

District heating, a roadtrip through Europe

Main ingredients for a sound heat transition
based on Danish experiences

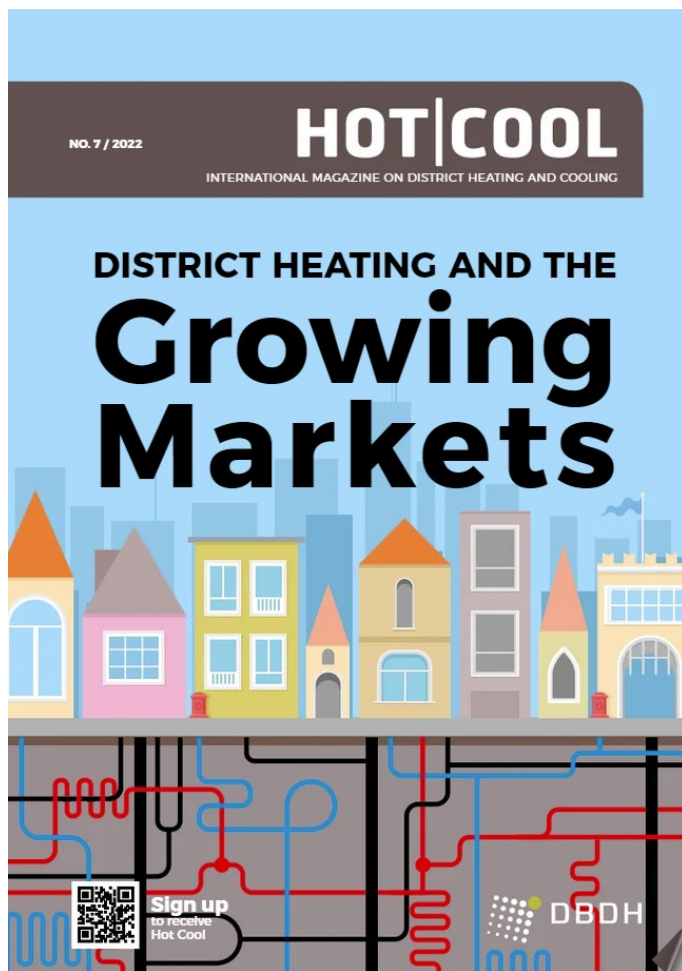


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Read our magazine
HOT COOL!!



Mission: Create a Better World where People, Companies, and Cities Benefit from Sustainable District Energy



- Established in 1978
- Leading actors in the District Heating and Cooling Sector
- 80 members
 - Manufacturers, Consulting Engineers and Utilities

Promote DH world-wide:

- Seminars, training, exchanges of know-how
- Magazine HOT|COOL
 - 8 x digital + 2 x Journal
- www.dbdh.dk



DH at a Glance

District heating, a roadtrip through Europe



GERMANY: District heating

- Goal of 100,000 houses connected every year until 2045 (some say more)
- = Tripling of existing DH by 2045
- 2030 30% of existing grids shall be green/80% by 2045
- Municipal heatplanning (2026 > 100,000 and 2028 > 100,000)
- Cities buy back the district heating networks?



WHY?



Learning Case Hamburg

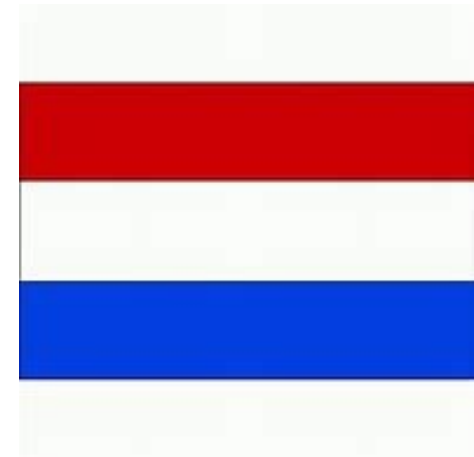
Re-municipalization a success

- 2019 City repurchased DH from Vattenfall – “Wärme Hamburg”
- WHY?
 - Vattenfall decline in reputation (incidents, increase of electricity prices, build of coal-fired powerplant within the city)
 - Lack of investments in green solutions
 - Control of greening your city to reach climate goals
 - Better understanding of people
 - More engagement of local discussions





NL: New District Heating Law

- +500,000 new connections until 2030
- Majority public ownership = More public infrastructure
 - This can also be cooperative (today private owned)
- Investor security
- Focus on consumer protection and tariff regulation
 - “transparent and cost-based (cost+)”
- Loans up to 70% (may be converted to 90% gurantee)
- Sustainability: eventually delivered without GHG emissions
- Security of supply



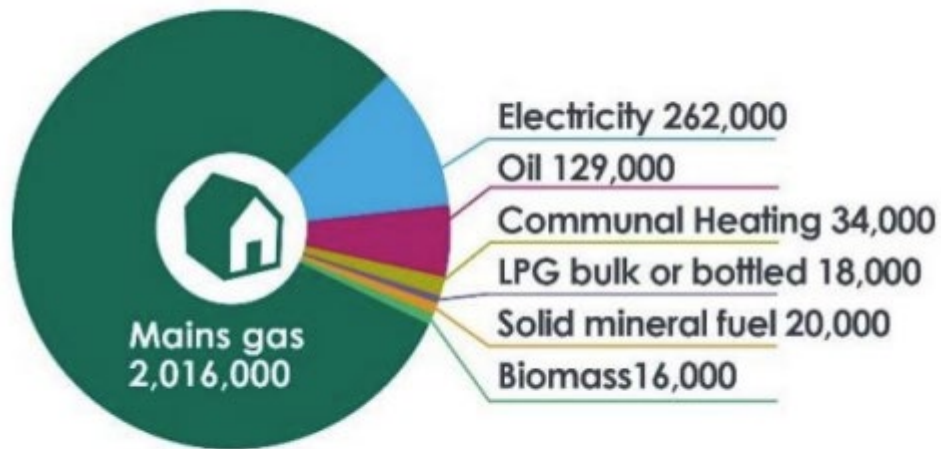
Learnings Case Groningen – new DH Scheme

- Goal: Groningen carbon neutral in 2035 / >30,000 connections in 2035
 - Need for sustainable heat grid
 - Municipality takes responsibility  WarmteStad in 2014
 - Heat transition plan for the whole city
 - Started with smaller projects to gain competence and trust (now think big)
 - Multiple heat sources  flexibility, lowest cost, resilience, stable network
 - Involve stakeholders
 - General public, Housing Associations, universities, consulting firms and businesses
 - Anticipate change
 - Let citizens know that gas is an obsolete technology, and they have to find other sources



Scotland DH

Scotland's Homes & Buildings



Breakdown of primary heating fuel vs number of homes (Scottish House Condition Survey, 2019)

Heat Network Landscape in Scotland

Today:

- 1,000 heat networks
- 30,000 homes
- 1.2TWh.
- Mainly Gas CHP
- Public and private ownership.

2030:

- 400,000 homes
- 6TWh
- Renewables or waste/surplus heat.
- A regulated sector.
- Significant private sector involvement in ownership and operation



Learning Case Dunbartonshire - expansion

- The Council, in partnership with the landowners, embarked on a venture to transform the former shipyard to a college, office building and homes
- Tendering process of build and operate won by Vital Energy – but city ownership
- Cost is higher than natural gas – but RE
- From 2025 gas cannot be used in new homes = obsolete technology
- Queens Quay heat network extension: Golden Jubilee Hospital and hotel + nine of West Dunbartonshire Council's multiblock flats at Dalmuir and Littleholm (6 currently on electric, 3 on gas).



Main ingredients for a sound heat transition DBDH based on Danish experiences

- District Heating is an un-avoidable part of a future proof, smart, sustainable energy system....

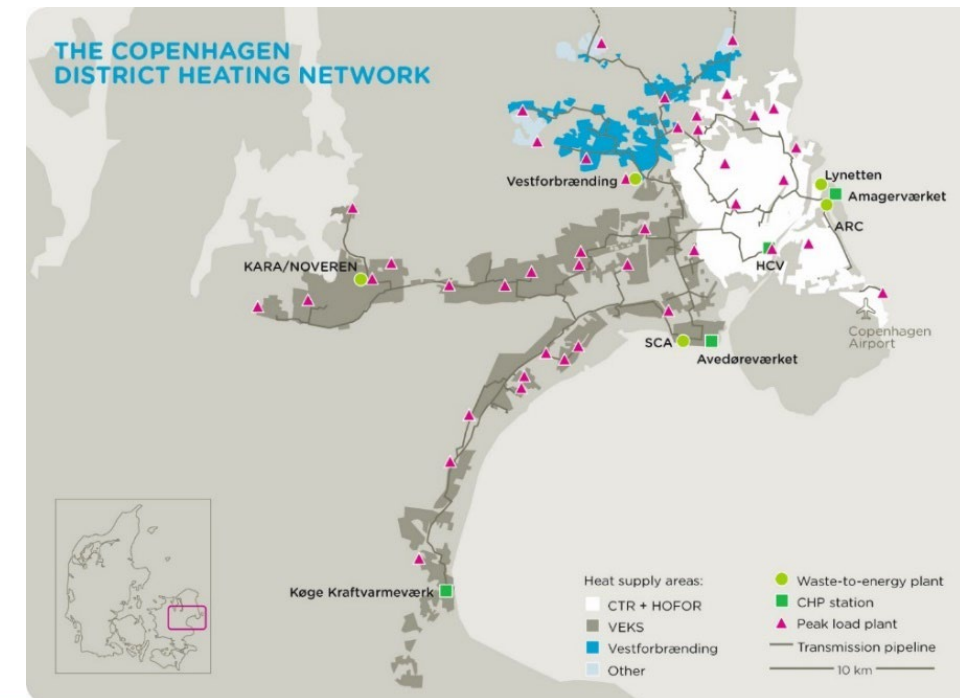


District Heating in Denmark

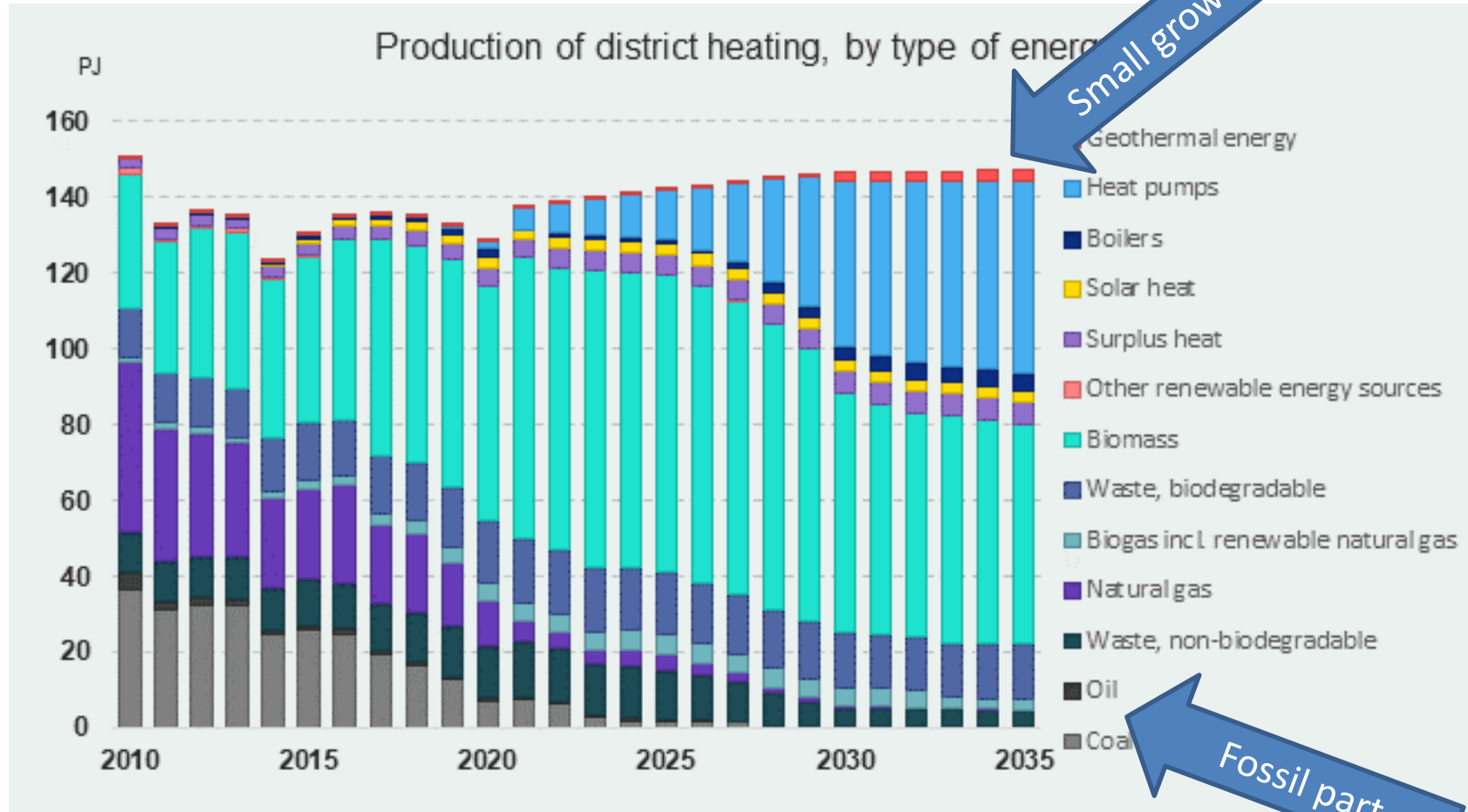
- 55% of heat demand
- >2/3 of all households (1.896.498 / 68% / +53.000)
- 76+% renewable heat
- All homes in major cities

- 354 DH companies
- 60.000 km of pipes (30k flow/return)
- 1.000.000.000 l of water

- Prices: Competitive



Sustainable Heat Sources



Price challenge

- Do not compare prices to natural gas
- Natural gas is an obsolete technology and heavily subsidised
- The gas network will be a stranded asset for heating buildings



DH is flexible

- Added new heat source many times – and still do
 - The DH system is still the same
 - =resilient
- Competitive prices
- Hand in hand with EE measures

Main ingredients SMART DH

- **S**table Framework conditions
 - **M**unicipal leadership
 - **A**llow many heat sources = cost flexibility/resilience
 - **R**eact NOW - Forget the other non-existing solution
 - **T**hink very big
 - **DH** integrates the energy system – sector coupling
- +
- Consumer protection
 - We have no time! Just do it!



Renewable Combined Heat and Power

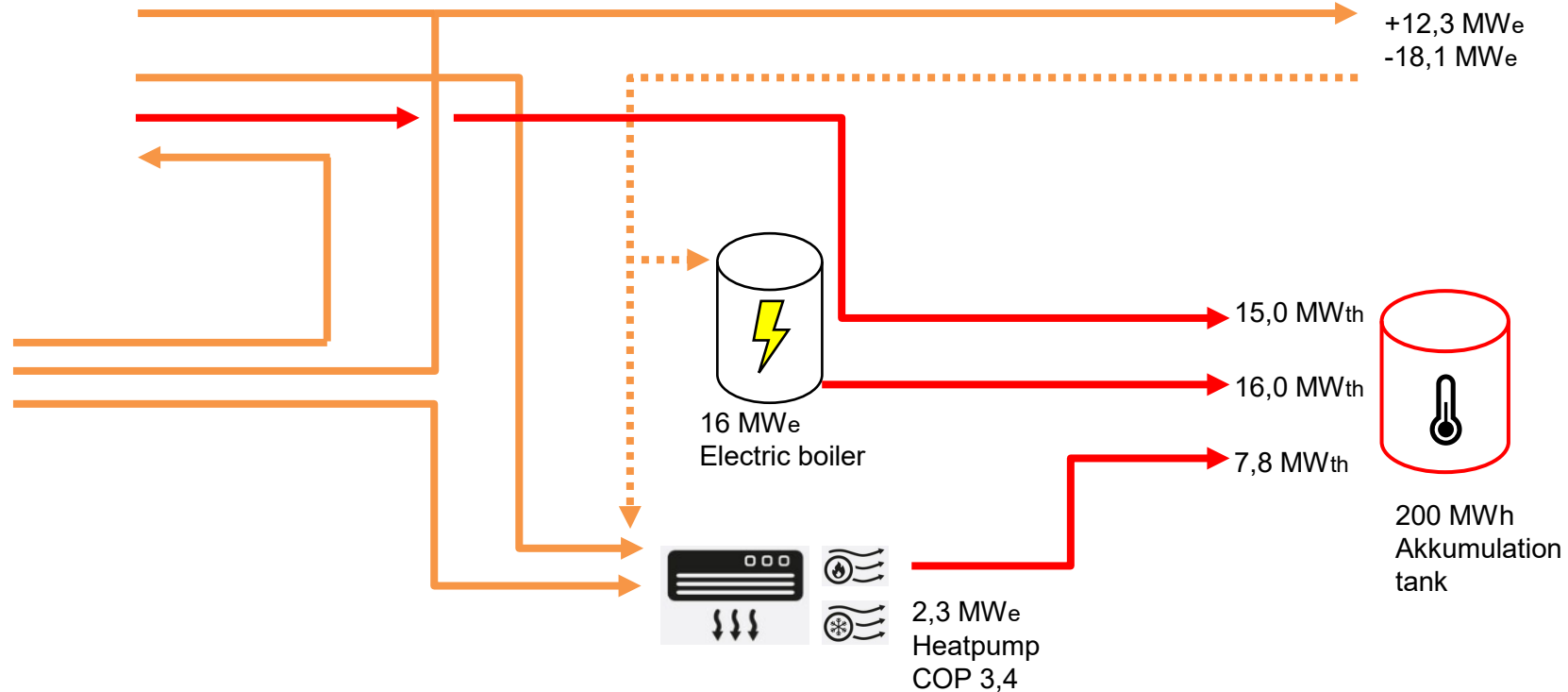
15+5 MW
Biomass
CHP



1,3 MW
Windturbine



6 MWp
Photovoltaic



Renewable “*Combined Heat and Power*” makes it possible to:

- Produce big amounts of sustainable energy
- Sell sustainable power when the price is high – **stabilize the market!!!**
- Purchase sustainable power when the price is low – **stabilize the market!!!**
- Use own power when the price is middle – **“stabilize” the market!!!**

**Sector
coupling**



Successful DH projects

- Green/sustainable
- For everyone
- Predictable, fair and low prices
- Social and other benefits



Thank you

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JUST DO IT 😊

