



2050

Heat Roadmap Europe
A low-carbon heating and cooling strategy

Welcome !

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 695989.

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A low-carbon heating and cooling strategy

HRE for Europe and the Netherlands

Susana Paardekooper

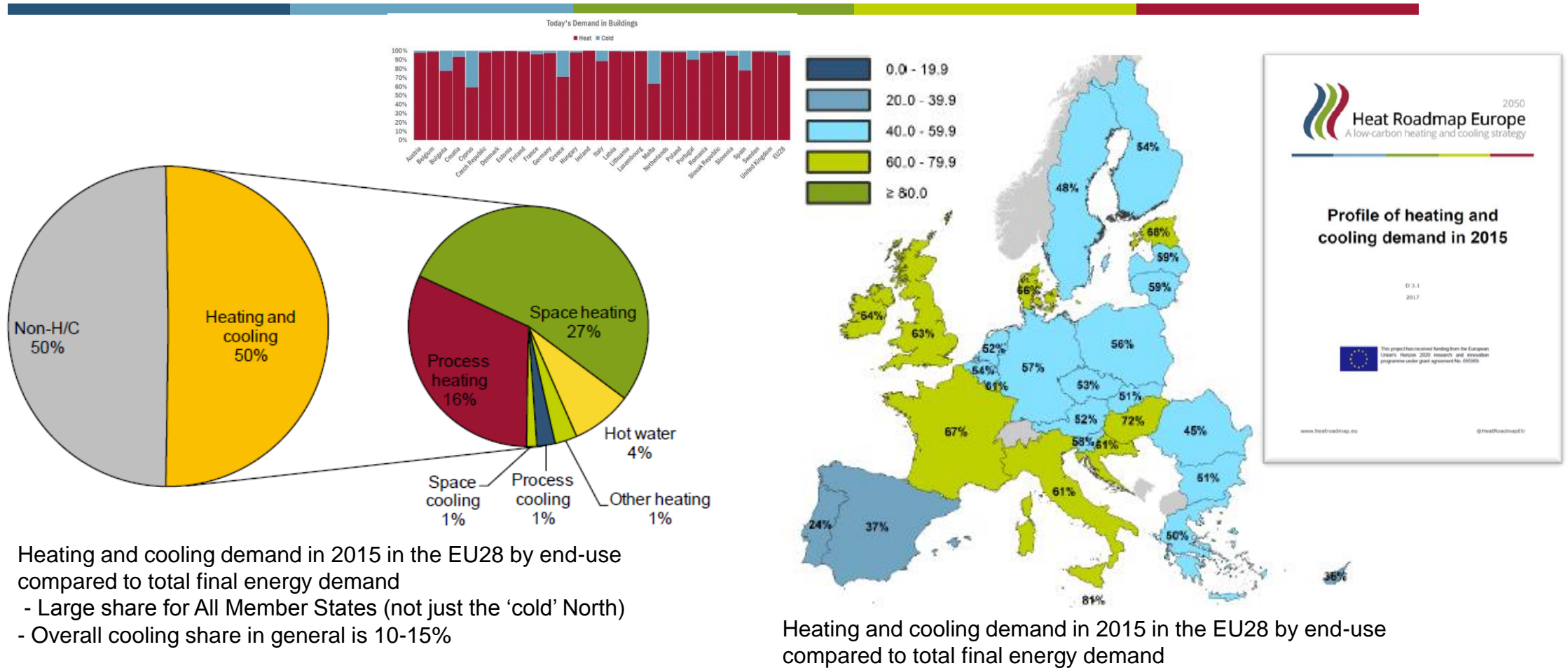


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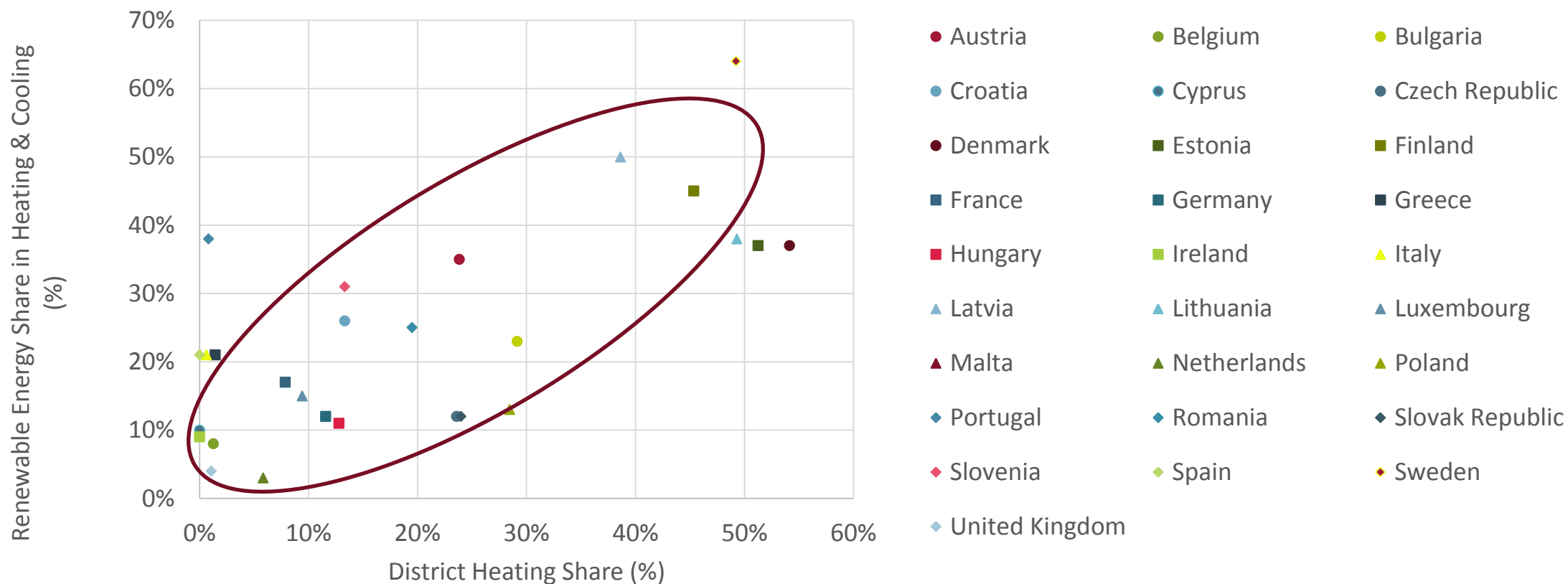
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Heating is crucial



Renewable H/C vs. DH



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HRE1, 2, 3

- Study 1 (2012): will **district heating** play a role in the decarbonisation of the European energy system?
- Study 2 (2013): what is the balance between **heat savings and heat supply** at an EU level?
- Study 3 (2015, STRATEGO WP2): low-carbon **heating and cooling strategies** for 5 member states
- Study 4 (2016-2019): integrated low-carbon **heating and cooling strategies** for 14 member states



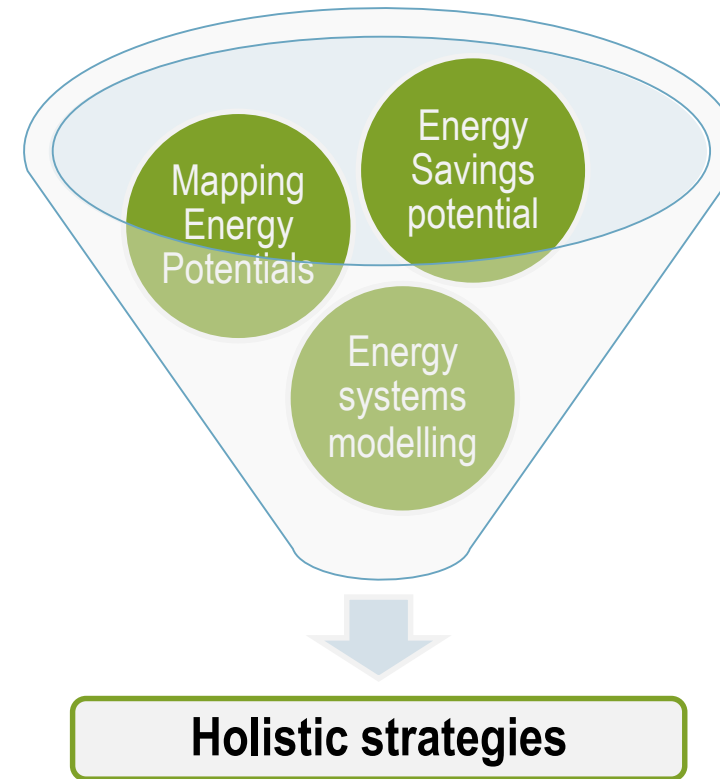
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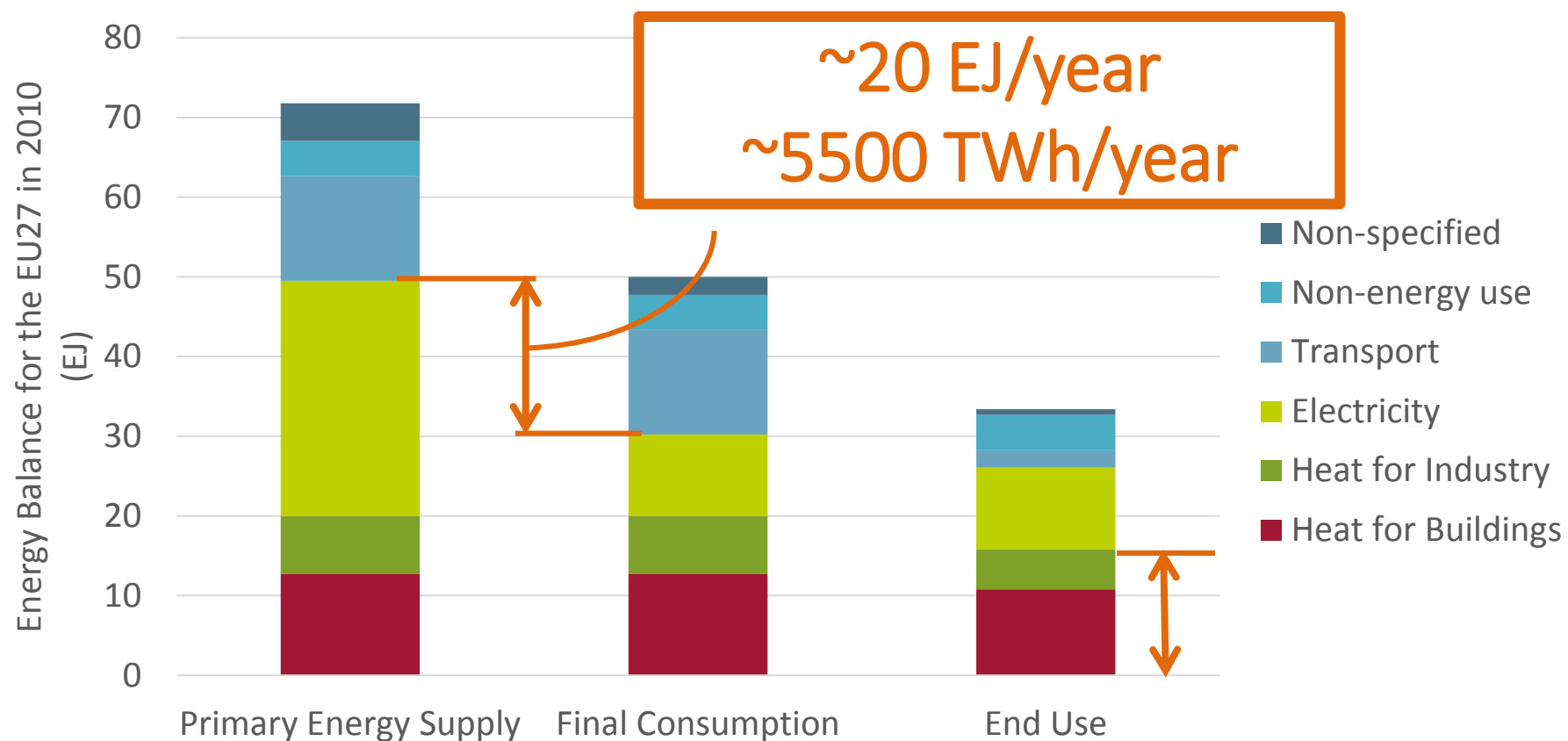
HRE Approach

- Energy mapping
- Energy system modelling
 - Integration of sectors to assess impact on whole energy system



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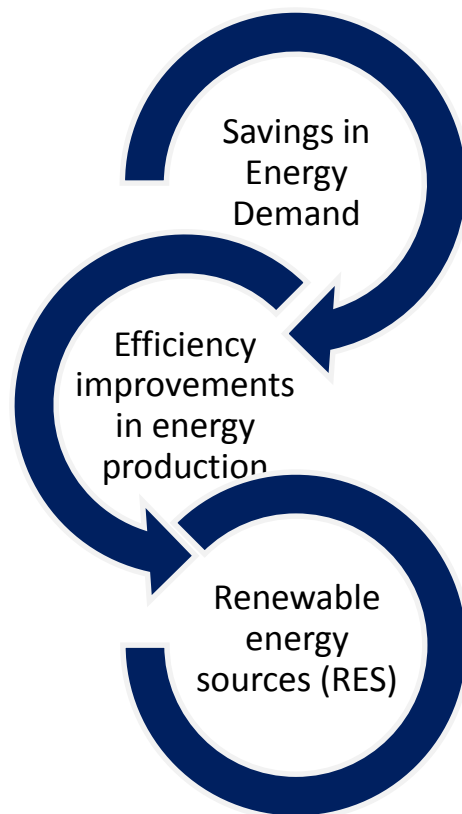
Conversion losses



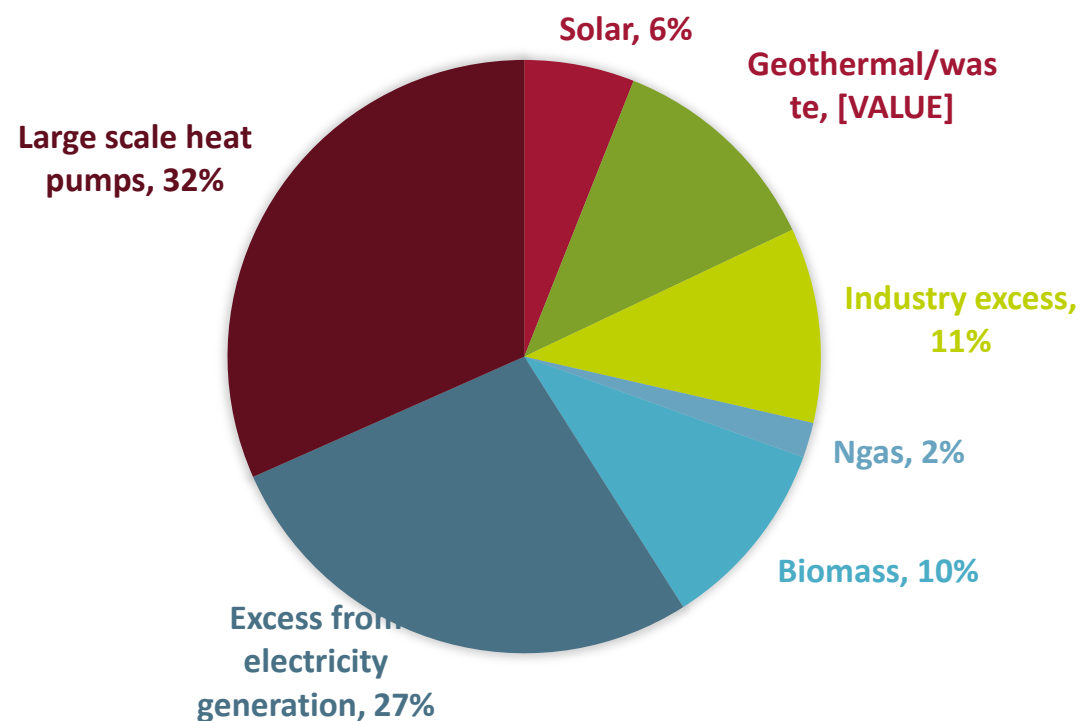
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Renewables



4. FINAL CONSUMPTION IN DH HRE2050



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Key recommendations

Everywhere

Heat Savings

Balance Savings vs. Supply

30-50% Total Reduction

Urban Areas

District Heating Networks

High Heat Density Areas

Supply ~50% of the Heat Demand

Rural Areas

Primarily Electric Heat Pumps

Smaller Shares of Solar Thermal & Biomass Boilers

Remaining ~50% of the Heat Demand



Our purpose in HRE4

- Creating scientific **evidence** to support long-term energy strategies at local, national, and EU level and empower the transition to a low-carbon energy system
- By **quantifying** the impact of various alternatives for addressing the heating and cooling sectors



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So what about here?

- Energy mapping
- Analysis of heat demands
- The energy system
- Market uptake



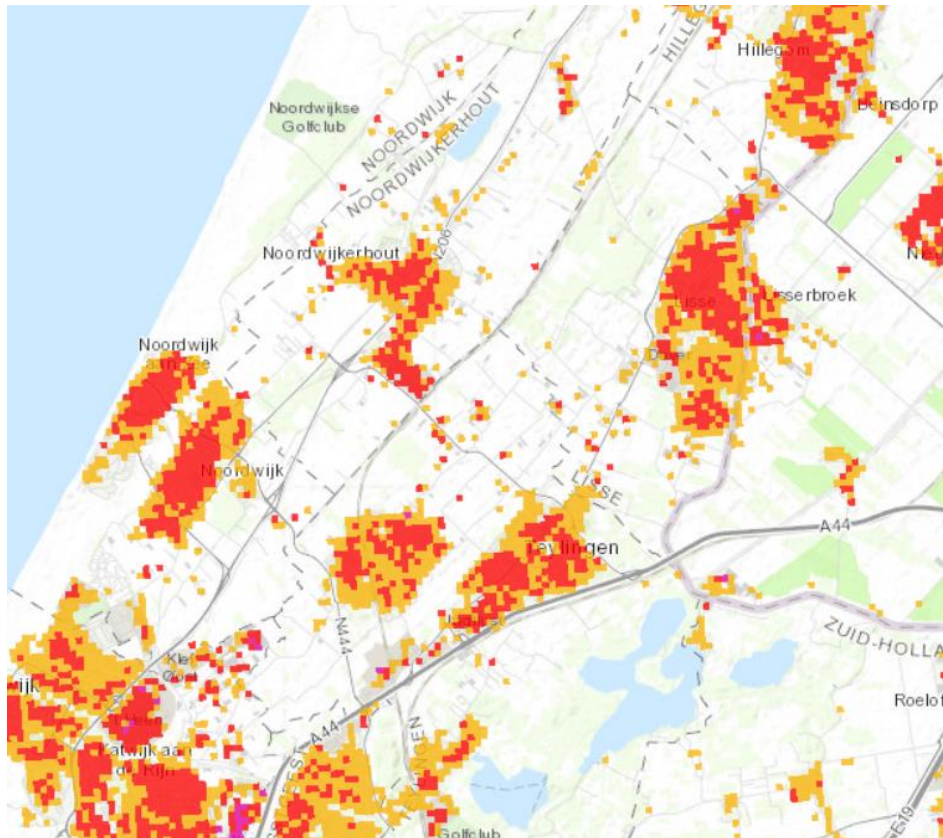
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Energy mapping

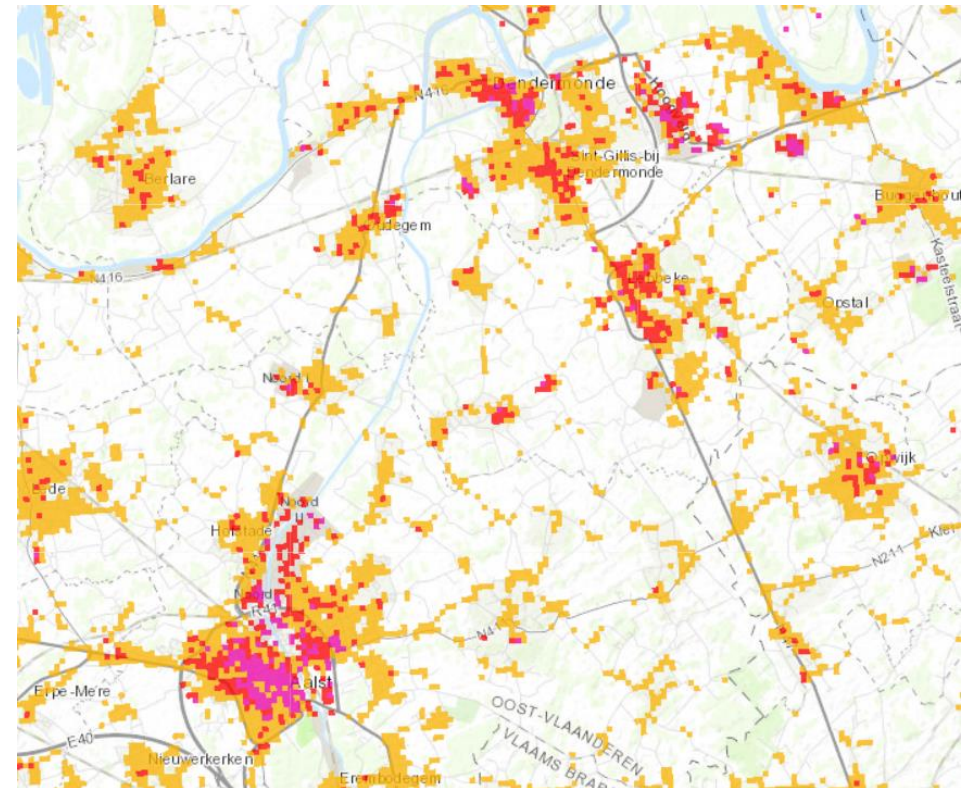


Energy mapping and planning

Bollenstreek (NL)



Aalst/Denderleeuw (BE)



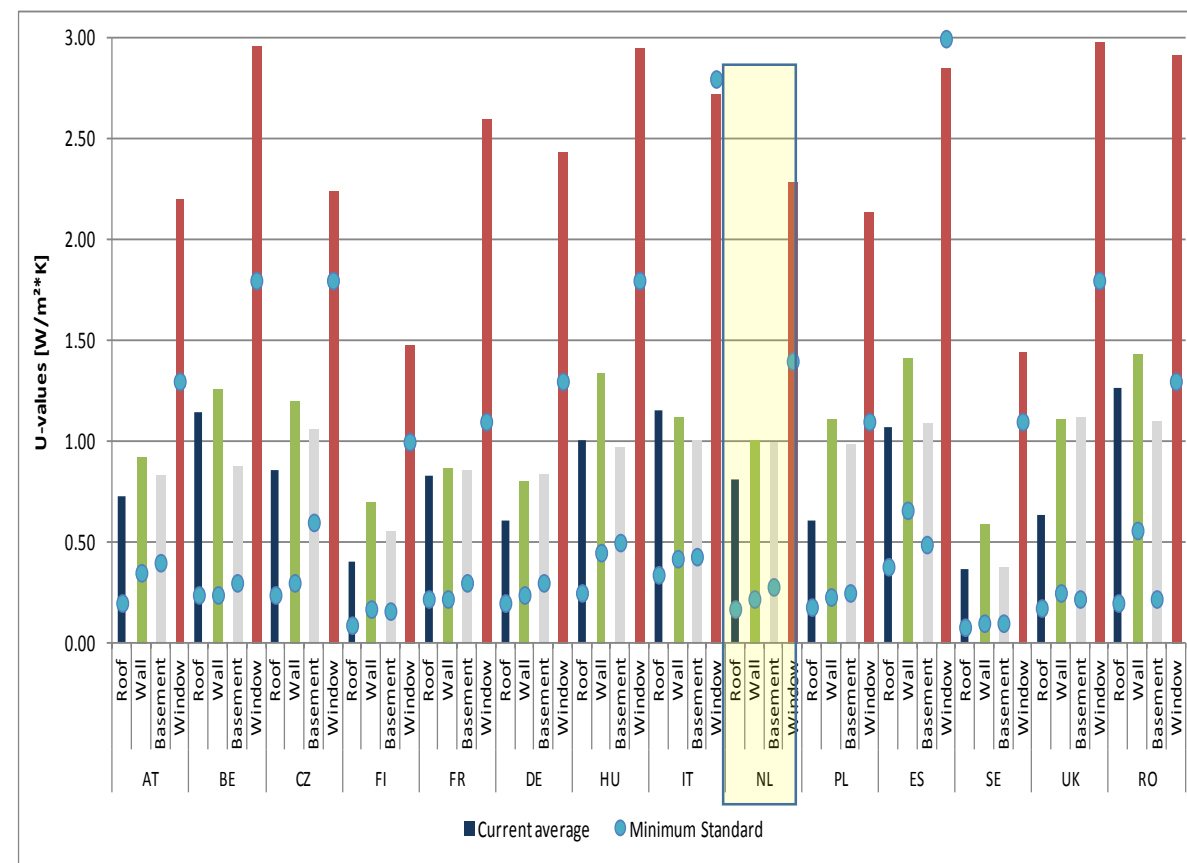
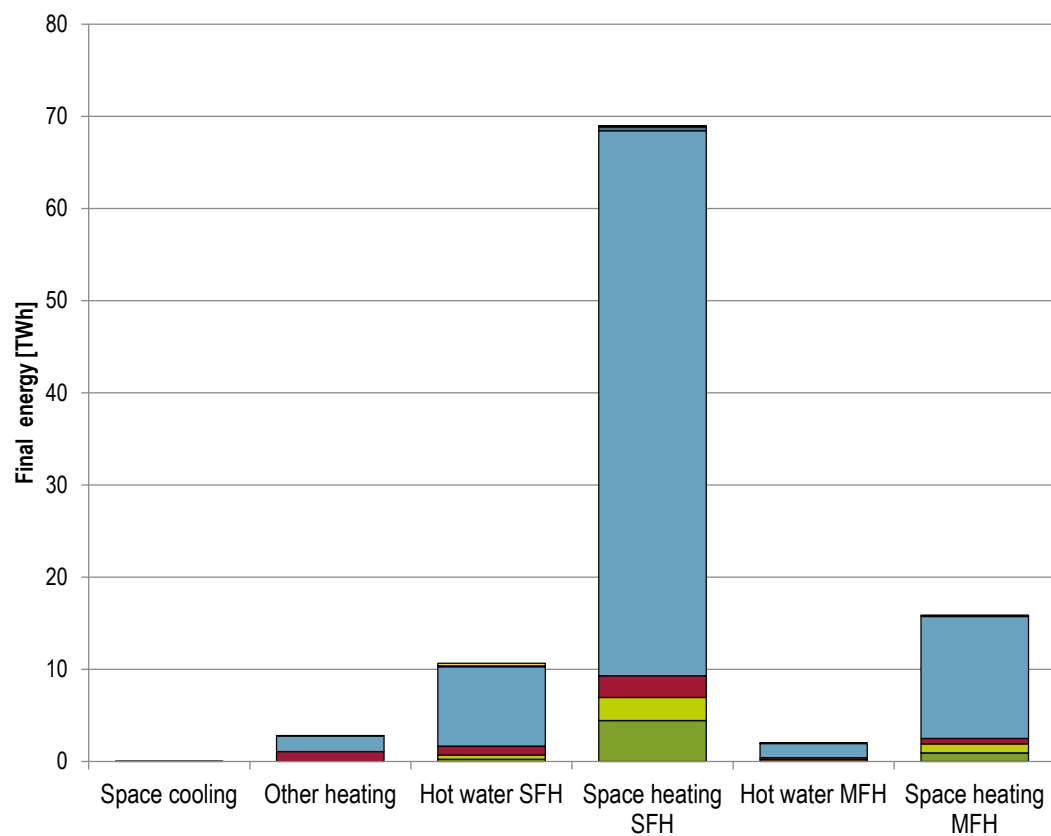
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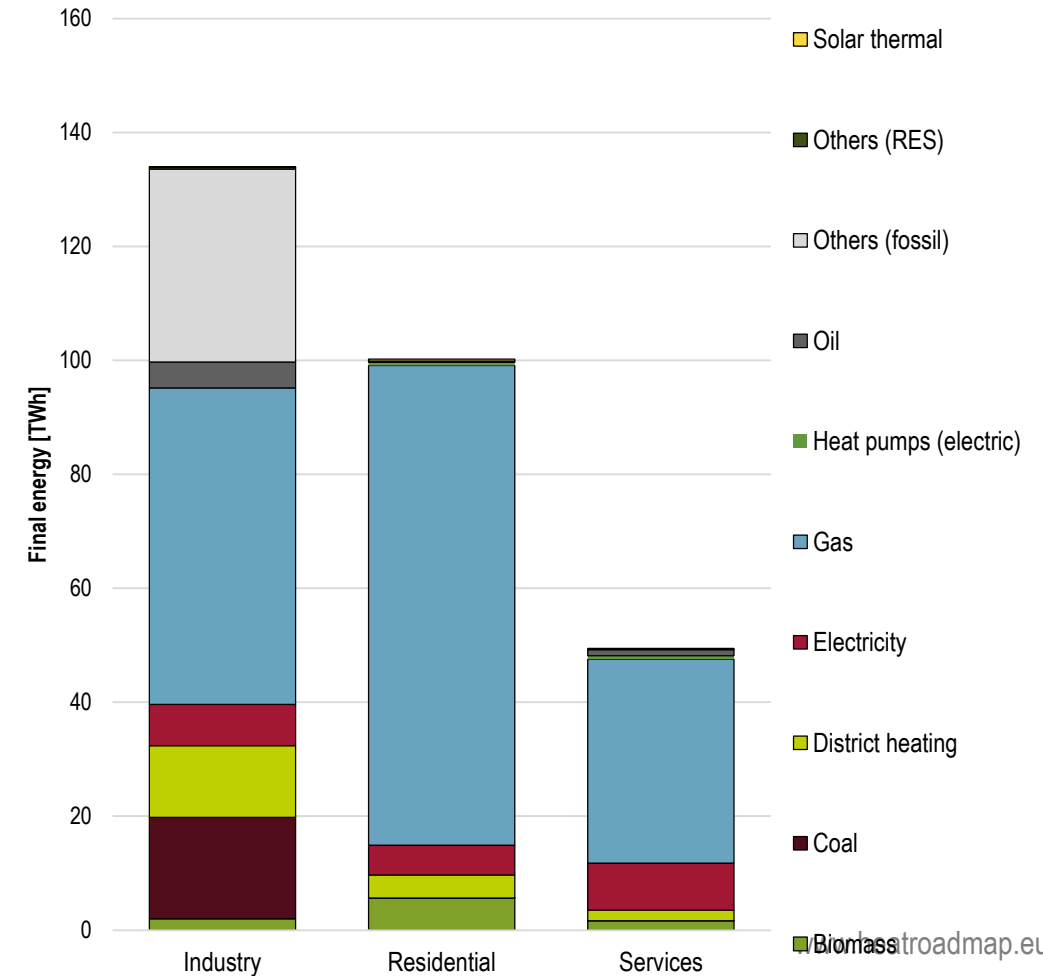
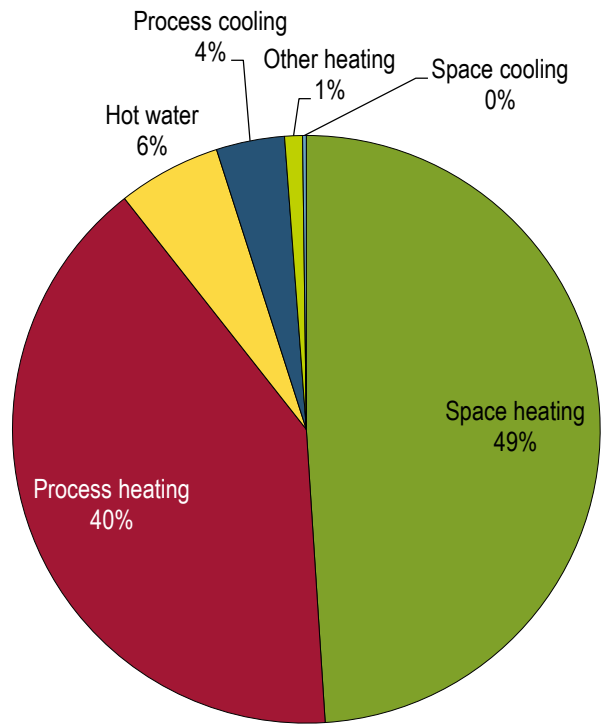
Building Stock



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Heat demands

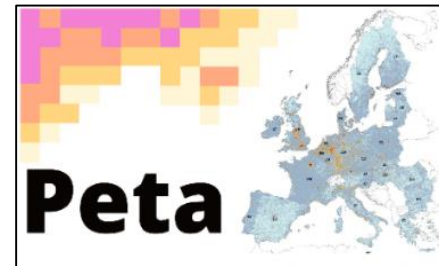


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Heat Roadmaps for transitions

- Decarbonise
- Technically possible, socio-economically feasible
- Consider local nature of heating and cooling
- Consider the wider energy system



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Transition in NL

- Currently, wind plays a small role
- Current approaches:
 - AardGasVrij?
 - CCS for industry
 - Offshore wind
 - Closing of certain coal power plants



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Market uptake

- There is momentum!
- Use integrated planning
- Develop best practices



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Questions?



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