

# Kommer de Europeiska länderna att själva utvinna energi ur sitt avfall?

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Rindi Energi



# Vad är ?

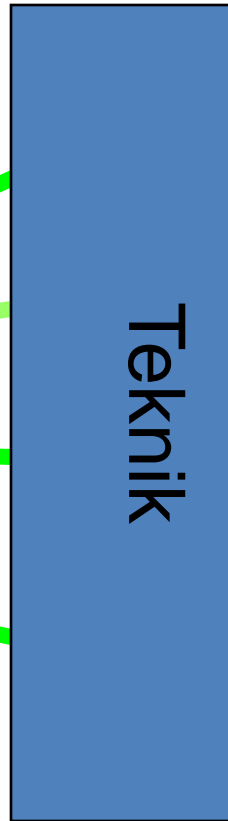
- Europa
- Energi
- Avfall

# Europa



# Avfall definierat i halva Europa

1. The present list is a harmonised list of wastes. It will be periodically reviewed on the basis of new knowledge and, in particular, of research results, and if necessary revised in accordance with Article 18 of Directive 75/442/EEC. However, the inclusion of a material in the list does not mean that the material is a waste in all circumstances. Materials are considered to be waste only where the definition of waste in Article 1(a) of Directive 75/442/EEC is met.



Energi föda

Energi uppvärmning

Energi transport

Energi el

# Behovet styr ?

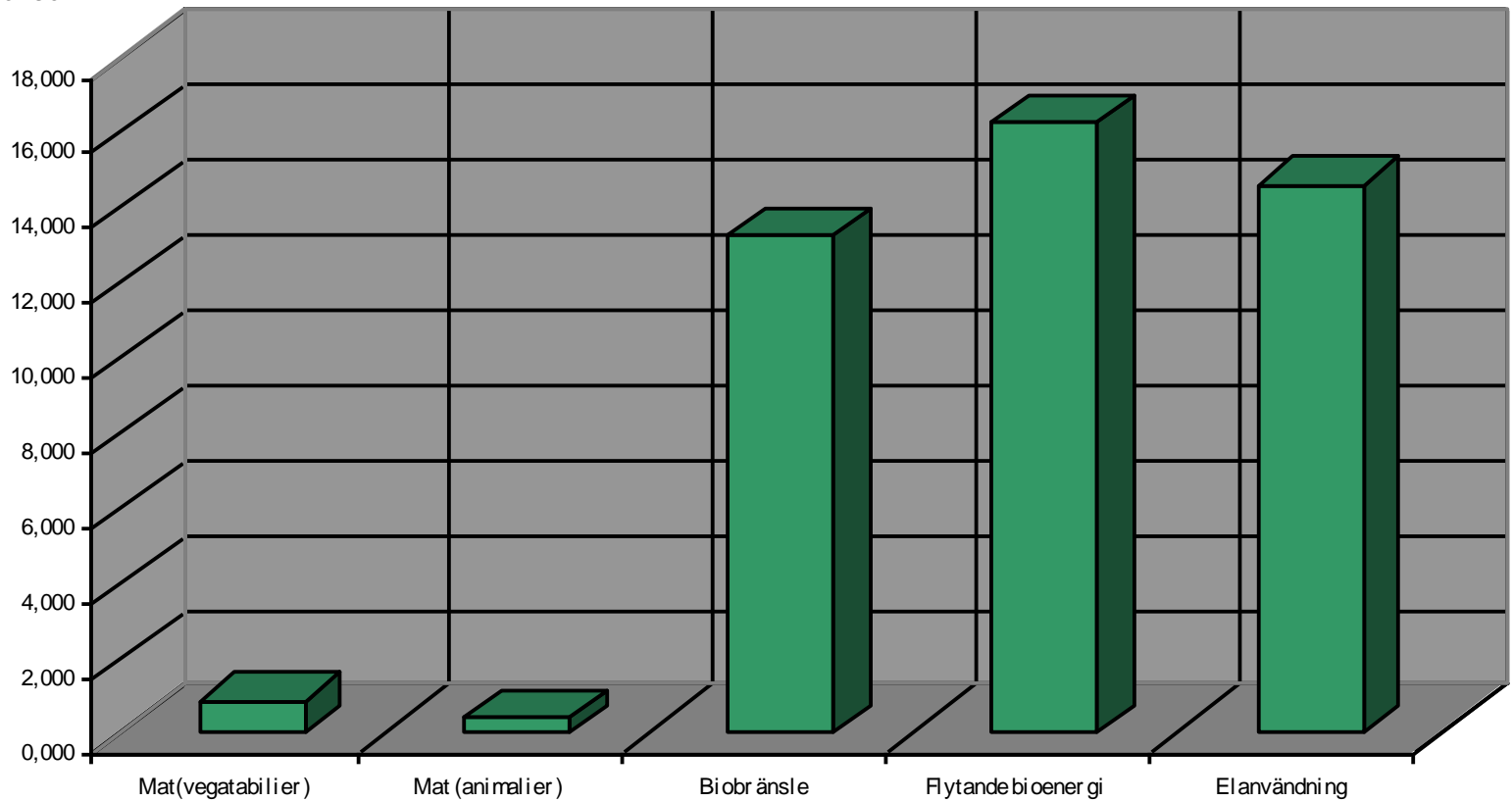
- 500 kg avfall/person
- 3 MWh/ton
- Varje person producerar 1,5 MWh avfallsenergi
- Avsätt där värdet är högst eller där spillet är minst

# Värde på marknad

- Vegetabilisk föda 2700 SEK/MWh
- Animalisk föda 5000 SEK/MWh
- Värme 500 SEK/MWh
- Transportenergi 1000 SEK/MWh
- Elenergi 1000 SEK/MWh

# Energy demand in MWh per person and year

MWh/ per son

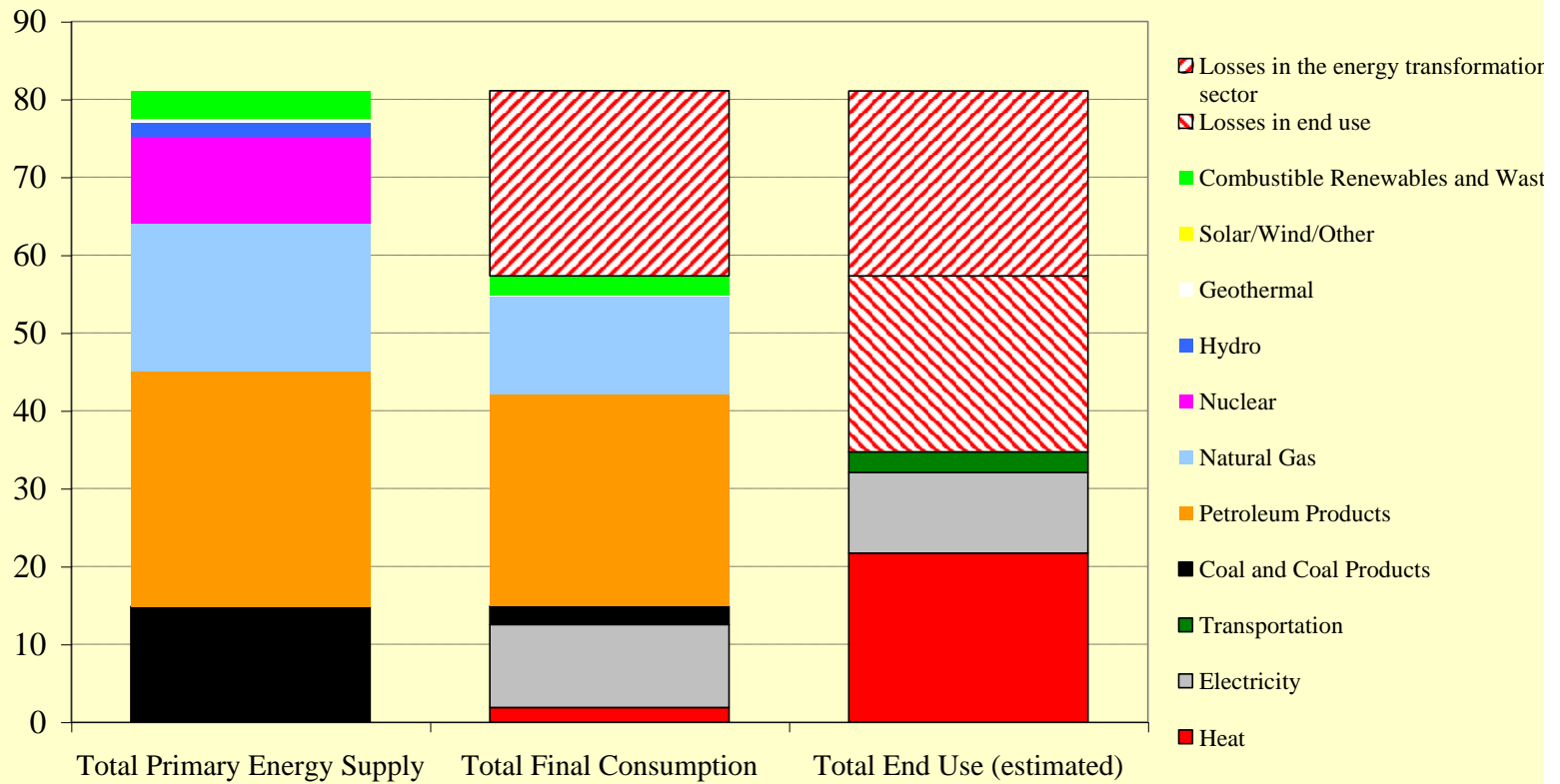


# Resursanvändning

EU25 + ACC4 + EFTA3 during 2003

Total Primary Energy Supply = 81,1 EJ

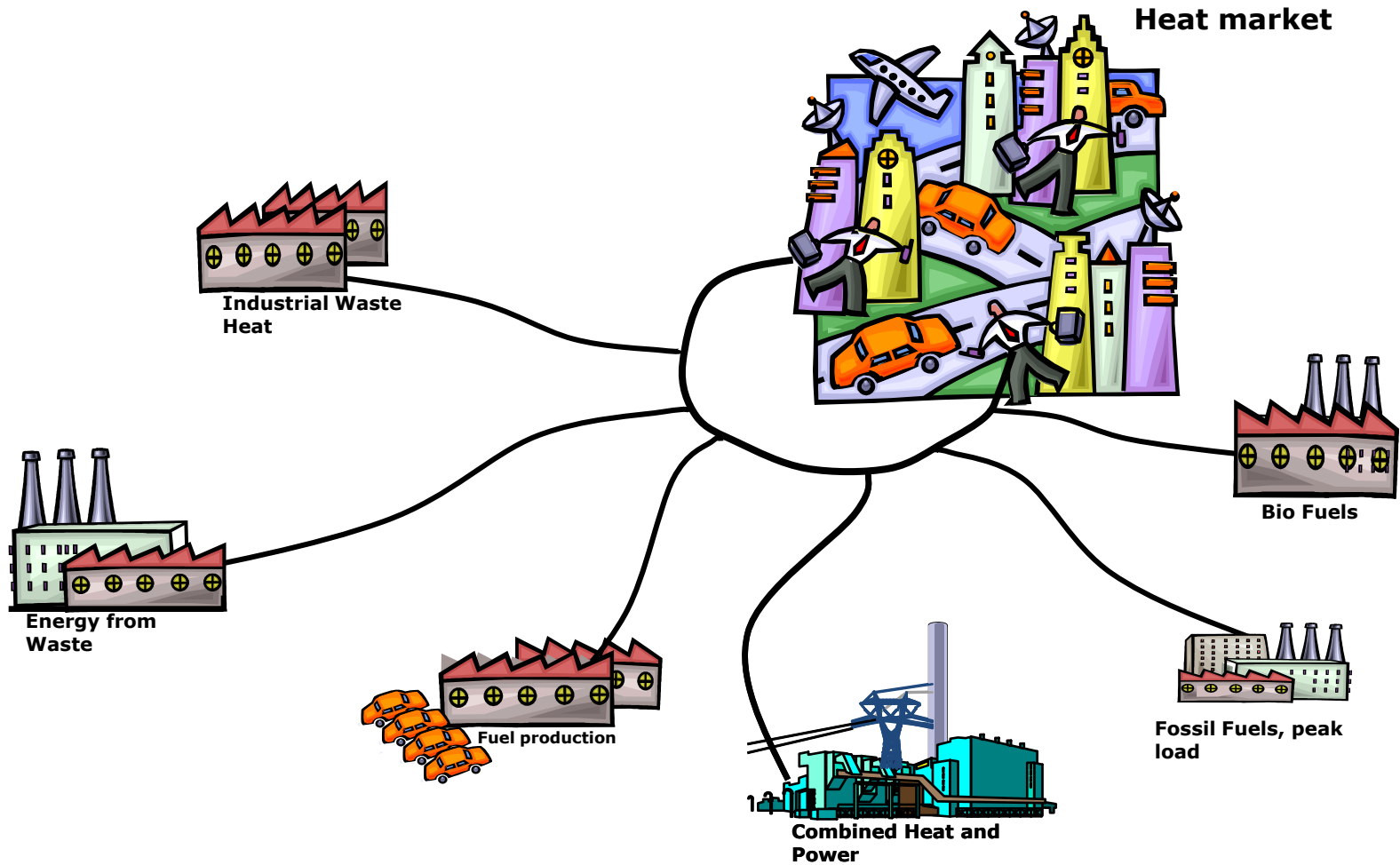
EJ



# Reach the goals by utilising the losses

- The today primary energy consumption will be decreased by utilising the losses
- The losses can only be utilised for low temperature demands
- Low temperature demands is space heating, drying and evaporation
- Heat distribution system is the key
- District heating must be built in Europe as infrastructure

# District Heating an integrated part of the energy system



# DIRECTIVE 2000/76/EC

on the incineration of waste

- **Incineration plant:** thermal treatment of waste with or without recovery of heat
- **Co-incineration plant:** generation of energy or production of material products using waste as a fuel

The following plants shall however be excluded from the scope of this Directive:

Plants treating only the following wastes:

- (i) vegetable waste from agriculture and forestry,
- (ii) vegetable waste from the food processing industry, if the heat generated is recovered,
- (iii) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered,
- (iv) wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with woodpreservatives or coating, and which includes in particular such wood waste originating from construction and demolition waste,
- (v) cork waste,
- (vi) radioactive waste,
- (vii) animal carcasses as regulated by Directive 90/667/EEC without prejudice to its future amendments,
- (viii) waste resulting from the exploration for, and the exploitation of, oil and gas resources from off-shore installations and incinerated on board the installation;

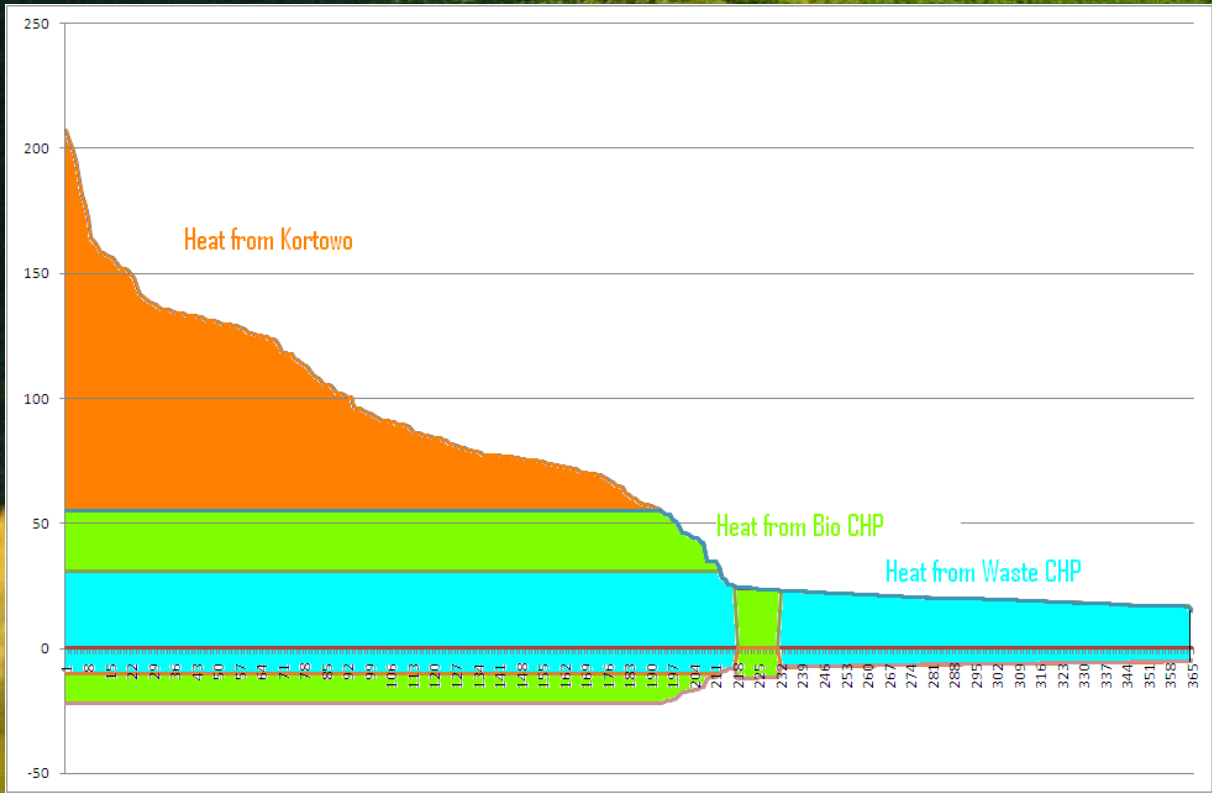
# Emission limits

- Incineration plants :
  - Air emission limit values set out in **Annex V**
- Co-incineration plants:
  - Air emission limit values determined according to or set out in **Annex II**

# Waste to Energy

- Stränga emissionskrav på avfallseldning
- Stora anläggningar krävs för att klara investeringen för reningsanläggningen
- Stora anläggningar kräver stort fjärrvärmenät för att ta tillvara spillet från elproduktionen

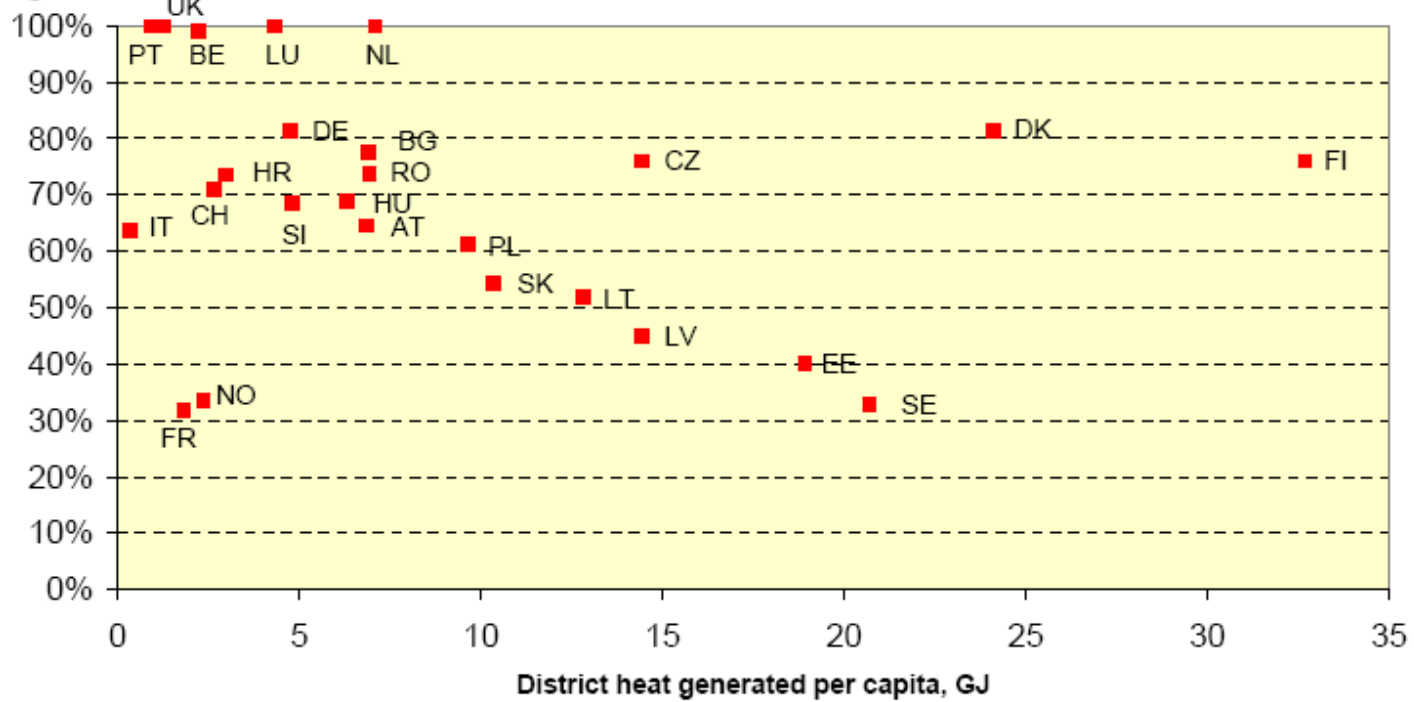
# Regionalt alternativ



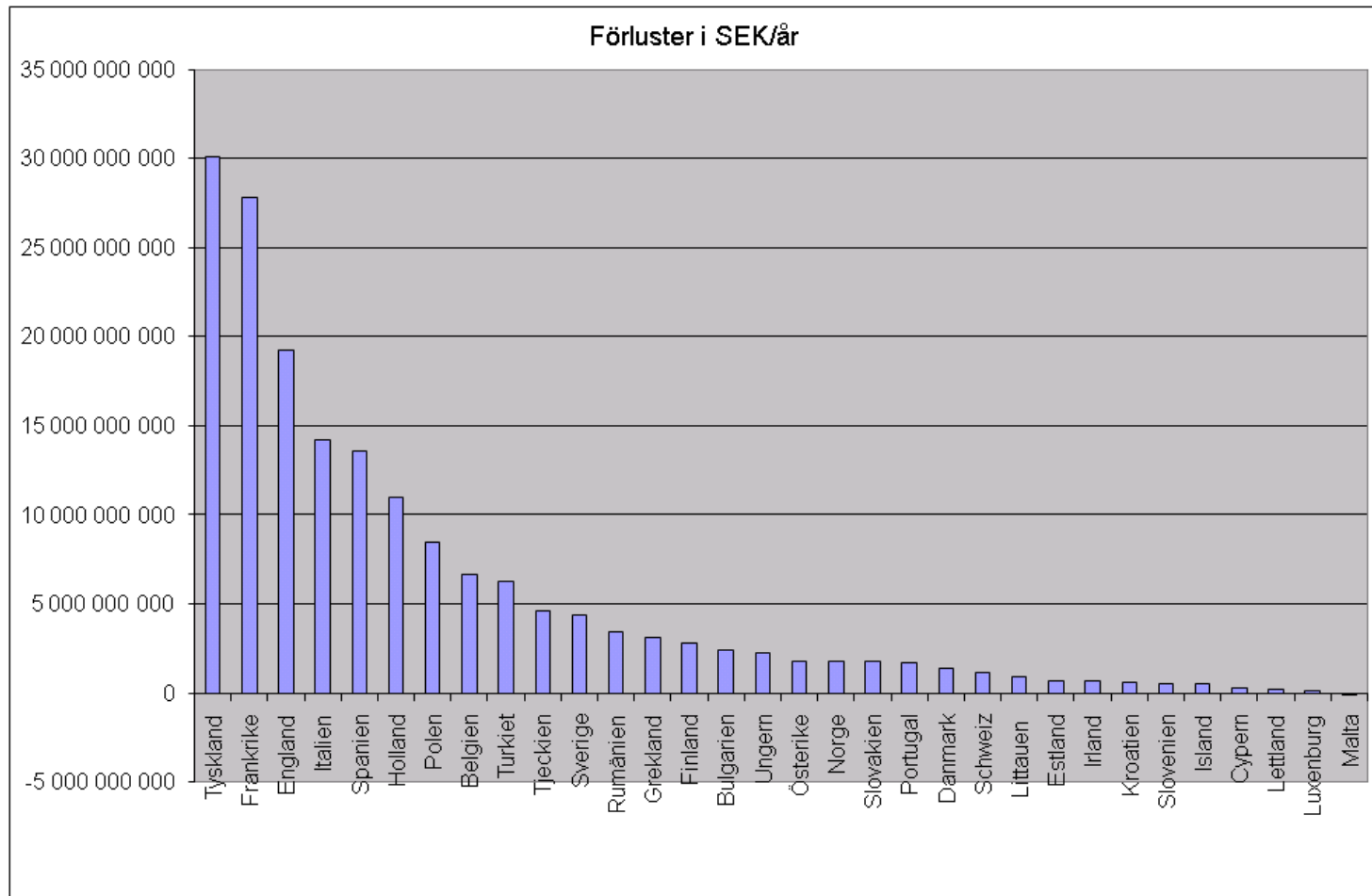
# Kraftvärmeandel och fjärrvärme per invånare

Figure 8. CHP heat generated for district heating per capita during 2003.

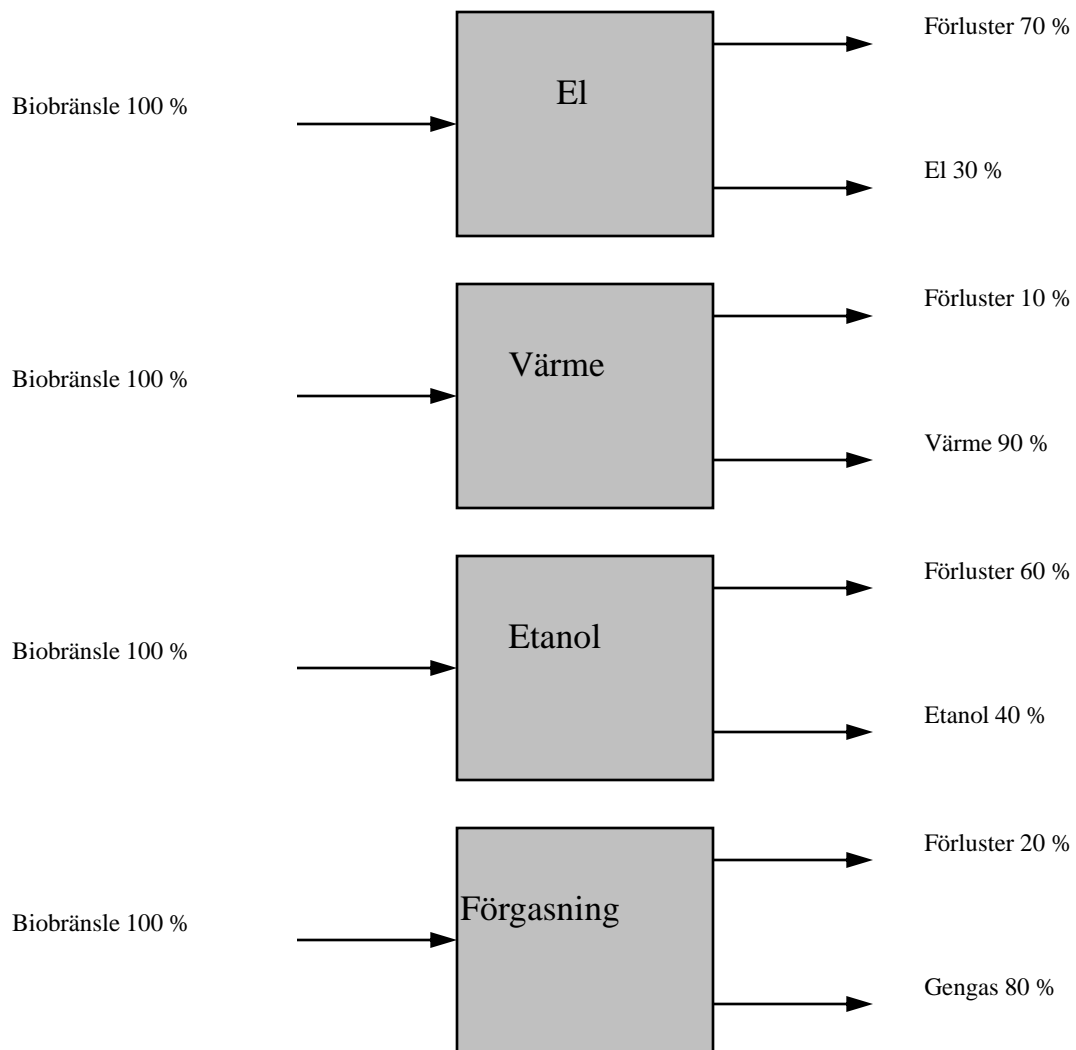
Share of CHP heat in total district heat generation

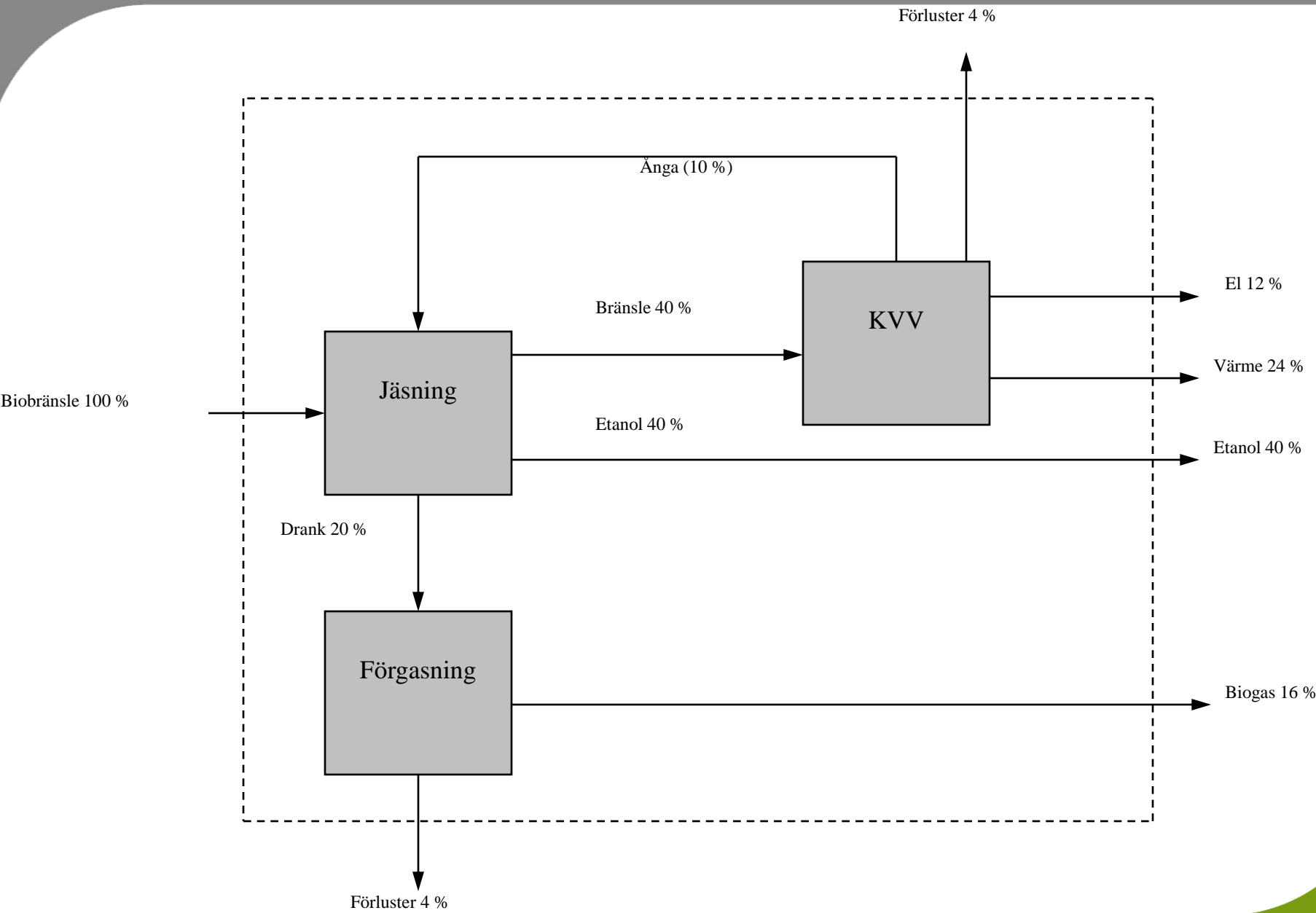


# Omvandlingsförluster från primärenergi till el i Europeiska länder



# Katedralhistorien





# Slutsatser och svaret

- Avfall kommer att utnyttjas där det ger högst värde. Idag och 15 år framåt kraftvärmeverk.
- Kraftvärme kräver fjärrvärme
- Fjärrvärme finns huvudsakligen i öst
- Avfall kommer att transporteras med billigaste transportsätt. Idag båt. Hamnläge fördel för säljare och köpare.

Tack för uppmärksamheten