

Energy services to consumers and society



Lars Holmquist
Göteborg Energi

Göteborg Energi AB

Owner **City of Göteborg**

Staff **1 200**

Customers **approx 300 000**

Turnover **600 Million euros**

Some of our activities:

- District heating
- Electricity sales
- Distribution of electricity
- Combined heat and power
- Natural Gas and Biogas
- Wind Power
- District cooling
- Energy services
- Gas for maritime transports

We are active in several different market structures

Our owners say:

“Göteborg Energi shall actively contribute to the development of a sustainable Göteborg”



Our tools:

Infrastructure

Recycling of energy

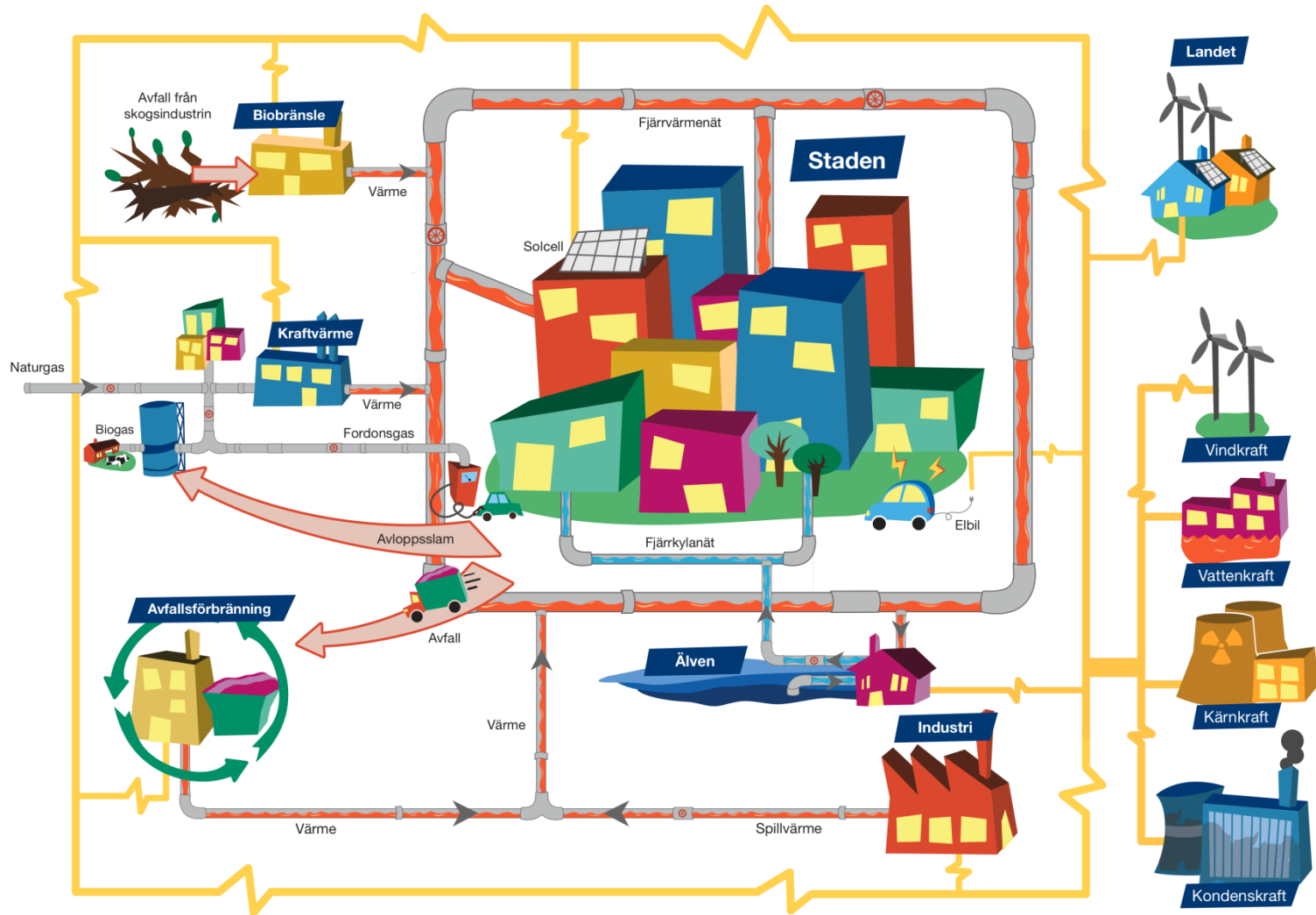
Innovative technology

Innovative business models

Göteborg is mainly heated with recycled energy

Primary energy savings - 0,5 mtoe

Energy efficiency is core business



Who wants a kilowatthour?

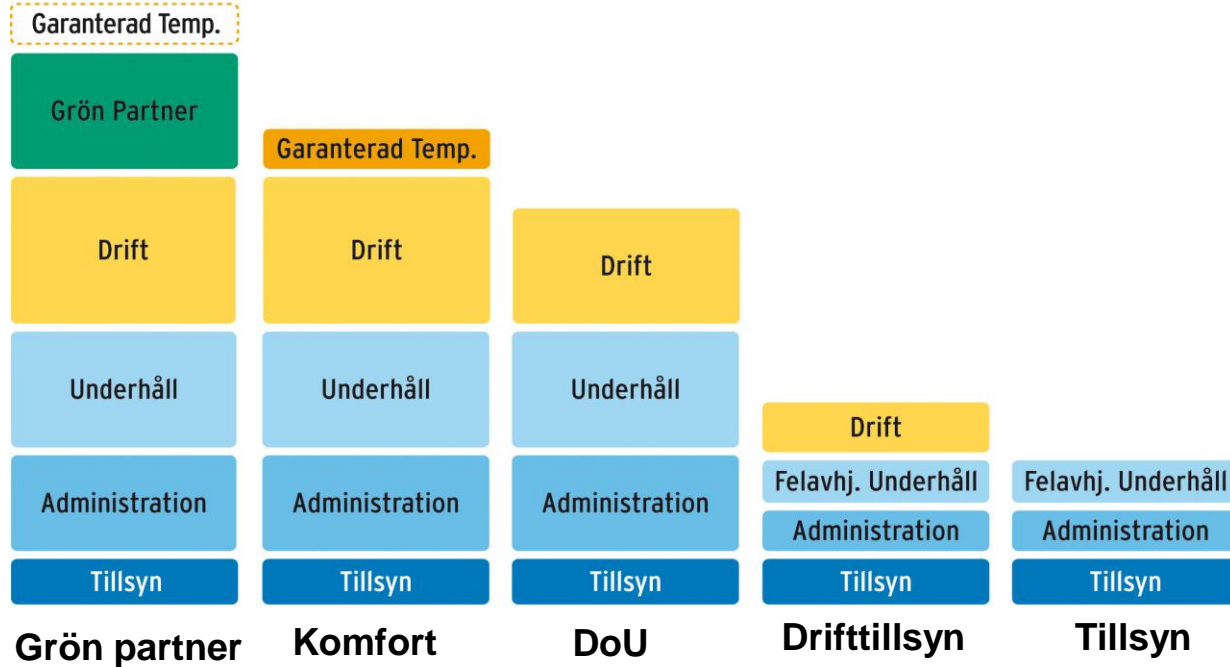
We offer a wide range of energy services

Examples

- District Heating
- Cooling solutions
- Computerized control systems for heating and ventilation
- Heat recycling in ventilation
- Efficient operation of installations
- Optimization of running time and temperature levels
- Maintenance



Different service levels



Grön partner - Drift och underhåll med fokus på önskad CO2-reduktion – miljövänligt

Komfort - Garanterat inomhusklimat ger nöjdare hyresgäster och ökat driftnetto

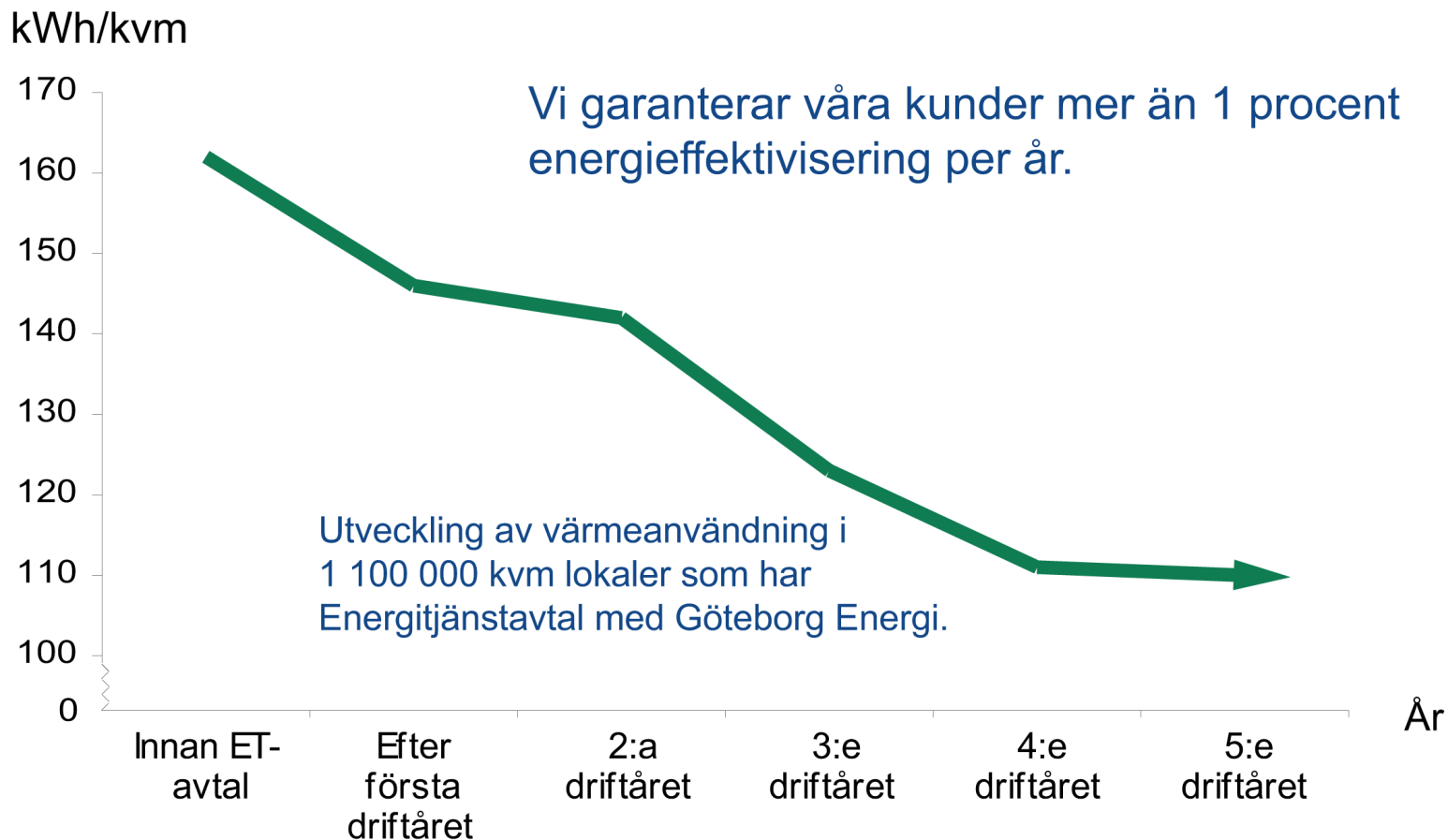
DoU – Kvalificerat handhavande ger dig mindre bekymmer

Drifttillsyn - Vi ser till och justerar inställningar för dina installationer – lönsamt och bekvämt

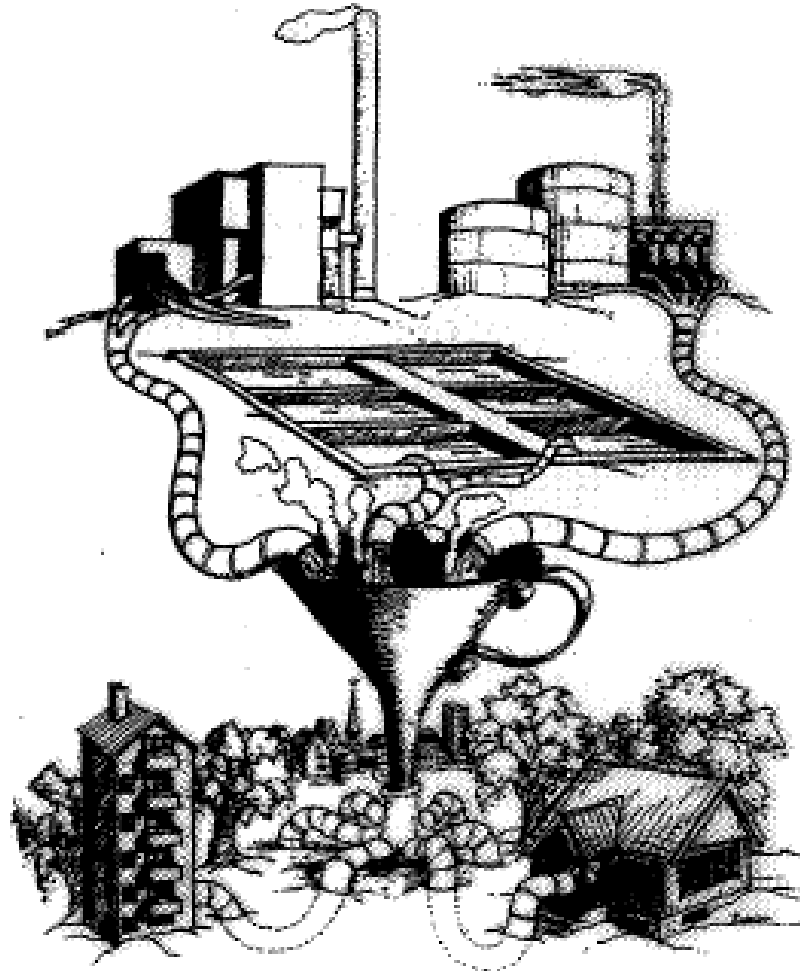
Tillsyn - Vi ser till dina installationer så får du ett bekymmer mindre

Felanmälan från hyresgäster – Fastighetsjour – Fastigheten i trygga händer dygnet runt

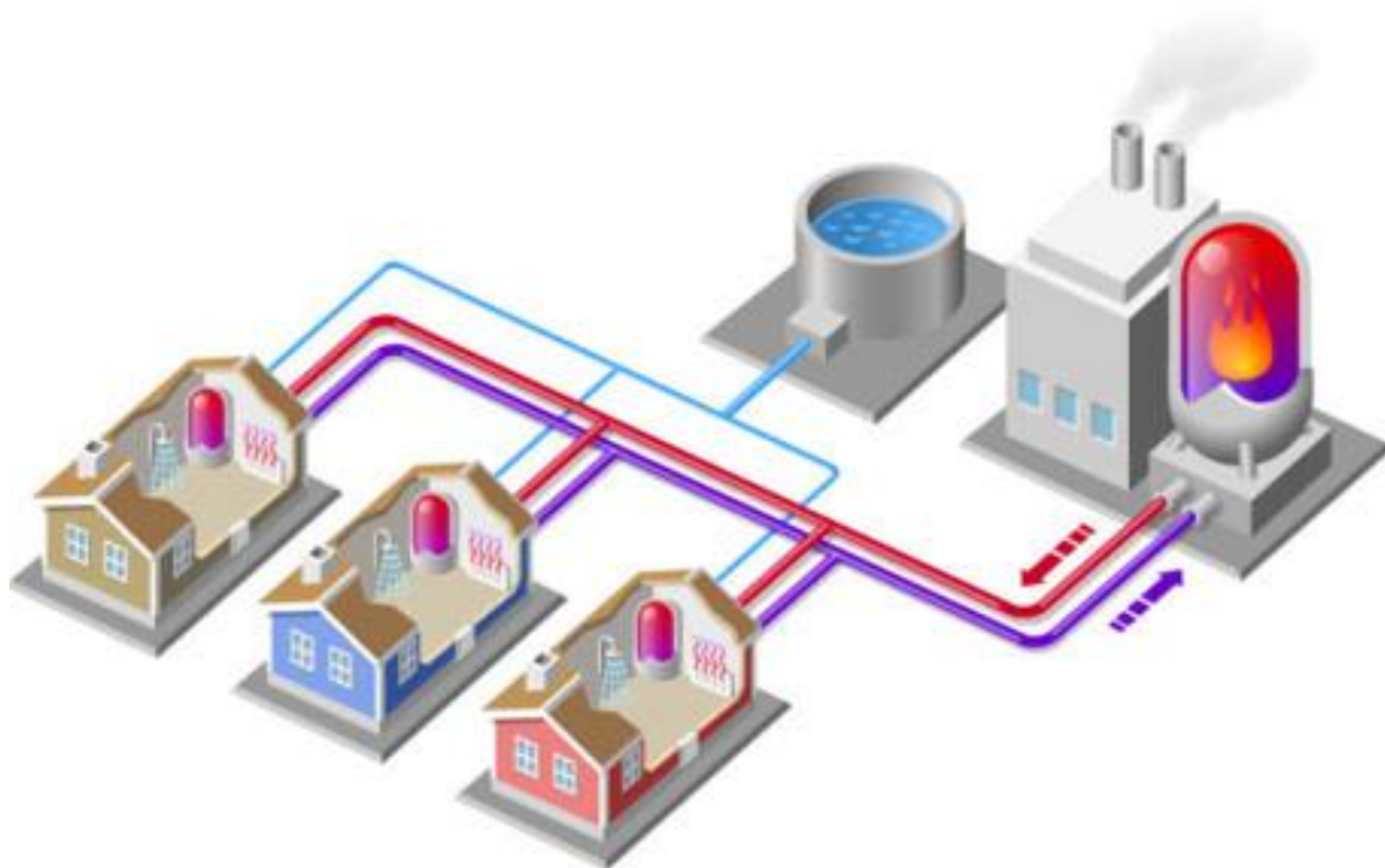
It works



District heating – Utilizing resources that otherwise would have been lost



District heating



District Heating

- environmental advantages in three dimensions

- ⇒ **Local:** Improved urban air quality (Particles, SO₂, NO_x)
- ⇒ **Regional:** Reduced acidification (SO₂, NO_x),
- ⇒ **Global:** Reduced emissions of greenhouse gases (CO₂)
Reduced consumption of primary energy

DISTRICT HEATING - Sävenäs 1953



The Gothenburg district heating system

Recovered heat

Renova	145 MW
St1	108 MW
Preem	40 MW
Perstorp	8 MW

Heat pumps 160 MW

Recovered heat 110 MW

Electricity 50 MW

Biomass 210 MW

Biooils 100 MW

Oil 580 MW

CHP

Heat 420 MW

Electricity 310 MW

Rya KVV, gaskombi cykel

Värme 295 MW

El 261 MW

Högsbo KVV, gasmotorer

Värme 14 MW

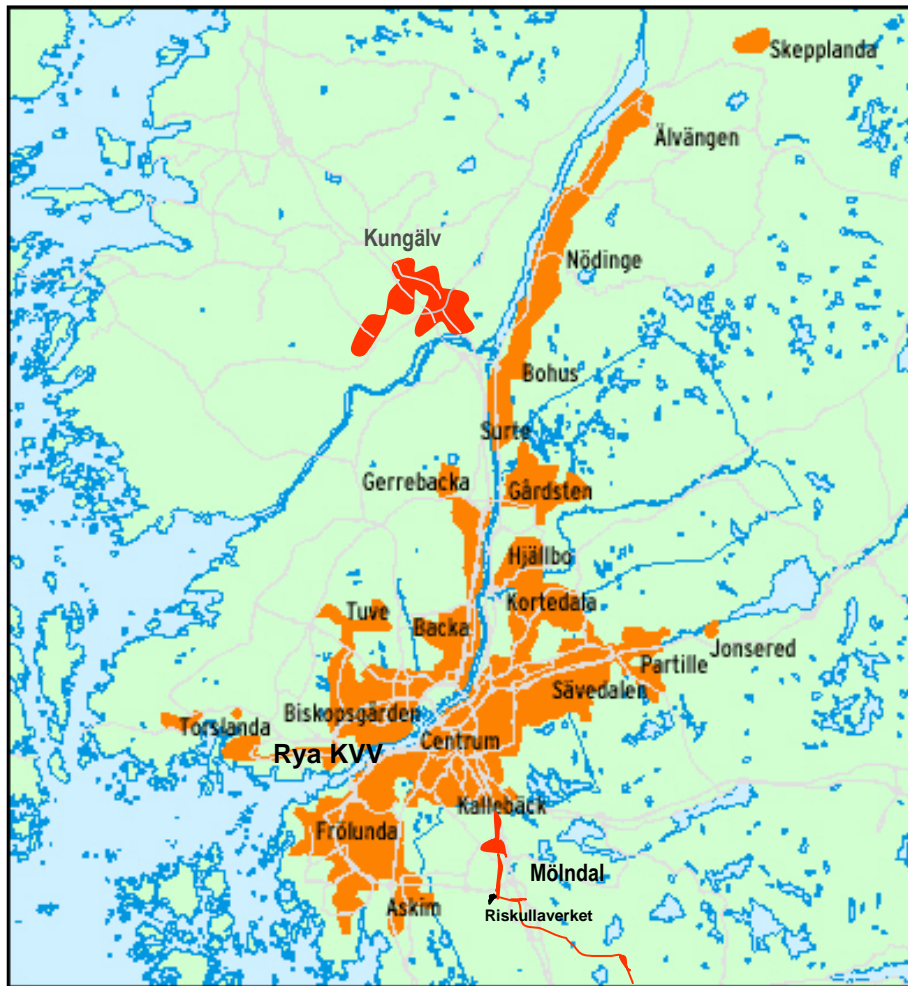
El 12 MW

Rosenlund KVV

Gaseldade ånggeneratorer

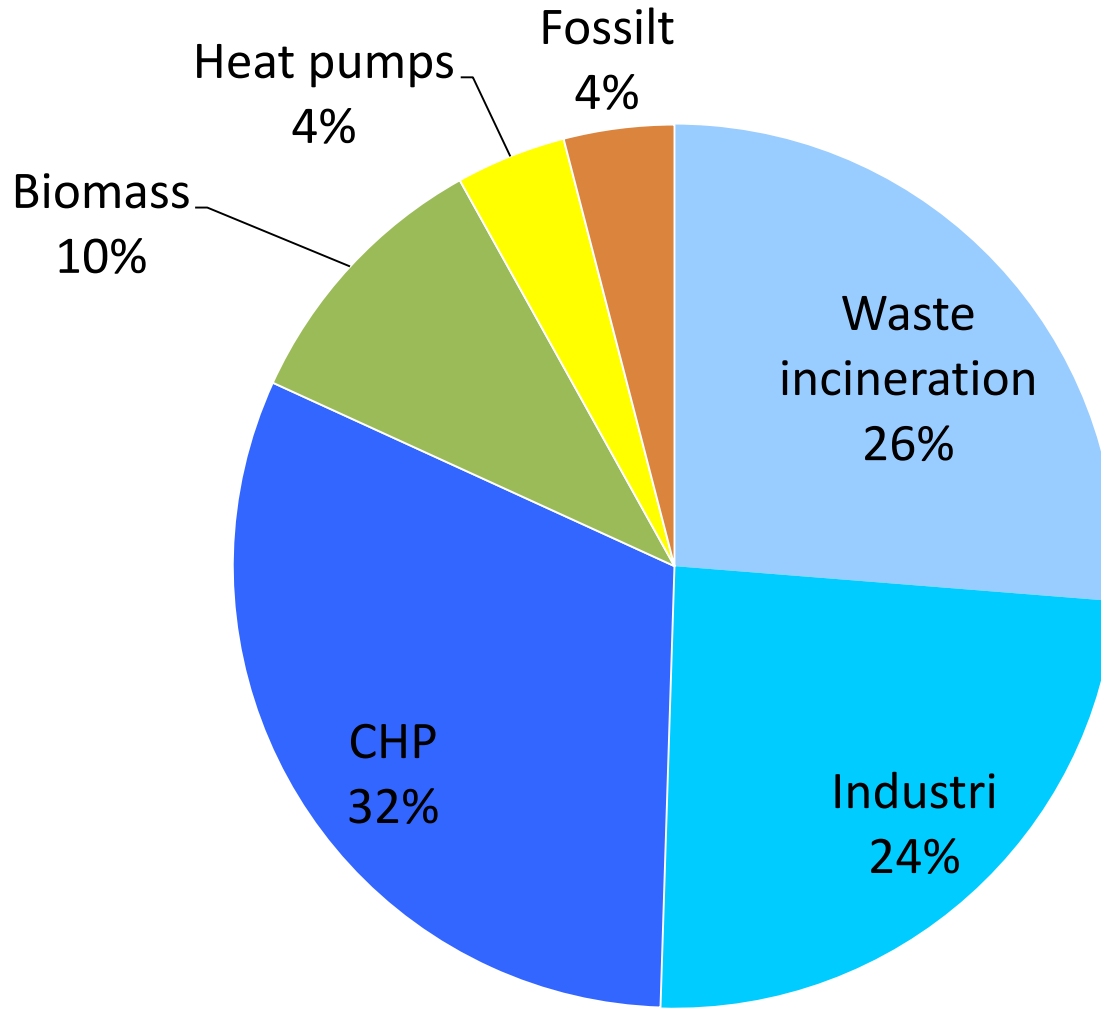
Värme 110 MW

El 35 MW

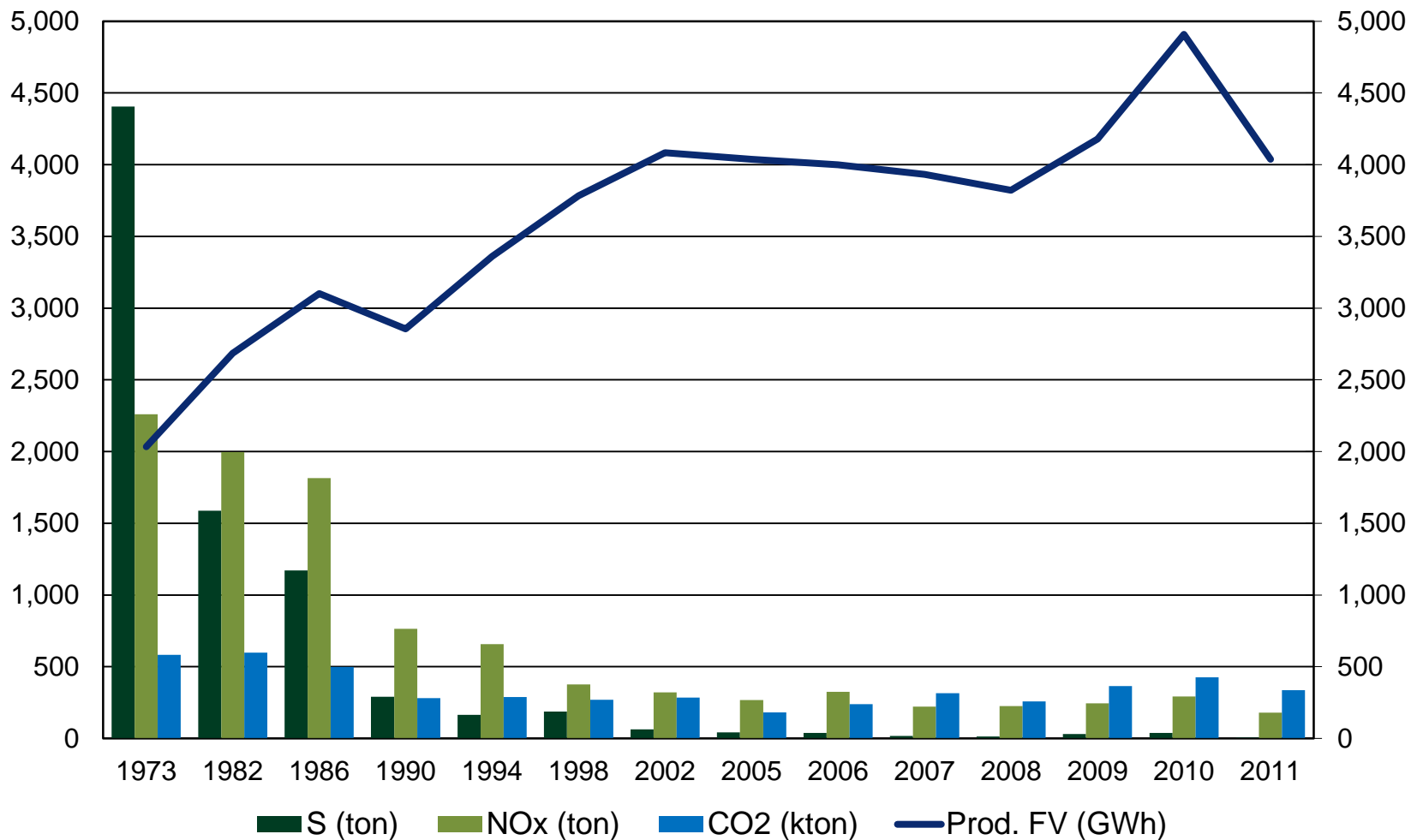


Lindome

District heating "Fuel mix" 2010

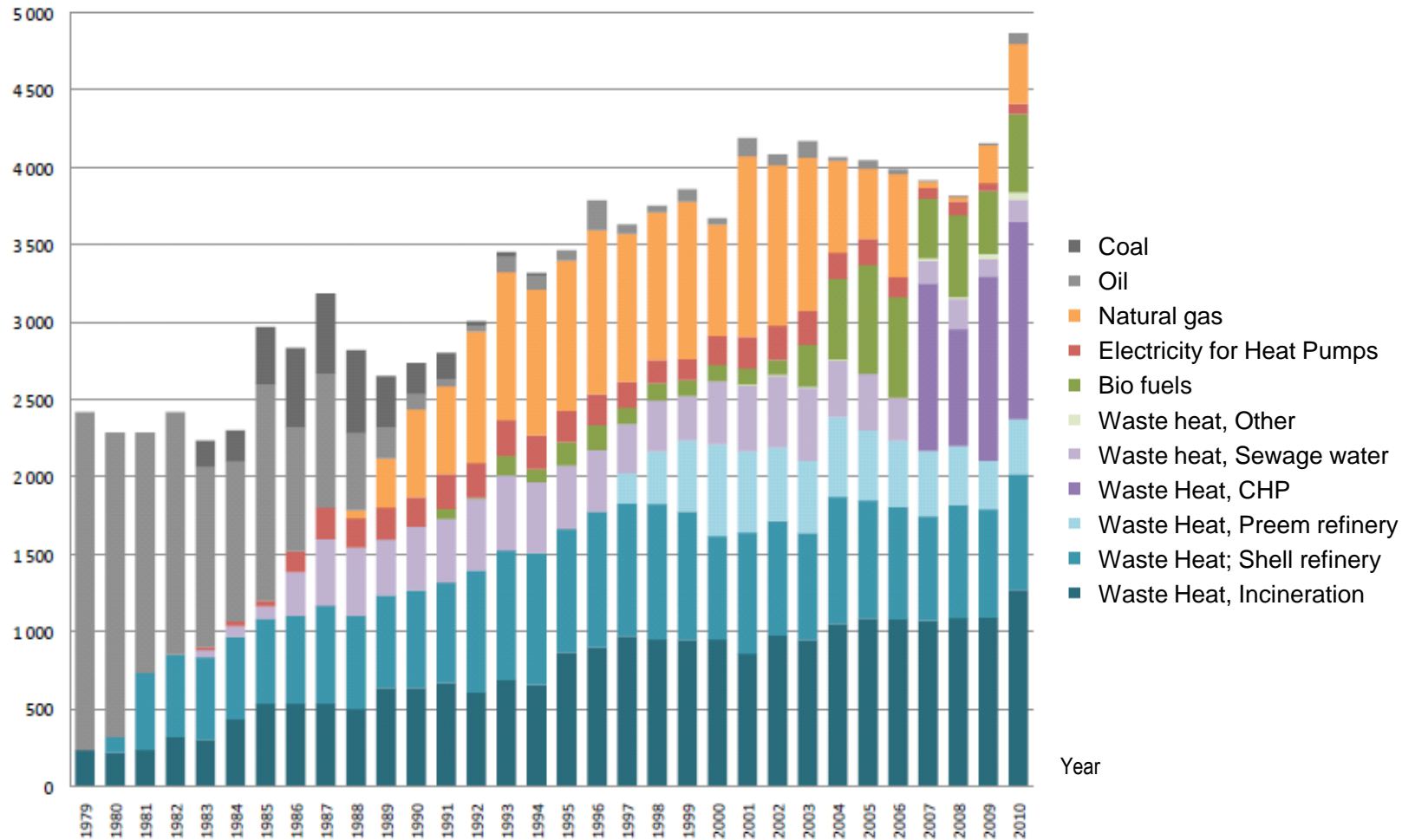


Gothenburg: District heat production and emissions, 1973 - 2011



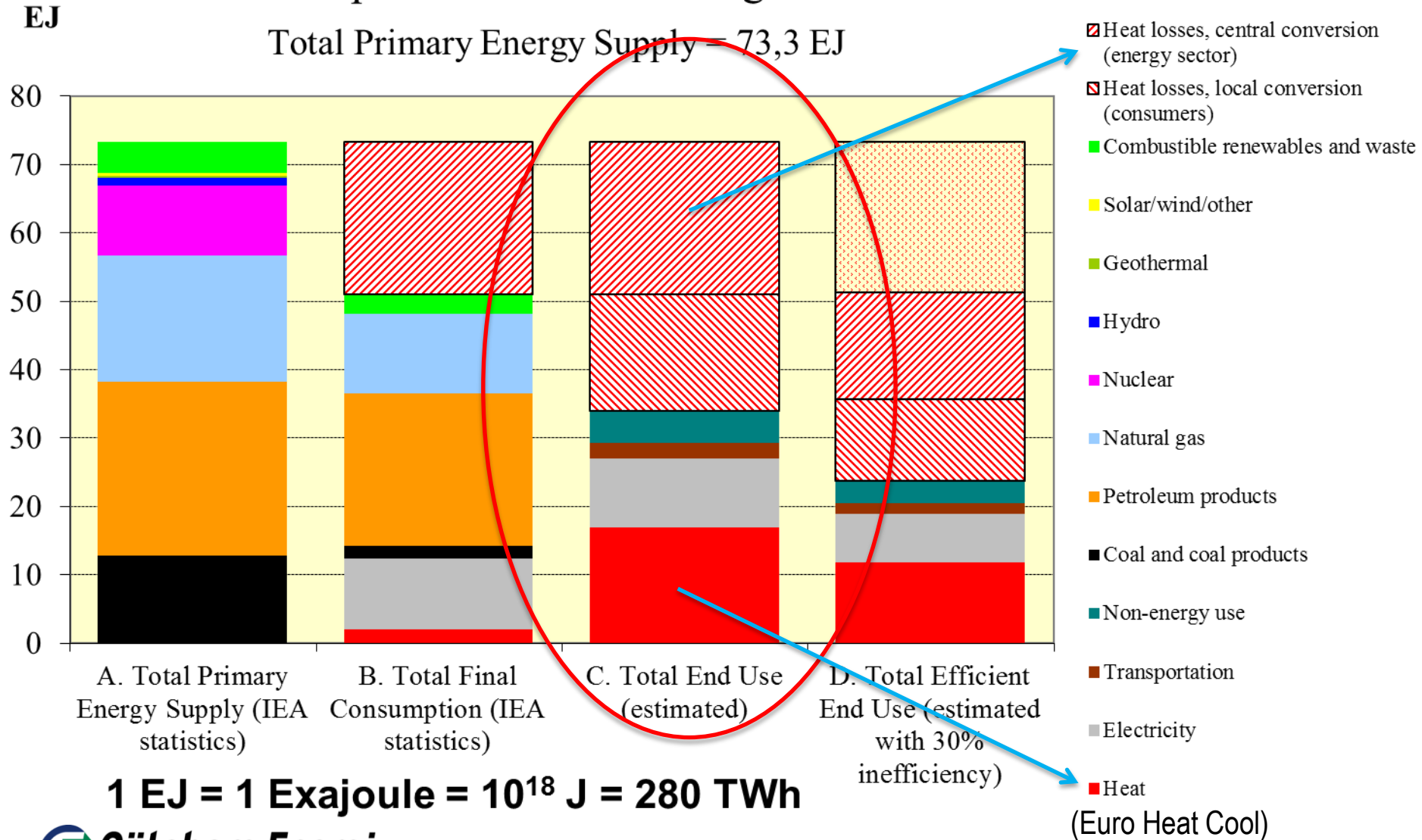
A constant development

GWh



European Union - 27 during 2008

Total Primary Energy Supply = 73,3 EJ



1 EJ = 1 Exajoule = 10^{18} J = 280 TWh

CELSIUS



Why Celsius?

- Europe, and the entire world, will face thorough change in energy supply and energy policy.
- Celsius – Within the EU-programme Smart Cities – is meant to contribute to reaching EU's Energy Efficiency target: 20 % to 2020.

Goals:

- CELSIUS is one corner stone for the EU, to demonstrate and to promote roll-out of *Smart District Heating and Cooling* through-out Europe, by presenting Best practice to other European cities.
- The target is that 50 European cities should be dedicated to the **CELSIUS CITY**-concept when project has ended.

How ?

CELSIUS

- **IMPACT focus = Market, Acceptance, Behavior, Policy, Demonstrators, Financing and Technology.**
- The Project is headed by the City of Gothenburg and Gothenburg Energy.
- 21 well known partners in the project (London School of Economics, Imperial College, Tech. University in Delft....)
- Participating cities: London, Rotterdam, Genoa, Cologne, + 7 cities that already have shown interest.
- Financing: EU's single largest **Smart City** project, supported by EIB.



District heating could soon be everywhere.



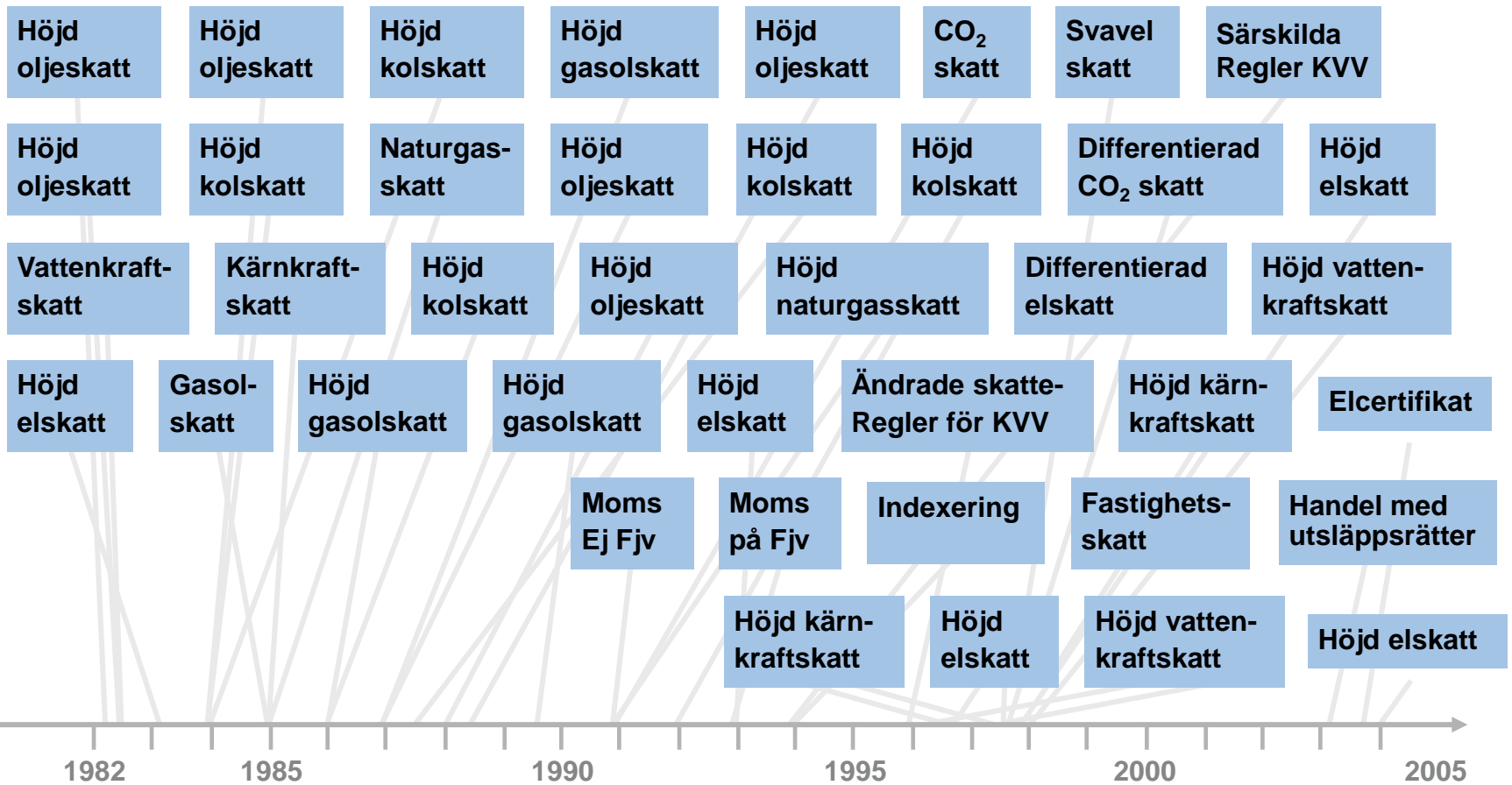
Waste Heat is not universally praised

- Ecolabelling - Bra Miljöval excludes waste heat
- Environmental classification schemes encourage stand-alone systems and electric heating
- Swedish building standards work against district heating





Development of energy taxation



Some recent regulatory challenges

- Threat of deregulation (Third Party Access)
- Over-regulation (forthcoming proposition from the regulator)
- Conflicting policy instruments (ETS and taxation)
- Attitudes towards biomass (ILUC etc)
- Whatever comes out of the Energy Efficiency Directive – metering issues, White certificates...



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Many thanks to our speakers, Ian and Lars.

Any questions?

Please type your questions for our speakers using the chat tool on the right hand side of your screen.



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Many thanks for joining us for the ESCo Opportunities webinar!

STEP UP (Strategies Towards Energy Performance and Urban Planning) aims to bring together excellence on urban planning from 4 European cities - Glasgow, Gothenburg, Ghent and Riga - and to share this experience with a wider Learning Network of cities.

To find out more about the STEP UP project,
Visit our website: www.stepupsmartcities.eu
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Contact us: network@stepupsmartcities.eu

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We look forward to your participation in future STEP UP training events.