

CROSS-BORDER WASTE HEAT VALORISATION

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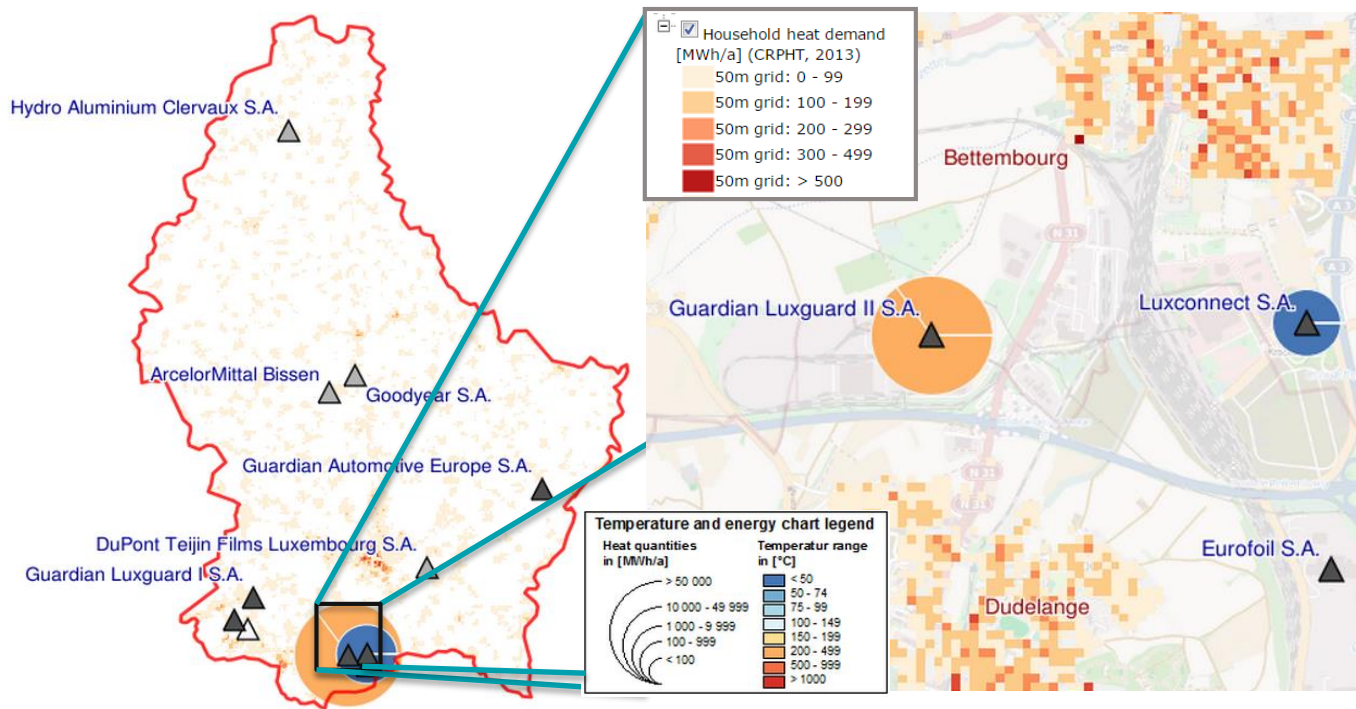
EU DIRECTIVE ON ENERGY EFFICIENCY (27/2012)

- ‘Efficient district heating and cooling’ : **district heating or cooling system** using at least 50 % renewable energy, **50 % waste heat**, 75 % cogenerated heat or 50 % of a combination of such energy and heat
- [...] Member States shall take **adequate measures** for efficient district heating and cooling infrastructure to be developed and/or **to accommodate** the development of high-efficiency cogeneration and **the use of heating and cooling from waste heat** [...]
- Member States shall ensure that a **cost-benefit analysis** [...] is carried out when [...] an **industrial installation** [...] exceeding 20 MWth generating waste heat at a useful temperature level is planned or substantially refurbished, in order to **assess the cost and benefits of utilising the waste heat** [...]

REGIONAL WASTE HEAT REUSE

Challenges

- **Limited data availability**
 - Confidentiality problems concerning company data
 - Data protection issues concerning households
 - GIS and statistical data scarce, when available
- **Integrated approach required**
 - Valorisation scenario complex due to large number of actors



REGIONAL WASTE HEAT REUSE

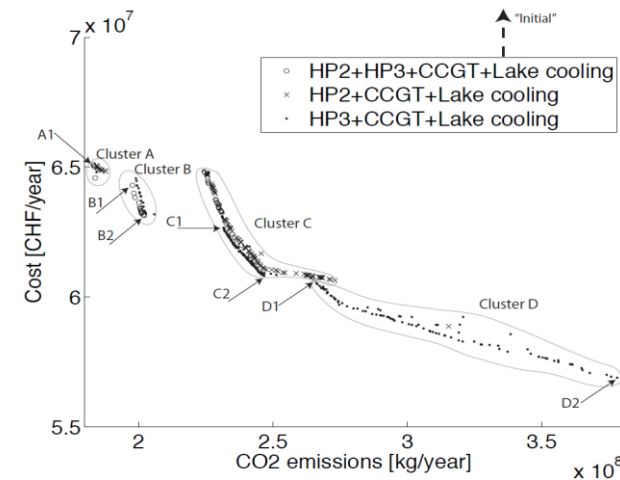
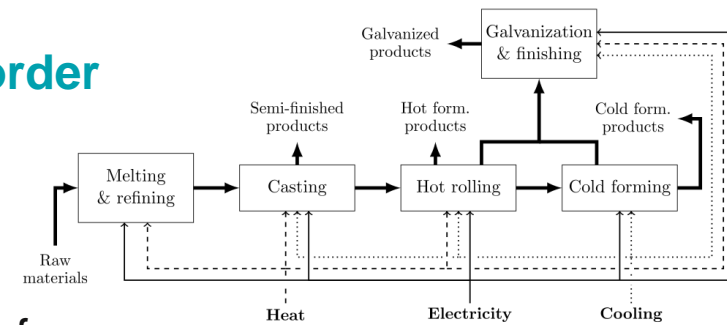
Proposition

- Overall objective:

- Improve energy efficiency and reduce greenhouse gas emissions at regional level by valorisation industrial waste heat, **considering cross-border exchange**

- Tasks addressed:

- Development of energy consumption models of industries and buildings for georeferenced data generation
- Assessment of internal heat recovery potential and related costs per site
- Development of regional waste heat recovery concepts using multi-objective, math. optimisation methods (MILP, evolutionary algorithm) minimising costs, energy consumption and greenhouse gas emissions



Thank you for your attention

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