



# Energy from biomass and waste as a regional driver

Hans Gulliksson

Brussels, 2011 04 13



# Region of southeast Sweden





# Energy Agency for Southeast Sweden

## A public company:

Owned by three regions and 25 municipalities in southeast Sweden since 1999, 30 employed

## Financiers:

- Municipalities and regional Councils in the Counties of Kalmar, Blekinge and Kronoberg and Swedish Energy Agency, 10 %
- Mainly through projects, 90 %





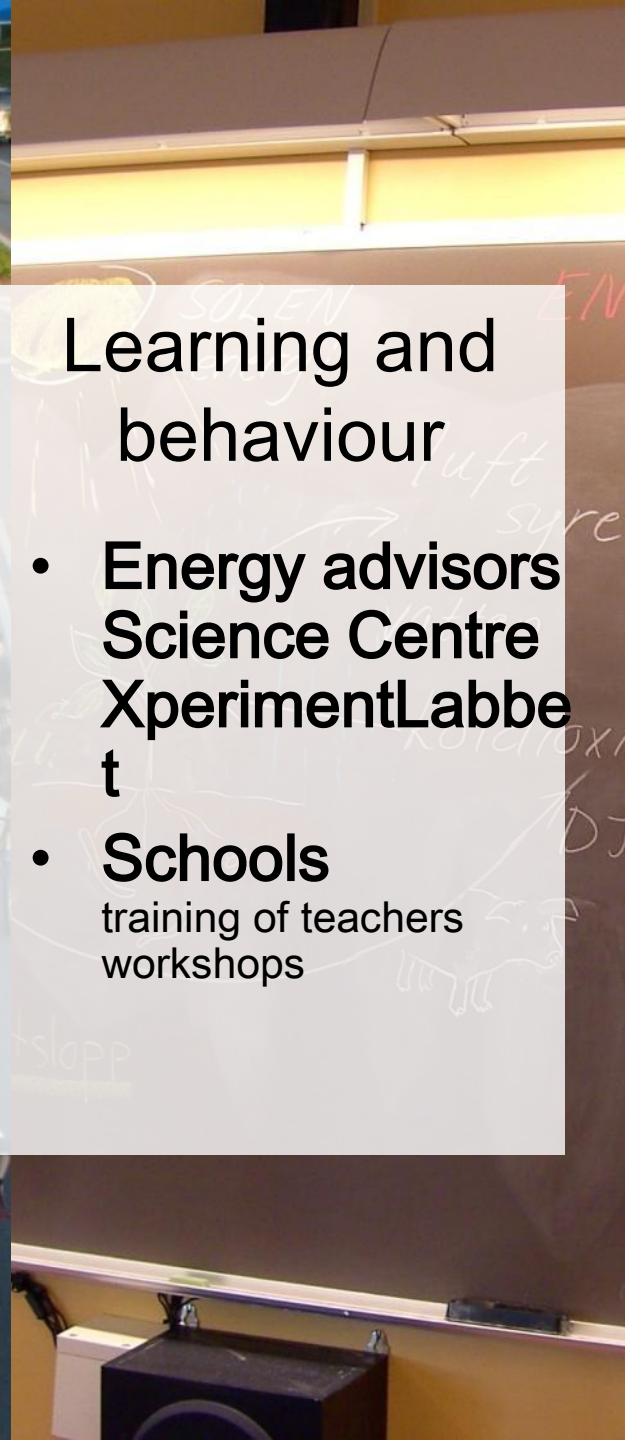
## Buildings

- **Energy efficiency**
- **Production of RES energy**
  - wind, PV, hydro and solar
- **Bioenergi**



## Transports

- **Sustainable travel**
  - public transport and personal transports
- **Freight transporter**
- **Fuels for vehicles**
  - Use Less!
  - RES as biogas, ethanol, DME, Biodiesel



## Learning and behaviour

- **Energy advisors**
  - Science Centre
  - XperimentLabbe t
- **Schools**
  - training of teachers
  - workshops



# Networks

- BiG- the bioenergy group in Vaxjo Ltd
- Bioenergycluster Smaland-Expo Vaxjo
- TransportEko Southeast Sweden
- Energy efficiency in buildings in southeast
- Biogas southeast
- Solar in southeast
- Energy advisors in southeast
- Sustainable municipalities in southeast



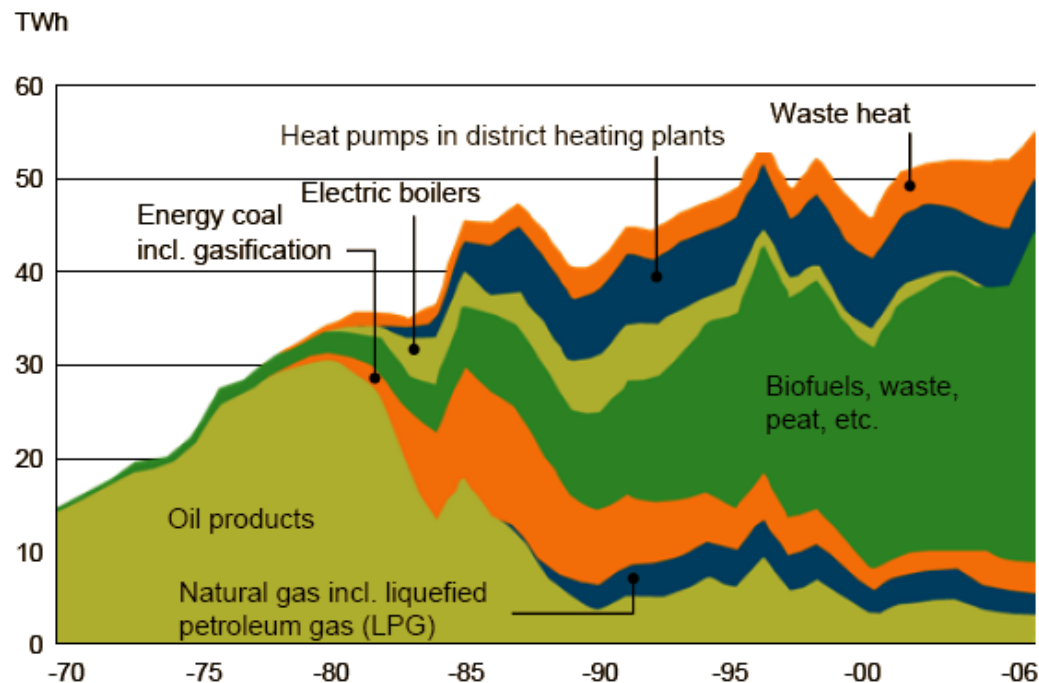
# EU and Swedish strategies

- EU has the 20-20-20 targets which means 20 % RES and 20 % better efficiency in 2020. Biofuels 10 % for transport
- Sweden has 50 % RES in 2020 and no fossil fuels for heating.
- 20 % EE reduction
- Southeast Sweden has already reached  
> 50 % RES



# Historical perspective on energy use in housing, services and industry

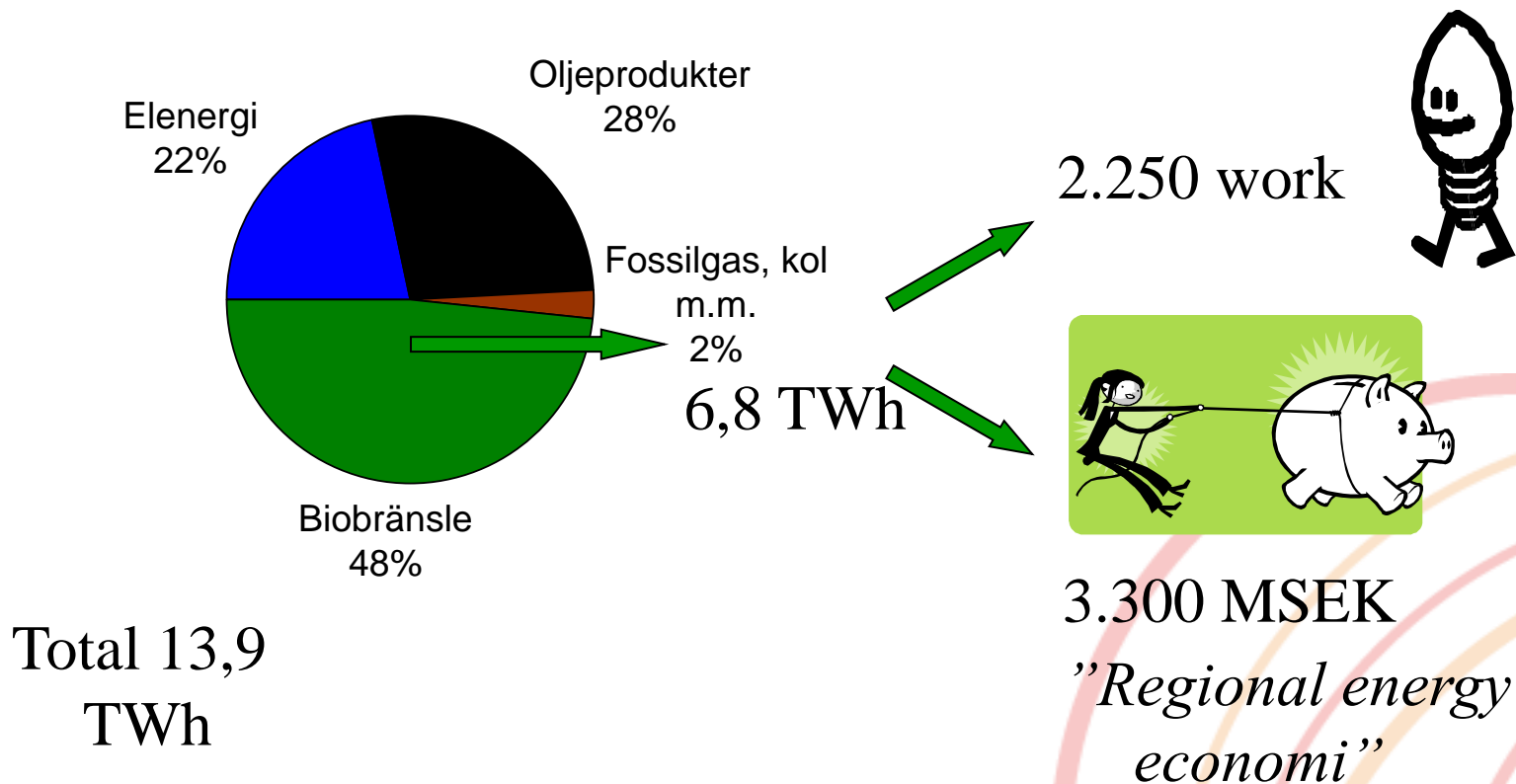
- Dependency on oil has significantly decreased.
- The increase of electricity use also includes an increased share of biofuels.
- The increase of district heating also includes an increased share of biofuels.



Energy supply for district heating 1970-2006.

Source: Statistics Sweden and the Swedish Energy Agency

# Energy as a economic driver in the region



# Biofuel markets

– *All biofuels come from the earth or forest.*

## Forest

- forestry by-products, forest industry by-products, direct energy withdrawal.

The annual forest growth is greater than the annual harvest.



## Agriculture

- agricultural by-products, food industry by-products, energy crops.

Hauling of harvesting residue.



**Waste**, Waste that is generated from the above biofuels also counts as biofuel.

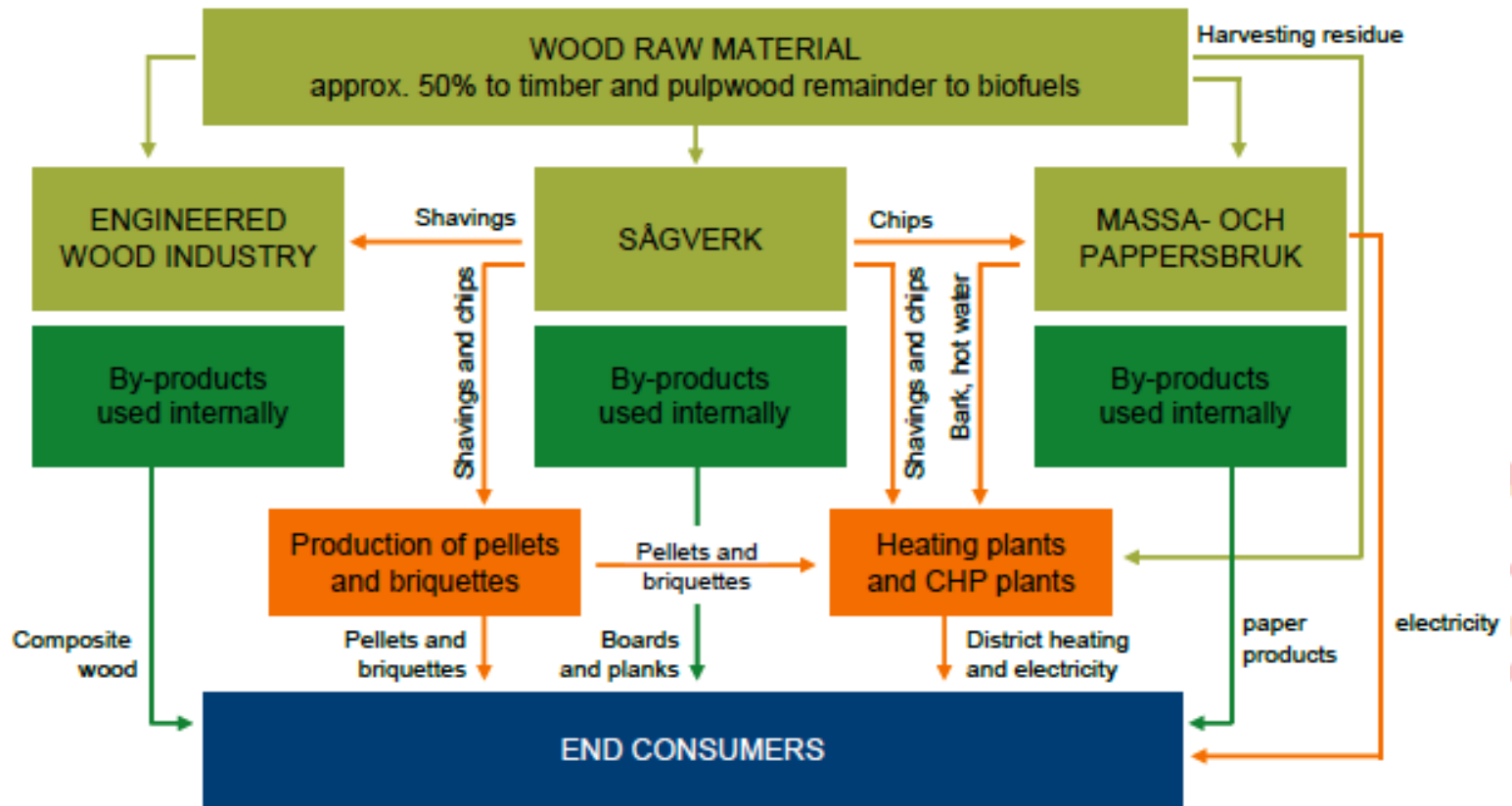
**Peat**, Combined heat and power plants (CHP) receive electricity certificates for peat burning as this is placed on the same level as biofuels, while heating plants require CO2 allowances for the burning of peat.

Harvesting and direct chipping of Salix.



# FOREST INDUSTRY FLOW-CHART

*Products, by-products and energy*



Source: Swentec

# Forest biofuel management

Haulage/collection of forest residue.



Covered pile of forest residue is chipped for the heating season.



Chipping of forest residue.



Thinning near populated areas.



Stubs collected for crushing.



Bundling of forest residue.



Storage of composite residue logs.



Chips vehicle.



Spreading of ashes.



Forest residue (branches and tops), is collected at our timber felling areas and can be chipped directly, but is usually stored in piles near passable roads for transport to district heating plants during the heating season. It is beneficial to bring the ashes back to the forest.

Source: Swentec

Hämtat från Swentec

# Bioenergy creates sustainable jobs

**1 TWh biofuel => 250 - 300 new jobs**

- An increase of 80 TWh biofuel => + 24 000 new jobs in Sweden
- Equipment manufacturing => another 8000 jobs
- Large export potential => additional jobs

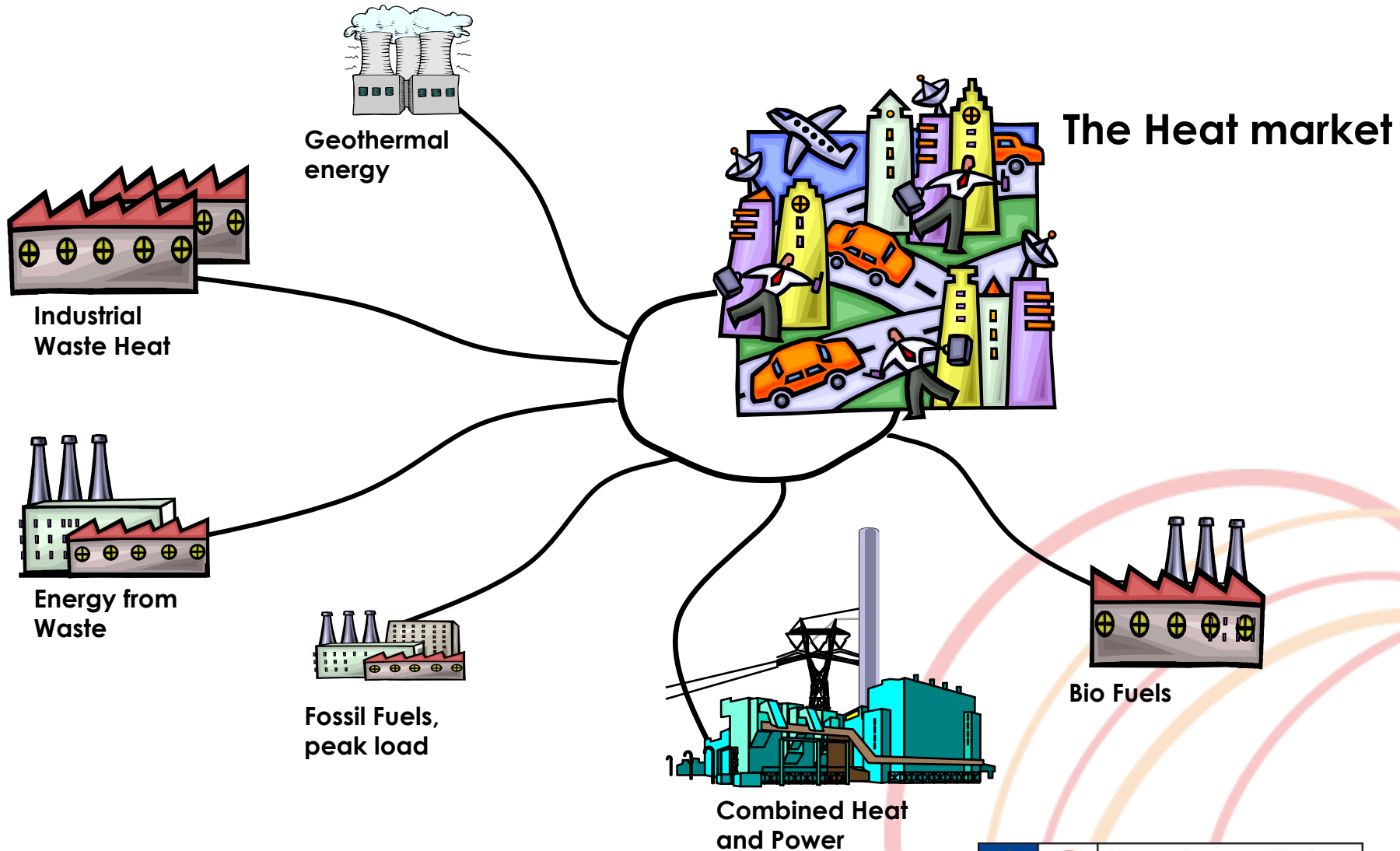
## **Society benefits:**

Generates income tax and decreases the need for support to unemployed.



Source: Växjö University and Swedish Bioenergy Association

# District Heating as we see it

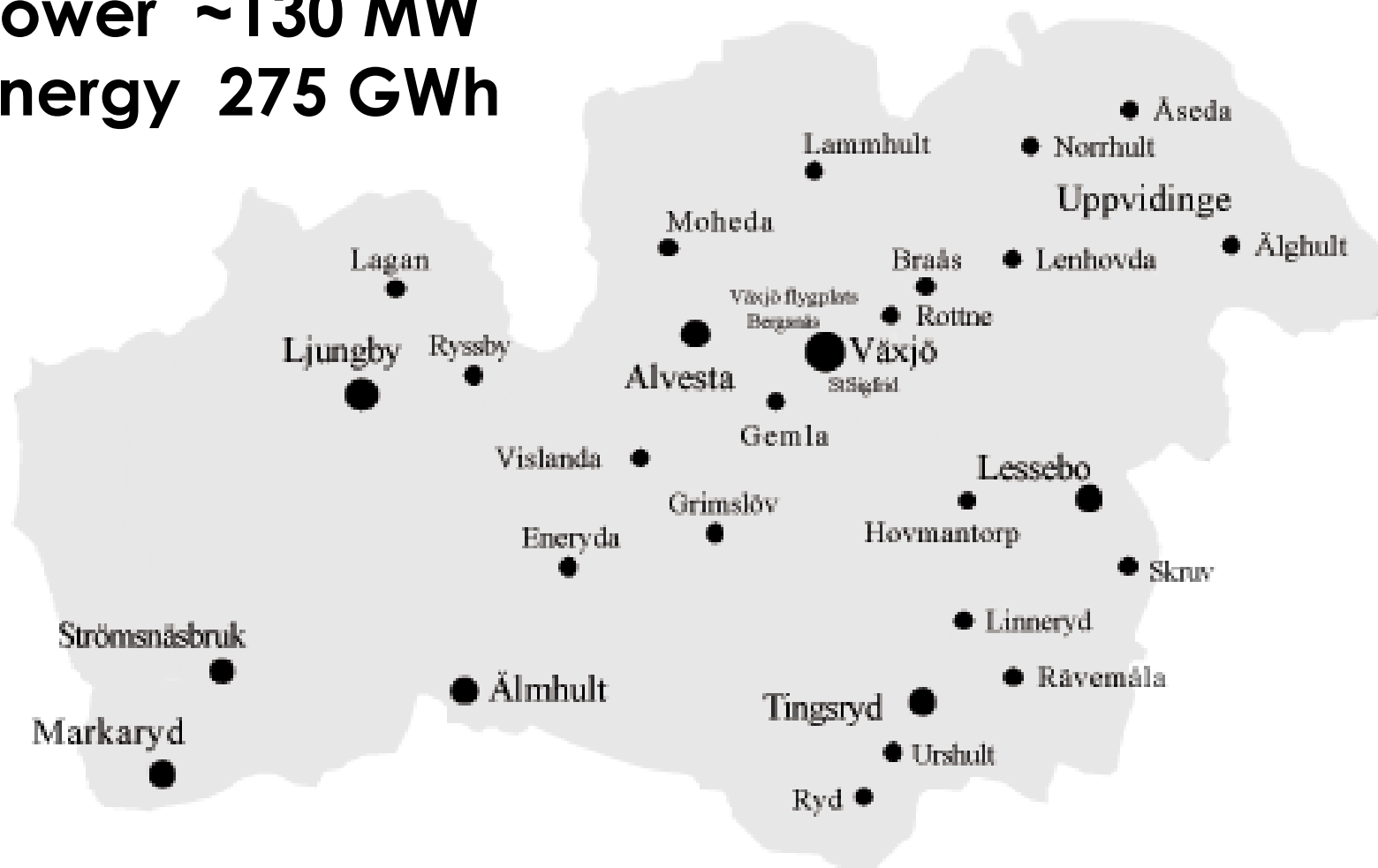




# Nearby district heating Kronoberg

Power ~130 MW

Energy 275 GWh



# Contact information



Hans Gulliksson

Energikontor Sydost AB

Framtidsvägen 10A

351 96 Växjö, Sweden

[Hans.gulliksson@energikontorsydost.se](mailto:Hans.gulliksson@energikontorsydost.se)

+46 (0)470-723320

+46 (0)70-620 83 03

