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## MUNICIPAL WASTE INCINERATION PLANT IN BIAŁYSTOK

**Sector:** Waste management

**Timeframe:** 2013 – 2016

**Location:** Andersa Str., Białystok,  
Poland



### PROJECT BACKGROUND

Białystok (295 600 inhabitants) is located in the northeastern part of Poland and is the capital of the Podlaskie Voivodeship. It is one of the first cities in Poland, whose authorities undertook efforts to adapt their waste management system to the EU requirements concerning necessary reduction of the amount of traditionally stored waste. In 2010 Białystok entrusted its municipal company "Lech" with the implementation of the project entitled "Integrated waste management system for the Białystok agglomeration". Main component of the project was the construction of the installation for incineration of municipal waste. Białystok's Municipal Waste Treatment Plant (ZUOK) is one of the first operating waste incinerators in Poland and was the first to receive permit for electricity and heat production.

### PROJECT DESCRIPTION

The construction of ZUOK was performed by the consortium composed of following companies: Budimex S.A. (consortium leader), Keppel Seghers Belgium N.V. and Cespa Compania Espanola de Servicios Publicos Auxiliares S.A. Agreement signed with the municipality concerned both designing and building of the installation. The construction of the plant took two years and its operation was officially launched in February 2016. The plant is fed with mixed municipal waste from Białystok city and nine

neighbouring municipalities. It is also planned to receive and use remains from the waste sorting process, whose calorific value exceeds 6 MJ/kg. The plant is able to process 15,5 tonnes of waste per hour, which gives up to 372 tonnes per day. Thanks to the technology used it is possible to produce approx. 38 000 MWh of electricity and 360 000 GJ of heat per year. The heat is used to meet plant's own needs and the surplus is supplied to the municipal heating network. The amount of electricity produced can supply with power approx. 16 000 households, while the amount of heat generated can heat in winter approx. 900 single-family houses. The first transports of waste arrived at the facility in late September 2015, when the contractor began so called hot start-up of the installation.

The plant uses flue gas treatment method based on the NID system, i.e. semi-dry technology combining several functions in one piece of equipment: gas absorption of hydrogen chloride, hydrogen fluoride and sulphur dioxide, removal of heavy metals, dioxins, furans and solid particulates using active coal and lime, and dust extraction from flue gas using bag filter. Fly ash and other solid combustion products, which are extracted in the process, are subjected to the process of solidification and stabilisation. The flue gas is continuously monitored by the company's own services and by the Inspectorate for Environmental Protection. Białystok's waste incineration plant also uses state-of-the-art solutions, which prevent unpleasant odours from leaving the waste unloading hall. Thanks to the underpressure created they are kept



inside the building and therefore are not bothersome for the neighbourhood. Another important element of the system is the slag valorisation installation which is used to separate metal components from the slag and to improve its quality so that it could be sold on the market and used in construction. Part of the slag, which is not suitable for sale, is deposited at the landfill site in Hryniewicze.

ZUOK also uses other modern and environmentally friendly solutions. Whole rainwater from the area of the plant (roofs, roads, yards) is recovered and used in the technological process. Water from the municipal water supply system is used at the minimum level, mostly for the sanitary purposes. Warm sanitary water is heated with the heat recovered from the facility's air compressors. At the entrance to the plant there is installed a radioactivity detector, whose task is to detect radioactive waste, therefore there is no risk that radioactive material will enter the installation. Waste transportation vehicles leave the plant cleaner than they were at the entrance - before leaving they pass through the pressure washer which cleans their chassis and wheels.

## FINANCING SCHEME

The total net cost of the project entitled "Integrated waste management system for the Białystok agglomeration" comes to PLN 394,4 million, including PLN 333 million for the construction of ZUOK in Białystok. To carry out the investment, municipal company "Lech" obtained co-financing from the European Cohesion Fund. PLN 210 million were granted within the Operational Programme "Infrastructure & Environment", measure 2.1: **Comprehensive undertakings in the scope of managing municipal waste with particular attention to hazardous waste.** Additional PLN 164 million comes from the loan granted by the National Fund for Environmental Protection and Water Management, PLN 10,6 million comes from the bridge loan from the Fund and the remaining amount was covered from the "Lech" company's own budget.

## PROJECT RESULTS

Before the construction of the waste incineration plant approx. 90% of municipal waste was deposited at the municipal landfill site located in the neighbouring village (Hryniewicze). It is estimated that now, after start-up of the investment, the amount of deposited waste will decrease to approx. 12%. Annually the plant will incinerate approx. 120 000 tonnes of waste.

The installation is environmentally friendly and advantageous for the inhabitants of Białystok. It is a part of the modern waste management system, which is currently under development and includes also launching of the selective waste collection and construction of the sorting plant at the landfill site in Hryniewicze.

The construction of ZUOK and creation of modern waste management system will not only bring benefits to the present inhabitants of Białystok and Białystok's agglomeration, but will also help to take care about future generations and future quality of the environment.



## MORE INFORMATION

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