



*Logstor District Heating Company at night fall*

## ENERGY SYNERGY

The secret for creating a highly efficient and price stable energy infrastructure lays in the creation of synergies between different modes of energy production and different modes of energy utilization.

At the heart of this effort, you will find the District Heating (DH) system. The DH system is both a thermal energy distribution network and a thermal energy storage facility and unlike the power grid and natural gas networks the DH network has very low “quality demands” to the energy that is supplied. It just has to have the right temperature at a given moment in time.

This means that it is relatively cheap to supply energy to a DH network and as thermal energy is one of the cheapest forms of energy to produce; you have the opportunity of creating a very feasible energy system. More over modern DH systems are high tech installations and a far cry from the early DH systems, where high transmission losses were common. New DH systems include advanced materials and flow monitoring systems that minimize distribution losses.

The establishment of the network entails a substantial investment, but is unrivalled at its potential of utilizing resources that would otherwise have been wasted, creating unique economic opportunities. Additionally the system is also the easiest on which to implement renewable energy production facilities.

### **Logstor District Heating Company**

A good example of the opportunities entailed in a well-planned DH system, is the energy supply company Logstor District Heating (Logstor) that has been a client of AAEN A/S for many years.

The first thing that is noticeable of Logstor is the company’s very diverse energy production portfolio, which includes both a straw boiler, a wood pellet boiler, an absorption cooling plant utilizing biomass heat, a bio-oil boiler and several gas boilers and gas engines.

This plant diversity leads to a high degree of fuel flexibility, which leads to a high degree of supply security, which ultimately leads to a very stable energy pricing structure.

In addition Logstor has four accumulation tanks connected to their DH network with a total accumulation capacity of 3,900 m<sup>3</sup>. This means that the company can manage peak load situations very well and produce energy at an optimum time e.g. in regard to the electricity price.

Finally the company is commencing the construction of a 20,000 m<sup>2</sup> solar thermal plant with an accumulation capacity of 5,000 m<sup>3</sup> DH. The plant is planned to be finished in 2014 and will contribute significantly to the long term economic stability of the supply company.

All the elements listed above are important parts of why we think Logstor is a very good example of how you create a sustainable and feasible energy infrastructure. However, in the end what it all boils down to is smart *Strategic Energy Planning*.

Whether you are a larger or smaller energy supplier or an industrial company you should ask yourself; what are my (clients) energy demands in 5 and 10 years? What possible fuel sources are available to me locally (e.g. wastes)? Which technologies are developing? What is developing in the political environment? Regardless of your question we will be able to assist you.



**Solar Thermal Plant<sup>4</sup>**

**20.000 m<sup>2</sup> Solar Thermal Plant**  
The Solar Thermal Plant is under construction outside Vindblaes. When complete the plant will deliver energy to Vindblaes the whole year and to the neighboring towns in the summer time

**Heating Network**

The District Heating Networks delivers space heating and domestic hot water to most residents, business and public buildings in the towns, some 2.400 users in total



4 **VINDBLAES**



**Heat Transmission Lines**

One 7,2 km line to Vindblaes  
One 8 km line to Ranum  
The transmission lines delivers heat to the networks in the neighbouring town

**RANUM**



**Biomass Boiler Plants<sup>1</sup>**

One new 6,3 (8) MW Straw Boiler  
One new 6,3 (8) MW Wood Pellet Boiler

Delivers the base load for all the networks and the driving energy for the District Cooling plant

**LOGSTOR**

**Booster Pump Central<sup>3</sup>**

The Pump plant delivers District Heating to the networks in Logstor, Vindblaes and Ranum



**District Cooling Plant<sup>2</sup>**

A new 500 kW District Cooling Plant delivers cooling to the server room the DH pipe manufacture LOGSTOR

