Why low energy district heating is so promising?

Utilities locally available heat
- Waste incineration plants
- Waste from the industrial processes
- Waste water

Renewable energy on large scale
- Solar energy
- Geothermal energy

Lower energy (temperature) -> lower heat loss

Low energy buildings

How to make DH systems competitive for areas with low energy buildings??

The main areas of improvements

Building energy simulations in IDA ICE

Human behavior influence on the heating demand in low energy buildings

Typical simulation (Identical Belts) Simulation with realistic human behavior

Energy demand in the buildings
- Should be reduced as much as possible
- Measurements of real consumption
- Number of connected consumers to the DH network
- What is the best when it comes to profitability
- Local support
- Recovery of investment times of the DH
- New loans

Optimization of the DH network
- New type of pipes
- Grid grid with calculation
- Cold/thermal pumping
- Energy supply
- Is it cost-effective to connect to DH - should it be changed?
- From DH cost to renewable energy costs
- Distribution of energy savings for heat micro-nodes and drought
- Decrease in energy and CO₂ tax

Economical considerations
- Decrease construction costs (with new pipes)
- Availability of energy supply
- Public institutions support individual users
- Energy financing for changing individual units

Energy supply
- Based on renewable energy
- DH building in a district
- DH integrated with micro-combustion
- Energy storage
- Electricity storage and heat pumps
- Improvement of load storage

Thank you to workshop participants: Peter Weitzmann (COWI A/S), Peter Kaarup Olsen (COWI A/S), Jens Lunding, (Hillerød Kommune), Haider Al-Ali (Hillerød Kommune), Jørgen Erik Christensen (DTU), Alessandro Dalla Rosa (DTU)