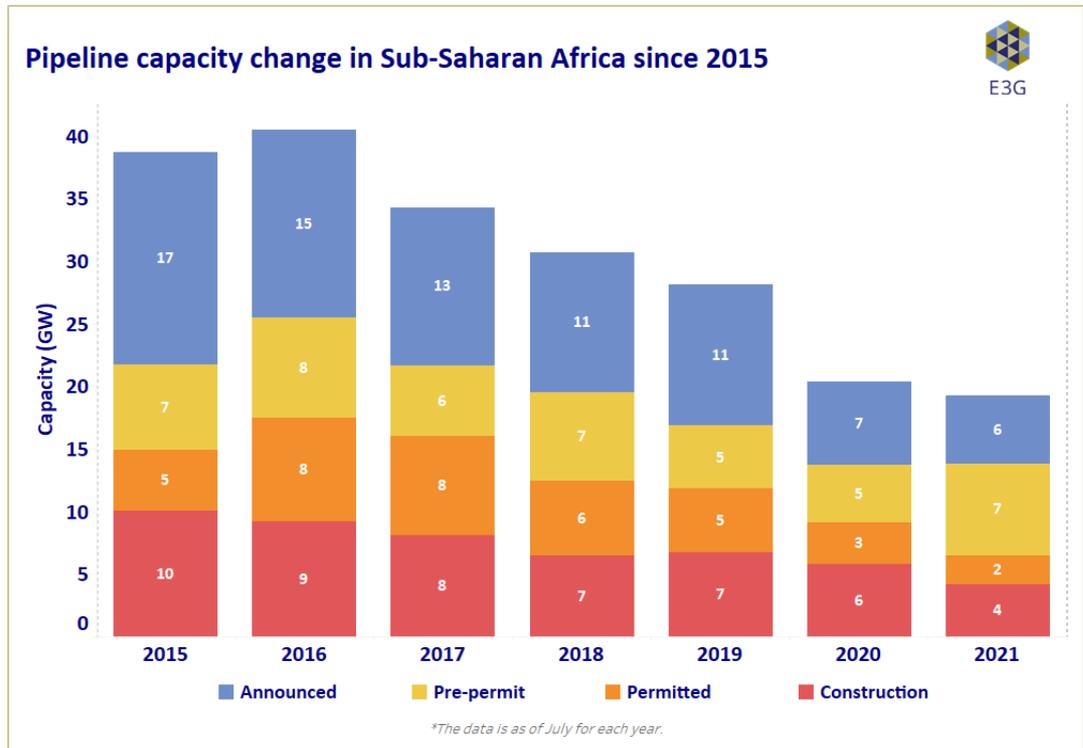
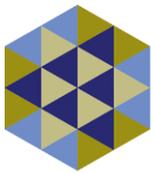


Figure 22: Pipeline capacity change in Sub-Saharan Africa since 2015

The Sub-Saharan African coal project pipeline of 15.1GW accounts for 5% of the global total (13% of the non-OECD pipeline). This is a fall of 13.5GW (47%) since 2015, a period which has also seen seven countries scrapping their pipelines entirely (Figure 23). The region sees a broad distribution of capacity across a relatively large number of countries, compared to South-East and South Asia. Sub-Saharan Africa's pre-construction pipeline is spread thinly across 13 countries, giving an average pipeline size of 1.1GW (compared to 7GW in South-East Asia, and 9.4GW in South Asia).



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Figure 23: Coal capacity pipeline change in Sub-Saharan Africa since 2015, by country, not including South Africa.

Many of these countries are facing multiple hurdles to bringing these projects to fruition, with international coal finance increasingly scarce. As in other regions,



Chinese public investment in new coal remains, with Chinese financial institutions involved in 13 projects in eight countries, totalling 11.4GW of planned capacity, or 76% of the total pipeline in the region.

Cancelling such projects would help countries avoid locking themselves into an expensive and polluting energy source, and the risk of costly asset stranding. Targeted international support could accelerate their cancellation, including through support on the renegotiation of Power Purchase Agreements and the accelerated delivery of renewable alternatives.

Leaders

Since 2015, seven African countries which had been considering new coal projects have cancelled their pipeline. **Senegal** committed to no new coal when it joined the PPCA in 2018, the same year **Zambia** cancelled its Maamba project, leaving it with no coal pipeline. **Democratic Republic of Congo, Guinea, Ghana** and **Namibia** are also all now in a position where they have no further coal projects under consideration.

Movers

Kenya is home to the proposed **Lamu project** which has been the focus of **sustained civil society opposition** over recent years. The proposed project is located in a **World Heritage Site** and has become an iconic example of coal power in conflict with the wishes of the local community and broader civil society. Positively, legal cases resulted in permits being cancelled, while two major financial backers have pulled out of the project, including the **Industrial and Commercial Bank of China** that is itself moving away from new coal. The project is increasingly unlikely to proceed, which would assist Kenya in pursuing its goal of 100% renewables.

Ethiopia joined the PPCA at its inception in 2017, committing to no new coal. In 2019 the previously delayed **Yayu coal plant** was revisited. The 90MW unit would form part of a fertiliser plant.

Nigeria hasn't had any coal projects in the development pipeline since 2019, despite previous energy policy **proposals** to develop coal power generation. Vice President Osinbajo recently **commented** that Nigeria "*cannot ignore issues of climate change anymore*" at a forum on coal and other mining. Nigeria would risk locking in expensive, polluting energy were it to consider building new coal. The absence of a pipeline of projects would help it to align with West-African neighbour Senegal in publicly embracing a coal-free future.



Laggards

Some of Sub-Saharan Africa's countries are currently at an energy crossroads. **Botswana**, for example, has nearly 3GW of pipeline projects in active development, but has in parallel also been exploring collaborating on a **major 5GW solar project** with neighbouring Namibia.

Zimbabwe, with its 4.5GW pipeline, is also bucking the global trend. The **Zimbabwean Government** has been vocal in its continued pursuit of new coal, even as **Chinese financiers pull out** of new coal plants in the country. Many of the reasons Zimbabwe is using to justify new coal, including **growing electricity demand**, are unfounded, with Zimbabwe's significant renewable energy resources a considerably **better investment** than new coal power projects which would run a high risk of becoming stranded assets.

Although **Mozambique** reflected the global trend for shrinking pipelines between 2015 and 2018, when its pipeline contracted by nearly half (leaving just 790MW of early-stage capacity), this has since changed. Mozambique now has a pipeline of 2.3GW, although some of these plants have faced considerable difficulties in meeting financial close. Mozambique has low levels of energy access but considerable renewable resources, and can best meet electricity needs through a mix of off-grid **decentralised systems** and on-grid supply.

The international community has an important role to play in ensuring that the 13 countries that still have a coal pipeline are provided with sufficient financial and technical assistance to feel confident in moving away from coal, and towards renewable energy.

Box 4: South Africa pursues coal retirement finance

South Africa's recent pursuit of new coal plants has added to the debt burden of the already crisis-ridden state utility Eskom. Scrapping the remaining pipeline and plants under construction would put South Africa on a pathway to accessing international finance for accelerated retirement of its creaking coal fleet and help the country pivot to a cheaper renewable-led system.



Figure 24: Pipeline capacity change in South Africa since 2015.

South Africa is home to 95% of Africa's operating coal yet is facing chronic economic challenges and power shortages. State-owned power utility Eskom is in a financial and operational crisis resulting in many years of load-shedding (planned power restrictions) due to its struggling and aged existing coal fleet and delays in bringing new capacity onto the system.

New coal plants have been economically disastrous: The two mega power projects at Medupi and Kusile are a prime example of coal power generation being a bad strategic choice, and of the failures of past International Financial Institution (IFI) support for coal. Eskom has recently completed the Medupi project six years late (only for it to subsequently suffer a **crippling explosion**). But it has pushed out the commissioning of the final Kusile units to May 2024, despite being originally expected to be fully online in **2018**. The two 4.8 GW plants are a central driver in Eskom's financial crisis, with massive time and cost overruns and corruption associated with the plants. Major design and construction defects are also causing operational challenges.

Eskom on the edge of collapse: It is increasingly difficult for Eskom to maintain its existing fleet of coal power plants, which led to 2020 seeing the highest ever levels of load shedding (**~10% of the year**), despite low electricity demand due to a covid-related economic collapse (-8% GDP). Eskom now has around \$28bn in debt and depends on annual state bail outs to cover debt servicing costs, posting a **>\$1bn loss** in March 2021.



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New coal is still in the outdated national electricity plan: Despite the experience of Medupi and Kusile, the Integrated Resource Plan 2019 (South Africa’s key electricity policy document) signals a potential for **1.5GW of new coal plants** to come online in 2024 and 2027. There is also a proposed Chinese-backed plant which will provide power to a proposed Energy-Metallurgical Special Economic Zone in Limpopo. In total there are 2.9 GW of projects at announced and pre-permit stage. Analysis shows that new coal is **uncompetitive against alternatives** and would raise costs for electricity users by billions of Rand. However, the Department of Mineral Resources and Energy has justified the proposed new coal plants on the basis that no Just Transition plan is yet in place.

Funding a Just Energy Transition away from coal: In contrast to the proposed new private coal capacity that is receiving support from the government, state utility Eskom has announced that it **will not build new coal plants**. Instead, the utility is pursuing “net zero carbon emissions by 2050 with an increase in sustainable jobs”. Eskom has proposed a Just Energy Transition Financing Facility, which will channel international support for the accelerated retirement of its existing fleet. The detailed deal designs are not yet finalised, but such an arrangement could offer a model for how to support coal-exposed utilities to become financially sustainable while repowering, repurposing and retiring coal assets in line with the Paris Agreement temperature goal.

South Africa in the spotlight ahead of G20 and COP26

Eskom’s dire financial straits and the growing international interest in supporting a Just Energy Transition in South Africa provide impetus to align re-financing to decarbonisation and socio-economic goals. Recent political signals, including from the recently-launched Presidential Climate Commission, Eskom, and the ruling **African National Congress**, all place just transition high on the political agenda. Developed countries and IFIs now need to step up and deliver finance at an appropriate scale and level of concessionality to enable an ambitious and just coal transition in South Africa, thereby helping to right the wrongs of the Medupi and Kusile experience.



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CONCLUSIONS

An end to the pursuit of new coal-fired power stations is central to keeping a 1.5c pathway within reach, and 2021 is a pivotal year to making this a reality.

Since 2015, 44 governments have already committed to new coal construction, increasing pressure on remaining countries that are yet to act. A further 40 countries (8 in the OECD & EU, 32 elsewhere) have no pre-construction pipeline and are in a position where they could readily commit to 'no new coal' during 2021. Together, these countries demonstrate that the world is already moving away from coal, as governments, financiers, and utilities all recognise the folly of investing in new coal power projects in 2021.

As the clock ticks down to COP26, the spotlight is shining on the remaining 37 countries that currently still have a pre-construction pipeline of coal power plants. China and the next five countries (India, Viet Nam, Indonesia, Turkey, and Bangladesh) account for over four-fifths of the world's remaining pipeline. Action by these six countries alone could remove 82% of the remaining global pre-construction pipeline. A further 31 countries are home to the remainder of the pipeline, with 16 countries having just a single project.

China is now isolated as the last remaining major provider of public finance for overseas coal projects, following Japan and South Korea's recent commitments to end coal finance. An end to Chinese finance would facilitate the cancellation of over 40GW of pipeline projects in 20 countries.

The Covid crisis has seen 2020 and 2021 present multiple difficulties to governments and citizens alike. Yet during this period countries as diverse as Sri Lanka, Malaysia, Egypt, Pakistan, Philippines, North Macedonia, and Montenegro have all stepped up with commitments and actions that put them on a pathway to no new coal. They are serving as regional pathfinders that other countries can follow.

The collapse of the global coal pipeline and the rise of commitments to 'no new coal' are progressing hand in hand. Ahead of COP26, governments can collectively respond to UN Secretary General Guterres' call for 'no new coal by 2021'. Global trends are positive: governments can seize this moment to confirm their commitment to move from coal to clean energy.



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ANNEX: NO NEW COAL COUNTRY GROUPINGS

Table A: 44 countries that have already committed to no new coal

Country ⁴	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Chile ⁵	No	Yes							
Sri Lanka ⁶	No	No							
Malaysia ⁷	No	No							
Albania	Yes	No							8
Austria	Yes	Yes							9
Belgium	Yes	Yes							10
El Salvador	Yes	No							11
Sweden ¹²	Yes	Yes							
Latvia	Yes	Yes							435
Senegal	Yes	No	30					125	850
Peru	Yes	No	135						

⁴ Countries in this table are identified as having made a formal commitment to no new coal plants initiating construction, through an official statement of national policy and / or through adhering to membership of the Powering Past Coal Alliance. Many PPCA members have also made individual national policy statements to end new coal construction and accelerate the phase out of existing coal power generation.

⁵ Chile committed to no new coal without carbon capture and storage in its agreement with the major electricity generation companies of June 2019.

⁶ Sri Lanka committed to no new coal in its NDC submission of July 2021.

⁷ Malaysia committed to no new coal in the presentation of its Energy Transition Plan 2021-2040, June 2021.

⁸ Albania cancelled 800MW in the period 2010-15.

⁹ Austria cancelled 300MW in the period 2010-15.

¹⁰ Belgium cancelled 1.1GW in the period 2010-15.

¹¹ El Salvador cancelled 370MW in the period 2010-15.

¹² Austria, Belgium, and Sweden have all completed the phase out of operating coal power generation.



Country ⁴	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Croatia	Yes	Yes	210						500
Montenegro	Yes	No	225						754
New Zealand	Yes	Yes	500						
Portugal	Yes	Yes	682						
Slovakia	Yes	Yes	769						
North Macedonia	Yes	No	800						730
Ireland	Yes	Yes	915						
Hungary	Yes	Yes	944						830
Denmark	Yes	Yes	1,180						
Finland	Yes	Yes	1,468						
France	Yes	Yes	2,399						
Netherlands	Yes	Yes	4,152						
Spain	Yes	Yes	4,875						800
Israel	Yes	Yes	4,900						1,260
United Kingdom	Yes	Yes	6,328						4,816
Canada	Yes	Yes	7,521						1,000
Italy	Yes	Yes	7,892						4,815
Germany	Yes	Yes	41,690						7,380
Greece	Yes	Yes	1,925	660					450
Angola	Yes	No							
Costa Rica	Yes	Yes							
Fiji	Yes	No							
Liechtenstein	Yes	No							
Lithuania	Yes	Yes							
Luxembourg	Yes	Yes							
Marshall Islands	Yes	No							
Niue	Yes	No							
Switzerland	Yes	Yes							
Tuvalu	Yes	No							



Country ⁴	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Uruguay	Yes	No							
Vanuatu	Yes	No							
Ethiopia ¹³	Yes	No					90		
Mexico ¹⁴	Yes	Yes	5,378				1,400		

¹³ Ethiopia committed to no new coal upon joining the PPCA in 2017. Subsequently a 90MW captive power project linked to a proposed fertiliser plant has been revived.

¹⁴ The previous Mexican government committed to no new coal upon joining the PPCA in 2017. The current government is exploring the idea of a new coal power plant, but it is not expected to result in construction.



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Table B: 40 countries without any coal projects in the pre-construction pipeline

Country ¹⁵	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Guinea	No	No							330
Belarus	No	No							400
Sudan	No	No							600
Iran	No	No							650
Jamaica	No	No							1,140
Venezuela	No	No							1,600
Ghana	No	No							2,100
Egypt	No	No							15,240
Democratic Republic of Congo	No	No						500	
Georgia	No	No						300	
Oman	No	No						1,200	
Nigeria	No	No						2,400	2,030
Norway	No	Yes	30						
Syria	No	No	60						
Honduras	No	No	105						
Namibia	No	No	120						550
Myanmar	No	No	160						16,775
Mauritius	No	No	195						¹⁶
Brunei	No	No	220						
Zambia	No	No	330					940	300
Argentina	No	No	375					120	
Tajikistan	No	No	400					300	350
Panama	No	No	426						

¹⁵ Countries in this table are identified as having seen proposed coal power plants cancelled in the period July 2015 – June 2021 and / or have existing coal power generation in operation without having any plans for further additions of new coal capacity.

¹⁶ Mauritius cancelled a proposed 110MW project in March 2015.



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Country ¹⁵	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Kyrgyzstan	No	No	910					600	
Guatemala	No	No	1,010						300
Dominican Republic	No	No	1,057						540
Slovenia	No	Yes	1,069						
Kosovo	No	No	1,290						830
Moldova	No	No	1,610						
North Korea	No	No	3,700						300
Romania	No	Yes	4,675						1,925
Bulgaria	No	Yes	4,829						560
Czech Republic	No	Yes	7,906						180
Taiwan	No	No	19,244						14,000
Ukraine	No	No	21,665					660	1,260
United States	No	Yes	232,772						3,547
Kazakhstan	No	No	12,986	636					2,020
United Arab Emirates	No	No	1,200	1,200				3,000	270
Japan	No	Yes	49,493	6,013					11,665
South Korea	No	Yes	35,380	7,260					5,660



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Table C: 37 countries with a pre-construction pipeline, as of July 2021

Country	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Ethiopia	Yes	No					90		
Uzbekistan	No	No	2,522				150		300
Niger	No	No					200	100	400
Morocco	No	No	4,257				350		1,320
Mexico	Yes	Yes	5,378				1,400		
Sri Lanka ¹⁷	No	No	900				2,400		2,300
Madagascar	No	No	120			60			
Djibouti	No	No				150			
Eswatini	No	No				300		500	200
Malawi	No	No				400		120	3,100
Thailand	No	No	5,933			655		3,726	8,000
Ivory Coast	No	No				700			
Australia	No	Yes	25,107			1,000		4,720	7,816
Kenya	No	No				1,050		960	130
Mozambique	No	No				1,200	1,050	340	2,070
Papua New Guinea	No	No			52				
Tanzania	No	No			300			990	1,075
Botswana	No	No	732		450	1,800	600	600	1,504
Brazil	No	No	3,177		940	726		600	3,690
Bosnia and Herzegovina	No	No	2,073		1,100	600	1,830	550	720
Colombia	No	Yes	1,634		1,585				1,250
Laos	No	No	1,878		2,000	600	4,126		700
Mongolia	No	No	910	200	450	5,580		2,600	1,410
Russia	No	No	43,148	335		1,430	266	326	6,063
Serbia	No	No	4,405	350		350	1,000	375	1,070
Poland	No	Yes	30,170	560		500			9,933

¹⁷ Sri Lanka committed to no new coal in its NDC submission in July 2021.



Country	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Zimbabwe	No	No	950	990	1,550		2,970	1,400	5,490
Cambodia	No	No	655	1,065	700				4,680
Philippines	No	No	10,557	1,621	1,470	1,895		5,190	9,078
South Africa	No	No	42,614	3,195		1,770	600		13,460
Pakistan	No	No	4,938	3,300	1,290	2,720	95	163	16,760
TOP 6 COUNTRIES BY TOTAL PIPELINE (82% OF GLOBAL TOTAL)									
Turkey	No	Yes	18,968	1,465	3,420	6,215	2,500	1,560	69,044
Bangladesh	No	No	1,845	4,094		2,640	7,550	5,360	17,322
Viet Nam	No	No	20,917	8,640	6,200	10,760	2,400	4,850	33,185
Indonesia	No	No	36,652	11,839	2,630	7,065	8,730	5,290	27,835
India	No	No	233,077	34,405	11,705	7,633	1,370	30,306	325,569
China	No	No	1,046,893	96,675	43,044	48,210	72,088	31,775	484,035



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Table D: 16 countries with a single coal project in their pre-construction pipeline

Country	PPCA Member?	OECD / EU	Operating (H1 2021)	Construction	Permitted	Pre-permit	Announced	Shelved	Cancelled (H1 2015-H1 2021)
Ethiopia	Yes	No					90		
Uzbekistan	No	No	2,522				150		300
Niger	No	No					200	100	400
Morocco	No	No	4,257				350		1,320
Mexico	Yes	Yes	5,378				1,400		
Madagascar	No	No	120			60			
Djibouti	No	No				150			
Eswatini	No	No				300		500	200
Thailand	No	No	5,933			655		3,726	8,000
Ivory Coast	No	No				700			
Australia	No	Yes	25,107			1,000		4,720	7,816
Kenya	No	No				1,050		960	130
Papua New Guinea	No	No			52				
Tanzania	No	No			300			990	1,075
Poland	No	Yes	30,170	560		500			9,933
Cambodia	No	No	655	1,065	700				4,680



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Figure 25: E3G OECD & EU coal transition progress tracker

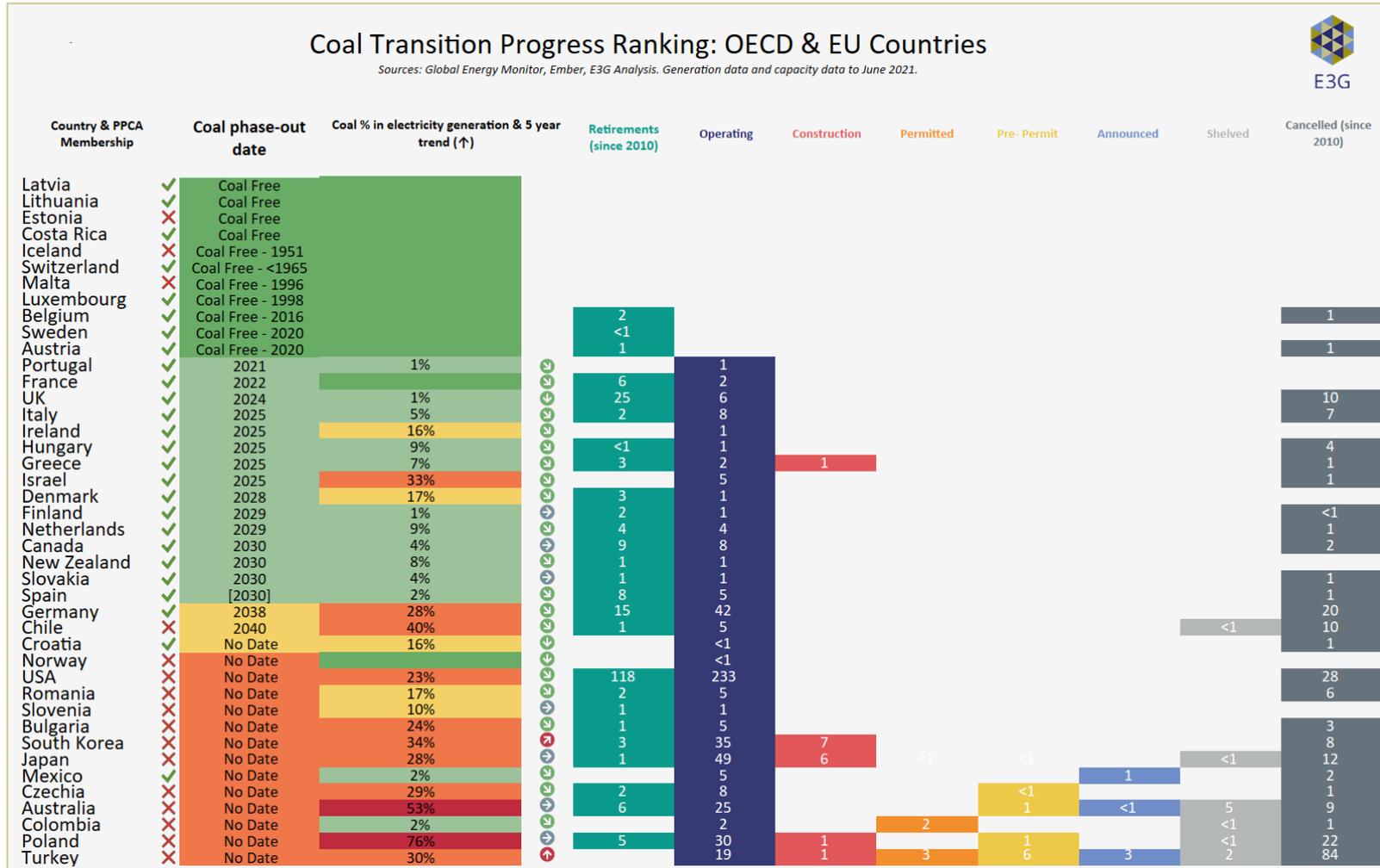


Figure 25: E3G OECD & EU coal transition progress tracker