



## NEW FORTUM MULTIFUEL CHP PLANT IN ZABRZE, POLAND





## SUMMARY

The CHP plant in Zabrze is the largest Fortum investment in Poland. Thanks to the application of highly efficient technology of power generation using renewable fuels, it has a positive impact on air quality in the region of Upper Silesia and contributes to the implementation of the assumptions of the climate package. The modern plant was built to supply nearly 70 000 households with district heat in Zabrze and Bytom and will ensure safe and environmentally friendly energy supplies for the inhabitants over the next decades.

Zabrze CHP produces heat and power in cogeneration. The state-of-the-art multi-fuel boiler is mainly powered by coal and alternative fuel (RDF - Refuse Derived Fuel). Boiler is also ready for biomass combustion with a mix of these three fuels. The amount of RDF used may reach up to 50% of the total fuel consumption. The plant replaced worn-out coal-fired units, previously installed in Zabrze and Bytom, and will significantly contribute to the reduction of CO<sub>2</sub> and other emissions in the region. Fortum experts estimate that dust emissions will fall by more than 11 times, sulfur dioxide by more than 7 times, and nitrogen oxides by almost 3 times (annually).

The total value of the project amounts to about PLN 1 billion (approximately EUR 300 million). The new plant was commissioned at the end of 2018. In total, more than 4 400 tonnes of steel and 19 000 m<sup>3</sup> of concrete was used for the construction. The production capacity of the modern plant will amount to 225 MW in fuel. The expected annual heat production is 730 GWh.

As part of the project, the connection between the heat distribution network in Bytom and the modern heat and power in Zabrze was constructed. In order to reduce interference with the natural environment, the 10 km long pipeline connecting Zabrze and Bytom was laid underground and some of the work was carried out using an innovative method of so-called micro-tunneling, which allows trenchless pipe-laying.



## **HISTORY OF THE CHP ZABRZE**

The old CHP Zabrze plant had been operating from 1897 till 2018, initially as a power plant, later as CHP. It was the oldest facility of this type in Poland. The plant is considered one of the most valuable examples of industrial architecture in the Upper Silesia region. For decades it played an important role in the development of the city and the entire region.

In 2011 Fortum acquired the old CHP plant. Due to European Union environmental regulations and the need to exclude from the use of old boilers, the company worked on a broad investment plan of the plant's modernization. Finally, in March 2015, Fortum decided to build a new, multi-fuel heat and power plant near the existing plant. The investment amounts to approximately 200 million euros and also includes a ten-kilometer long heating connection between Zabrze and Bytom and new peak boilers in both cities.

The cornerstone for the new Fortum CHP plant in Zabrze, Poland, was laid on 13 June 2016 .

Fortum's new combined heat and power plant contributes to the ongoing transformation of the Polish energy market and consolidates Fortum's position in the country's energy sector. At the same time, it implements Fortum's strategic priority of sustainable solutions for cities.

## **BACKGROUND INFORMATION**

### **FORTUM IN POLAND**

Fortum entered the Polish market in 2003. In the heating and cooling businesses there are three CHP plants and over 800 km of district heating networks, which serve around 360,000 households in the cities of Plock, Wroclaw, Czestochowa, Zabrze and Bytom. The overall electricity generation capacity reaches 186 MW and the heat generation capacity is over 786 MW. In 2017 Fortum had 827 employees in Poland.

Fortum's CHP plant in Czestochowa, that was built from the ground up, was opened in 2010. The CHP plant uses coal and biomass as a source of energy. Apart from the CHP plant in Czestochowa, Fortum produces heat and electricity in two other CHP plants; in Zabrze and Bytom.



Fortum sells also gas and electricity to both: business clients and individual customers. The company draws on experience from Nordic markets in order to ensure sustainable and the highest level of quality solutions to its customers.

Since 2017 Fortum has been introducing Charge & Drive cloud solution to the Polish market. The company focused on cloud-based solutions delivered to charger operation. Fortum also works on innovations in HC. Currently, the company carries out research on cooling from district heat with adsorption technology.

Fortum's aim is to create energy that improves life for present and future generations. Catering to versatile needs of our customers, we generate, distribute and sell electricity and heat, and offer related expert services.

## ZABRZE – BASIC INFORMATION

Zabrze is a city with the area of 80,40 km<sup>2</sup> located in the Upper Silesian Industrial Region, a large industrial region in Poland.

The population of Zabrze amounts to 173 000 inhabitants.

Upper Silesian Industrial Region is an area with enormous concentration of industry, such as:

- Mining industry (more than a dozen active coal mines)
- Iron and steel industry (more than a dozen active iron and nonferrous metals)
- Transport industry
- The energy industry (more than a dozen plants)
- Mechanical engineering
- Chemical industry



## BYTOM – BASIC INFORMATION

Bytom is one of the oldest cities in the Upper Silesian Industrial Region, with the area of 69,44 km<sup>2</sup>. Its population amounts to 166 000 inhabitants. The city is located approximately 10 km from Zabrze.



## KEY INFORMATION ABOUT CHP ZABRZE

2018. The new power plant complies with high environmental and BAT (Best Available Technology) standards. The plant was built to provide district heating to 70 000 households in Zabrze and Bytom, in southeastern Poland. The new investment replaced the outdated, purely coal-fired units in Zabrze and Bytom, and it will enhance the two cities' energy production efficiency. The investment of approximately EUR 300 million (PLN 1 billion) included the construction of a 10-kilometre-long heating connection between Zabrze and Bytom and new peak boilers in both cities.

The new plant has a production capacity of 225 megawatts, and the annual production is estimated to amount to approximately 730 gigawatt hours (GWh) of electricity and 550 GWh of heat.

## New CHP in Zabrze: basic information

Capacity in fuel  
225 MW

Mix of fuel:  
coal, biomass and  
RDF

Annual production:  
730 GWh (heat)  
550 GWh (electricity)

Modern and  
low-emission source  
of heating for  
inhabitants of Zabrze  
and Bytom

New connection  
between Zabrze and  
Bytom  
(10 km preinsulated  
pipeline)

Cost of investment:  
about 870 mln PLN

Fortum's multi-fuel combined heat and power plant in Zabrze applies the latest technologies and solutions for improving efficiency and reducing harmful emissions.

The new plant is fueled by refuse derived fuel (RDF – up to 50% in fuel energy) and coal but can also use biomass and a mixture of fuels. By taking advantage of locally sourced residential and industrial waste for RDF, the facility will concurrently contribute to waste management in the region.

### MIX OF FUEL

RDF



HARD COAL



BIOMASS



### ZABRZE & BYTOM

