Poland’s Nuclear Plans Regain Some Momentum

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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 generation. In 2015, hard coal and lignite made up 53.9% and 35.2% respectively of Poland's total electricity generation. In 2015, hard coal and lignite made up 53.9% and 35.2% 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 mining. 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 month.

Figure 1. Poland’s Energy Mix in 2015

Other RES 0.09%

Wind 6.6%

Hydro 1.5%

Natural gas 2.8%

Lignite 35.2%

Hard coal 53.9%

Source: CornerStone

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5 Ibid 2.


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.” 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 2026. 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), 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 lignite.

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, NOx (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). 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 generated.

- 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) 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.” 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 emissions.


15 Ibid 14.


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 years18. According to Minister Tchorzewski, the cost of such a site for 1,200 MW will be around PLN 24 billion (around €5.68 billion)19.

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 plant20 – 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 programme21.

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 202022. 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”23. 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.24 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 plant25, 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, NOx, tiny particulate matter, and for the first time, air pollution limits have been set for mercury. These limits will have to be met by 202126.

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20 Serwis Informacyjny CIRE 24, “Tchórzewski: koszt budowy bloku jądrowego o mocy”, available at http://www.cire.pl/item,144097,1,0,0,0,0,0,tchorzewski-koszt-budowy-blokujadrowego-o-mocy-1200-mw-to-ok-24-mld-pl.html, accessed 18.04.16


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