

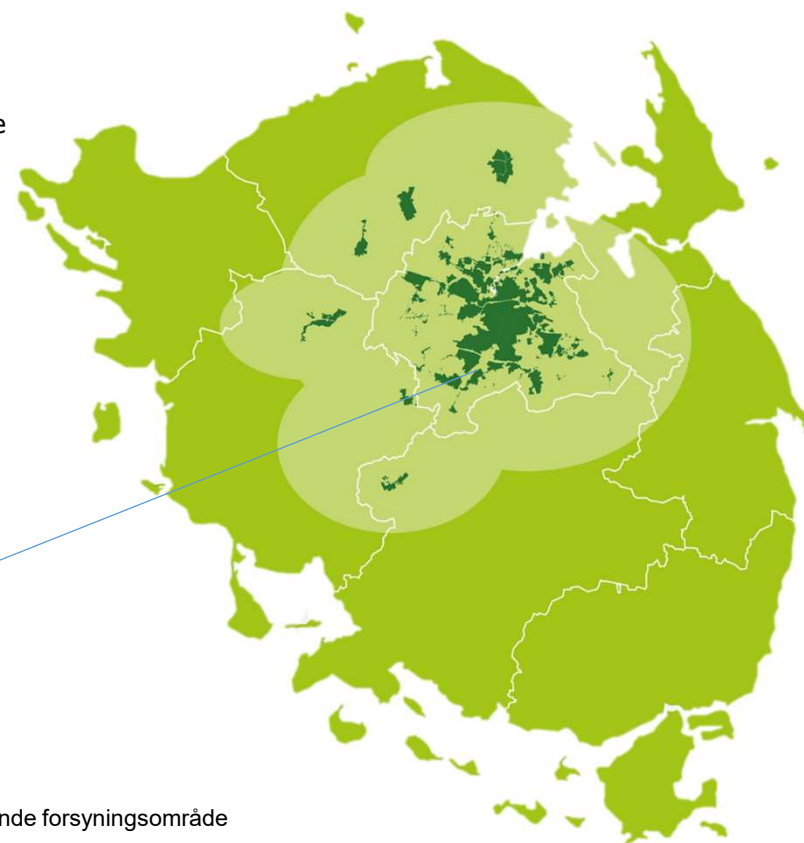
# Contribution Heatstore - Stige Damvarmelager

Dato: 27. oktober 2021



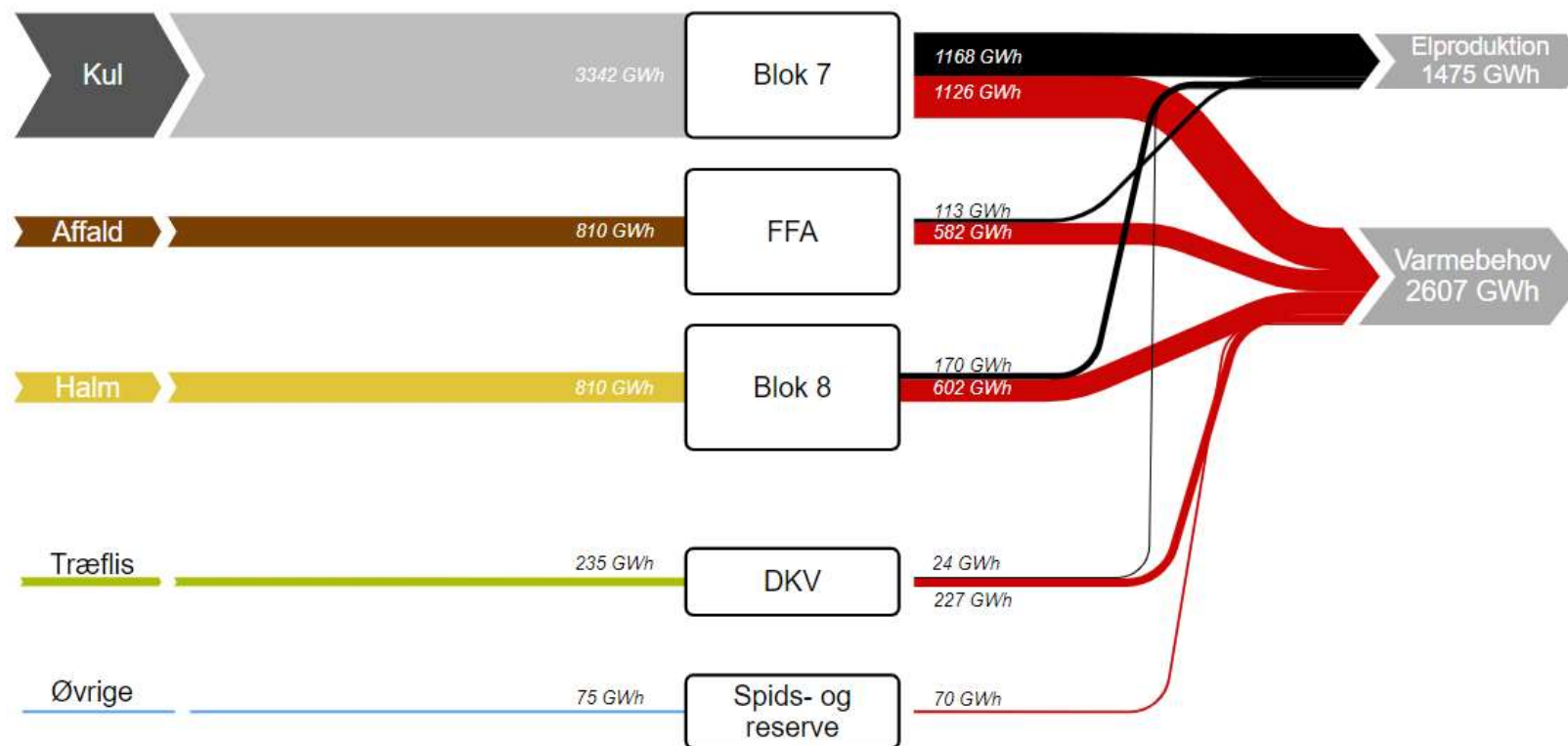
# About Fjernvarme Fyn

- Fjernvarme Fyn Holding A/S is to 97% owned by Odense Kommune and 3% by Nordfyns Kommune
- 3. biggest supplier of District Heating in DK (ca. 9,5 PJ DH production/yer - 2016)
- Supplier for about 200.000 citizens
- Process consumers (mainly greenhouses) consume about 20% of DH production
- Number of employees about 300



- Nuværende forsyningsområde
- Nye områder og steder, hvor vi ser på muligheden for at tilbyde fjernvarme

# Energy Production, 2016



Kilde: Grønt regnskab, 2016

### Blok 7 – coal

- Commissioned 1991
- Coal consumption: ~500.000 tonnes a year
- Covers 40-45 % of demand of heat

### Blok 8 – straw

- Commissioned 2009
- Straw: ~200.000 tonnes a year
- Covers 20-25 % of heat demand

### FFA – waste incineration

- Commissioned 1996/2000
- Waste: 300.000 tonnes a year
- Cover 20-25 % of heat demand

### Decentral plants

- Dalum CHP – wood chips
- Peak load/redundant production 3 CHP and 22 heat production only - oil/gas
- Heat pump at Tietgenbyen (Facebook)
- Heat pump at Ejby Mølle (Wastewater treatment)

# Why PTES?

## Advantages by central PTES

- Increases flexibility in production of heat- and power
- High independence of power market
- Improving security of supply
- Storage of excess heat from industry
- Save investment in new CHP
- Reduce operation of gas- and oil fired boilers

## PTES, while:

- Less investment heavy than alternatives
- Scalable to higher capacities
- Less disturbing visibly compared to steel tanks



# PTES

## Dimensions

- Stage 1 – northern storage: 700.000 m<sup>3</sup>
- Footprint incl. dams: ca. 60.000 m<sup>2</sup>
- Lid area: ca. 45.000 m<sup>2</sup>
- Depth of storage: ca. level -12 m in terrain between ca. level 5 m and 9 m
- Height of dam: level ca. 15 m
- Max. DH capacity ca. 36 GWh

- Stage 2 – southern storage: ca. 250.000 m<sup>3</sup>
- Footprint incl. dams: ca. 35.000 m<sup>2</sup>
- Lid area: ca. 25.000 m<sup>2</sup>
- Depth of storage: ca. level -2 m in terrain between ca. level 2 m and 5 m
- Height of dam: level ca. 15 m

## Interface to DH system

- Capacity heat exchangers: 150 MJ/s
- Temperature in storage: max. 85°C, return ~40°C, cooling in spring to ~7°C

Earth balance is strived for



# Stige Damvarmelager/PTES Project status

## Authorities

- 2. draft of EIA report (Miljøkonsekvensrapport former VVM-redegørelse) commented by authority (Odense Kommune), COWI is our advisor
- Informations and data delivered to Odense Kommune for their preparation of Local plan (detailed planning for the area)

## Consultancy

- PlanEnergi/Geo are involved for preparation of technical tender documents for construction of PTES respectively belonging earth works
- Lots
  - PTES – membraneworks, lid, piping in storage and diffusors
  - Earth works incl. foundations for piping and diffusors
- Owner consultancy NIRAS

## Other activities

- Geotechnical investigations for site area done - Geo
- Archaeological survey for site area done
- Engineering for removal of HV-cables crossing site is done by cable owners
- Fjernvarme Fyn engineers interface to DH system incl. belonging power and control engineering

