Consumer Substations for Future DH

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The Generations of DH

Trends for energy system:

- Renewable energy
- Surplus energy
- Conversion energy
- Low quality energy (°C)
- Fluctuating energy
- Less demands in buildings
The Low Temperature DH concept

Trends for DH substations:
LTDH / 50-60°C (70°C)

Dimensioning of Heat exchangers
Radiator dimensioning
Floor heating

MPHE
The Low Temperature DH concept

Duration of minimum DH supply temperature in dependence of:

- Degree of renovation
- Indoor temperature

Typical Danish one family house from 1970, results based on dynamic simulations.

*Extensive renovation = low energy windows + insulation of roof*
Examples of products and Solutions

Trends for DH substations:

- ULTDH / 35-45°C (70°C)
- For DHW preparation the temperature is boosted by HP
Examples of products and Solutions

Trends for DH substations:
• Fluctuating energy supply

• Intelligent control of components
• Control based on system level
• Utilization of passive thermal capacities in buildings
Future functions

- Comfort level is set by consumer (cost/comfort trade-off)
- Potentially 2-10 hours of load can be shifted, depending on heat load and building type
Concluding Remarks

Outlook:

• DH has a great role to play in the future energy system
• BUT: DH has to be developed to meet future demands
• For consumer substations, future low temperature DH operation and intelligent control is important
• Low temperature DH is demonstrated and is working and also spreading
• Intelligent control of building substations should be developed more
• This calls for cooperation across the value chain of DH/Energy system
THANK YOU FOR THE ATTENTION

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