



## ONLINE WATER DISTRIBUTION MODEL AT ØVRE EIKER

Building a bridge between planning, design and operation

Godt Vann Drammensregionen in Eastern Norway lies about 40 km from the capital city of Oslo. It is made up of nine municipalities with 160,000 inhabitants living in an area of 1,500 km<sup>2</sup>. There is one main Water Works that supplies to four out of the nine municipalities. The remaining five municipalities, including Øvre Eiker, have their own water treatment plants. Godt Vann Drammensregionen intends to move its entire water distribution network to an online environment to achieve an integrated solution in planning, design and operation, as traditional offline modelling has its restrictions. Our team successfully piloted an online water distribution model in Øvre Eiker, the first of its kind in Norway. The pilot sets the path for the awareness and future application of online modelling in the region.

### TRADITIONAL OFFLINE MODELLING AND ITS LIMITATIONS

The water management team at Godt Vann Drammensregionen is very focused on leakage management, pressure control and better maintenance and renewal of the water network. As such, Øvre Eiker is no stranger to DHI solutions, having already implemented MIKE URBAN and DIMS.CORE to manage their existing information. MIKE URBAN is the advanced software to analyse the distribution network and DIMS.CORE is the superior data-managing tool that handles communication and data storing and processing. Although traditional offline modelling is efficient in general long-term planning and capacity analysis of the network, it is unable to recognise the consequences (for example, on pressure, flow and water age) in the case of an unforeseen incident.



Leakage management and pressure control is crucial for the overall health of a water network.  
Photo: iStock © Alvinge

### CLIENT

- Godt Vann Drammensregionen

### CHALLENGE

- Lack of an online operation of the entire water distribution network
- Gap between planning department and actual operations team as data is not linked

### SOLUTION

An online hydraulic model that provides real-time information update and immediate data extraction for integrated planning, design and operation.

### VALUE

- Continuously updated and therefore better calibrated models
- Higher ability to discover problems and abnormalities in the network
- Better knowledge of capacity and pressure during fire extinguishing
- Faster and more efficient decision making in an emergency or during maintenance
- Ability to monitor water quality

### LOCATION / COUNTRY

Øvre Eiker, Norway

### SOFTWARE USED

MIKE Powered by DHI

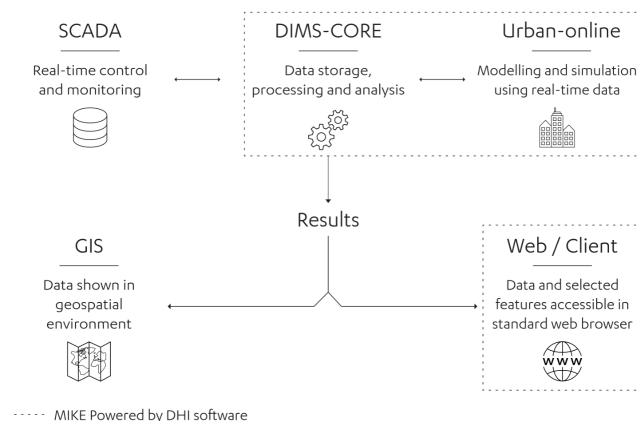
The planning department relies on traditional offline modelling which lacks up-to-date information and thereby meaningful simulations, which will greatly benefit the operations team. The latest simulation was probably created with historic data and even so, the model configuration could be entirely different. Such traditional modelling approach is typically used for capacity analysis, yearly and seasonal simulation and other types of analysis (such as the planning of network extensions), suitable for an offline sandbox or static environment.

### REAL-TIME SIMULATION AND SEAMLESS DATA COMMUNICATION TO MITIGATE POTENTIAL PROBLEMS

The challenge is in bridging the gap between the sandbox environment in the planning department and the actual operations team, which often needs to respond to unforeseen changes urgently.

The solution was to update the existing hydraulic model to ensure that the network details are correct and current. DIMS.CORE was updated with relevant data to prepare for the link between the two. We also created time series and data which could now be continuously pushed from the control system through DIMS.CORE to the modelling environment in Urban-online for simulations. The simulation results are then sent back to DIMS.CORE, and can be used in other applications for analysis and presentation purposes.

This online hydraulic modelling approach enables the simulation of sudden changes in the network and provides seamless data communication to mitigate potential



Real-time simulation and seamless data communication using MIKE  
Powered by DHI software. ©DHI

### CLIENT TESTIMONIAL

“ The online model provides us with valuable information and helps us maintain an updated and well-calibrated model. The goal is, after this first pilot, to introduce online models for the entire area of Godt Vann Drammensregionen and integrate the results into the GIS system to improve the operation of the network.

René Astad Dupont—responsible for GIS and Leakage—Godt Vann Drammensregionen

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problems. With this continuously running model, it is now easier for our client to improve the general operation of the system and understand the consequences of different changes in the network. They can also potentially – after gaining some experience in the online system – adjust pressure levels without violating any limits or thresholds.

The online model enables faster and more efficient decision making as compared to traditional offline modelling, for example, in the case of an emergency or during maintenance. Most importantly, the implementation of the online model creates a link between planning personnel and operational staff, enhancing the overall data communication process.

### THE FIRST OF ITS KIND IN NORWAY

Our online water distribution model at Øvre Eiker is the first of its kind implemented in Norway. Its features enable our client to get the most out of their available data, by combining the updated hydraulic model with real-time data collection. This has been a good example of how Norwegian and Danish expertise has come together in executing a successful project, and we look forward to seeing more collaborations coming our way in future.