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**ROLE OF BIOENERGY IN LOW-CARBON
HELSINKI**

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WHO WE ARE AND WHAT WE DO ?

- Second-largest energy company in Finland
- 400,000 customers throughout the country
- Helen Group's turnover EUR 746 million
- Provide district heating and cooling in Helsinki area
- Climate neutral energy production in 2050

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ROLE OF BIOMASS TODAY



CO-FIRING OF WOOD PELLETS

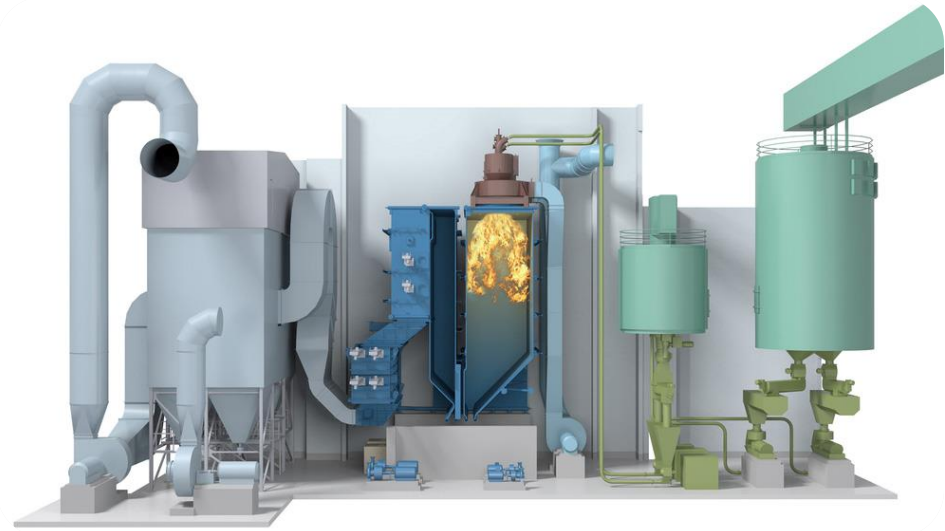
- Wood pellets have replaced 5-7% of coal
- Co-firing tests with many second generation wood pellets from different suppliers around the world
- Researching different ways to increase the share of pellets



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NEW WOOD PELLET DISTRICT HEATING PLANT – SALMISAARI K6

- In operation in the beginning of 2018 – replacing old heavy fuel oil boiler
- Fuel input is 99 MW
- Uses wood pellets and light fuel oil as backup fuel
- Uses existing pellet unloading station and silos



NEW BIOMASS HEATING PLANT?

- Replaces Hanasaari B in 2024
 - Heating capacity will be less than in Hanasaari
- Fuel: wood chips or wood pellets
- Boiler type TBD
- Location TBD



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11/28/2016

6

TOWARDS BRIGHTER AND CLIMATE NEUTRAL FUTURE



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HOW TO KEEP THE CITY WARM IN THE FUTURE?

ENERGY EFFICIENCY

BIOMASS

- Wood pellets, wood chips, recycled wood
- New biofuels
- Bio-oil, biogas
- Other sidestreams in the city?

EXCESS HEAT

- District cooling
- More efficient utilisation
- New excess heat sources

TECHNOLOGIES

- Geothermal
- Seawater heat pump
- Solar heat
- Combined heat and product (AD-biogas, gasifier, etc.)

SOLUTIONS

- Level off consumption peaks
- Increase the capacity of demand-response services

ENERGY STORAGES

A LOT OF UNCERTAINTY IN THE NEAR FUTURE ABOUT BIOMASS

- Political framework is pushing biomass more towards biofuels and chemicals
- New heating plants in southern Finland and in the Baltic Sea region may cause challenges in fuel supply
 - In Finland Helsinki is always furthest away from the forest
- New directive about sustainability of biomass
- NGO's rising resistance towards biomass for energy production

CHALLENGES OF BIOMASS IN HELSINKI

- Supply and price
- Low value addition
- Storage and logistics
- Social sustainability

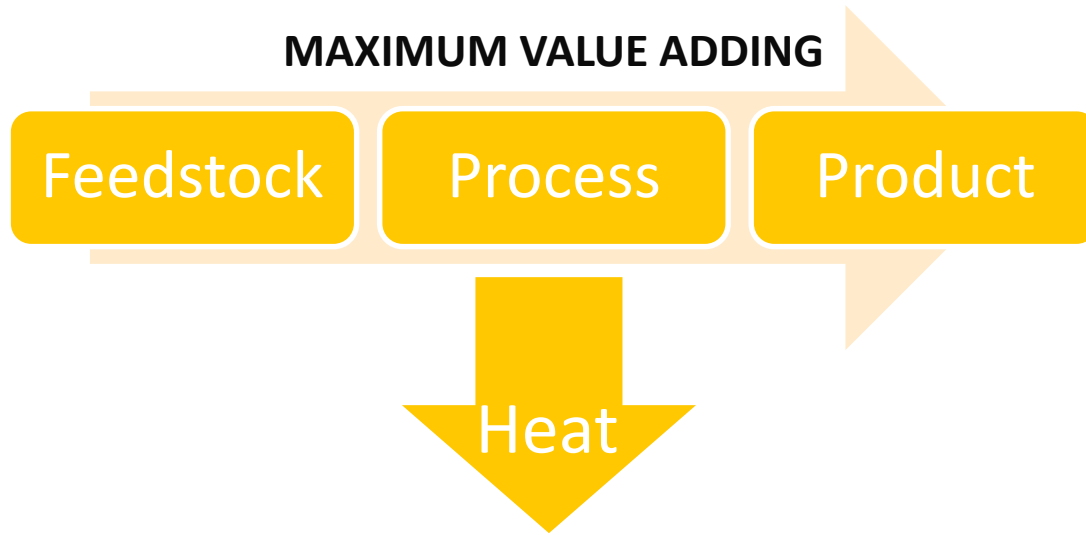


HOW TO OVERCOME THESE CHALLENGES?

- Sidestreams – cheaper and better supply
- More value addition
- Efficient logistic network to minimize temporary storages



MORE VALUE FROM BIOMASS



- Second generation CHP “Combined heat and products”
- Active research in this field through various research groups and organizations
 - BTL2030
 - CLIC Innovations
 - CLC Circular Economy

A large crowd of people is gathered outdoors, likely at a festival or concert. The scene is filled with a vibrant rainbow light flare that dominates the background, creating a sense of energy and celebration. The text is overlaid in the upper half of the image.

**WORLD IS CHANGING
AND
WE NEED ALSO TO CHANGE**



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