



BUILDINGS AND VEHICLES EMISSION
CERTIFICATION INSTITUTE
AND TECHNICAL MEASUREMENTS

WORLD'S MOST ADVANCED CHP PLANT
100% RENEWABLE ENERGY
100% ENERGY INDEPENDENCE



High system efficiency



Our fuel is self-produced agricultural biogas produced from agricultural biomass harvested within a radius of up to 5 km from the biogas plant. After purification and drying, the biogas is transported 9km by its own gas network to the Combined Heat and Power Plant in Sokołów Podlaski. If required, the biogas can be upgraded to pure biomethane, with a volumetric concentration of up to 98% - the same as in high-methane natural gas.



A heat and power generation system developed by ICEB is in operation in Sokolow Podlaski. It is the most advanced in the world. Its energy efficiency in relation to the calorific value of the fuel burned is between 115% and 135%.

In the first instance, heat is supplied to the district heating network by high-temperature air-to-water heat pumps.



Another component in the energy chain is a high-temperature water-to-water heat pump. The bottom heat source is the process heat recovery from the condensing economiser of the biogas CHP unit, the cooling circuit of the turbocharging system and the condensing economiser of the peak heating boiler. In the absence of such innovative solutions, process heat in existing process systems is lost to the environment.



A key component of the system is a biogas CHP unit that produces 'green' heat and 'green' electricity from biogas/biomethane. This 'green' electricity is used to drive all heat pumps, the biogas plant complex and all auxiliary and metering drives.



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ICEB has also developed a complete measurement system and monitors and supervises the results of this advanced CHP plant. The project was funded by NCBR and carried out by a consortium: BIOGAS-EAST, ECN, ENERGOTECHNIKA, ICEB, and PUIK.

Logos of consortium members

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ENERGOTECHNIKA

ECN
ENERGY CLUSTERS NETWORK

ICEB

PUIK