

Renewable heating and cooling technologies biomass, geothermal and solar thermal

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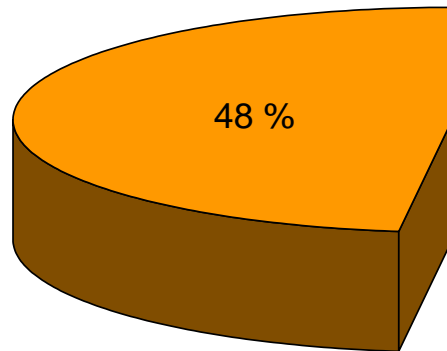


Heat is half of the problem!

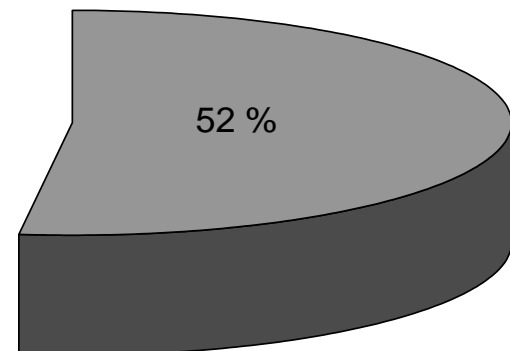
In 2007, a share of 48 % of the final energy consumption in EU 27 was in the form of heat.

Heat accounted for:

- 86 % of the final energy consumption in households,
- 76 % in commerce, services and agriculture
- 55 % in industry.



Heat

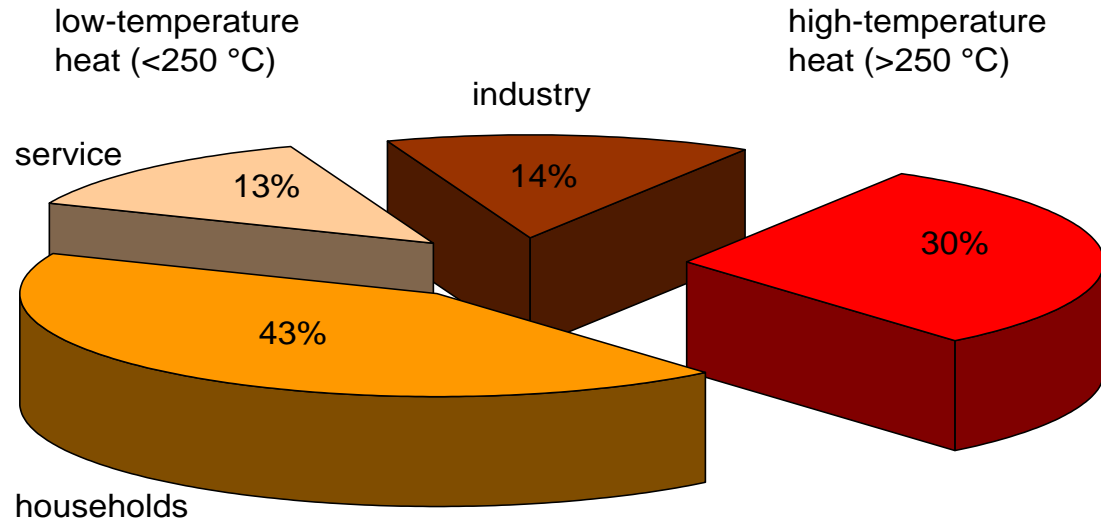


other



Heating main features as an energy

- must be supplied close to demand (decentralised or local network)
- must be supplied at the required temperature (low-medium-high)
- Load profile specific to end user



H&C = 81% of energy consumption in a house

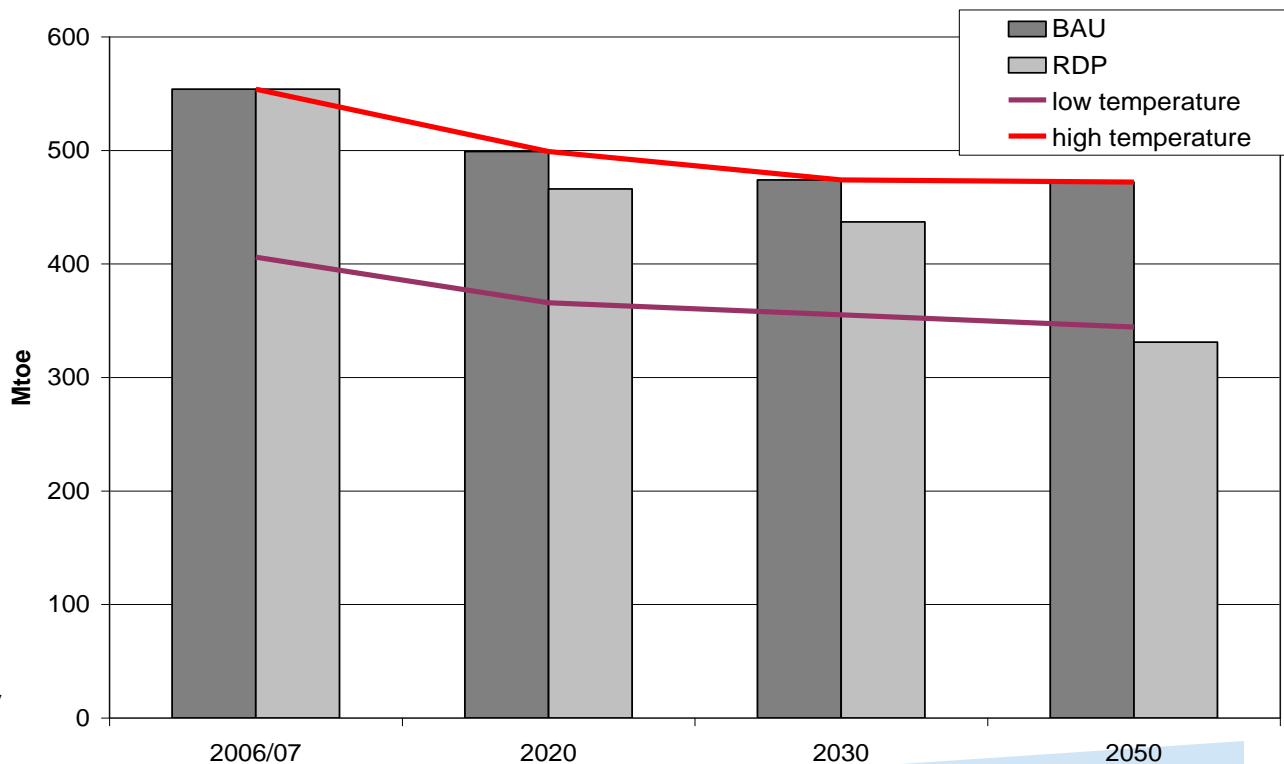
Evolution of heat demand

Despite growth (economic-demographic) and an increasing demand for comfort, the heat demand is expected to decrease due to efficiency gains.

Distinction between low and high (>250 °C) temperature heat (in BAU)

BAU:
Business as usual

RDP:
Full R&D and Policy driven



Renewable Energy for Heating and Cooling

The Directive 2009/28/EC on the promotion of the use of energy from renewable sources states in art. 2:

The following definitions also apply:

a) 'energy from renewable sources' means energy from renewable non- fossil sources, namely wind, solar, aero thermal, geothermal, hydro-thermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases;

Of the renewable energy sources listed, only some technologies provide heating and cooling :

- solar thermal
- biomass
- geothermal
- aero/hydrothermal
(with the use of heat pumps)

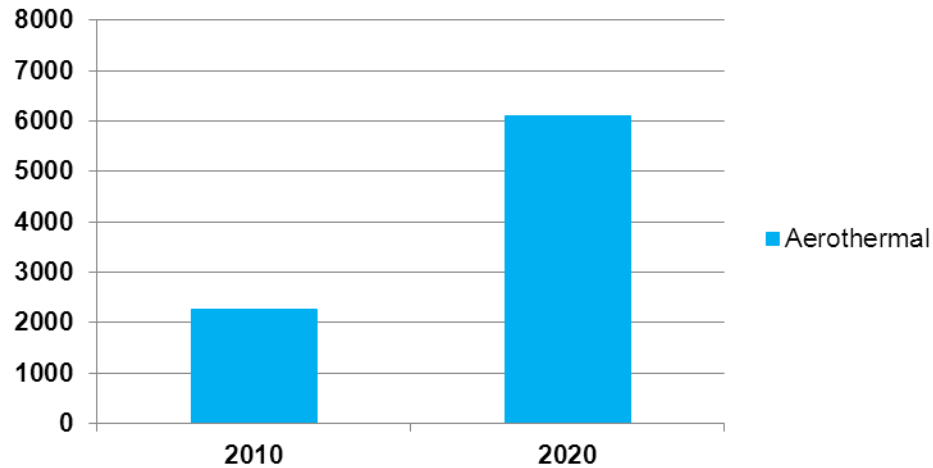


The renewable heat technologies

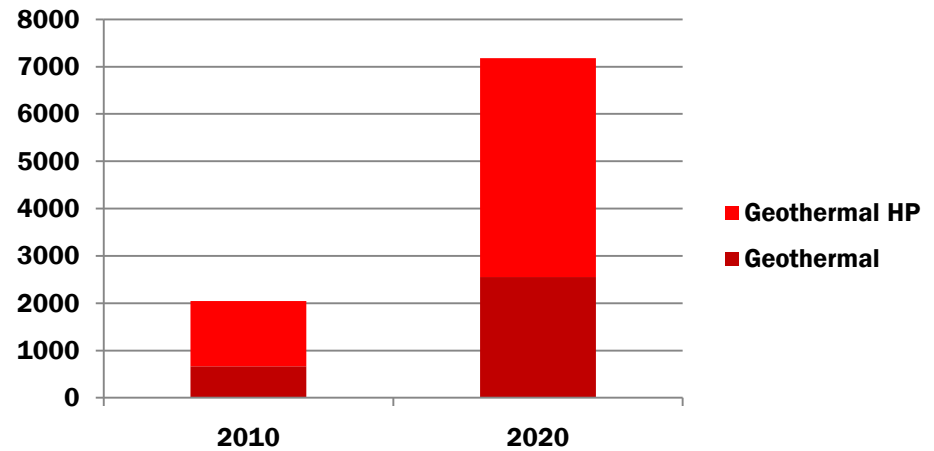


RES Heating & Cooling in the NREAPs

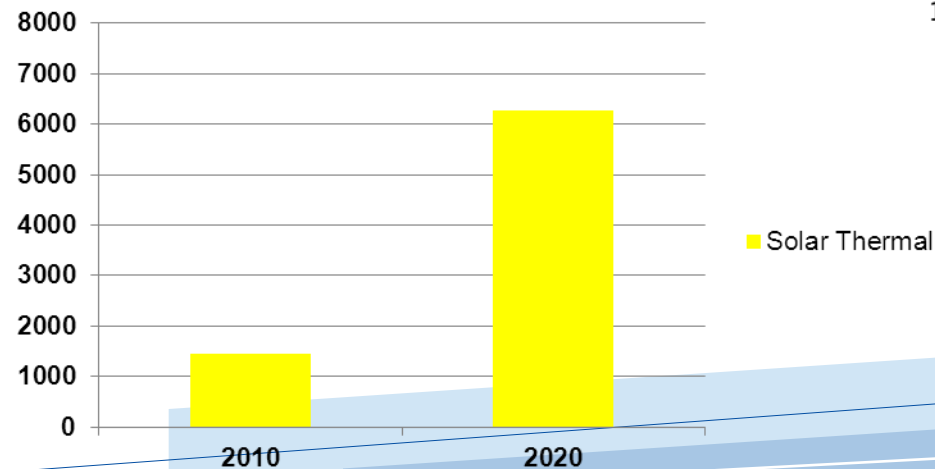
Aerothermal



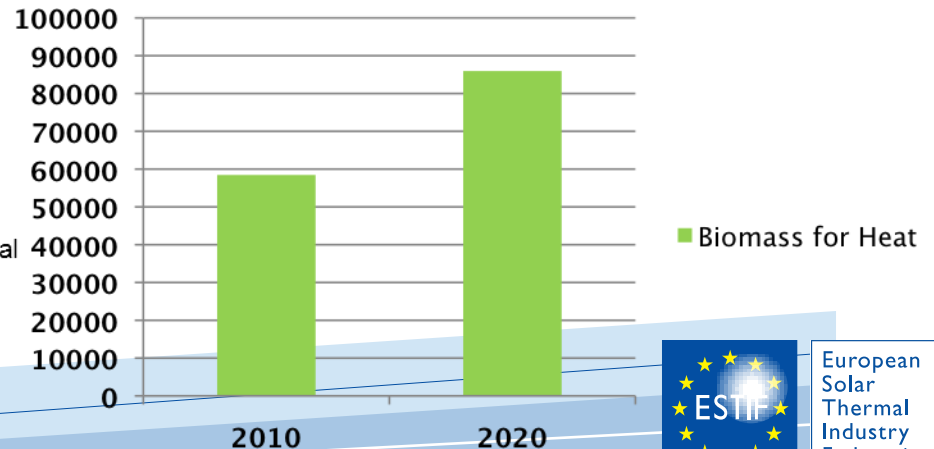
Geothermal



Solar Thermal



Biomass for Heat



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Common issues for the RHC sector

- The market for renewable heating and cooling is of different nature than the one for electricity; it is decentralised, with many diverse player, there are no ‘utilities”, it does not require the same infra structure (except District heating).
- The non-technical issues can be classified as:
 - Policy and Legislation
 - Stimulation/financial support
 - Standardisation and certification
 - Training/installation
 - Communication
- Electrification of heat



Thank you for your attention



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