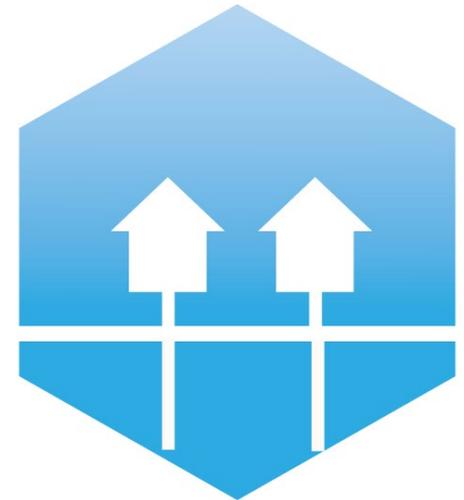
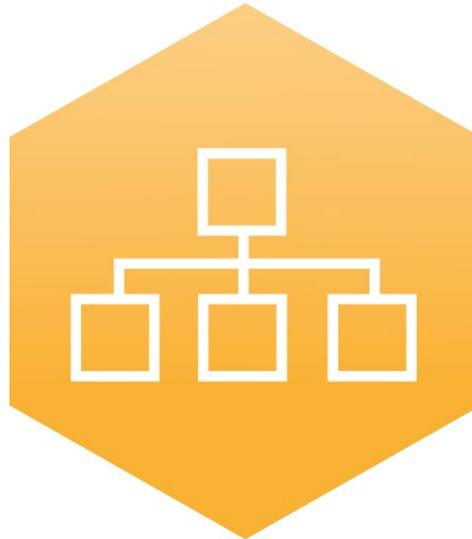


DISTRICT HEATING MEASURES – DRIVING FORCES AND IMPLEMENTATION

Prof Louise Ödlund
Energy Systems, Linköping University

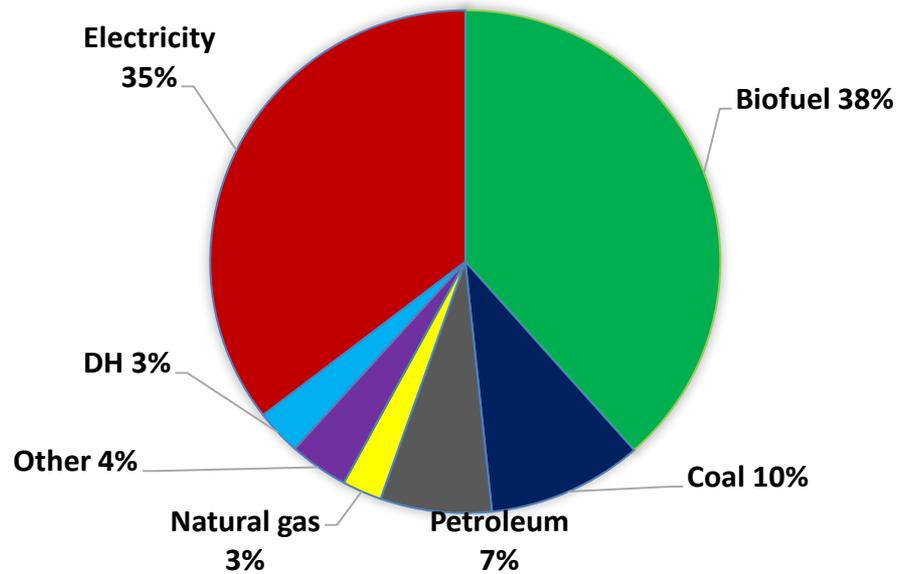


Main focus:

A system perspective on energy
use and energy supply

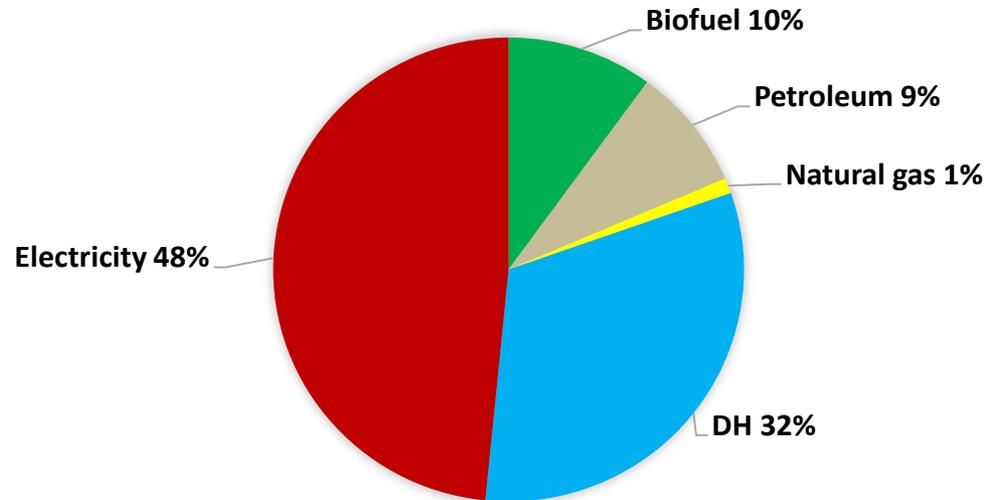


Energy use in industry, Sweden



Source Energimyndigheten

Energy use in buildings, Sweden

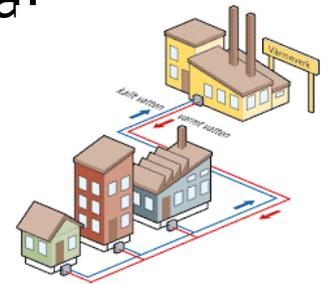


Source Energimyndigheten

For reach a fully balanced and renewable energy systems we a stronger focus on converting to DH and more efficiency use of electricity

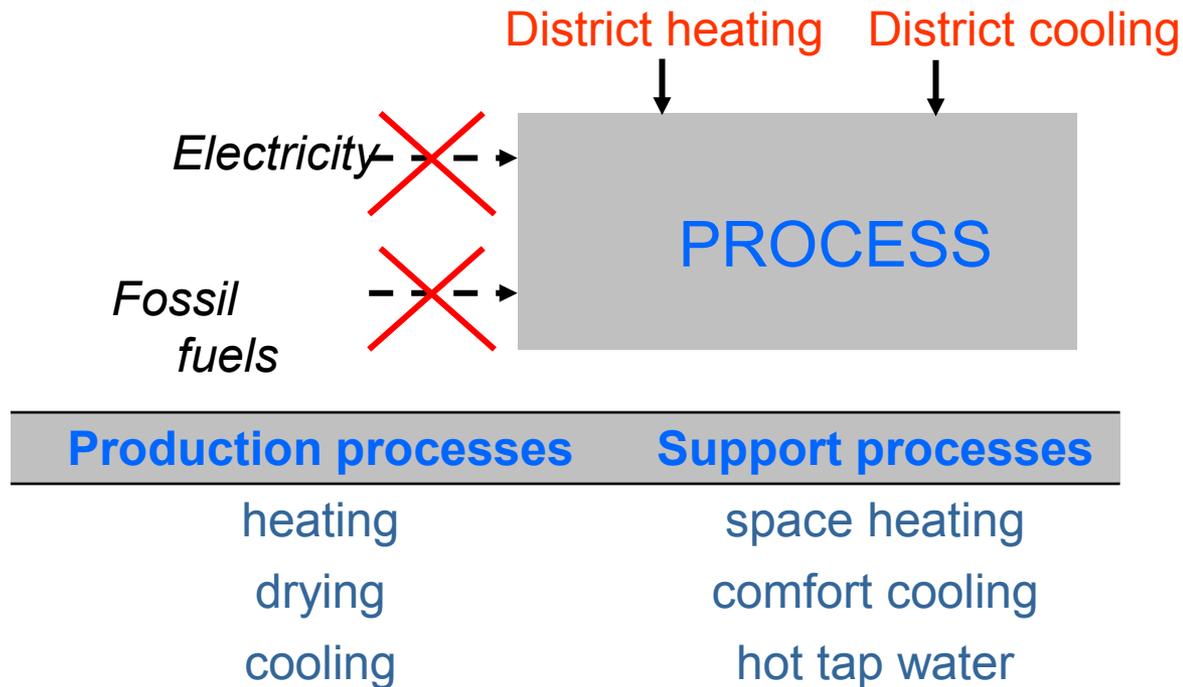
Consequences for the energy system when using electricity for heating purposes

- 100 000 houses supplied by **DH** equals extra **production** of about 500 GWh electricity per year
- 100 000 houses supplied by **heat pumps** equals extra **use** of electricity with about 1500 GWh per year



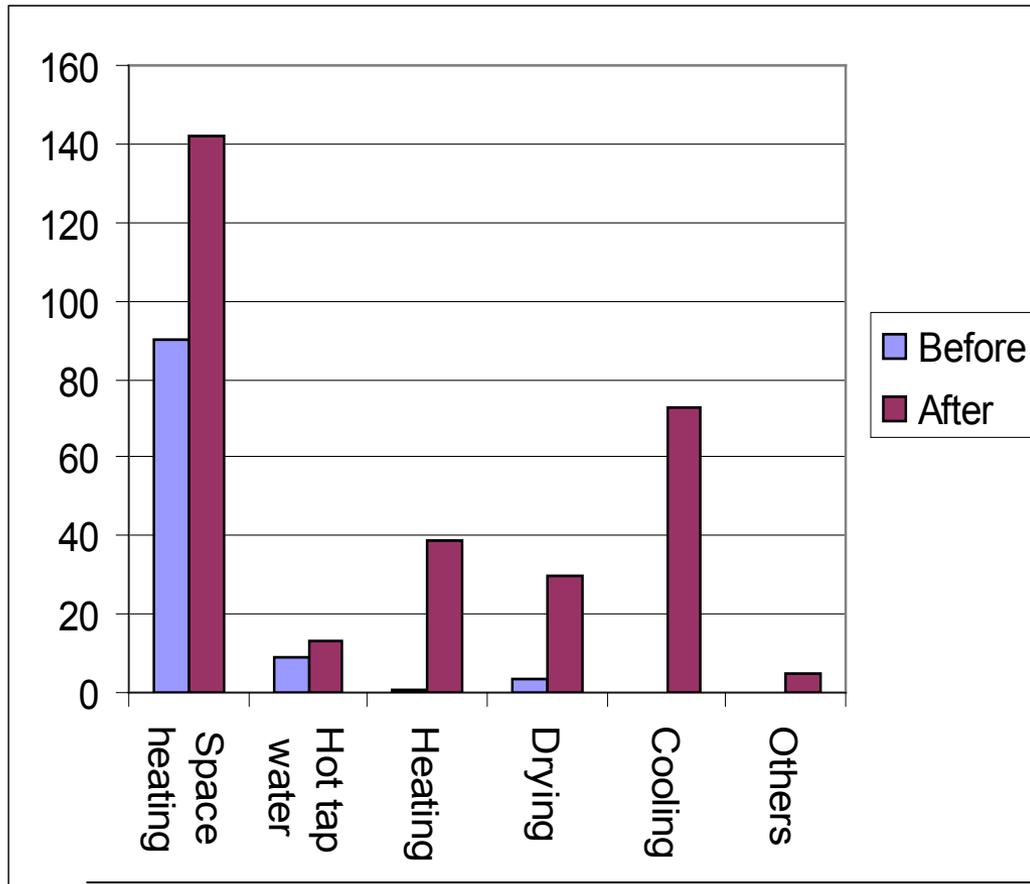
How can we increase the use of DH in industrial processes – and in buildings

In industries...



Increased use of district heating in 34 small- and middle sized industries

Increased use of district heating in separate processes



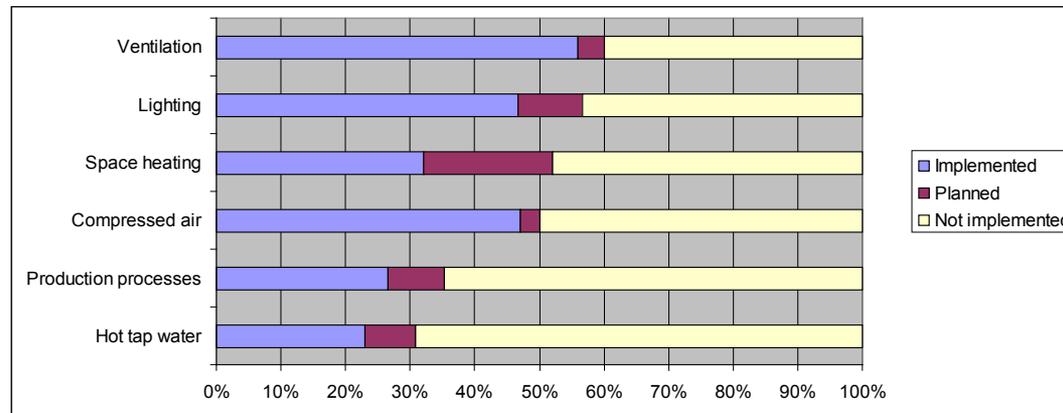
Result:
200 GWh → 196%

Reduced global CO₂:
112 000 tonnes/year

**Many good examples, but
how do we make it happen?**

How much have been implemented?

41% of the suggested measures are implemented, another 9% are planned to be implemented



70% av the measures have a pay back time of no more than 3 years



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Driving forces - top 5

- Reduced costs
- Driving spirits
- Threat of rising energy prices
- Full support from top management
- Investment subsidies

Barriers – top 5

- Lack of time
- Other priorities
- Long investment chains
- Energy objectives
- Technical risk such as production disruption

Sources of information – top 5

- Production information from suppliers of equipment
- Colleagues
- Journals
- Conferences / seminars
- Energy Agency

We need more and new cooperations

- Architects– materials physicist
- Energi companies - customers – construction industry
- Industries – energy utilities
- DH - other energy services in the region
-
-



Conclusions



- Realize that management is as important as technology
- Focus on supply AND use
- Converting to DH in a CHP system and more efficiency use of electricity are key-stones in a fully balanced and renewable energy system
- Increase cooperation between different sectors, and a systems perspective with regard to the region's total energy demand – we need to work together



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