

ENGINEERING
TOMORROW

Danfoss

Case study | District heating

Successful transition from oil boilers to a local heating network in Eurasburg

In the Wittelsbacher Land near Augsburg the local network in Eurasburg supplies heat to 80 buildings using a wood chip heating system. Danfoss' substations ensure efficient heating in all building types, and its modern SCADA solution enables remote system monitoring and management.



The Challenge:

Find a sustainable alternative to outdated oil-heated boilers

In 2018, the rural town of Eurasburg, Germany needed a heating solution for the extension to the town's daycare center. At the same time, many homeowners were looking to replace their aging oil-heated boilers. Everyone was interested in getting a renewable energy solution that could take advantage of the town's abundant natural resource – the Eurasburger Forest. So, the city council decided to build a local heating network with a central wood chip system, sourcing wood from the surrounding forest. The project was approved on one condition: that the town could connect all public buildings in the community to the new heating network.



The Solution:

Danfoss VXe substations and Leanheat Monitor® power a centralized wood chip heating network

Michael Gail, the heating engineer responsible for the project, worked with Danfoss to choose the appropriate substation solutions for each building. They selected VXe solo stations for buildings with a heating load of up to 30 kW, and DSA1 mini stations for larger buildings with a heating load of 30 to 100 kW. For a heating load of more than 100 kW, they implemented individual, freely planned stations. High-quality microplate heat exchangers ensure an effective heat transfer in all installed substations. The stations also handle the network's hydraulic balancing, using built-in independent volume flow controllers with integrated motor control valves. But substations and controllers were not the only reason why Michael Gail chose Danfoss.



We also researched stations from other manufacturers, but we preferred the Danfoss stations. Both the stations and the integrated ECL controllers are great.

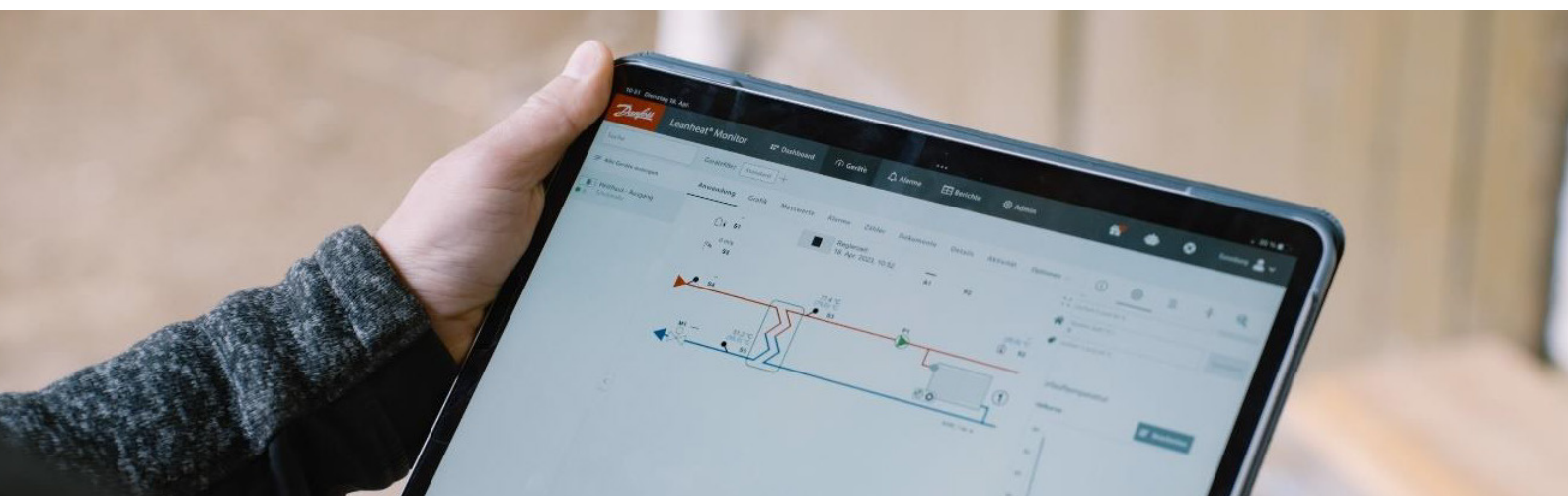


says Martin Gail, Junior Manager at Gail and MG Energie, explaining why they opted for a Danfoss solution.

To give utility managers optimal control of the heating network, all transfer stations were integrated into Danfoss' web-based SCADA solution, Leanheat® Monitor. "This software was also one of the reasons we chose Danfoss, as it was important to be able to read the meter and controller data and make settings at the touch of a button", says Martin Gail.

Ability to access the system from anywhere means network issues can be addressed quickly. According to him, "If a customer calls to report an issue, I can use my cell phone or tablet to see what's wrong or what needs to be changed. And that really simplifies the work."

Another crucial aspect of the Eurasburger heating network is that the connected buildings don't have to meet any special efficiency requirements to join. They only had to remove their old oil heating systems. This gives the homeowners time to make any energy-related upgrades gradually and at a pace that's financially feasible for each household.





The Results

The Eurasburg local heating network currently supplies heating for 80 buildings, including the primary school, multi-purpose hall, fire station, town hall and daycare center. System utilization is currently around 90 percent, which means there's still room for expansion. They are also considering adding a solar system in the future.

Other rural communities in the region have followed the project closely and are already planning similar projects. Martin Gail explains



This model is exciting for the development of the rural communities because the added value remains regional, and also promises a certain degree of independence.



He is certain that the Eurasburg local heating network will not be the last his company implements – and he has already selected the partner for substations and SCADA solution: “We will definitely implement our next heating network with Danfoss.”



Fact box: **Yes, wood is sustainable.**

You might wonder how a heating system based on wood chips can be sustainable. Josef Bertele, who supplies wood chips to the Eurasburg heating network explains.



As an add-on to waste from industrial wood processing, we only use stump and top wood, that cannot be processed in the first place, as well as damaged wood, which is just as unusable and often has to be removed from the forest. Since the wood is constantly growing back and waste products are continuously produced, the use of wood chips ultimately taps into a regenerative energy source without comparison. The CO₂ emissions from the combustion process are far behind those of fossil fuels and only slightly higher than emissions caused by the wood rotting in the forest.

