



The green transition – renewable digital heating

Danish District Heating Association representing 99% of the district heating companies is working dedicated to implement digitalization as one of the primary roads towards renewable energy supply, optimization and better end-user comfort.

District Heating is already the primary infrastructure for heating and comfort in homes and buildings. The green transition - away from fossil fuels - will enlarge the numbers of district heating consumers integrating many more towards a fully renewable district heating system by 2030.

District Heating will be generated from only renewable fuels like solar, geothermal energy, large heat pumps and recycling of recovered heat from existing industries and new sector integration with PtX, hydrogen and fuels for transport.

All of this is only possible with optimized usage of digital tools and data in all aspects of district heating. HEAT 4.0 has given valuable insight, tools and new platforms for novel digital solutions for the sector. A 4-step digital journey shows the path to HEAT 4.0 and integration of the new tools.

District Heating is only relevant if affordable and competitive in comparison with individual solutions. District Heating must be optimized and focused on efficiency and reduced costs with minimal fuel use.

Saving energy requires insight in data for both the district heating company and the consumers regardless if it is homes and families or large buildings with businesses. HEAT 4.0 has delivered concrete tools and methods for holistic and data-driven optimization of the operation of district heating, better comfort for the end consumers and improved awareness of environmental impacts by this sector.

Cross System Optimizing (CSO) is the core tools to rethink operation and usage of digital data with prosperous energy savings as a result.

The primary role for Danish District Heating Association in this project is dissemination, information and implementation of new digital tools to ensure scaling in the coherent energy and district heating sector in sectorial integration with large heat pumps, recycle heat, Power to X plants, data storage and geothermal energy. The new tools allows for optimized usage of many technologies, IIoT components and cloud solutions.

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Digitalization og district heating

Digitalization is a megatrend in the District Heating sector. All meters are digital with remote reading and digital billing. Data are used for optimizing the distribution system.

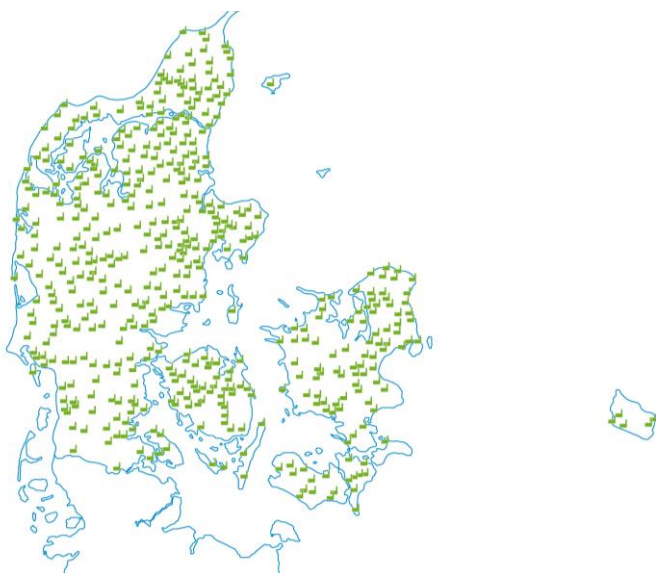
The generation of district heating will be based on renewable energies and come from mutual technologies, recycling of surplus heat, thermal solar plants, geothermal energy and large heat pumps.

Such a pluralistic energy system requires new tools for

automatization of the fuel usage, efficiency and competitive pricing of district heating.

Danish District Heating Association has been a dedicated partner in the project to harvest the newest results to obtain benefit for the member companies as a part of the digital strategy.

<https://www.danskfjernvarme.dk/maerkesager/digitalisering>



65% distribution of district heating

Danish District Heating Association has more than 370 district heating companies as member all over Denmark with 1.8 million connected buildings covering 65% of the heat demand.

The companies covers the whole chain from heat generation, transmission and distribution to end consumption, and all sizes.

The digital journey

- District heating companies are on a 4-step digital journey towards HEAT 4.0 solutions
- CSO – Cross System Optimizing is a new tool for sectorial integration of many technologies from Ilot components to PtX plants.
- Cloud based solutions with access to relevant data improves the operation.
- Digital optimizing of the heat system benefit with up to 10% savings.

Most of the district heating is generated as cogeneration with electricity on CHP plants.

Danish District Heating Association has a strategy of sectorial integration with multiple sources of heat from the local supermarket to large data storage and Power to X plants. This requires a lot of data and Cross System Optimizing (CSO) and access to data from IIoT operated sources to large SCADA systems. HEAT 4.0 has developed cloud solutions and useful tools for the entire sector.

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