

Energy Forecasting and optimization platform



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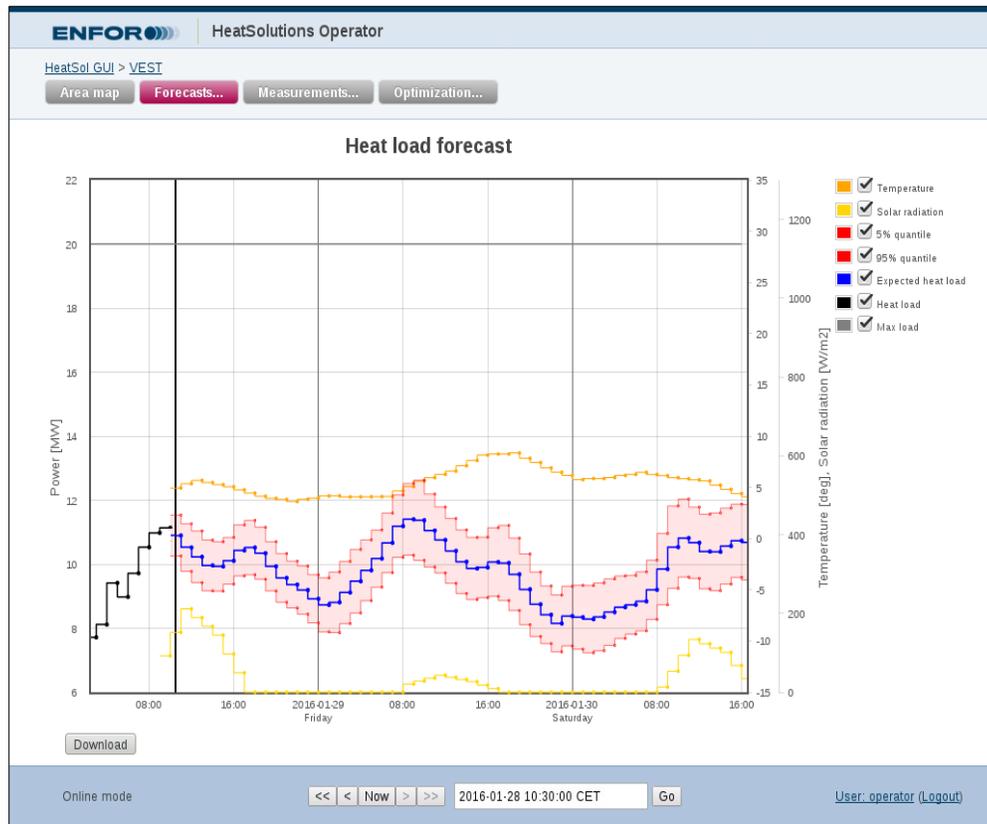


Figure 1 – Example of forecast for heat load, temperature, and solar radiation.

Summary of case

The energy forecasting and optimization platform developed by ENFOR aims at forecasting energy production from renewables as well as forecasting electricity demand and heat demand. This platform enables optimal operations of renewable energy production facilities (like and wind and PV) as well as district heating networks. Today, ENFOR provides forecasts of approximately 25 pct of the total wind power worldwide.

In particular the module for temperature optimization is able to lower the supply temperature in district heating networks, which will improve the efficiency of heat pumps connected to such district heating supply networks.

Furthermore, the temperature optimization module can lower heat losses and fuel costs by optimizing heat pump operation by model predictive control.

The platform provides an estimate of both power production from renewables, as well as electricity and heat demand based on weather variables such as outdoor temperature, humidity, solar irradiance, wind speed, etc.

Several Danish district heating supply companies have adopted the Energy Forecasting and Optimization platform called Heat Solutions.

Results

Danish district heating companies have been able to reduce their fuel consumption 2-3 %, and thereby lowering the heat price for end-customers. This was done through the optimization of the operation of the district heating networks.

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FACTS ABOUT

Category: Forecasting and optimization tool (optimize heat pump operation).

Heat supply capacity: No specific requirements regarding heating capacities.

Heat source: No specific requirements regarding types of heat sources

Analysis method: Big data analysis.

Modelling requirements: Data-driven.

Data required: Weather forecast and measurements from district heating network.

Technology Readiness Level: TRL 9.

Link to webpage:

<https://enfor.dk/services/heat-solutions/>