INTERNATIONAL TRADE ADMINISTRATION

2016 Top Markets Report Environmental Technologies Country Case Study

Poland

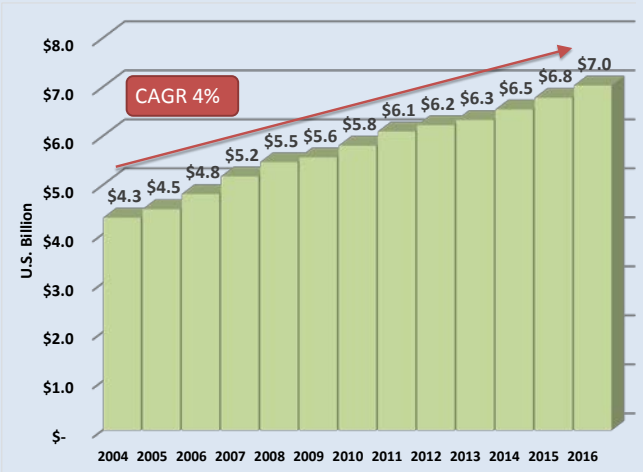
The overall environmental technologies market in Poland including goods and services has an estimated value of USD 7.0 billion (2016). Advanced by European Union (EU) mandates, Poland's environmental technologies market continues to grow. A disparate standards development system based on the precautionary principal can make it difficult for U.S. technology providers to compete.

Overall Rank	Air Pollution Control
9	9
Water	**Waste & Recycling**
9	16

Poland ranks ninth overall on the 2016 Top Markets Report with a composite environmental technologies score of 17.7. Poland ranks ninth for water markets with a score of 8.4 and ninth for air pollution control market with a score of 8.6. Its waste and recycling market trails behind with a rank of 16th and a score of 0.7.

The Polish environmental market has largely been driven by regulatory implementation demands associated with EU membership. During the 10 years of EU membership, EU financing programs have built over 1,000 new wastewater treatment plants and thousands of miles of new piping systems, reduced emission of CO2 more than 30 percent, built hundreds of new municipal and hazardous waste management facilities, and developed long-term programs to protect hundreds of endangered plant and animal species. The current tranche of EU investments in Poland is estimated to be over 70 billion Euros between 2013 and 2020.[1]

Figure 1: Poland's Environmental Technologies Market



Source: Environmental Business International with OEEI analysis, 2016.

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U.S. Department of Commerce | International Trade Administration | **Industry & Analysis**

State of the Environmental Regime

Poland's environmental regime has steadily improved since its accession to the EU in 2004. The Environmental Business Journal-OECD Environmental Stringency Survey, which ranks environmental regimes on a scale from 1 to 7 (with 1 being lax and 7 being the most stringent), scored Poland a 4.4 in 2012, a 2.0 point improvement from its 2005 score of 2.4.

Similarly, Poland's ranking on the World Economic Forum's 2011 Index for Regulatory Stringency of 35th globally with a score of 4.71 (on a similar scale to that of EBJ-OECD) demonstrates the relative increase in environmental stringency. Poland's ranking in the same survey for enforcement is 35th globally with a score of 4.10 highlighting improvements in environmental enforcement as well.

The 2001 Act on the Protection of the Environment, 1 (Ustawa z dnia 27 kwietnia 2001 r. – Prawo ochrony środowiska) provides the legal framework for all commercial and environmental activities in Poland. The Ministry of the Environment (MoE) is the highest national office responsible for the preparation and implementation of environmental legislation and strategies. In accordance with EU directives, the Polish government prepares a national plan for the implementation of environmental rules and correspondingly directs regional governments (voivodeships) to develop and implement cascading local plans.

Overall in Poland, environmental administration exhibits a high level of federal, regional and municipal coordination. Enforcement of environmental norms is fixed and relatively free from corruption while overall compliance rates are high.[2]

Market Barriers

Market barriers in Poland in general are associated with the differences in regulation and standards' development philosophies of the United States and the EU. The following barriers are most problematic for environmental technologies companies attempting to export to or work in Poland:

1. **Failure to recognize international standards**
   The existing European Regulation on Standardization (EU) No 1025/2012 recognizes international standards from only three international standards bodies: the International Organization for Standardisation (ISO), the International Telecommunications Union (ITU) and the International Electrotechnical Commission (IEC). Failure to recognize other international standards bodies prohibits the application of equivalent U.S. technologies in market. In Poland, the CE mark is broadly required. The Polish Center for Research and Certification (PCBC) (Polskie Centrum Badan i Certyfikacji) is the relevant national testing and certification office.
2. **A preference for design based standards over performance based standards**
   In the United States, standards for environmental technology generally meet a performance threshold, such as mitigation of pollution below a level that the scientific method has determined is consistent with protection of human health. This performance based approach allows for both innovation and a diversity of approaches to meet a specific goal. In the EU, many standards require technology to meet a design specification, thus prohibiting use of any technology that meets the same performance standard but lacks the design specifications.
3. **Application of the precautionary principle in standards and regulations**
   In Europe, the identification of hazards and subsequent limitations on application is tied to unknown future costs as opposed to the risk based approach, which assesses the likelihood of both unknown and known risks against known benefits. Application of the precautionary principle in standards and regulations levies many billions of dollars on manufacturers and services providers for testing and redesign without a clear definition of the resulting benefits. Furthermore, applying the precautionary principle to environmental technologies slows their delivery to market even when the pollutant stream that is addressed poses greater harm to human health than the chemical or technology under evaluation.
4. **EU assistance and subsidies for environmental projects**
   In an effort to help the Polish Republic meet EU environmental standards, the EU often funds or subsidizes the development of environmental infrastructure. Within tenders,

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there is a strong preference for European providers, placing U.S. bidders at a competitive disadvantage.

5. **Lag in implementation of EU environmental rules**
   Adoption of and adherence to EU environmental rules drives development of environmental projects. The lag in adherence to EU mandates in this area has created a corresponding lag in the development and tendering of projects, thus slowing market growth overall.

Market Opportunities

Air Pollution Control

Since Poland's accession to the EU in 2004, the country has made significant progress in reducing its emissions of GHG and NOx/SOx. Nevertheless, it remains the most fossil energy-intensive economy in the EU. Fossil fuels comprised 91 percent of Poland's energy mix (54 percent coal, 23 percent oil, 14 percent natural gas) in 2013, and coal is expected to remain the country's primary energy source in the medium-term.[3] In 2012, Poland recorded the highest levels of PM 2.5 in Europe, at least partly as a result of domestic combustion of biomass and coal for heating. To help address this issue, in October 2015, President Andrzej Duda signed an 'anti-smog' law that empowers local authorities to ban burning of coal and other environmentally unfriendly substances in domestic properties.[4] Emissions from coal-fired power plants also still lead to excessive output of particulate matter and other air pollutants. Particulate matter from transportation, small industrial plants and small boilers is also a substantial contributor to Poland's persistent air quality problems. Other contributors include industrial sources in areas where the geography prevents dispersion, such as in Krakow or Upper Silesia, which are located in mountain or river valleys.[5]

Opportunities for the air pollution control sector lie in compliance with EU Air Quality Directive 2008/50/EC, which includes air quality objectives. Poland will achieve improved air quality by implementing measures on the voivodeship (regional) level. Attention to regional air quality plans and related tenders is the most rational approach for U.S. businesses seeking to work in Poland's air pollution control market.[6]

Technologies and Services in Demand:

- Wet/dry scrubbers (particularly systems that remove multiple pollutants)
- Carbon injection systems (for reduction in mercury and organics)
- Particulate matter control systems (particularly new bagging systems)
- NOx, mercury, CO2 and particulate matter monitoring and continuous monitoring systems
- Selective catalytic and non-catalytic reduction controls
- Oxygen enrichment, fuel injection and other efficient combustion technologies
- Innovative specialty cements
- Mixing technologies
- Pumping and fluid handling equipment
- Engineering and plant design
- Leak detection
- Alternative fuel technologies used to fire cement kilns

Water and Wastewater Treatment

Municipal Wastewater Treatment and Storm Management

Expansion and development of sewerage networks and treatment facilities under Poland's National Programme of Municipal Wastewater Treatment (NPMWT) offers prominent opportunities. In 2013, only 67 percent of Polish peoples were connected to sewers with an expected increase to 70 percent by 2018.[7] For example, the Nowogrodziec municipality issued a recent tender for the 25km expansion of its network valued at USD 23 million.[8] Existing treatment facilities will also undergo upgrading in 2016 to reach the annual goal outlined by the NPMWT to reduce nitrogen and phosphorus loads in wastewater by 75 percent.[9]

Large scale floods have also generated interest in storm water management systems while conversely long-term projections of water scarcity[10] have spurred interest in water efficiency through wastewater reuse. The Polish government has tendered a contract for the design and development of a management plan for all river basins,[11] providing an attractive project pipeline for U.S. companies with expertise in storm water management infrastructure.

The Polish government is also focusing on implementation of a new water pricing scheme to

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promote reuse and efficiency for consumer, industrial and agricultural applications. The National Plan estimates budgetary outlays during 2013 to 2016 of USD 9 billion.[12]

Technologies and Services in Demand:

- Engineering, procurement and construction services
- Advanced filtration
- Membrane filtration
- Waste to energy technology
- Anaerobic digestion
- Nitrification
- Biological denitrification
- Monitoring equipment
- Testing equipment

Industrial Process and Wastewater

Poland is subject to relative water scarcity with per capita resources averaging 1,450 to 1,700 m^3/year.[13] Industry is the largest consumer of freshwater resources in Poland, accounting for 70 percent of water intake,[14] and this is the predominant focus for water efficiency and reuse programs. Among the domestic industry segments fossil fuel extraction, process and power generation are collectively the largest consumer of water. Additional key consumers include metals and mining, pulp and paper, cement manufacturers, and building and constructions segments.[15]

Incentives for improved industrial water efficiency are expected to be implemented under the National Plan, which attributes overconsumption to low prices. The Polish government estimates that industry water consumption is two to three times higher in Poland than other EU nations.[16] Government led increases in water tariffs will increase the burden on industry consumers to find water efficient solutions for both process and industrial wastewater.

Additional treatment burdens will also arise as a result of implantation of the EU Priority Substance Directive (PSD), which will limit the effluent allowances of a new class of chemical substances.[17]

Sludge Treatment and Reuse

Sludge treatment is also a major issue to be addressed in Poland. Poland produces over 700,000 tons of sludge per year, and due to EU obligations related to landfill waste reduction, it will no longer be legal to landfill sludge,[18] meaning that the full spectrum of sludge treatment technologies will need to be employed. The National Plan for Waste Management outlines that by 2018, 60 percent of sludge is to be processed through incineration,[19] a 25 percentage point increase from current levels. There is also a proposal to use treated sludge as biomass fuel stock to help meet Poland's renewable energy targets.[20]

Limited capacity to develop and operate sludge drying and incineration technologies will generate demand for attendant services and technologies. Cities with stated needs in this area include Warsaw, Lodz, Krakow, Gdansk, Poznan and Szczecin.[21]

Technologies and Services in Demand:

- Engineering, procurement and construction services
- Advanced filtration
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- Monitoring equipment
- Testing equipment

<u>Waste Management and Recycling</u>

Municipal Solid Waste and Recycling

Landfills remain the predominant waste management method in Poland with approximately 86 percent of the waste generated destined for one of the country's 800 landfills.[22] There is rising pressure to rebalance Poland's waste management approach in order to meet its EU accession obligations. Contingent with Poland's accession to the EU, the country must reduce its landfill waste by 50 percent, which will inevitably give rise to increased use of recycling and incineration technologies.

Poland missed its 2013 deadline to meet this mandate and thus is in a position to play catch-up with meeting its accession obligations to avoid daily fines of 40,000 Euros levied by the European Commission. In its National Development Plan, Poland outlined its waste reduction plan to include introduction of a selective waste collection system, construction of facilities for waste recovery and recycling, and closure on unsanitary landfills. Waste management

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responsibilities are the purview of municipal and regional governments, and forthcoming tenders emanating from national plans will be issued at the city or voivodeship level. According to the country's 2015 OECD Environmental Review, investment of over 6 billion Euros in waste infrastructure - particularly for incineration, recycling and composting - will be needed to meet Poland's and the EU's 2020 targets.

EU mandates and attendant funding for project development are also driving waste incineration and waste-to-energy projects. While waste-to-energy can be part of more comprehensive waste management strategies, source reduction and recycling are recognized as preferred methods for solid waste management ("Reduce, Reuse, Recycle"). Additionally, any waste-to-energy solutions should give due attention to air pollution and climate risks.

Eleven waste-to-energy facilities with a capacity of 200,000 tons each are slated for development, with six to be developed in 2015 and 2016. Those projects include facilities in Bialystok, Bydgoszcz and Torun, Konin, Krakow, Poznan, and Szczecin with a total value of USD 1 billion.[23] The Poznan facility is being developed under a Public Private Partnership (PPP) model. Ministry of Environment and Treasury support for forthcoming PPPs could yield opportunities for U.S. Engineering, Procurement and Construction (EPC) technology providers and operators. Projections for projects in the 2016 to 2020 timeframe for waste-to-energy facility development include those for the Silesian agglomeration, lower Silesia, Tri-City, Warsaw, Olsztyn, Lodz, the Mazovian district, the Sub-Carpathian region and the Lublin region.[24]

Technologies and Services in Demand:

- Waste collection technologies
- Sanitary landfill systems
- Environmental monitoring and analytical equipment
- Sorting machines
- Crushing and grinding machines
- Materials handling equipment
- Collection services, containers and vehicles
- Recycling process expertise
- Waste incinerators

Environmental Consulting and Engineering

The most important authorities regulating the use of environmental resources are the Ministry of Environmental Protection, the Main Inspector of Environmental Protection and the Main Director of Environmental Protection. The Main Inspector of Environmental Protection supervises compliance with environmental protection provisions, while the Main Director of Environmental Protection issues Environmental Impact Assessments (EIAs).

Polish administrative authorities strongly emphasize firm compliance with national and EU environmental law and regulation. There is a general tendency toward stricter compliance with environmental protection. Breaching a permit is punishable by fines and criminal liability. Operations will also be ceased.

Types of permits include integrated and single/separate permits. Integrated permits are required when activity could cause harm to the environment in general. These permits are reviewed every five years and are more strictly regulated. Single/separate permits are issued for activity that may affect an aspect of the environment that is protected from pollution, such as air and water. Single/separate permits are valid for a maximum of 10 years.

EIAs are regulated by the Act on Disclosing Information about the Environment and its Protection, the Participation of Society in Environmental Protection and Environmental Impact Assessments of October 3, 2008. An EIA is required where an industrial infrastructure project may have serious impact on the environment or when a project could have an impact on a Natura 2000 area (an area that is protected due to significance to the environment).[25]

Technologies and Services in Demand:

- Environmental Impact Assessment (EIA)

ETWG Agency Initiatives and Programs

U.S. Environmental Solutions Toolkit

The Toolkit compiles the U.S. Environmental Protection Agency (U.S. EPA) environmental regulations, related underlying research and a list of U.S. companies that provide technologies necessary to implement similar environmental regulatory actions abroad. The Toolkit is used by U.S. EPA officials or environmental consultants as a reference tool within bilateral activities that focus on addressing environmental concerns.

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Power-Gen International Buyer Program

Power-Gen, one of the leading U.S. power generation equipment and services trade shows, has partnered with the U.S. Department of Commerce's International Buyer Program to encourage foreign participation in the show. This platform is leveraged to discuss policies and exchange technical information regarding power plant emissions control with Polish participants and to foster business relationships between Polish end-users and U.S. emissions control providers.

WasteExpo International Buyer Program

WasteExpo, one of the leading U.S. waste management trade shows, has partnered with the U.S. Department of Commerce's International Buyer Program to encourage foreign participation in the show. This platform was leveraged to exchange relevant technical information with Polish participants and to introduce Polish buyers to U.S. waste management technology providers.

Water Environment Federation Technical Exhibition and Conference (WEFTEC) International Buyer Program

The U.S. Department of Commerce, through its International Buyer Program, leads a delegation of Polish officials and business representatives to WEFTEC to explore relevant U.S. technologies and work with U.S. exporters on approaches to water resource management.

Market Contacts and Program References

Ministry of Environment
http://www.mos.gov.pl

Chief Environment Inspectorate
http://www.gios.gov.pl

Main Director of Environmental Protection
http://www.gdos.gov.pl

Public Procurement Office
https://www.uzp.gov.pl

Tender Electronic Daily
http://ted.europa.eu/TED/main/HomePage.do

The Polish Center for Research and Certification (PCBC)
http://www.pcbc.gov.pl

Environmental Technology Verification (ETV) pilot program
http://ec.europa.eu/environment/etv

POLECOSYSTEM
http://www.polecosystem.pl/en
October 10 -14, 2016, Poznan

GREENPOWER
http://greenpower.mtp.pl/en
May 10-12, 2016, Poznan

American Chamber of Commerce in Poland
http://amcham.pl

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[25] Jankielewicz, Kamil, Allen & Overy, A. Pędzich Sp.k. (2015). *Environmental law and practice in Poland: overview*. http://us.practicallaw.com/9-376-3181. Accessed April 20, 2016