



LINKA

group



LINKA GROUP

- ✓ Privately held Scandinavian group
- ✓ Together we have one of the widest product lines in the industry
- ✓ We are making boilers for all professional purposes
 - ✓ Hot water
 - ✓ High Pressure Hot water
 - ✓ Steam
 - ✓ CHP (Combined Heat and Power)
- ✓ Our technologies are state of art
- ✓ Ca. 100 employees in Scandinavia
- ✓ We guarantee efficient incineration of various types of biomass
- ✓ We are certified under ISO9001 and 14001





SOLUTIONS

- Our boiler systems are developed from our own design, based on +40 years of experience
- Biomass boiler systems from 250 kW to 30 MW thermal
- Proven, safe and efficient quality – at an affordable investment
- Boiler systems are adhering to strict EU emission legislation
- Segments include
 - District heating networks
 - Industry and commercial use
 - Agriculture



CONVERT YOUR WASTE INTO FUEL



Straw



Grain waste



Saw dust



Waste wood



Dry wood chips



Wet wood chips



Bark



Wood pellets



Coffee shells



Coffee grounds



Olive stones



Cherry stones



Grass seed



Miscanthus

STRAW – AS EXAMPLE

- Straw is CO₂-neutral and delivers a closed loop circuit on greenhouse gasses
- Locally grown and locally used – and available
- It is easily accessible and often a waste product
- The efficiencies and utilization value are extremely high
- Linka offers boilers from 250kW – 12MW^{thermal} on straw



EGTVED CASE



Timeline for DH in Egtved

LINKA group

1959 Heavy Fuel Oil was used in boiler production.

Gas Oil through the '60.

Ngas in 1973, as First DH plant in DK using this fuel.

Power engine plant 1994.

Heating production on EL boilers 2012.

Heating production on Solar panels 2015.

100 % CO₂ Free heating production 2022.

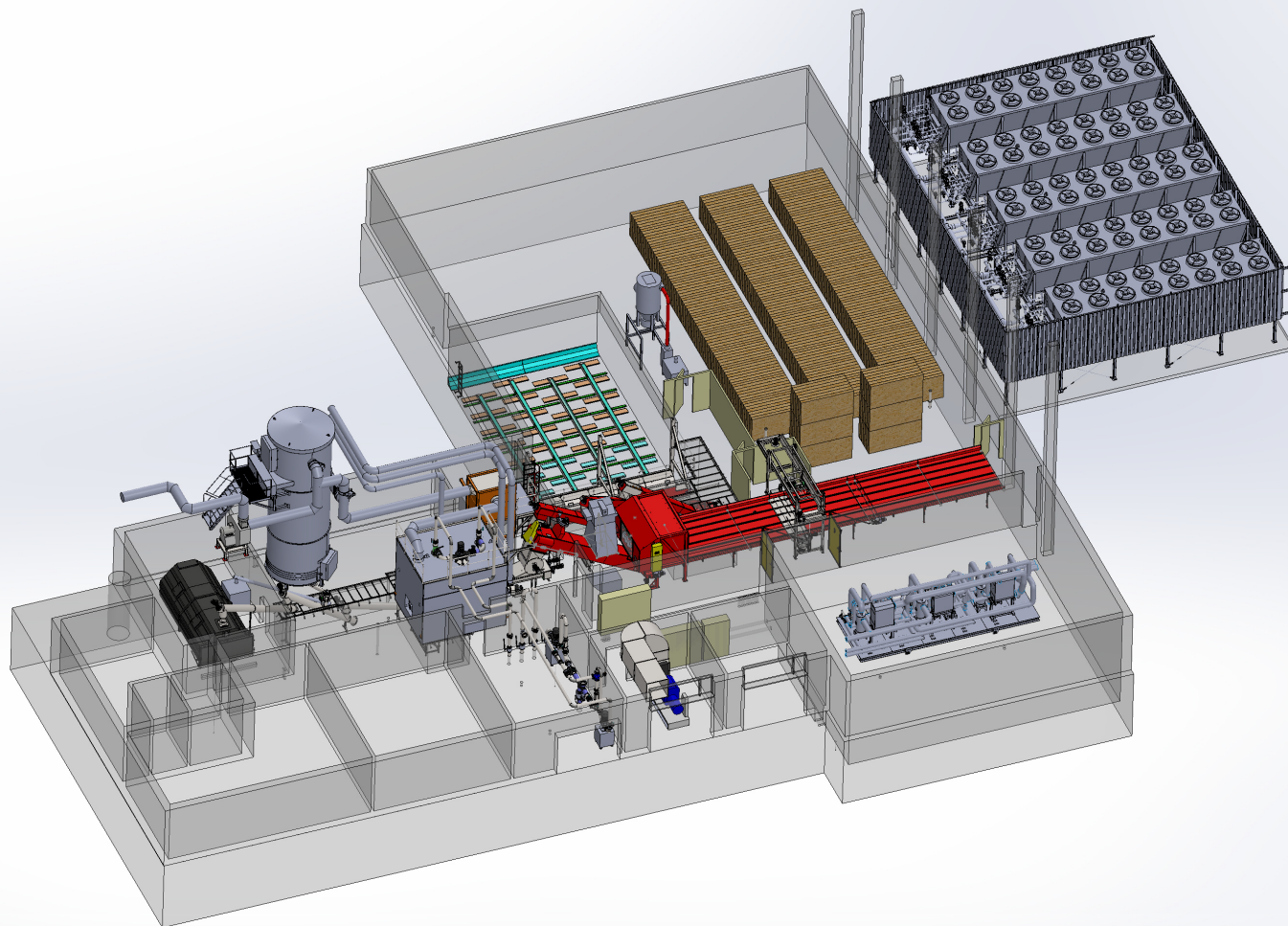
Solar cells for EL production consumption 50 %.

CHOSEN SUSTAINABILITY

Egtved Varmeværk

- ✓ Combined 2MW multifuel biomass boiler system + 2,1MW air-to-water heatpump
- ✓ Utilizes locally derived biomass like straw, grain residues and wood chips
- ✓ Optimized production scenarios with existing solar thermal heating and gasboiler
- ✓ 17 different production scenarios available for operational staff
- ✓ Utilize changing prices in the fuel supply





Egtved, Denmark

EGTVED DISTRICT HEATING

A sustainable combined heating plant that provides high security of supply and fuel flexibility

- 2MW versatile LINKA biomass boiler
- 2.1MW electrical heat pump based on air to water, gas based (propane and isobutane system)
- With this combination, the temperature of the district heating water can be higher than it would be possible with a heat pump alone
- The plant will generate 100 % CO₂-neutral heat

Fuel: Wood chips, straw, grain and seed shells

Boiler size: 2 MW

Heat pump size: 2.1 MW, air to water

Type of plant: District heating plant

Energy type: Hot water system

Year of building: 2020

Boiler

Heat pump

91,7 %

Efficiency

14

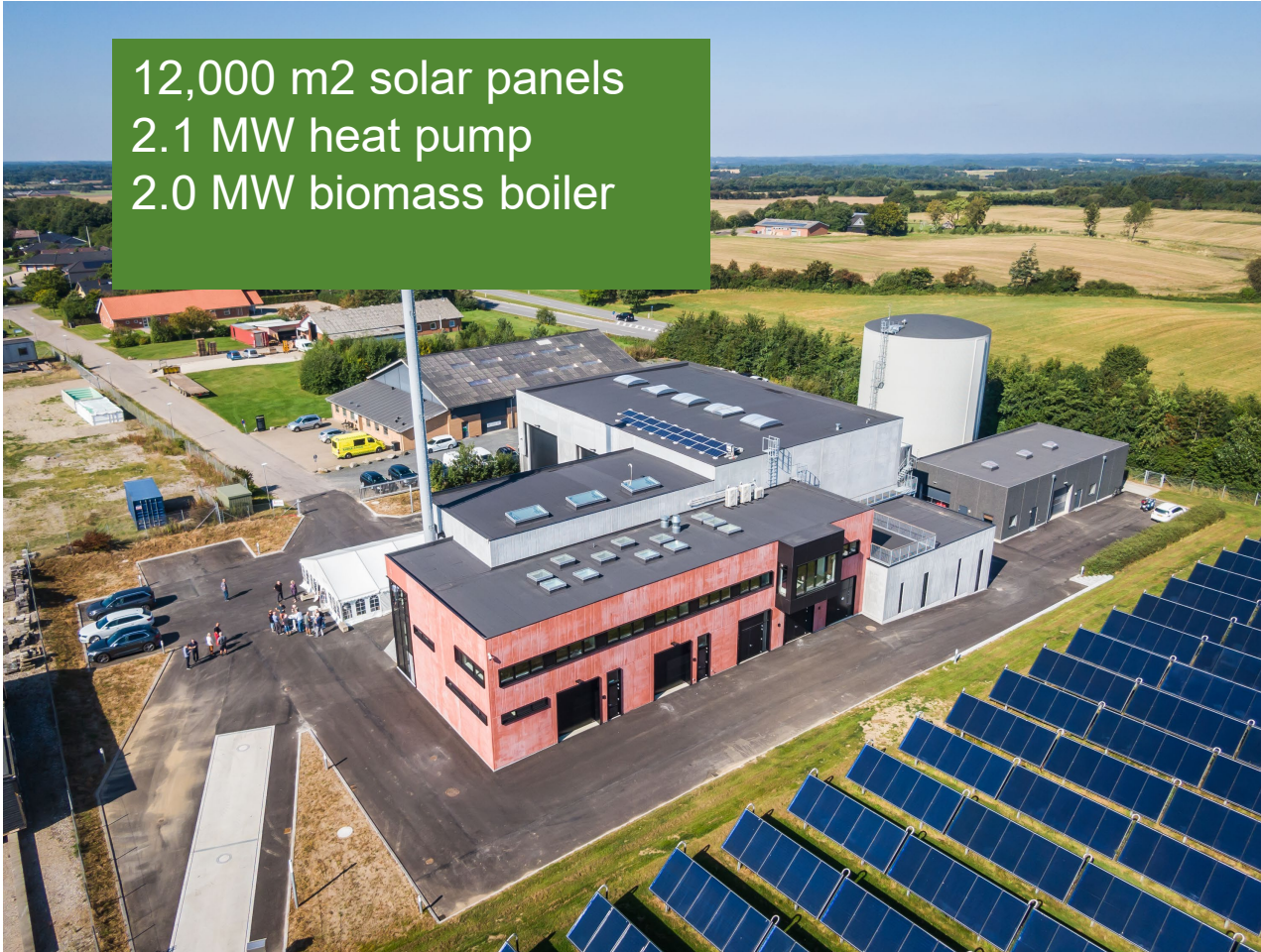
kWh/MWh in
power consumption

3,87

COP

47,3

Lorentz-efficiency

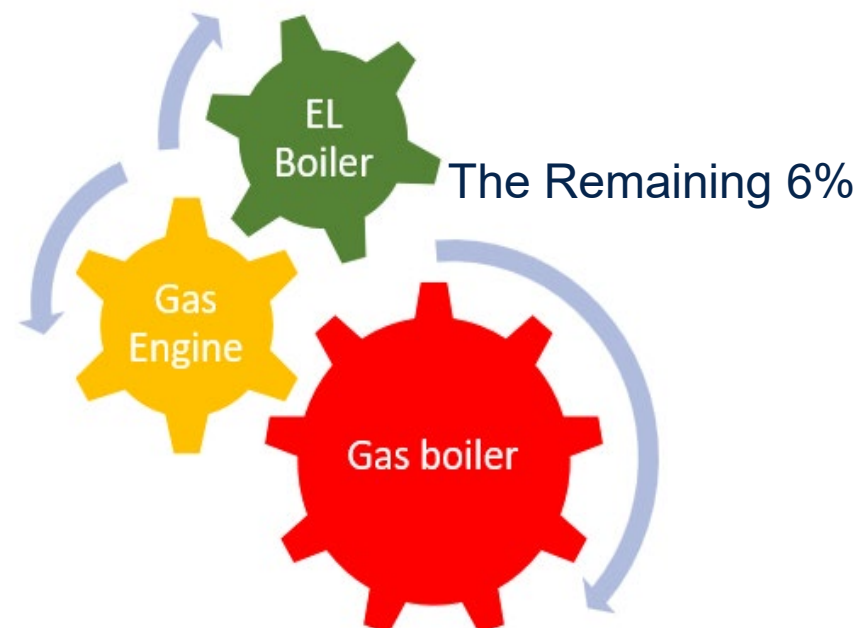
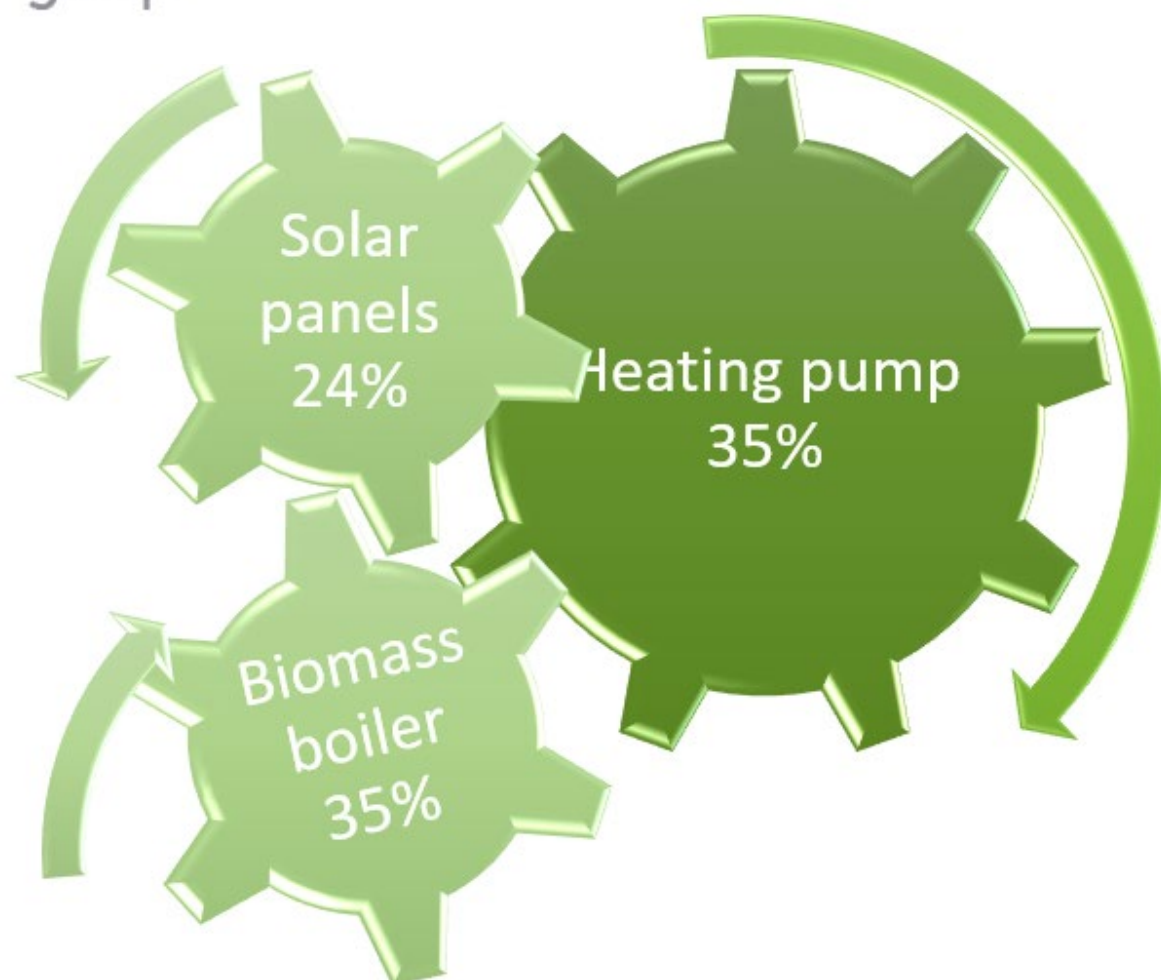


In 2015: 12,000 m² of solar panels that can cover approximately 24% of this year's heat production. The panels are "locked" at an angle that best suits the sun height in April and September.

In 2021: 2.1 MW - 3-stage heat pump powered by screw compressors. Draws energy from the air and "lukewarm" district heating water.

In 2021: 2.0 MW (3.0 MW) LINKA H Boiler for wood chips and straw.

- If the sun is shining – they use the solar panels.
- If there is no wind – it means high prices on electricity – then they use the gas engine – sell the electricity and keep the heat.
- If the price on electricity is low (windy): they use the heat pump and electrical boiler. In Denmark the price on electricity can be negative.
- If they can get following material free: grain waste, seed grass – They use that.
- If hard conditions for the heat pump, they can boost the water by sending it through the biomass boiler.
- They look at the "GRID" continuously 24/7/365 to optimize the best production/lowest heating prices.
- No production facility must be used during the whole year. That means time for maintenance.









Sustainable energy = locally grown and locally
used