



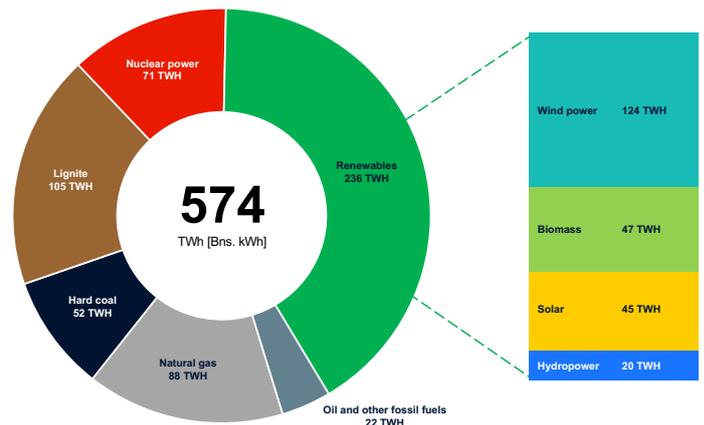
The German Coal Phaseout Law

FACT SHEET

- On Friday, July 3, the German parliament passed the coal phaseout law. It designs the path to phase out hard coal and lignite-fired electricity generation (combined ~30% of German electricity generation in 2019) by 2038 at the latest.
- The law requires to pay compensation for companies closing their coal plants as well as to regions where coal has a significant economic effect. In addition, also electricity-intensive companies will receive compensation due to foreseen increase of power prices following from coal phase-out.
- The coal will be substituted with renewable energy sources and natural gas. The government's target is to increase the share of renewables in electricity production to 65% by 2030.

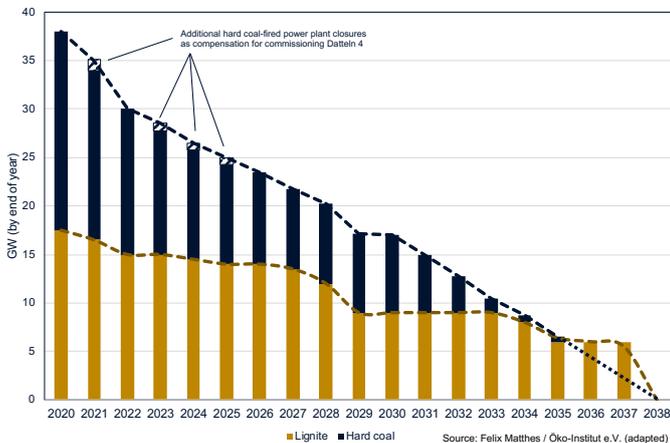
Launched in the 1990s, the *Energiewende* is an evolving concept which aims at reducing greenhouse gas emissions (GHG), increasing energy efficiency and the share of renewables while phasing out nuclear power. While originally controversial in German politics, the *Energiewende* has gained broad political consensus across all parties since the 2011 nuclear accident in Fukushima.

German energy mix 2019: Energy sources' share in net electricity generation



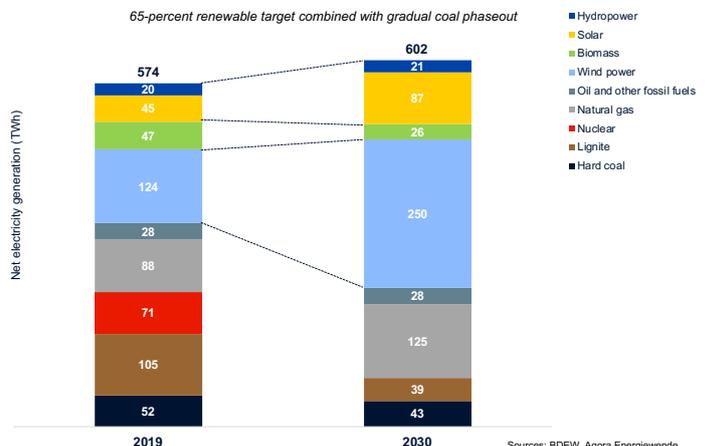
Source: BDEW Bundesverband der Energie und Wasserwirtschaft e.V.

Preliminary reduction path of coal capacity in Germany (as of May 2020)



Source: Felix Matthes / Oko-Institut e.V. (adapted)

German energy mix 2019: Energy sources' share in net electricity generation



Sources: BDEW, Agora Energiewende

Key points of the law

In 2019, 22.8 GW of hard coal and 21.1 GW of lignite capacity were on the market. The coal exit foresees a reduction in three stages, allowing the following maximum capacities to remain on the market:

- 15 GW hard coal and 15 GW lignite capacity by the end of 2022
- 8 GW hard coal and 9 GW lignite capacity to remain by 2030
- 0 GW by the end of 2038 at the latest

The actual amount of electricity produced by coal-fired power plants will be determined by market conditions. If market conditions are unfavorable for coal power plants, it is also possible that the maximum capacities will be undercut.

The law differentiates between hard coal and lignite.

The government has set the shutdown schedule for lignite mining and power generation in a contract with lignite operators RWE, LEAG (EPH), and EnBW. For hard coal plant operators, the government stipulates auctions until 2027, organized by the Federal Network Agency (BNetzA), to take capacity off the grid according to the government's timetable.

The law in detail

While there are several companies operating hard coal-fired power plants, there are only two large operators of lignite power plants with connected open cast mines, namely RWE and LEAG (EPH). Open cast mining involves significant infrastructure planning and expensive re-vegetation efforts, and in many cases, companies do not yet have sufficient financial resources for re-cultivation. Simultaneously, power plants are always geographically close to the mines as the cost of transporting lignite is comparatively high – so power plants and mines depend on each other. This made a market-based shutdown very complicated. In addition, the lignite areas are located in economically weak regions in Germany and in those regions account for a large share of local GDP. This led to significant state-level support to shut down lignite power plants as late as possible, particularly in eastern Germany.

As a result, the government has set the shutdown schedule for lignite mining and power generation in a contract with lignite operators RWE, LEAG (EPH), and EnBW. The phaseout will start in western Germany to dampen the effects in economically weaker eastern German mining districts. There will be major closure waves in 2028-2029, 2034-2035, and 2038. There are no closures planned for 2023-2024 (immediately after the German nuclear phaseout) and 2030-2033.

RWE and LEAG (EPH) will receive €4.35 billion in compensation for the planned shutdowns by 2030. For closures after 2030, no compensation will be granted. The compensation does not change in case the operators shut down plants earlier than planned.

For hard coal plant operators, the government stipulates auctions until 2027, organized by the Federal Network Agency (BNetzA), to take capacity off the grid according to the government's timetable. In these auctions, coal plant operators can tender capacity volumes to be taken offline. The operators demanding the lowest compensation will likely be awarded the contracts. After 2030, there will be forced closures without compensation. The BNetzA will draw up a list of plants to be shut down for each year, largely according to the year when they first came online.

Three large-scale reviews in 2026, 2029 and 2032 are scheduled to decide whether the coal phaseout can already be completed as early as 2035.

Costs

The total cost of the coal exit is expected to be at least €55bn and consists of the following components:

- €4.35bn in compensation to RWE and LEAG (EPH) for the shutdown of lignite-fired plants and related opencast mining.
- €4.81bn in so-called adaptation payments for older workers in lignite mines and hard coal and lignite power plants who lose their jobs due to the coal exit plans.
- €40bn in structural aid for infrastructure, economic development and other projects, which is paid to the affected regions in several federal states.
- The cost of cancelling in excess ETS certificates issued for coal power stations are estimated around € 5 bn.

Costs still to be determined:

- The compensation to be paid to operators through the hard coal tender process, which depends on a list of set maximum prices for each tender.
- The annual compensation for rising electricity costs to be paid to electricity-intensive companies in international competition from 2023 onwards.
- Building the replacing energy production capacity

Political context

- Launched in the 1990s, the *Energiewende* is an evolving concept which aims at reducing greenhouse gas emissions (GHG), increasing energy efficiency and the share of renewables while phasing out nuclear power by 2022.
- Despite the ambitious mid and long-term targets set for *Energiewende*, the use of coal and emissions have increased; national GHG emissions largely failed to go down for eight consecutive years until 2018. Environmental NGOs and think tanks have therefore been calling for an end to Germany's coal-fired electricity production.
- In January 2018, the German government tasked a multi-stakeholder Commission with developing a strategy for phasing out coal-fired power generation. The so-called "Coal Commission" began its work in June 2018 and presented its recommendations for Germany's coal exit in January 2019. The commission included representatives from civil society, business, and labor unions.
- Mainly based on the Commission's recommendations, the German parliament has on July 3 2020 passed the coal phaseout law, clearly distinguishing between the pathways for lignite and hard coal.
- Excess emissions allowances resulting from coal-fired power plants being shut down will be cancelled from the EU's emissions trading system ETS. The law includes different options to cancel those allowances: either the quantity is withdrawn through the existing market stability reserve or they are cancelled from the quantity of allowances to be auctioned.
- The phased-out coal capacity is mainly going to be replaced with renewable energies and natural gas. Germany is pushing for offshore wind expansion and has recently raised the expansion target from 15 to 20 GW by 2030 and established the long-term target of 40 GW by 2040. The coal phaseout law explicitly puts greater focus on the conversion of power plants to natural gas, biomass or hydrogen. The Renewable Energy Sources Act (EEG) now explicitly states the government's target of 65 percent renewable energy by 2030. In addition, the government recently removed the 52 GW cap on state support of solar energy.