

ENGINEERING
TOMORROW

Danfoss

Case Story | District Energy

How the city of Viborg uses Leanheat® Monitor to optimize its district heating

Viborg District Heating Utility supplies district heating to over 10,000 households and businesses in the cities of Viborg and Hald Ege in Denmark. The utility company has set a goal of being CO₂ neutral by 2030 and is constantly looking for ways to improve the energy efficiency of its heating network and reduce heating costs for its end-users. A longtime Danfoss customer, Viborg varme used Danfoss' ECL portal to monitor its heating system. In connection with the portal's discontinuation, the utility company selected Leanheat® Monitor as its new SCADA solution.

Solution

Leanheat® Monitor is Danfoss' advanced software solution for monitoring and managing substations in district heating networks. Danfoss managed the entire migration process from the ECL portal to Leanheat Monitor, ensuring a quick and smooth transition to the new platform. The implementation team was able to handle integration and system set-up online, which saved time and resources.



Leanheat Monitor includes auto-commissioning functions for ECL controllers. This enables us to go from connecting a controller to having a flow-diagram visualized on screen in less than one minute.

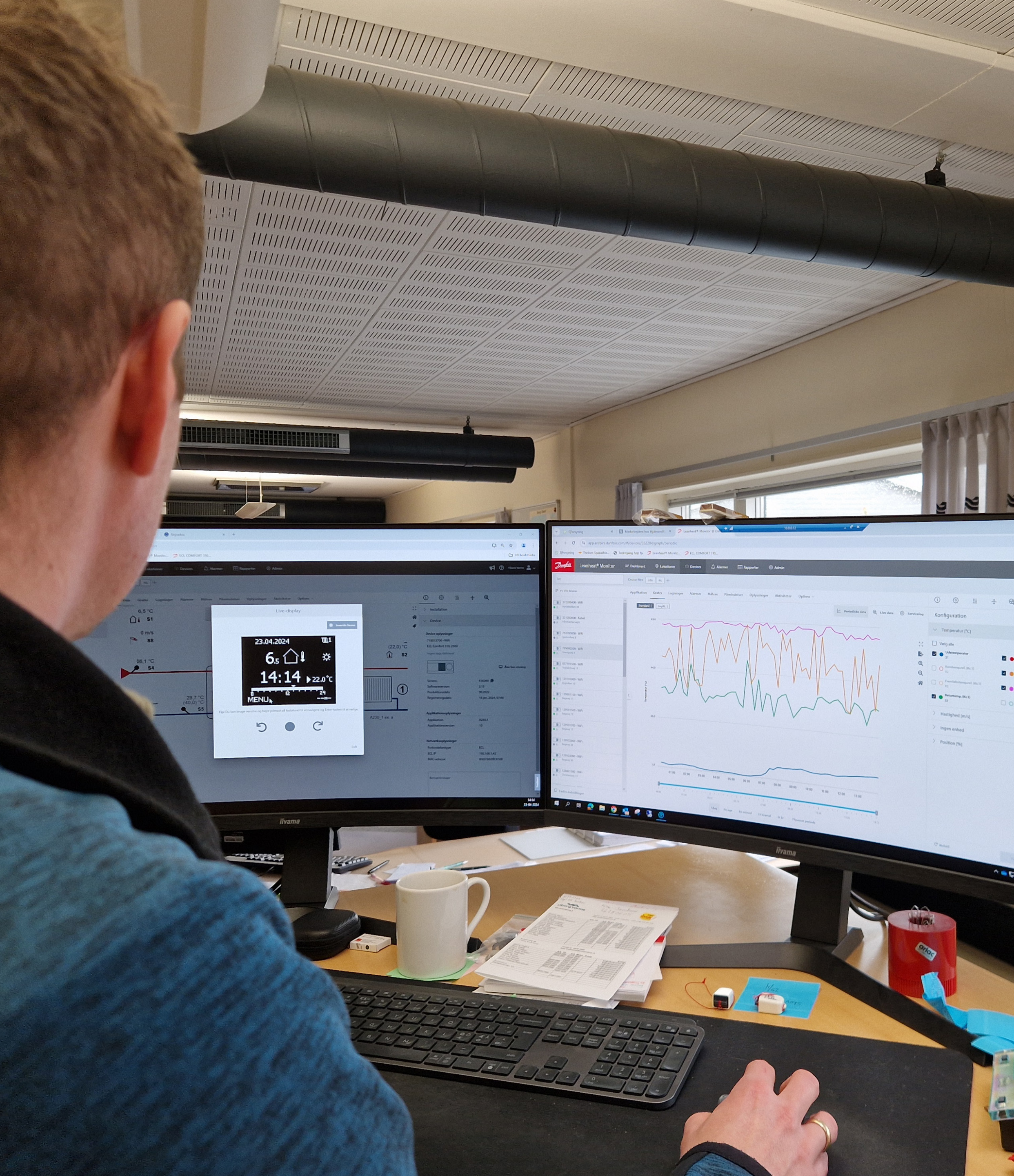


Explains **Jørn Dalgård**,
Product Manager at Danfoss.

One major advantage with Leanheat® Monitor is that it enables Viborg varme to integrate existing the substation controllers into one platform throughout the network. The utility company can then use the Leanheat® software to monitor both the primary and secondary sides of its heating network, including key parameters such as pressure, temperature, configure alarms, and do remote regulation and optimization of the stations.

Viborg varme also offers to lease heating stations to its end-users. End-users pay a variable monthly amount, and in return Viborg varme handles all the maintenance related to the stations. Each station comes pre-equipped with Danfoss' ECL310 controller, which enables Viborg varme to service and troubleshoot the network remotely, as well as capture temperature and pressure measurements from the station.





Results

A full overview of the entire heating network

Usually, utility companies only have insight into the primary side of the heating network. After integrating existing ECL controllers throughout the network, Viborg varme now has a comprehensive, detailed overview of both the primary and secondary sides of the system. This type of overview is critical for effective network operations and maintenance.

Improved heating station control

Since Viborg varme can incorporate data from measurement points located at the furthest sections of the heating network, the utility can optimize substations and temperature levels throughout the network. This overview helps them improve return temperature, which can mean significant cost savings and reduces wear and tear on the components within the system.

Baseline comparisons

With Leanheat® Monitor, utility companies can also extract historical data, even dating back to before the actual integration period. This enables municipalities and utility managers to analyze grid operations in the context of past performance.¹

Remote network management and troubleshooting

Utility managers can use Leanheat® Monitor to remotely change grid parameters and troubleshoot network issues for both the primary

and secondary sides of the network. This saves time and reduces operating costs.

A GDPR-compliant solution

Leanheat® Monitor operates on an ISO27001 certified platform that enables GDPR compliance. The service is hosted via a cloud service provider with over 40 security certificates globally. This focus on security gives utilities like Viborg varme a superior level of encryption and data protection, which helps them ensure that customer data is stored securely.

A solid foundation for future network improvements

By implementing Leanheat® Monitor, Viborg District Heating Utility can improve the municipality's efficiency and operational budget going forward. Because it can monitor several grid measurement points at one time, Viborg varme can ensure a more stable, optimized network operation. Leanheat® Monitor has thus proven to be a good investment, with a promising payback time, that offers long-term benefits both for the utility and its users.



Leanheat® Monitor gives us a comprehensive overview of our network. The fact that we can monitor heating stations remotely and extract data that we can use to optimize substation performance enables us to improve our heating network's efficiency while making the most of our internal resources.



¹ Historical data is only available for the time period the ECL controller has been installed.

– **John Godsk Vutborg**, Viborg varme

Fact box: Did you know?

You can connect Leanheat® Monitor to pre-existing Danfoss solutions installed in households and businesses throughout your heating network. Existing and new ECL120 and ECL310 controllers can be connected to Leanheat Monitor and used as pressure and temperature measurement points in the district heating grid.

ECL controllers are widely used to control heat, water and ventilation solutions on the secondary side. Read more about them on our website:

[District heating >](#)



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