

# **RENEWABLES IN DANISH HEATING AND COOLING – THE ROLE OF DISTRICT HEATING**

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# DISTRICT HEATING HISTORY

## 1960's

- Growth on private cooperative and municipal initiative

## 1970's

- Heating Commission
- Shift to surplus heat (CHP)

## 1980's

- Heat law
- Heat planning
- Continued shift to CHP and other surplus heat sources
- Expansion of networks
- No more oil

## 1990's

- Localised CHP
- Natural gas/biomass

## 2000's

- Consolidation
- Looking for sustainable heat

## 2010's

- Expansion
- Renewables
- Integration

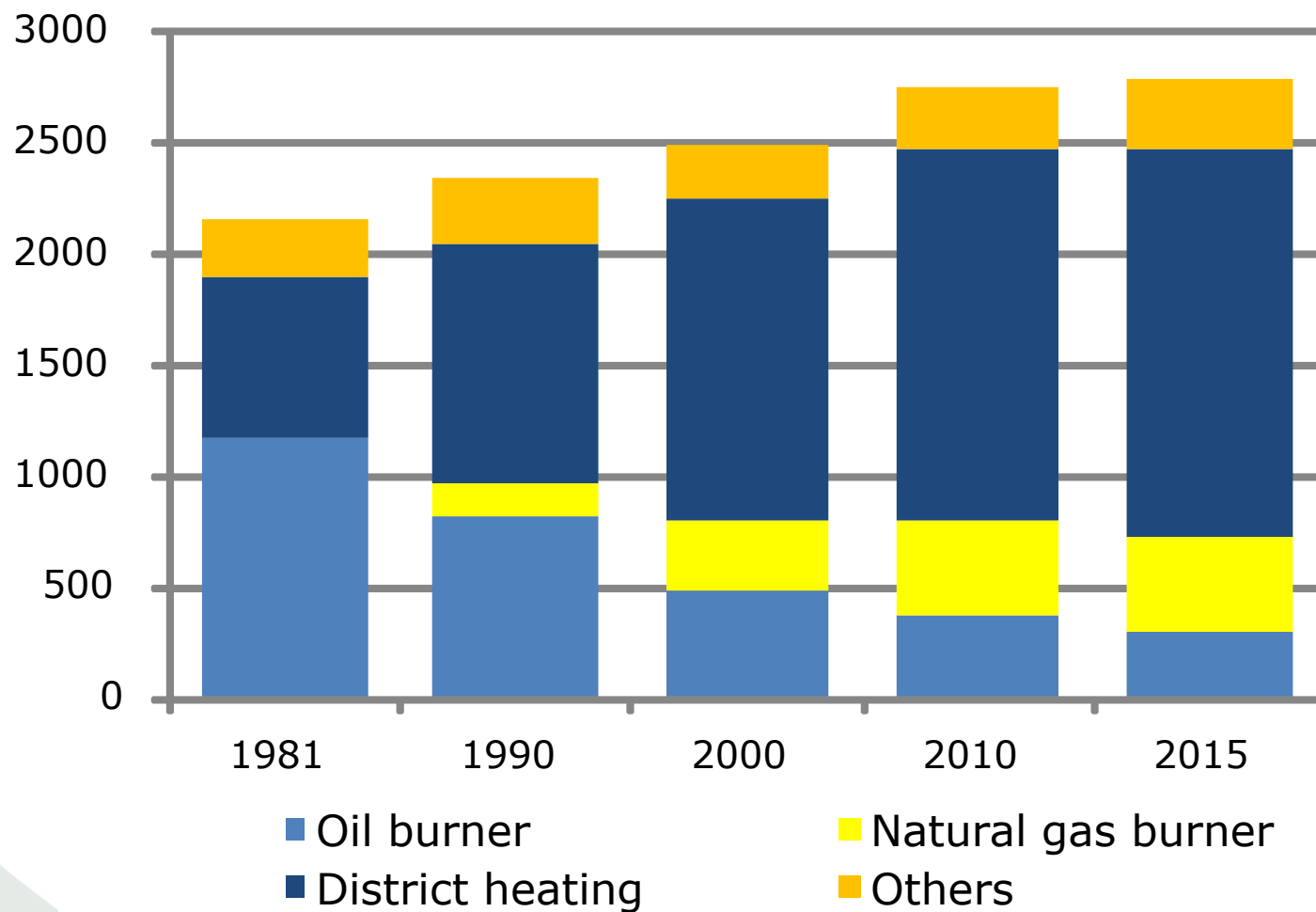


From burning platforms in the 70's...

...to modern ones

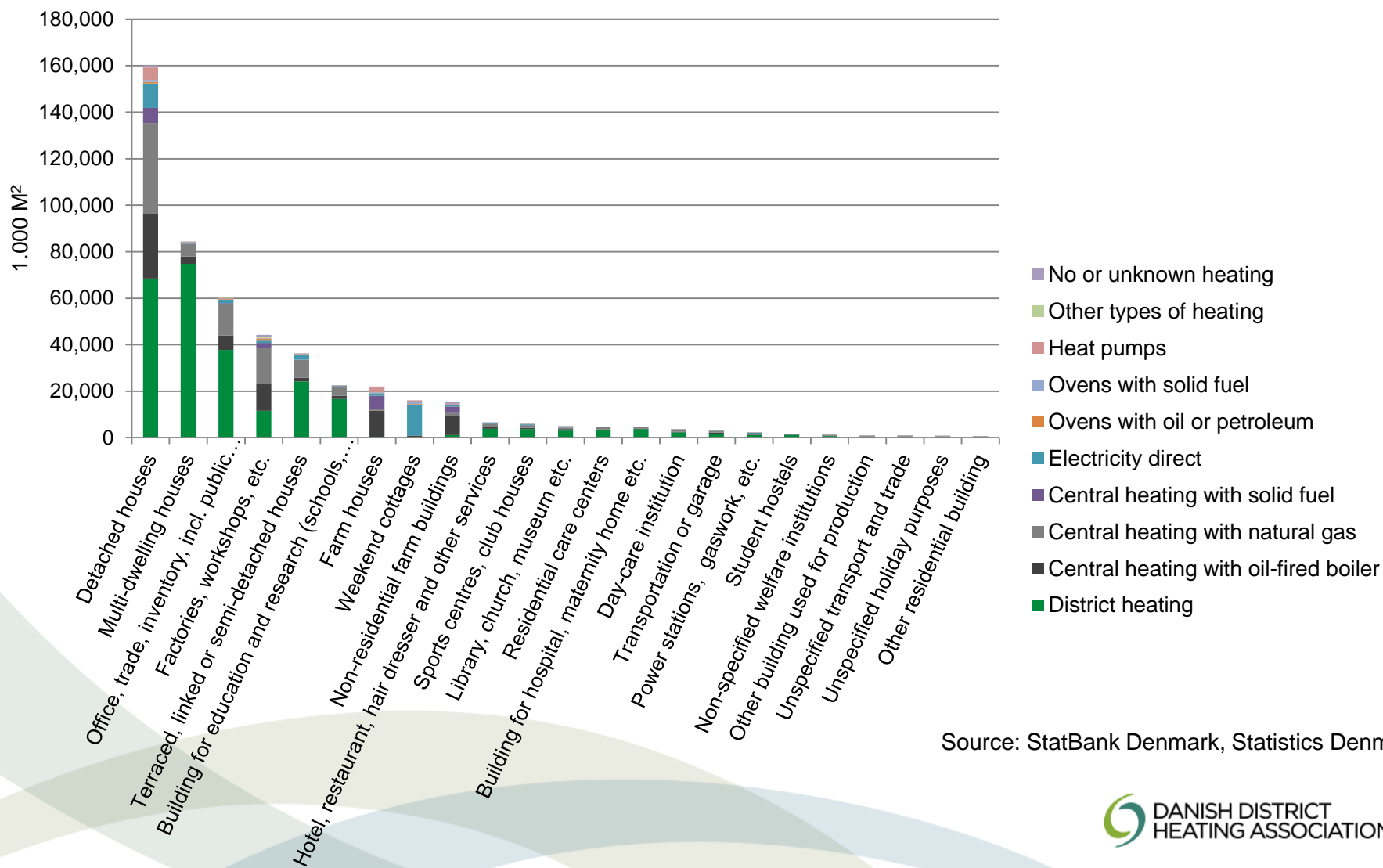


# HEATING SOURCES IN DWELLINGS



Source: Danish Energy Agency 2014

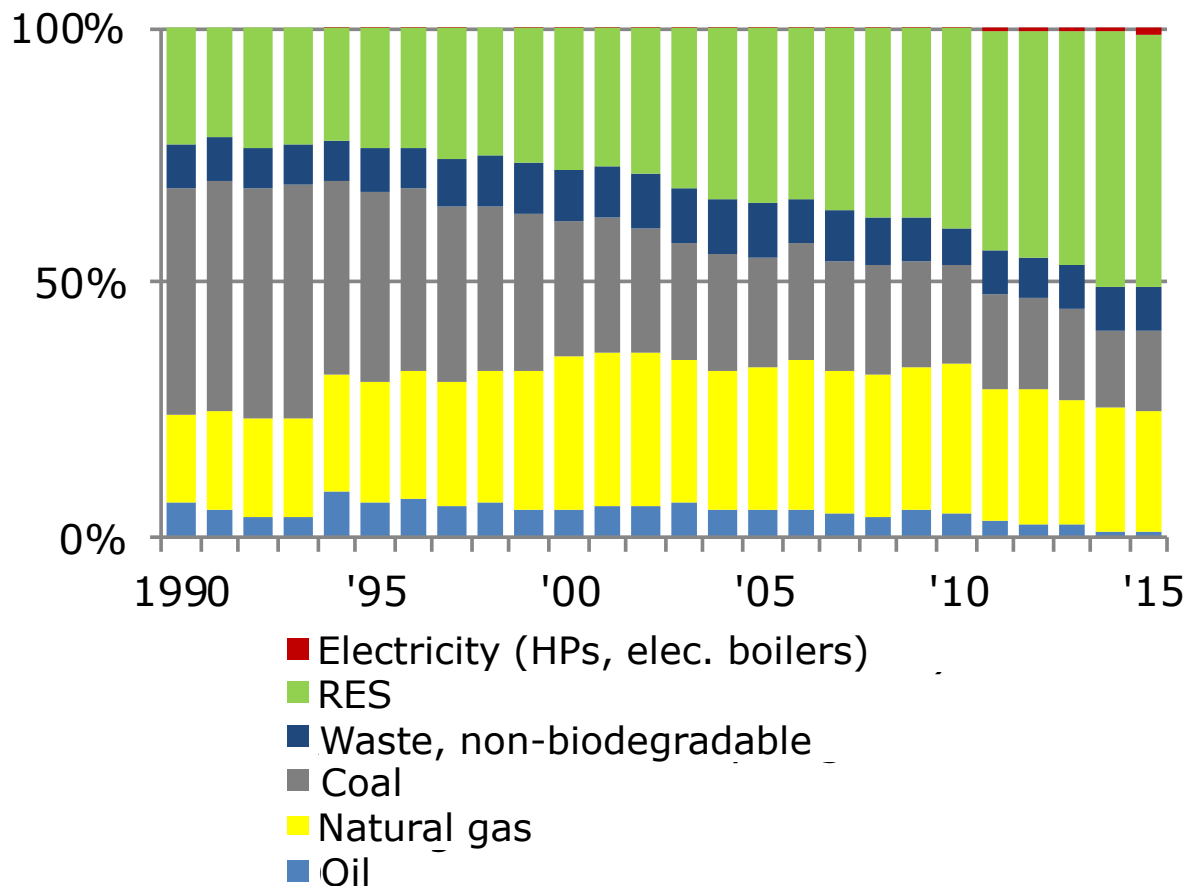
# HEAT MARKET SHARES, BUILDING TYPES AREAS 2014



Source: StatBank Denmark, Statistics Denmark

# DANISH DISTRICT HEATING DEVELOPMENTS I

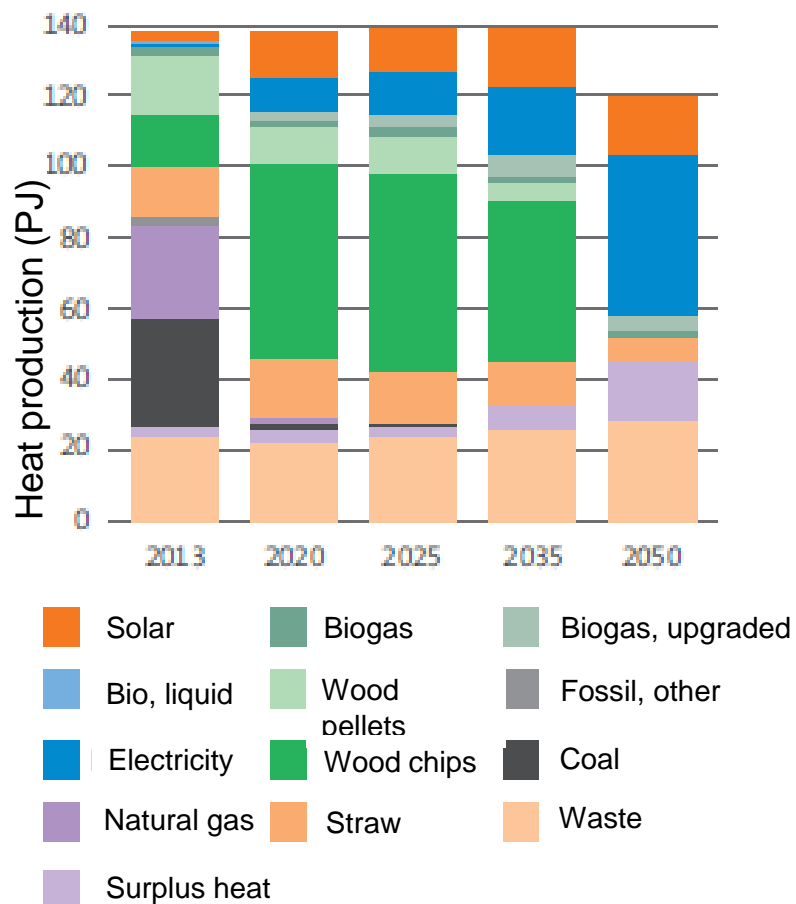
## Compositions of Fuels in District Heating Production



Source: Danish Energy  
Agency, Energy Statistic 2015

# DANISH DISTRICT HEATING DEVELOPMENTS II

## Future Fuel Composition – "Official" Projections



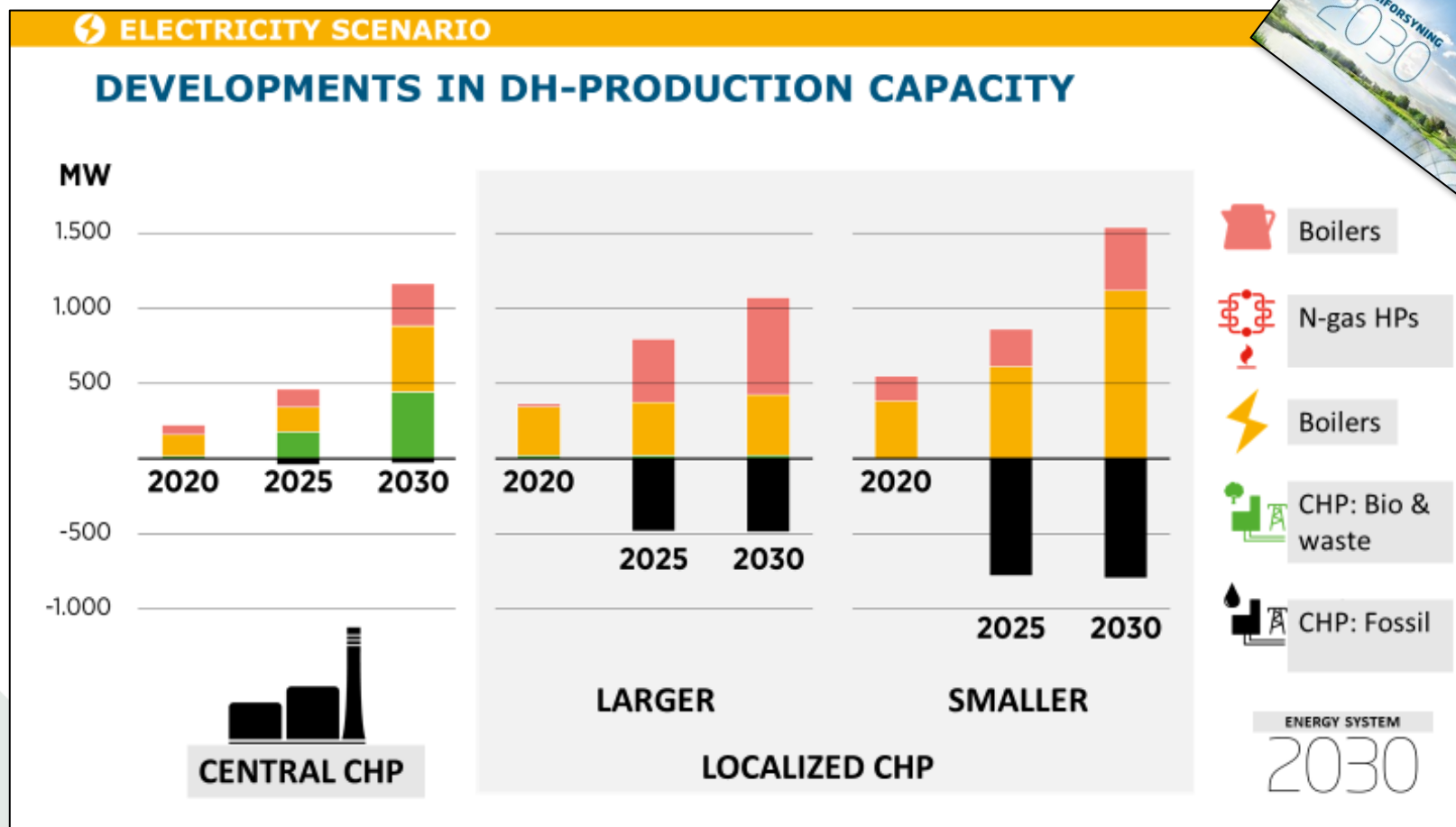
District heating production in Denmark in wind scenario

Heating demand [PJ]	2013	2020	2035
Denmark	199	189	166
Urban areas	160	152	134
District heating	50%	69%	62%

Source: District heating - The role of district heating in future energy supply, COWI og Ea Energianalyse 2014 for Danish Energy Agency

# DANISH DISTRICT HEATING DEVELOPMENTS III

Desired developments - Our “hope” for the future



# KEY SUCCESS FACTORS IN DHC SYSTEMS\*

- Adequate national policy and regulatory environment
- Direct/indirect financial support
- Focused local policy and coherence with urban planning
- Alignment of interests / Cooperation maturity
- Availability and relevance of local resources
- Comprehensive project development
- Price competitiveness against alternative energy solutions
- Flexible heat and cold production
- Combining technical and non-technical innovation

\* Taken from "Efficient district heating and cooling systems in the EU - Case studies analysis, replicable key success factors and potential policy implications" European Commission, JRC, 2016



## THREE MAIN QUESTIONS TO ADDRESS

- What policies have been most effective in increasing renewable/low-carbon heat deployment? What are the key success factors and remaining challenges?
- How essential are district heating networks for the roll-out of renewable heat? What policy approaches have worked to incentivise district heating?
- What role can local authorities & local energy companies play? What instruments do they have at their disposal?

FOR FURTHER INFORMATION

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