

Press release

The coal phase-out will enable the energy sector to achieve the 2030 climate target and lead to moderate increases in wholesale electricity prices.

Cologne, 27 August 2019. On 6 June 2018, the Federal Government set up the "Commission for Growth, Structural Change and Employment" (WSBK). The Commission's aim was to define a coal phase-out path that would enable national climate targets to be achieved while ensuring security of supply and affordability. The Commission's final report presented on 26 January 2019 recommends that the Federal Government gradually phases out coal-fired power generation by 2038.

On behalf of the Ministry of Economic Affairs, Innovation, Digitisation and Energy of the State of North Rhine-Westphalia, EWI analysed the effects of ending coal-fired power generation by 2038. Using the European electricity market model DIMENSION+, a reference scenario was compared with a coal phase-out scenario. Basic assumptions are the achievement of the 65 percent expansion target for renewable energies (RE) defined in the coalition agreement and a moderate increase in demand for electricity. The development of wholesale electricity prices is particularly important for power-intensive industrial sectors. This study therefore analyses different industrial sectors with regard to their electricity cost intensity and international competition intensity. Based on the scenario analysis and publicly available sources, it was examined how wholesale electricity prices could develop in an international comparison until 2030.

The study "Effects of an end to coal-fired power generation by 2038 on the electricity market, CO₂ emissions and selected industries" comes to the following conclusions:

The implementation of the recommended coal phase-out path will make it possible to achieve the climate target for the energy sector, i.e. to reduce greenhouse gas emissions by 62 percent by 2030 compared to 1990. In the reference scenario, however, the climate target is clearly missed. Throughout Europe, around 1,000 million tons of CO₂ will be saved by the closure of CO₂ certificates in European emissions trading, which is assumed to be linked to the phase-out of coal. This saving exceeds the total German emissions (including energy, transport, industry and heat) from 2017 (equivalent to 905 million tons of CO₂).

Over time, wholesale electricity prices in the reference scenario rise from 34 Euro/MWh in 2017 to more than 55 Euro/MWh in 2030. The main drivers are rising prices for emission certificates and rising gas prices. The coal phase-out will lead to moderately higher electricity prices, especially in 2025 and 2030: In the coal exit scenario, wholesale prices are up to 3.30 Euro/MWh higher than in the reference scenario.

In order to guarantee security of supply, the recommended coal phase-out requires ambitious expansion of peak-load power plants, especially by 2025. In the phase-out scenario between 2020 and 2025, the necessary increase in backup capacities amounts to about 22 GW. This may require additional financing incentives. The costs of these backup capacities would lead to an increase of up to 1.50 Euro/MWh in comparison to the reference scenario in the case of financing via electricity demand.

The increase of renewables in the share of electricity demand to 65 percent in 2030 will require a significant increase in renewables throughout Germany. Renewable generation capacity in 2030 will almost double compared to 2017. The expansion of renewables capacity is largely determined by renewables expansion targets and there is no difference between the scenarios.

While in the reference scenario Germany remains a net exporter of electricity, in the coal phase-out scenario Germany shows an almost balanced trade balance due to the reduced use of coal for electricity generation between 2025 and 2045.

Especially affected by rising wholesale electricity prices are power-intensive industrial companies that are in international competition, such as companies in the steel, aluminium, paper or chemical industries. In recent years, the electricity prices of the German example industrial companies in the power-intensive sectors were in the lower midfield in international comparison.

On the basis of the modelling results and publicly available sources, the development of wholesale electricity prices is examined in comparison between Germany and competitor countries. In both scenarios, wholesale electricity prices in Germany rise relatively sharply between 2017 and 2030, both in comparison with European and non-European comparable countries such as the USA or China. As a result, German wholesale electricity prices are approaching the European comparison countries by 2030 in both scenarios.

The countries participating in the EU ETS have the option of granting state aid to companies to offset the so-called indirect CO₂ costs. Electricity price compensation reduces electricity procurement costs for companies in Europe. Aid payments to offset indirect CO₂ costs (so-called electricity price compensation) can limit the increase in electricity prices.

If you have any questions, please contact us:

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About EWI:

EWI is a non-profit company dedicated to applied research in energy economics and carries out research and consultancy projects for science, business, politics and society. With a team of around 20 scientists and on the basis of modern economic methods, EWI investigates issues such as the German and European markets for electricity and gas, regulation, market design, decentralised energy supply and the reduction of greenhouse gases.

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