



2016 Top Markets Report **Civil Nuclear** Country Case Study

Poland

Market Type: Newly Emerging

The current binding Polish Nuclear Power Program (PNPP) approved by the Polish government calls for construction of two NPPs comprising 6 GWe capacity by 2030. A recent four-year postponement of the first tender could prove beneficial to U.S. industry since it will give the Polish utility PGE more time to pursue viable financing options, which continue to be the biggest challenge to building nuclear power plants in Poland. To assist U.S. industry, the U.S. government should help steer Poland away from the build-own-operate model, which it has shown interest in pursuing.

New Builds

9

Existing Reactors

N/A

Decommissioning

N/A

Overall Rank

15

U.S. Ambassador to Poland: Paul W. Jones

Poland currently has no operating nuclear power plants. Construction on four Russian VVER units began in the 1980s at Zarnowec in northern Poland, but they were cancelled in 1990.

The current Polish Nuclear Power Program (PNPP) approved by the Polish government calls for construction of two NPPs comprising 6 GWe capacity by 2030. State-owned utility Polska Grupa Energetyczna (PGE) is doing site and characterization analysis for the first nuclear power plant at two locations in northern Poland: Zarnowiec and Lubiatowo-Kopalino. PGE will make the final site selection decision in 2018. The significantly delayed technology tender, originally planned to be announced by the end of 2012, is still to be announced.

PGE set up the company PGE EJ1 to build and run the first plant. In September 2013, PGE entered into a shareholder agreement with the utilities Tauron Polska Energia and Enea as well as copper supplier KGHM

Polska Miedz, wherein PGE holds 70 percent of PGE EJ1 and the other companies each hold 10 percent. A follow-on agreement with similar terms was signed in September 2014. In November 2015, PGE EJ1 said five companies had shown interest in the tender: GE-Hitachi (U.S.), KEPCO (ROK), SNC-Lavalin (Canada), Westinghouse (U.S.), and EdF/Areva (France).

Poland has also expressed interest in participating in an international project for the near-term deployment and commercialization of a high temperature gas cooled (HTGR) reactor. A HTGC would be cheaper than building a large reactor and could provide electricity generation and process heat for industrial use.

Planned Nuclear Energy Projects

First Nuclear Power Plant

Owner: PGE EJ1 consortium

Reactor Type: undetermined: technology selection by late 2016

Capacity: 3000 MWe

Value of Project: \$15 billion

Construction Period: Unit 1: Beginning in 2019
Operation (tentative): Unit 1: 2024

Second Nuclear Power Plant Project

Owner: PGE consortium

Reactor Type: undetermined

Capacity: 3000 MWe

Value of Project: \$15 billion

Construction Period: late 2020s to early 2030s

Operation (tentative): 2035

Commercial Opportunities

Services (front- and back-end): Feasibility studies; environmental analysis; regulatory assistance; infrastructure development; human resource development.

Legal and Consulting Services: Potential for pre-construction services.

Licensing Support: Potential for pre-construction services.

Design, Construction, and Operation: By mid-2017, the Polish government is expected to select the technology for its first NPP.

Components: None currently

Fuel Management: None currently

Waste Management: None currently

Challenges and Barriers to Exports

Poland's first reactor tender will attract stiff competition, but U.S. industry is well-positioned. The significant postponement of the country's first tender could prove to be beneficial to U.S. industry, as it will give PGE more time to pursue viable financing options, which continues to be the biggest challenge to building NPPs in Poland. Poland's plan to structure its first nuclear power project using a build-own-operate (BOO) model is a challenge for U.S. industry since it requires multiple companies to bid as a consortium, while state-owned/controlled competitors' vertically integrated industries do not face this challenge. Interested bidder consortia will be asked to include the following in their offers: reactor technology for two or three units with EPC services, operations and management (O&M) support, equity interest of a strategic partner, including energy off-take, ECA or commercial bank financing and

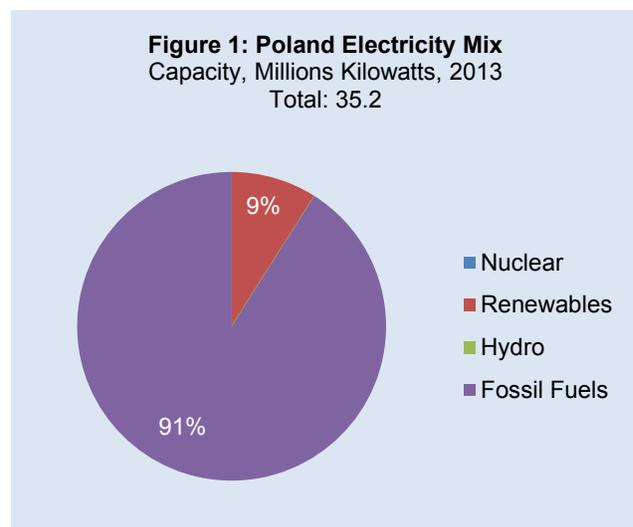
fuel supply. The GOP has expressed a desire for support in integrating the design and engineering aspects of the project.

GOP commitment towards NPP construction is unclear given the new government's priorities for coal sector restructuring and investment in high efficient coal fired power plants. Public opinion is moderately favorable toward the country's nuclear build plans. The country faces numerous challenges in the energy sector, including falling electricity prices and changes in European energy market regulation.

Poland's ratification of the 1997 Protocol to the Vienna Convention will help reduce liability concerns for U.S. industry, and its favorable Ex-Im Bank Long-Term Exposure Fee rating should provide a boost for U.S. industry competitiveness.

Nuclear Infrastructure

Research Reactor: The research reactor Maria, used also for production of medical radioisotopes and operated in Swierk (National Centre for Nuclear Research) is the only operating nuclear facility in the country.



U.S. Government Collaboration

123 Agreement: Poland has a 123 Agreement with the United States through Euratom.

Regulatory Cooperation: In September 2010, Poland's National Atomic Energy Agency (PAA) signed an Arrangement with the NRC for technical information exchange and cooperation in nuclear safety matters.

The PAA has signed agreements securing access to the Code Applications and Maintenance Program (CAMP) and the Cooperative Severe Accident Research Program (CSARP).

Joint Declaration on Civil Nuclear Commercial Cooperation: In July 2010, the Department of Commerce (DOC) and Poland’s Ministry of Economy signed a Joint Declaration Concerning Industrial and Commercial Cooperation in the Nuclear Energy Sector. **July 2011 Trade Policy Mission:** In July 2011, former DOC Under Secretary for International Trade led a civil nuclear trade policy mission with 11 U.S. civil nuclear companies to Poland, the Czech Republic and Slovakia.

U.S.-Poland Economic and Commercial Dialogue: Initiative between DOC and the Polish Ministry of Economy to promote bilateral trade and investment and further bilateral economic and commercial relations.

Figure 2: Additional Agreements	
Non-Proliferation Treaty	✓
IAEA Comprehensive Safeguards Agreement & Additional Protocol	✓
Joint Convention on Safety of Spent Fuel Management	✓
Convention on Nuclear Safety	✓
Convention on Early Notification of a Nuclear Accident	
Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	
Paris Convention on Third Party Liability in the Field of Nuclear Energy	
Vienna Convention on Civil Liability for Nuclear Damage	✓
Joint Protocol Relating to the Application of the Vienna Convention and Paris Convention	✓
Convention on Supplementary Compensation for Nuclear Damage	
Organization Membership	
IAEA	✓
Nuclear Suppliers Group	✓
OECD/NEA	✓
IFNEC	✓
GenIV International Forum (GIF)	

International Engagement

PAA is an active participant in the IAEA Regulatory Cooperation Forum (RCF). It has extensive international collaboration through the Visegrad Group (also known as the V4), which consists of Poland, Hungary, the Czech

Republic and Slovakia. The V4 formally expressed their “great interest in deepening mutual cooperation” in nuclear energy, environment, energy saving and renewable energy, with Japan during a 2013 Japan-V4 summit. Japan also reaffirmed its “duty” to contribute to worldwide nuclear safety by sharing knowledge and lessons learned from the 2011 accident at the Fukushima Daiichi nuclear power station.

Poland has been involved in several regional nuclear projects, including the Olkiluoto 2 NPP project in Finland and a joint NPP project with Latvia, Estonia and Lithuania. PGE withdrew from the latter initiative in December 2011 to focus on its own NPP development. In March 2015, Ukrenergo (Ukraine), Energoatom (Ukraine), and privately-owned Polish company Polenergia signed an agreement to export Ukrainian nuclear energy in support of the Ukraine-European Union “energy bridge” project. Revenues from the exports will fund nuclear power plant projects in Ukraine.

Resources

For more information on the commercial opportunities in Poland, contact: William Czajkowski (Senior Commercial Officer in Warsaw, william.czajkowski@trade.gov); Kenneth Duckworth (Commercial Officer in Warsaw, Kenneth.duckworth@trade.gov); Aleksandra Prus (Commercial Specialist in Warsaw, aleksandra.prus@trade.gov).

For more information on the civil nuclear industry in Poland, contact: PGE website (<http://www.gkpgc.pl/>); PAA website (<http://www.paa.gov.pl/>)

Sources

CIA Factbook, United Nations, World Nuclear Association and our contacts at U.S. Embassy Warsaw.