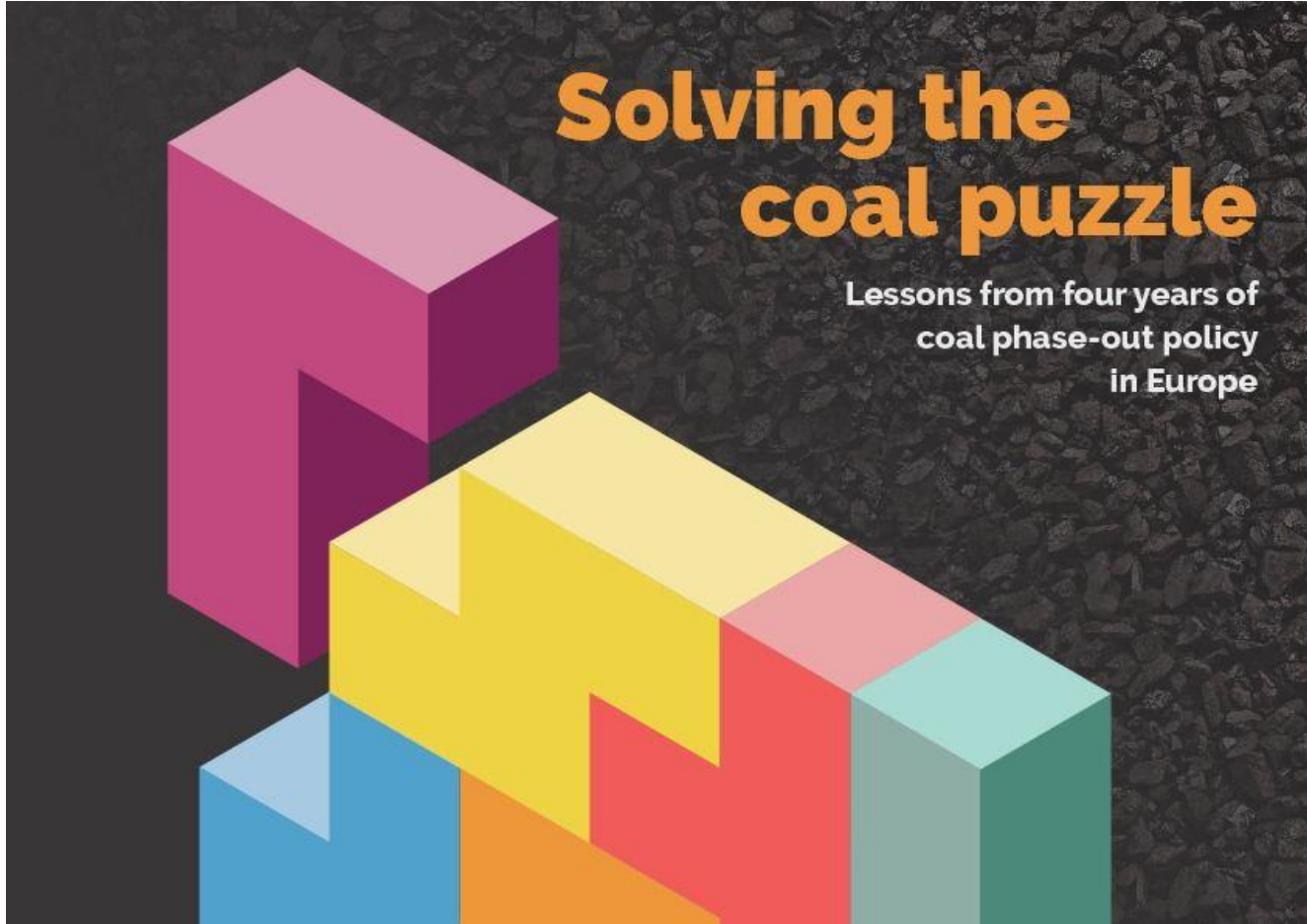


# Coal phase-out

Imperial College, Thursday 27<sup>th</sup> February

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# EMBER

COAL TO CLEAN ENERGY POLICY

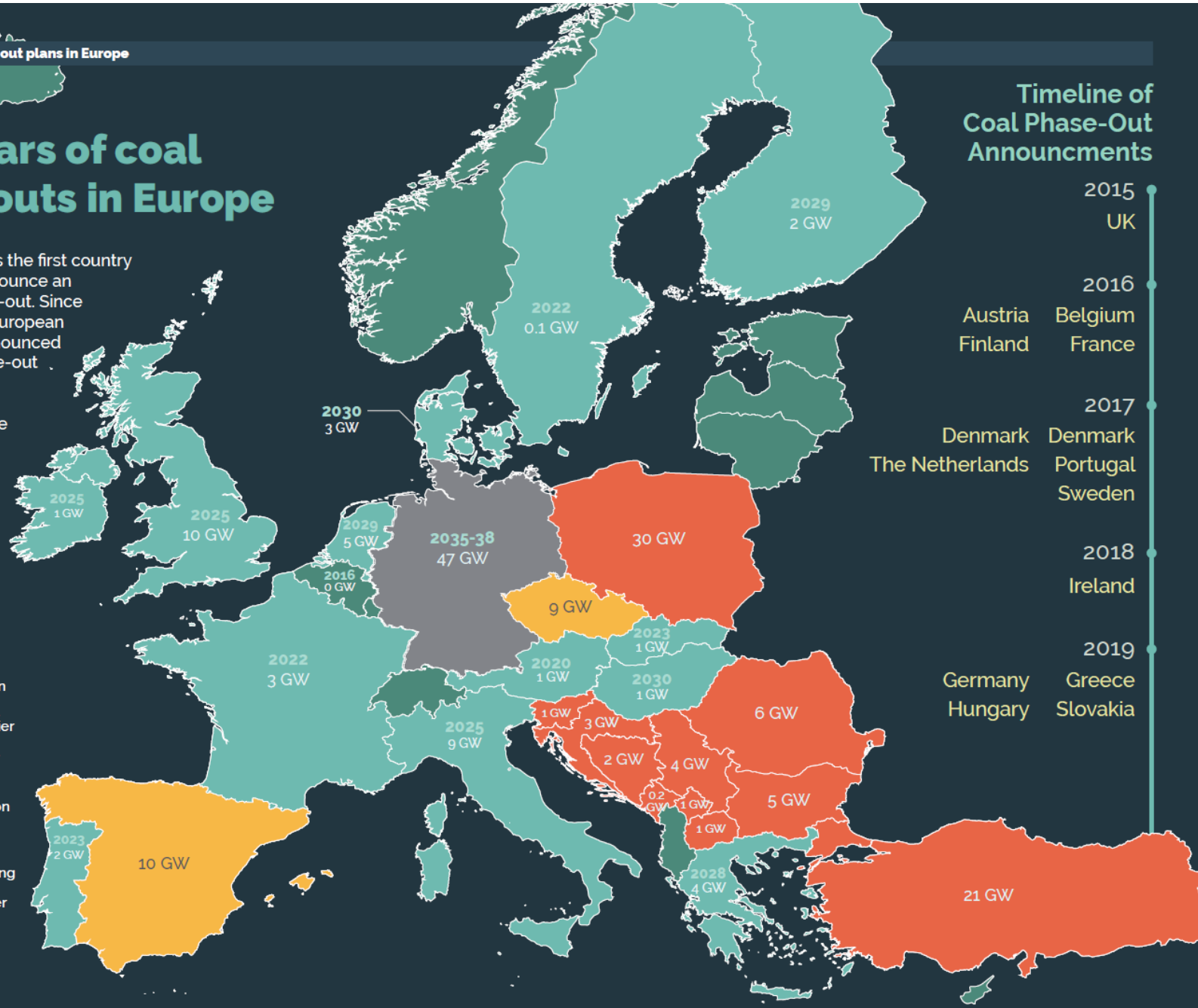


# Four years of coal phase-outs in Europe

In 2015, the UK was the first country in the world to announce an explicit coal phase-out. Since then, a further 14 European countries have announced that they will phase-out coal generation.

These countries are on a journey. One country, Belgium, has already phased out coal, but for most countries this journey will take a decade, or longer.

- No Coal Generation
  - Phase-out coal by 2030 or earlier
  - Phase-out coal only after 2030
  - Phase-out under discussion
  - No phase-out discussion
- GW Current operating capacity of coal-fired power plants in gigawatts (Oct 2019)



### Timeline of Coal Phase-Out Announcements





# Solving the coal puzzle

## Lessons from four years of coal phase-out policy in Europe

sandbag  
smarter climate policy



Europe is on a journey to phase out coal. With 15 countries that have announced to end coal burning since 2015, we can reflect back on a wealth of policy experience gained in the last four years.

We worked with 20 experts across 10 countries. First, we defined nine qualities that are needed to make a successful coal phase-out. Then, we interviewed each country expert to see whether there are lessons to share. For each of these nine qualities, we have created a guide of all the "dos and don'ts" of what contributes to a good coal phase-out policy.

We identify the most telling example for each of the nine policy qualities.

### Ambitious

Plans need a phase-out date and pathway consistent with 1.5 degrees.

- ✓ Greece announced that it would phase out coal by 2028 - going from 33% of electricity from coal in 2018, to zero in just ten years.
- ✗ Germany's 2038 coal phase-out date is much later than the 2030 needed to be compliant with 1.5 degrees.



### Clean

Wind and solar explicitly replaces coal.

- ✓ The Dutch climate agreement sets a target to raise renewables generation from 15% to 75% in only 12 years and envisages an explicit coal to clean transition.
- ✗ Onshore wind deployment is coming to a halt in Germany, because of a proposed change in planning law. This may impact the speed of the coal phase-out.



### Economic

Coal should pay a carbon price.

- ✓ After the reform of the EU's Emissions Trading Scheme (ETS), the price of CO<sub>2</sub> rose to around €25/t in 2019, significantly worsening coal power plants economics.
- ✗ Prior to 2018, however, the EU-ETS - which was set up in 2005 - had a very slow start and was largely ineffective for over a decade.



### Legislated

Plans should be written into law.

- ✓ Finland has imposed a law that makes it illegal to burn coal in energy production from mid-2029. This ban is clear-cut and without loopholes.
- ✗ Italy's phase-out is described only as a goal. There are no actions yet taken to legislate the Italian coal phase-out.



### Direct

Avoids a bridge into fossil gas or unsustainable biomass.

- ✓ Renewables growth in the Netherlands seems to be strong enough to reduce gas generation by 2030, at the same time as phasing out coal.
- ✗ In the Netherlands, four (out of five) coal plants have been awarded €4 billion in subsidies to co-fire biomass with coal over 8 years.



### Healthy

Closes dirtiest plants first.

- ✓ The EU updates air pollution limits every seven years. In 2021, the SO<sub>2</sub> and NO<sub>x</sub> limits will tighten substantially which means utilities must choose: invest or close?
- ✗ Coal plants received free EU carbon permits, which funded upgrades to meet stricter pollution limits. This meant older coal plants stayed open longer, rather than close.



### Just

No one is left behind.

- ✓ The Spanish government achieved a historic €250 million agreement to close mines with the coal mining unions.
- ✗ The only evidence of just transition policy in the UK is either by the companies (e.g. redeployed workers), or local government (e.g. retraining schemes).



### Reliable

Keeps the lights on.

- ✓ The Netherlands is investing heavily in demand-side response, new interconnectors, hydrogen, and storage.
- ✗ Coal power plants will get payments until 2022 under the UK capacity mechanism, which are crowding out investments to help replace coal.



### Smart

Avoids pay-off for closure.

- ✓ The Finnish constitutional law committee, in a significant ruling, slammed hopes of energy companies to get compensated for having to phase out coal by law.
- ✗ Germany's 'coal commission' agreed utilities should be paid to close plants and mines, even though the public sees it increasingly as a waste of taxpayer money.



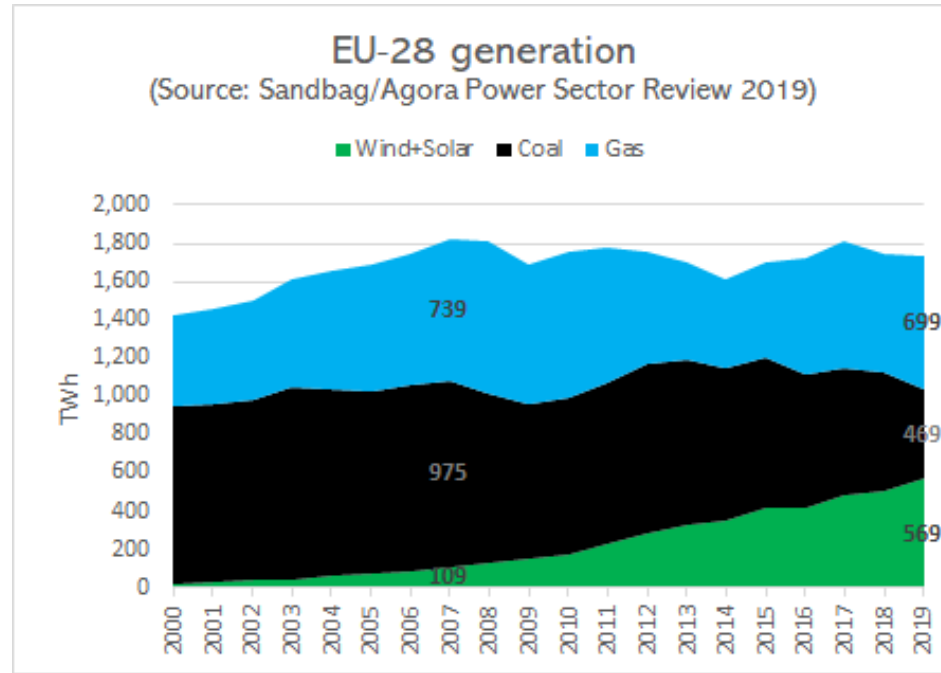
## The European Power Sector in 2019

Up-to-Date Analysis on the Electricity Transition  
**ANALYSIS**



# 34.6\*

\*Share of Renewables in Gross Electricity Generation



### Percentage changes in generation mix between 2010 - 2019

