



Small scale district heating in Borgholm

From traditional furnace to efficient district heating plant

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As the Municipality of Borgholm had taken over the old hospital premises the Borgholm Energi was commissioned to expand the furnace there so that the heat could be led from there to more municipal properties. In this way a few oil-fired furnaces could be replaced. It was decided to install a chip-fired boiler and in February 1994 heat from the plant went through the network to the municipal buildings.

Development

The traditional furnace in the Borgholm Hospital consisted of two oil-fired furnaces and one heat pump. When the plant was supplemented with the chip-fired boiler it became clear that the whole plant could be made more efficient through optimal control. When the heat was released into the "municipal network" the district heating plant was in its embryo stage. Another chip-fired boiler was installed in 2001 and now also the Borgholm Swimming Pool, Hotell Strand and several other big properties could be supplied with heating. Several property owners asked for district heating. Borgholm Energi bought the empty Arla-building and installed a third chip-fired boiler there. It is a steam boiler and it is prepared for possible electricity production in future. Nowadays the district heating covers fully 400 private properties in central Borgholm and 70 substantial apartment properties. More are being connected.

The Present Situation

The district heating plant today consists of two production units connected by culverts. The biofuel boiler in Arla-building is the "master" and supplies heat and hot water to central Borgholm. When the heating requirement is higher the old chip-fired boilers are used and the oil-fired furnaces are used last. Thanks to efficient system valves the temperature of the return flow is controlled with the highest precision and can be kept low. As a result of this the amount of water in the system is reduced to a minimum and the efficiency is high. The condensers also contribute to the efficiency as they utilize the heat of flue gases in the two newest chip-fired boilers.



One of the efficient system valves.

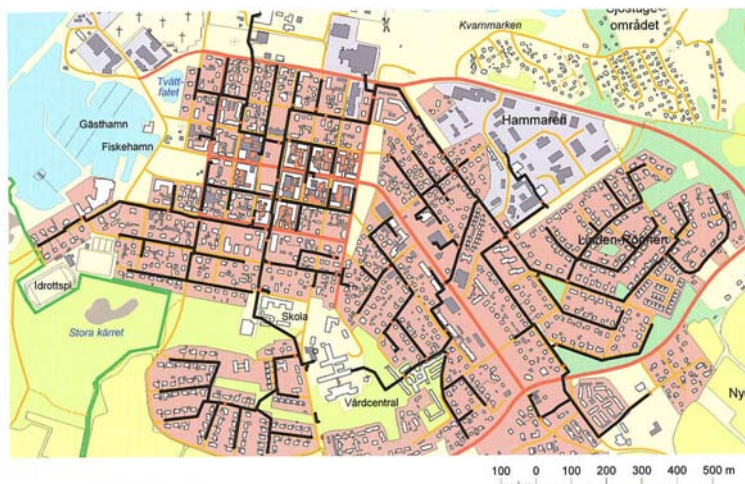


Part of the biofuel boiler in Arla-building.

Statement

“Our plant proves that it is possible to have a profitable district heating even in a small town like Borgholm. Thanks to the three biofuel boilers and the efficient supervision and control of the system we have been able to reduce our dependence on oil by about 3,000 m³ per year. New connections as a result of the expansion of the district heating network will replace another 200 m³ oil a year. Reduced oil dependence as well as reduced emissions are of course advantageous for both the environmental aspects and the reduced production costs. Furthermore the biofuel comes from the neighbouring areas in Öland and Småland.”

Niclas Beermann Director Energy and Network Borgholm Energi



The network's present extension

Facts about the plant

Technical data				Environmental effects - emission
Boiler 3 VEÅ/Järnforsen boiler Heat capacity 5 MW Steam operating pressure 13 – 14 bar Water pressure max 6 bar Water temp. out ca 95°C Water temp. return ca 50°C Flue gas cleaning Multi cyclone Flue gas condenser System Renergi from Svensk Rökgasenergi Fuel stock ca 600 m ³	Boiler 2 Järnforsen hot water boiler Heat capacity 2,5 MW Water pressure 6 bar Water temp. out ca 95°C Water temp. return ca 50°C Flue gas cleaning Multi cyclone Flue gas condenser LNV Energi Fuel stock boiler 1+2 ca 250 m ³	Boiler 1 Järnforsen hot water boiler Heat capacity 2 MW Water pressure 6 bar Water temp. out ca 95°C Water temp. return ca 50°C Flue gas cleaning Multi cyclone Fuel stock boiler 1+2 ca 250 m ³	Carbon dioxide Reduced with 8 100 tonnes/year	

Co-operating companies

Borgholm Energi AB	www.borgholmenergi.se
Energikonsult Willy Mårtensson AB, Kalmar	www.energikonsult.se
Gila Control Systems AB, Rockneby	www.gila.se
Järforsen Energi System AB, Halmstad	www.jf-energi.se
LNV Energy AB, Askim	www.lkngruppen.com/LNV
Svensk Rökgasenergi AB, Stockholm	www.sre.se

Fossil fuel free region

This brochure has been prepared by the Regional Council in Kalmar County and Borgholm Energi AB and is part of a series of best practice illustrations of fossil fuel free applications

More information about nooil and fossil fuel free region is available at <http://www.kalmar.regionforbund.se/nooil-eng>

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THE REGIONAL COUNCIL
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