Case study factsheet
Pärnu, ESTONIA

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

Pärnu CHP plant

District heating

Main CHP plant indicators

Heat capacity (total)	MW_{th}	45+5
Electrical capacity (total)	MW_{el}	24
Technology	Steam turbine	
Number of units	1	
Manufacturer	Andritz/Siemens	
Type of fuel	Biomass, peat, natural gas	
Heat: yearly generation	GWh	252
Electricity: yearly generation	GWh	192
Year of construction	2009-2010	
Total investment costs	EUR	80.000.000
Financing	Own founds	
State support	Subsidies for cogen	
Return of investment (payback period)	Years	
Location	Fortum Eesti AS, Pärnu CHP Plant Pärnu, Estonia	
Information	www.fortumeesti.ee	

Picture

General description of the case

Pärnu CHP is a co-generation plant which covers the base load of town Pärnu and industrial needs via own heat network and produces electricity for grid. The plant has a 74 MW fluidized-bed biomass and peat steam boiler, and equipped with 5 MW auxiliary steam boiler, working with natural gas. The boiler is able to burn biomass and peat mixtures, which gives the best economic result. The plant is equipped with air coolers 36,5 MW for covering the low heat demand during the summer season. It gives a possibility to run the plant at a nominal load throughout the year and for maximum electricity production. First year 2011 availability for district heating was 99,9 % and 99,4 % for electricity production.

Success factors

The flexibility of plant operation enables to run the plant always in most productive way. Different fuel mixtures give a possibility to use most beneficial ways of operation. Main success factors are:

- -well managed construction of plant,
- - young and highly motivated stuff,
- - good availability of biomass and peat,

Main barriers

- Low heat demand during the summer season,
- Small amount of industrial heat consumers.

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 low emissions level guarantees acceptable heat prices for end customers and are a stand-by for customers' satisfaction.

Recommendations

An efficient co-generation plant with a variety of fuels gives an economic flexibility and a possibility to be successful for a long time. This kind of power plants will be as an energy centre for creating a new industrial production companies In future.