

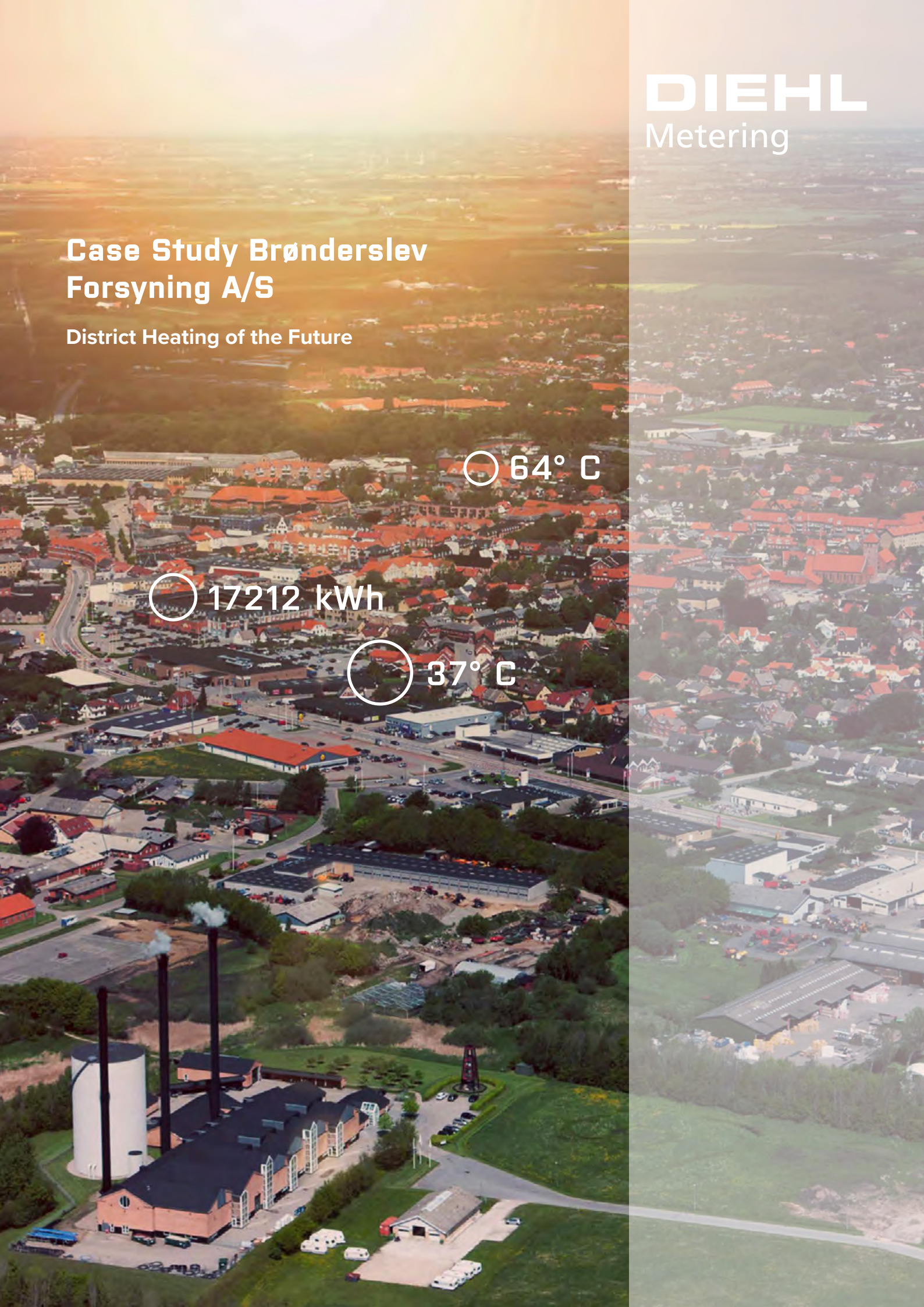
# Case Study Brønderslev Forsyning A/S

District Heating of the Future

○ 64° C

○ 17212 kWh

○ 37° C





## CHALLENGE: ELIMINATING EFFICIENCY PROBLEMS IN THE HEATING NETWORK

Wholly owned by the Danish city of Brønderslev, the Brønderslev Forsyning A/S holding company is responsible for the district heating and water supply, as well as for wastewater treatment. The utility has implemented a comprehensive Fixed Network solution together with Diehl Metering, enabling energy-efficient heat production and distribution.

Brønderslev Forsyning A/S is a pioneer in the field of smart energy and is implementing, among other things, a “District Heating of the Future” concept for the city of Brønderslev. The utility company relies upon its own combined heat and power unit – one of the most efficient plants worldwide due to the combination of solar, biomass and heat pumps – for the generation of power and district heating.

Before the implementation of Diehl Metering’s smart metering system solution, the Danish supplier was confronted with efficiency problems in its heating network. Since the old mechanical meters were unable to provide current values on the temperature conditions in the distribution network, it was not possible to efficiently control the forward and return temperature. Households that do not use their district heating water due to disadvantageous heating behaviour – known as “bad coolers” – have led to very high return temperatures. Brønderslev Forsyning A/S therefore had to deal with unfavourable (i.e. low) temperature spreads and high return temperatures, and as a consequence the heat produced in the power plant was not used effectively. Both

consumer and utility had to bear unnecessary extra costs, as the overall effectiveness of energy generation and distribution was reduced as a result of the problems described above.

Because the old mechanical heat meters had no integrated communication capability and thus could not transfer consumption data or meter alarms to the utility, Brønderslev Forsyning A/S’s direct customer service was very limited. An automated and prompt leakage alarm is particularly important for consumers, as cost-effective damage to buildings due to leaks or burst pipes in the home can be effectively avoided – this was not possible with the old infrastructure.



**12,600  
INHABITANTS**

“District Heating of the Future”  
for the city of Brønderslev –  
energy-efficient heat production  
and distribution





## THE SOLUTION: A FIXED NETWORK FOR SMART ANALYSES

In order to stay true to its “District Heating of the Future” concept, Brønderslev Forsyning A/S decided to implement an innovative Fixed Network solution for fully automated reading of more than 4600 SHARKY 775 ultrasonic energy meters. In order to provide consumers with intelligent leak protection, the utility company opted for the additional installation of SHARKY FS 473 ultrasonic flow sensors in the return pipe of each house.

The flow sensors are connected to the SHARKY 775 meters installed in the flow pipe to automatically record and compare the flow rates in the flow and return pipes. Should a value deviate from the predefined range, the ultra-

sonic energy meter will set off a leakage alarm. The SHARKY 775 can reliably detect a burst pipe after just 90 seconds as well as low flow rates, caused for example by a dripping heater.



Thanks to the integrated radio module, the ultrasonic energy meters are ready for fully automatic reading within the framework of the Fixed Network immediately after installation. The readings regularly sent by the SHARKY 775 ultrasonic energy meters, such as forward and return temperature, flow rate, current output, energy consumption and alarms, are collected several times per hour by permanent receivers and are evaluated through the IZAR software.

## THE BENEFIT: HIGH TEMPERATURE SPREADS AND ADDITIONAL SERVICE THANKS TO LEAKAGE ALARM

Thanks to the fully automated reading of the SHARKY 775 ultrasonic energy meters, Brønderslev Forsyning A/S is able to continually improve its customer service. Consumers can be sure that incorrect meter reading is a thing of the past, which was not the case when the meters were self-read.

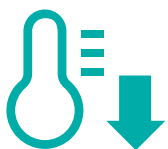
In addition to correct billing, the Danish district heating supplier can use the meter data that is collected on a regular basis through smart analyses for more energy-efficient heat production and distribution. Diehl Metering IZAR software plays an essential role in this: Using the hosted meter data management software IZAR PLUS Portal, Brønderslev Forsyning A/S can check the difference between the forward and return temperature (spread) for each meter in an innovative analysis

dashboard. Whereas in the past high return temperatures caused by suboptimal heating behaviour of individual consumers have led to low temperature spreads and thus to high energy costs, huge savings can now be made for suppliers and consumers thanks to the IZAR PLUS Portal smart analysis function.



**“Because IZAR software enables us to perform smart analyses, we can better adapt heat generation to our customers’ consumption patterns and notify them of disadvantageous heating patterns. This has allowed us to reduce our return temperature from an average of 40° C to 37° C, which corresponds to cost savings of € 60,000 per year at the CHP-production plant due to better fluegas cooling. We can invest the money saved, directly in our ‘District Heating of the Future’ concept”**

Thorkil Bartholdy Neergaard,  
Managing Director of Brønderslev Forsyning A/S



### 3° C TEMPERATURE DECREASE

Reduction of average  
return temperature from  
40° C to 37° C

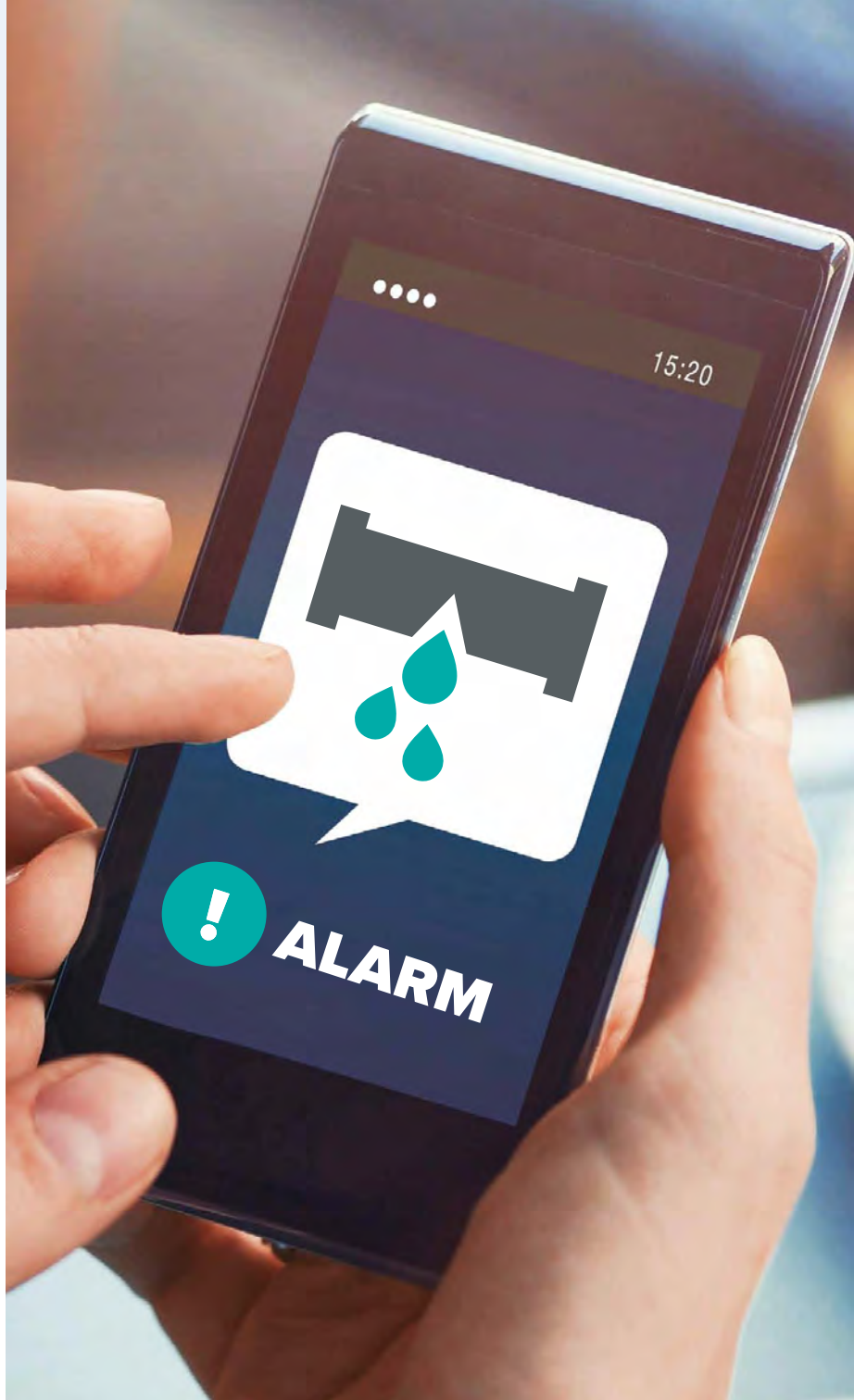
Defects, abnormal operating conditions at the transfer stations, and disadvantageous consumer heating behaviour of the “bad coolers” are now being detected quickly using the IZAR PLUS Portal dashboard. In many cases, advising consumers is enough to achieve high temperature spreads and a considerable reduction in return temperatures.



## 60,000 € COST SAVINGS

By consumer advice  
and optimised temperature  
spread

Diehl Metering's smart system solution allows the Danish utility to offer its customers an additional safety service in the form of a leakage alarm. As part of the Diehl Metering Fixed Network, consumption data and the various SHARKY 775 meter alarms (including a leakage alarm) are automatically read at regular intervals and displayed in IZAR PLUS Portal. As soon as a leakage alarm is received by Brønderslev Forsyning A/S employees over the Diehl Metering software, the affected and for the special service registered consumer will receive a corresponding alarm via email and/or SMS. This service has been very well received by customers of the Danish energy supplier and has increased customer satisfaction by effectively preventing costly damage to houses. Consumers can also make further saving as many burst-pipe insurance companies offer significant discounts thanks to the smart Diehl Metering infrastructure.



**“Together with Diehl Metering we want to continually improve our system and offer additional services to our customers. The visualized consumptions of the IZAR Software can be viewed at any time via our own web portal. The collected measurement values also form the basis for further optimisation analyses.”**



Thorkil Bartholdy Neergaard,  
Managing Director at Brønderslev Forsyning A/S

