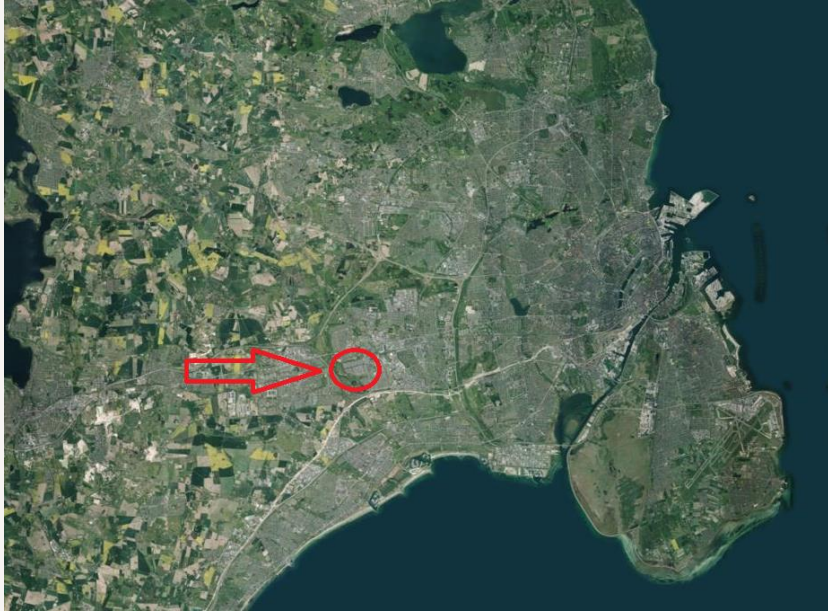


ALBERTSLUND MUNICIPALITY IN TRANSITION TO LOW TEMPERATURE DISTRICT HEATING

Niels Frank
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Albertslund South



Albertslund South

- > The district Albertslund South was built in 1963-68
- > BO-VEST (local Housing association)
- > Approximately 2,000 homes are constructed around a canal
- > On both sides of the main streets are residential areas with either single storey atrium houses or two storey townhouses.



The Energy Goals in Albertslund South

- › Energy renovation of buildings reduce heating demand by 60%
- › The energy frame met with "insulation" and not through "individual energy production"
- › New district heating network
- › Low temperature District Heating: 55/30 C



Why low temperature

- > Less conduction losses
- > Larger CHP benefit (more electricity on the same amount of fuel)
- > Better utilization of waste heat from process, solar, geothermal and heat pumps
- > Less capital cost to the district heating network



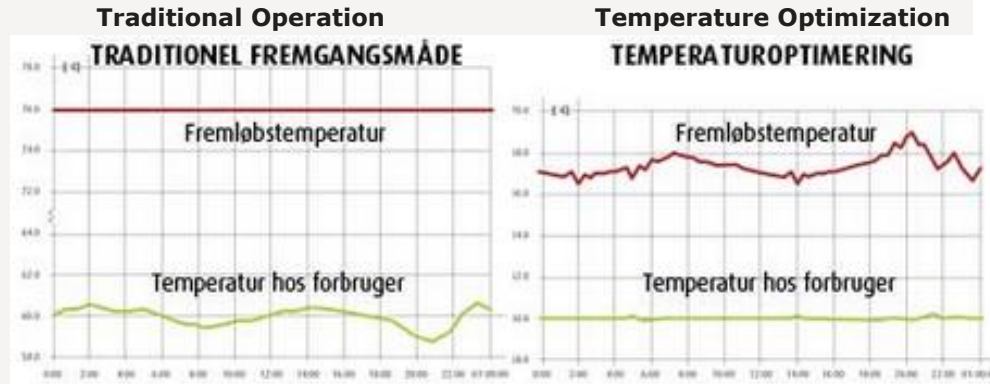
End User Installation

> Functional requirements for instantaneous water heaters (Heat Exchanger Units)

- > Direct plant with mixing valve for underfloor heating and outlets for radiators
- > Primary side: hot water 55/25 C
- > Primary side: Heating 55/32 C (for Floor heating)
- > The secondary hot water 50 C
- > Production of 25 kW hot water during normal operation : 25 kW v. 55/25 C with a pressure drop across the heat exchanger at max. 0.1 bar (10 kPa)
- > Legionella security :
 - > Water content in the exchanger must be max. 0.5 l
 - > The exchanger should be cold / closed when not dispensing hot water
- > **The location of the H.E. Unit:**
 - > Short distance to the taps for hot water max. 3 l line to the farthest tap location
 - > Short response times and low water waste

Optimization of Flow Temperature

- › Optimizing the flow temperature using TERMIS - FTO
- › Weather forecast
- › Heat forecast based on historical data
- › Real time hydraulic analysis

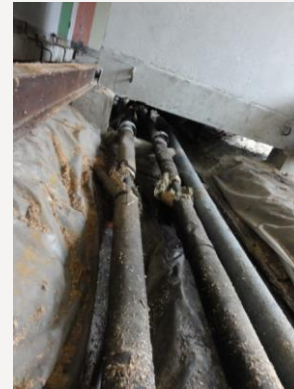


Lowest possible
Temperature that
meets all user
Requirements

- › Remote reading of meters and monitoring / energy consultancy

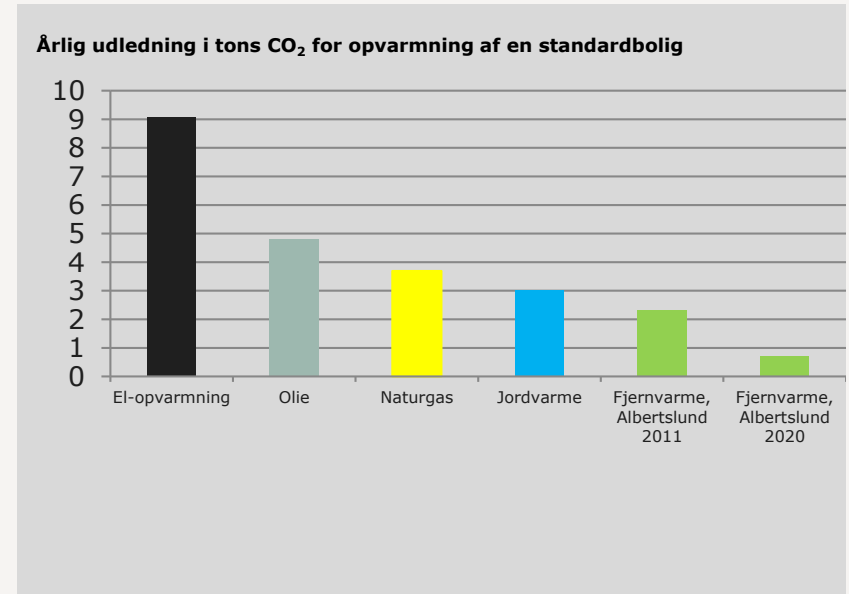
Results - The terrace houses

- > 550 houses
- > Start October 2012
- > Finished Marts 2015
- > Heating demand reduced by 57 %
- > Heat loss in the pipe network reduced to 1/2 of normal DH.



Reduction of CO₂ emissions

- > Reduced demand
- > Reduced heat loss in the piping system
- > Biomass conversions



Next steps...

- > Finishing the project
- > Albertslund West
- > Alternative heat sources:
 - > Waste heat from waste incineration and industrial processes, Solar, biomass, geothermal energy, heat pumps, etc.
- > Low temperature district heating in the entire municipality by 2026

Thanks for listening

>Questions?

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