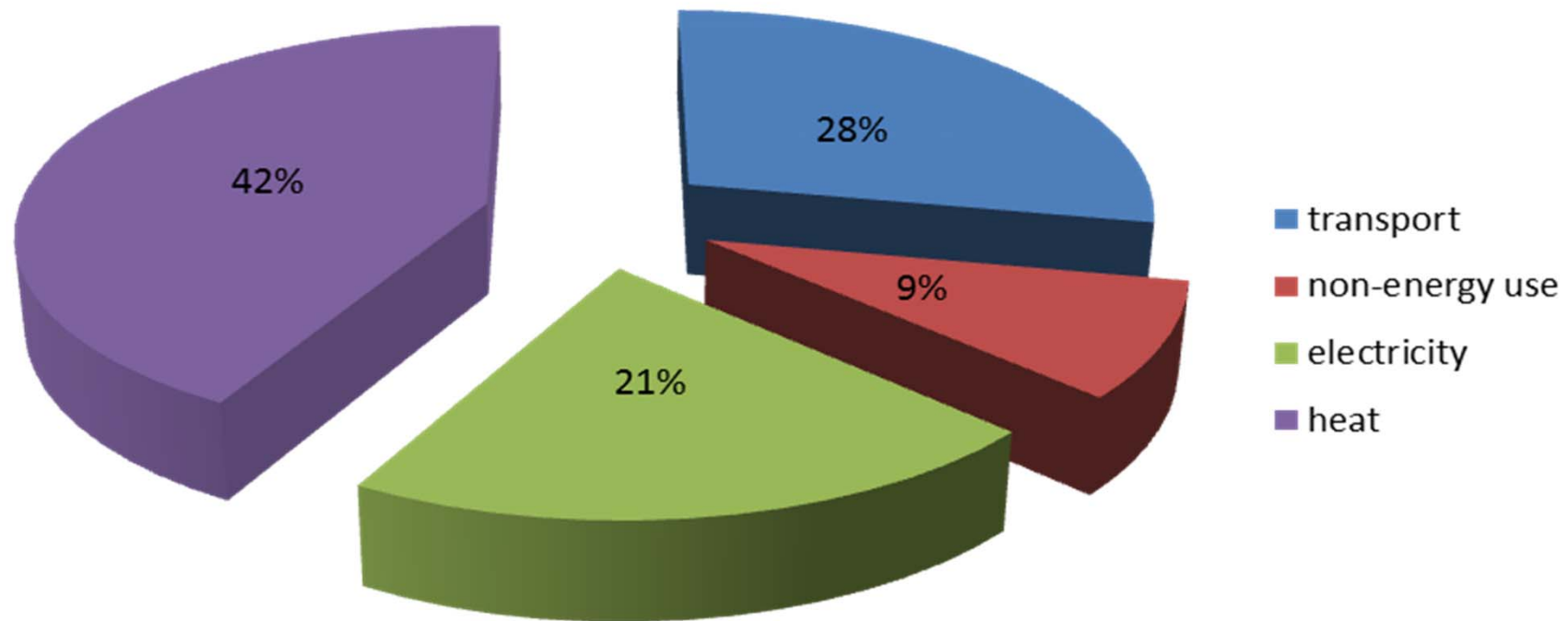


DHC: Biomass + balancing element for renewable electricity

Energy end-use is dominated by heat in Europe

Final energy demand by energy service, 2011 (EU 27)

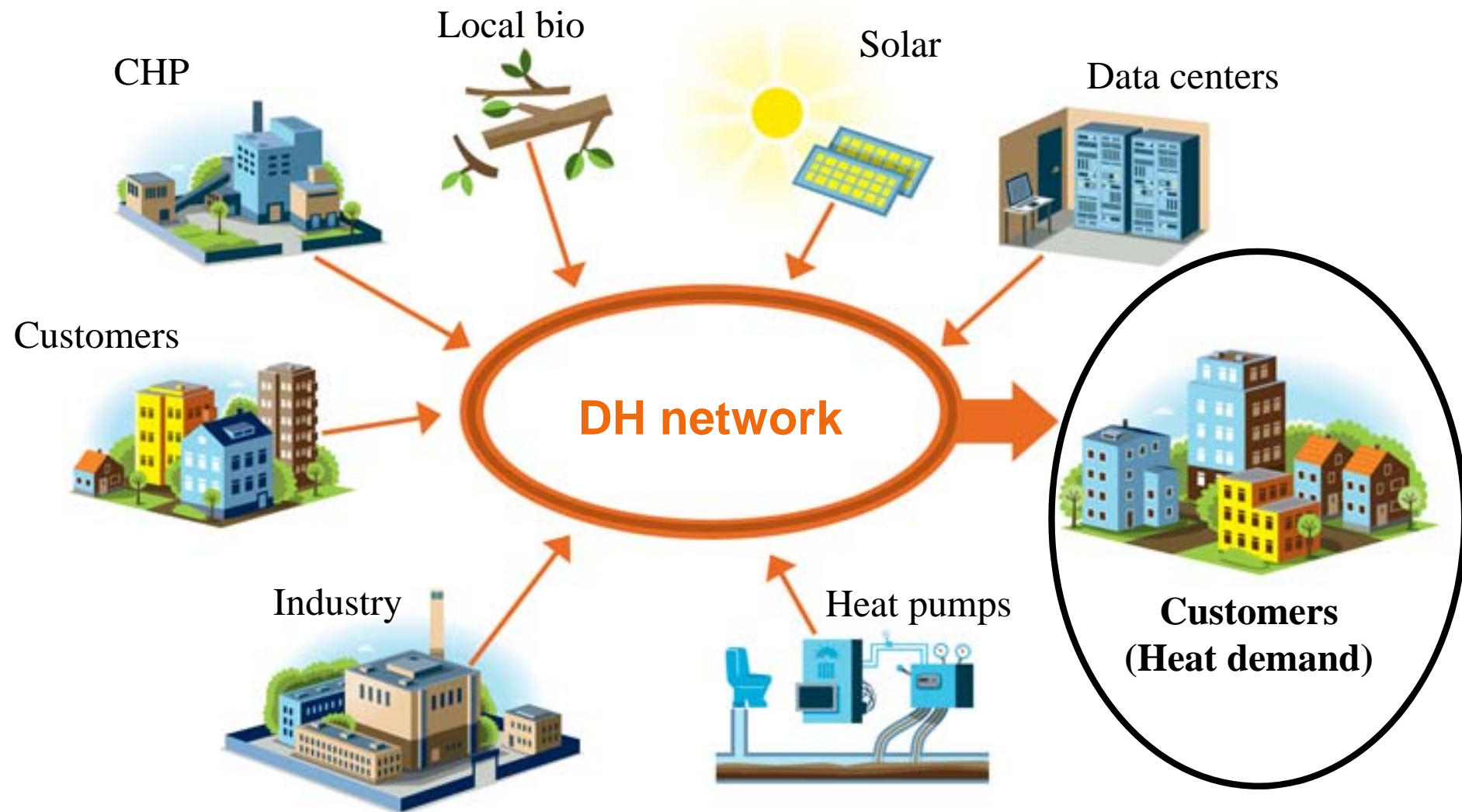


Source: IEA, 2011

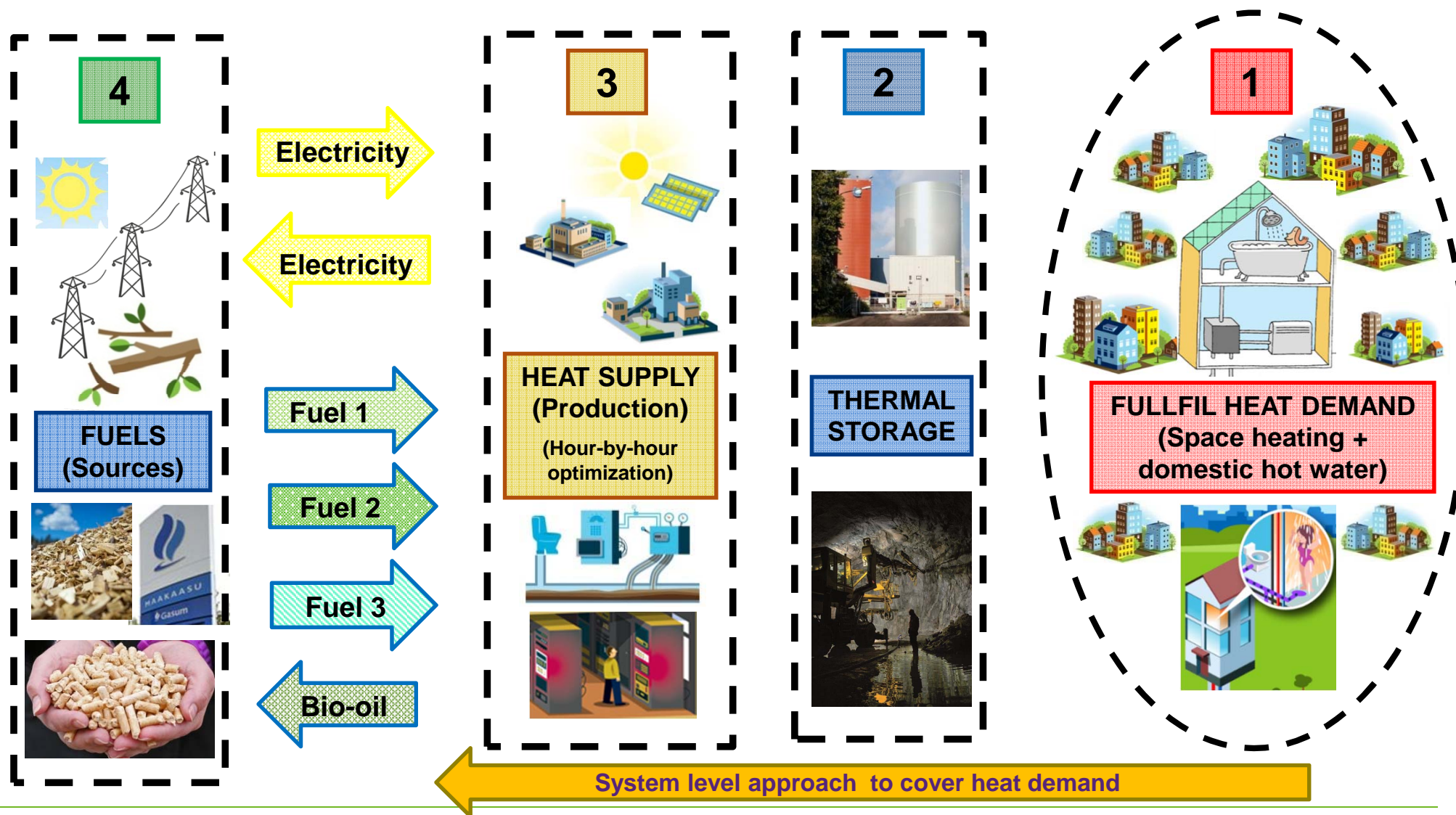
Next generation
energy company



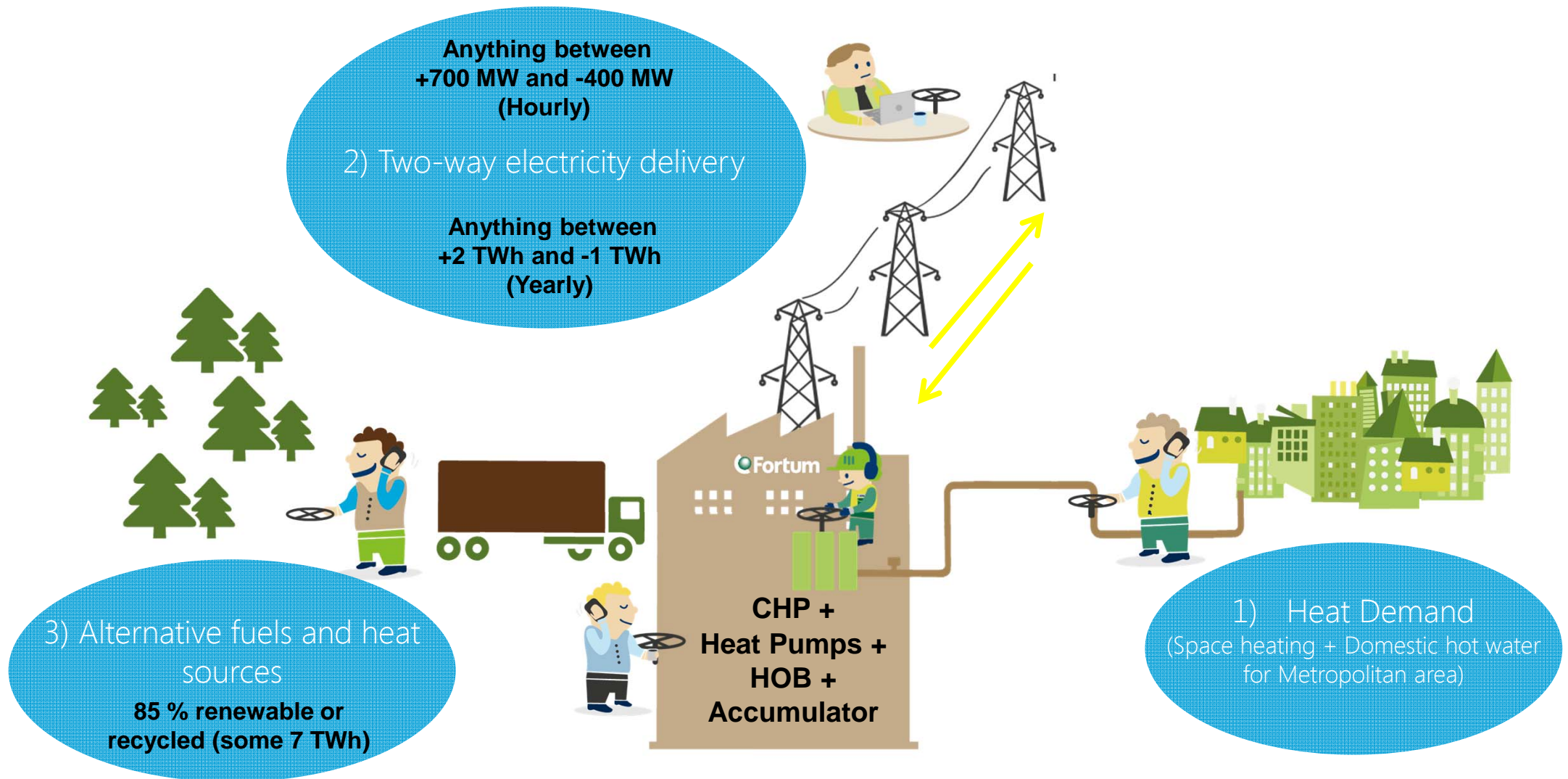
DH provide alternative options to cover heat demand



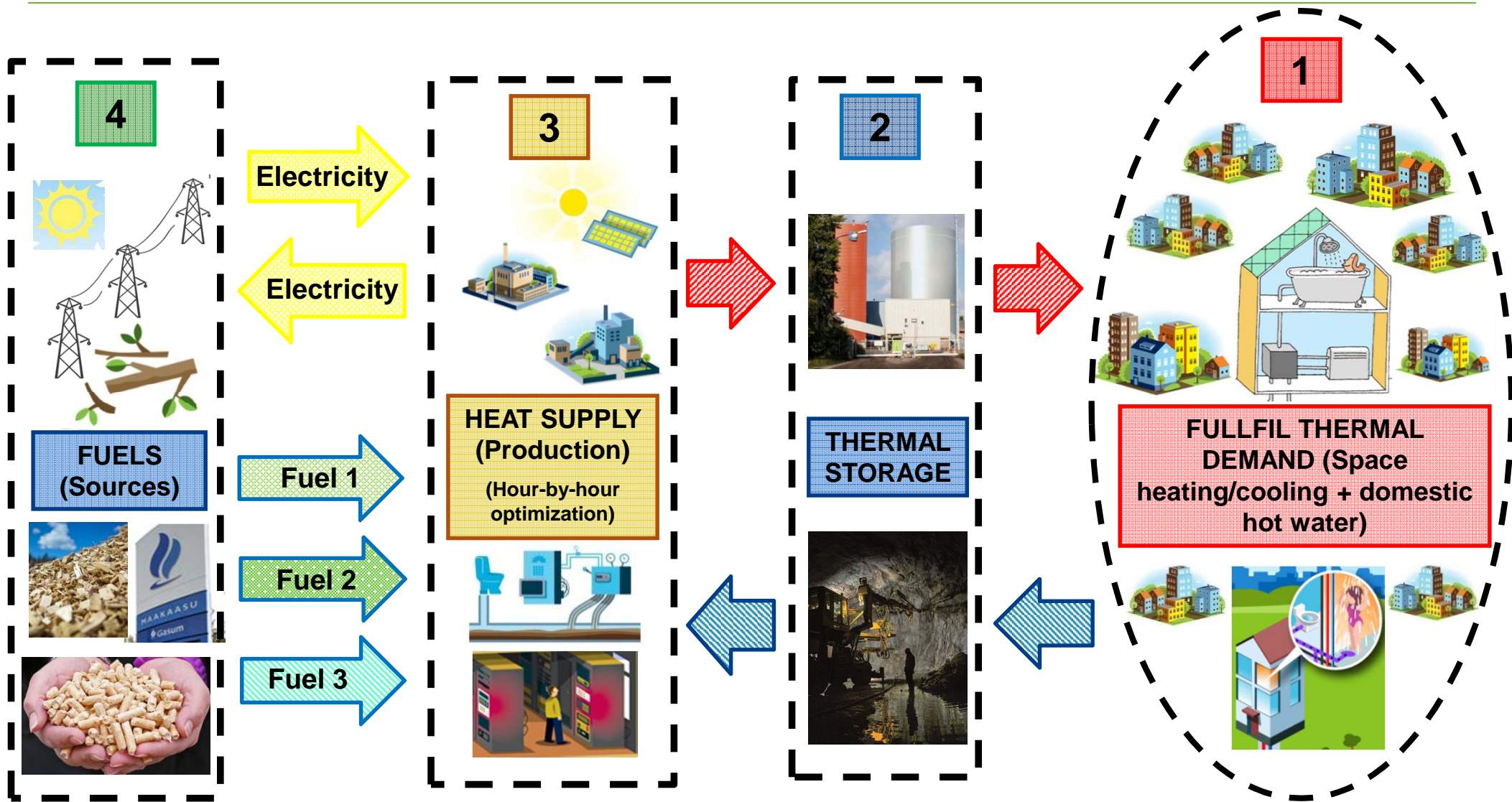
Flexibility to cover heat demand



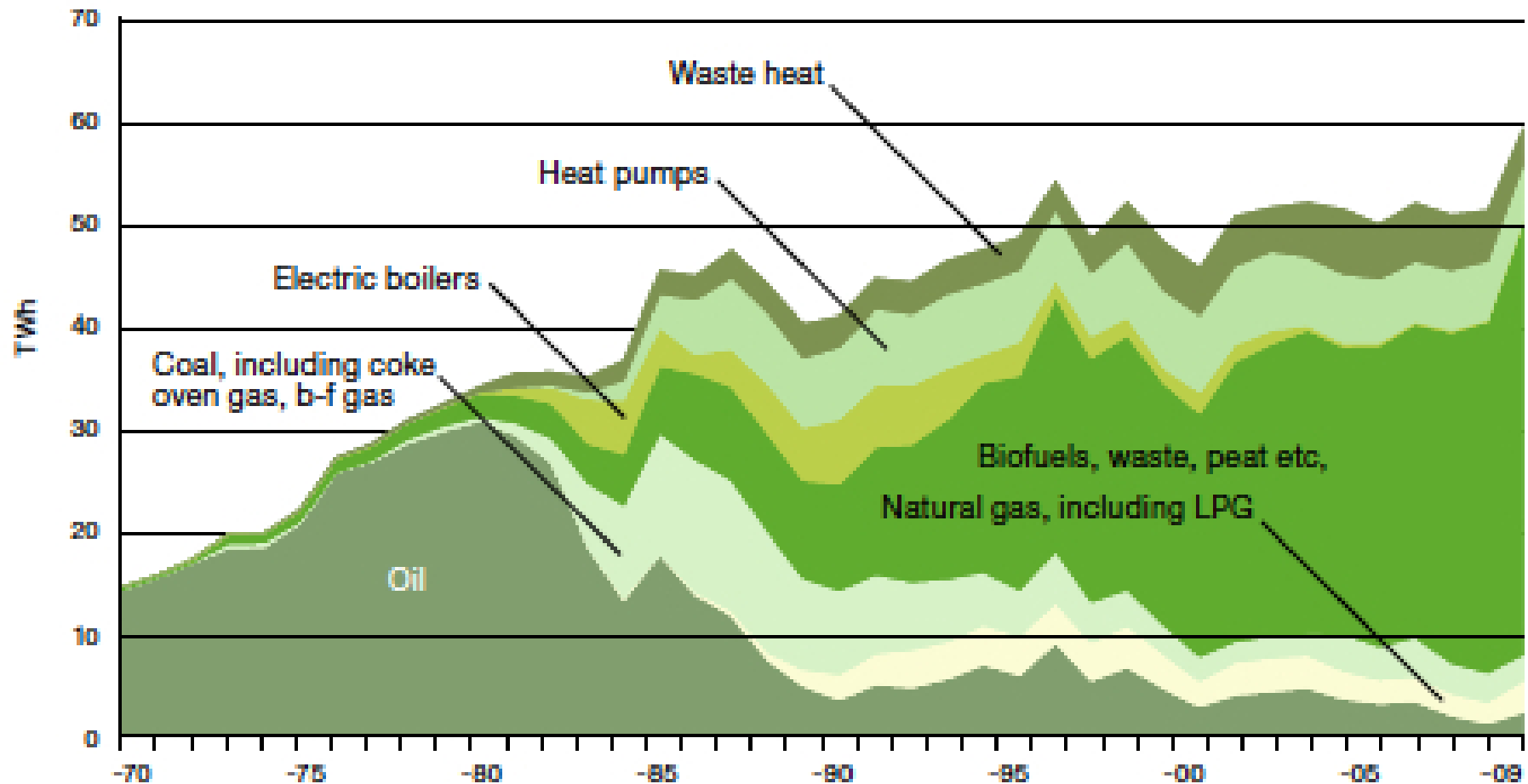
Example: Stockholm



Flexibility in Stockholm (and in other DHC systems)



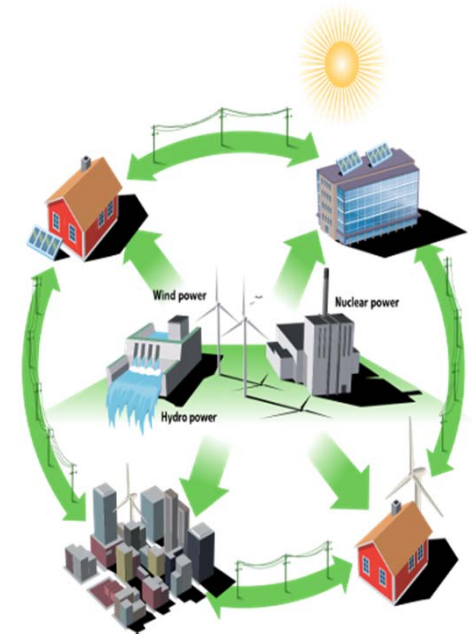
Fuels in Swedish District Heating - history



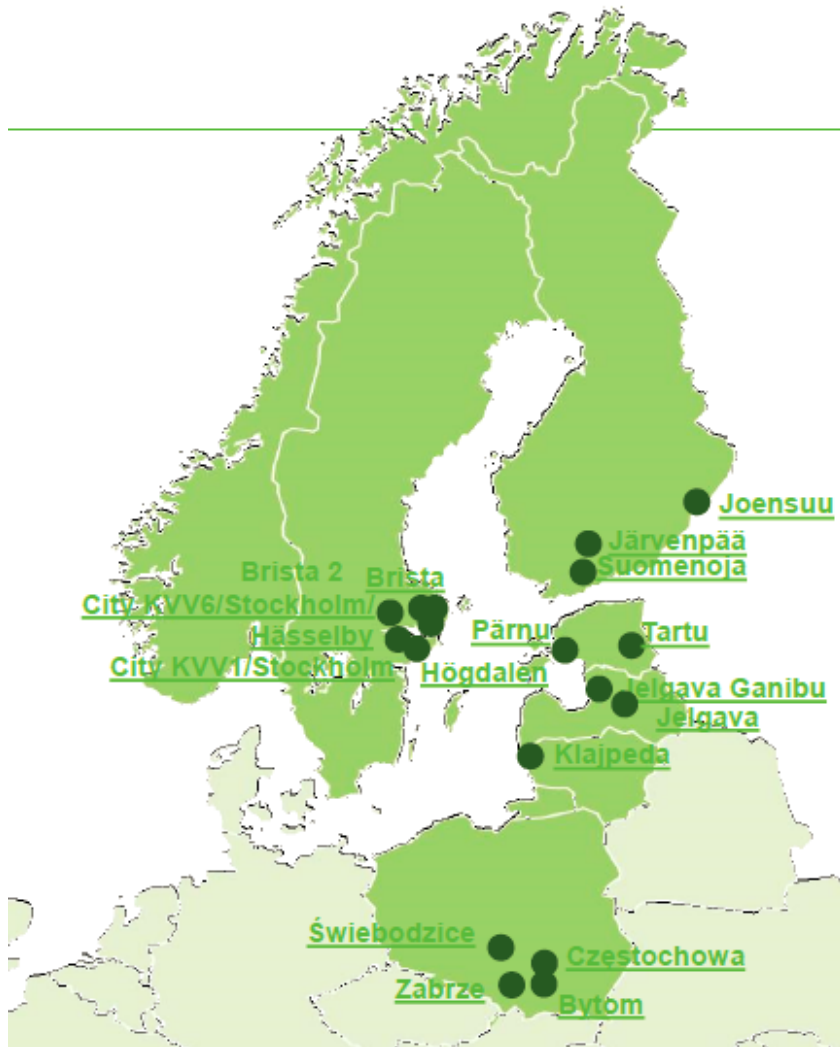
Source: Statistics Sweden and the Swedish Energy Agency

Why DHC is a solution?

1. It's already there – no need to wait something in the future
2. The most cost efficient way to achieve target
3. No specific subsidies or other mechanism needed as long as there is level playing field
4. Technology and solutions are already available
5. Any type of future solutions and technology can be connected to DHC systems



Fortum DH businesses in EU



- Largest biomass user in energy sector in Baltic sea area (more than 5 TWh yearly, quite soon close to 10 TWh, maybe the largest in Europe).
- Largest heat pump producer in Northern Europe. (Maybe largest in Europe)
- Large investment for biomass and waste-to-energy solutions in progress as well as larger utilization of heat pumps

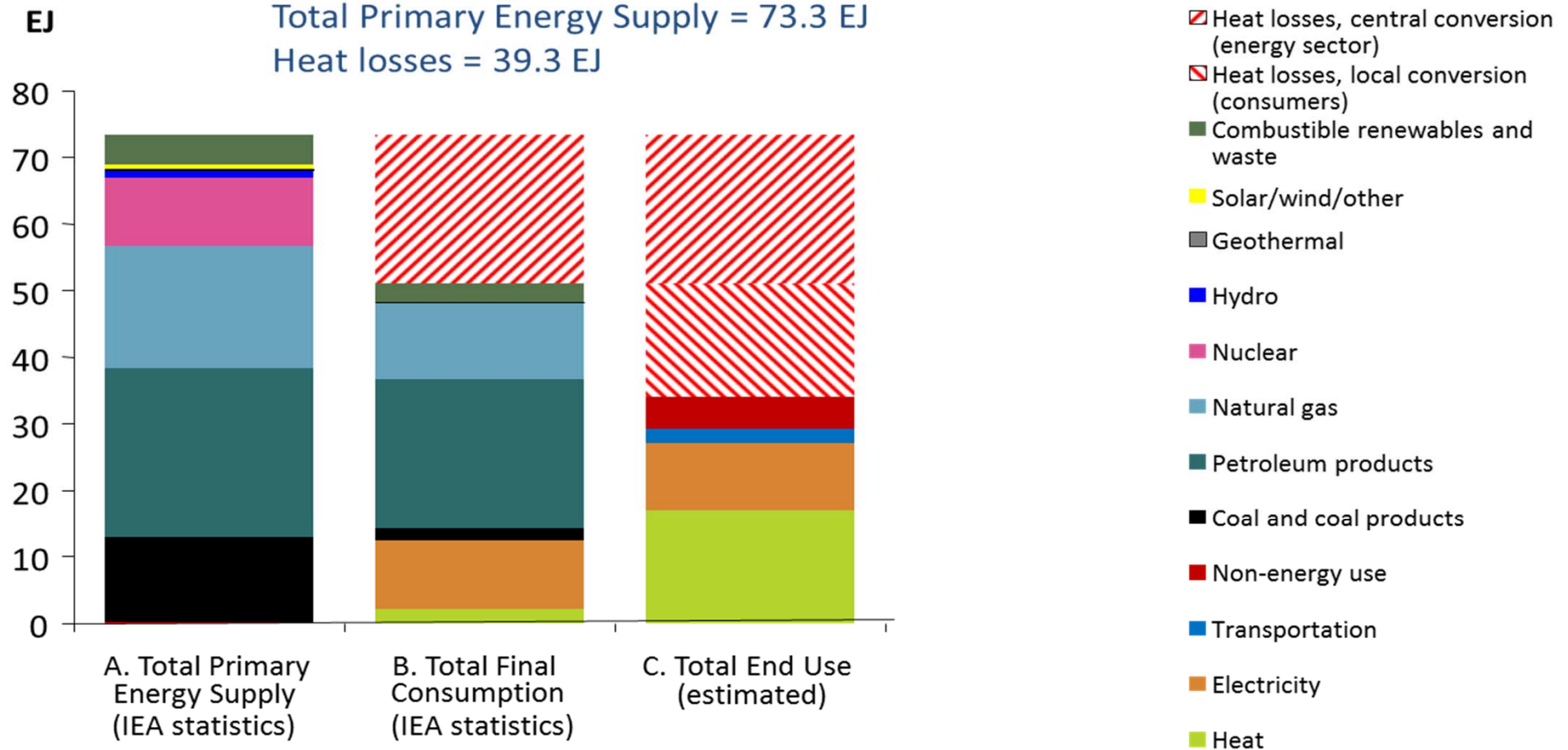
DHC provide biomass utilization and balancing element for renewable electricity in one package

The EU is wasting energy (heat)...

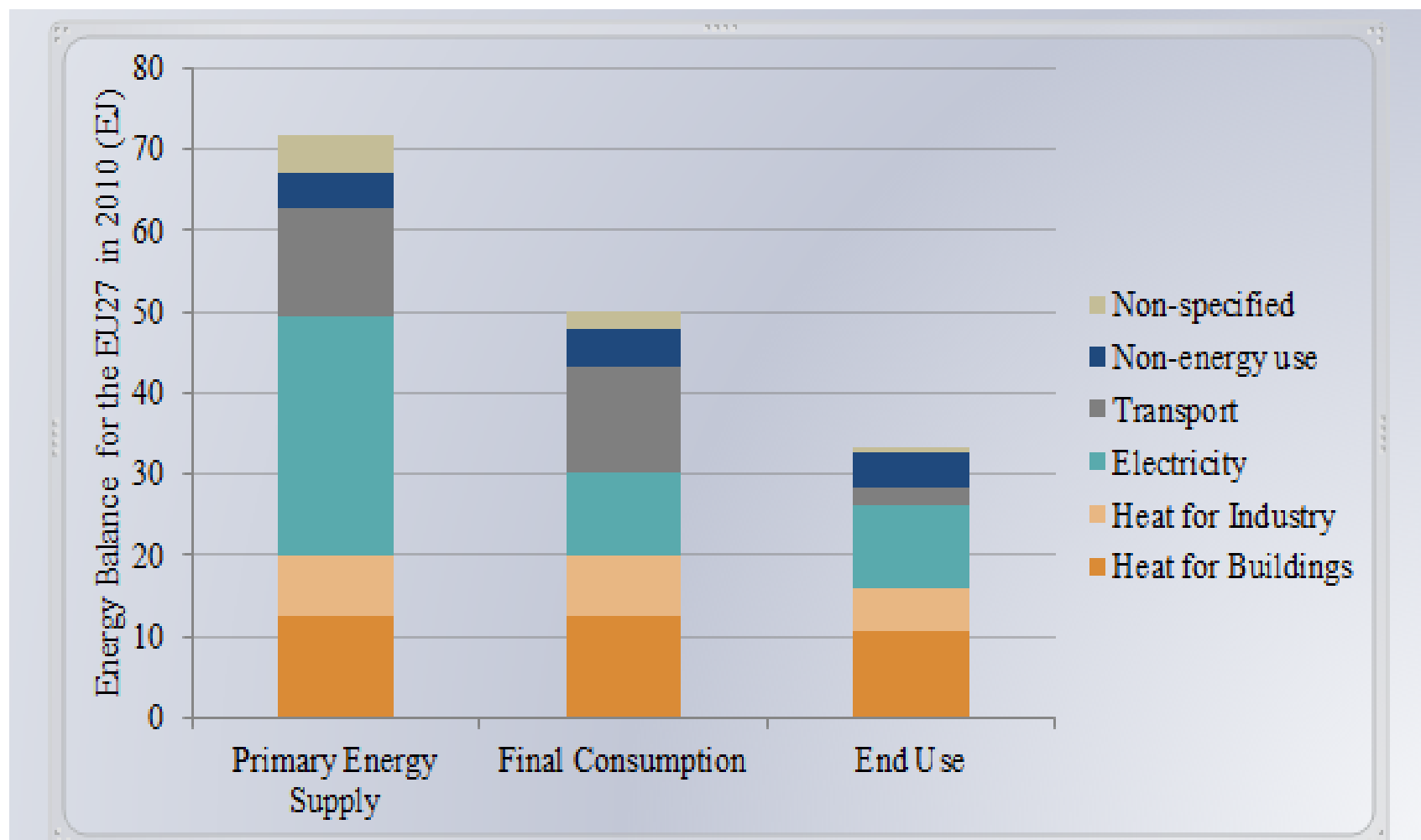
EU 27 during 2008

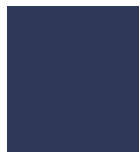
Total Primary Energy Supply = 73.3 EJ

Heat losses = 39.3 EJ



The EU is Wasting Energy...





Heating & Cooling: energy use today



Direct use of Fossil fuels
(gas, oil, coal)



Electricity

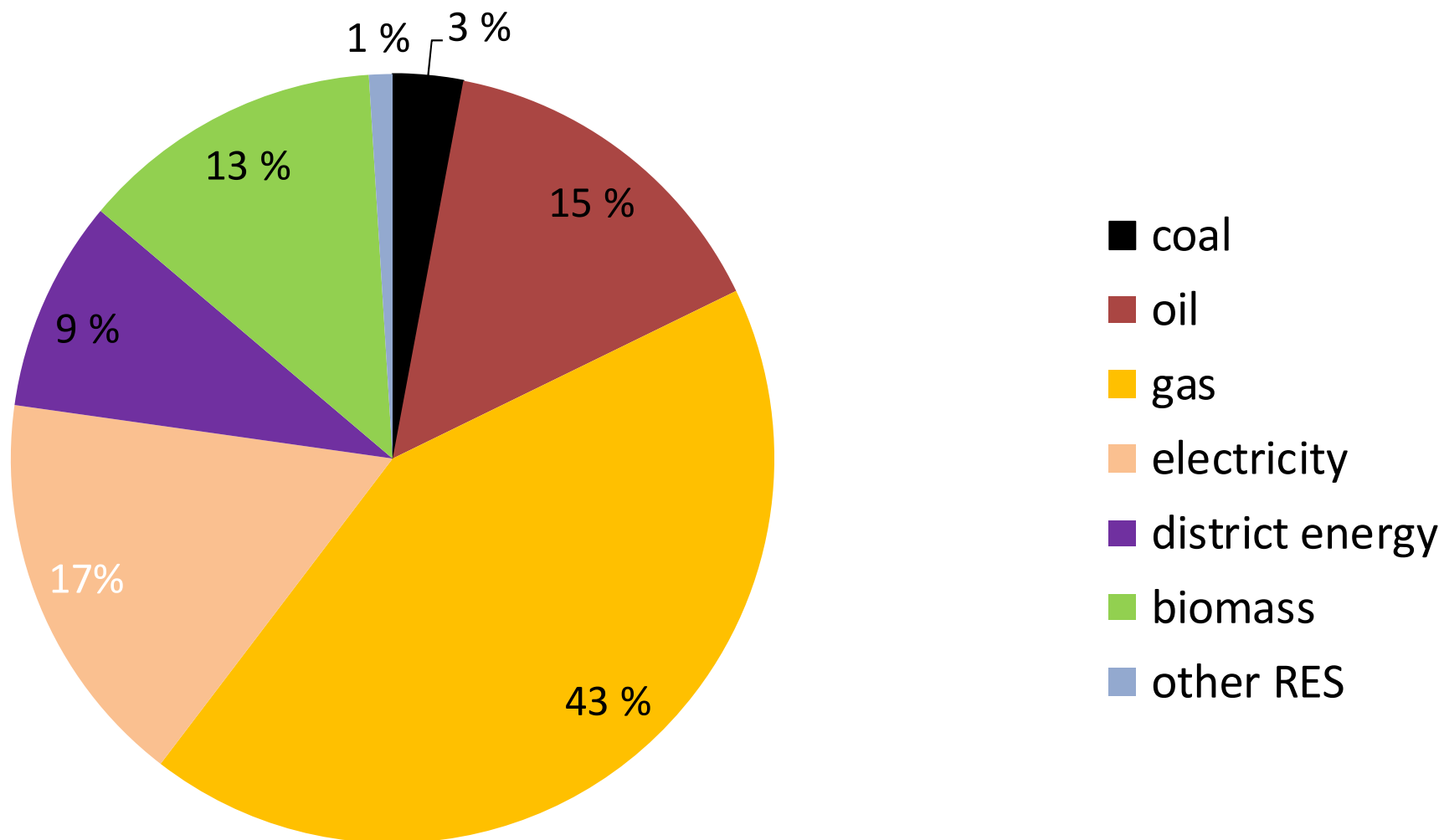


District
Heating



Onsite Renewables

Heat supply to buildings EU27, 2012

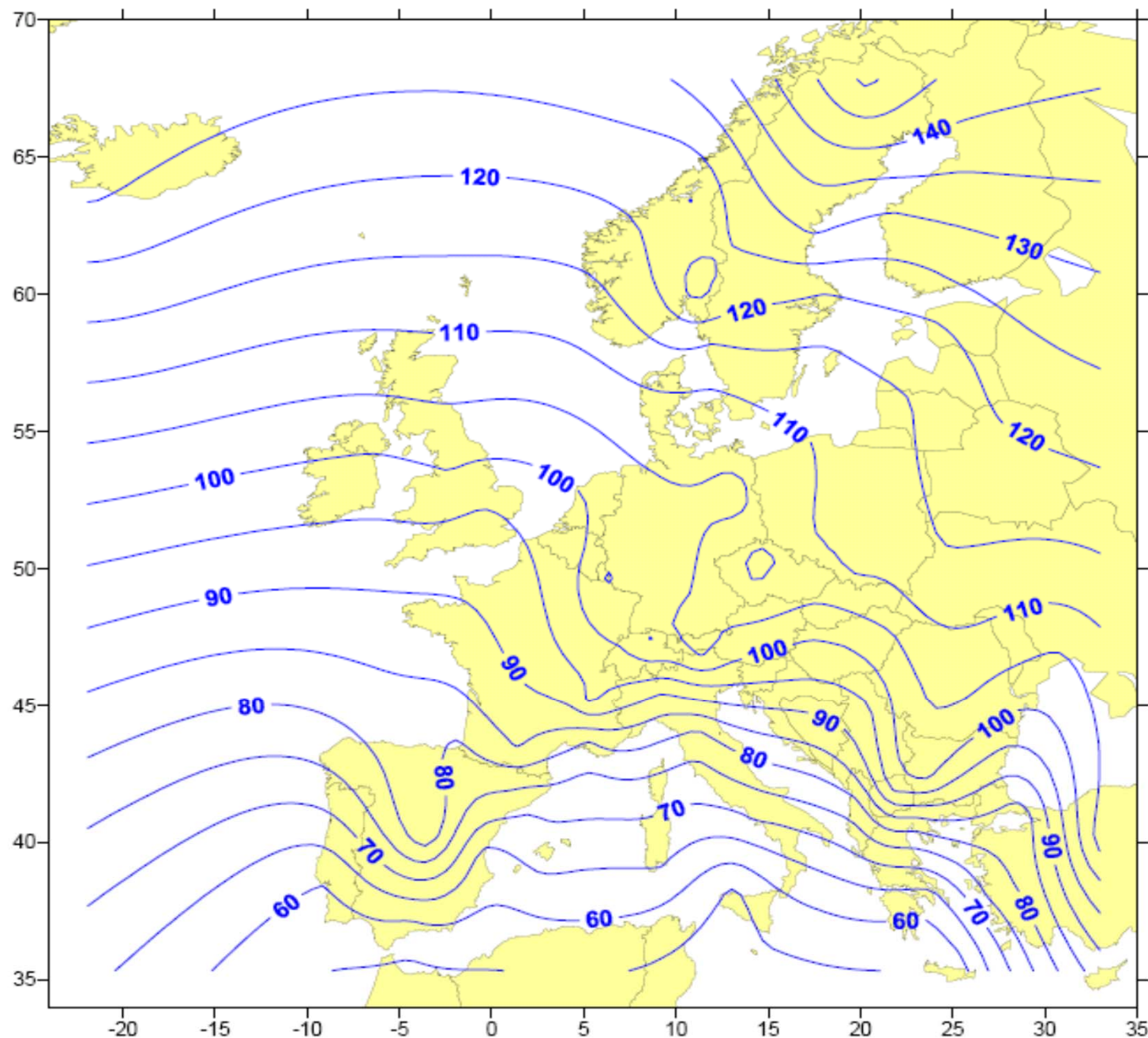


Heating demand in Europe

Helsinki	125
Stockholm	120
Brussels	100
Vienna	100
Bucharest	100
London	95
Bergamo	95
Padova	95
Firenze	80
European average	100

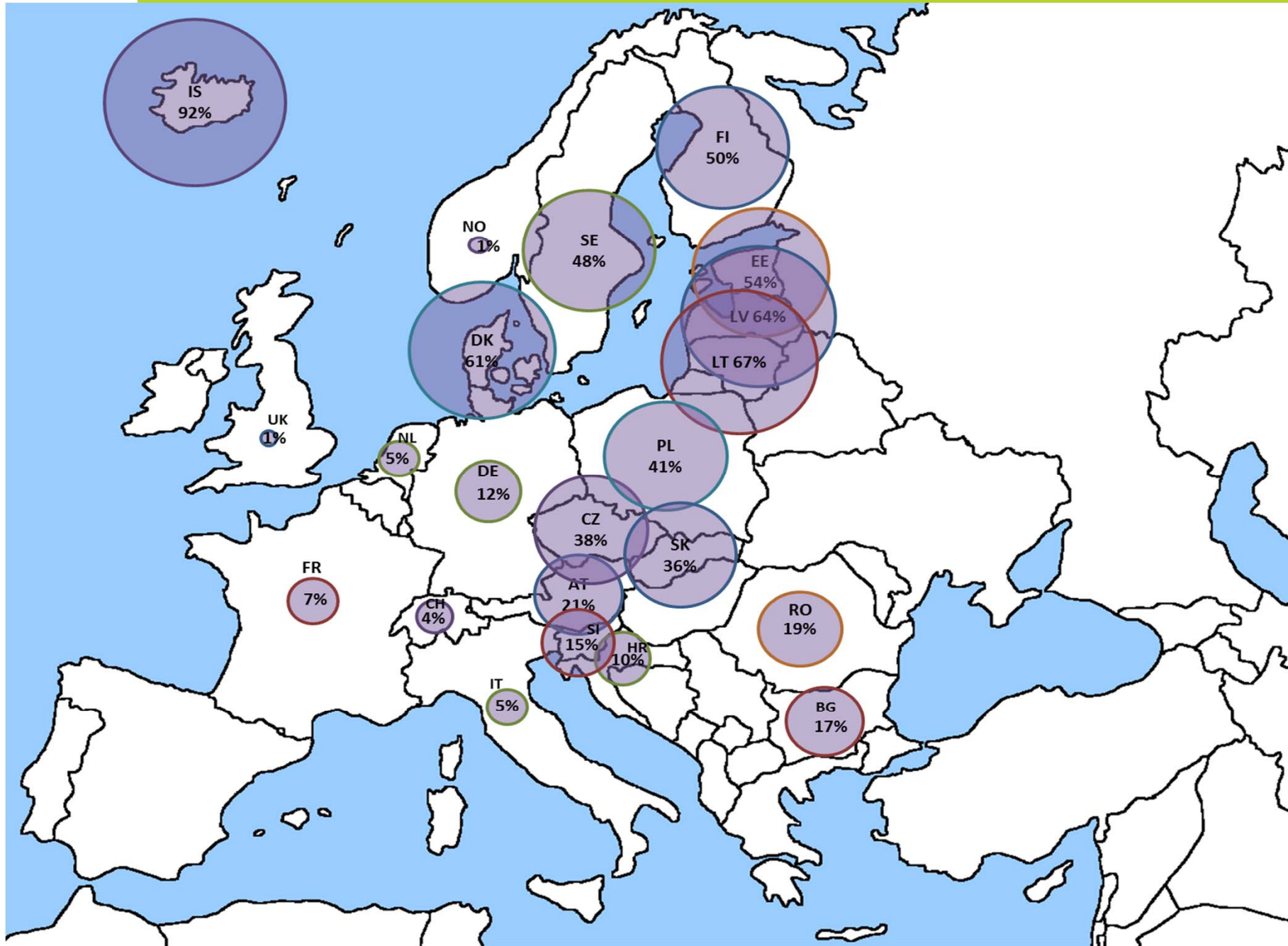
Domestic hot water generate equal demand year around in every location

Total difference between North and South is 20-30 %

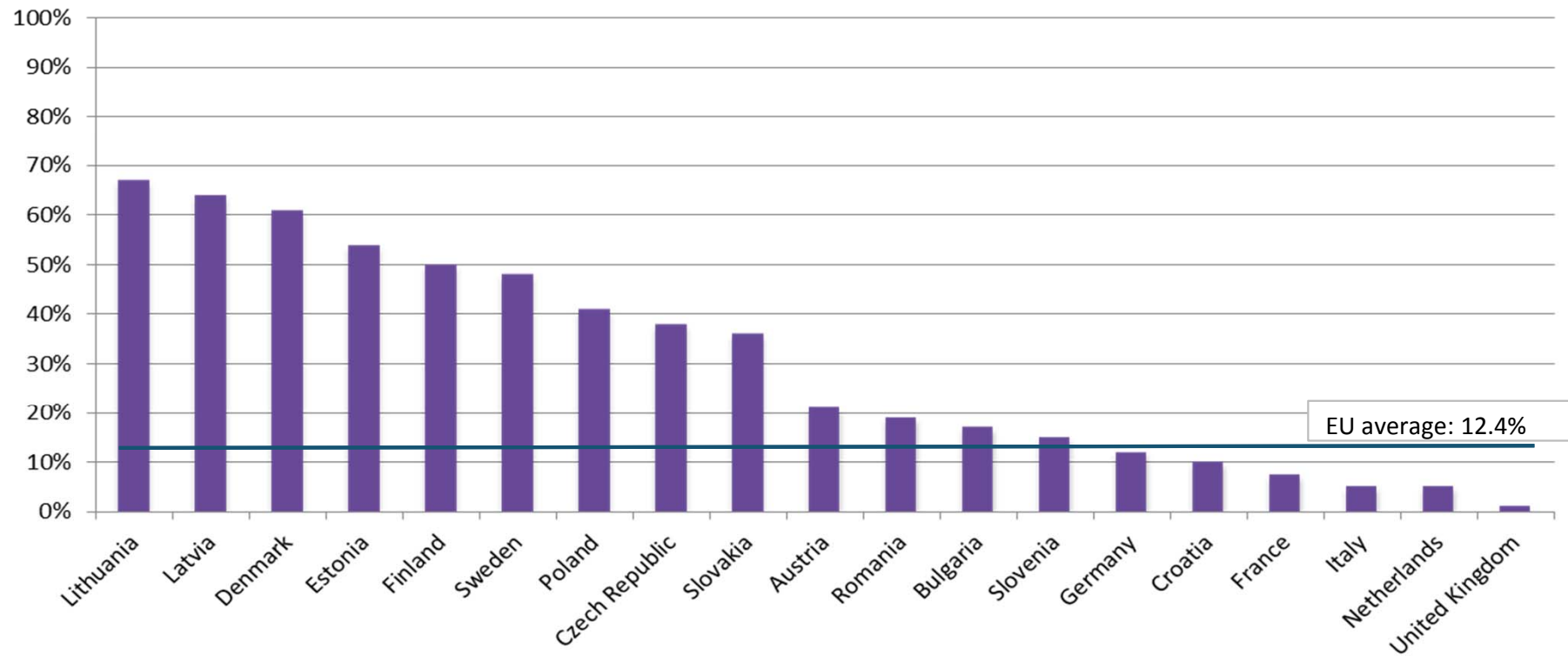




**EUROHEAT
& POWER**



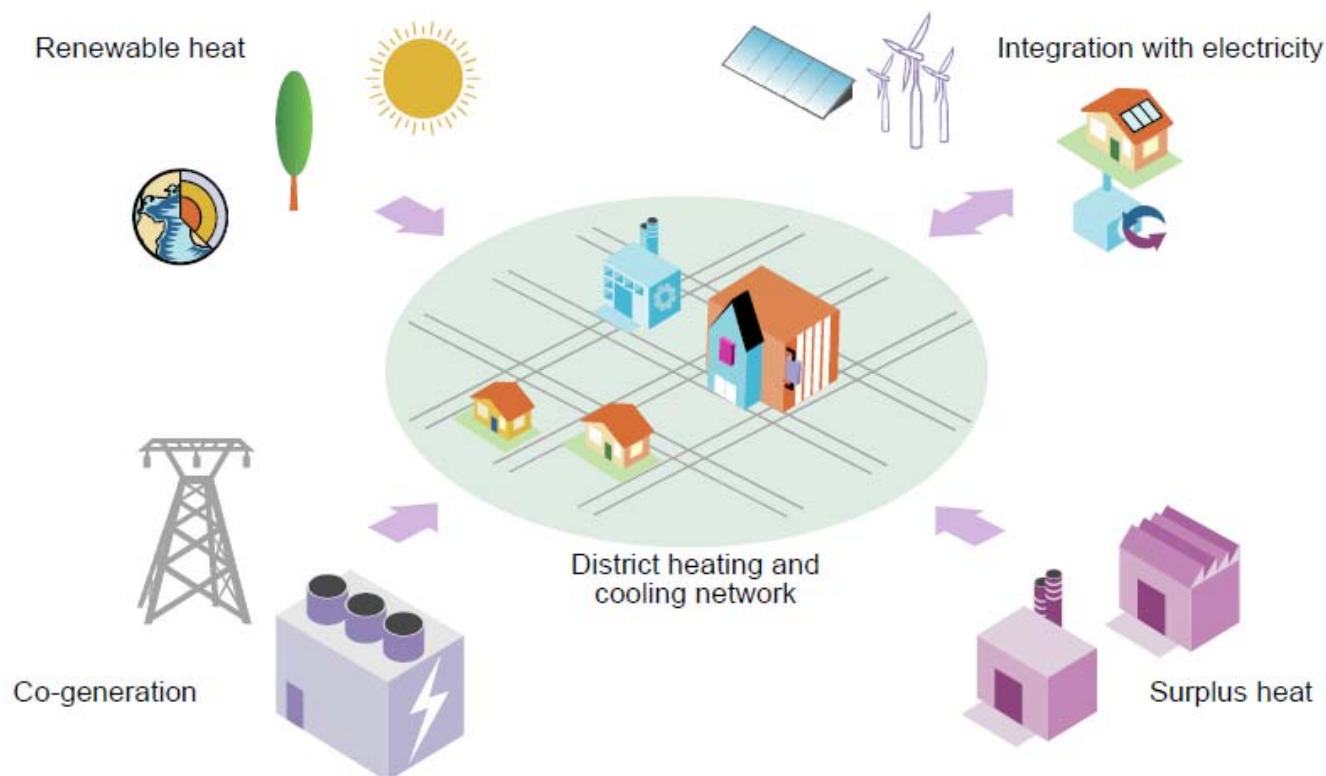
Share of citizens served by District Heating in EU countries (in 2011)



Source: Euroheat & Power (DHC Country by Country survey 2013)

Heating & Cooling: huge potential

ETP
2012



*Heating and cooling account for 46% of global energy use.
Their huge potential for cutting CO₂ emissions is often neglected.*