

# Local alliance captures energy before it is lost into thin air

When Mrs. Jensen in the Danish town Bjerringbro turns on the heat in her family home in winter, part of it comes from Grundfos. When Grundfos on the other hand needs cooling for its data centre and factory in the summer, it gets a substantial amount of it from the town's groundwater cooling system.

Grundfos and Bjerringbro District Heating Company have built a joint energy exchange station called "Energicentralen" (the energy central). Energicentralen captures, stores and uses cooling and heating in a closed system. The cooling part benefits the Grundfos factories, and the heating benefits the district heating company. Energicentralen is a small room filled with shiny metal pipes in all shapes and sizes. There is a faint smell of detergents and a deafening noise. It is the centre of a public-private partnership gone right.

"For every single kilowatt-hour we put into Energicentralen, we get more than 8,2 kilowatt-hours out. 3.6 kWh of them are energy for cooling and 4.6 kWh are energy for heating. Exchanging 1 to four-and-a-half would be good, but this is actually great," says Klaus E. Christensen, Senior Project Manager in the Grundfos environmental department, Quality and Environment.

## OPENNESS AND TRUST

Since Klaus E. Christensen and Energicentralen's operations manager Charles Winther Hansen from Bjerringbro got the idea, the two have worked closely together on the project. A project that according to Charles Winther Hansen never would have materialised if not both Grundfos and Bjerringbro Varmeværk had been dedicated partners.

"Our cooperation builds on openness and trust and we have a positive dialogue. From the beginning we have focused on

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**COMPANY:**Energicentralen

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possibilities instead of obstacles, and we agreed in an early stage to make an even split on investments as well as savings,” says Charles Winther Hansen.

#### A GREEN PROJECT WITH A VALID BUSINESS CASE

For Grundfos the cooperation is a way to show consideration for the local community and reduce its carbon footprint. What started off as an idealistic idea turned out to be a way for Grundfos to help meet its strategic goals of not emitting more CO<sub>2</sub> than in 2008. After three years, Energicentralen has saved the company 3,700 tonnes of carbon dioxide (CO<sub>2</sub>) emissions per year. “We made a contract about exchanging energy with the town we are situated in. That is it. The technology is not rocket science, and the set-up is not rocket science either,” says Klaus E. Christensen. He continues: “The project was born as a green project. Luckily, there have been multiple positive technical side effects as well. What we have done with Energicentralen in Denmark has created precedence for how things are done in the rest of the Group. For example, we no longer establish cooling towers.”

#### NO NEW TOWERS

Cooling towers are not a clever way to create the cooling a manufacturer like Grundfos needs for a long list of processes, according to Klaus E. Christensen. They use a lot of water, you have to use chemistry in the process and they make a lot of noise. You avoid these disadvantages when you build a closed cooling system. On top of that, energy exchange is also cheaper.

With a production of more than 16 million pumps a year, it makes a difference when facility management changes the cooling processes. Klaus E. Christensen admits that it required an effort from the environmental department to convince facility management.

“Trust and confidence are key to a successful integration. Of course, a production like ours cannot make any compromises as regards to the security of supply, and a new set-up needs to be integrated in the internal systems. It is a process that is demanding for everybody, and a process that takes dedication to change.”

#### GO SEE WHAT YOUR NEIGHBOUR IS DOING

Denmark has been a district heating flagship since the early 1970s. More than 37,000 miles of pipes distribute the local district heating to more than 63% of the population. That means that the infrastructure for the distribution of heat is in place. But that is not the key to success. It is all about the mindset.

“If you do not have the infrastructure, take a look at your neighbour. If he needs heating and you need cooling then maybe you should get together and work out a solution. It does not have to be more complex than that. The exchange of energy is basic, and a lot of companies can do what we have done and find partners that can use the energy surplus to something instead of just sending it into thin air,” says Klaus E. Christensen. He continues: “At Grundfos we are not experts in cooling. But we found a partner who was and who can actually help us build a better solution – a solution where there is focus on the economy and the efficiency of what we are doing. What made the difference for us were the relations, and the right people that made the right decisions.”

## MEETING EXPECTATIONS

Klaus E. Christensen and Charles Winther Hansen agree that the transaction of cooling and heating as the truly unique thing about the venture.

“The unique thing about this cooperation is that we actually made it,” Klaus E. Christensen says. “The timing was good – both partners were looking for a different way of doing things and new solutions. There was support from top management and a willingness to take a risk. There was good personal chemistry between the participants and it all added up in a mutual trust and confidence. That really made the difference.”

And the outcome of the venture lives up to the expectations and ambitions they set from the beginning. Charles Winther Hansen from Bjerringbro Fjernvarme says: “For us the major achievement is that we are now less dependent of natural gasses and that we emit less CO<sub>2</sub>. It allows us to offer a greener and more sustainable district heating at a lower price. That is the way we want to go and that is what is expected of us from the citizens of Bjerringbro and the local politicians.”

## HOW DOES IT WORK?

[Watch this short film](#) to see how the closed system works.

## FACTS

The total CO<sub>2</sub> reduction from this project is 3,700 tonnes per year. In comparison, the average UK citizen emits 9,7 tonnes per year.

Grundfos initiated the project as one of the ways to live up to its strategic goal to not to emit more CO<sub>2</sub> than it did in 2008.