

A man in a blue and green jacket is working on a complex industrial machine, likely a CHP (Combined Heat and Power) unit. The machine features various pipes, gauges, and cylindrical components. The man is leaning over the machine, focused on his task. The background shows a clean, industrial environment with white walls and other machinery.

Fortum's heat business and CHP

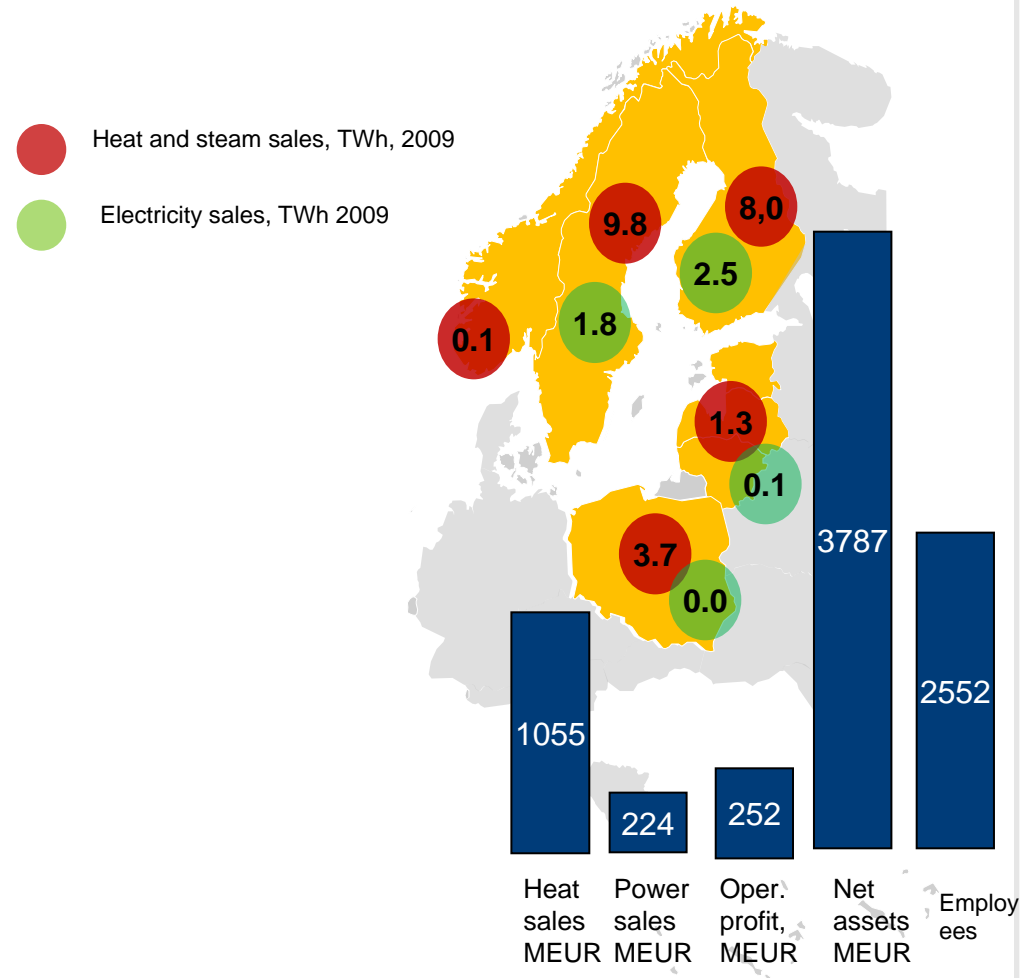
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Fortum is the world's 4th largest heat producer with operations in 8 countries

- **Heat sales 50,2 TWh and electricity sales 20,4 TWh (2009)**
 - CHP/condensing production in over 30 plants
 - Small scale heat production in over 700 heat-only boilers
 - Operations in over 200 district heating networks located in 80 cities
- **Industrial heat and steam supply for over 250 industrial customers**
- **Management model under two divisions**
 - **Heat:** Sweden, Finland, Norway, Poland and Baltic countries
 - **Russia:** OAO Fortum (former TGC-10) and ~25% in TGC-1

Heat Division operates in the Nordic and Baltic Rim countries

- Total sales:
 - ca. 25 TWh heat
 - 5 TWh electricity
- Production capacity:
 - 23 CHP plants
 - 700 heating plants and stations



Overview of Heat's main CHP plants

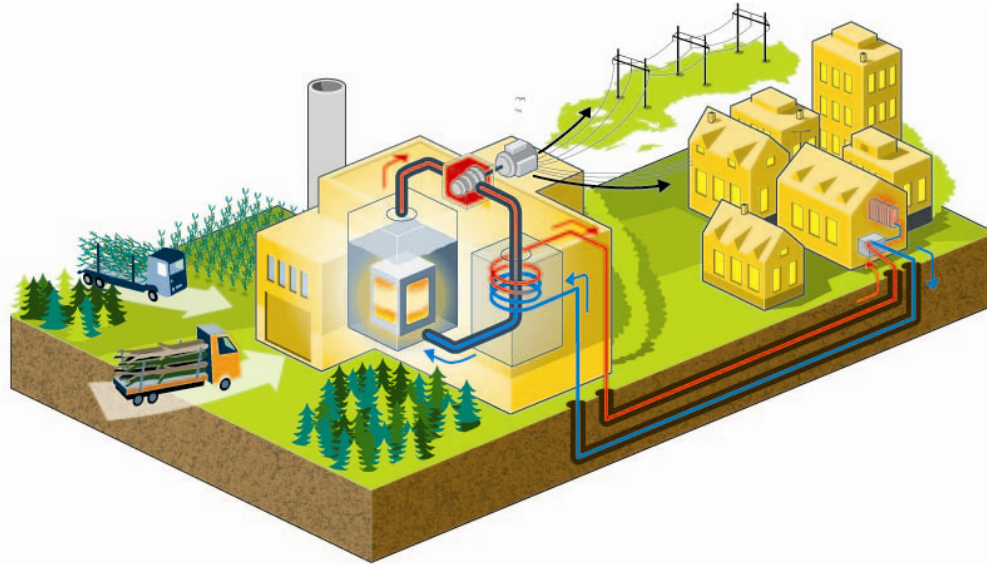
Existing Main CHP's in Heat Division	Fuels	Electricity MW	Heat MW
CHP Suomenoja, Finland	Gas, Coal	370	565
CHP Naantali, Finland	Coal, biomass	325	430
CHP Stockholm City, Sweden	Coal	125	295
CHP Högdalen, Stockholm, Sweden	Wase, biofuel	70	150
CHP Brista, Stockholm, Sweden	Biofuel	42	108
CHP Hässelby, Stockholm, Sweden	Wood pellets	75	194
CHP Joensuu, Finland	Biofuels, Peat	70	130
CHP Nokia, Finland	Gas	70	85
CHP Tartu, Estonia	Biofuels, Peat	22	65

CHP Projects, under construction or planned	Fuels	Electricity MW	Heat MW
CHP Czestochowa	Coal, biomass	65	120
CHP Pärnu, Estonia	Biomass, peat	20	45
CHP Klaipeda, Lithuania	Waste, biomass	20	50
CHP Brista, Sweden	Waste	20	60
CHP Järvenpää, Finland (not decided)	Biomass, peat	24	60
CHP Jelgava, Latvia (not decided)	Biomass, peat		



Naantali CHP plant provides heat for the city of Turku

Combined heat and production and district heating is extremely energy efficient



- Fuel efficient CHP utilising heat as primary energy source
- CHP is small scale electricity production

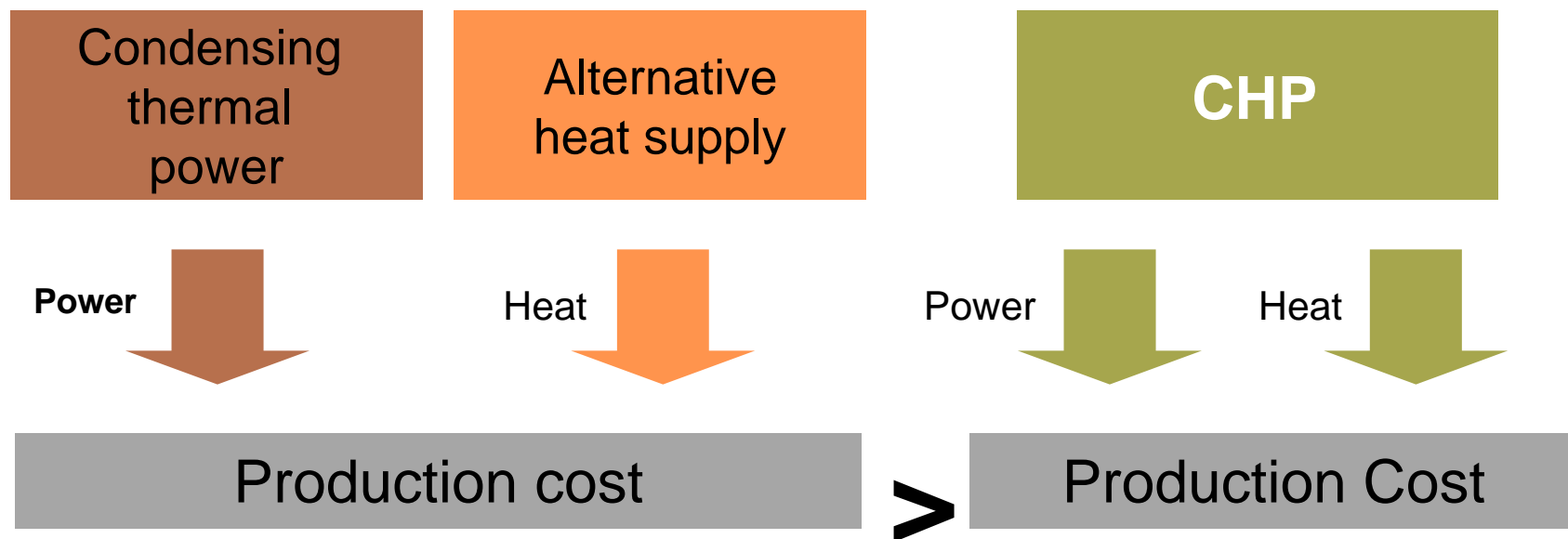
- Very high fuel efficiency, 90% or more
- Small scale production enables local fuels (bio, waste, peat) with lower price volatility
- Competitiveness of CHP increases with higher coal and gas prices, and with the need to reduce emissions (CO₂)
- Dust emission regulation (Industrial Emissions Directive) by 2016 drives potential for new CHP investments

Benefits of CHP are undisputable – offering untapped business opportunities

- High fuel efficiency
- High fuel flexibility
- A key solution in meeting increasing demand for heat and power in urban environments
- Politically uncontroversial solution for sustainability
- Subsidies from power production (Green certificates)
- Competitive
- Still unexploited potential



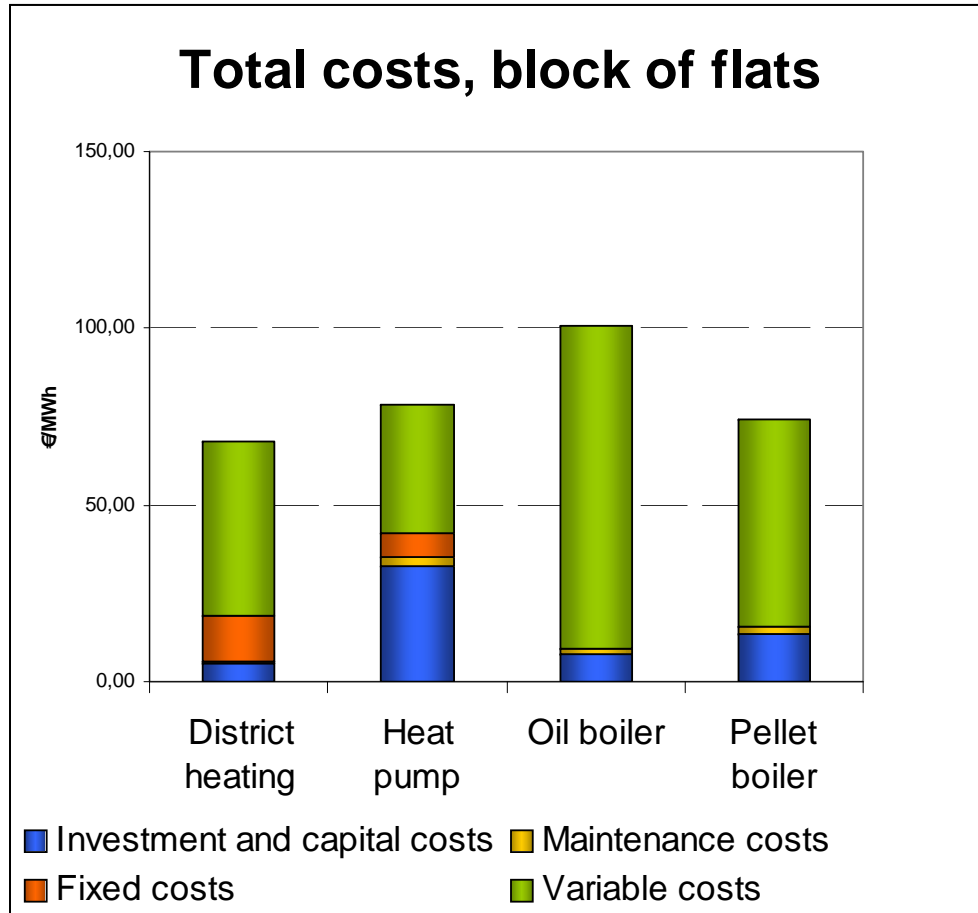
Value creation logic based on the cost of alternative supply options



If electricity price is set by condensing thermal power plant new entry cost and heat is priced according to alternative supply, CHP production is principally profitable due to more efficient fuel utilisation.

Emission reduction targets and increasing fuel costs will promote growth of CHP production in the future

District heating still highly competitive



Customer benefits

- Most competitive price
- Highly comfortable and reliable
- Quality assurance
 - Equipment inspections
 - Technical support 24 / 7
 - Constant local presence
- Automated metering and online reporting support energy savings

Social benefits

- Enables efficient CHP production and thus superior CO₂ efficiency
- Suits urban infrastructure
- Centralised emission control in power plant, flexible fuel mix



Thank You!