



# COGEN

europe

changing the way  
europe provides heat and electricity  
for a sustainable future

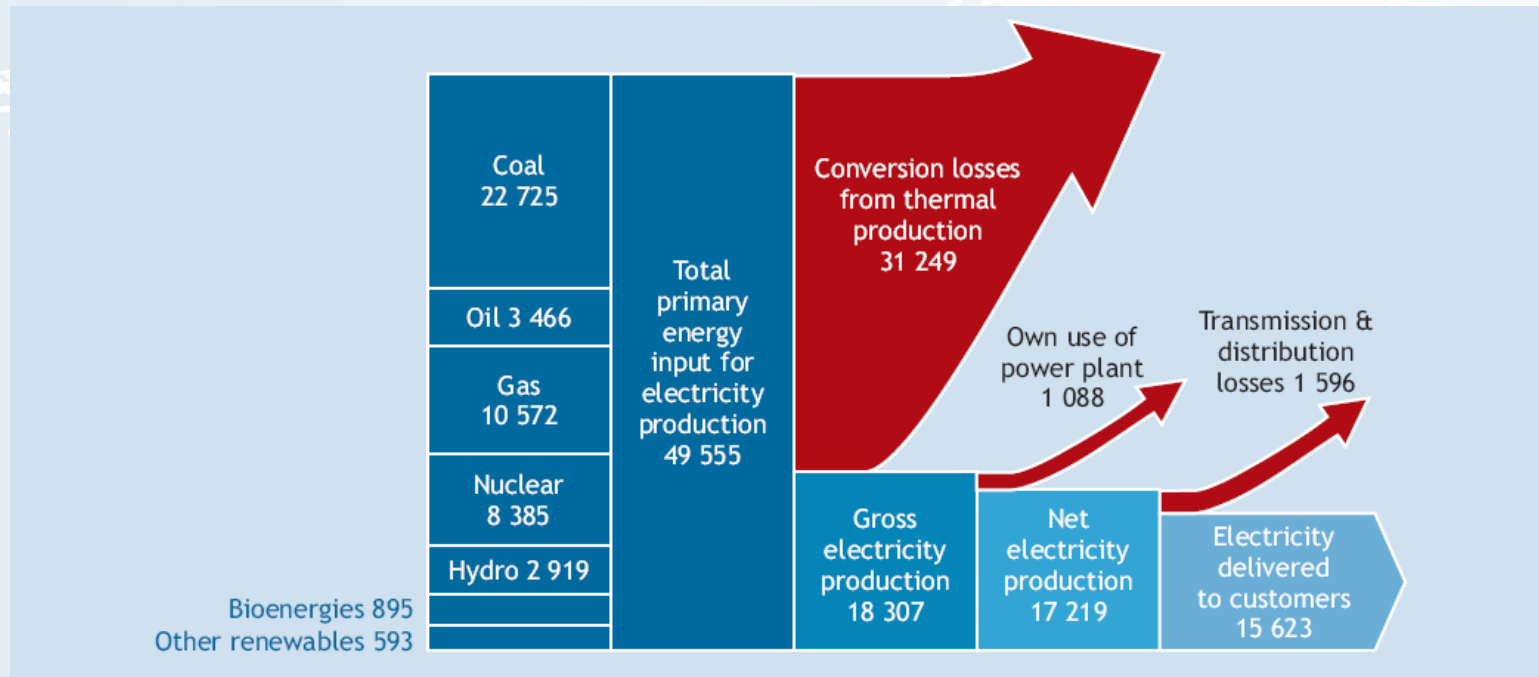
# What is cogeneration ?

- Cogeneration is the process of capturing both the heat and the electricity from an electricity generating process....and putting them to useful work
- Heat does not travel well and is used locally, electricity travels considerable distances. The logic of cogeneration means that “heat demand” is an opportunity for higher energy efficiency of electricity generation.
- The heat can be “cascaded down” through several processes, as the temperature drops.
- Total efficiency improvement over separate production is upwards of 10% and 25% with modern CHP.



COGEN  
europe

# Generating electricity releases (useful) heat.

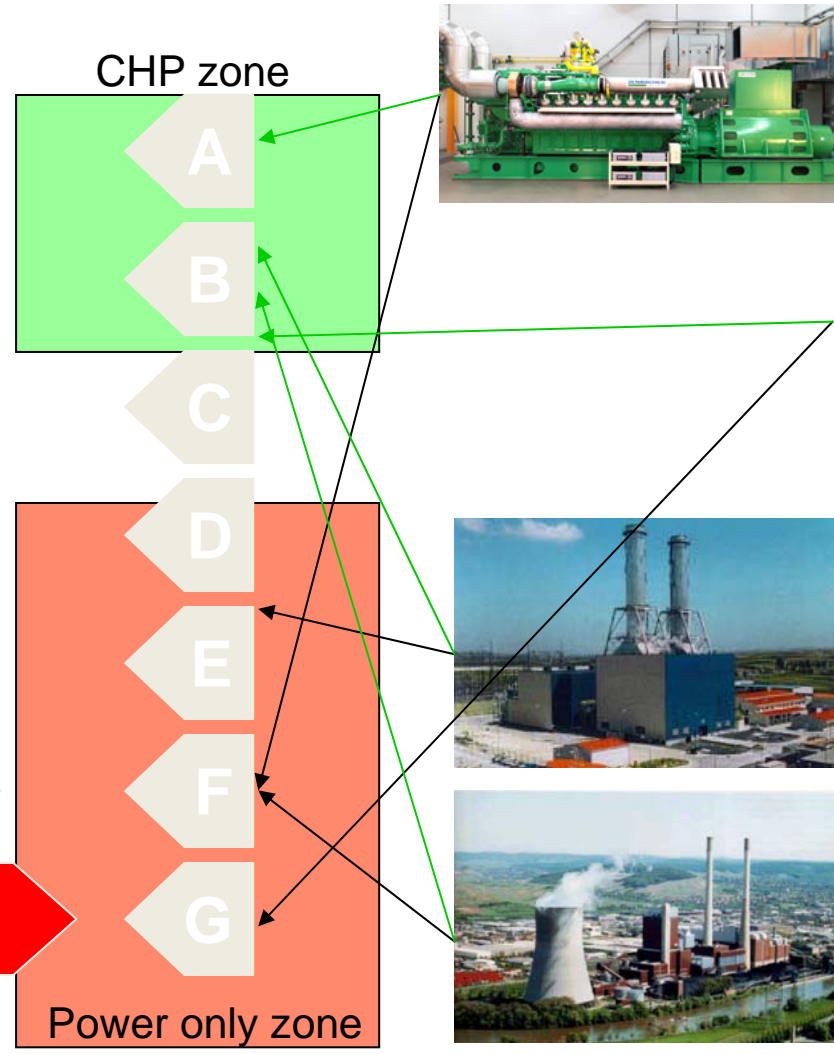
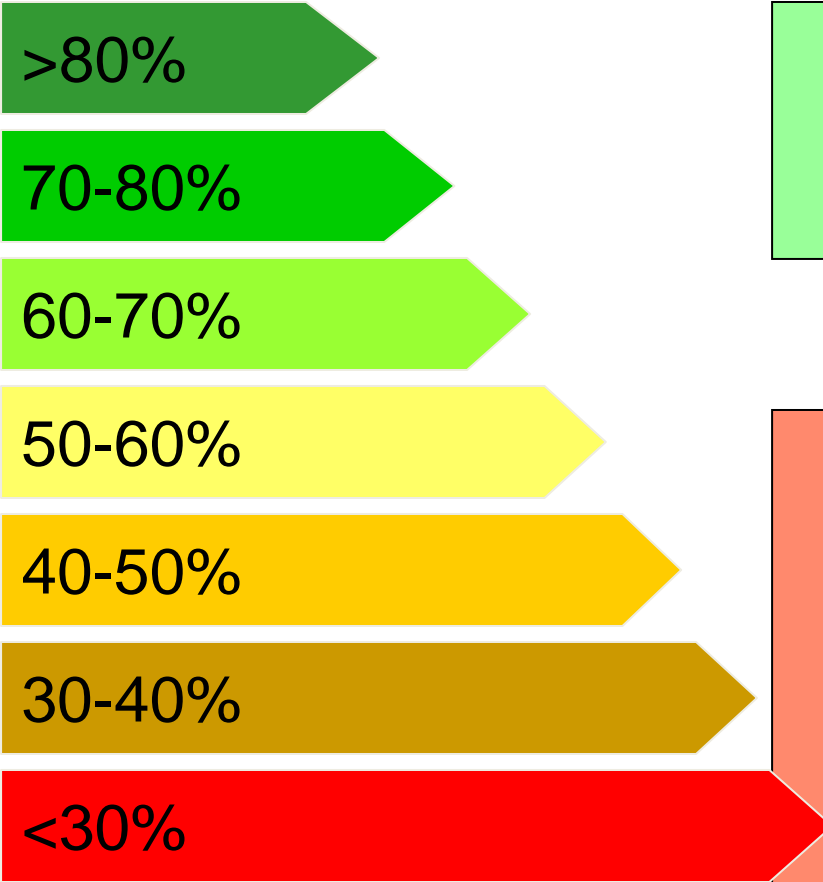


# Power Generation in the 20<sup>th</sup> Century



- Traditional condensing power stations use cooling tower to dump heat
- Are remotely sited far from their customers and loose up to 4%-8% of their electricity in transmission

# Power Plant labelling based on marginal delivered electrical efficiencies



# Urban areas represent large heat demands....the shape of power stations in 21<sup>st</sup> Century?



# Good news: cogeneration inside!



**Atomium**



**Berlaymont**



**Bundestag**



**Buckingham Palace**



**La Défense**

# Examples of CHP in real life



**Akzo Nobel: Delesto CHP plant. It provides steam and power to Facilities in Delfzijl where Akzo Nobel produces salt, chlorine and Derivatives. It produces 520 MW of power.**



**District heating CHP plant in Ljubljana**



**Greenhouse: an example of medium size CHP (150kW)**

Dachs G 5,5 micro CHP on natural gas,  
Electrical output: 5,5kW  
Thermal output: 12,5 kW



# Good news: cogeneration inside!



**Atomium**



**Berlaymont**



**Bundestag**



**Buckingham Palace**



**La Défense**