

RE-ENERGIZING **THE BALTIC**

Lithuania and its neighbors explore energy independence through nuclear power

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The official opening in July 2012 of NATO's Energy Security Centre of Excellence in the Lithuanian capital of Vilnius marks an important milestone for the North Atlantic community and the Baltic countries in particular. The Baltic countries' high dependence on imported energy has long made them vulnerable to supply disruption and price volatility. The NATO Summit in Riga in 2006 recognized the growing importance of energy security, advancing energy issues to a high priority in the NATO agenda.

The Lithuanian government in 2010 established the Lithuanian Energy Security Center as an aspect of the country's National Energy Strategy. The transformation of the Lithuanian energy center to a NATO Energy Security Centre of Excellence, as Lithuanian President Dalia Grybauskaitė explained at the NATO Summit in Chicago in May 2012, "is a practical contribution to NATO's efforts in the field of energy security and smart defense."¹ As a NATO Centre of Excellence, it is designed to provide analysis, assessments, recommendations and proposals for efficient energy solutions designed to support military, scientific, technical and academic analysis.

Lithuania stands out as an exceptionally industrious and innovative country in addressing the many aspects of contemporary energy challenges. The Lithuanian government has strived to achieve greater energy economy, stressing conservation, efficiency and prospects for carbon sequestration. The Lithuanian Energy Security Center has devoted special attention to find ways to engage the public sector, industry and the academic community in a search for solutions to reduce the dependence of Lithuania's military on fossil fuels and to find energy substitutes during military operations and exercises. Lithuania has joined the other Baltic countries in developing plans for a Baltic energy security community, closely linking the three Baltic States to

pursue energy interconnections with Poland and Sweden. Two new liquefied natural gas plants, one in Estonia and one in Lithuania (Klaipeda) are being developed. Polish authorities have announced plans to scrap their coal-fired generation export capacity in compliance with environmental regulations, opening opportunities for greater regional cooperation with the Baltic states.

The NATO Energy Security Centre of Excellence will be primarily concerned with advancing security capacity with respect to vulnerabilities, particularly concerning energy interruption from either intentional or accidental causes. The NATO center is devoted to developing advanced knowledge and best practices with respect to NATO security interests. Assessment of energy fuel vulnerabilities will very likely include analysis of aggregate data on energy supply, demand and transit. A secondary but nevertheless important concern of the NATO center concerns nuclear power throughout the Baltic region.

This is a complex issue, involving not only technical questions of capacity and the political commitment to nuclear energy but also the very complex and politically charged issue of competition over markets, energy vulnerabilities and national strategic priorities. Some Lithuanians oppose nuclear power as a source of energy – a national referendum has been scheduled for October 14, 2012, to put the reconstruction of the Lithuanian nuclear power plant at Visaginas to a public vote. But even if Lithuanian voters endorse the plan to construct a new nuclear power plant to replace the electricity previously supplied by a Soviet-era plant that was closed in 2009, competition has emerged over Baltic and East European power markets. It is a commercial competition but has clear geopolitical implications.

BACKGROUND: BALTIC NUCLEAR POWER

For many years the Baltic region relied on power supplied by the Ignalina power plant. The Soviet-era nuclear plant went



Technicians stand near a nuclear reactor head at the Ignalina nuclear power plant, which Lithuania took off line at the end of 2009.

AFP/GETTY IMAGES

on line in 1983, powered by two RBMK-1500 MWe water-cooled graphite-moderated, channel-type power reactors. These reactors were similar in design to those of the Chernobyl power plant. After the disintegration of the Soviet Union in 1991, these plants raised qualms among West Europeans who were otherwise anxious to welcome the Baltic countries to the European community. In accordance with the provisions of the European Union accession agreement, Lithuania agreed to decommission the Ignalina's reactors. As the nuclear power plant went offline in 2009, Lithuania shifted to relying on the Elektrėnai Power Plant (EPP), a thermal power facility, for 70 percent of the country's electricity. A European Bank for Reconstruction and Development-financed upgrade improved the EPP. But the natural gas to fuel the plant has been purchased primarily from Gazprom, Russia's national gas producer.

In June 2007, the Lithuanian parliament passed legislation to build a new nuclear power complex near the old Ignalina plant at Visaginas. This facility would assure electricity not only for Lithuania but for other countries in the region. Lietuvos Energija concluded agreements with Latvia's AS Latvenergo, Estonian Eesti Energia and Poland's Polskie Sieci Elektroenergetyczne SA in which all the partners indicated an interest in taking part in the project. Lithuania signed a concession agreement on March 30, 2012, with GE-Hitachi to construct a 1,350-MW advanced boiling water reactor. The agreement provided the general framework for the Visaginas nuclear power plant, including provisions for the rights of the project company to design, construct, operate and

decommission the plant as well as for investor rights and obligations. However, the commercial viability of this new plant was based on the assumption of an electric power market throughout the Baltic States as well as electricity sales to Poland.

Meanwhile, outside Lithuania, decisions affecting power markets in the region having to do with environmental risks have been taken independent of Lithuanian priorities. Russia's electric nuclear power company, Rosenergoatom, announced plans to build a nuclear power plant in Russia's Kaliningrad province. The 2300-MW Baltic Nuclear Power Plant was scheduled to be constructed in the town of Nemen on the province's eastern border with Lithuania. At the same time, Rosenergoatom announced plans to build a similar nuclear power station in Belarus. It identified a construction site in Astravets in the Hrodno Region, a town located only 50 kilometers from Lithuania's capital of Vilnius.

The Belarusian Nuclear Power Plant (NPP) is regarded by many, in the words of Lithuanian Foreign Minister Audronius Azubalis, as a "provocation."² The Lithuanian Ministry of Foreign Affairs sent a diplomatic note of objection to the Belarusian Ministry of Foreign Affairs. The diplomatic note included a Lithuanian Environmental Impact Assessment of the proposed Belarusian NPP. The Belarusian Ministry of Foreign Affairs did not respond.

ENERGY SECURITY AND THE NUCLEAR FUTURE

The nuclear power plants being discussed in the Baltic region are still at a stage where decisions are not yet final.



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Russian leaders stand near a model of the nuclear power plant they plan to build in the Kaliningrad region. The plant represents a commercial challenge to Lithuania's nuclear industry, which is trying to provide greater energy independence for the Baltic region.

But nuclear power decisions are long-term decisions. When the decisions are taken they can be expected to have consequences that will endure for decades. The startup of a power generation project is preceded by a planning period devoted to determining commercial viability. The assessment includes investment analysis designed to determine capital budgeting projections. The appraisal must include a market analysis, an assessment of the expected rate of return and a calculation of the payback period based on an amortization plan. The future is always uncertain, hence assessments are not based on facts; they are based on reasonable assumptions regarding profitability given the overall state of the economy, market demand, generation revenue, expenditures, accident risk and insurance, borrowing interest rates, currency risk, management costs and other prognostications. Technical market analysis is based on forecasting given assumptions regarding the movement of future prices through the study of past market data, primarily price and volume.

Nuclear power generation is a low-risk, high-consequence technology. In the wake of the Chernobyl and Fukushima accidents, as well as some other “near misses,” nuclear power generation bears the additional insurance risk associated with the potential for catastrophic accidents as well as the significant cost of decommissioning and long-term spent fuel storage. Nuclear decommissioning is defined as the dismantling of a nuclear power plant and decontamination of the site to a state no longer requiring protection from radiation for the general public.

The first generation of nuclear power reactors had an expected operational life of 25 to 30 years. Newer generation reactors are expected to last 40 to 60 years. Decommissioning involves administrative and technical actions, including all cleanup of radioactivity, dismantlement of the site and securing hazardous materials. Once a facility is decommissioned, there should no longer be a danger of a radioactive hazard and the facility is released from regulatory oversight. Decommissioning is likely to become big business in Europe, and Lithuanian nuclear technicians and engineers may have a distinct advantage in this competitive arena.

The security issues related to national energy policies, political implications of commercial energy competition, as well as the issues relating to nuclear decommissioning and nuclear nonproliferation, are of considerable significance for European energy security. It is fitting that the NATO Centre of Excellence will be located on the facilities of the Military Academy of Lithuania and that the center's international staff will consist of representatives of all countries engaged in the activities of the center of excellence. Studies and evaluations conducted at the NATO center will surely affect energy security vulnerabilities throughout Europe in significant ways for the foreseeable future. □

1. Remarks by H.E. Dalia Grybauskaitė, President of the Republic of Lithuania, at the NATO Summit/North Atlantic Council Meeting (May 21, 2012).

http://www.president.lt/en/activities/speeches/remarks_by_h.e._dalia_grybauskaite_president_of_the_republic_of_lithuania_at_the_nato_summit_north_atlantic_council_meeting.html (Accessed July 15, 2012).

2. “Azubalis calls Belarusian NPP construction site a ‘provocation.’” Charter 97 (April 8, 2011). <http://www.charter97.eu/en/news/2011/4/8/37545/>