



BULLETIN

No. 23 (476), 6 March 2013 © PISM

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Nuclear Energy Projects in Eastern Europe: New Sources of Electricity Supply for the EU?

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In the immediate vicinity of Poland—in Russia’s Kaliningrad district and in Belarus—two nuclear power plants are being built. Electricity generated in both these plants will be used mainly for exports, Poland being one of the possible target markets. In response to these plans, Poland needs to make a strategic decision on electricity supply sources that best meet its needs. Poland should develop energy interconnectors with EU Member States and support building internal capacity.

Nuclear Projects in the Region. Plans to go ahead with two major energy projects close to Poland’s eastern border have recently been put in place. The first of these projects, the Baltic Nuclear Power Plant (BNPP) in Russia’s Kaliningrad district, is expected to be launched by 2016. Initially, its capacity will be 1,200 MW, ultimately rising to 2,400 MW by 2018. Russian officials say electricity produced in that plant will be used mainly for exports, as the current level of supply from two new gas-fired power plants exceeds the demand in the region—put at around 800 MW—by 100 MW. Potential export destinations include Poland, Germany and Lithuania.

Electricity from the other nuclear power plant to be constructed in the region will probably be exported to EU markets as well. The total capacity of the Belarusian plant will reach 2,400 MW, with the first reactor expected to be ready in 2018 and the second in 2020. Electricity produced in the plant will cover growing demand in Belarus, but a high surplus could be exported to countries including Poland. The power plant will be built using funds from Russia, which will also be able to influence electricity trade, because a Russian–Belarusian joint venture company will be responsible for exports.

Target Markets. Although EU markets are expected to be the primary destination for electricity from the two new nuclear power plants, the main obstacle to exporting electricity is the lack of appropriate transmission grids. The Kaliningrad district as well as Belarus are currently connected with only one EU Member State, Lithuania. That country, after decommissioning its Ignalina nuclear power plant in 2010, is now a net importer of electricity, but it firmly opposed both nuclear power plant projects. Hence, Lithuania is an attractive market, especially as the country’s new government has changed its strategy towards energy cooperation with Russia. Moreover, the existing and planned power lines connecting the Baltic states with other EU markets will enable the transit of Russian or Belarusian electricity not only to Poland, but also to Nordic states. Yet, without major improvements and further development of the grid, the existing lines will not be sufficient for the transmission of the huge amounts of electricity that will be produced in both nuclear power plants.

Russia is also seriously considering Poland and Germany as export destinations, but in both cases such plans are likely to face many challenges. First of all, there are no direct possibilities to transport electricity to either Poland or Germany. An interconnection between the Polish and Russian power systems (an asynchronous one, without connecting isolated European and post-Soviet systems) was considered on numerous occasions, but so far no bidding decision has been made. At present such an interconnection is not among the development plans of the Polish transmission system operator, Polskie Sieci Elektroenergetyczne SA (PSE SA), which means that the interconnector will not be built before the launch of the BNPP. Poland’s position on the construction of a direct Polish-Russian line tended to change in the past. On the one hand, the Polish authorities recognize the potential of this import direction,

especially considering that the northeastern part of Poland has a deficit in terms of energy supply. On the other hand, a decision to cooperate with Russia may not be in line with Poland's energy policy priorities.

Regardless of the final decision on an interconnector with Kaliningrad, infrastructure conditions will change in the near future. In 2015, a new line connecting the Polish and Lithuanian power systems (LitPol Link), with an import capacity of 500 MW, is scheduled for completion. LitPol Link will ultimately have a capacity of 1,000 MW and allow for a bidirectional flow of electricity. It will work as an asynchronous line. It is also worth mentioning a Polish-Belarusian line seriously considered in the last couple of years; it could be built with the partial use of an existing yet closed-down line between Roś and Białystok. The project was promoted by PSE SA and met with substantial interest from market players, but eventually its construction has not been decided. As in the case of LitPol Link, the transfer capacity of that line would be significantly reduced by 2020, because of scheduled grid improvements in northeastern Poland. However, it can be assumed that PSE SA will revive the idea of rebuilding the Roś-Białystok line sometime in the future.

When it comes to direct exports to Germany, these would only be possible via one route—by lying down an undersea cable in the existing Nord Stream gas pipeline. But there is a question of economic rationale for such an undertaking as it would be extremely expensive—not only building such a line but also transporting electricity later on. Yet, as the gas project itself shows, economic factors are not always decisive. Moreover, since the electricity will be generated in nuclear power plants, a cooperation decision may be much more difficult to work out than agreeing to work together in the gas project. It seems unlikely that the German government would be capable of convincing the public to accept such a deal, especially as that would run counter to the government's own policy of phasing out nuclear production and promoting renewable energy sources. What is more, surplus electricity production from wind farms in northern Germany is already causing significant security and stability problems in European power systems and calls into question the technical capability to accommodate an additional supply from the BNPP.

Conclusions and Recommendations. It would seem reasonable that big energy projects such as the construction of nuclear power plants in Kaliningrad or Belarus should depend on securing target markets first. Yet, both projects have been undertaken without securing final sales. In the worst-case, though possible, scenario for the Russian investors, this might end with financial problems. Both projects have already had an impact on a third project in the region by changing the economic assessment of a Lithuanian nuclear power plant at Visagina. This project has been put under a huge question mark for reasons including a possible withdrawal of two partners, Latvia and Estonia. Furthermore, in a non-binding referendum last year, voters in Lithuania expressed their opposition to the nuclear plans.

Undoubtedly, the nuclear projects are aimed at allowing Russia to expand into the EU's electricity market and create a new area of cooperation. In this context, it is worth noting important differences between the electricity and the gas markets. Electricity trade is increasingly handled by power exchanges (market coupling). With regard to interconnections between Member States, EU regulations guarantee transparent and market-based access, excluding the possibility of long-term bilateral transactions. In the case of connections with other countries, a draft Polish energy law envisages transparent and non-discriminatory auction rules.

The new power plants in the region may also affect the profitability of Poland's future nuclear power plant. The projects in Russia and Belarus are due to be completed before the Polish one, hence these new sources of potential competitive electricity supply need to be taken into account in the cost-benefit analysis. Starting from 2016 electricity imports will be possible via the new LitPol Link interconnection, which was originally intended to bring electricity from Visagina. From a supply point of view, it does not matter where electricity is purchased as long as it is possible to accommodate all the flows. In connection with this, nuclear power from the East might be an important source of supply on the Polish market, especially as some generation inadequacy is foreseen in the Polish power system after 2016. However, emerging competition in the electricity sector, enhanced by the eastern projects, may impact the profitability of Poland's power generation plans, both the nuclear power plant project and other power plants, and negatively affect domestic supply. To improve the security of energy supply, Poland should endeavor to better integrate its electricity market within the EU and promote the development of interconnectors with other Member States. It should also reinforce internal transmission grids. In view of the significant advancement of the LitPol Link bridge, the option to build an interconnection directly with Russia's Kaliningrad district seems to be neither realistic nor desirable for Poland.