

Poland's Nuclear Plans Regain Some Momentum

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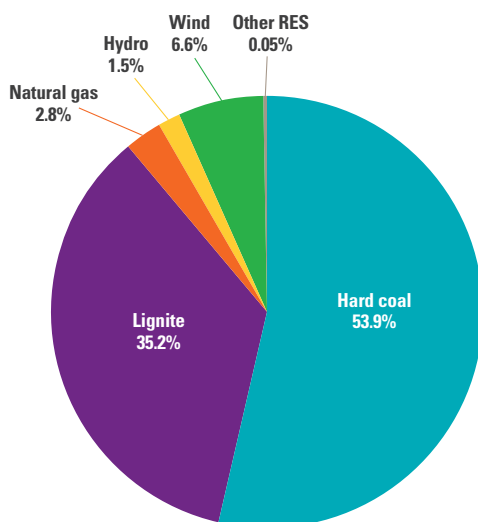
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The Dominance of Coal in Poland's Energy Mix

In contrast to other EU countries, the Polish electricity sector is heavily reliant on coal, with carbon fired thermal power plants accounting for some 85% of Poland's power generation¹. In 2015, hard coal and lignite made up 53.9% and 35.2%² respectively of Poland's total electricity generation. A full breakdown of Poland's 2015 energy mix can be seen in Figure 1. The fuels are of strategic importance to Poland due to the country's vast reserves; Poland's hard coal resources are mainly in the Upper Silesian Basin, and a number of lignite deposits are located in central and western Poland, with four of the larger basins currently being exploited for production, virtually all through surface mining³. The mining sector is considered as the motor of the economy, employing around 100,000 workers. The industry has been troubled by low coal prices on the international market and out-of-control production costs (including high labour costs). To put this in perspective, Poland's (and the EU's, for that matter) largest coal mining company is Kompania Weglowa (KW). In April 2016, KW had liabilities and provisions reaching PLN 8.5 billion (around €2 billion) and had no more assets to use as collateral. The state-owned miner was set to run out of cash by the end of that month⁴.

Figure 1. Poland's Energy Mix in 2015



Source: CornerStone⁵

The current right-wing populist national-conservative government – the Law and Justice party (PiS) – was elected to power in October 2015, pledging to save and defend the coal industry and mining jobs. In April 2016, PiS sealed a restructuring deal for its loss-making coal-mining industry with cash injections from state-owned power producers, cementing efforts to keep the country's economy running on coal. The deal is centred on a PLN 1.5 billion (around €355 million) injection from PGE SA, Energa SA and PGNiG SA to help KW gain profitability within two years, following a record loss in 2015⁶. Under the restructuring, a new company has been established, Polska Grupa Gornicza (PGG – Polish Mining Group), that took over assets of KW comprising 11 mines. Other mining companies are also working to reduce costs. The most unprofitable mines or units of integrated mines are being transferred to Spolka Restrukturyzacji Koplana (SRK – Mines Restructuring Company) for eventual closure. By November 2016, seven mines had been transferred⁷. The mining sector posted a loss of PLN 1.20 billion (around €285 million) in 2016, in comparison to PLN 1.51 billion (around €362 million) in the corresponding period of 2015⁸. However, according to PGG's Chief Executive Tomasz Rogala, the miner expects to report a net profit of about PLN 400 million (around €95.8 million) in 2017 after a net loss of PLN 300 million (around €72 million) last year, primarily due to a rebound in coal prices⁹. However, falling electricity prices and the rising cost of CO₂ emissions may further complicate the resuscitation of the sector.



1 Carmen Valache, "CEE slowly warms up to energy efficiency" 10 May 2017, available at <http://www.intellinews.com/cee-slowly-warms-up-to-energy-efficiency-121132/>, accessed 10 May 2017.

2 Lidia Gawlik and Eugeniusz Mokrzycki, Mineral and Energy Economy Research Institute, Polish Academy of Sciences, "Present State of and Prospects for Hard Coal in Poland", available at <http://cornerstonemag.net/present-state-of-and-prospects-for-hard-coal-in-poland/>, accessed 14 May 2017.

3 Worldenergy data, available at <https://www.worldenergy.org/data/resources/country/poland/coal/>, accessed 14 May 2017.

4 Platts "Polish state energy companies to invest US\$624 million in coal miner Kompania Weglowa" 26 April 2016, available at <https://www.platts.com/latest-news/coal/warsaw/polish-state-energy-companies-to-invest-624-mil-26427960>, accessed 17 May 2017.

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6 Maciej Martewicz, Bloomberg, "Poland Gives Coal Miner Lifeline with State Utilities' Cash", 26 April 2016, available at <https://www.bloomberg.com/news/articles/2016-04-26/poland-offers-coal-industry-lifeline-with-state-utilities-cash>, accessed 16 May 2017.

7 EURACOAL: Poland review, available at <https://euracoal.eu/info/country-profiles/poland/> accessed 17 May 2017.

8 Daria Mamont, "PLN 1.2 bln loss recorded in Poland's coal mining sector", wbj.pl available at <http://wbj.pl/pln-1-2-bln-loss-recorded-in-polands-coal-mining-sector/>, accessed 17 May 2017.

9 Reuters "UPDATE 1-Polish coal miner PGG expects to swing into profit this year" 10 May 2017, available at <http://af.reuters.com/article/energyOilNews/idAFL8N11C5FB?pageNumber=2&virtualBrandChannel=0&sp=true>, accessed 14 May 2017.

The Case for Nuclear in Poland's Energy Mix

Poland's Energy Minister Krzysztof Tchorzewski has advocated that "building more efficient coal power plants will enable Poland to reduce CO₂ emissions faster than by building renewable energy sources like wind or solar"¹⁰. According to a new report from consultancy BMI, the construction of new coal-fired power plants will cause Poland's coal-fired power generation to rise from 130 TWh in 2017 to 142 TWh by 2026¹¹. With the combination of (i) more coal plants coming online, and (ii) no nuclear power in Poland's energy mix, the likely result is that Poland will fail to adhere to the EU Large Combustion Plants and Integrated Pollution Prevention and Control Directives (now combined under the EU Industrial Emissions Directive 2010/75, the "IED"), as well as the EU Emissions Trading Scheme Directive 2003/87 (EU ETS), which all require a reduction in carbon emissions. It is noteworthy that while Poland's CO₂ emissions were down by 1.25 million mt in 2016 (or 0.7% from 2015 levels)¹², the extent to which this can further be reduced through new coal capacity incorporating Carbon Capture and Storage (CCS) is questionable; CCS technology is not currently economically and technologically mature enough to ensure reduced CO₂ emissions of new developments in hard coal or lignite¹³.



It is therefore no surprise that adding zero emission nuclear power to Poland's energy mix would produce numerous advantages, including:

- Reducing emission of SO₂, NO_x (air pollutants), and CO₂ in order to achieve emissions in line with EU criteria. This cannot be achieved through renewables as their power supply is unpredictable (being intermittent technologies in their own right)¹⁴. This view was voiced by Minister Tchorzewski. Poland has 6,000 MW of installed wind capacity and last winter there was very little wind, which resulted in only around 60 MW being generated¹⁵.
- Enabling the country to significantly boost its electricity generation capacity from clean energy sources.
- Strengthening Poland's energy security. With electricity demand forecasted to increase by 36% in 2030 (compared to 2013 levels)¹⁶ the need for large scale, low carbon generation capacity is becoming increasingly pressing.

In fact, Poland is considering using the construction of nuclear reactor plants as one of its arguments in negotiations with the European Commission over capacity market emission performance standards. In its Clean Energy Package last November, the EC proposed that only generating units that emit less than 550 kg/MWh of CO₂ be eligible for support in European capacity mechanisms. Minister Tchorzewski said last March that, "If a three-unit nuclear plant were to be built in Poland by 2050, including one unit by 2030, looking at the level of emissions, we would be in a leading position. Taking into account the development of renewables, from the point of view of emissions, we would be below the currently assumed EU norms. It would give us a basis for negotiations with the European Commission about keeping coal for longer."¹⁷ According to Polish newspaper *Rzeczpospolita* in March 2017, the EC had written to the Polish energy ministry suggesting that Poland builds 3.3 GW of nuclear capacity by 2035 and up to 8.2 GW by 2050, as a way to reduce emissions¹⁸.

10 Ladka Mortkowitz Bauerova and Maciej Martewicz, "As Europe Drops Coal, Poland Embraces It", Bloomberg, 24 June 2016, available at <https://www.bloomberg.com/news/articles/2016-06-24/as-europe-drops-coal-poland-embraces-it>, accessed 14 May 2017.

11 Tily Bayar, Power Engineering International "Coal-fired plants to drive growth in Polish power sector- report" 19 April 2017, available at <http://www.powerengineeringint.com/articles/2017/04/coal-fired-plants-to-drive-growth-in-polish-power-sector-report.html>, accessed 16 May 2017.

12 Platts, "EU CO₂ emissions fall indicative 2.55% in 2016: EC data" available at <https://www.platts.com/latest-news/electric-power/london/eu-co2-emissions-fall-indicative-255-in-2016-21339037>, accessed 14 May 2017.

13 EDF Report "Is any diversification needed? Poland's potential electricity mix in 2030 in the light of internal and external demands 15 October 2014, available at http://poland.edf.com/fichiers/fckeditor/Commun/Pologne/EN_EDF_Report_FINAL_27112014.pdf, accessed 16 May 2017.

14 Portal Elektrownia Jadrowa, "Tchorzewski: Powinnismy budowac elektrownie jadrowa", Jerzy Dudala, available at <http://elektrownia-jadrowa.pl/tchorzewski-powinnismy-budowac-elektrownie-jadrowa.html>, accessed 20 April 2017.

15 Ibid 14.

16 Presentation by Lukasz Kuzniarski, Nuclear Energy Department, Ministry of Economy "Polish Nuclear Power Program" available at https://www.iaea.org/NuclearPower/Downloadable/Meetings/2014/2014-03-17-03-21-WS-INIG/DAY2/COUNTRY/L_Kuzniarski_POLAND_IAEA_workshop_Seoul_2014.pdf accessed 15 May 2017.

17 Adam Easton, Platts Power in Europe "Tchorzewski bargains for coal" 27 March 2017.

18 Ibid 16.

Poland's Nuclear Plans

Poland's developing nuclear ambitions are not new. It was in January 2014 that the former government led by the Citizens' Platform (PO) party approved a Polish Nuclear Power Programme which foresaw the construction of 6GW of capacity in two separate locations by 2035, the first unit being planned for operation at the end of 2024. This programme would have necessitated a final investment decision to be reached in 2018. However, the project had slipped well behind schedule. Last year, the PiS government put forward an updated strategy to build a 1.2 GW nuclear power plant (this clearly being a less ambitious project than the 6 GW envisaged in the PNPP) in the next 10 years¹⁹. According to Minister Tchorzewski, the cost of such a site for 1,200 MW will be around PLN 24 billion (around €5.68 billion)²⁰.

Owner Engineer and Site Locations

In July 2014, the company responsible for delivering the investment and preparing for construction of Poland's first 3,000 MWe nuclear power plant²¹ – PGE EJ1 (a subsidiary of Poland's largest utility PGE), appointed AMEC Nuclear UK (now AMEC Foster Wheeler) as owner engineer of the programme to help select the EPC contractor, oversee project management and supply chain contract management, as well as regulatory aspects of the programme²². On 6 April 2017, PGE EJ1 announced the start of "localisation and environmental studies" in Choczewo, Krokowa and Gniewino, each in the Pomerania Province. The research is being conducted by ELBIS, a subsidiary of PGE Capital Group, and is scheduled for completion in the first half of 2020²³. PGE EJ1 also confirmed that the decision on further implementation of the proposed project will be made in consultation with the Ministry of Energy and is expected to be taken by the end of 2017.

Financing

The current PiS government rejected plans to use a Contract for Difference (CfD) model (similar to the UK CfD model adopted for Hinkley Point C) to finance the construction in the next decade, due to concern that "electricity could become too expensive for end users"²⁴. PGE had planned to launch an integrated tender to cover all aspects of the investment, the reactor technology, EPC services, fuel supply, capital participation by a strategic partner and debt financing, by the end of last year.²⁵ No decision has been taken by the Ministry of Energy on the method of funding. However, it is possible that Polish state-owned investment fund PFR may help finance construction of the country's first nuclear power plant²⁶, most probably as co-investor.

Looking to the Future

With PiS seeing nuclear as the optimum solution to allow Poland to work within EU environmental targets while also sticking to its pledge to maintain the country's coal mining industry, the next few months will be key to the future trajectory of the project. For the Polish Nuclear Power Programme to succeed it is vital that it now gains further momentum, particularly given that emissions from large combustion plants in the EU will be subject to even stricter performance standards (Best Available Techniques Conclusions for Large Combustion Plants – BREF LCP). These updated standards are based on a decision adopted by the Industrial Emissions Directive (IED) Article 75 Committee on 28 April 2017, and are expected to be formally adopted by the European Commission as a Commission Implementing Decision. The LCP BREF contains revised levels for emission of SO₂, NO_x, tiny particulate matter, and for the first time, air pollution limits have been set for mercury. These limits will have to be met by 2021²⁷.

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20 Serwis Informacyjny CIRE 24, "Tchorzewski: koszt budowy bloku jądrowego o mocy", available at <http://www.cire.pl/item,144097,1,0,0,0,0,tchorzewski-koszt-budowy-bloku-jadrowego-o-mocy-1200-mw-to-ok-24-ml-d-zl-.html>, accessed 18.04.16

21 PGE EJ1 website, available at <http://pgeej1.pl/en/about-the-company>, accessed 19 April 2017.

22 World Nuclear.org "Nuclear Power in Poland" (Updated April 2017), available at <http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/poland.aspx>, accessed 15 May 2017.

23 World Nuclear News "Poland starts environmental survey for first reactors" 7 April 2017, available at <http://www.world-nuclear-news.org/NN-Poland-starts-environmental-survey-for-first-reactors-07041701.html>, accessed 19 April 2017.

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25 Adam Easton "Poland drops nuclear tender/CfD model". Platts Power in Europe. 10 October 2016.

26 Agnieszka Barteczko, Reuters "Polish state fund says may help finance nuclear power plant" 10 May 2017, available at <http://www.reuters.com/article/poland-nuclear-idAFL8N11C5XO>, accessed 17 May 2017.

27 European Environmental Bureau, "Cleaner Air the Winner after Germany fails to block new EU Rules" 28 Friday 2017, available at <http://www.eeb.org/index.cfm/news-events/news/cleaner-air-the-winner-after-germany-fails-to-block-new-eu-rules/>, accessed 18 May 2017.

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