Germany's exit from coal: managing a sustainable transition

At the Paris Climate Conference, the German government pledged to reduce Germany's carbon emissions. The Climate Action Plan 2050, adopted in 2016, describes the pathways for progress towards these targets.

Keeping global warming below 2°C – and ideally limiting temperature rise to 1.5°C – will require substantial efforts from the international community. With its strong economy, Germany can and must make its contribution here.

Since the medium-term target for 2020 – to reduce greenhouse gas emissions by 40% – was abandoned during the coalition negotiations in early 2018, Germany has no option but to take more active measures to achieve the 2030 climate goal.

Phasing out coal – the key to protecting the climate

Power generation accounts for a significant share – 37% – of Germany's greenhouse gas emissions. Lignite and coal-fired power plants account for around 80% of this sector's emissions, yet they produced only 35% of Germany's electricity in 2017. Shutting down these power plants therefore holds the key to protecting the climate.

The electricity mix has a considerable impact on the climate footprint of the transport and buildings sectors as well: the amount of green energy in the grid determines the environmental performance of electric cars and heat pumps.

Germany is still operating many coal-fired power plants that date back to the 1960s, 1970s and 1980s. Besides being extremely inefficient and releasing carbon dioxide into the atmosphere, they emit fine particulate matter and other substances which are harmful to the health of local communities. Even so, in lignite regions in particular, communities feel a strong connection to the familiar structures and fears of job losses run high.

Bringing the public on board – the Coal Commission

In June 2018, the German government established the Commission on Growth, Structural Change and Employment (also known as the Coal Commission), tasked with preparing a roadmap for

phasing out coal. The Commission concluded its work in late January 2019. Its 28 voting members from politics, academia, industry, trade unions and environmental groups included an Oeko-Institut expert, Dr Felix Matthes. The Commission was mandated to look at all the environmental, economic and social implications of the exit from coal and, as far as possible, facilitate a consensus.

According to the Commission, Germany should complete its exit from coal no later than 2038 and allocate 40 billion euros in structural support to mitigate the social impacts of the transition in mining regions. From a climate perspective, the priority is to make fast progress with the exit early on and thus avoid substantial carbon emissions: Germany should therefore shut down 12.5 gigawatts of coal-fired power plant capacity by 2022.

In addition, installed capacity at coal-fired power plants should be cut by 60% to 2030 against the 2017 baseline. As far as possible, emissions should be steadily reduced from 2023 to 2030. A review should be conducted in 2032 to assess whether the phase-out of coal-fired electricity generation could be completed as early as 2035, with Germany's last coal-fired power plant going offline no later than 2038.

It is now up to the German Government to take action.

Implementing the Coal Commission's recommendations must be a priority for the coming years:

- To replace the power generation capacities from lignite and coal, the expansion of renewables must be accelerated. Wind and solar installations have a key role to play here. For a transitional period, flexible natural gas power plants will guarantee security of supply.
- The exit from coal means that lignite mines can be reduced in size; new mines are no longer needed.
- Many coal-fired power plants are co-generation (CHP) installations which produce heat as well as electricity. In order to safeguard a continued heat supply, it will be necessary, in many instances, to build replacement capacity.
- Monitoring is also required and, if necessary, a review should be conducted to determine whether sufficient storage and power plant capacity is being constructed to guarantee security of supply.

Study: the German lignite industry

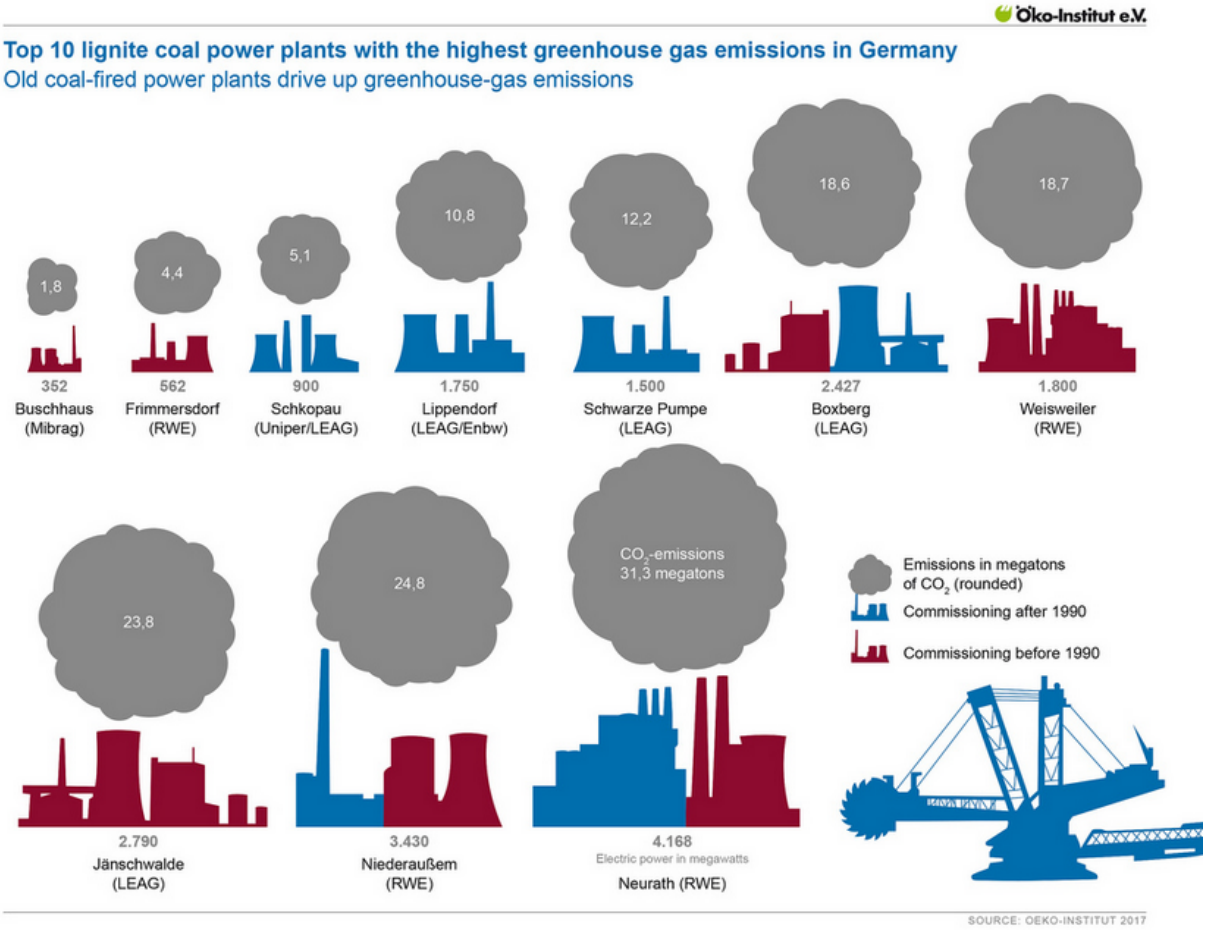
In a study conducted on behalf of Agora Energiewende in 2017, the Oeko-Institut looked at the significance of the lignite industry in terms of its history, politics, economics, environmental aspects and regional structures.

If the aim is to achieve a swift exit from lignite power generation, this must be based on an understanding of the system's underlying complexities. The study therefore provides a factual basis for successful restructuring of the German lignite industry.

Forward planning of structural change in the lignite mining districts is essential as the associated processes and regulatory frameworks are very much focused on the long term. The study therefore aims to build an understanding of the often interwoven structural characteristics of the German lignite industry in order to support positive transition in lignite regions.

Study: "Die deutsche Braunkohlenwirtschaft" (The German lignite industry) by Agora Energiewende and the Oeko-Institut

Figure: Germany's climate-harming lignite power plants



Source: Oeko-Institut

Further information

Study: *"Beschäftigungsentwicklung in der Braunkohlenindustrie: Status quo und Projektion bis 2030"* (Employment trends in the lignite industry: status quo and projection to 2030) by the Oeko-Institut

Working paper: *"Aktueller Stand der Steinkohle-KWK-Erzeugung in Deutschland"* (Current status of coal-fired power generation in Germany)

Study: *"Dem Ziel verpflichtet. CO2-Mindestpreise im Instrumentenmix einer Kohle-Ausstiegsstrategie für Deutschland"* (Committed to meeting the target: minimum carbon prices – a tool in a coal phase-out strategy for Germany) by the Oeko-Institut

Study: *"Klimaschutz im Stromsektor 2030 – Vergleich von Instrumenten zur Emissionsminderung"* (Climate protection in the electricity sector 2030 – a comparison of emission reduction tools) by the Oeko-Institut, BET and Professor Stefan Klinski

Study: *"Zukunft Stromsystem. Kohleausstieg 2035 – Vom Ziel her denken"* (Future Electricity System: The coal phase-out 2035 – target-based thinking) by the Oeko-Institut and Prognos

Study: *"Zukunft Stromsystem II – Regionalisierung der erneuerbaren Stromerzeugung"* (Future Electricity System II – Regionalisation of Renewable Electricity Generation) by the Oeko-Institut and Prognos

Study: *"Braunkohletagebau Hambach: Klimaschutz und energiewirtschaftliche Notwendigkeit"* (Lignite mining at Hambach: climate action and energy industry needs)

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