



Welcome! Välkommen!

A short introduction to Umeå Energi and Dåva CHP





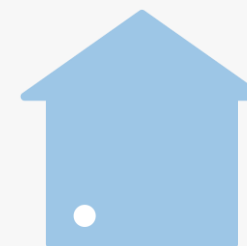
A simpler everyday life
and a sustainable future

Our vision

We have been a part of everyday life in Umeå since 1892



DISTRICT HEATING



BROADBAND



ELECTRICITY



ELECTRICITY GRID



Umeå in the 1960's



Umeå "today"

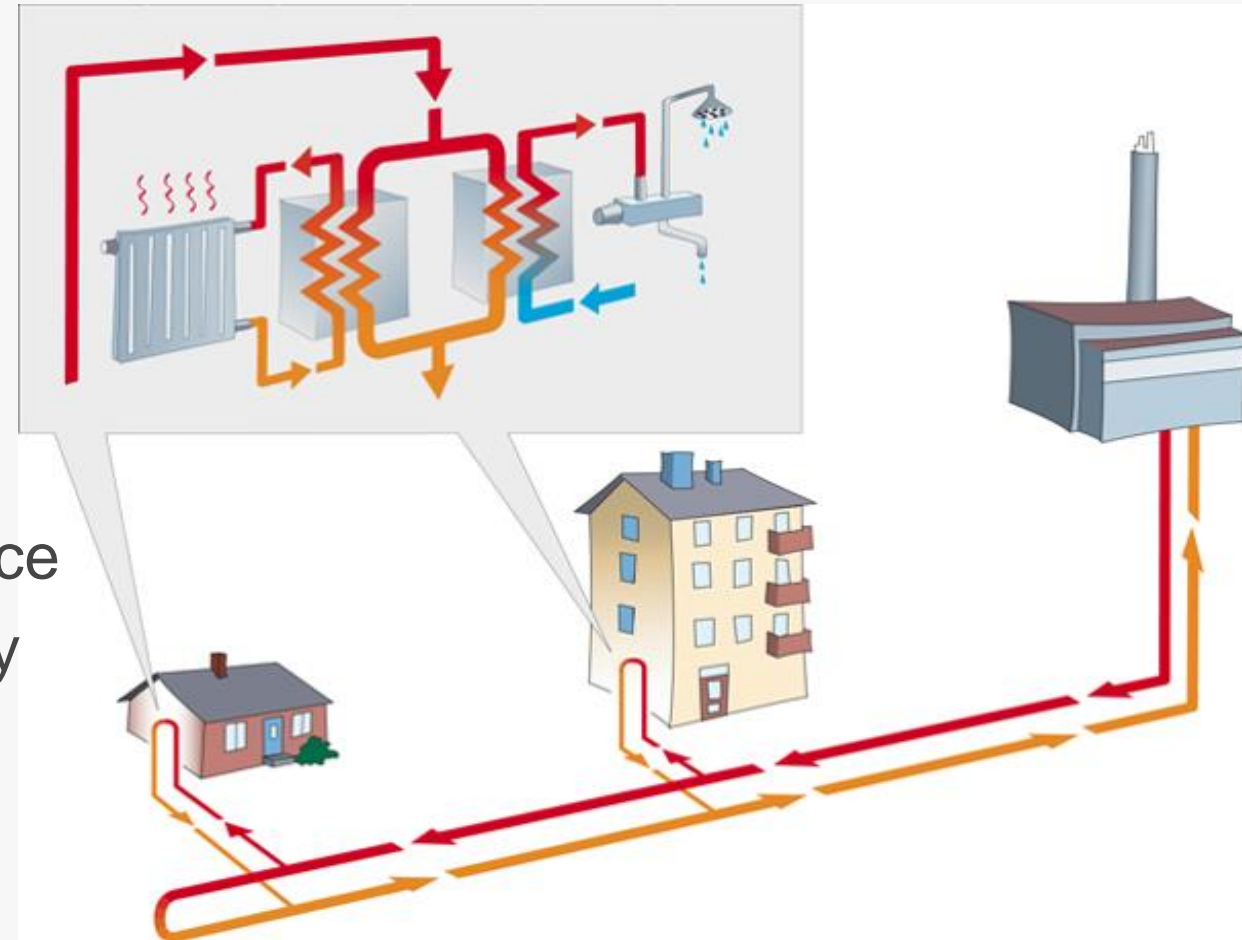


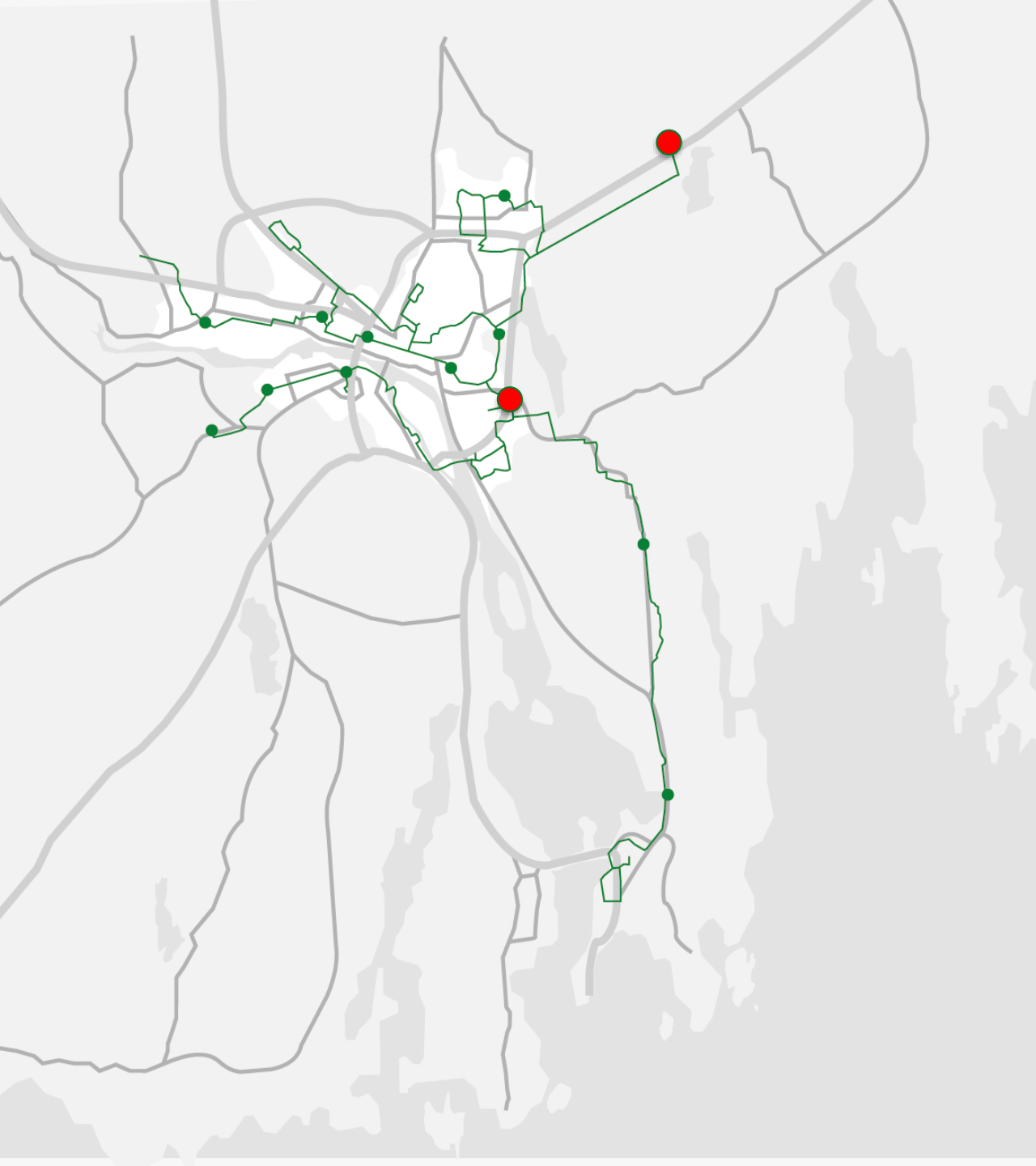
District heating

- 80% of the total indoor area in Umeå
- Small-scale heating solutions

Advantages:

- Trouble-free
- Competitive price
- Environmentally sound





District heating

- 440 km culvert

Heat is mainly produced at these locations:

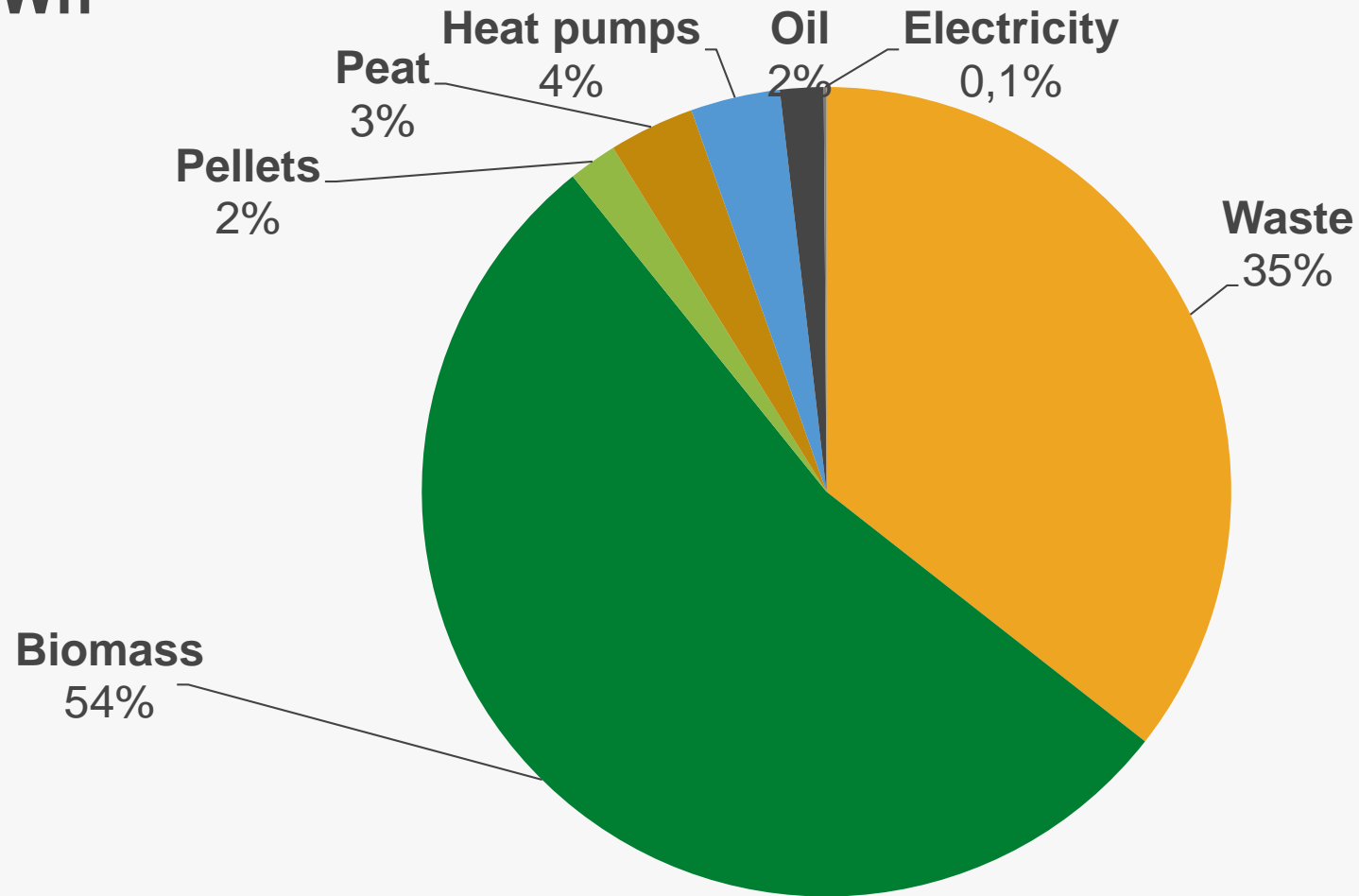
- Dåva CHP
- Ålidhem

Smaller facilities

- Backen
- Röbbäck
- Ryttaren
- Ersboda
- Holmsund

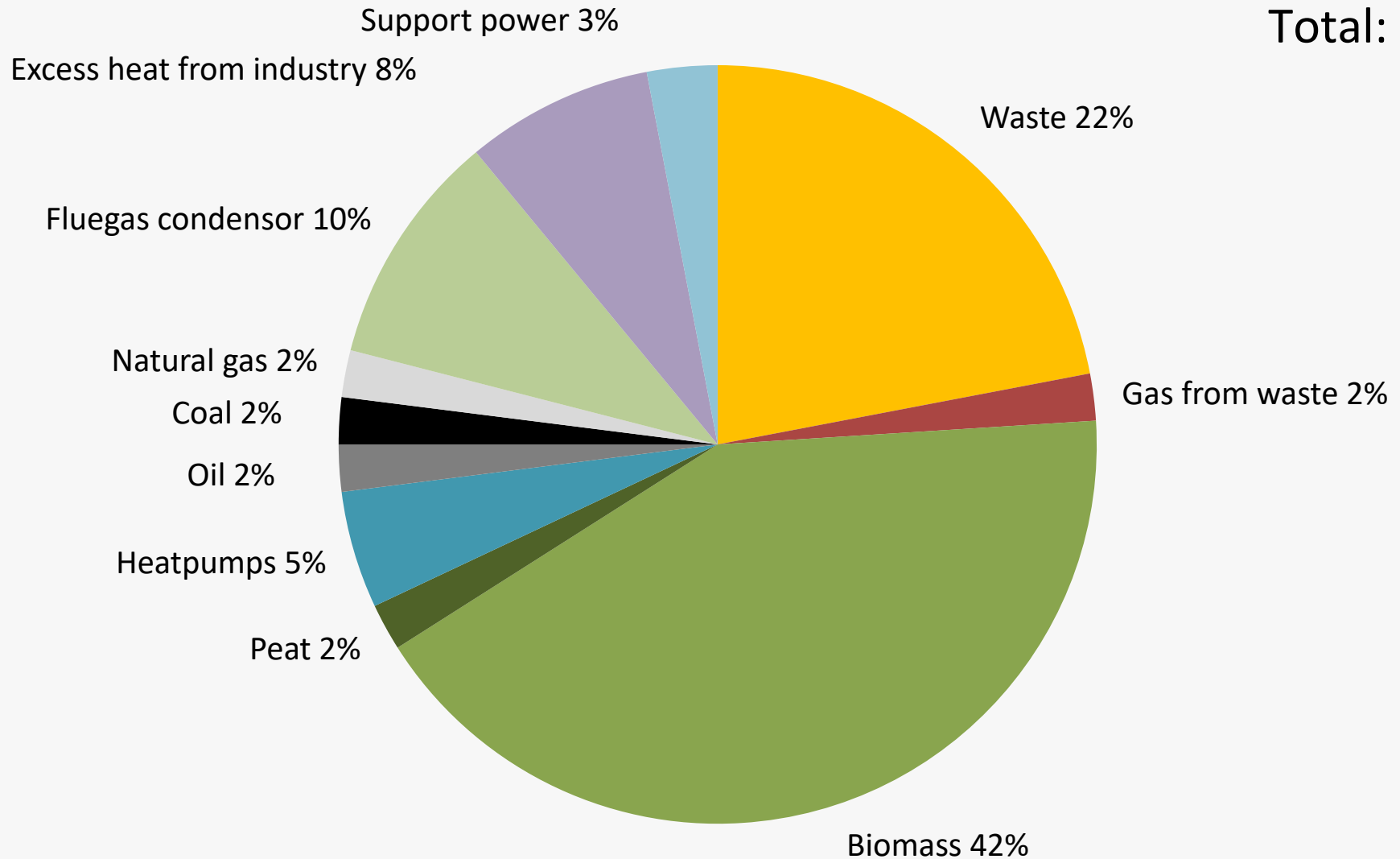
Production of district heating

2017, 980 GWh



District heating in Sweden 2014

Total: 50 TWh



Dåva 2

Fuel: biomass

Electricity: 35 MW

Heat: 75 MW

Flue gas condenser: 35 MW

Dåva 1

Fuel: waste

Electricity: 15 MW

Heat: 40 MW

Flue gas condenser: 10 MW

Heat pumps: 15 MW

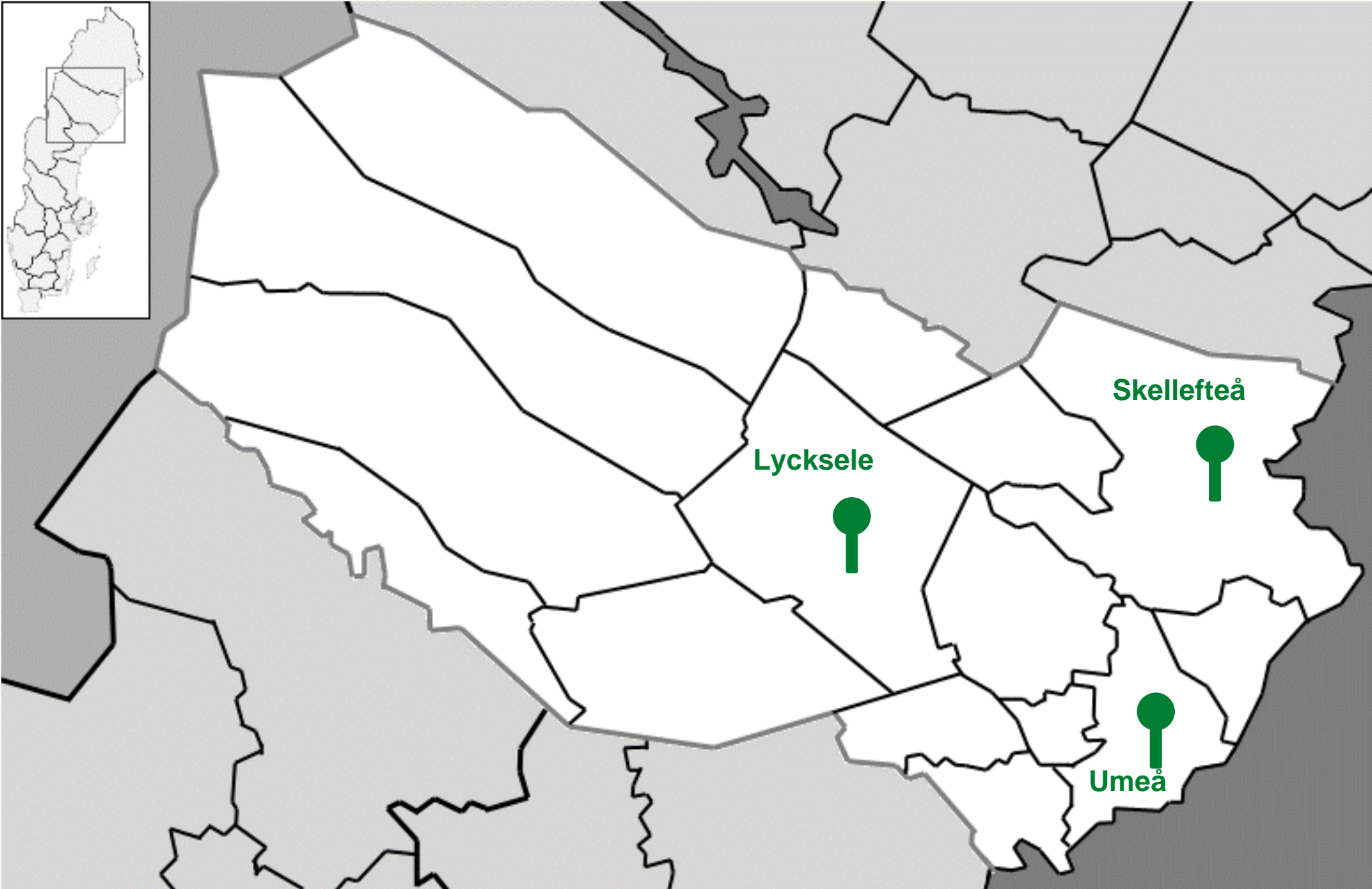
Dåva CHP plant



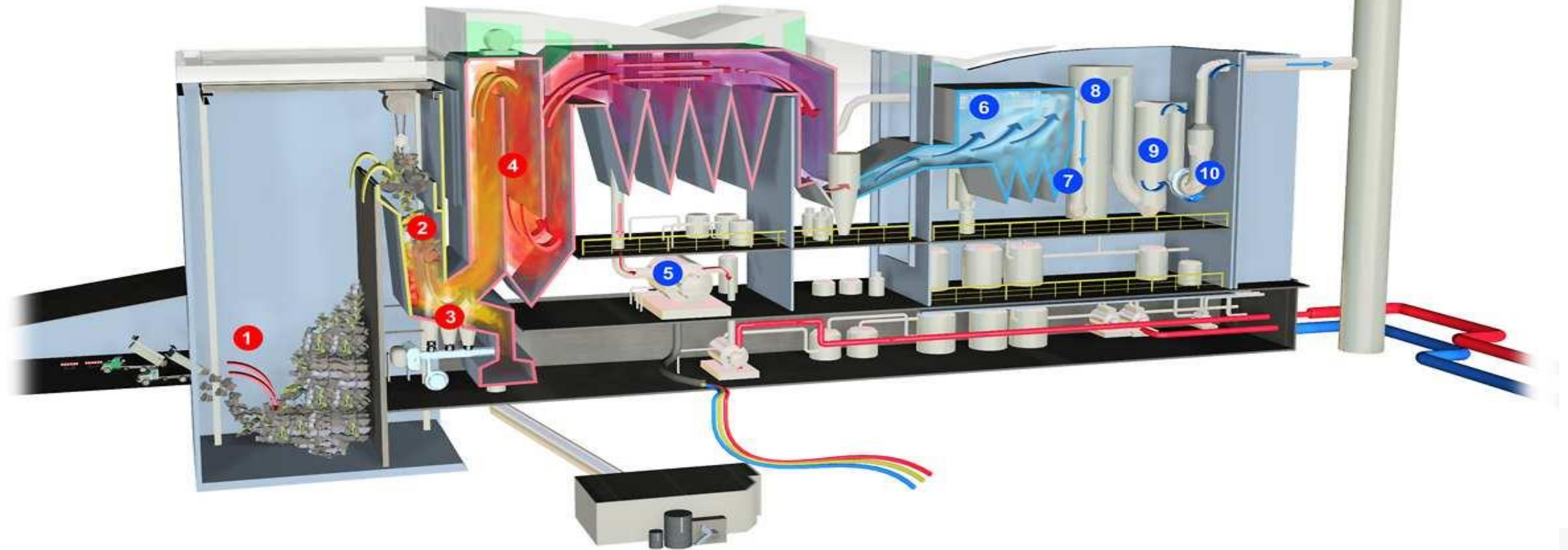
Waste incineration

- Thermal treatment reduces waste volume
- Destroys hazardous organic compounds
- Collects and accumulates heavy metals and removes them from society
- Energy recovery

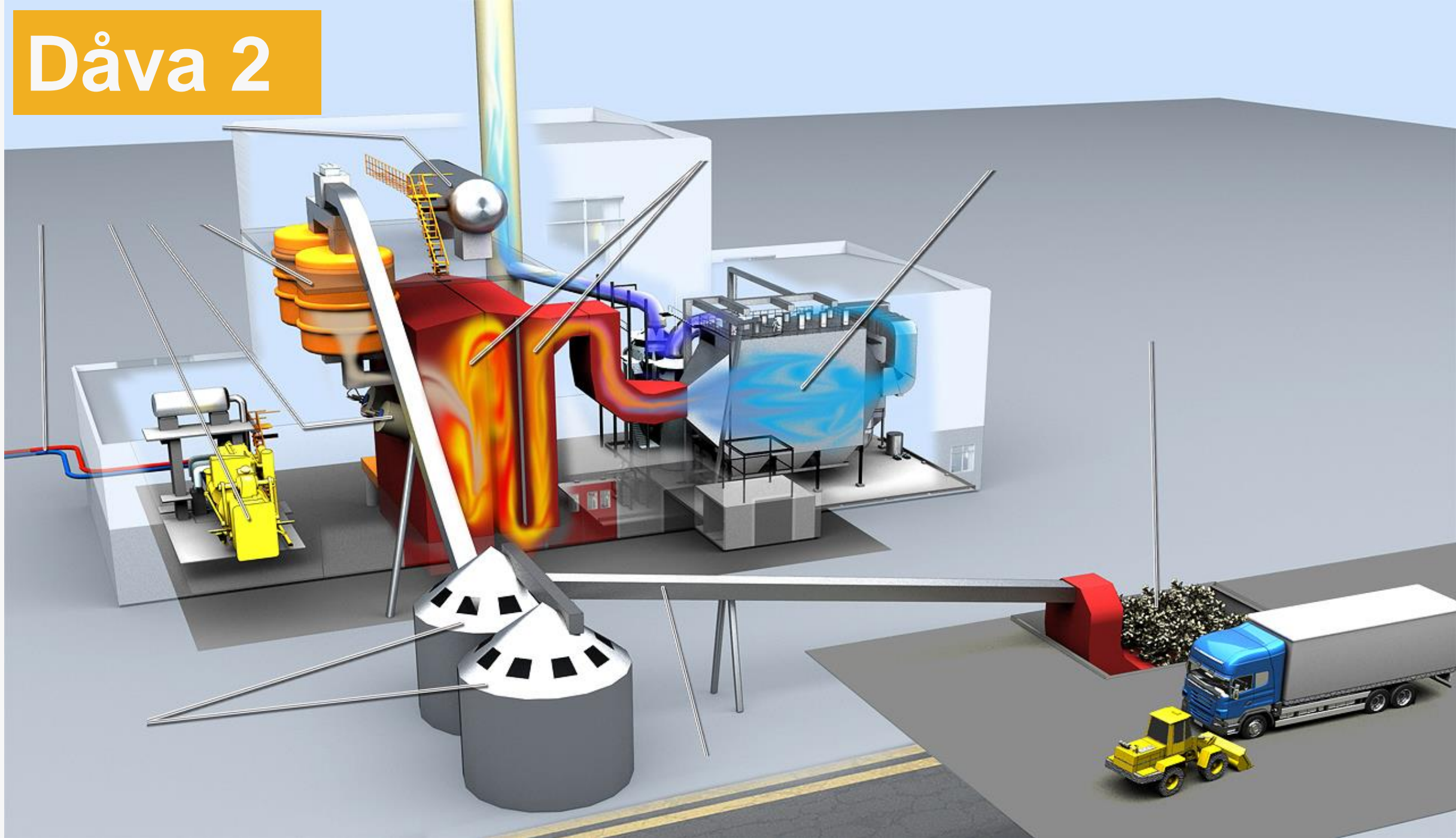
One of the most energy efficient and environmentally sound waste incineration plants in the world



- 1 Avfallsbunker/ waste bunker
- 2 bränsletratt/ fuel hopper
- 3 Rosterugn/ Grate furnace
- 4 Panna/ Boiler
- 5 Turbin/ Turbine
- 6 Textilt spärrfilter/ fabric filter
- 7 Störtkylare/ Quencher
- 8 Sur- och SO₂-skrubber/ Acid- and SO₂-scrubber
- 9 Kondenseringskrubber/ Condensing scrubber
- 10 Rökgasfläkt/ ID- fan



Dåva 2





Primary air nozzles



- Dåva 2 uses 550 GWh of fuel (240 000 tons/annually)
- The plant is constructed for wet bio-fuel with a water content of about 38-54 %
- To have a stable operation, a strict fuel blend is needed
The proportions between the different types of solid fuels is constantly monitored.

Wood chips	20 %
Branches and tree tops	15 %
Bark	40 %
Saw dust	20 %
Peat	5 %

Dåva 2

- 110 MW thermal
 - 75 MW heat
 - 35 MW electricity
- 35 MW fuel gas condensor
- Steam temperature ~ 550°C
- Steam pressure 140 bar
- 95% efficiency
- Annual production:
 - 400-450 GWh heat
 - 130-140 GWh electricity



Emissions



Nox	27,9	mg/Nm ³ tg, 6% O ₂
NH₃	0,8	mg/Nm ³ tg, 6% O ₂
CO	11,9	mg/Nm ³ tg, 6% O ₂
SO₂	5,8	mg/Nm ³ tg, 6% O ₂
Stoft	1,9	mg/Nm ³ tg, 6% O ₂