The world's largest Low Temperature District Heating (LTDH) network in Brunnshög/Lund (Sweden)

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Facts about us

Total number of customers

260 000 pcs

- Electricity grid 105 800 pcs
- Electricity accounts 128 600 pcs
- District heating 8 800 pcs
- Gas 1 900 pcs
- Vehicle biogas 800 pcs
- Fibre 13 500 pcs (active sockets)

Employees

500 pcs

OPERATIONS IN SOUTHERN SWEDEN

- i Skåne, Halland, Blekinge, Småland, Sjuhäradsbygden och Västgötaslätten.

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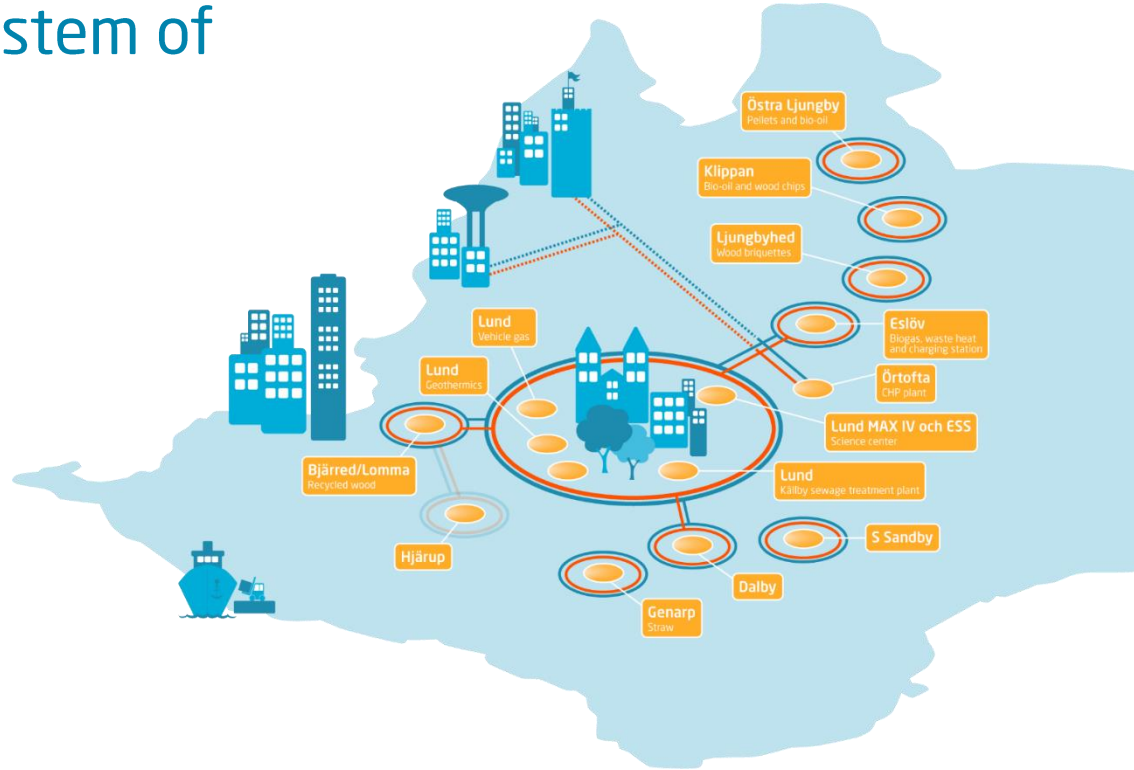
The 3rd generation DH system of Kraftringen

- Heat production:
  - Kraftringen: ≈ 970 GWh/year
  - Total: ≈ 1 100 GWh/year (app. 50 000 households)
- Kraftringen grid length (one way): ≈ 1 050 km
- **100% fossil free!**



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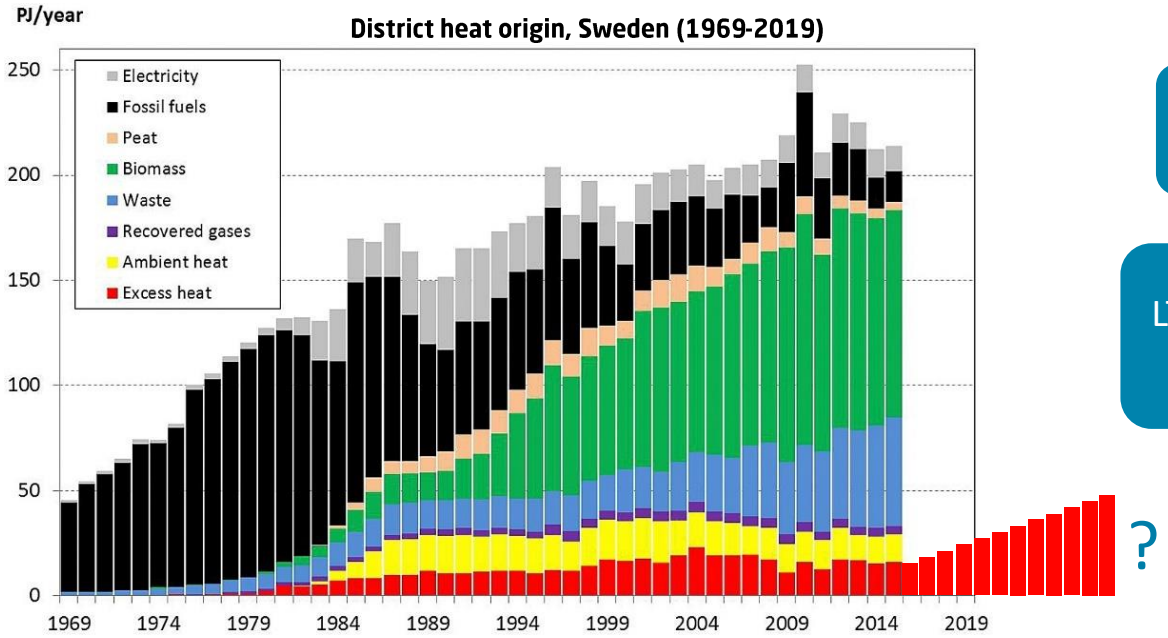
Utilizing excess heat

has the potential to accelerate the energy transition even further



Source: District heating and cooling in Sweden (Werner, "District heating and cooling", Energy 2017)

District heating
– a sustainable option

LTDH increase the possibilities to recover excess heat!

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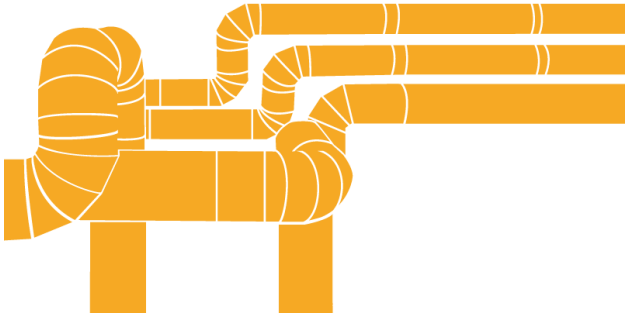
Benefits of utilizing excess heat

- Less usage of fuels
- Lower environmental impact
- Lower CAPEX need for energy production capacity
- Increased competitiveness for local industries with excess heat
- Lower cost for district heat
- Cooperation between energy and industry sector can lead to further synergies



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Brunnshög 2035
- a part of Lund city
Research facilities
with excess heat
ESS
100 GWh ≥80°C
100 GWh <80°C
MAX IV
30 GWh/a at 65°C

Brunnshög – in the making

What are we building?

SCIENCE heats the city

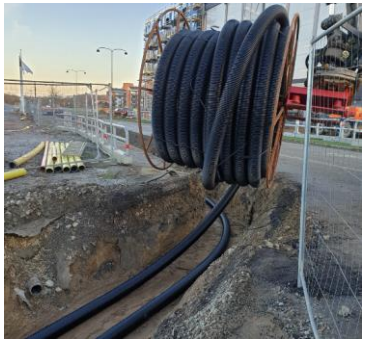
- Heat from MAX IV is recovered and used in our LTDH network (65°C), backed by our modern DH production (>80°C)
- 2021: ~1 GWh/a LTDH sold to customers

Why did we choose 65°C and what are the benefits?

- Temperature high enough for standard heat solutions in the buildings
- Enough for hot sanitary/drinking water
- Legionella safe
- Lower production costs
- Lower heat losses
- Heat distribution in plastic pipes (for ø ≤ 80 mm)
  - Steel pipes more efficient for larger dimensions

Steel pipes

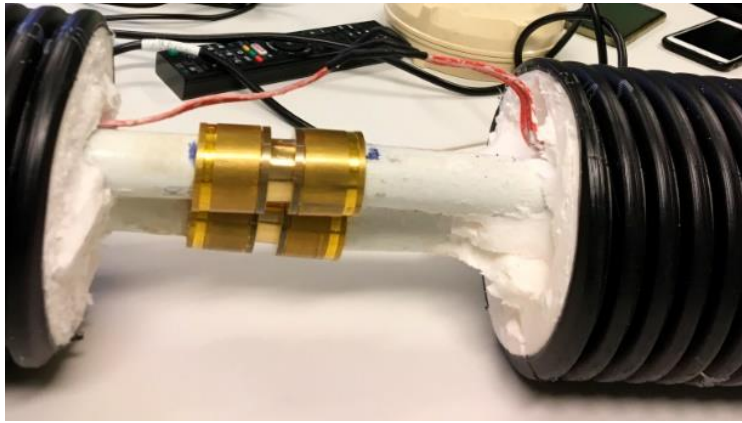
Plastic pipes



Plastic pipes developed together with Logstor

PE-RT (Rised Temperature)

- Inner diameter up to 80 mm
- Can be delivered as 100 m pipe rolls
- Diffusion proof pipe + mantle of aluminium
- Single and twin pipes
- Moisture-based leakage alarm
- Insulation foam same as in Logstor's flexible PEX-pipes
- Pipes can be merged by the pipe entrepreneur



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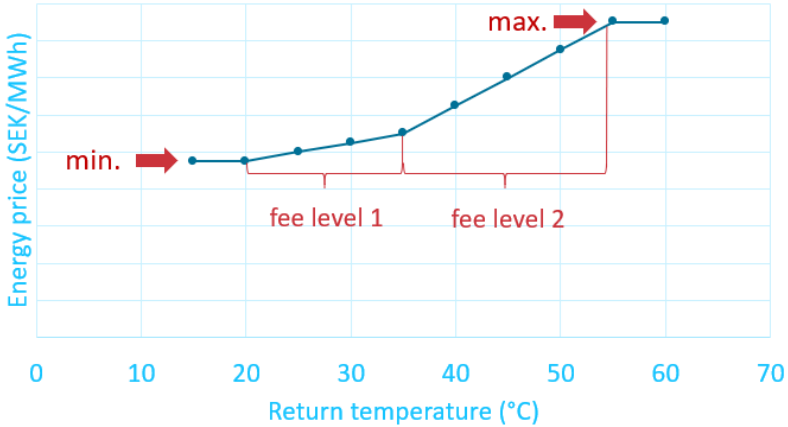
Price tariff for LTDH consumers

- Connection fee
- Minimum energy price and maximum energy price
- Return temperature fee per increasing degree, two levels:
  - 20 – 35 °C: fee level one, X SEK/°C
  - 35 – 50 °C: fee level two, Y SEK/°C



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The vision...

Walking areas free from ice and snow

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...and the reality!

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Thanks for your attention!