District heating in regional and local Energy Planning

Louise Langbak Hansen, Development officer, Regional Development
The Danish regions

Central Denmark Region

Population 1.3 million
19 municipalities
Goals for renewable energy in CDR

Year 2025: 50 % renewable energy

Year 2050: 100 % renewable energy
Amount of renewable energy in CDR

2013
Danish average = 27%
EU average = 15%
Renewable energy in the 19 municipalities

Share of renewable energy for the 19 municipalities situated in Central Denmark Region [%]
The energy authorities in Denmark

The state of Denmark: Legislation, laws, energy taxation

The regions: No formal authority!

The municipalities: Heat planning and regulatory approval to local utilities
How can we work as a region with no formal authority?

• Facilitate cooperation in the region between municipalities, energy companies etc.

• Monitor progress of renewable energy

• Initiate development projects

• Initiate general business support initiatives
Strategic energy planning in CDR

Participants
19 municipalities
1 region
2 universities
13 energy supply companies
5 energy actors

Financed by
Danish Energy Agency CDR

Three working groups in the project ‘midt.energistrategi’
Strategic Energy Planning in CDR

7 FOCUS AREAS

- Onshore Wind Power
- Biogas from manure
- Residual biomass from Farming & Forestry
- Central Heating Supply of the future
- Energy Efficient Housing
- Energy Efficient Industry & Farming
- Green Transportation
Screening of the border between district heating and individual heating supply

- Maps for the 19 municipalities
- Screening on basis of consumer economy
- Useful for dialogue between the municipality and heating supply utilities

Blue: existing DH areas (dark blue indicates high consumer prices)
Green: DH is cheaper than individual biomass boilers and heat pumps
Ligth green: DH is cheaper than individual gas boilers
Orange: DH is cheaper than individual oil boilers
Red: DH is more expensive than individual oil boilers
Screening of the potential for using industrial surplus heat in the district heating

17% of the District heating demand in CDR can be covered by surplus heat from industry and heat pumps
Strategy for district heating

- 100 % renewable resources
- Gradually reduce the biomass consumption in favor of “Fuel free” district heating solutions as:
  - Surplus heat from industry
  - Solar heating
  - Heat pumps driven from wind power
  - Geothermal heating
- Expanding district heating (60 % ➔ 70 %)
‘midt.energistrategi’ – the conclusion

The share of Renewable Energy in CDR can increase from 33 % today up to 70 (90)% by the year 2035 based on known technologies and mainly local ressources

Figur 20: Viser med blå markering udviklingen i andelen af vedvarende energi efter beregningsmetoden i Energistyrelsens vejledning i strategisk energiplanlægning. Hertil læges den orange markering, hvis eksporteret el fra vindkraft medregnes i VE %en.
A new Apple Datacenter (Viborg)
A DH transmission line analyses across municipal borders

A new Apple Datacenter (Viborg)
A DH transmission line analyses across municipal borders

The analysis is co-financed by Viborg Municipality, Central Denmark Region and the local heat supply companies.

Surplus heat potential from Apple datacenter = 150-200 MW

~ The total potential for all other industrial surplus heat in the total Central Denmark Region!!

Apple plus all other industrial surplus heat = 30 % of the district heating demand in CDR
Our latest effort...“REFER-CDR”

“Implementing the Energy Strategy”

24 district heating companies and Central Denmark Region

Investments in renewable technologies at the DH plant

Applicated for financial support from EU (ELENA-office) to TA (technical assistance)

Expected start February/March
Thank you for your attention

Louise Langbak Hansen
Regional Development, Central Denmark Region
E-mail Louise.langbak@ru.rm.dk,
Phone +45 78411808

www.energysystem.rm.dk