

Will coal be used as a transitional technology in the German Energiewende?

Rafał Bajczuk, Konrad Popławski

Following Germany's decision to cease using nuclear energy, coal's share in electricity production has increased again. Whereas in 2010 coal was used to produce 41.8% of electric energy in Germany, in 2011 its share grew to 43.1%. Given the low prices of coal and carbon emission certificates, large corporations are choosing coal as a transitional raw material in the process of replacing nuclear energy with energy produced from renewable sources (RES). The existence of this trend has been confirmed by a report commissioned by the German Coal Importers' Association which was published on 20 November by the renowned private research centre Prognos AG. This report reveals that coal and natural gas will remain important sources of energy supporting the renewable energy sector in the long term also (until 2050). According to experts, natural gas and coal will be the most cost-effective alternative to energy from renewable forces during periods of highest demand.

Commentary

- The report from Prognos, a think tank which also produces important studies for the government, might also be viewed as an element of lobbying from coal corporations, producers and importers. They have been criticising the government for its overly optimistic evaluation of the possibilities of implementing the two key guidelines of the energy transformation (Energiewende), namely, the development of the energy storage system and energy transmission infrastructure, which would allow coal's share to be reduced in Germany's energy balance. The increasing demand for coal energy is contrary to the Energiewende project, which envisages increasing the share of RES in the German energy balance, with natural gas being used primarily as a transitional technology to support RES power plants.
- Currently, Germany's four largest energy companies are using conventional sources as the base for electricity production. Vattenfall produces 90.9% of electricity from coal, RWE 60% from coal and 17% from nuclear energy, E.ON 32% from coal and 32% from nuclear energy, and EnBW 32% from coal and 42% from nuclear energy. Coal is likely to remain the key energy fuel for Germany, and it is coal burning that will be among the main transitional technologies applied as part of the implementation of Energiewende. Conventional power plants are necessary to ensure uninterrupted electricity supplies,

given the fluctuations in the production of electric power from RES. According to Prognos's estimates, Germany will have to keep conventional reserve power plants with production capacity of 59 GW in 2020, 52 GW in 2030 and 46 GW in 2050.

- If coal is an essential energy source, the government will make attempts to achieve its ambitious carbon emission reduction goals (by 40% in 2020 as compared to 1990, and by between 80%-95% in 2050) through employing 'Carbon capture and storage' technology (CCS), which enables CO₂ capture and storage in underground facilities. The present CCS Act of June 2012 stipulates that the annual quantity of CO₂ stored may not exceed 4 million tonnes, and offers the federal states, most of which are resistant to CCS, the opportunity to impose a moratorium on the use of this technology in a given federal state. The government may look for opportunities to strike deals with other countries prepared to store the German CO₂, such as Holland (which has a potential for the CCS facilities under the North Sea). Berlin will also continue its strategy of increasing the price of carbon credits in the EU, to incentivize the companies to replace the nuclear power plants which are set to be decommissioned with gas power plants.