

COAL EXIT BY 2030 IN THE EU POWER SECTOR



KEY MESSAGE

- Reaching **climate neutrality by 2050** and a greenhouse gases (GHG) emission reduction of 55 percent by 2030 requires the **European Union (EU) to phase out coal entirely by 2030**.
- **Germany and Poland** are important coal producers and consumers, along with the **Czech Republic, Bulgaria, Romania and Slovenia**. Together, they account for **74 percent of coal-based electricity generation**. They have no coal exit plan by 2030, although it is feasible and necessary for the European Union (EU) climate goals.
- **Coal needs to be replaced by** renewable energy, **wind and solar photovoltaics (PV)**. Fossil gas is to be used only for security of supply / back-up, and new investments need to be hydrogen-ready.
- An **EU coal exit** in the power sector can be done at **low cost** and has multiple **co-benefits**: more jobs, improved health and security of supply
- Phasing out coal while scaling up renewable energy capacities requires an **adequate policy mix** and **investments**, largely refinanced through the power market. **European and national funds**, including **recovery funds**, need to be used to foster the necessary social transformation for a **just transition**.



OVERVIEW

An EU-wide coal phase-out by 2030 requires to simultaneously ramp up renewable energy capacity:

- For the 6 remaining EU countries without a 2030 coal exit plan:
 - Phase-out 38GW of coal capacities
 - Build 100GW of additional wind and solar PV
 - Foster stronger cross-border cooperation and better interconnections
- Invest in limited flexible back-up capacities (around 15 GW across the EU for additional gas-fired peaking plants) and storage facilities to keep high levels of security of supply. New gas investments need to be compatible with a switch to hydrogen from fossil gas to avoid stranded assets.

In addition, EU and Member States policy and regulations need to be aligned with the new climate-neutral ambition, especially with regard to:

- carbon pricing
- targets for renewable energy deployment
- energy system integration
- electricity market design
- financing

There are co-benefits to a coal exit by 2030:

- Low costs of GHG emission reduction: savings on fuels, coal plants' operational expenditures and coal imports mostly compensate for the increased investments in renewable energy sources.
- Jobs creation
- Lower power imports needs improve security of supply
- Improved health (reduced air pollution)

AIMS & TARGETS

At EU Level

Replacing coal with renewables

- Early and ambitious **reform of the EU Emission Trading Scheme (ETS)** to provide a firm carbon price signal in support of a coal phase-out by 2030
- A **firm carbon price** would also provide additional financing for just transition strategies in low-income Member States
- **Phase out support for biomass for electricity-only production.** Biomass use for power production is unsustainable, either environmentally or economically. As a scarce resource, biomass use needs to focus on applications, particularly in industry, for which non-emitting alternatives do not (yet) exist.

Ensuring security of supply with the generation portfolio, flexible markets and cross-border integration

- **Additional market-based deployment of 15 GW of gas across the EU**
- Reduce intraday gate closure times at the EU level, strengthen intraday auctions and implement 15-minute products on the day-ahead market.
- Ensure that European targets for physical cross-border interconnection are met and that the transition to flow-based cross-border capacity calculation increases available capacities.

Enabling a socially just EU coal phase-out by 2030 with public funding

- Use all available EU funds in support of a coal-to-clean transition in affected regions
- Make EU State Aid provisions support a coal-to-clean switch
- Provide revenue stabilisation for renewables, especially for small-scale projects and innovative technologies
- Selective support for closure of coal production sites, solely in the context of a 2030 coal phase-out commitment

At Member State level

- **Update National Energy and Climate Plans**, to be fully consistent with higher targets on emission reductions, renewable energy and energy efficiency respectively, as well as integrating just transition planning.
- **Immediately develop a shared vision and concrete plans for a just transition** in regions still depending on coal mining and coal use.
- **Increase renewable energy sources (RES) generation capacities** and eliminate RES planning and permitting barriers with revenue stabilisation mechanisms (contracts for difference, feed-in support, auctions) and the full use of any unallocated funding under the Recovery and Resilience Facility and other EU programmes such as structural and cohesion funding.
- **Decarbonise district heating:** Plan and implement the transition to heat pumps, solar thermal and geothermal while improving energy efficiency in the dimensioning of the systems. Avoid stranded assets by carefully considering where fossil gas is still needed and plan the transition to hydrogen.
- **Keep taxes, levies and charges for renewable electricity low and make electricity prices more flexible** in order to incentivise investments in flexible assets and help decarbonise the economy
- **Introduce a national carbon floor price** at a minimum of 65 euros per tonne of CO₂ to ensure the closure of remaining coal plants by 2030.
- In case of **national resource adequacy** concerns, Member States need to **first apply strategic reserves** outside energy and balancing markets and introduce capacity mechanisms only where wholesale market signals and strategic reserves do not provide sufficient adequacy levels. In case the security of electricity supply is to be ensured fully domestically, with no use of cross-border trade, around 4 GW of additional strategic reserve capacities would be required in the Coal 6 region, save for Poland and Romania, where it is not needed (600 MW for Bulgaria, 100 MW for the Czech Republic, 3.4 GW for Germany, and 300 MW for Romania).



POLICY INSTRUMENTS

Three main policy ingredients are necessary to achieve a 2030 coal phase-out:

- increased ambition with the EU ETS as proposed by the European Commission in the Fit-for-55 package of July 2021;
- national policies that mandate a coal phase-out, a just transition and regional economic diversification strategies; and
- accelerated deployment policies for renewables.

The following main policy tools need to be revised or reformed at EU level:

- **Renewable Energy Directive (RED II):** Increase the EU's 2030 renewable energies target from a 32 percent share of renewables in gross final energy consumption to at least 40 percent, increasing to ca. 70 percent renewable electricity in the mix by 2030, as per the Fit-for-55 package proposal.
- **EU Emissions Trading Scheme (ETS):** Strengthen the EU ETS to allow for a market-driven phase-out of coal by 2030, as per the Fit-for-55 package. The proposal includes providing additional financing for just transition strategies in low-income Member States through an increase of the Modernisation Fund.
- **Clean Energy for All European package:** Any new capacity mechanism should be planned in combination with decarbonisation. Under the Electricity Market Regulation, the design of short-term markets needs to be further improved.
- **TEN-E revision:** Earmark a majority of funds available under the Connecting Europe facility for electricity transmission projects
- **Climate, Energy and Environment Aid Guidelines:** Apply EU State Aid rules in support of regional coal-to-clean strategies, including allowing technology-specific auctions.

At Member State level, the following measures are needed to accelerate the necessary scaling of renewable power capacity at low cost in the 'Coal 6' countries:

- the full and effective **transposition of planning and permitting obligations** in the current Renewable Energy Directive (REDI); and
- measures to make the electricity market more flexible.

The coal exit and the renewable energy scaling need to be financially supported to foster a just transition at local and national levels. Several EU funding and investment derisking mechanisms are available:

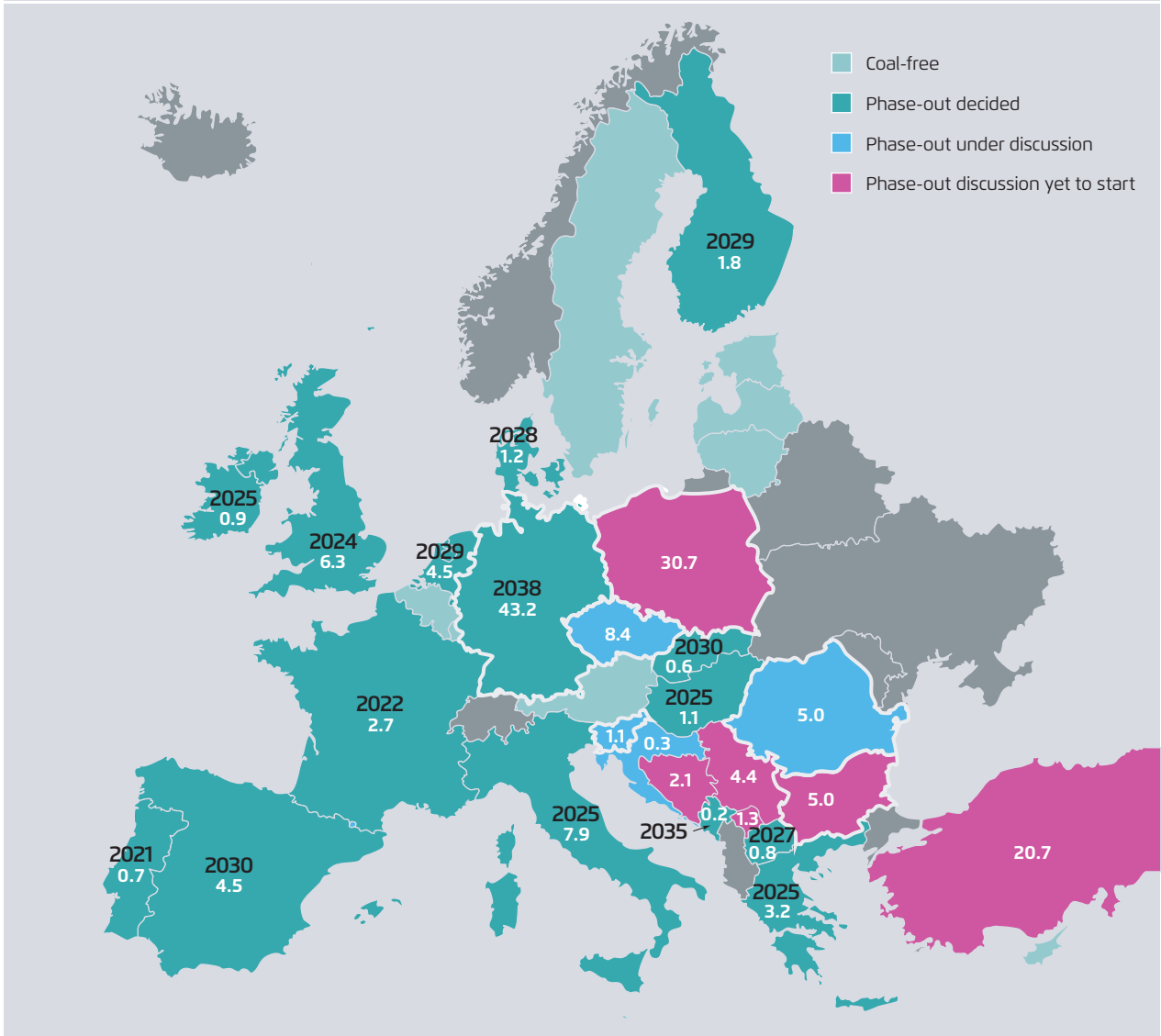
- Just Transition Mechanism, with a 17.5 billion euros Just Transition Fund (2020–2030), as part of the Fit-for-55 proposal
- Modernisation Fund (2021–2030), as part of the Fit-for-55 proposal
- Programmes via the EU Multiannual Financial Framework (MFF) and Next Generation EU
- Increasingly derisking RES investments through EU guarantees under Invest.EU

Stronger cross-border cooperation can be fostered via:

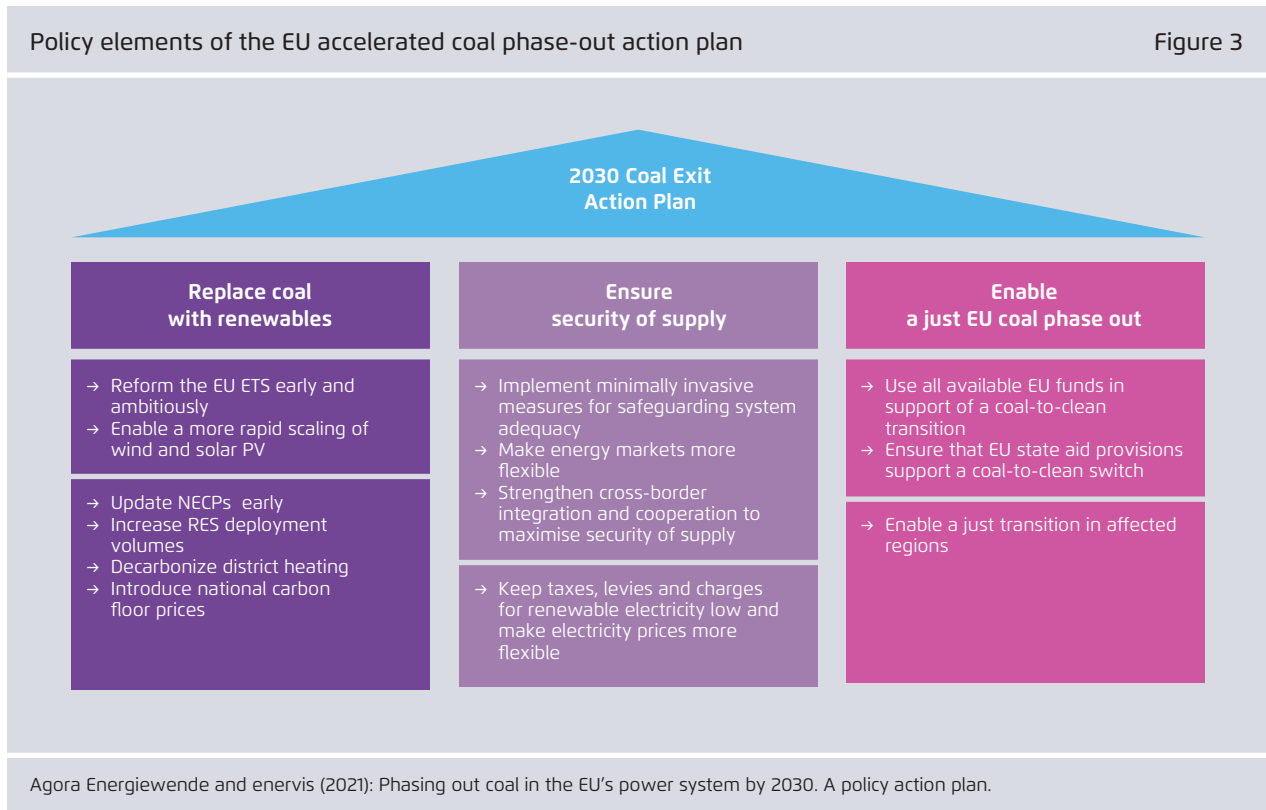
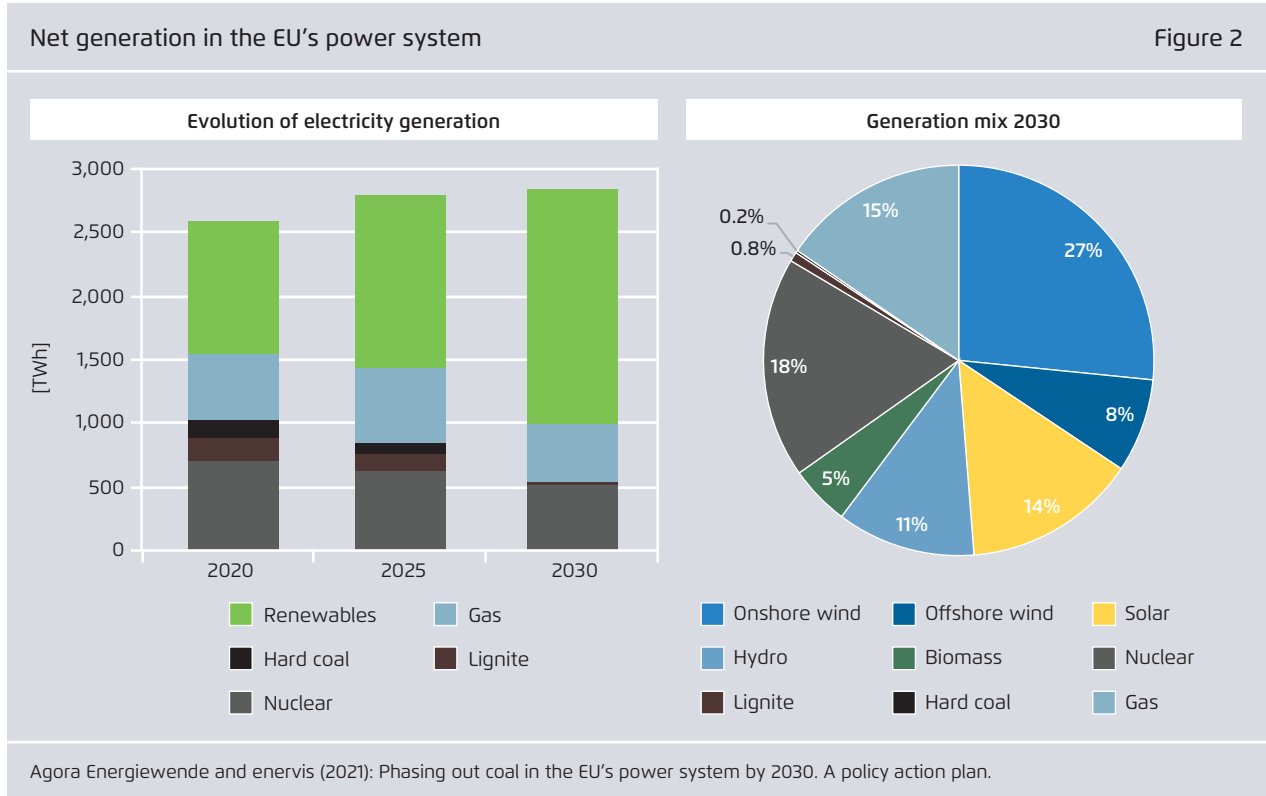
- the full implementation of the Clean Energy Package, specifically the Electricity Market Regulation, and including
- the European Resource Adequacy Assessment (from Mid-term Adequacy Forecast, or MAF, to ERAA from 2021), an exercise run by ENTSO-E to assess the expected level of security of supply over the next 10 years in Europe.

Coal phase-out dates and remaining coal capacities in [GW]

Figure 1

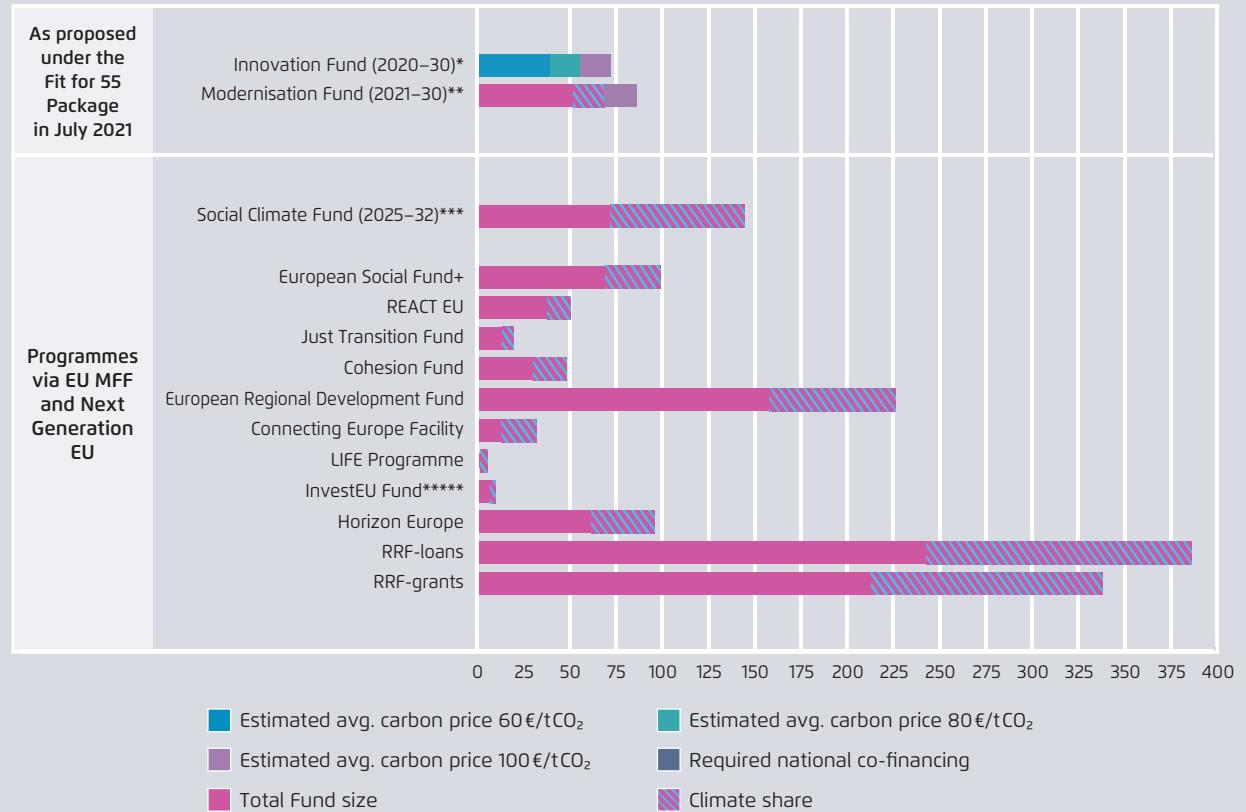


Agora Energiewende and enervis (2021): Phasing out coal in the EU's power system by 2030. A policy action plan.



Total fund sizes and minimum climate shares of selected EU funding instruments in € bn, current prices

Figure 4



* Modernization Fund: Incl. increase through the auctioning of an additional 2.5% of allowances as foreseen under Fit for 55
 ** ETS Innovation Fund: Estimate, including the top up with 50 million allowances and 150 million allowances from the new system covering emissions from road transport and buildings as foreseen under Fit for 55 proposal. Not depicted: additional allowances which would otherwise be allocated for free to industry sectors covered by the Carbon Border Adjustment Mechanism will be auctioned and added to the Innovation Fund under the current Fit for 55 proposal.
 *** Climate Social Fund (EUR 144 bn): As proposed by the Commission, 72 bn EUR in the new fund would need to be matched 1:1 with national funds.
 **** Some other sources say it's 61%, but it is not clearly stated on CEF website: 61% (https://www.lamoncloa.gob.es/lang/en/gobierno/news/Paginas/2021/20210708_connecting-eu.aspx)
 ***** The InvestEU guarantee amounts to €26.2 billion, with provisioning from the Multiannual Financial Framework (MFF) and Next Generation EU resources. The overall investment to be mobilised on this basis is estimated at more than €372 billion.

Climate & Company (2021); Agora Energiewende and enervis (2021): Phasing out coal in the EU's power system by 2030. A policy action plan.

Learn more:

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