

District Heating – an Important part of a Sustainable Future

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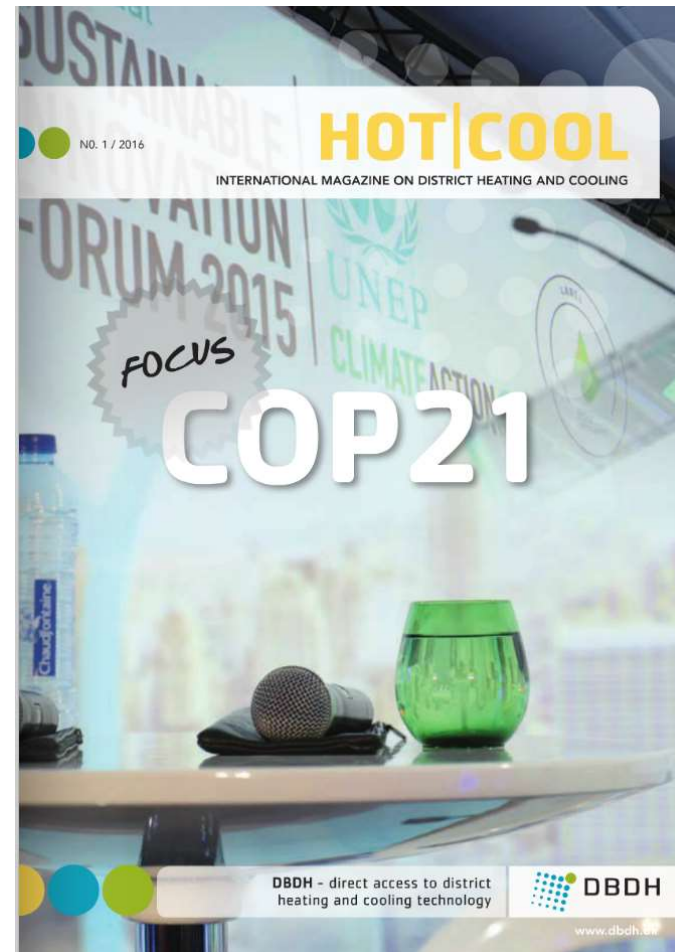
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Promote District Energy for a Sustainable City Transformation



- 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



dbdh.dk

Future Targets

- National
 - 70% CO₂ 2030 reduction vs 1990
 - 2035 Carbon Neutral Heat
 - 2035 Carbon Neutral Electricity
 - 2050 Transport ??
- Copenhagen and many other cities
 - 2025 Carbon Neutral



70% CO2 REDUCTION IN 2030

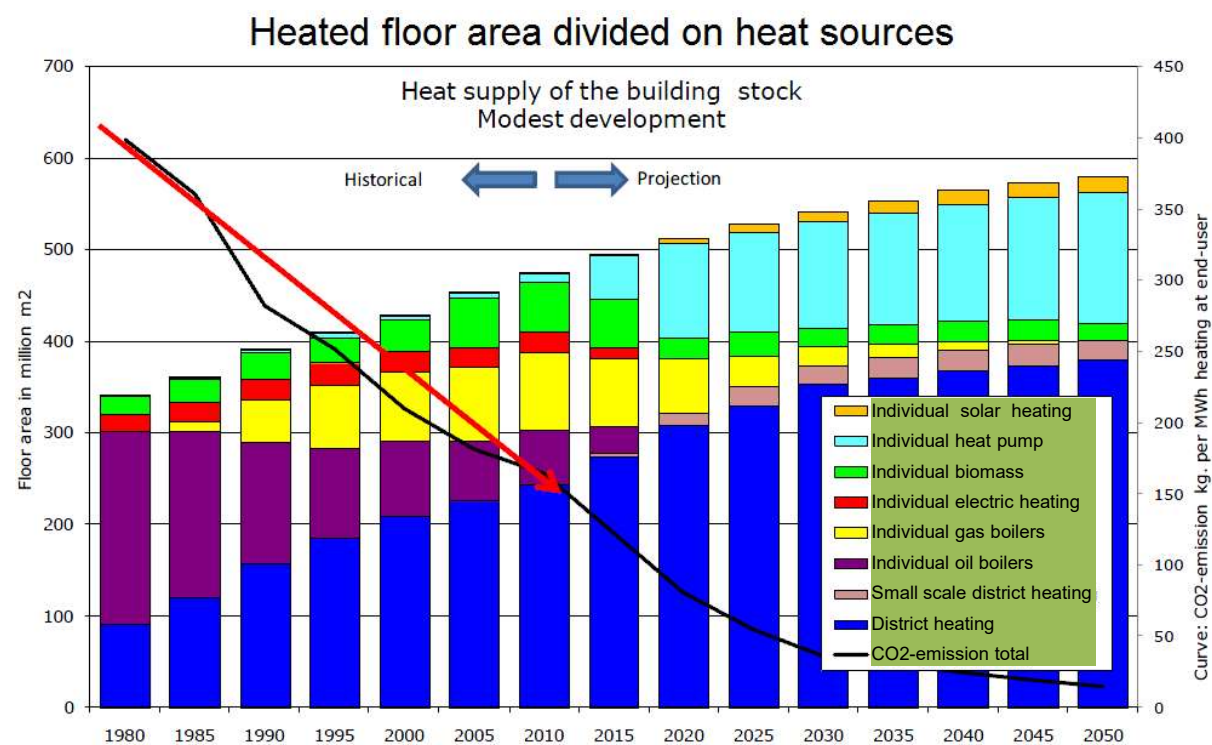


GAS vs DH

- New developments: Competition is not gas—
Gas is an obsolete technology
- Conversions: Gas prices are the competition

The Future

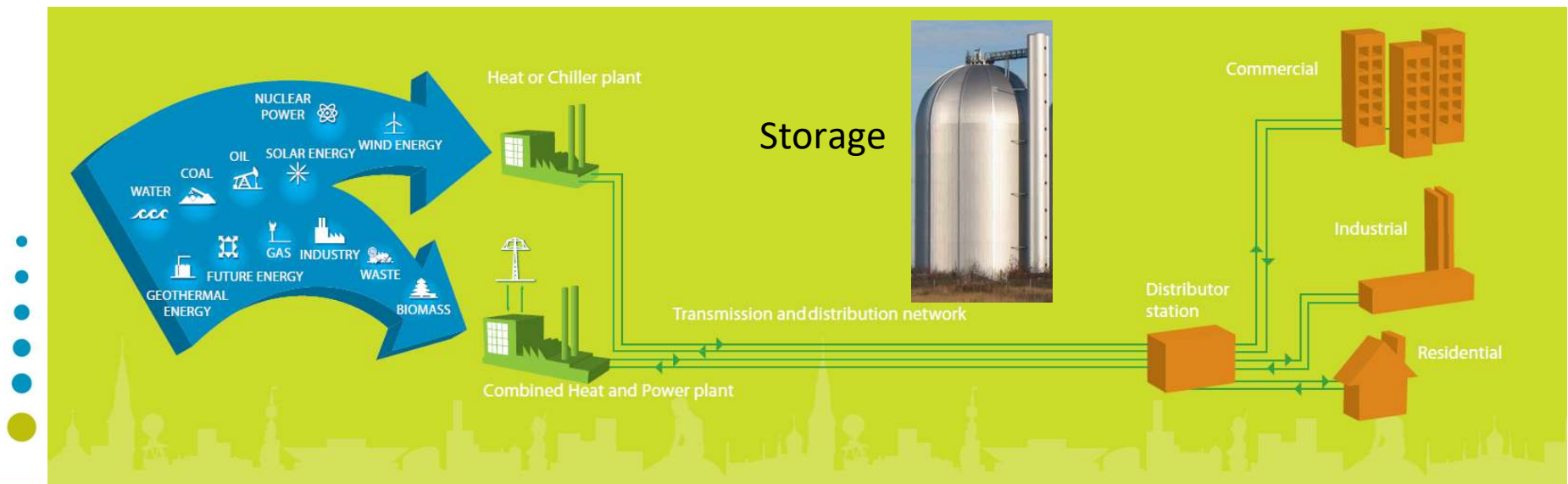
- A central part of Smart Energy Systems & 2050 targets
- Integrate surplus wind and solar electricity



Source: Heat Plan Denmark, Ramboll

Connectability

- Technical (e.g. pressure, temperature)
- Fuel sources – any available
- Customers – any available

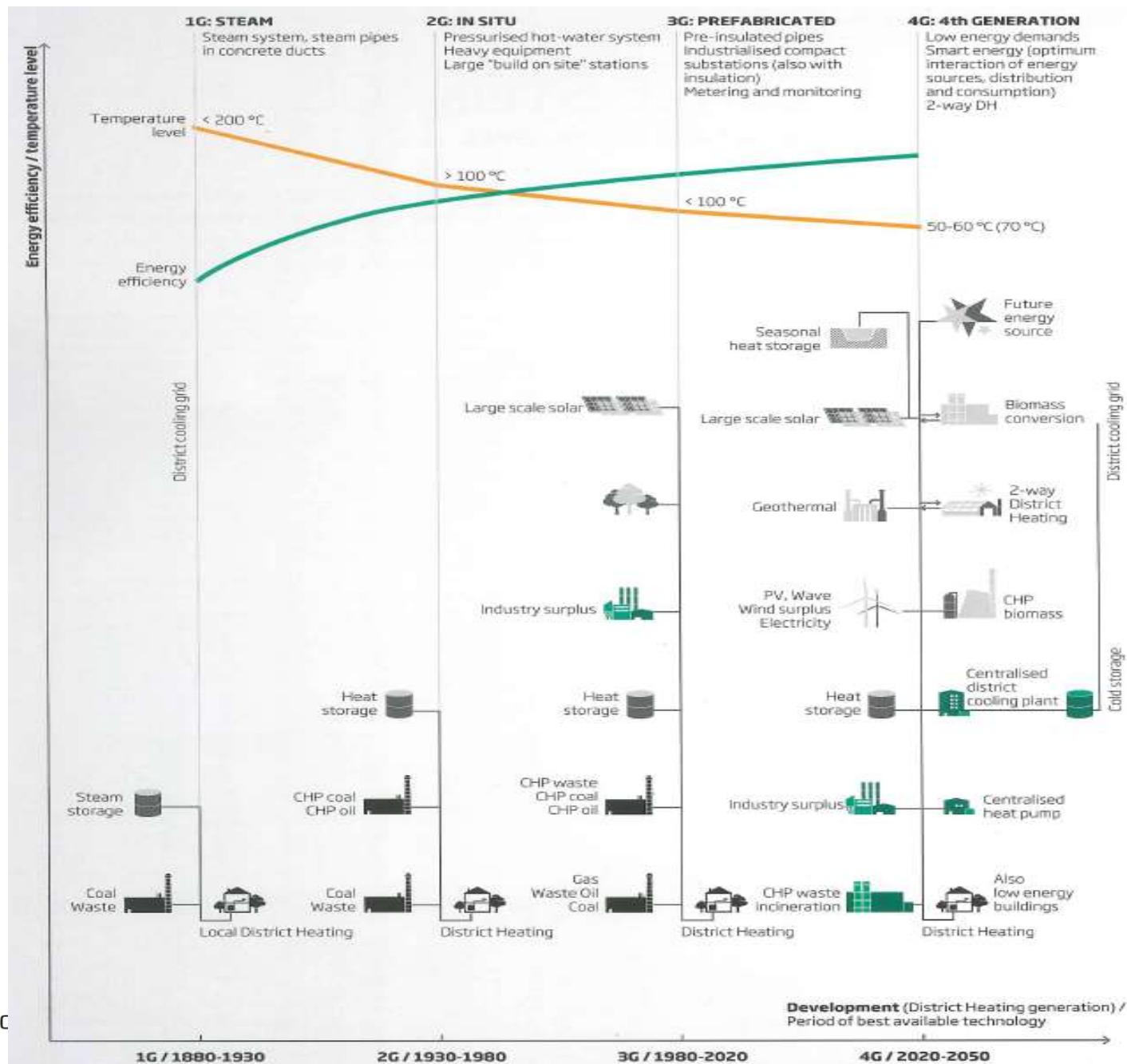


Technically DH is NOT Complicated

Constant technical
developments and energy
efficiency!

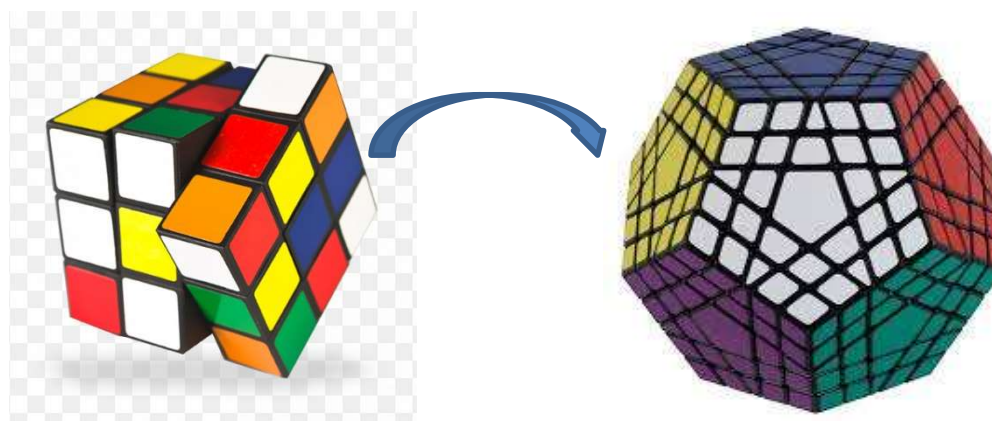
DH is fuel agnostic!

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



Flexibility is the key

- Fuel, sources, storage, consumption
- Decades, Seasonal, Weekly, Daily, Hourly
- Investment and Operation



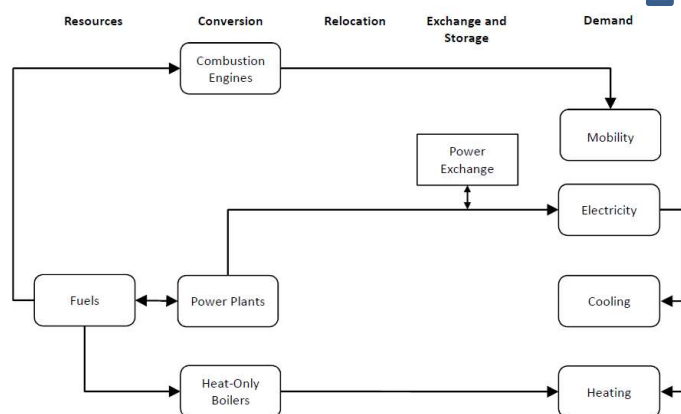
Future Sustainable Heating

- Lower Temperature – towards 4G
- Improved technology in all parts of the value chain
- FUEL:
 - Storage
 - Power to Heat - Industrial Heat - Heat Pumps - **Geothermal**
 - Bio Mass – great now, and then ???
- Consumer interaction
- DH is the integrator!
- Optimisation – metering, soft ware, systems
- Consolidation – companies and grids

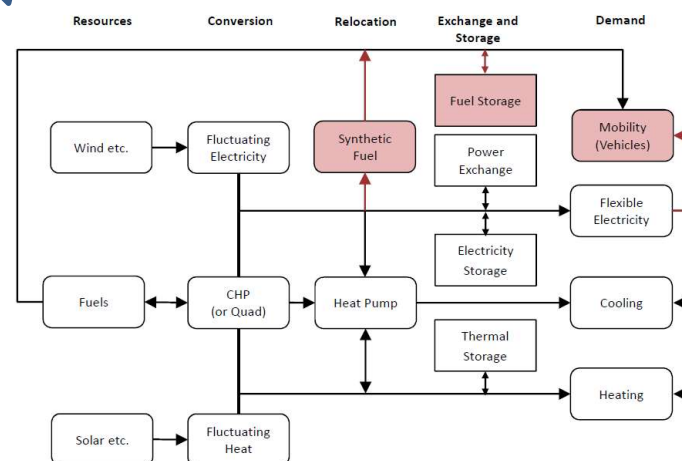
From 0% wind to 65-90% wind



1. Energy System 0.0



Energy System 6.0 (65-90%)



Advocate benefits of DH

- Get your model right
 - Who's to benefit (fuel poverty, carbon, jobs)
 - Connectability
 - Discuss risk and divide it
 - Advantages of Scale
 - Long term perspective
- Technically it works, even better and better



Get started!

- Learn from others
- Organize
- Be innovative

Thank you

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Connectability

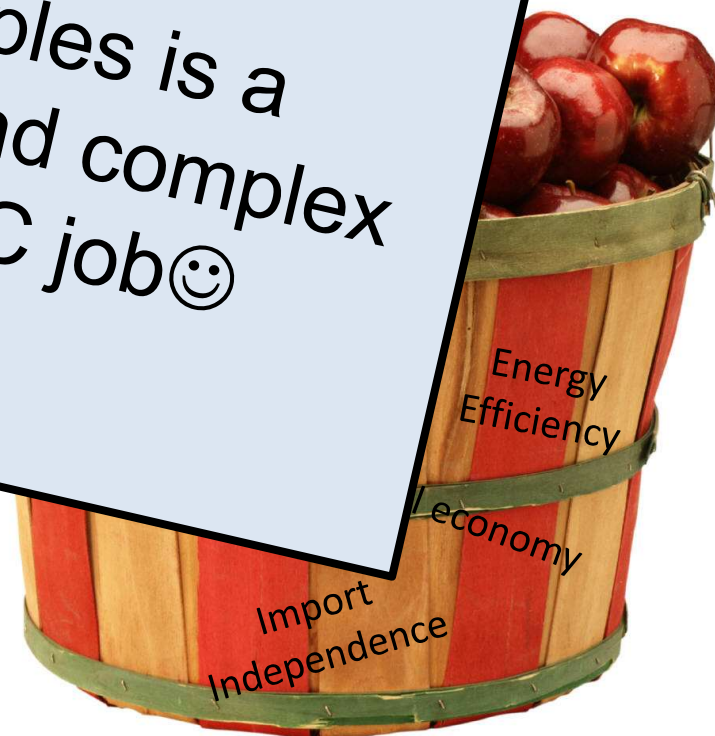
- Economy
 - Agreed principle
 - Who benefits
- Legal and ownership
 - Flexible today
 - Flexible in the future
 - Merger, management, sell off, production...



Low ha

We want all the apples!

Picking apples is a
complicated and complex
STRATEGIC job😊



Conclusion

- Make your choice
- Avoid silos – inclusion is key
- Make sure future development is possible
- Find a way to include all over time
- Understand effects of high IRR and short pay back time
- Go for it 😊

