



The Land of the 1000 Hills

Case Story - Wiesmath, Austria

It takes hard work and a good portion of stubbornness to move a small countryside municipality towards a more sustainable future

Biomass is a buzz word in the hilly countryside around the village of Wiesmath in Lower Austria. Several villages in the area are being supplied by district heating from local biomass-fired heating plants. And according to Mr Otto Haberhauer - the manager of the shareholding company Biowärme Schneebergland that runs them all - the biomass must be local.

- In times of climate change it makes no sense for us to import wood chips from far-away places like Russia. It has to be local wood so that the transport distance is as short as possible, he explains.

A fixed price

The heating plant in Wiesmath consists of two boilers that are fuelled solely by wood chips. That is, most of the time only one boiler is in use. The second one is used only when it is really cold or in emergency situations. The company has 220 shareholders - all farmers from the area around the

heating plants - who are the ones that deliver wood chips to the heating plants. They receive a fixed price that is 15% higher than the market price, and have a long-term contract. This provides them with an income they can count on. The company's philosophy is that farmers should be paid a fair price and the heating plants shouldn't necessarily make a profit. - We basically created the company to secure an income for the local farmers. And since there is big potential for the use of wood chips in the area, it was obvious to focus on that, says Otto Haberhauer.

It takes a lot of work to run a non-profit company responsible for 23 biomass-fuelled heating plants. But Otto Haberhauer is a pioneer in this business and plans to stay manager as long as he has the energy to do the job. The objective of Biowärme Schneebergland, which was established in 2000, is basically to build and operate heating plants connected to district heating networks. Today, the local farmers deliver 6000 tons of

wood chips per year that are divided among the heating plants in several villages - in the land of a thousand hills, as locals call this picturesque area.

A package

To date, Danfoss has supplied more than 300 biomass-fuelled heating plants with substations and other equipment around Austria. The one in Wiesmath is typical.

- We are solution providers and deliver total substations as a package. Since Danfoss has a long tradition in the field of district heating, we are able to deliver what the customer needs. Our dialogue with the customer is very important from day one of the project. The biomass-fuelled heating plants are mostly established by people who don't have experience in this field, so they need a company like Danfoss which can deliver the required products while at the same time supporting them with their experience, explains Reinhild Horn from Marketing Communication at Danfoss District Heating in Austria.



A district heating substation in the Wiesmath community



A determined view in the future – Mr. Otto Haberhauer

It is important for each house or institution to be given a substation that meets its specific needs – not too big and not too small. The substation in the municipality building in Wiesmath is 85 kW, whereas the one in the school is 250 kW.

Solar panels

A photovoltaic system has been installed on the roof of the heating station. The solar panels produce 7000 kWh of electricity per year, which goes into the public electricity network. This means in theory that it produces a good part of the electricity that is used to run the heating station.

- The absolute main thing in Wiesmath is the biomass heating station in combination with district heating, but the solar system has contributed to achieving a public prize in Austria for being a so-called energy municipality. In Austria, renewable energy projects like this are often supported by the state of Austria and by the federal province. This is also the case with the Biowärme Schneebergland projects,

Martin Stocker says. He is sales manager for Danfoss District Heating in Lower Austria and is therefore involved in providing solutions for shareholding companies like Biowärme Schneebergland.

The school

All public buildings in Wiesmath are connected to the district heating network – like the school, where headmaster Willibald Kornfeld is happy to explain how teachers integrate topics like climate change, energy efficiency and renewable energy into their lessons.

- It is obvious for us and not so difficult to understand, because the children can see the heating station and the solar panels just two minutes away from their school. Being underground, the district heating network is a little more complicated to understand, but the children gradually get an idea of how it all works, says Willibald Kornfeld.

Just inside the school's entrance, a TV screen has been installed to show the electricity produced by the school's

own photovoltaic system on the rooftop. It is connected to a computer that receives all the information from the solar panels. This way the children can see how much energy is produced at which time of the day.

More customers ahead

The school's own substation in the cellar replaced an old worn-out oil-fuelled boiler. There is no doubt, according to Otto Haberhauer, that district heating has given the school a more stable and indeed cheaper heating system. But it also means less harm to the environment, since oil is more polluting and the old boiler was ineffective.

The heating plant is equipped with a Danfoss Energy Control System, which is in constant contact with the controllers of the substation and displays how much energy is being sent to customers. The whole system is computerized so that the station manager can track heat consumption in each of the connected buildings.



Burning wood chips - A view into the boiler



The responsible sales engineer from Danfoss – Martin Stocker – looking at a heating system installed in a nearby school



- We carefully observe the temperatures of the hot water that flows back and forth in the district heating network, since the temperature in the network dictates how much heat we have to produce, says Otto Haberhauer. He is aware that it is not profitable for everybody to join the system, since the further away a house is situated from the existing pipelines, the more it costs to connect it. New pipelines have to be built and heat loss increases for every metre the pipelines are extended. A heat loss of

more than 25% is not cost-effective and is not supported by the state. All the same, 20-30 more houses will be connected in 2009 and, according to Haberhauer, there is potential for connecting 50% of all houses in the core area of Wiesmath. It's a long road, but the municipality is on its way to sustainability.

Facts

The two biomass-fuelled boilers in Wiesmath have a capacity of 850 and 300 kW. 95 Danfoss substations are placed around the village. The district heating network that connects them is 4 km long and will soon be extended to 5 km.

Wiesmath has around 300 houses, 30% of which are currently connected to the district heating system. However, all public buildings and all bigger energy users are connected.

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