MINI CHP PLANT

CASE STUDY

April 2016

Mini CHP units at a sports centre
Nærum, Denmark

The system has a payback time of less than 5 years and reduces the CO_2 emission by approx. 133-200 tonnes per year

Mini CHP units in combination with a heat pump reduce energy cost and greenhouse gas emission.

With the installation of three mini CHP units and a heat pump, the Rundforbi Sports Centre has successfully reduced cost of electricity and heating while lowering the greenhouse gas emission by approx. 133-200 tonnes per year. The advantage of the CHPs is mor efficient fuel use compared to separate heat and power production. The implementation of a heat pump also includes renewable energy in the heating system and has made it possible to recover waste heat from the ventilation system. The payback time for the complete installation is less than 5 years.

Short description of the installation

The site

The site is a public sports center with facilities for swimming, gym, conference rooms, and athletics stadium.

The installation

Consists of three mini CHP units, one brine/water heat pump and two condensing gas boilers. The mini CHP units and heat pump are combined with heat storage. The heat pump recovers heat from the ventilation outlet and renewable heat from ground collectors.

Operation strategy

The CHP units should produce as much electricity as possible, without exceeding the facilities' simultaneous own consumption of electricity. Peak-load boilers are used if more heat is needed.

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The technical part

Plant data for 1 year's operation

-	Installation year	2014
-	CHP total operating hours	18,500 hours
-	CHP electricity generation	335,000 kWh
-	CHP heat output, approx.	736,000 kWh
-	Heat pump heat output	164,000 kWh
-	Boiler heat output	259,000 kWh

Financial data

-	Installation cost	267,000 EUR
-	Payback time	4-5 years

Energy flows

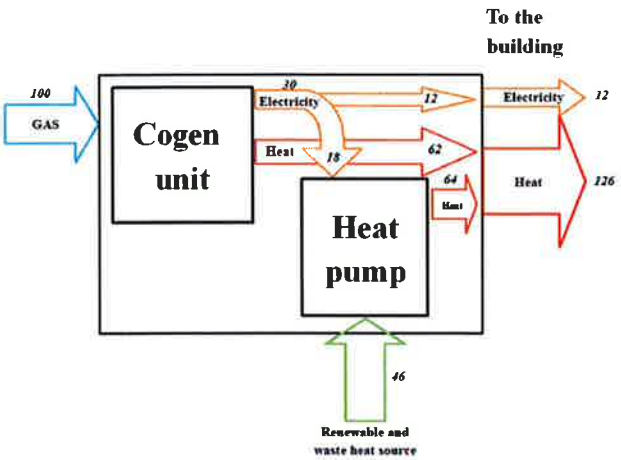

Illustration of the energy flows from the energy central to the sports facility

Installation data

		Model	Units	Specification
-	Mini CHP	EC POWER XRGI 20	3	Electricity generation 20 kW per unit Heat capacity 40 kW per unit
-	Heat pump	Thermia Robust Eco 42	1	Nominal heat capacity 42 kW
-	Gas boiler	Danstoker	2	Heat capacity 600 kW per unit (1 spare)
-	Heat storage tanks	EC POWER	4	3 x 1000 l for the mini CHP unit 1 x 500 l for the heat pump

MORE INFORMATION: CONTACT

Your local energy company • Energy advisor • Product supplier

Information collected by

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