



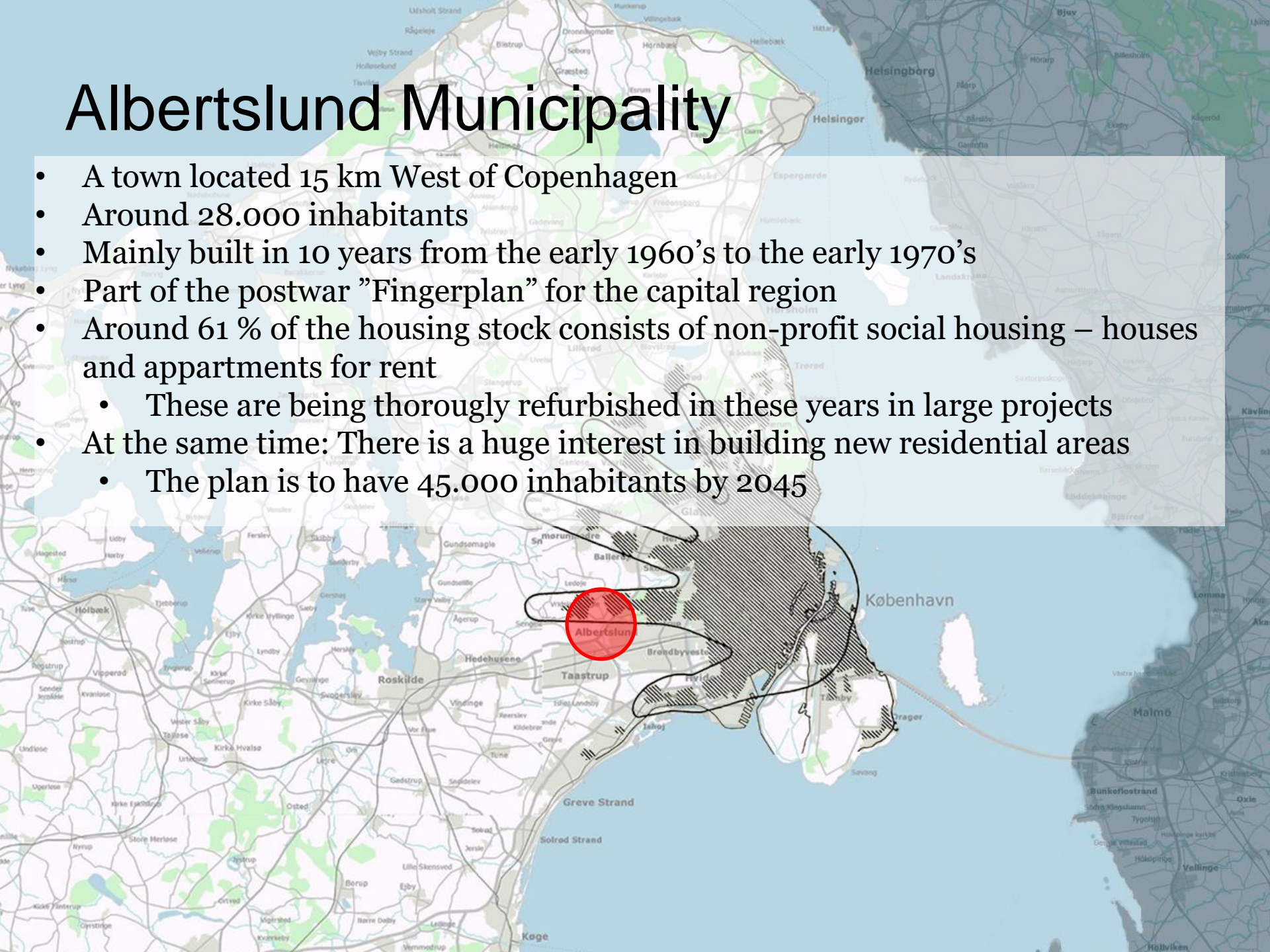
Albertslund Municipality

Implementation of Low Temperature District Heating

- Energy efficient renovation of buildings and citizen involvement

Albertslund Municipality

- A town located 15 km West of Copenhagen
- Around 28.000 inhabitants
- Mainly built in 10 years from the early 1960's to the early 1970's
- Part of the postwar "Fingerplan" for the capital region
- Around 61 % of the housing stock consists of non-profit social housing – houses and apartments for rent
 - These are being thoroughly refurbished in these years in large projects
- At the same time: There is a huge interest in building new residential areas
 - The plan is to have 45.000 inhabitants by 2045



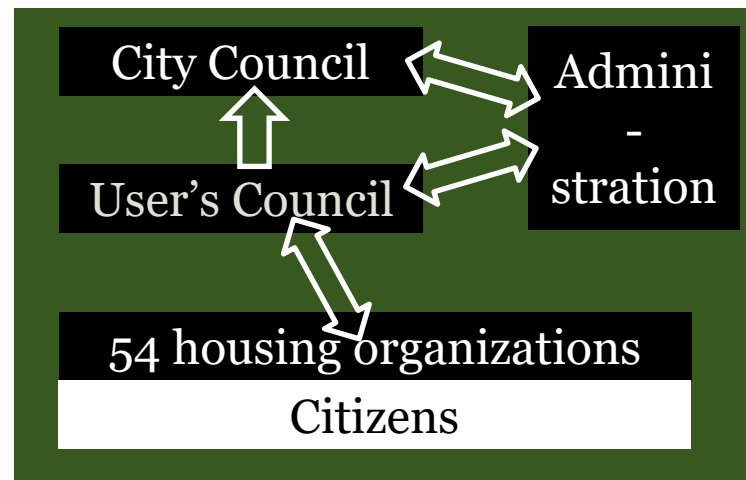
Albertslund: Then and Now



Cooperation with the citizens and housing companies

”The User’s Council”

- **Representatives** from each housing area in town more than 54 non-profit housing and home owners' Associations
- The members discuss and can influence the budgets and activities for waste, water, lighting and **energy** (heat)
- The **politicians in the city council** usually follows their recommendations



Albertslund Utility

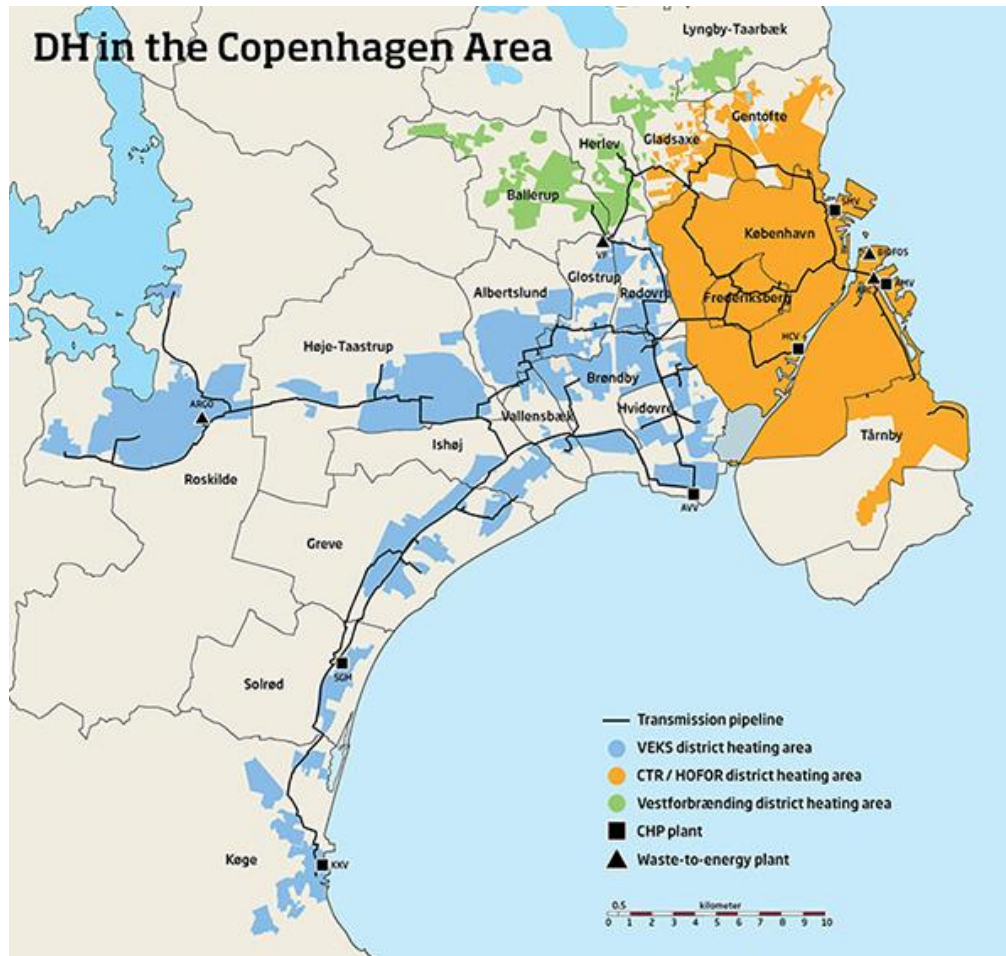
A worker in a white protective suit and helmet is operating a blue industrial valve with a yellow handwheel. The background is dark and industrial.

- **Municipal district heating** supply since 1964
- Since 1987, the heat is bought from VEKS. The heat comes mostly from cogeneration (biomass) – and waste incineration
- **95 %** of the total heat demand in Albertslund = DH
- District heating is a non-profit business in Denmark
- **Knowledge is shared costless** between municipalities and district heating companies

Facts:

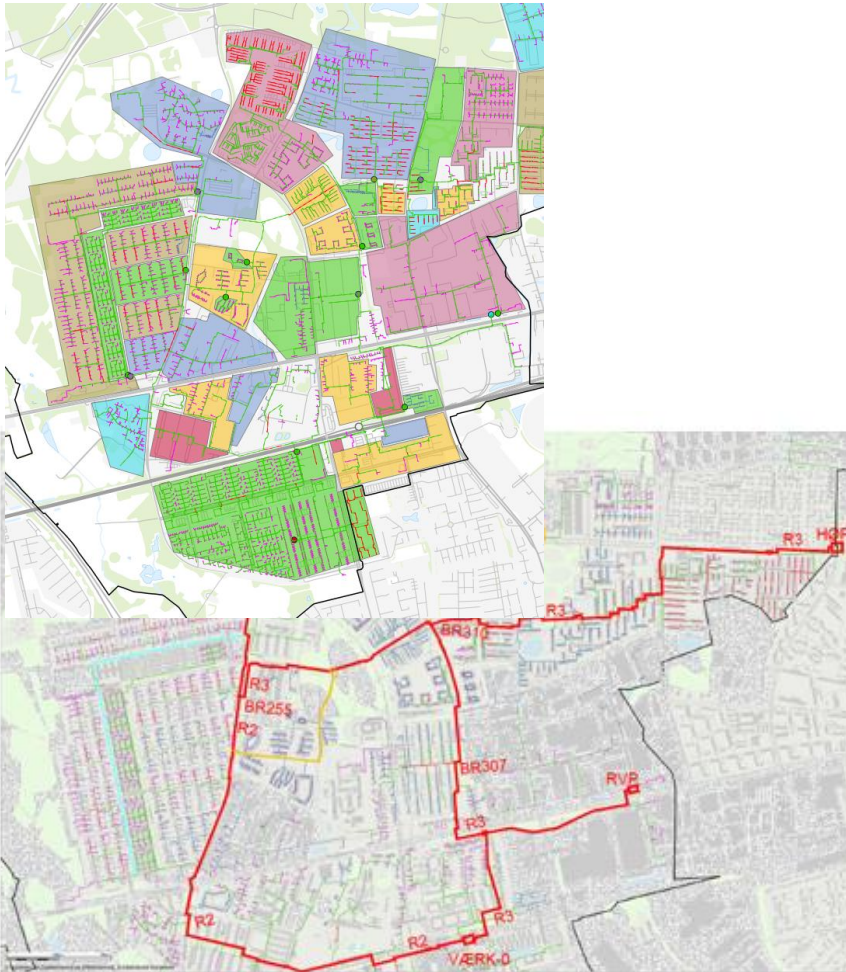
- 20 employees
- 380 km district heating pipes
- +7000 customers
- 9 peak load oil- and natural gas-fired boilers with a total capacity of 132,5 MW

District Heating in the Capital Region



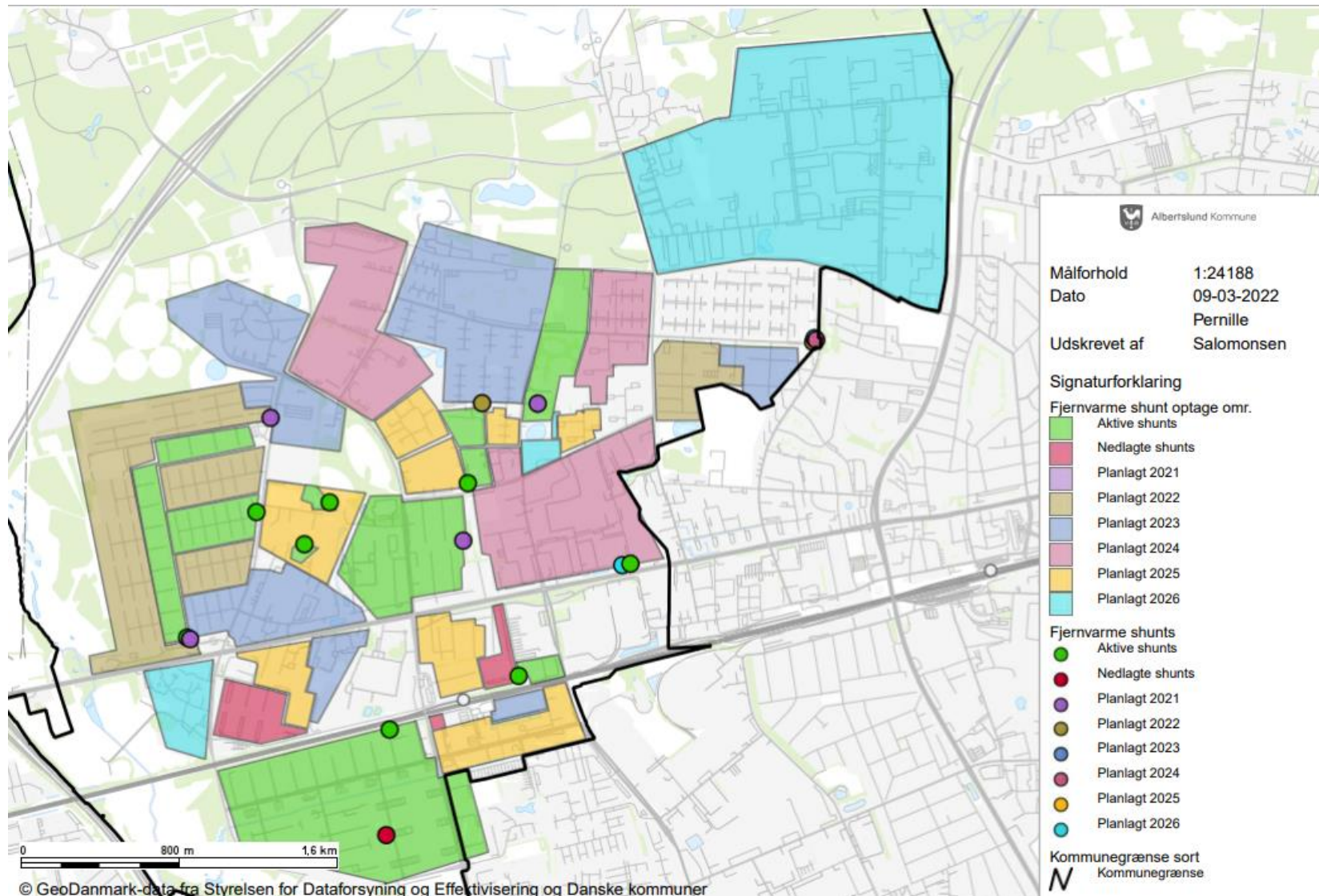
- The largest connected district heating system in Northern Europe
- Heat supply to 500,000 households
- Heat producers:
 - 4 CHP plants
 - 3 Waste-to-energy facilities
 - Reserve and peak load plants of a total of 1,900 MJ/s
 - Two heat accumulators of a total of 660 MJ/s

Strategy for Low Temperature District Heating by 2026



- High temperature in the main pipe (80 °C)
- Low temperature in sectioned areas by installation of "shunts" (60 °C)
- Use meter data to get a better understanding of housing areas and individual buildings
- Gradually lowering the temperatures
 - Spotting the "weak links" – houses having difficulties
 - Try to assist the houses

Active and planned shunts

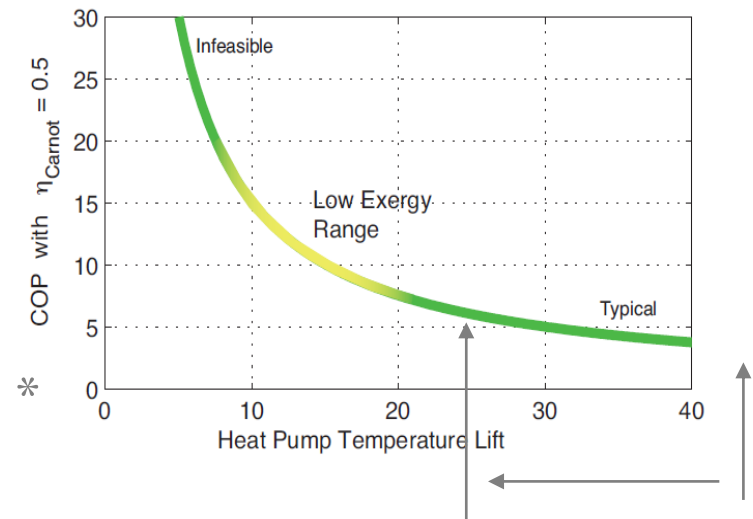
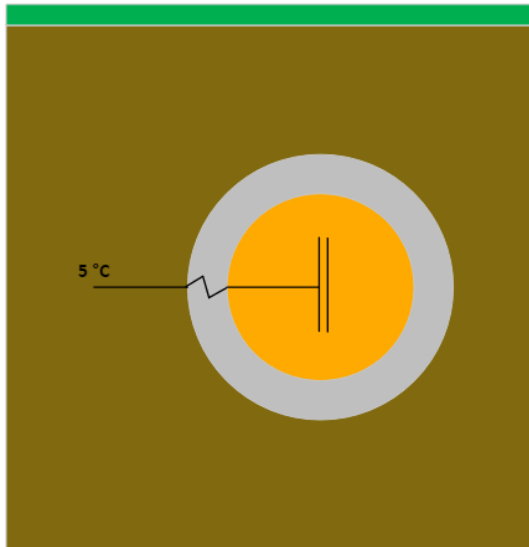


Porsager shunt



Why Low Temperature DH?

- Less difference in temperature between the district heating water and the ground.
 - Lower heat loss (from almost 20 % to around 16-18 %)
 - (without pipe replacement)
- Improves opportunities to use new supply sources.
 - Provides better COP when using waste heat recovery and heat pumps
- Better sector coupling opportunities



Low Temperature DH in Albertslund

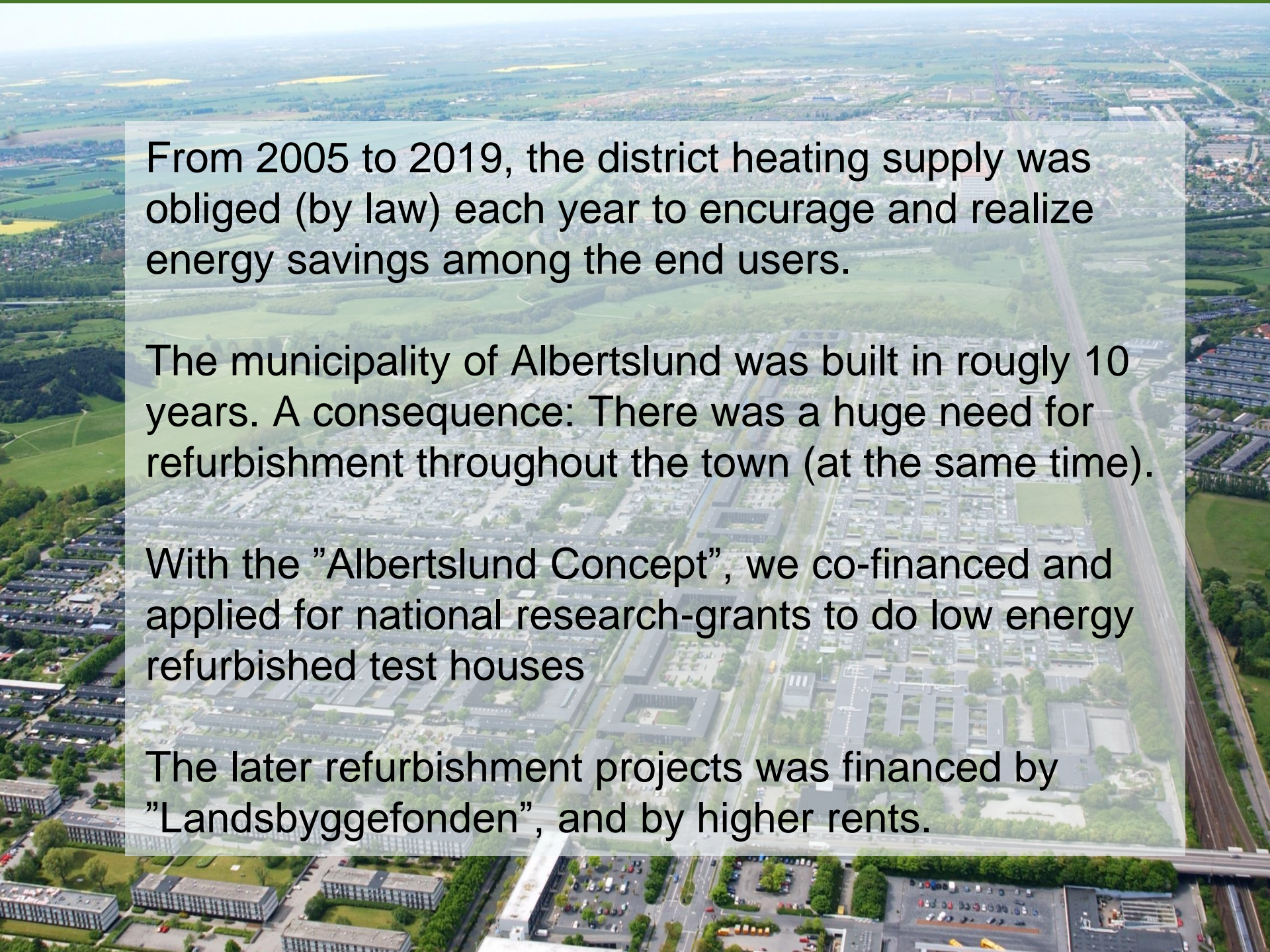
- How to lower the temperature in an existing DH network?
 - Push the bottom 1st of January 2026?
 - It's possible, however we might get unpopular
- We try to motivate our house owners to improve their houses
 - Free energy consulting
 - In cooperation with local house owner organisations, we try to develop energy refurbishment concepts via external architects
 - Many privately owned terraced houses, built at the same time with the same building envelope



The Albertslund Concept



Or the urban renewal of the town...

An aerial photograph of a city, likely Albertslund, showing a grid of buildings, roads, and green spaces. A semi-transparent white text box is overlaid on the center of the image, containing three paragraphs of text. The background shows a mix of urban development and green areas, with a railway line visible on the right side.

From 2005 to 2019, the district heating supply was obliged (by law) each year to encourage and realize energy savings among the end users.

The municipality of Albertslund was built in roughly 10 years. A consequence: There was a huge need for refurbishment throughout the town (at the same time).

With the "Albertslund Concept", we co-financed and applied for national research-grants to do low energy refurbished test houses

The later refurbishment projects was financed by "Landsbyggefonden", and by higher rents.

Concrete construction can be reused





Old townhouse on hightemp. DH

Refurbished house on lowtemp. DH

Refurbished house video

<https://www.youtube.com/watch?v=rv30qTBt8U4>



The starting point around 2005:

- *Weak energy requirements in the National Building Regulation*
- *Little experience with high level energy refurbishment*

The positive results from "the Albertslund Concept":

- *We were part of developing an industrial approach for energy refurbishment of pre-fabricated houses...*
- *The housing administration company (Bo-Vest) developed a better understanding of the technical proces – and of the necessary logistics in the huge refurbishment processes*
- *The tenants could see and touch the possible outcome of the coming refurbishment projects*
 - *The tenants have to approve of the refurbishment project, they pay with an increase of the rent – and they have to be rehoused for a period – so their opinions are essential for the whole process*
- *Consulting and construction companies gained knowledge*
- *...*





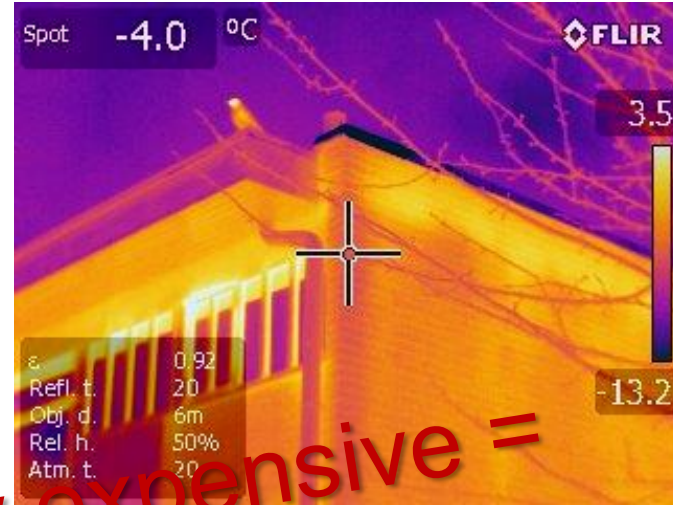
Why refurbish?



- *Today, the energy requirements of the National Building Regulation are ambitious*
- *Today, our main focus are on assisting*
 - *private home owners*
 - *the industrial buildings*
- *We have several large development projects in town*
 - *Former prison is transferred into a residential area*
 - *Two former industrial areas are transferred into residential areas*
- *A constant focus on developing the DH Supply*
 - *New services*
 - *New tariffs*
 - *Open dialogue*



Another townhouse example in Albertslund / Privately owned homes



Before

Insulation is very expensive = challenge, but our 1. priority



After (gable only)

- **Guidance and help** by the local *SDG Center* and the Energyteam:
Exhibitions, lectures, homevisits, energy groups
- **Neighbourhood approach** and nudging is essential - with a documented succes
Albertslund is like a big village

