

District Heating – an Important part of a Sustainable Future

~~Europe~~ Denmark

Morten Jordt Duedahl

Business Development Manager

DBDH

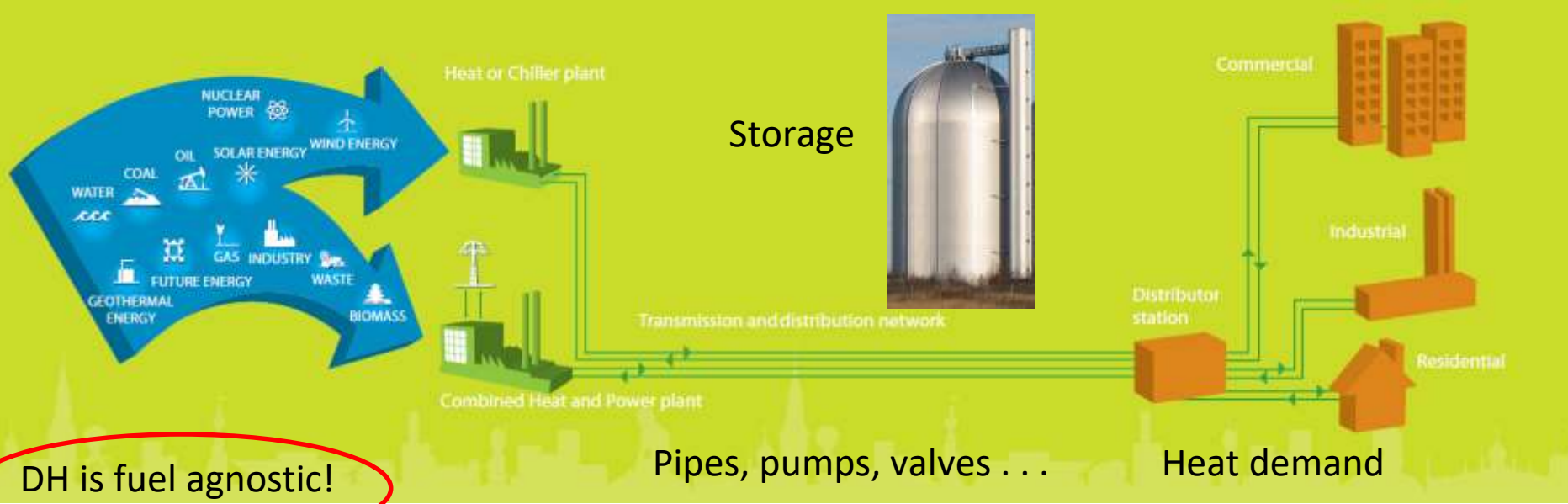


Promote District Energy for a Sustainable City Transformation

- Established in 1978
- 75+ members
 - Leading actors in Denmark
 - 2/3 Manufacturers, Consulting Engineers
 - 1/3 Utilities
- Magazine HOT|COOL
- Seminars, training, exchanges of know-how in DK and abroad
- www.dbdh.dk



Technically DH is NOT Complicated



- Like your own boiler – a lot bigger and a lot smarter!!
- Moving “free” heat to a useful place
- Extremely well proven technology/system/idea!!

DH in Denmark



A few remarks

- Danish district heating is a complex structure developed over 100+ years
- “*The Danish Model*” is good!! In Denmark!
- DH is part of a Smart Green Energy System:
 - Hydrogen, Storage, Wind, Power, Transport
 - Energy Efficiency in Buildings
 - A Smart backbone



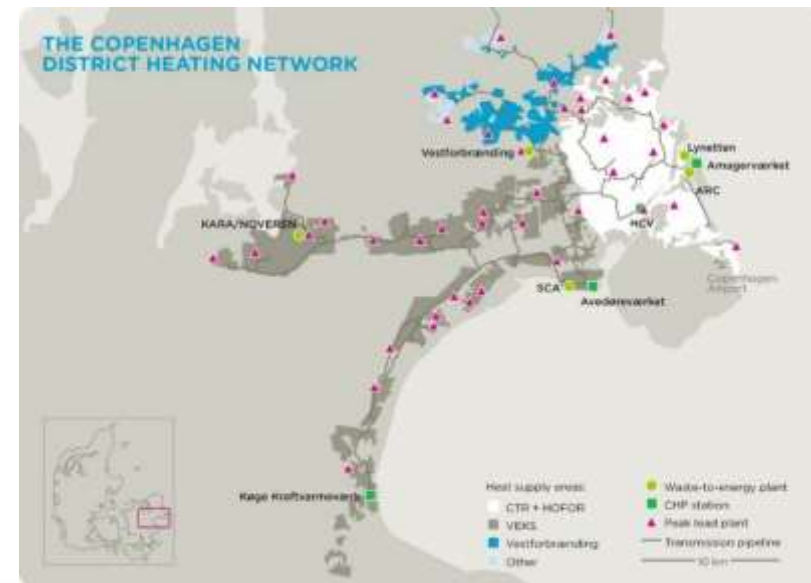
Why do we like district heating?

- What's not to like?
- Easy: Comfort, fuel, carbon, green.
- Well informed customers
- It works!
- Accepted as a well operated utility
- “Like district ...what??”
- Cost less and no price fluctuations
- District Heat or Freeze - Only choice



District Heating in Denmark

- Half of heat demand (50%+)
- 2/3 of all households (app 1.695.000 / 64%)
- All homes in Copenhagen (98%)
- 2017: 19.000 new connections 2016: 23.000 2015: 19.000
- Today ~450 networks



Future Targets

- National
 - 2035 Carbon Neutral Heat
 - 2035 Carbon Neutral Electricity
 - 2050 Transport ??
- Copenhagen and many other cities
 - 2025 Carbon Neutral
- Technical and economical limit ~75%



Denmark's Wake Up Call

- First oil-crisis - 1973
- 99% oil and coal = import dependence
- Inefficient energy use
- Sustainable solutions needed!!
- Support from all levels of society



Consistent Energy Policy

Long Term planning

Legislation

- 1976 – Electricity Act (CHP, Cost Eff)
- 1979 – Heat Supply Act + RES + WtE
- 1986 – Decentralized CHP
- 1990, 1993, 2008 – Increased biomass (new CHP and conversion)

Incentives

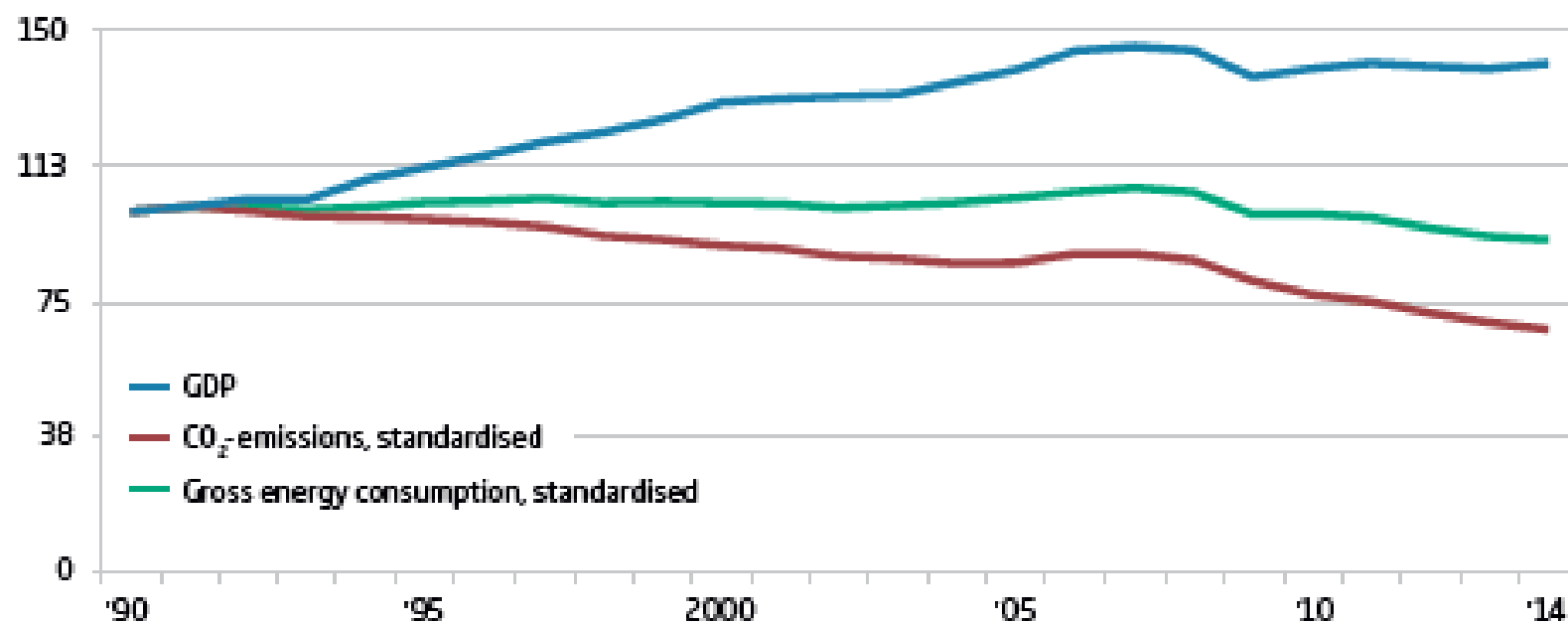
- 1981 – Investment grants for biomass DH/CHP
- 1984, 1992 – Subsidies for CHP
- 1994 – Financial support to establish DH on biomass or natural gas
- 1991 – High energy tax and CO₂ tax on fossil fuels

Clear business model

- Non-for-profit
- Long term perspective
- Municipal guaranteed loans

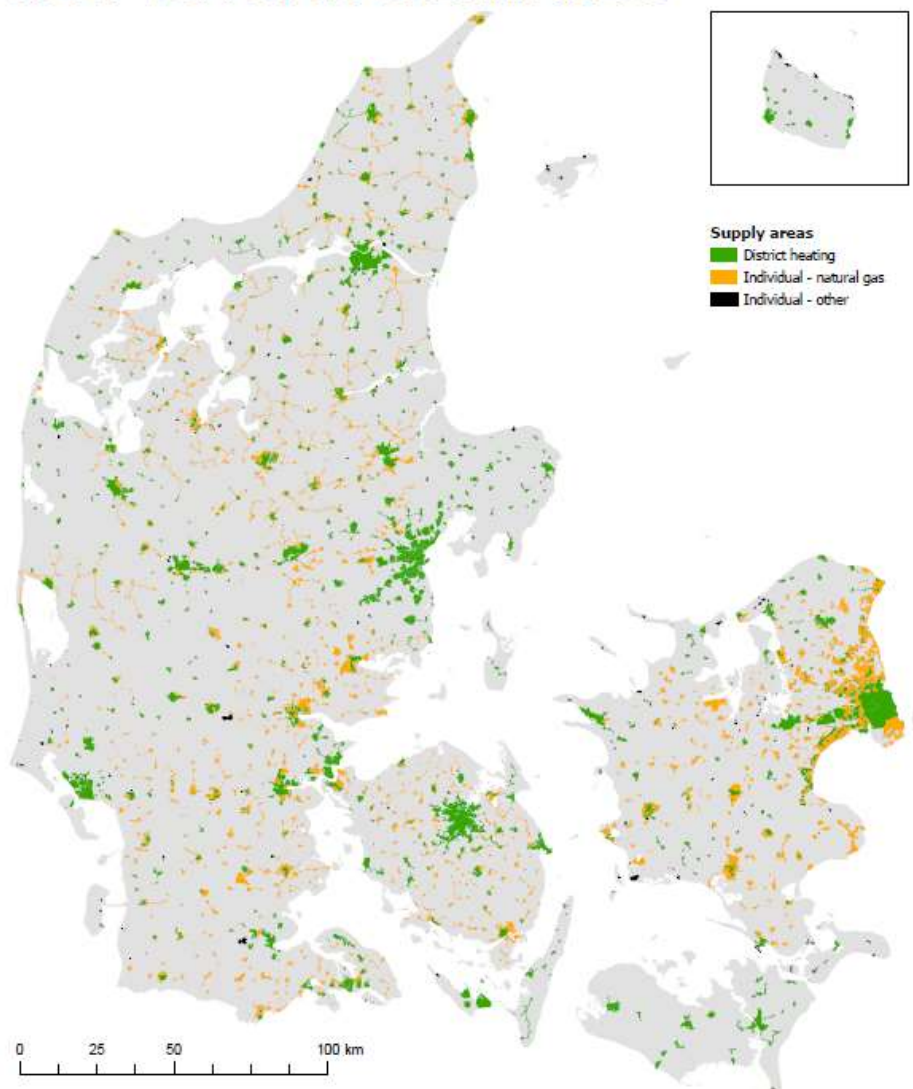


CO₂



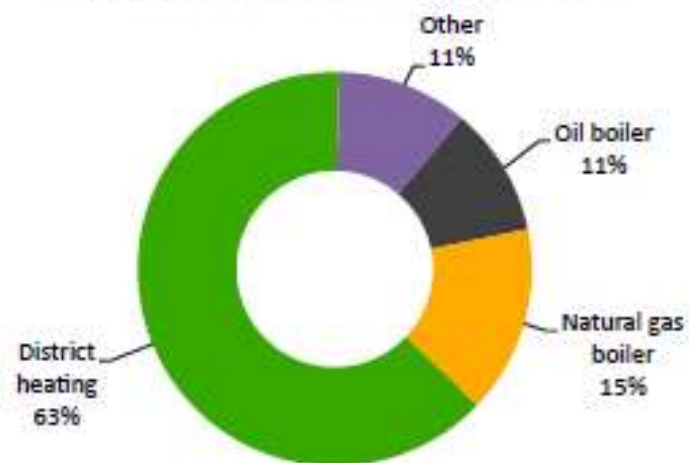
Status 2017

HEAT SUPPLY IN URBAN AREAS

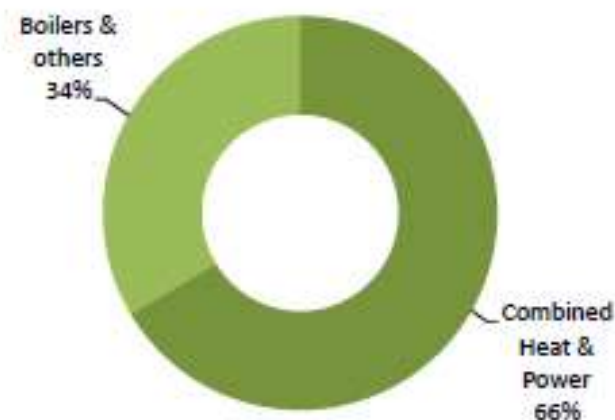


Installation and production

Heating installations in homes

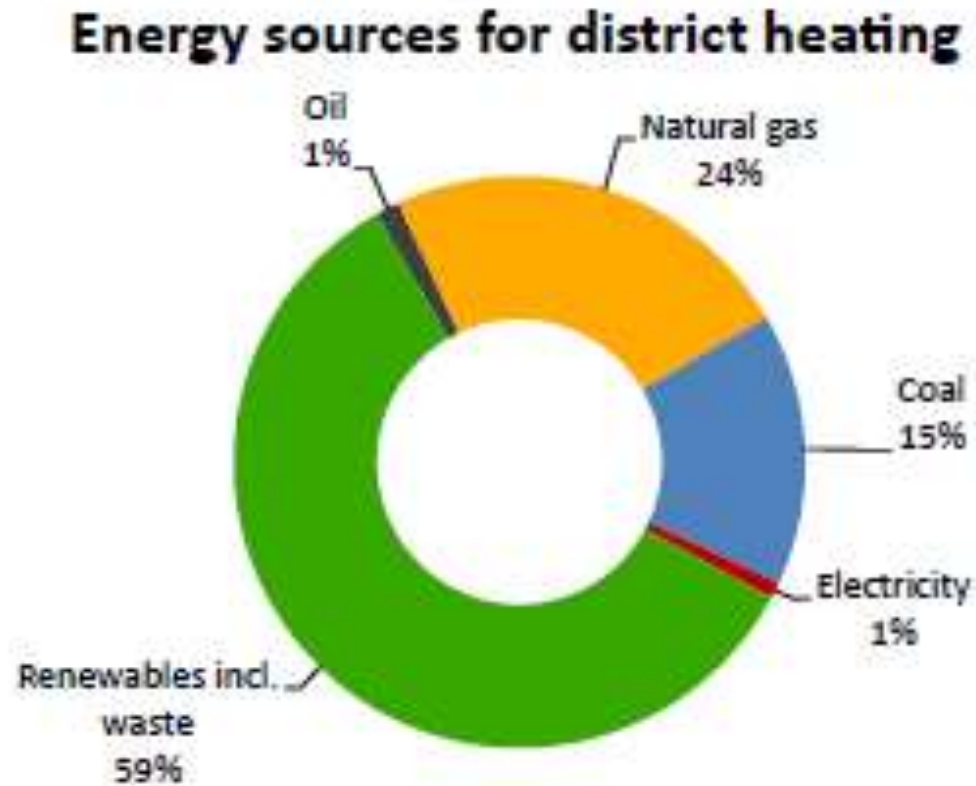


District heating production



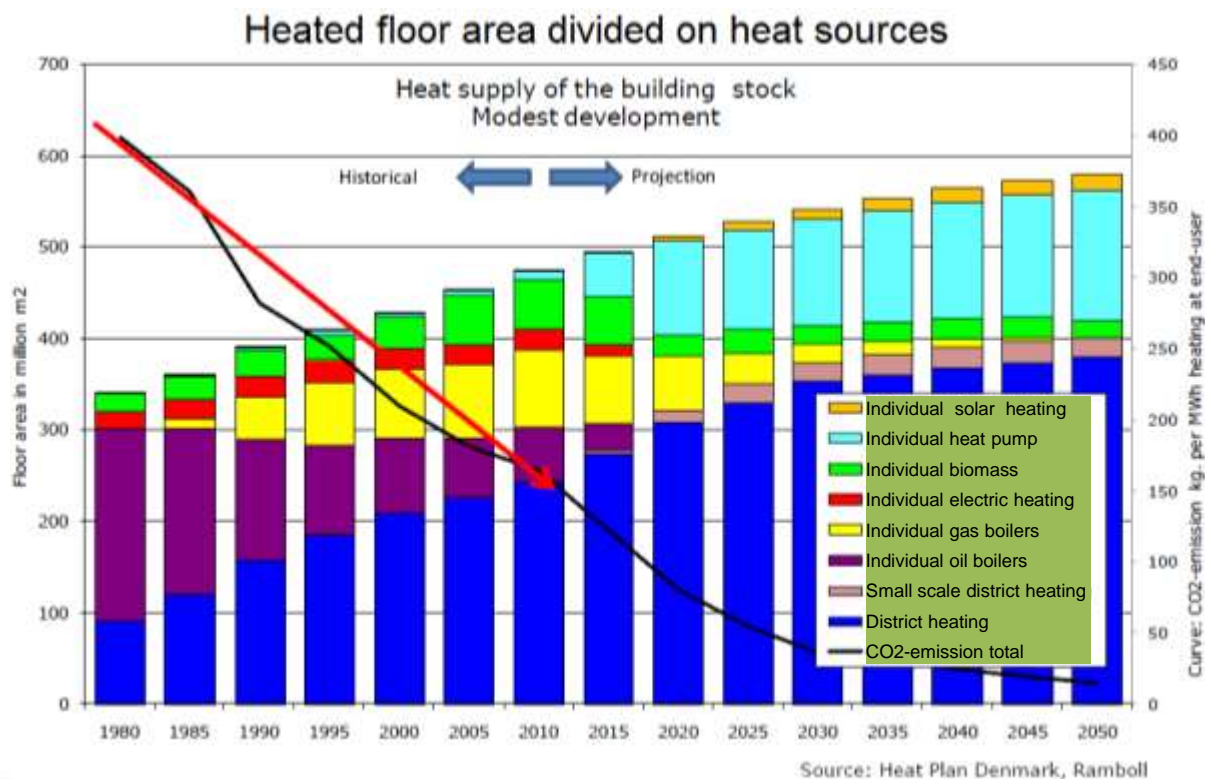
Sources: Annual Energy Statistics 2015 - Danish Energy Agency, PlansystemDK as of 01.08.2017 - Danish Business Authority, Ramboll/TSR

Energy Sources for DH

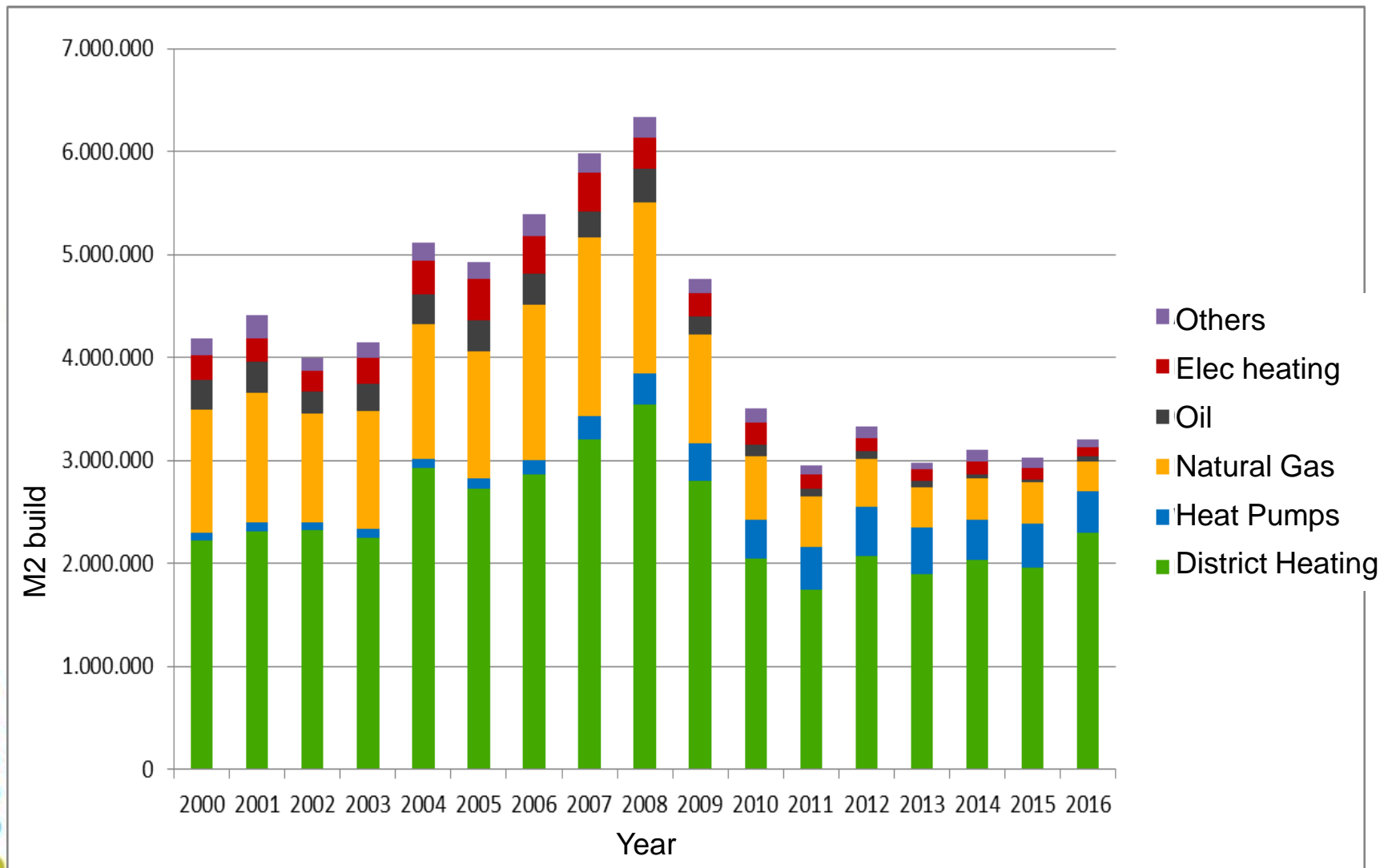


The Future

- A central part of Smart Energy Systems & 2050 targets
- Integrate surplus wind and solar electricity



New Build



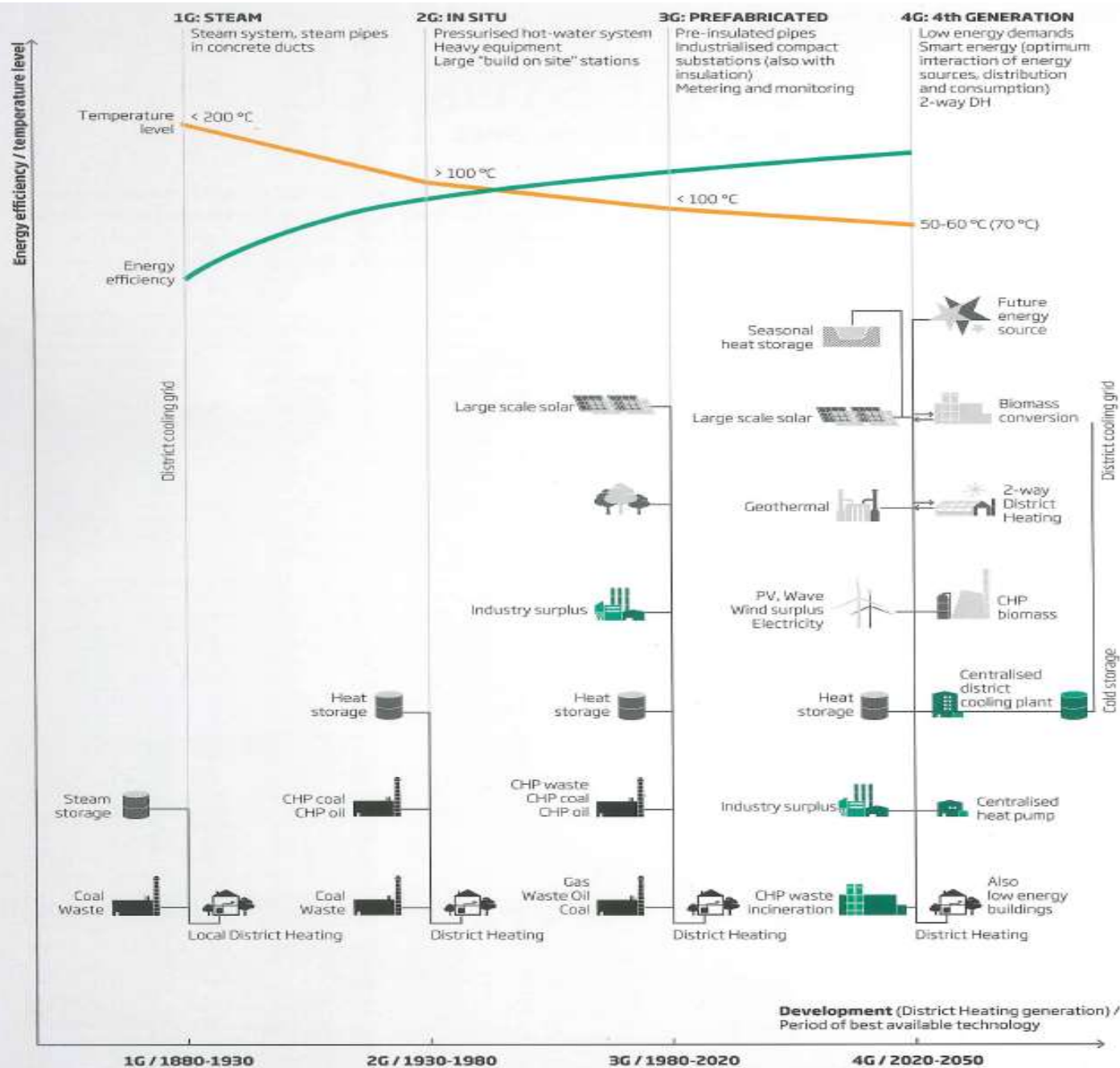
Fuel Flexibility and Low Temperature



Fuel Flexibility

- Decades – Investment decisions
- Seasonal – Large scale storage
- Weekly - Storage
- Daily – Prices
- Hourly - Demand

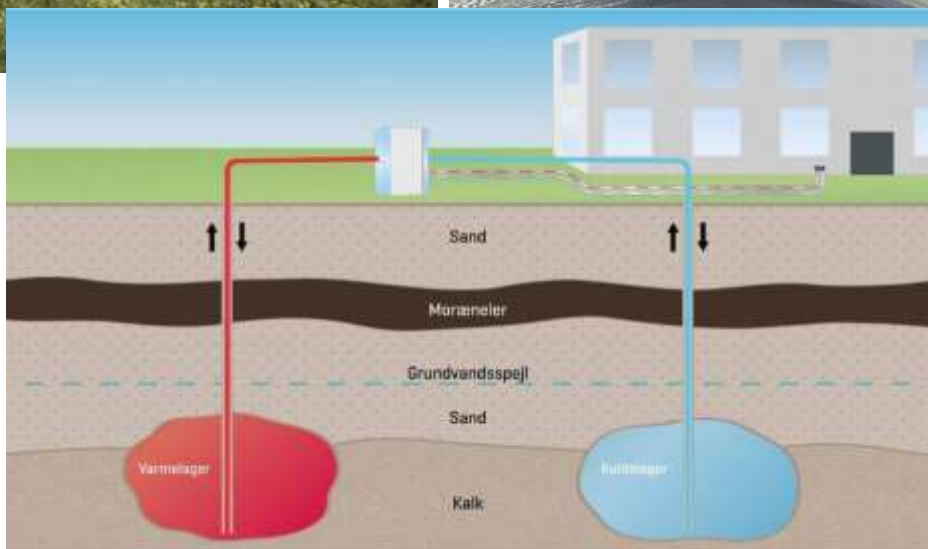




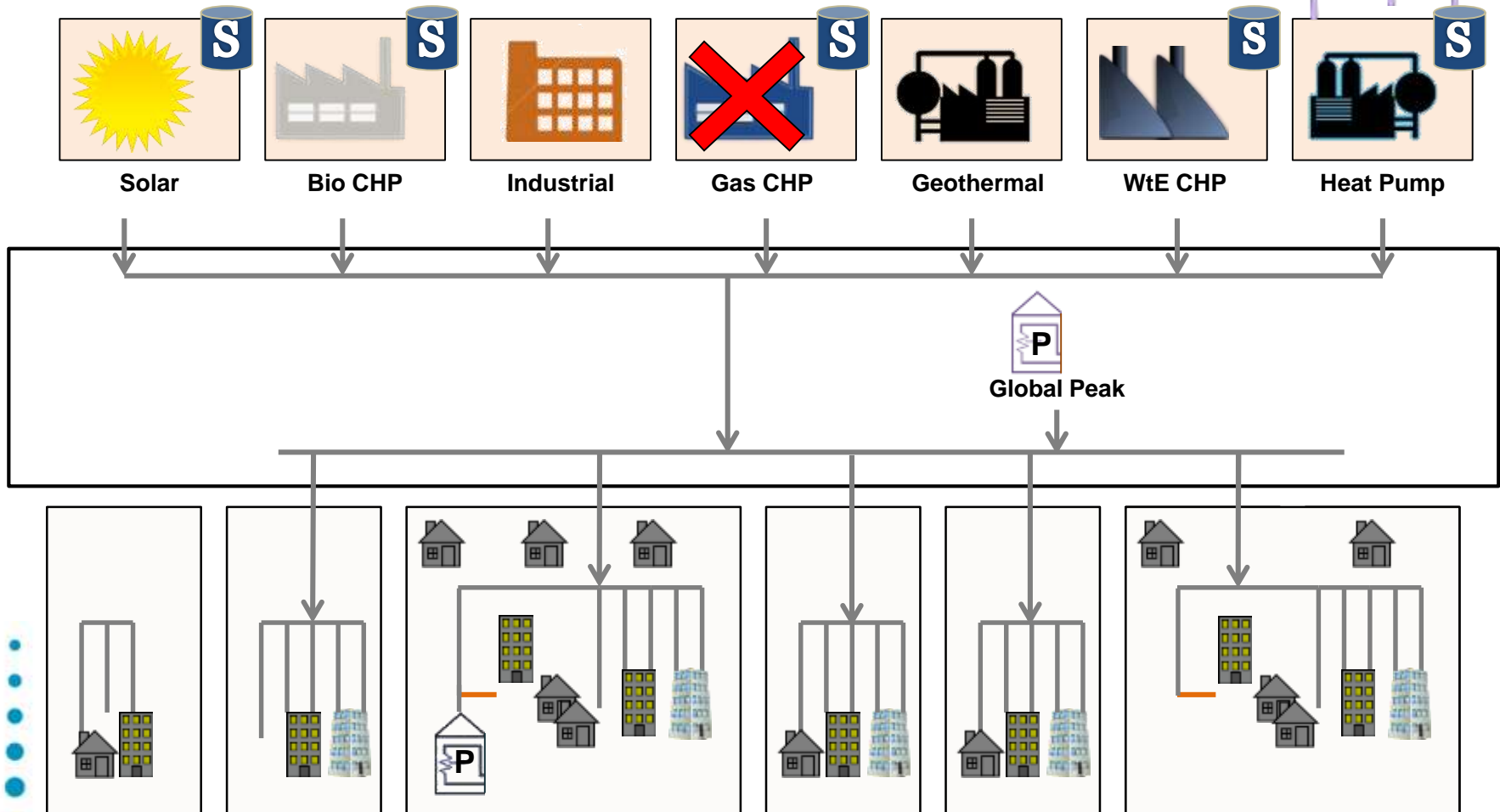
Good planning



Storage



Fossil Free Smart System



Thank you

Morten Jordt Duedahl
Business Development Manager
md@dbdh.dk
www.dbdh.dk

