Case study factsheet
Tartu, ESTONIA

Co-funded by the Intelligent Energy Europe Programme of the European Union

Tartu CHP plant

District heating

Main CHP plant indicators

Heat capacity (total)	MW_{th}	50+15
Electrical capacity (total)	MW_{el}	25
Technology	Steam turbine	
Number of units	1	
Manufacturer	Metso Power/Siemens	
Type of fuel	Biomass, peat, natural gas	
Heat: yearly generation	GWh	344
Electricity: yearly generation	GWh	200
Year of construction	2009	
Total investment costs	EUR	65.000.000
Financing	Loans	
State support	Feed-in tariff	
Return of investment (payback period)	Years	n. a.
Location	Fortum Tartu, CHP plant Tartu, Estonia	
Information	www.fortumtartu.ee	

Picture

General description of the case

Tartu CHP is a cogeneration plant which covers the base load of Tartu City heat network and produces electricity and low-pressure steam for industry. The plant has a 75 MW fluidized-bed biomass and peat steam boiler, which is equipped with 15 MW flue gas condenser. The boiler is able to burn biomass and peat mixtures, which gives the best economic result. The using of a flue gas condenser ensures very high energy efficiency and low emissions. The plant is equipped with air coolers for covering the low heat demand during the summer season. This gives a possibility to run the plant at a nominal load throughout the year.

Success factors

The flexibility of plant operation enables one to run the plant always in most productive way. During the heating season the flue gas condenser gives higher heat output with higher efficiency, during summer the coolers make for producing more electricity. Different fuel mixtures give a possibility to use most beneficial ways of operation.

Main barriers

Low heat demand during the summer season

Comparison: before and after

According to the legislation the production of electricity from biomass is supported by the state. The subsidies have reduced the investment risks. The efficient and clean production and lower heat prices for end customers are a stand-by for customers' satisfaction.

Recommendations

An efficient cogeneration plant with a variety of fuels gives an economic flexibility and a possibility to be successful for a long time.