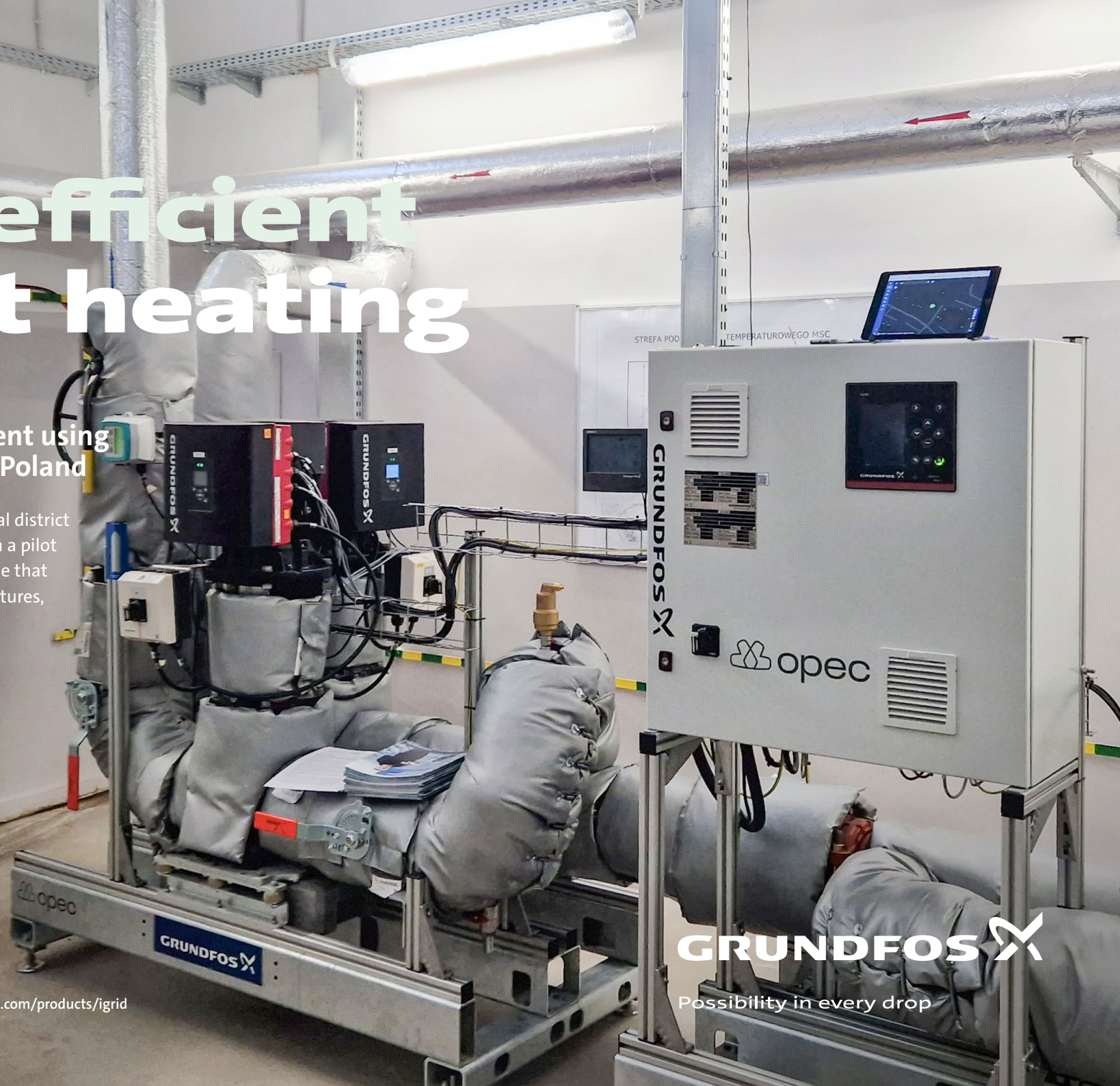


Case | iGRID District Heating

More efficient district heating

Intelligent heat management using Grundfos iGRID in Gdynia, Poland

Grundfos Poland and OPEC Gdynia, the local district heating operator, worked collaboratively on a pilot project to install an iGRID Temperature Zone that reduces heating losses and lowers temperatures, increasing network capacity and efficiency.



Explore Grundfos iGRID at product-selection.grundfos.com/products/igrd

GRUNDFOS 

Possibility in every drop



Alexander Gamolya, CEO of Grundfos Poland and Commercial Director for Digital Solutions in the EU, speaking at the iGRID inauguration event on 19 April 2023. Photo: Kamil Roszkowski



Speakers at the inauguration event included Wojciech Szczurek, Mayor of Gdynia. It was attended by representatives of the Gdynia local government, OPEC and Grundfos. Photo: Kamil Roszkowski

For a pilot project in the city of Gdynia, Grundfos and OPEC, the regional district heating operator, installed iGRID Temperature Zone, an intelligent mixing loop solution, on a subsection of the heating grid. With its automatic temperature reduction and control, it is now possible to reduce heat losses and lower the flow temperature, while maintaining comfort for residents and businesses in the area covered. Saving costs and energy, the project aids OPEC in making further modernisation and energy efficiency investments on the network and contributes to a reduction in carbon emissions that form a key pillar of the City of Gdynia's climate policy.

The situation

OPEC Gdynia, a regional local district heating operator in northern Poland, was faced with

two pressing external challenges. The first, a commitment by Gdynia's mayor to reduce the city's carbon footprint by 43% by 2030; the second, concerns over energy price and supply in the region due to the ongoing geopolitical situation.

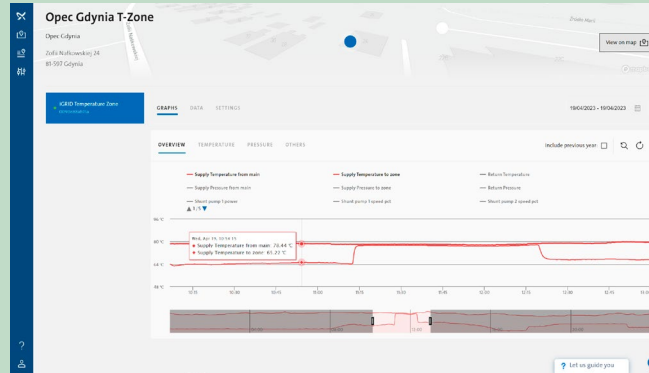
Their efforts to modernise and optimise their district heating network therefore required an even sharper focus, and OPEC looked for ways to reduce heat loss and leakage, increase network capacity and efficiency, and use cheaper and more effective sources of energy.

To achieve these goals, OPEC collaborated with Grundfos to embark on a two-year pilot project in the Karwiny district of the city, where a Grundfos iGRID Temperature Zone would be installed on a section of the district heating network.

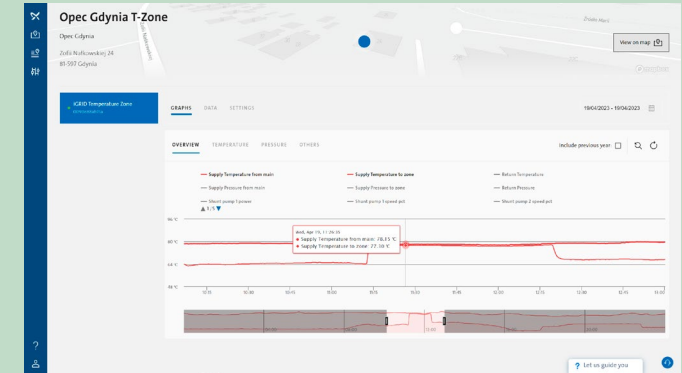
“Thanks to this installation, we use less energy to provide high-quality heat to our city's inhabitants. This is how we want to use modern technologies in Gdynia. They are intended to serve residents and at the same time be environmentally friendly.”

Wojciech Szczurek, Mayor of Gdynia
Inauguration event, 19 April 2023

The iGRID Temperature Zone plan



a.



b.

Real-time data shows the supply temperature significantly lower on the secondary side (a) in the iGRID Temperature Zone. As a proof of concept, if the iGRID mixing loop is not used (b), the supply temperature increases.

The solution

Experts from Grundfos Poland consulted with OPEC to deliver an intelligent mixing loop solution tailored exactly to what was required. Working collaboratively, Grundfos and OPEC planned the iGRID Temperature Zone, installing two skids including a controller, pump and various sensors in the local substation.

iGRID intelligently monitors and controls pressure and temperature according to real-time demand in the district heating network. The

array of metering points and sensors around the system combine with the advanced algorithms of the iGRID solution to enable automatic, real-time adjustments in the temperature zone, while also sending data back to OPEC's SCADA system for monitoring on the wider network.

The project was inaugurated in April 2023 in a ceremony involving local dignitaries and representatives from both OPEC and Grundfos.

“This solution will bring real energy savings and allows us to assess whether we will be able to quickly move towards switching to fourth generation heating networks.”

Wojciech Folejewski, President of the Board, OPEC Gdynia
Inauguration event, 19 April 2023

Grundfos supplied

Grundfos supplied a prefabricated skid complete with the iGRID Temperature Zone solution including:

- iGRID Temperature Optimiser
- Grundfos CU352 V5 control unit
- Grundfos CRE pump with integrated frequency converter
- Weather station
- Flow meter



iGRID Temperature Optimiser



Grundfos CU352 V5



Grundfos CRE pump

“Our cooperation with OPEC and the Gdynia municipal authorities will contribute to achieving climate goals by effectively reducing carbon dioxide emissions. We are pleased our district heating solutions increase the efficiency of existing installations, making it possible to save funds and allocate them to new investments.”

Alexander Gamolya, Grundfos Poland CEO
Inauguration event, 19 April 2023

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The Outcome

The project has resulted in energy savings that can reduce heating costs for end users and increase resources for further efficiency projects on the network, while meeting the climate ambitions of the City of Gdynia in reducing carbon emissions and using environmentally friendly sources of heat energy.

From the outset, iGRID immediately began delivering on its promise. Flow temperature was lowered, and heat losses reduced. Return temperature was also lowered and delta T increased, which has increased network efficiency while maintaining comfort in buildings. The data provided by iGRID has made it easier for OPEC to identify leakages on the network, further increasing overall efficiency.

Furthermore, while flow within the zone itself has been increased, monitoring data has shown that the flow rate into the substation from the main network has been reduced by 30%, thus increasing the total capacity of the whole network and a clear demonstration of the increased efficiency enabled by the iGRID solution.

With projected annual savings of 984 GJ in this section of the heating network, OPEC was able to obtain a ‘White Certificate’. These government-issued financial instruments are commodities that can be traded on the Polish Power Exchange; companies like OPEC can then use the resultant additional income as

a mechanism to encourage further investment in modernisation and energy efficiency projects.

The projected cost and energy savings on this project, along with the White Certificate, indicate a sales-based return on investment of 3.5 years. The system is also future-ready, as the lower temperature conditions make it possible to connect to low temperature sources such as renewables and surplus heat.

Over the course of two years, data from this pilot project will be analysed and assessed for its viability for larger-scale iGRID implementations across the entire OPEC district heating network in Gdynia.

Grundfos iGRID



Explore the installation

visit <https://my.matterport.com/show/?m=EcsxVLiYiNX> and enter the password *Grundfos*

Start exploring

Grundfos Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

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