



NYBRO ENERGI
ditt lokala energibolag



System perspective and tomorrow's challenges in
small size Swedish DH

Niklas Lindvall, Business Area Manager Heat and

Power



Nybro Energi - business idea



“ Nybro Energi will create a long-term sustainable energy supply and provide infrastructure with high availability that creates conditions for growth and a simple everyday life in Nybro municipality”



Nybro Energi - funktion

100% owned by
the municipality

Nybro Elnät AB

Electric grid, Water &
Sewer

Administration

Nybro Energi AB

Electricity trading, Fiber
infrastructure, District heating sales

**Nybro
Värmecentral AB**

Production of heat and
electricity

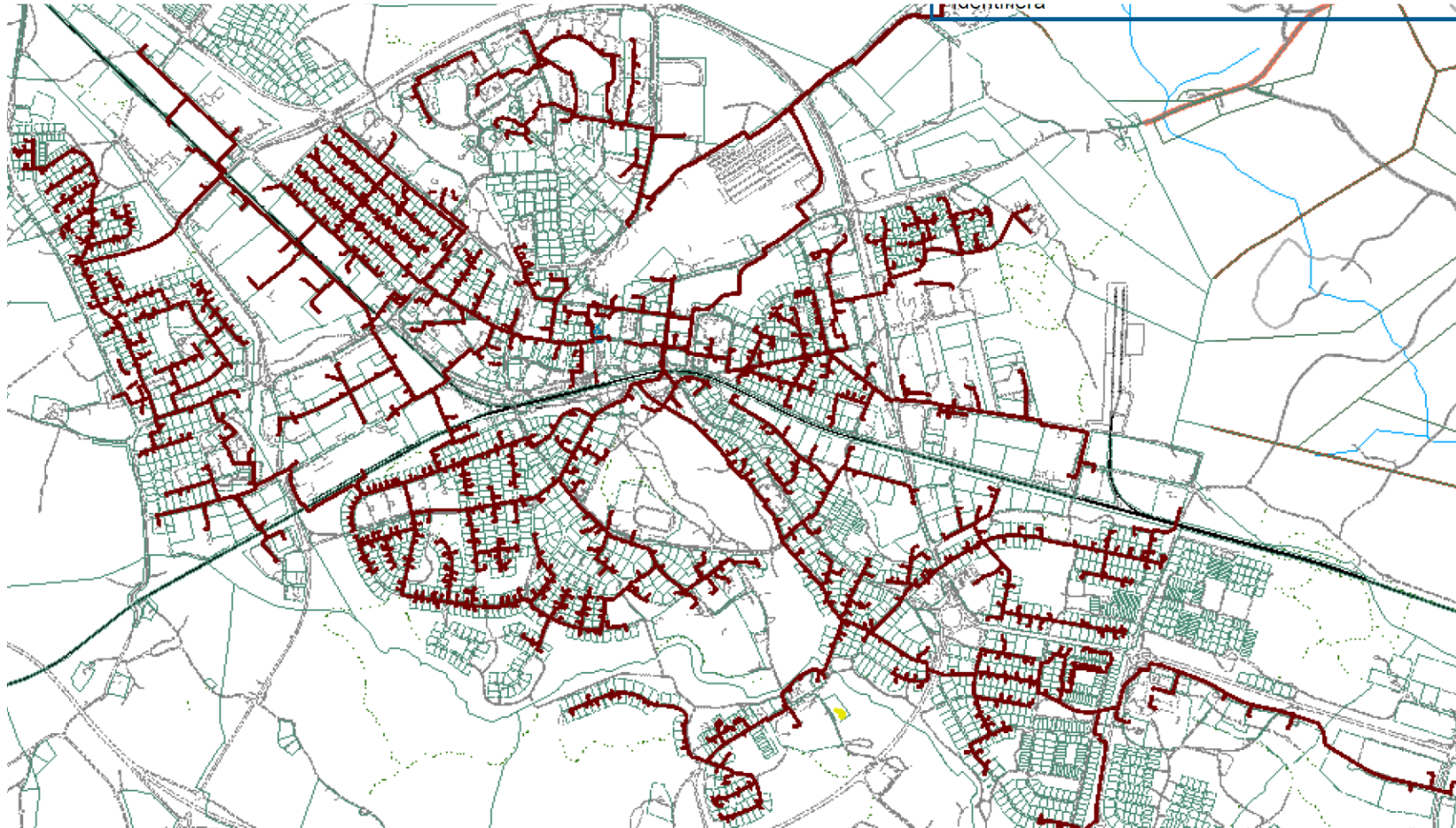


DH in Nybro City

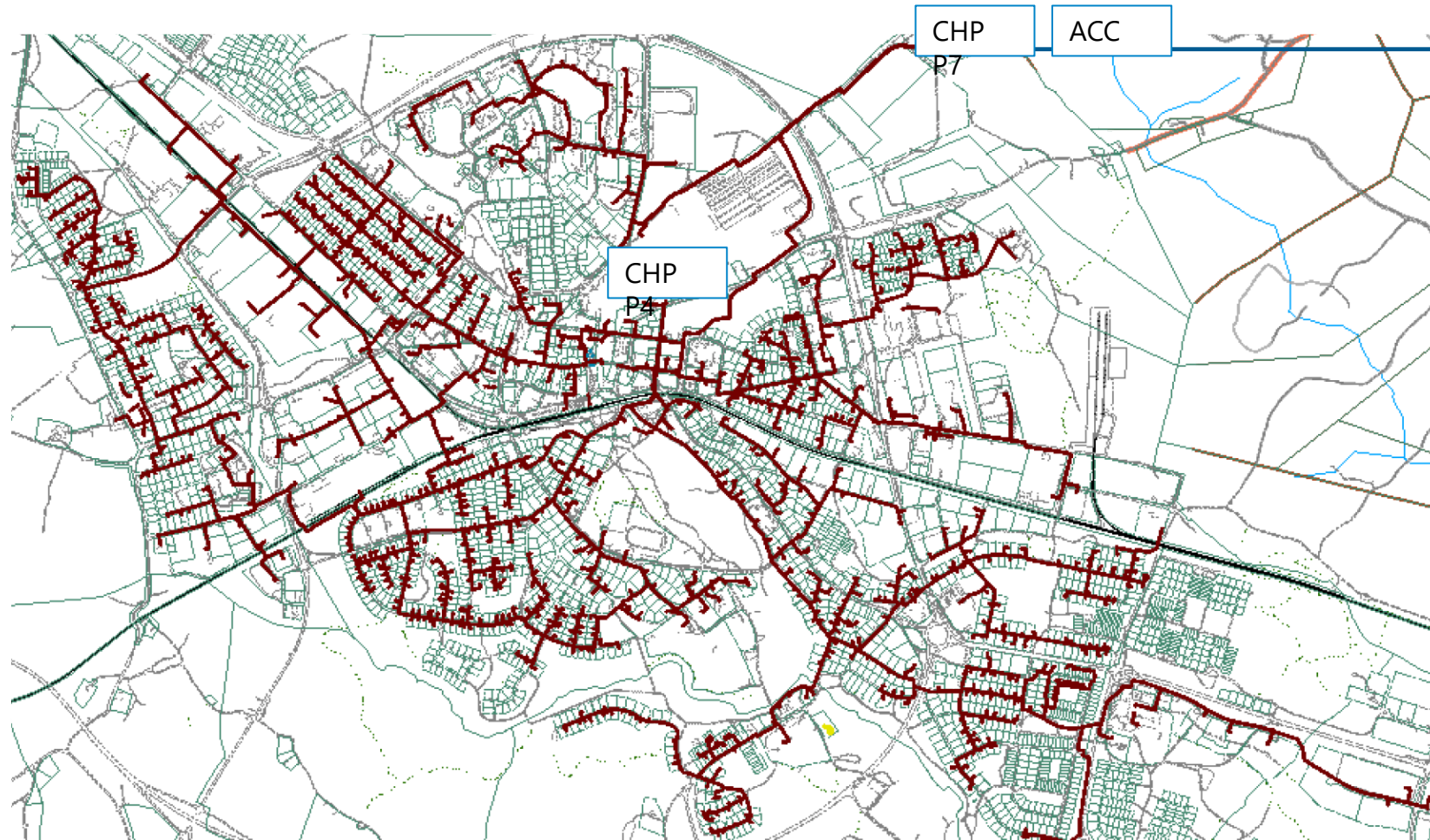
100 GWh DH

50 GWh HW (120 degC)

100 % PUR isolated
95% two leads Cu
leakage monitoring



DH in Nybro City



P7 (Waste) 23
MWth 5,6 Mwel

P4 (Bio) 23 MWth
4,8 Mwel

ACC 10500 m³
33 m

BRÄNSLEMIX



Tomorrow's challenges

Profitability!

Where does the electricity price go? - A low electricity price reduces revenues for CHP and increases profitability for our competitors HP

Plastic reduction of waste - is there cheap fuel in the future?

Authority requirements – EUAS, NOx charge, sustainability law, energy and carbon dioxide tax, waste incineration tax, building regulations, electricity certificate market, taxonomi.....



Factors of success

Fuel flexibility (not all eggs in one basket)

Cooperation with the local business community, work together with your customers

Work with alternative sources of income

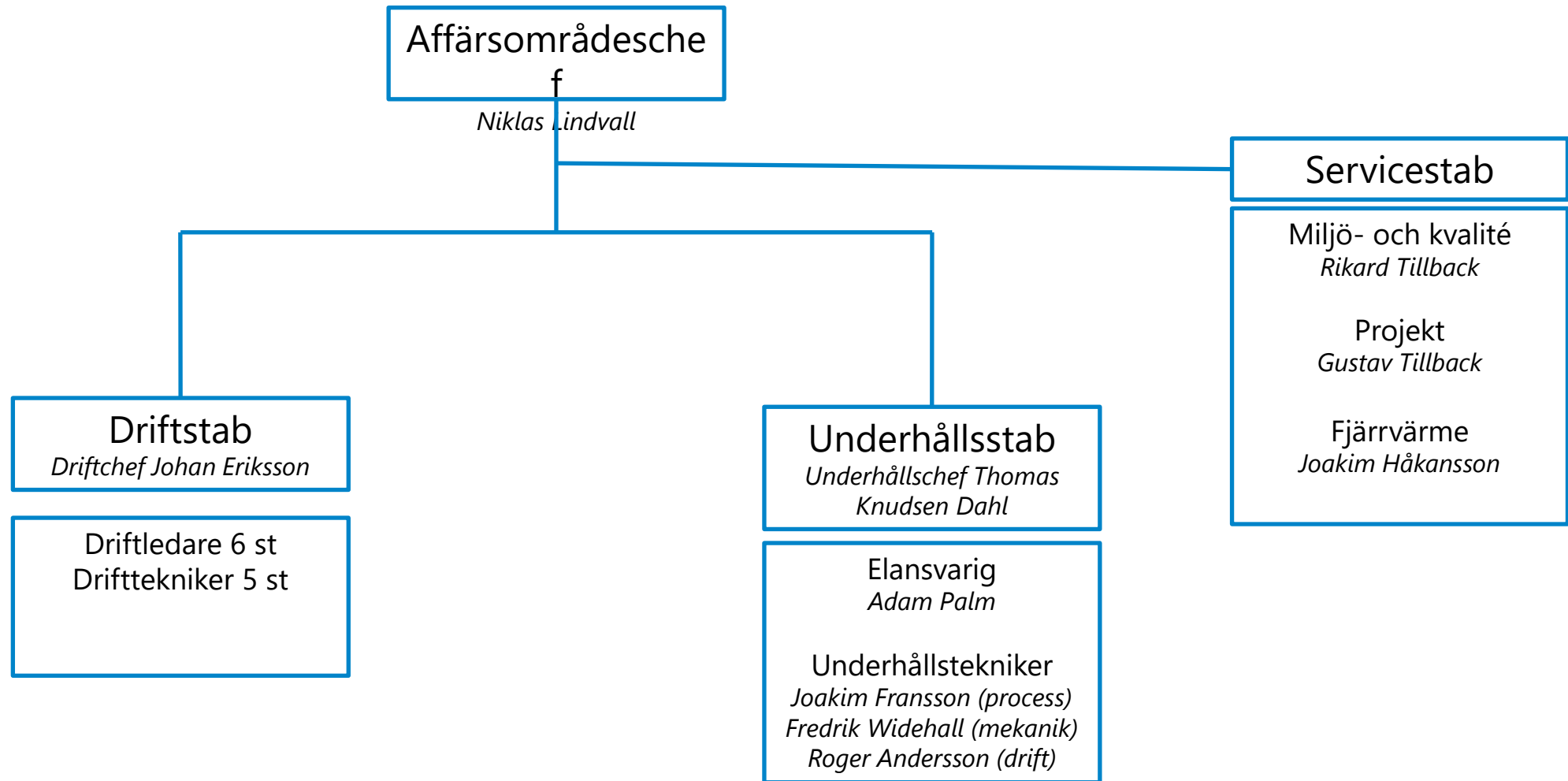


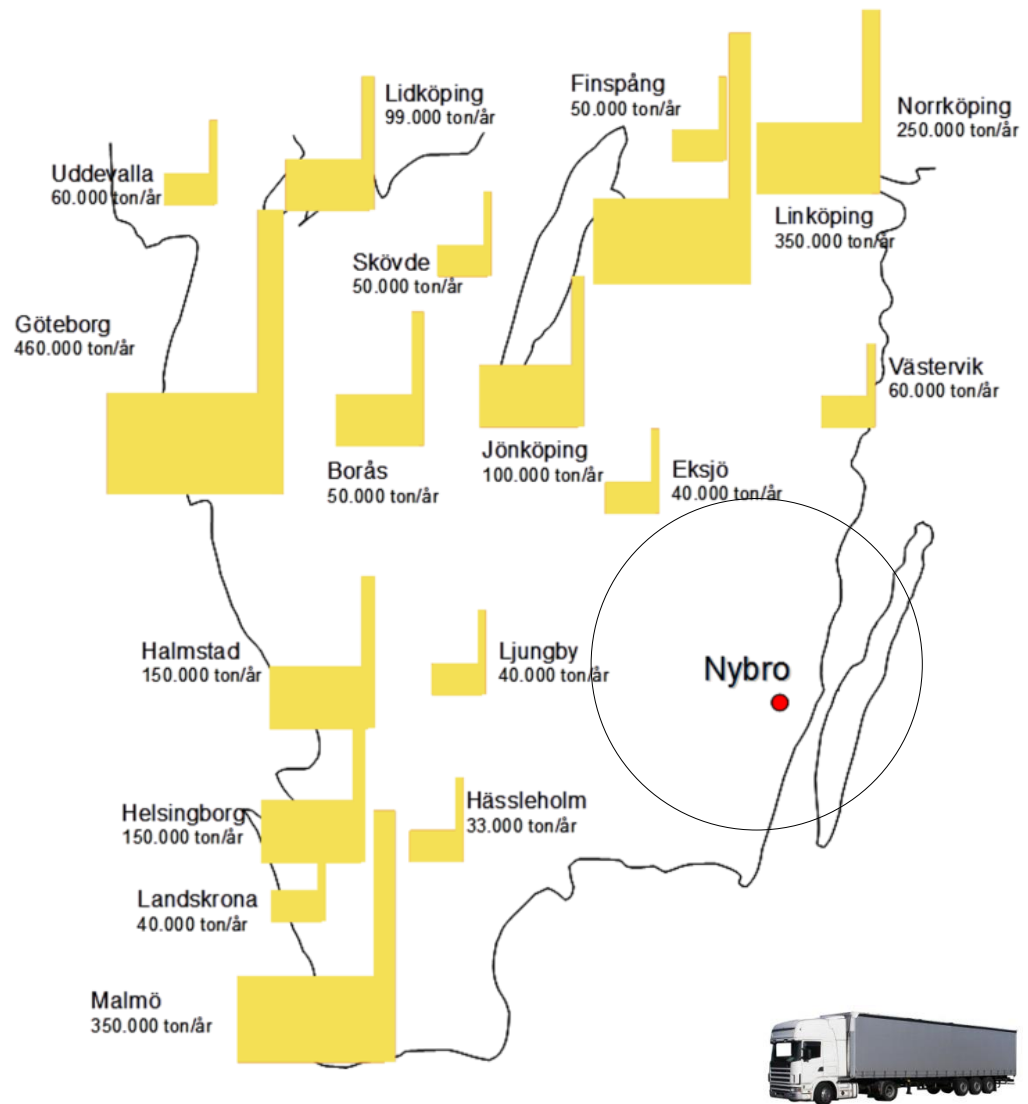
Business

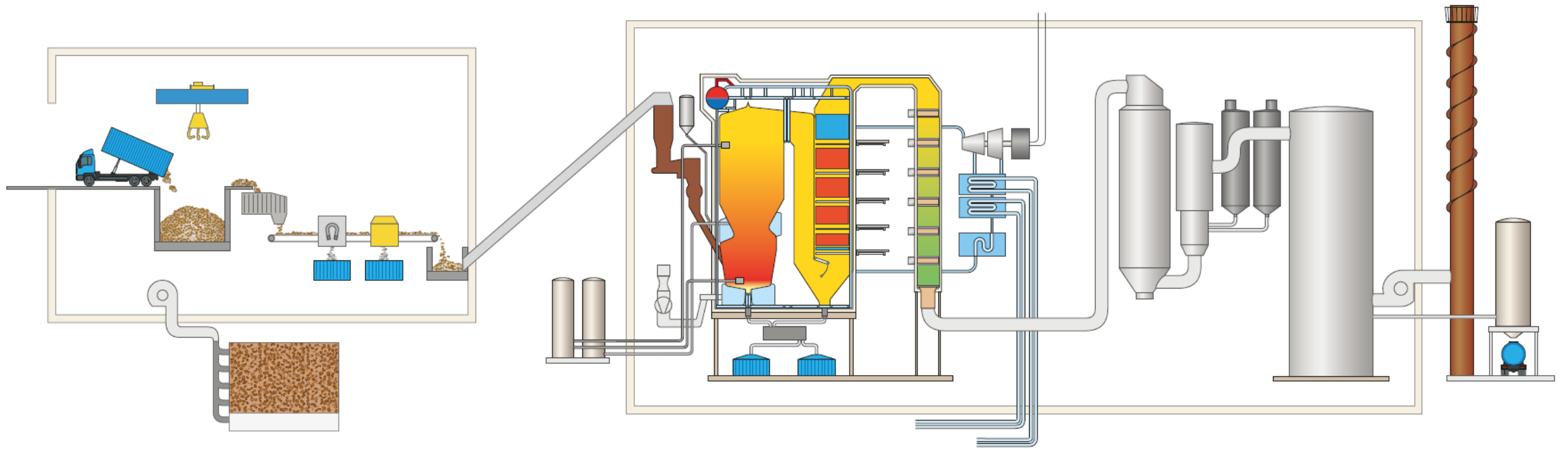
- Sells about 100 GWh district heating to about 1300 customers
- Sells about 50 GWh low-pressure steam for Parquet floor manufacturing
- Produces about 40 GWh of electricity
- Sells energy recovery service for about 60,000 tons of waste
- Recycles about 1500 tons of Fe and NF
- Trades about 100 GWh of biofuel
- Ownership in wind farm
- Builds an BESS (1C 5MW,5MWh)
- Sells solar cell concepts to local industri
- Sells monitoring service



Driftorganisation, 21 resurser

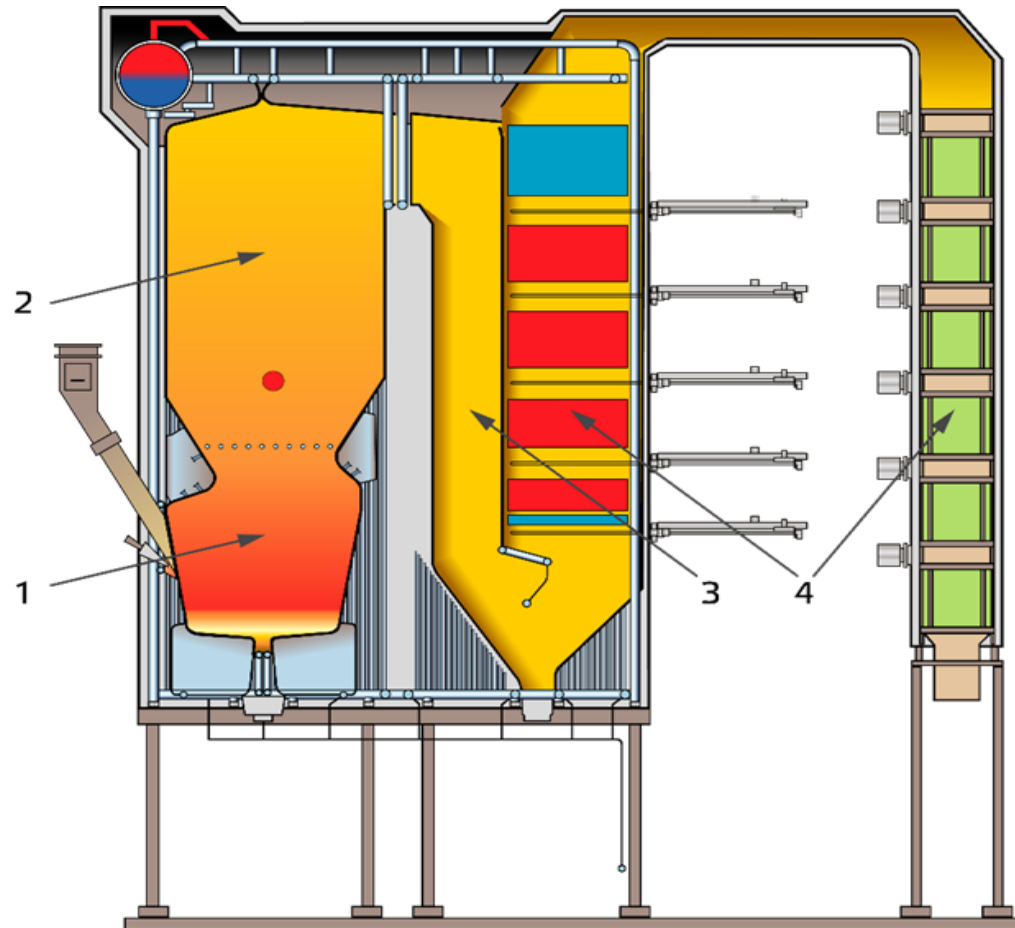






Nybro WtE plant with BFB – ACZ™ boiler

For demanding wide fuel types and span



The Nybro boiler with lower and upper furnace (1,2), empty pass (3) and rear pass (4).

2017-10-11 Anders Victoren | © Valmet

NYBRO Plant and boiler data

Boiler capacity	22 MW _{th} for 60 000 ton/a
Fuels	MSW and industrial waste 0-100%
Steam data	60 bar(g), 410° C
Electricity production	6.0 MW and process steam and heat
Combustion technology	BFB ACZ™
Flue gas cleaning	Lime + activated carbon, baghouse filter
NOx abatement	SNCR (Selective Non-Catalytic NOx Reduction)

Plant performance (mg/Nm³ dg at 11%O₂)

Emission	Measured	Limit according to IED
NO_x (as NO₂)	93	Prest.gar 95 200
CO	8	50
TOC (as C)	<5	10
NH₃	9,8	10 (-)
Sand consumption (12 d)	4,4 kg/MWh	7 kg/MWh

Ref: Emission and sand test (with correct fuel) -24 May 2017
Take Over 11 July 2016 Guarantee time until 31 April 2018





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