# Global status of coal power

## Pre-Covid19 baseline analysis

Leo Roberts, Chris Littlecott, Jesse Burton, and James Hawkins

July 2020

# Key Findings #1 – coal phase out & OECD

E3G

- This ***global status of coal power*** review provides a baseline of coal power generation trends prior to the impact of the Covid19 pandemic, based on datasets running to December 2019.
- Our analysis for this review includes the first ever ranking of OECD & EU28 progress on coal transition. We find that **71% of OECD & EU28 member countries are already pursuing coal phase out aims**, with **58% on track to be coal free by 2030**.
- Our assessment of OECD & EU28 progress brings together metrics for electricity generation; existing capacity; new project pipeline; and government commitments. We find that Japan is ranked bottom of the OECD & EU28, trailing behind South Korea and Poland. Turkey has the largest pipeline of new coal projects at earlier stages of development (31GW), but has an opportunity to stop these entering into construction.
- Even Japan is now recognising the need to address coal use. It announced in early July 2020 that it is aiming **to retire 100 coal units by 2030** – however it is also **still pursuing new coal plants** at home and abroad.
- Using a 2010 baseline, we calculate that Japan's intention to close these coal plants over the next decade means that on aggregate **52% of OECD & EU28 operating capacity has either retired already or is expected to retire by 2030**.

# Key Findings #2 – new coal risk & non-OECD

E3G

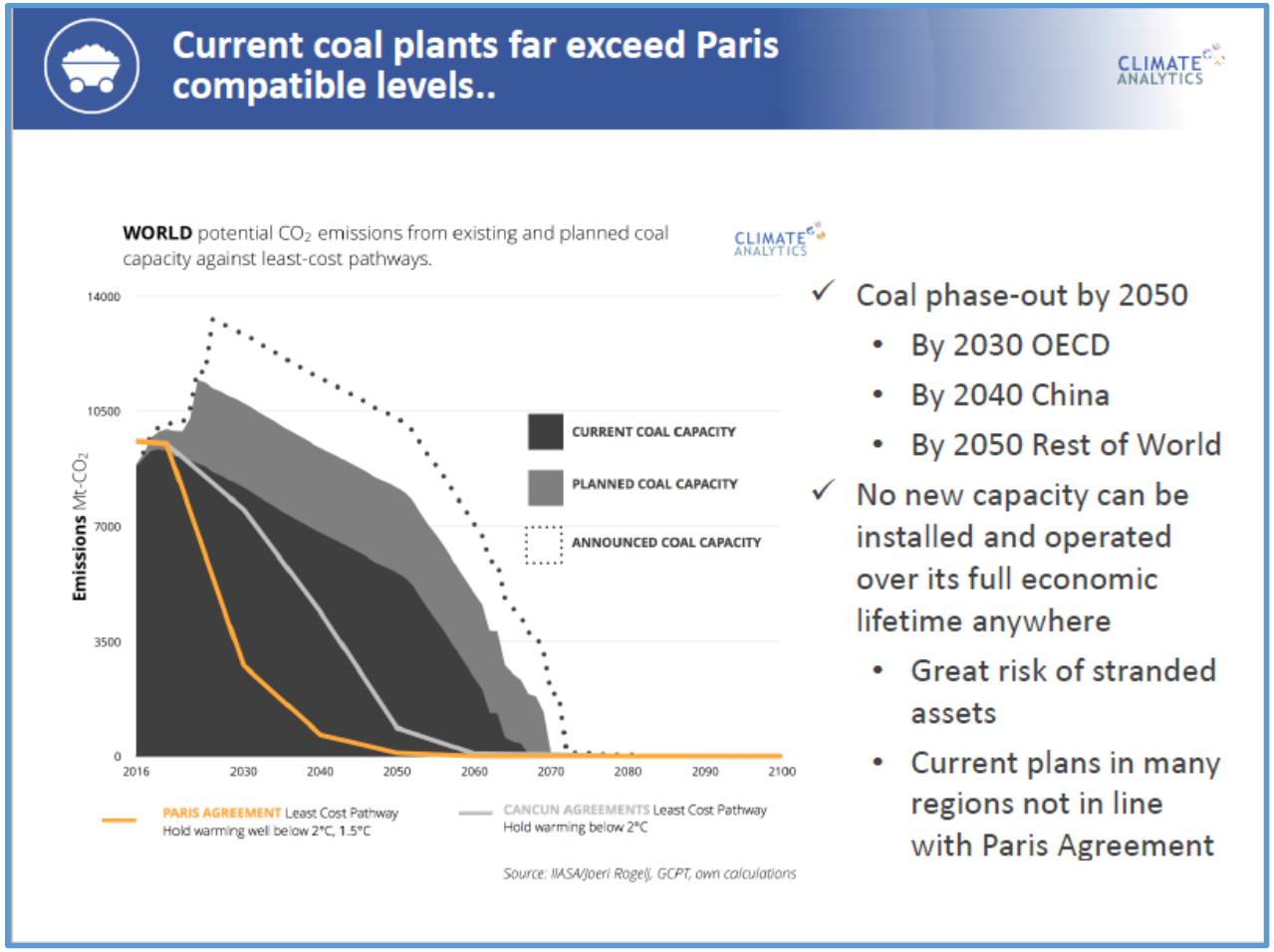
- As of January 2020, there were **56 countries that no longer had any new coal projects under development**, having previously had or considered coal-fired power. This is up from 52 in 2019. However, there were still **52 countries with a pipeline of new coal projects** under development. Our assessment finds that **at least half of them could readily commit to no new coal projects entering into construction**, as they implement their Covid19 recovery plans. **The risk of new coal plant construction was concentrated in just 15 non-OECD countries**.
- **The Covid19-induced economic recession challenges the case for new coal power generation and increases the importance of policy makers pursuing sustainable, resilient, and clean energy investments.**
- Our analysis finds that as of January 2020, **14 non-OECD countries with existing coal capacity can immediately commit to no new coal** and consider phase-out pathways, as they have no projects under development.
- Ahead of the Covid19 crisis, a **further 20 non-OECD countries were already well-positioned to commit to no new coal**:
  - **11** of these are currently coal-free countries that can avoid the economic risks of coal by **leapfrogging straight to clean energy.**
  - **9** have existing coal plants and some new projects at early stages of development **but nothing currently under construction.**
- **China is home to over half the world's existing coal capacity and projects under construction.** Provincial leaders are actively encouraging new coal plants to be built to stimulate economic activity, despite overcapacity and high risk of stranded assets. **The pipeline of new projects in China has further increased during the first half of 2020, with 17 GW of new projects permitted through June, more than all of 2018 and 2019 combined.** Although more than half of existing coal plants are currently not profitable, central government ministries have still not taken strong measures to restrict new coal plant construction and appear to be relaxing policies to allow an additional 200+ GW to be built by 2025. China's next Five Year Plan will need to actively restrict and reduce coal capacity in order for China to meet its climate commitments.

# Contents

# Introduction: why coal matters for climate action (1)

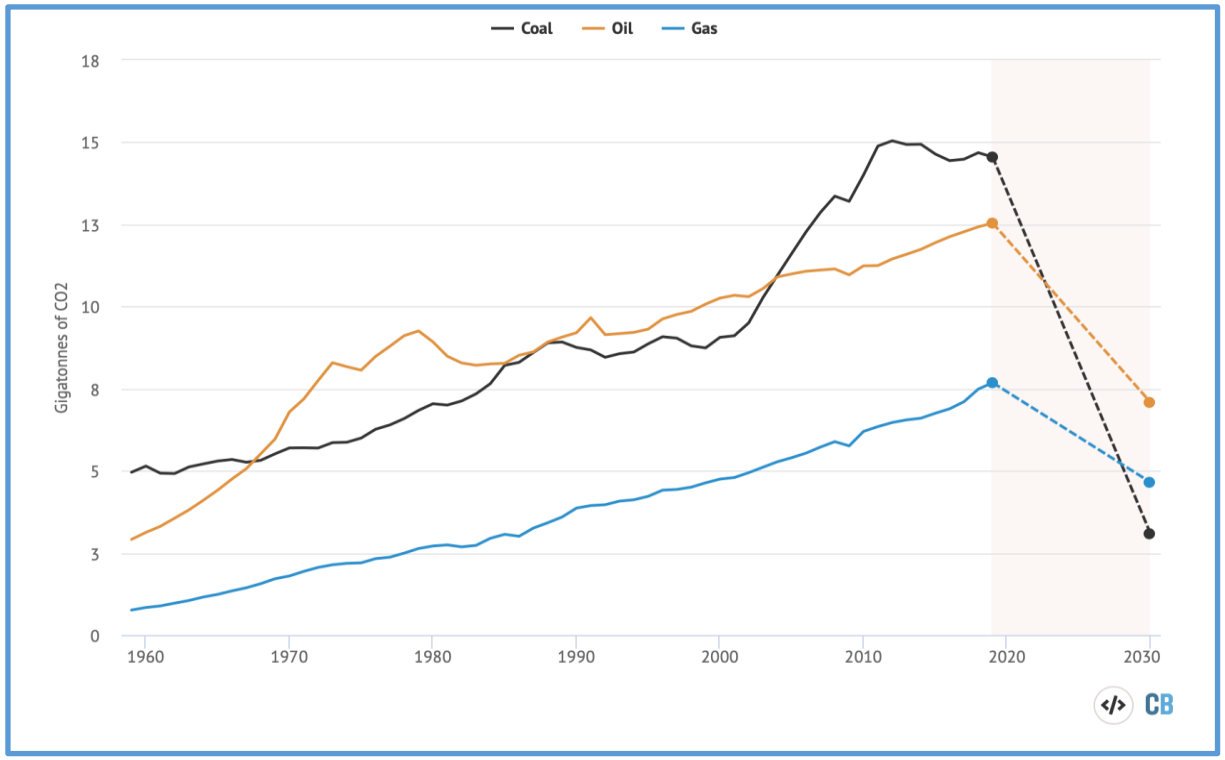
Coal use must decline first and fastest of all fossil fuels in order to achieve global climate goals.

**2017:**



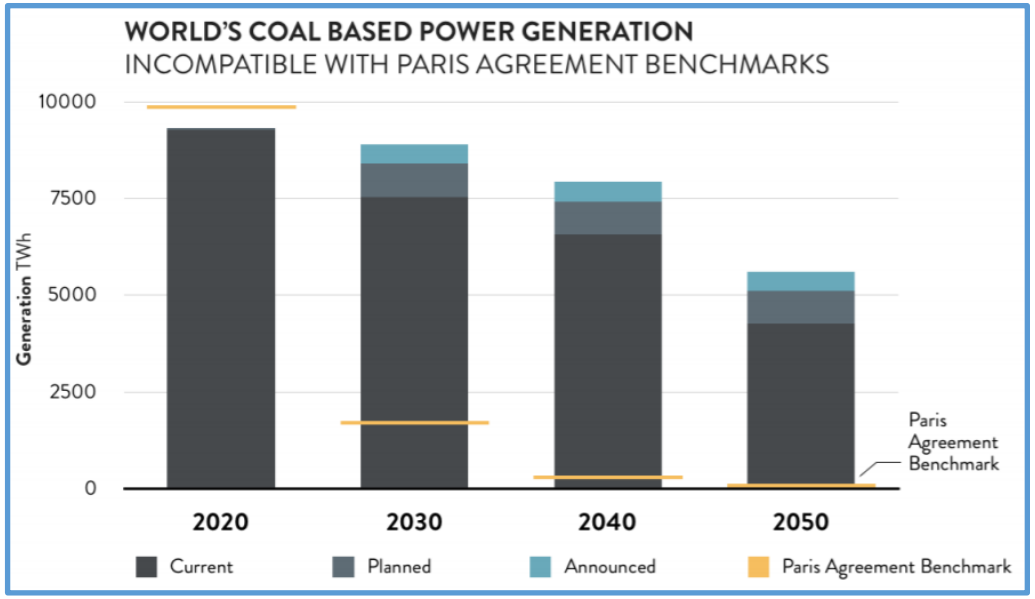

**2020:**

Strong action this decade to cut emissions from all fossil fuels - especially coal - is essential for 1.5°C, or even 2°C, pathways (Carbon Brief analysis of IPCC scenarios).



# Introduction: why coal matters for climate action (2)

- Unprecedented action is required this decade to cut emissions from all fossil fuels to achieve 1.5°C and 2°C pathways. Coal use must decline first and fastest, initially in electricity generation but also for industrial uses.
- Coal is the most carbon intensive fossil fuel used in electricity generation, accounting for 30% of global $CO_2$ emissions in 2018. (IEA 2019)
- Coal-fired power plants were the single largest contributor to the growth in emissions observed in 2018, with an increase of 2.9%, or 280 Mt, compared with 2017 levels, exceeding 10 Gt for the first time. (IEA 2019)
- Analyses find that unabated **coal-fired power generation should be reduced to 80%** below 2010 levels by **2030** and phased out before 2040 in order to achieve 1.5°C and 2°C pathways that do not rely on large-scale negative emissions deployment. (Carbon Brief 2020)
- Integrated Assessment Models consider the different socioeconomic drivers of emissions and the relative starting conditions of electricity systems across different groupings of countries. (Climate Analytics 2019)
- OECD & EU28 countries are better positioned to complete an earlier transition from coal to clean electricity generation than most non-OECD countries. Indicative target dates for coal phase out are therefore 2030 for OECD & EU28 and 2040 for non-OECD countries. Even this later date requires action now to stop new coal plant construction and begin efforts to reduce coal power generation and retire existing power plants.




Source: Climate Analytics analysis of coal in IPCC scenarios

# Introduction: from dirty coal to clean energy

Throughout 2019, UN Secretary General Antonio Guterres called on governments to commit to the actions necessary to keep the goals of the Paris Agreement within grasp. He repeatedly highlighted the need to:

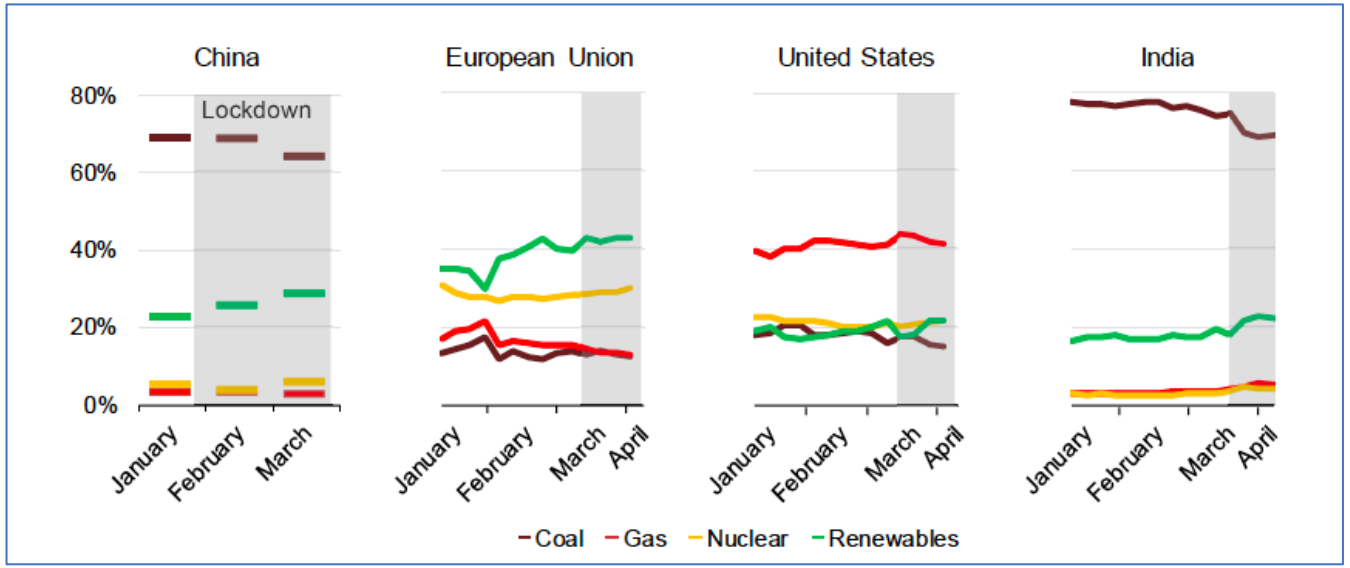
- Stop building new coal power plants by 2020
- Curtail current coal capacity
- End subsidies for fossil fuels (including finance for coal plants)
- Tax pollution, not people (including improved carbon pricing)

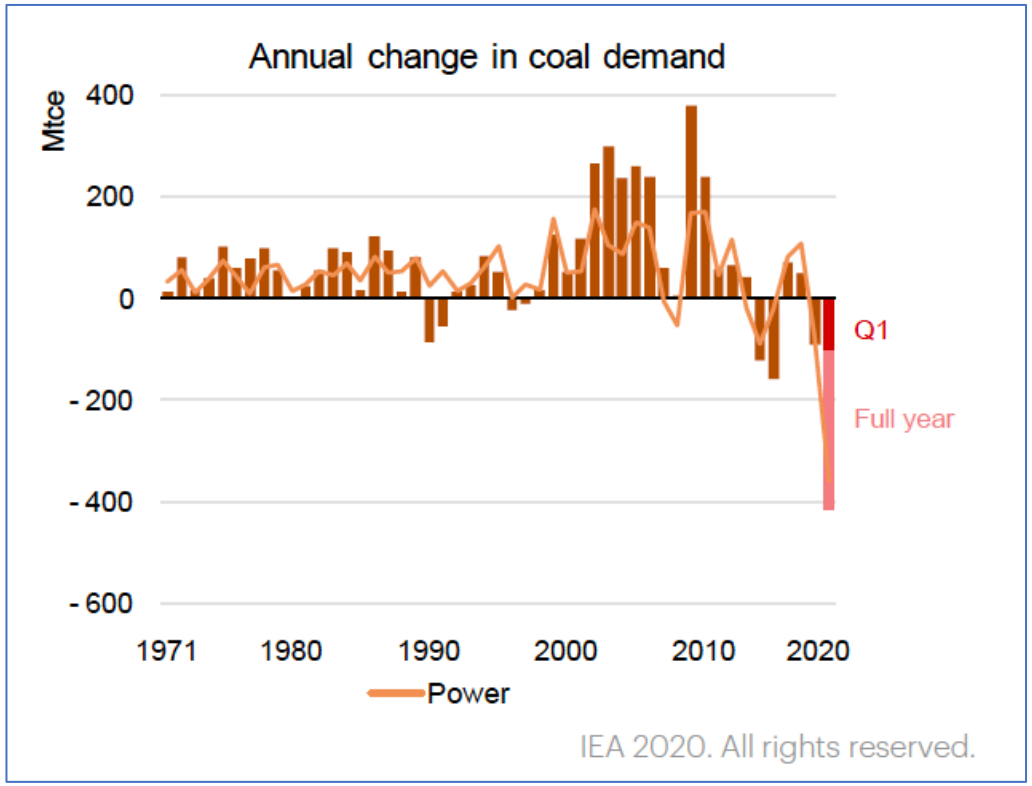
These core actions are even more important as the world aims to "Build Back Better" after Covid19. Economic recovery packages offer an enormous opportunity to address poverty, health, jobs, and climate change.

This *global status of coal power* review identifies where the coal to clean transition is accelerating and highlights where further attention is needed to enable a green recovery pathway.


# Introduction: the emerging impacts of the Covid19 pandemic on coal power generation

- The IEA projects that:
  - Coal demand could decline by 8% in 2020, in large part due to a fall in electricity demand of nearly 5% over the course of the year, pushing down output from coal-fired generators by more than 10%.
  - The recovery of coal demand for industry and electricity generation in China limits the global decline in coal demand.
- Coal is the biggest loser in power generation globally, with the share of renewables increasing to record levels in both developing and developed countries.



# Methodology, data sources, future updates

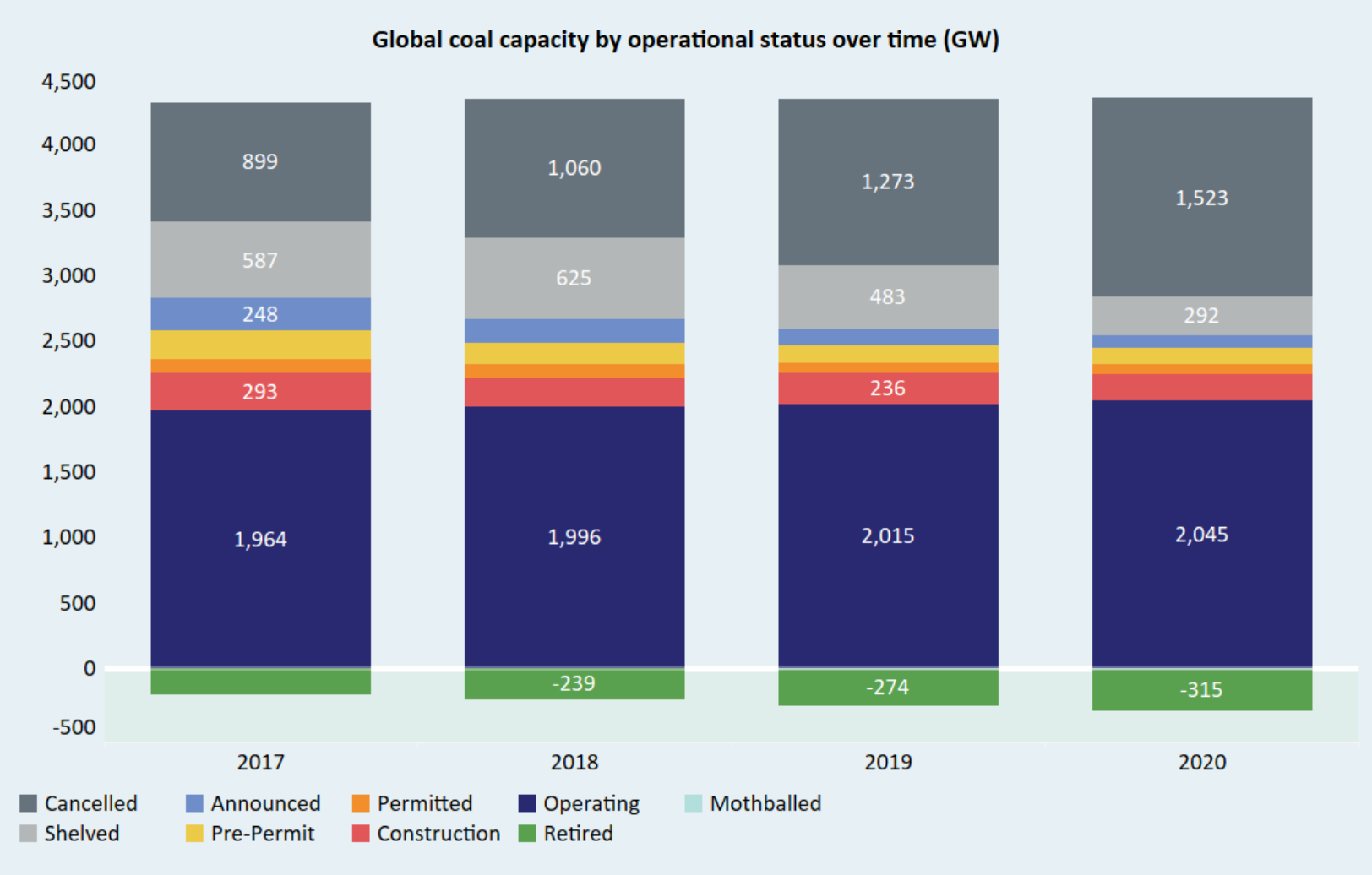
- Our analysis is based on a combination of publicly available data of operating and proposed coal power plants from Global Energy Monitor (aggregated from plant- to country-level); electricity generation data provided by Ember; and E3G analysis of political commitments and policy developments.
- Aggregating this data to the country level allows us to build a comparative picture of progress among economic peers and regional groupings.
- Unless otherwise stated, all data relates to the January 2020 release of Global Energy Monitor's Global Coal Plant Tracker and the Ember Electricity Review 2020, released in March 2020.
- This first edition of our global status of coal power review is a means of us sharing our initial analysis in order to provide a baseline of trends prior to the Covid-19 pandemic.
- The following slides provide some '**spotlight**' insights that highlight and analyse new and emerging trends from the first half of 2020 that will feature in the next releases of the datasets.
- We aim to update our analysis as new data becomes available, either on an annual or biannual basis. We are working with partners to develop additional tools and data visualisations that can be used more widely.

# The global distribution of coal power generation 2020: trends and challenges

# Key Points: global distribution of coal power


- As of January 2020 there were already **more countries without any new coal power generation projects under development (56) than those with a project pipeline (52)**, a trend that was likely to continue even before the Covid19 economic slowdown hit.
- **At least half of** the countries with a coal project pipeline **could readily commit to 'no new coal'**.
- The **number of coal projects that are cancelled has increased every year since 2015**. Again, this trend is only likely to increase with the impacts of Covid19.

# Overview of global coal capacity and pipeline: Global distribution by status




While total global capacity has only grown slightly since 2015, the past five years has seen a **sharp increase in the number of coal plants cancelled each year**, as the economic case for new coal capacity declines and public and private sources of finance grow scarcer.

Source/Data note: E3G analysis of Global Coal Plant Tracker data. Data based on July updates to GCPT dataset with the exception of 2020, for which only January data is available at the time of analysis.

# Regional distribution of global coal capacity and pipeline of proposed new projects

E3G

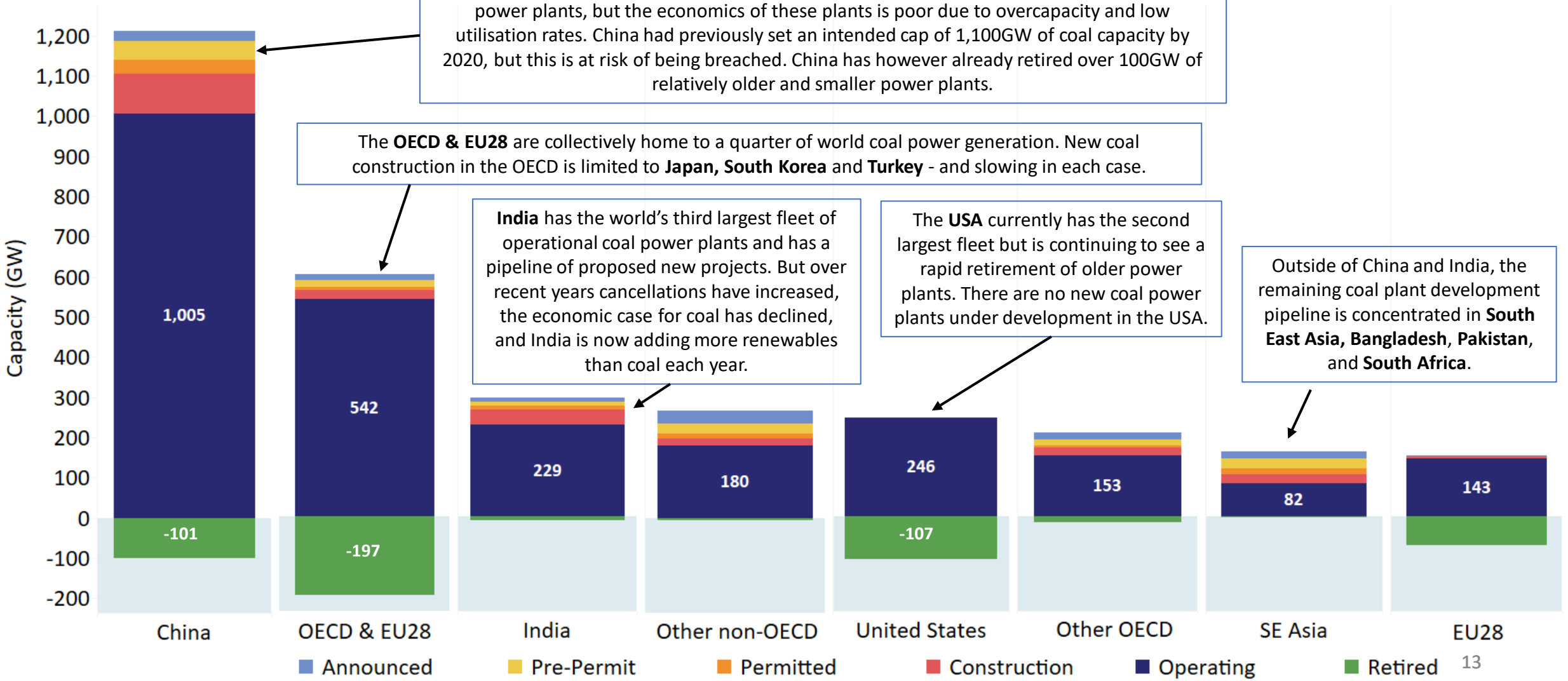
**China** is home to half the world's coal power generation. It is currently still adding new coal power plants, but the economics of these plants is poor due to overcapacity and low utilisation rates. China had previously set an intended cap of 1,100GW of coal capacity by 2020, but this is at risk of being breached. China has however already retired over 100GW of relatively older and smaller power plants.

The **OECD & EU28** are collectively home to a quarter of world coal power generation. New coal construction in the OECD is limited to **Japan, South Korea** and **Turkey** - and slowing in each case.

**India** has the world's third largest fleet of operational coal power plants and has a pipeline of proposed new projects. But over recent years cancellations have increased, the economic case for coal has declined, and India is now adding more renewables than coal each year.

The **USA** currently has the second largest fleet but is continuing to see a rapid retirement of older power plants. There are no new coal power plants under development in the USA.

Outside of China and India, the remaining coal plant development pipeline is concentrated in **South East Asia, Bangladesh**, **Pakistan**, and **South Africa**.



# The global trend towards ‘no new coal’

- As of January 2020, there were **56 countries that no longer have any new coal projects under development**, having previously had or considered coal-fired power. This is **up from 52** in 2019.
- As of January 2020, there were still **52 countries that have coal power projects under development** (‘in the pipeline’). This is **down from 57** in 2019.
  - As of June 2020, we identify that at least **26 of these countries are in a position to commit to no new coal** plants entering construction.
  - This would mean **half of countries with a project pipeline can avoid risky coal projects in their economic recovery**.
- Market dynamics in many countries have moved quicker than government policy. Governments have an opportunity to confirm that they will not permit new coal plants to be constructed.

**Coal Plants by Country (MW)**

Global Coal Plant Tracker, January 2020

Global Energy Monitor

| # of Countries | | Operating | Construction | Permitted | Pre-permit | Announced | Pre-construction Pipeline | Pipeline inc construction | Shelved | Cancelled 2010-2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 108 | 2,044,831 | 199,572 | 79,610 | 124,505 | 95,494 | 299,609 | 499,181 | 292,397 | 1,522,519 |
| With pipeline | 52 | 1,689,650 | 199,572 | 79,610 | 124,505 | 95,494 | 299,609 | 499,181 | 282,317 | 1,422,136 |
| No pipeline | 56 | 355,181 | 0 | 0 | 0 | 0 | 0 | 0 | 10,080 | 100,383 |

# Coal transition progress in OECD & EU28 countries

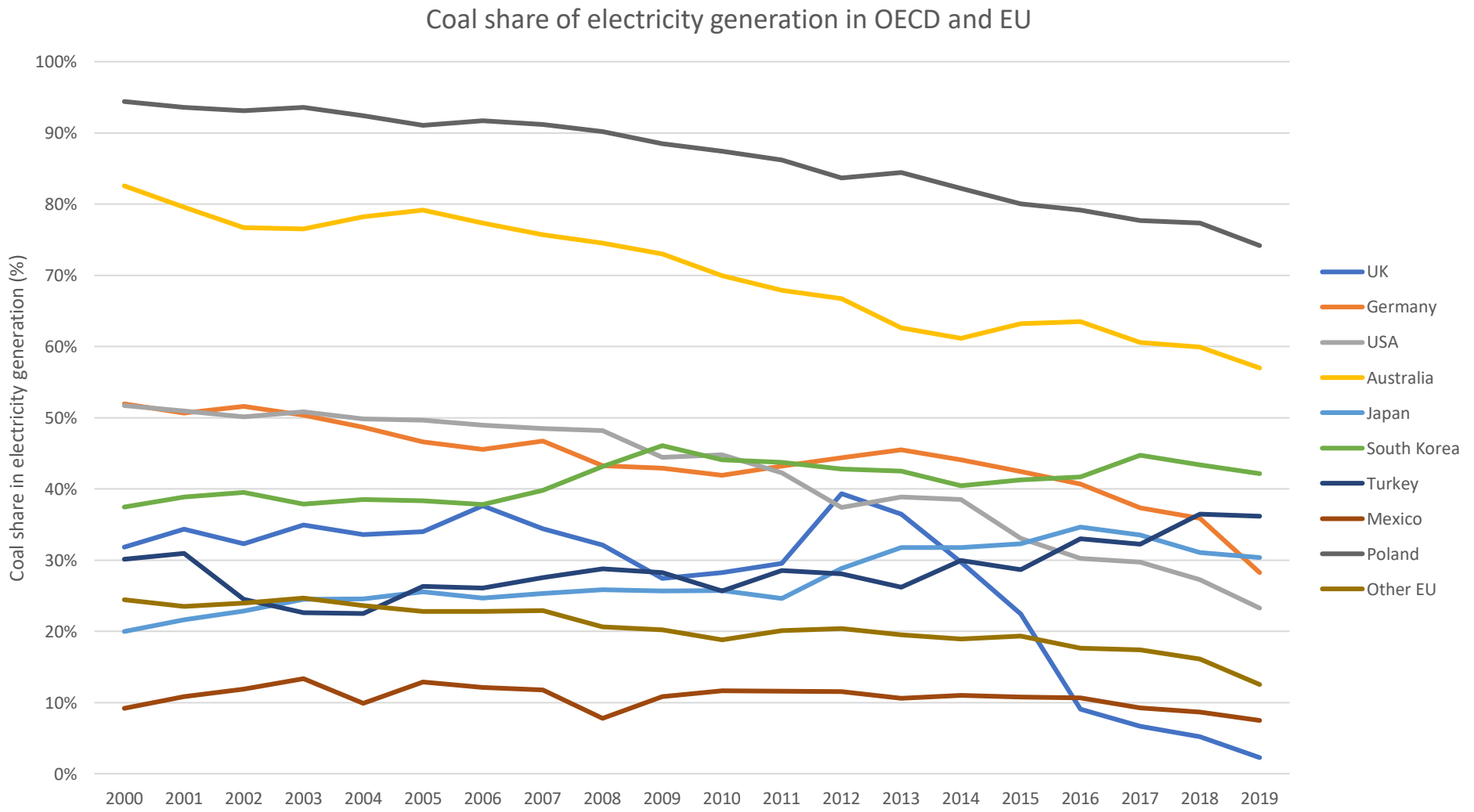
# Coal transition in the OECD & EU28: headlines

E3G

Our **first ever ranking of the coal transition across OECD & EU28 countries** finds that:

- **58% of OECD & EU28 countries will be coal free by 2030.** A further **13% of countries are actively working on coal phase out** commitments or policies.
- Using a 2010 baseline, we calculate that on aggregate **52% of OECD & EU28 operating capacity has either retired already or is expected to retire by 2030**.
- The **USA alone represents 45% of OECD coal** capacity. It has zero projects in the development pipeline and closures of existing plants are accelerating in spite of White House rhetoric. **US coal generation has halved since its 2007 peak**, while **81% of avoided economy-wide US GHG emissions since 2010 has been due to the decline in coal.**
- Meanwhile, the EU is in an unofficial race with the USA over who can achieve a coal exit quickest. **Half of the capacity in Spain closed in June 2020**. Overall, the **EU is now has just 50GW without a retirement date.** Similarly, the **UK recently achieved a record period of coal-free** electricity generation spanning more than 60 days.
- The OECD as a whole still has **39GW of proposed new coal projects**, of which **81% is in Turkey** alone, however none of these projects make economic sense without heavy state subsidies.
- In spite of the recent announcement that it would aim to **retire 100 existing coal plants by 2030**, **Japan's commitment to pursuing new coal construction puts it bottom** of the rankings.

# Electricity generation trends in OECD and EU28

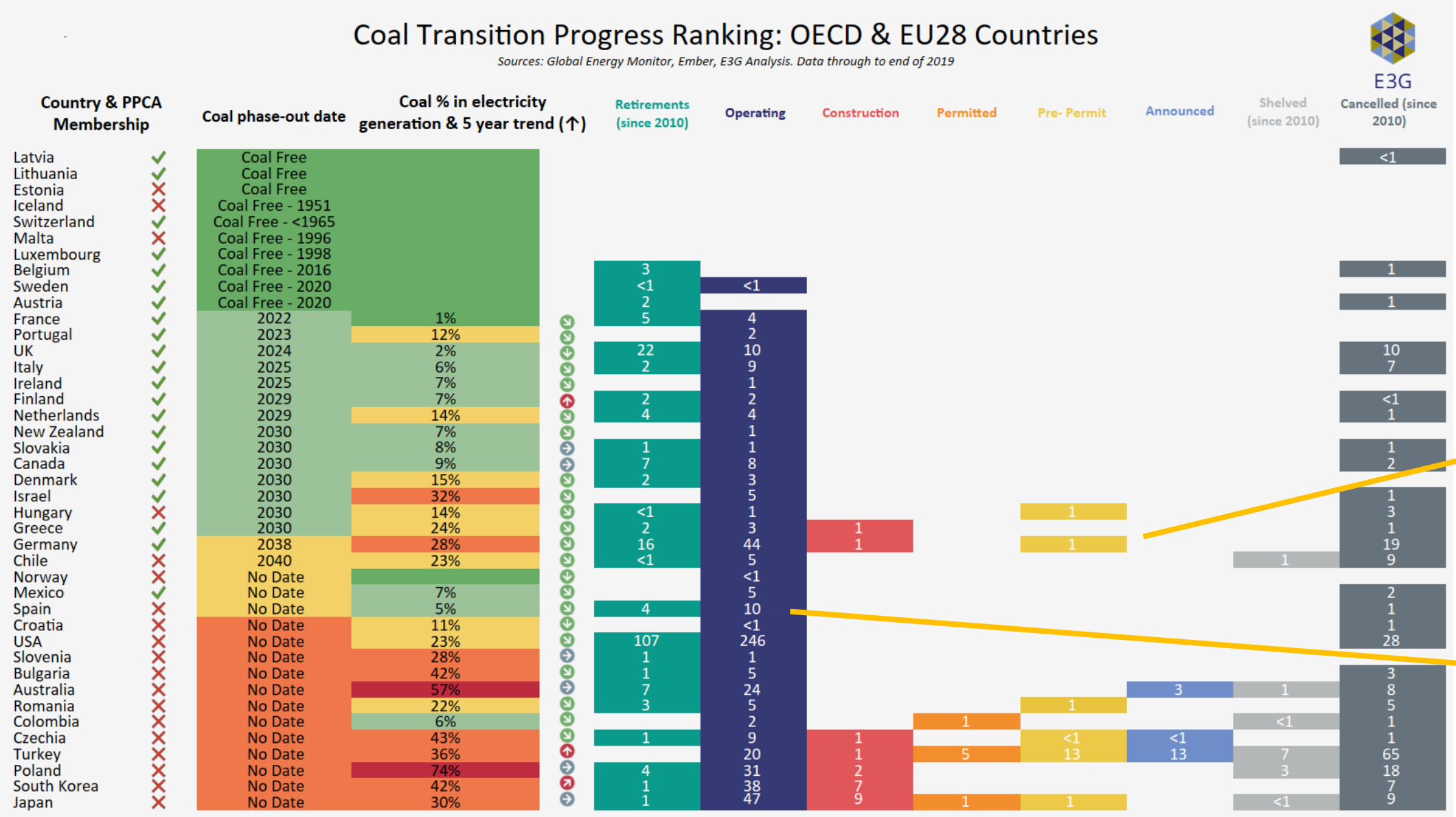



Over the past two decades, the share of coal in electricity generation has consistently fallen in all major OECD and EU28 countries except Turkey, South Korea and Japan.

Reductions in coal power generation have accelerated over the past 5 years, a trend we expect to continue into 2021 and beyond.

*Source: E3G analysis of Ember Global Electricity Review dataset*

# Coal transition progress ranking: OECD & EU28 (1)




**Spotlight:** In **Germany** the controversial new Datteln power plant has finally entered operation while the proposed Stade project has been cancelled by the coal exit law, meaning Germany now has no projects under development.

**Spotlight:** In **Spain**, half of the 10GW of operating capacity closed in June 2020.

# Coal transition progress ranking: OECD & EU28 (2)

- Our assessment of OECD & EU28 progress brings together metrics for electricity generation, existing capacity, new project pipeline, and government policies.
- We find that Japan is ranked bottom of the OECD & EU28, trailing behind South Korea and Poland. Turkey has the largest pipeline of new coal projects at earlier stages of development (31GW), but has an opportunity to stop these entering into construction.
- **10 countries are already coal-free**, while a further 14 countries will phase out coal power generation by 2030 (58% of the OECD & EU28).
- 5 countries (Germany, Chile, Norway, Mexico, Spain) have either made a coal phase-out commitment or are working on policy measures, but have not yet aligned their phase out plans with a 2030 date. **Together these two groups total 71% of OECD & EU28 countries**.
- The remaining 12 countries have not yet committed to a coal phase-out timeline. Seven of these have a pipeline of new coal projects, with 21GW under construction and a further 39GW at earlier stages. **Japan has 9GW under construction**, while **Turkey alone has 31GW** at earlier stages of project development. These 12 account for **35%** of the operating coal in the OECD.
- The **USA** is home to **45% of OECD coal capacity**. It has no new coal projects under development and has already retired 107GW over the past decade and a further 46GW already scheduled to retire.

# Coal closures increasing across OECD & EU28

- Our analysis for this ***global status of coal power*** review includes an assessment of progress towards coal phase out across OECD & EU28.
- We first generated a snapshot of progress by comparing the level of scheduled retirements of coal power plants against the total operating capacity in place as of January 2020. (Table 1)
- When compared to the January 2020 total, we find that 31% of OECD & EU28 coal capacity is scheduled for closure before 2030. Including Japan's recent announcement of intended closures increases this figure to 35% of closures by 2030. A further 6% currently has a post-2030 closure date.
- However, the exit from coal in OECD & EU28 countries has been gathering pace over the past decade, so a more accurate approach comes from including power plant retirements since 2010. (Table 2)
- When assessed against this 2010 starting point, Japan's recent announcement of intended closures means that **52% of OECD & EU28 coal capacity has either closed already or is scheduled to close by 2030**.
- This % figure will increase as further plant retirements and national phase out commitments are announced. However it will decrease if substantial new capacity is added. Japan alone currently has 9GW of coal power plants under construction, which would maintain coal generation at a similar level in the electricity mix even as older power plants retire.

**Table 1: 2020 snapshot of progress**

| | GW | % |
|---|---|---|
| January 2020 operating capacity | 543.5 | |
| Scheduled retirements 2020-2030 | 166.5 | 30.6% |
| Plus estimated Japan retirements by 2030 | 188.4 | **34.7%** |
| Plus expected post-2030 retirements* | 219.9 | 40.5% |

**Table 2:Tracking OECD & EU28 progress since 2010**

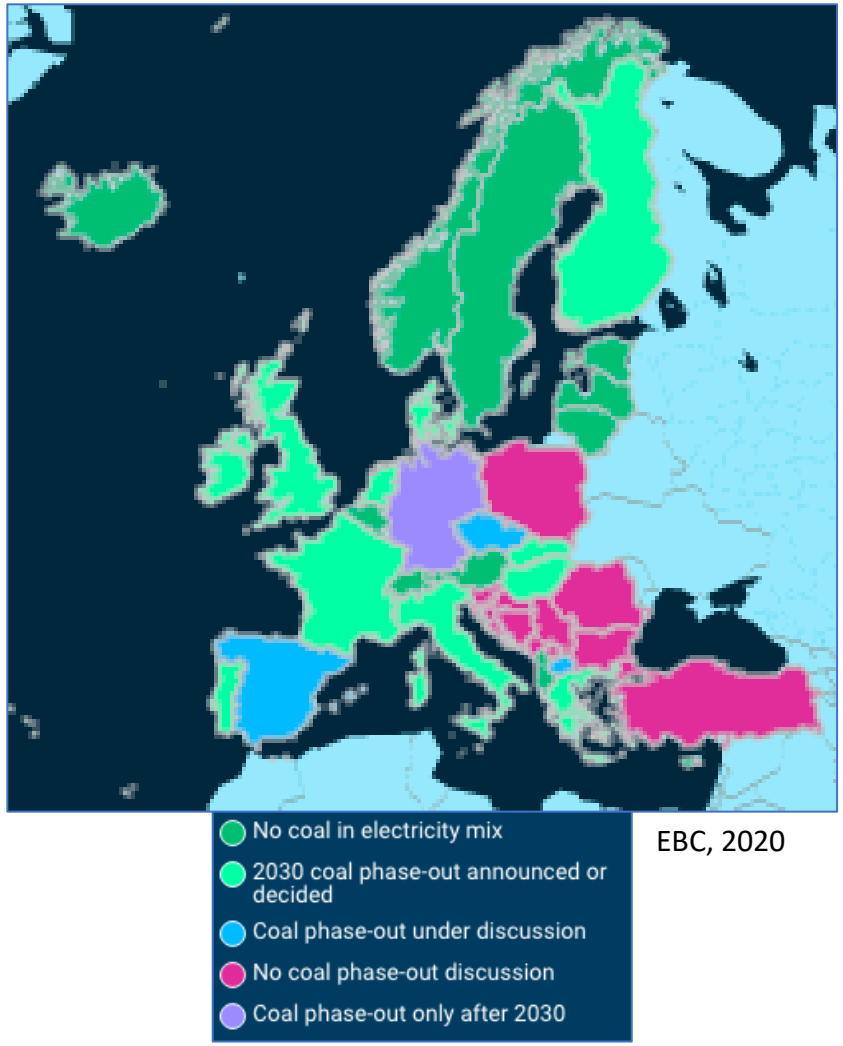
| | GW | % |
|---|---|---|
| 2010-2020 operating capacity | 740.2 | |
| Completed retirements 2010-2019 | 196.7 | 26.6% |
| Scheduled retirements 2020-2030 | 166.5 | 22.5% |
| Total retirements 2010-2030 | 363.2 | 49.1% |
| Plus estimated Japan retirements by 2030 | 385.1 | **52.0%** |
| Plus expected post-2030 retirements* | 416.6 | 56.3% |



*Additional capacity expected for closure beyond 2030 includes 17 GW in Germany; 9 GW in South Chungcheong Province, South Korea; 3.7 GW in Chile; and 1.8 GW in Mexico.

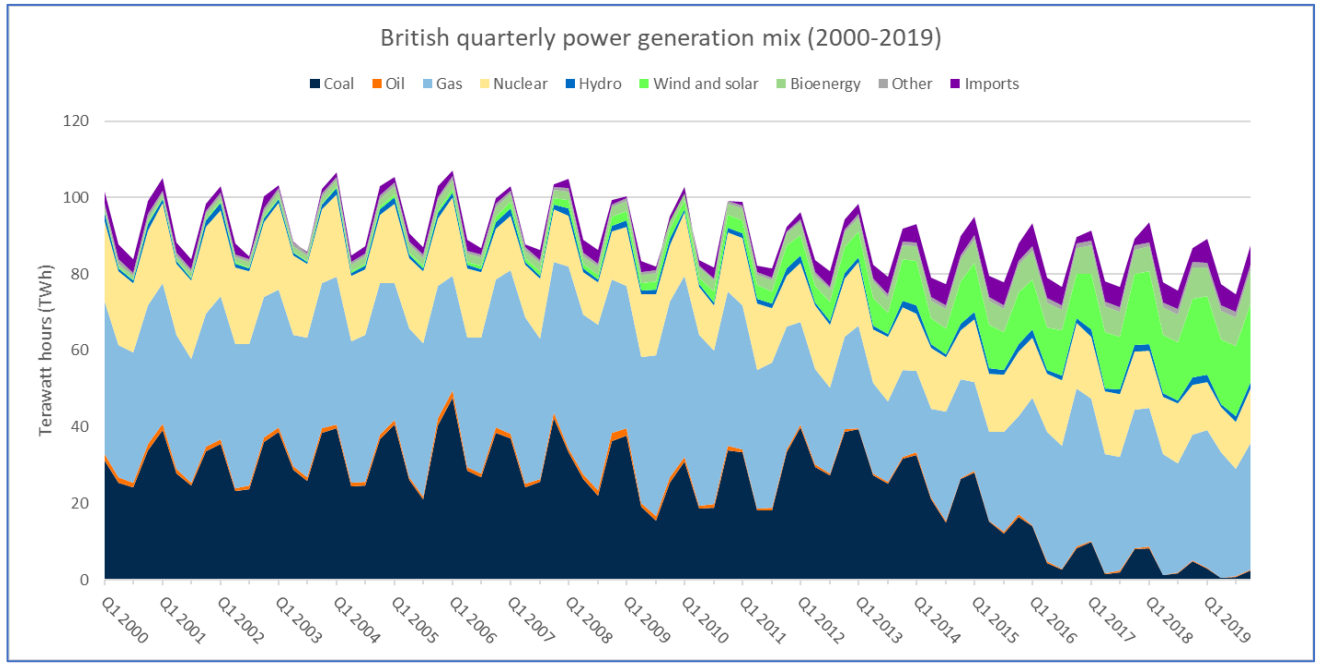
# Positive progress: towards a coal-free EU

- Coal is uncompetitive and in decline across the EU: coal-fired electricity generation fell 48% in the period 2012-2019 and 24% between 2018 and 2019.
- EU28 countries have already seen 74GW of capacity retire 2010-2019, and this is accelerating (Austria & Sweden recently retired their last plants ahead of schedule).
- 15 countries have announced a coal exit, and the aggregate total of Europe's retirements + commitments since 2010 is already 167GW.
- There is now 50GW of capacity without a phase out date, principally in Poland, Czechia, Bulgaria, and Romania. EU support through the Just Transition Fund and European Green Deal can help accelerate regional transitions and investment in clean energy.
- EU-wide phase-out is not yet consistent with 2030, however, including ~17GW of capacity in Germany that may retire beyond 2030.
- Recent analysis by CarbonTracker Initiative & Rocky Mountain Institute found that **81% of the 143GW coal fleet is uncompetitive** in 2020.
- Phasing out and replacing uncompetitive coal plants with renewable energy plus storage would generate savings of $10 billion in 2020, $16 billion in 2022 and $21 billion in 2025.




EBC, 2020

# Positive progress: UK breaking records, and Spain closed half of its capacity in June




**Spotlight: UK**

Coal power generation was the source of 40% of UK electricity in 2012. In Spring 2020, the GB grid ran continuously with zero coal generation for over 60 days (a period which only ended when a coal plant was tested following maintenance).

EL PAÍS

ENVIRONMENT >

**Spain to close half its coal-fired power stations**

The country is on track to becoming one of the world's fastest decarbonizing nations

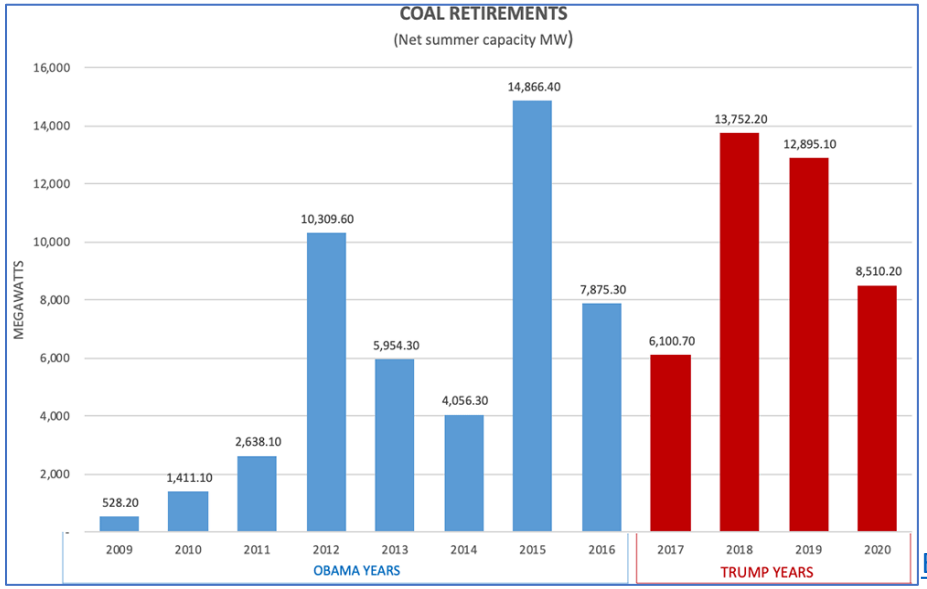
**Spotlight: Spain**

Spain saw nearly 50% of its 9.5GW capacity retire in June 2020. Utility companies decided not to upgrade pollution controls to meet the air quality standards of the EU Industrial Emissions Directive, instead deciding to close. Coal power generation was no longer economically viable in a context of increased carbon prices and competition from low cost renewables.

# Positive progress: Rapid decline of coal in USA

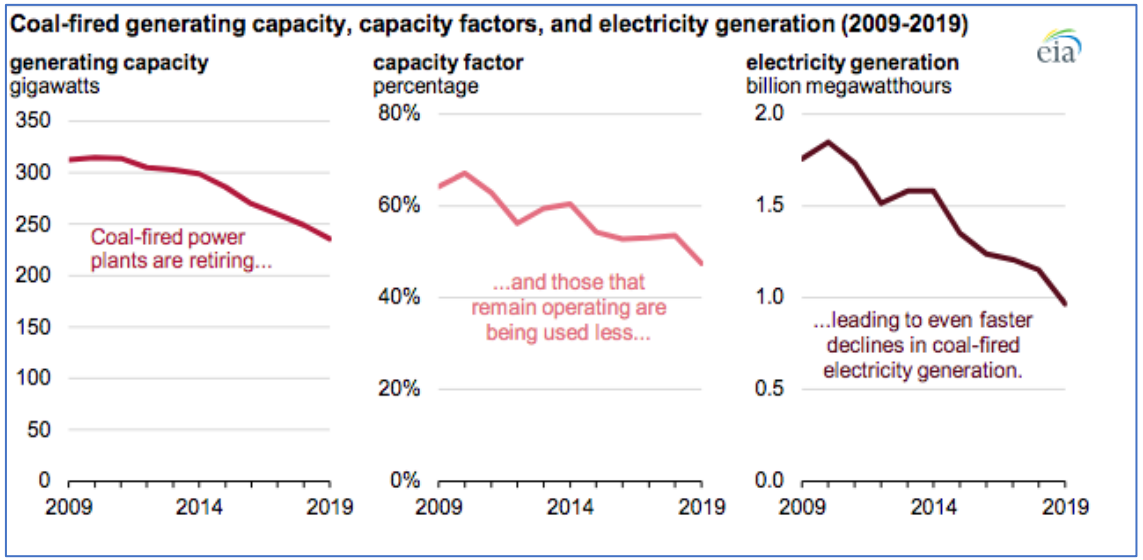
**Spotlight: USA**

- The US EIA forecasts that the coal share of electricity generation will fall from 24% in 2019 to **17% in 2020 – a collapse from 45% a decade ago**.
- The USA has no coal plants in the pipeline, despite Federal pro-coal rhetoric. Plant closures have accelerated under President Trump, and coal plants are also running less.
- **2019 saw the largest fall of coal use on record**, as generation fell 15.7%.
- 79% of 236GW coal capacity is cheaper to close than to run and savings of $10 billion annually could be realised today.
- Demand has fallen further due to Covid19, with coal falling fastest while renewable and gas shares are expected to grow.
- **US coal generation has halved since its 2007 peak**, while **81% of avoided economy-wide emissions since 2010 has been due to the decline in coal**.




EE News

EIA, 2020




COAL | ELECTRIC POWER | NATURAL GAS — 18 Jun 2020 | 21:53 UTC — Houston

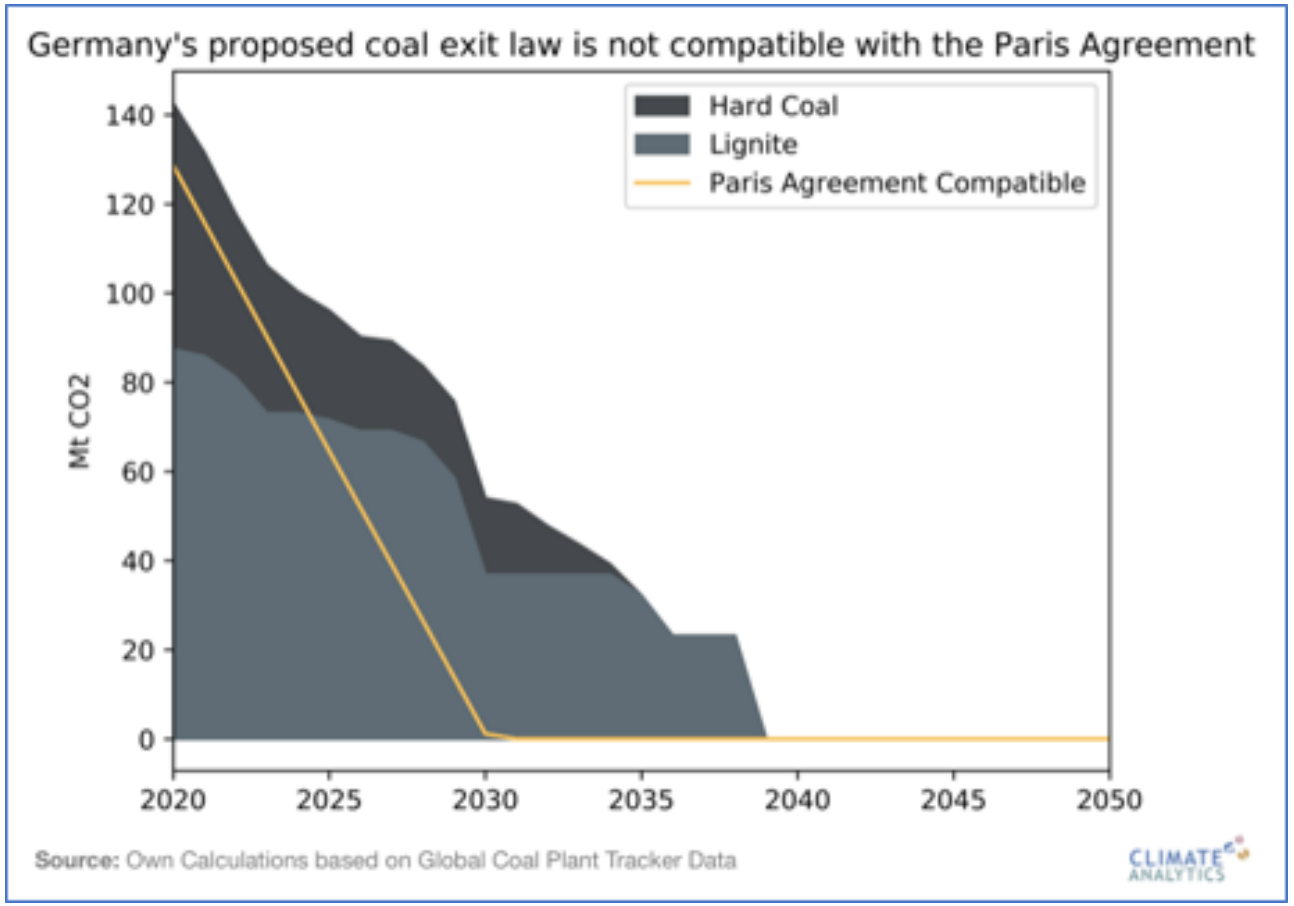
**Renewables to overtake coal-fired generation for first time in US in 2020: Moody's**

# Germany: Coal phase out moves forward but will need to accelerate further

E3G

**Spotlight: Germany**

- On 3 July 2020 Germany adopted a **coal phase out law** with accompanying financial support for coal regions.
- Germany is the **first of the global Top 10 coal users to commit to a coal exit**, contributing to global momentum.
- However the proposed end date of 'by 2038' is **not compatible with Paris Agreement** pathways. Market dynamics and civil society pressure both point to the need for an accelerated timeframe.
- In June 2020 the new Datteln 4 coal plant entered operation, having been under construction for close to a decade. Germany's only other proposed coal plant (Stade, Dow Chemical) has been cancelled following the adoption of the coal phase out law.
- The share of coal in net electricity generation is at historic low (16% in Apr 2020), while renewables thrived in first half of 2020 (55.7%)



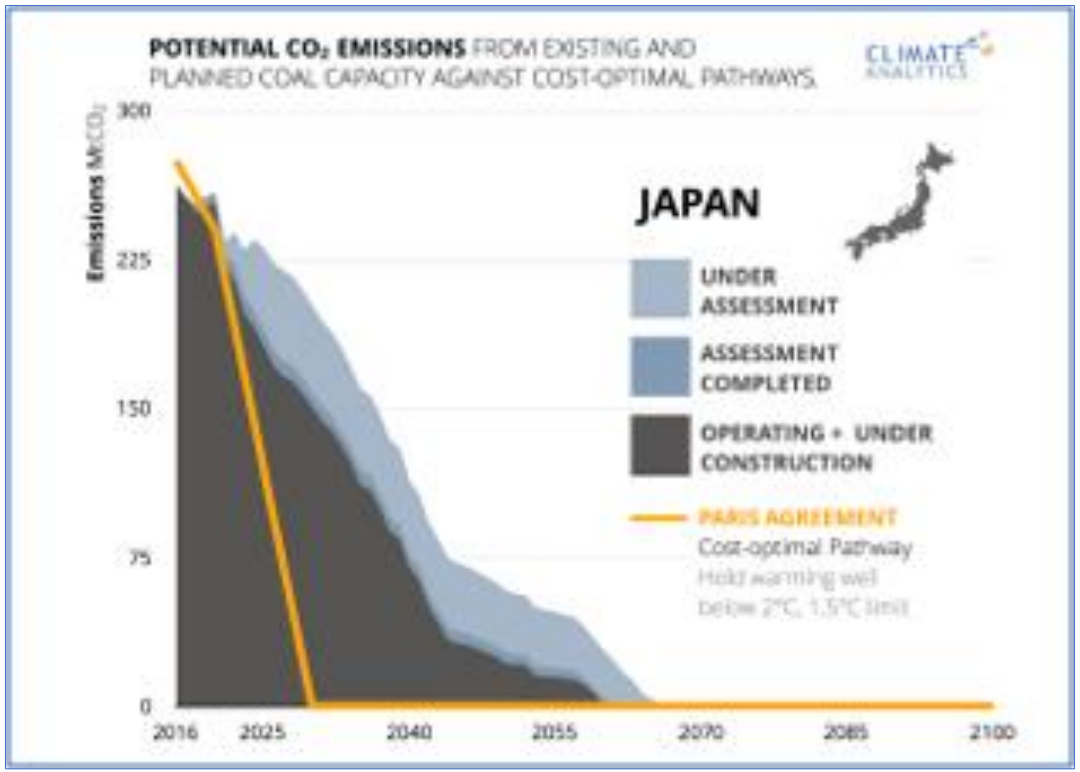
# Japan: phasing out old plants but clinging to new

Green

**Japan May Close 100 Old Coal Units by 2030 to Hit Emissions Goal**

By Aya Takada
July 2, 2020, 1:02 PM GMT+8

- ► Ministry to start expert panel discussions on details of plan
- ► Power-mix target unchanged; new plant construction continues




**Spotlight: Japan**

- Japan's announcement in early July 2020 that it will close older and 'less efficient' plants indicates that **coal phase out is climbing the political agenda**.
- However, the goal is not a new policy, and ~35GW of capacity would likely remain operational in 2030. Unless the Basic Energy Plan is updated to reduce the share of coal in 2030, the **current plans leave further new coal plant development on the table**.
- The move towards 'higher efficiency' plants is part of a strategy to keep the pipeline of new plants open domestically and overseas but ignores lifetime CO2 emissions.
- Japan's review of coal export finance (due in July 2020) is expected to tighten rules on lowest efficiency plants, but **still support overseas coal projects**.
- A fleet of higher efficiency coal plants would not be consistent with the emissions intensity achievements needed in the power sector for meeting 1.5 or 2°C.

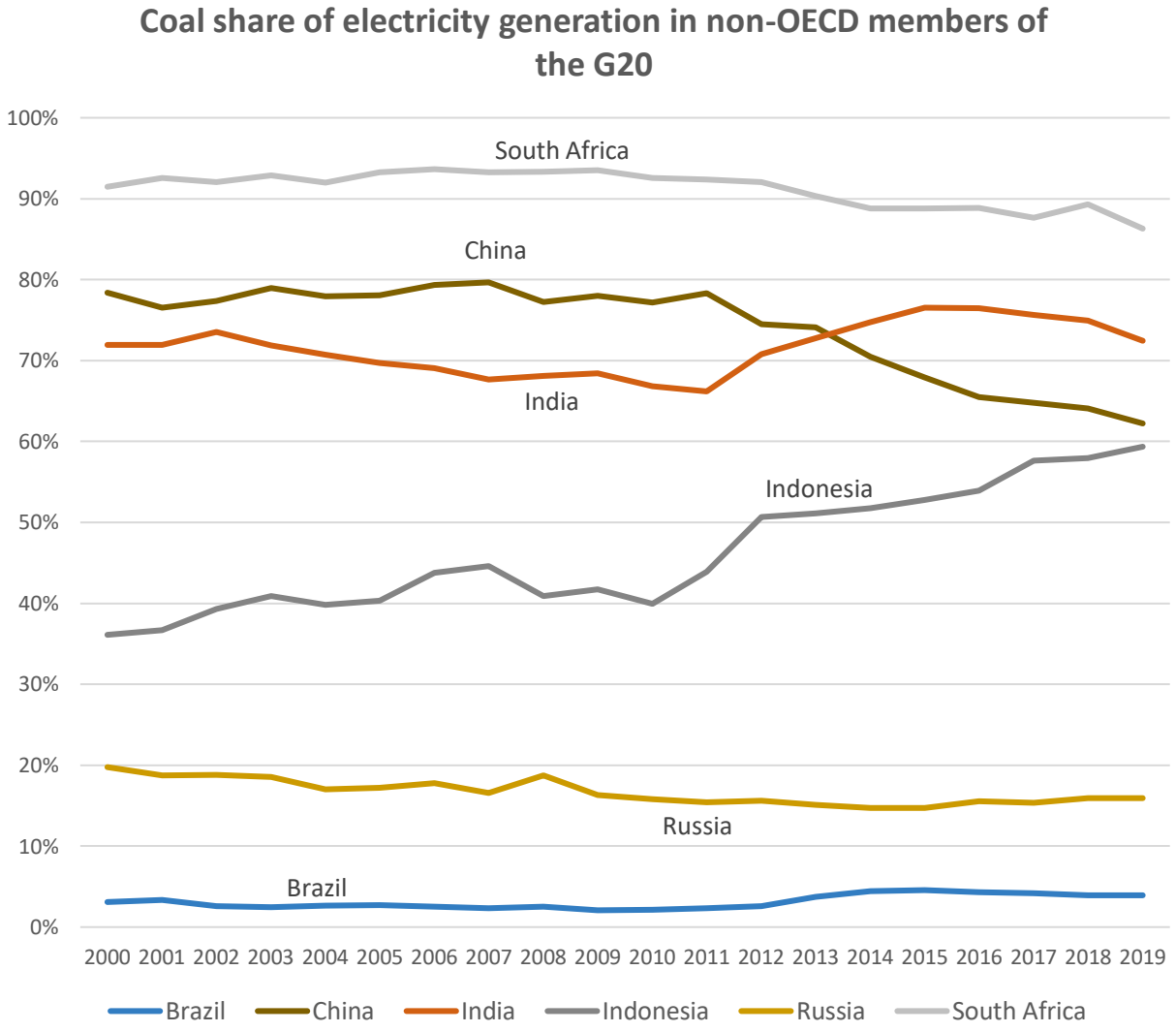
# Coal transition progress in non-OECD countries

# Key points on the coal transition in non-OECD countries

E3G

- Our analysis finds that as of January 2020, **14 non-OECD countries with operating coal can immediately commit to no new coal** and consider phase-out pathways, as they have no projects under development.
- Ahead of the Covid19 crisis, a **further 20 countries were already well-positioned to commit to no new coal**:
  - **11** of these are currently coal-free countries that can avoid the economic risks of coal by **leapfrogging straight to clean energy** (as Egypt has done by stepping away from Hamrawein project in April 2020).
  - **9** have existing coal projects **but nothing currently under construction** – moving away from their pipelines would put them on the pathway to a coal free future and avoid stranded assets.
  - We anticipate that **these numbers will increase** as a result of post-Covid19 economic decision-making.
- The vast **majority of global coal expansion risk was concentrated in just 15 countries** which were constructing new plants and had further projects at earlier stages of development. The Covid19 economic crisis and recovery **presents an opening for them to reconsider investment plans**, to avoid locking in non-performing assets, vs competitive renewables.
- There remains a **risk that policy short-termism around Covid19 recovery drives the rebound of coal** generation and construction, and locks in uneconomic new plants. Recent analysis of China shows that provincial economic recovery goals are driving investment in uneconomic new coal projects. **The pipeline of new projects in China has further increased during the first half of 2020, with 17GW of new projects permitted through June, more than all of 2018 and 2019 combined.**

# Electricity generation trends in non-OECD

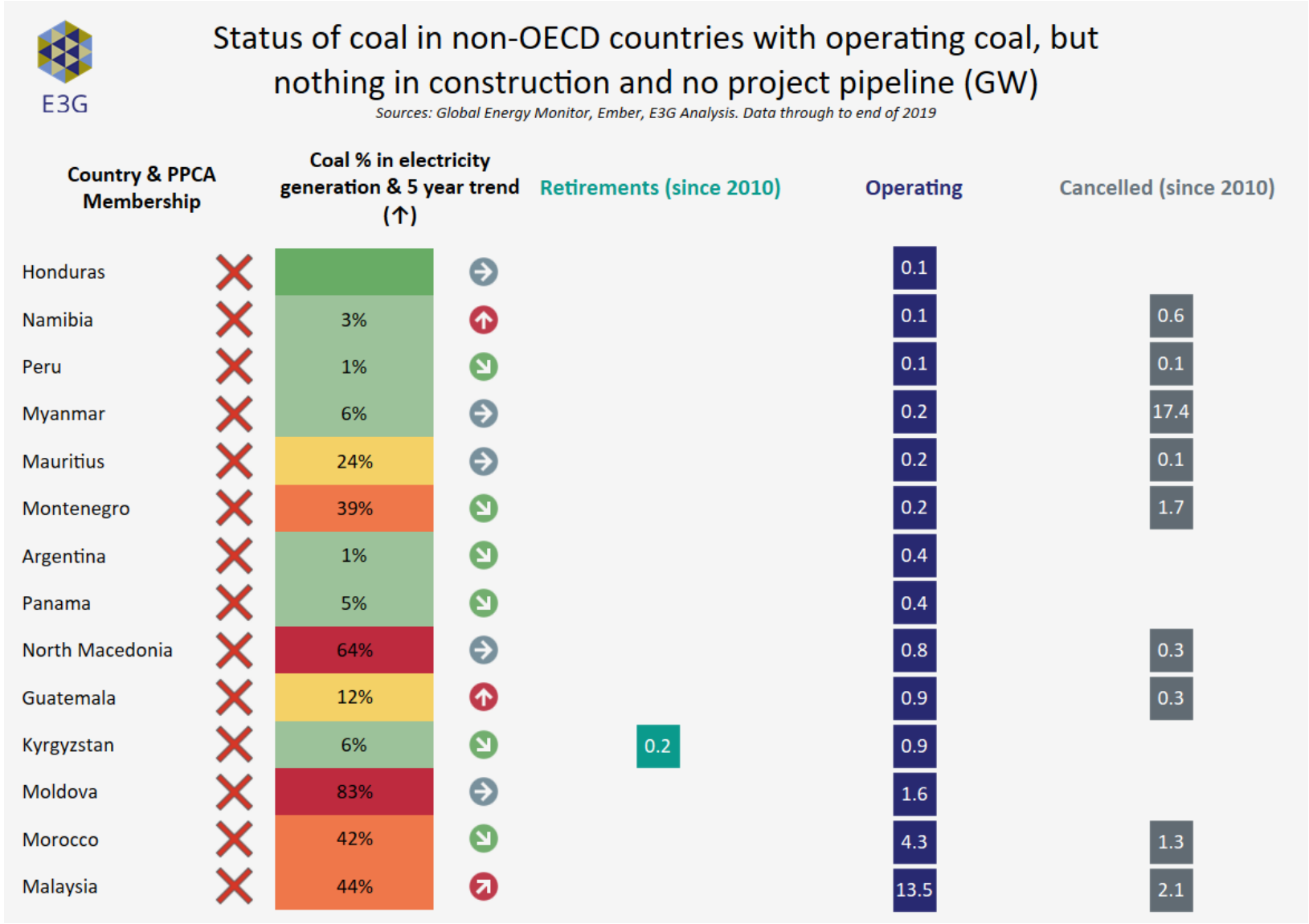



**Spotlight:**

- Overcapacity and the plummeting cost of renewables means coal is likely to have seen its peak share in electricity generation in **India,** which aims to be a global leader in solar power.
- **South Africa** and **Russia** are also seeing declines in the share of generation from their ageing and inefficient coal fleets.
- Coal construction is continuing in **China,** further intensifying overcapacity and falling load factors.
- Falling demand and over-capacity in **Indonesia** could leave the State plugging the revenue shortfall faced by state-owned utility PLN. Despite such risks, in June 2020 South Korea approved financing for the Jawa 9+10 coal power plants.
- Coal-fired power projects failed to secure capacity contracts in recent auctions in **Brazil**.

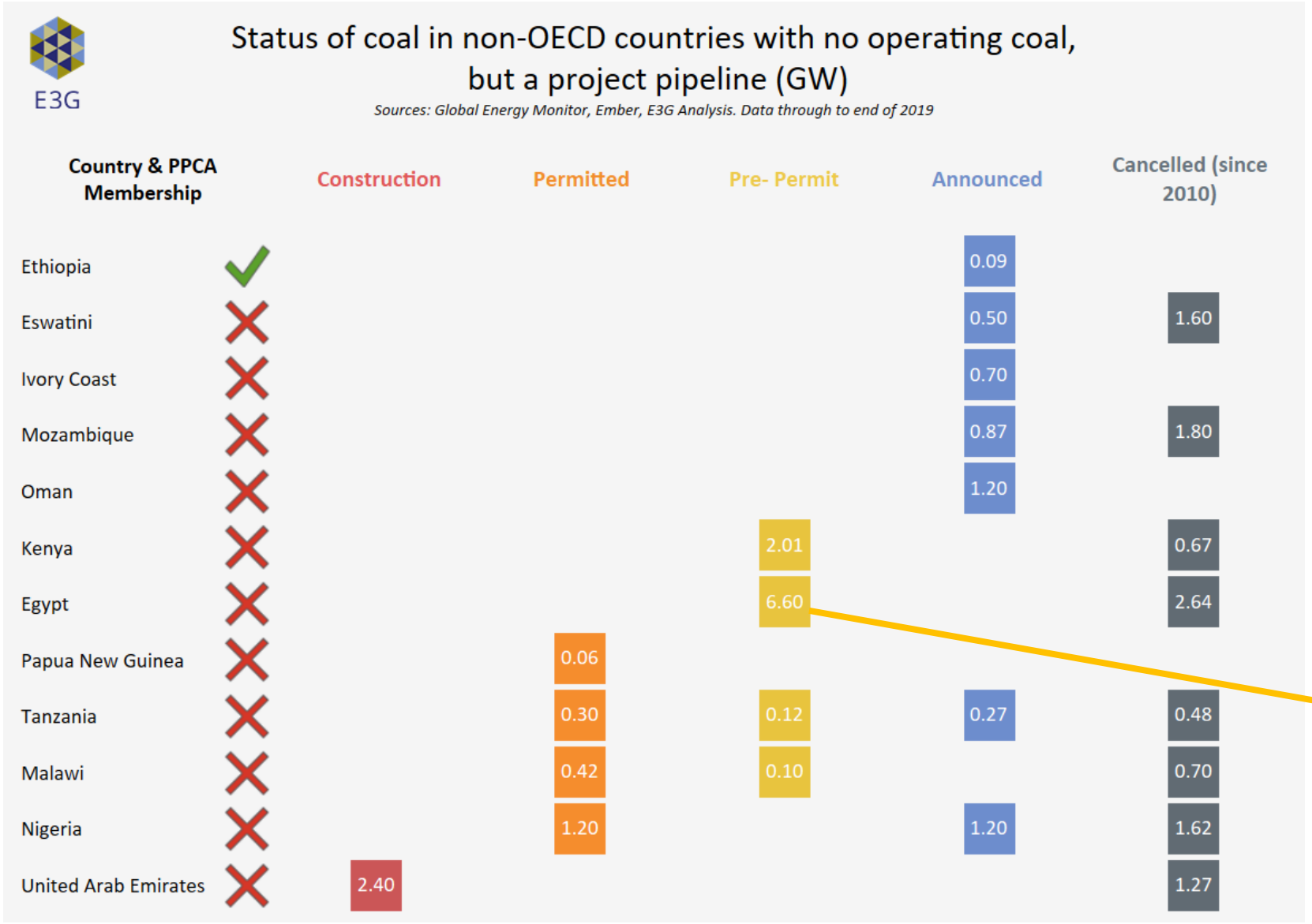
Generally, coal generating capacity in non-OECD tends to be younger than in the OECD. The structural dynamics already underway in the OECD will be repeated in non-OECD over the coming decades, particularly given the falling cost of renewables.

# Countries that can commit to no new coal (1)




- These 14 non-OECD countries have coal power generation in operation but no new plants under construction or in the development pipeline.
- They are ideally placed to confirm that they will not pursue new coal power generation and instead develop clean alternatives. This would put them on the start of a pathway towards the phase out of coal power generation.
- **Morocco** and **Malaysia** have seen new coal plants enter operation over the past decade but no longer have further projects under development. They are well positioned to be regional leaders in prioritising renewable energy.
- International support for clean technology, early closure and decommissioning, and just transition strategies are required for these countries to confidently commit to becoming coal-free over the coming decades.

# Countries that can commit to no new coal (2)

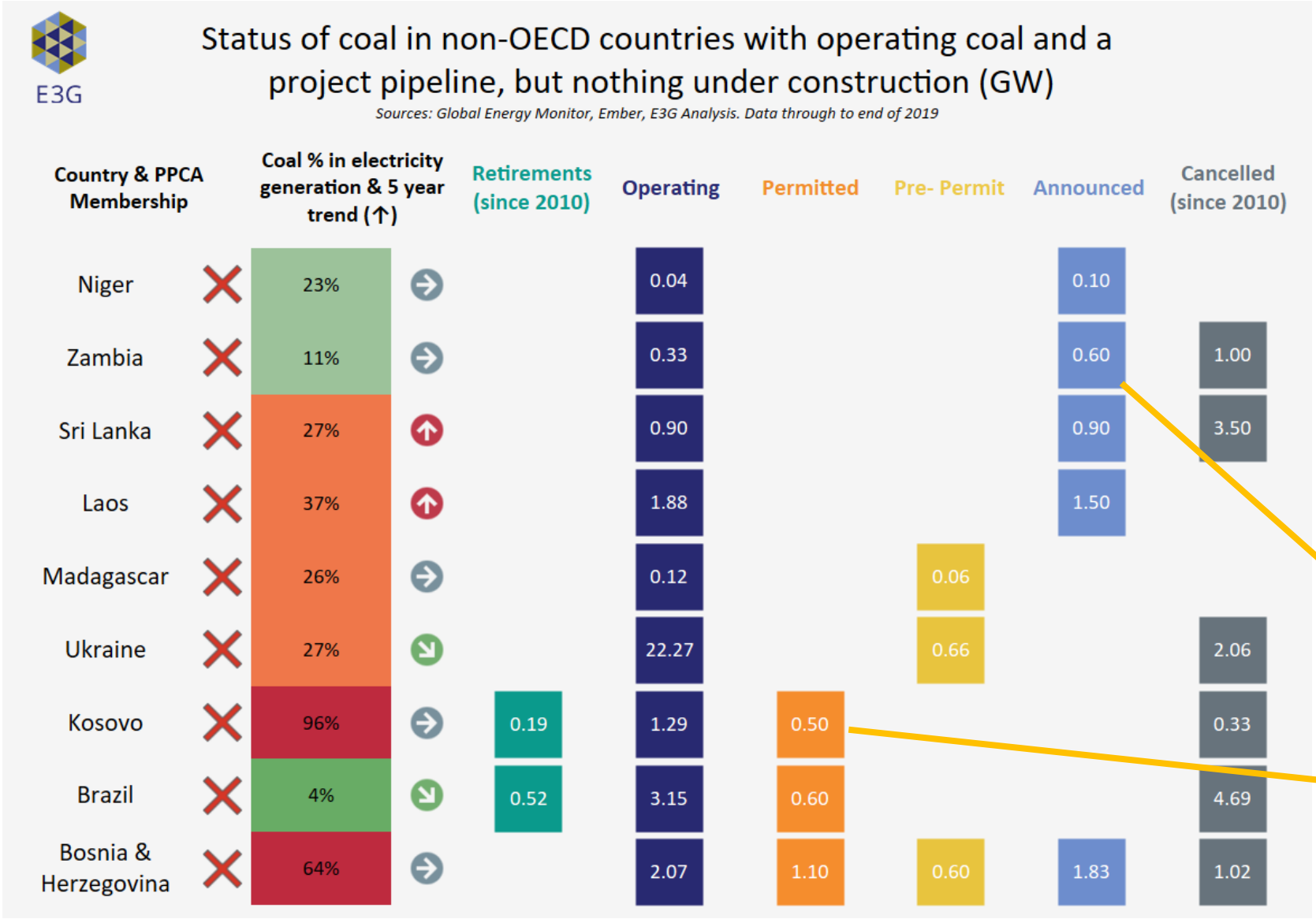



- These 12 countries currently have no operating coal power plants, but are at various stages of considering new coal projects.
- Cancelling the projects at pre-construction stages projects would take **15GW out of the global pipeline**, and enable these 11 countries to leapfrog coal completely (not including UAE).

**Spotlight:**
In early 2020 the 6.6GW Hamrawein plant in **Egypt** has been **postponed indefinitely**. This would have been the second largest coal power station in the world but was cancelled as Egypt has already achieved its electricity capacity targets using other energy sources – primarily renewables. Such large coal plants make even less sense in context of Covid19 economic impacts.

# Countries that can commit to no new coal (3)

E3G




- This group of countries has operating coal power plants, and a pipeline of new projects totalling 9.2GW, but none currently under construction.
- This puts them in a position where they may be able to cancel their pipeline and instead choose to pursue renewables projects.

**Spotlight:**
In May, **Zambia** announced a 600MW solar deal with Power China - almost double its current installed coal capacity

**Spotlight:**
With the cancellation of the major Kosova E coal project following multiple financiers pulling out, **Kosovo** no longer has a coal pipeline.

# 15 non-OECD countries most exposed to coal risk

E3G

E3G

Status of coal in non-OECD countries with operating coal, a project pipeline, and plants under construction (GW)

*Sources: Global Energy Monitor, Ember, E3G Analysis. Data through to end of 2019*

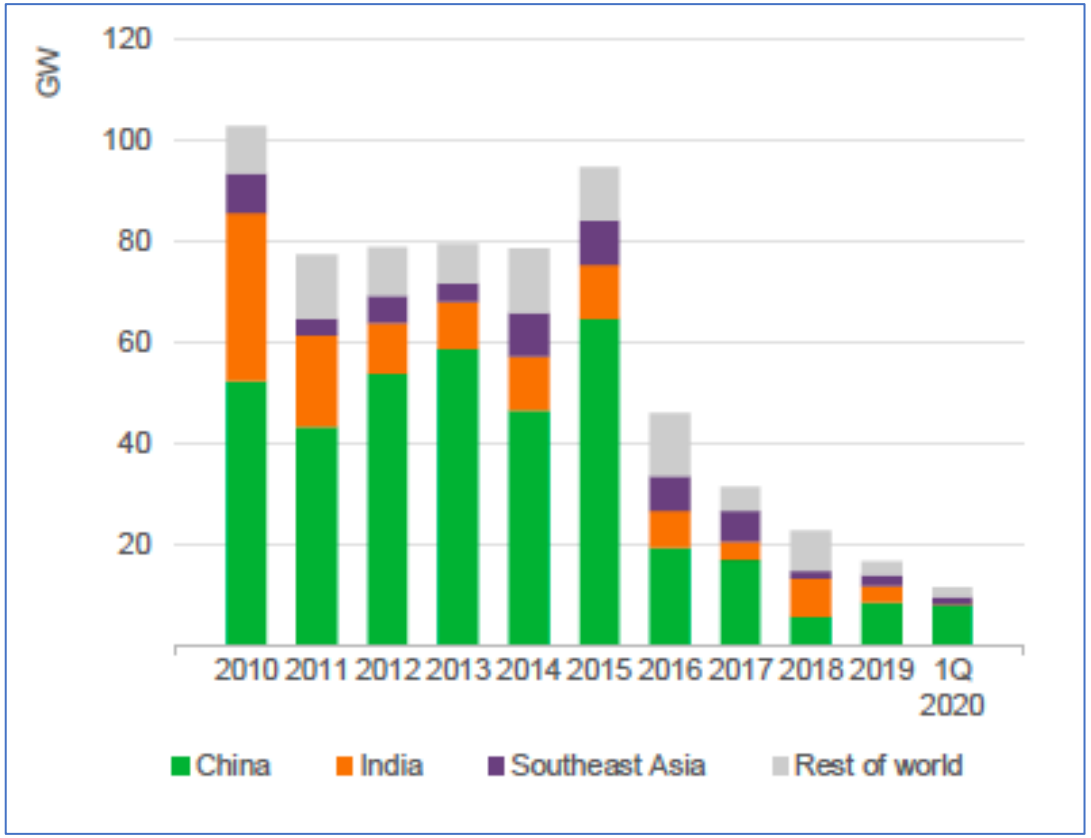
| Country & PPCA Membership | Coal % in electricity generation & 5 year trend (↑) | Retirements (since 2010) | Operating | Construction | Permitted | Pre- Permit | Announced | Cancelled (since 2010) |
|---|---|---|---|---|---|---|---|---|
| Russia | 16% | 3 | 47 | <1 | | 4 | 1 | 12 |
| Botswana | 100% | | 1 | <1 | 1 | | | 5 |
| Cambodia | 57% | | 1 | <1 | 1 | 1 | <1 | 2 |
| Serbia | 70% | | 4 | <1 | | 1 | 1 | 1 |
| Thailand | 19% | <1 | 6 | 1 | | <1 | 1 | 8 |
| Zimbabwe | 43% | | 1 | 1 | 1 | | | 4 |
| Mongolia | 92% | | 1 | 1 | | 5 | 1 | 1 |
| Philippines | 49% | <1 | 10 | 2 | 3 | 6 | 1 | 5 |
| Pakistan | 23% | | 5 | 2 | 3 | 1 | <1 | 22 |
| Bangladesh | 2% | | 1 | 4 | 1 | 4 | 14 | 3 |
| South Africa | 86% | 1 | 41 | 5 | | 1 | 5 | 8 |
| Vietnam | 46% | | 18 | 9 | 9 | 11 | 3 | 43 |
| Indonesia | 59% | | 32 | 12 | 3 | 7 | 9 | 23 |
| India | 72% | 10 | 229 | 37 | 11 | 10 | 8 | 538 |
| China | 62% | 101 | 1,005 | 100 | 35 | 47 | 24 | 569 |

**Spotlight:**
These countries are most at risk of deepening their exposure to coal, bringing enduring economic risk that will extend beyond the Covid19 crisis. **Pakistan**, for example, is a key recipient country in China's Belt & Road Initiative, and is already facing a debt crisis as it struggles to meet payments. Planned new plants would only exacerbate overcapacity impacts, while new renewables are now cheapest option.

- There are 15 countries with operating coal plants under construction; and further projects at earlier stages of the development pipeline.
- In 8 of these countries, coal generates over half of the country's electricity, with some countries (South Africa, Mongolia, Botswana) relying on coal for over 85% of electricity.
- Excluding China and India, these countries account for 47% of the operating coal and 50% of the pipeline outside the OECD.
- Since this data was released, **Botswana** has licensed 825MW of new coal (June 2020)

# China: risk of a coal-fired rebound

- Investment decisions for new coal plants globally fell to a 40 year low in 2019, but have rebounded in China, with multiple new projects moving ahead - accounting for 60% of global new capacity decisions in Q1 2020.
- Recent analysis by Global Energy Monitor and the Centre for Research on Energy and Clean Air found that China now has 249.6GW of coal-fired capacity under development (97.8GW under construction and 151.8GW in planning), a 21% increase over end-2019.
- With an estimated 400GW of excess coal-fired capacity, and the fleet running at an average 49% load factor, there is no economic case for further coal construction (GEM/CREA), which is limited to 1100GW under the 13th Five Year Plan (FYP).
- During 2019, central government increased the number of provinces able to permit new coal plants. But in June 2020 six ministries issued guidance to caution against further coal plant construction, highlighting tensions between national and provincial economic recovery plans, but without firm targets or measures to limit new capacity.
- An increase to the coal capacity cap in the upcoming 14th FYP would put the achievement of Paris Agreement climate goals at risk and undermine China's own economic interests. Further coal plant construction would increase the risk of stranded assets and undermine green recovery effort. Wind and solar are cheaper than new coal plants in many parts of China.




Coal-fired power generation capacity (GW) subject to a final investment decision (IEA, 2020)

# About E3G

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, for the third year running, E3G was ranked the fifth most globally influential environmental think tank.

More information is available at **www.e3g.org**