Prosumers for the Energy Union

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Results of modelling the uptake of prosumerism in Europe until 2050

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24.06.2020.

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Objectives

To analyse the technical, economic, and ecological potential of technological solutions for prosumers under different geographical, climatic and socio-political conditions throughout the EU → how technological solutions might be combined effectively and which societal, financial, regulatory and ecological conditions.

In order to do that → local, national and EU technology scenarios will be developed.

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Scenarios

- Reference scenario
  - 2015
  - 2030
  - 2050
- Renewables scenario
  - 2030
  - 2050
- Autarky (self-sufficiency) scenario
  - 2030
  - 2050

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Scenarios

Scenarios have been based on the identified use cases and resulted in an assessment of a diversity of potential technological combinations based on:

- local climate
- social and market conditions

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Scenarios

- The models have considered cost curves for specific technological solutions and future projections for 2030 and 2050.
- Assessments have accounted for individual, neighbourhood and regional solutions for power and heating mostly and their combination.
- 30 scenarios have been defined (accounting for three climate zones in the EU)
- Main outputs → CO2 emissions, levelized cost of energy, renewable autarky

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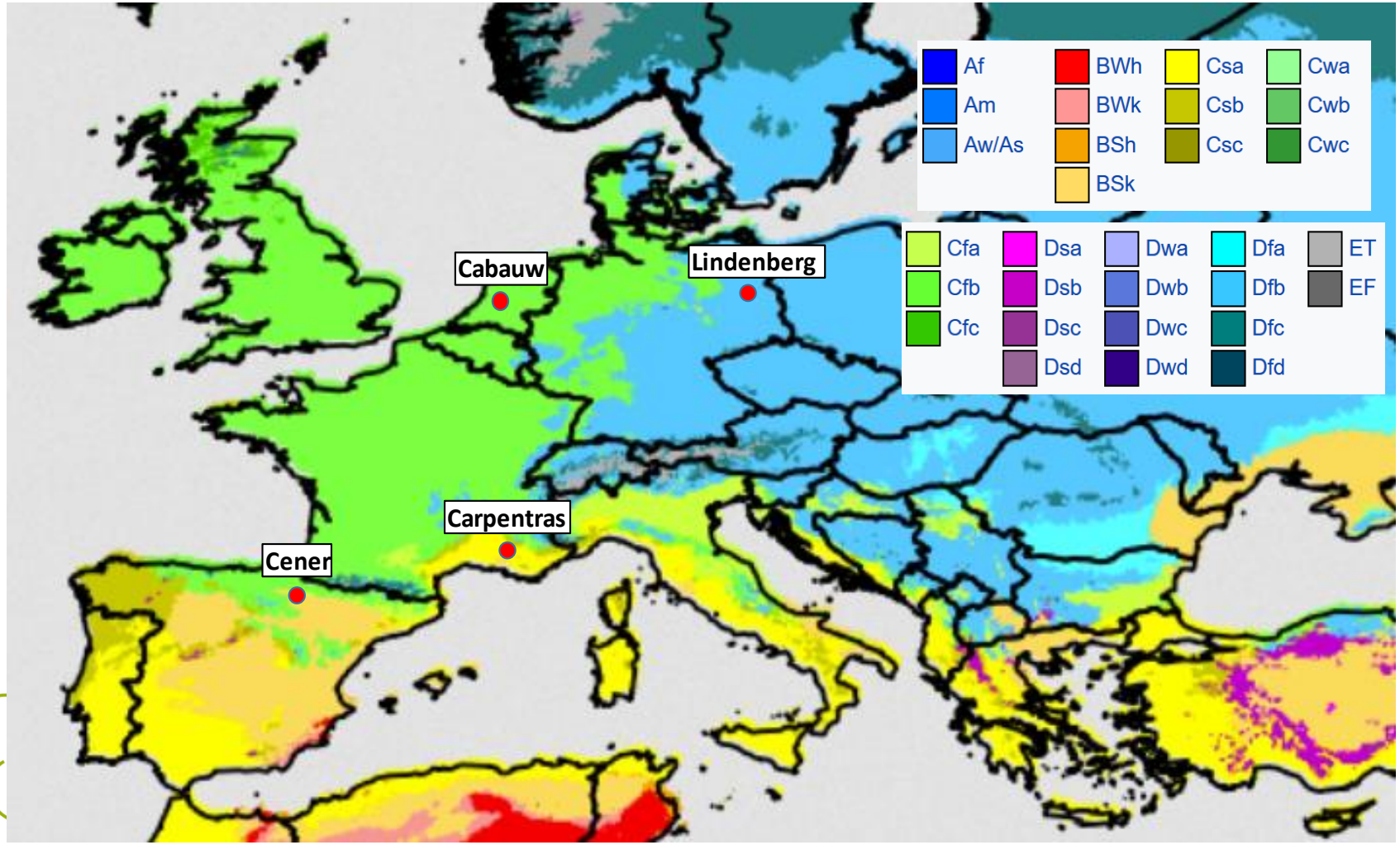
Individual level



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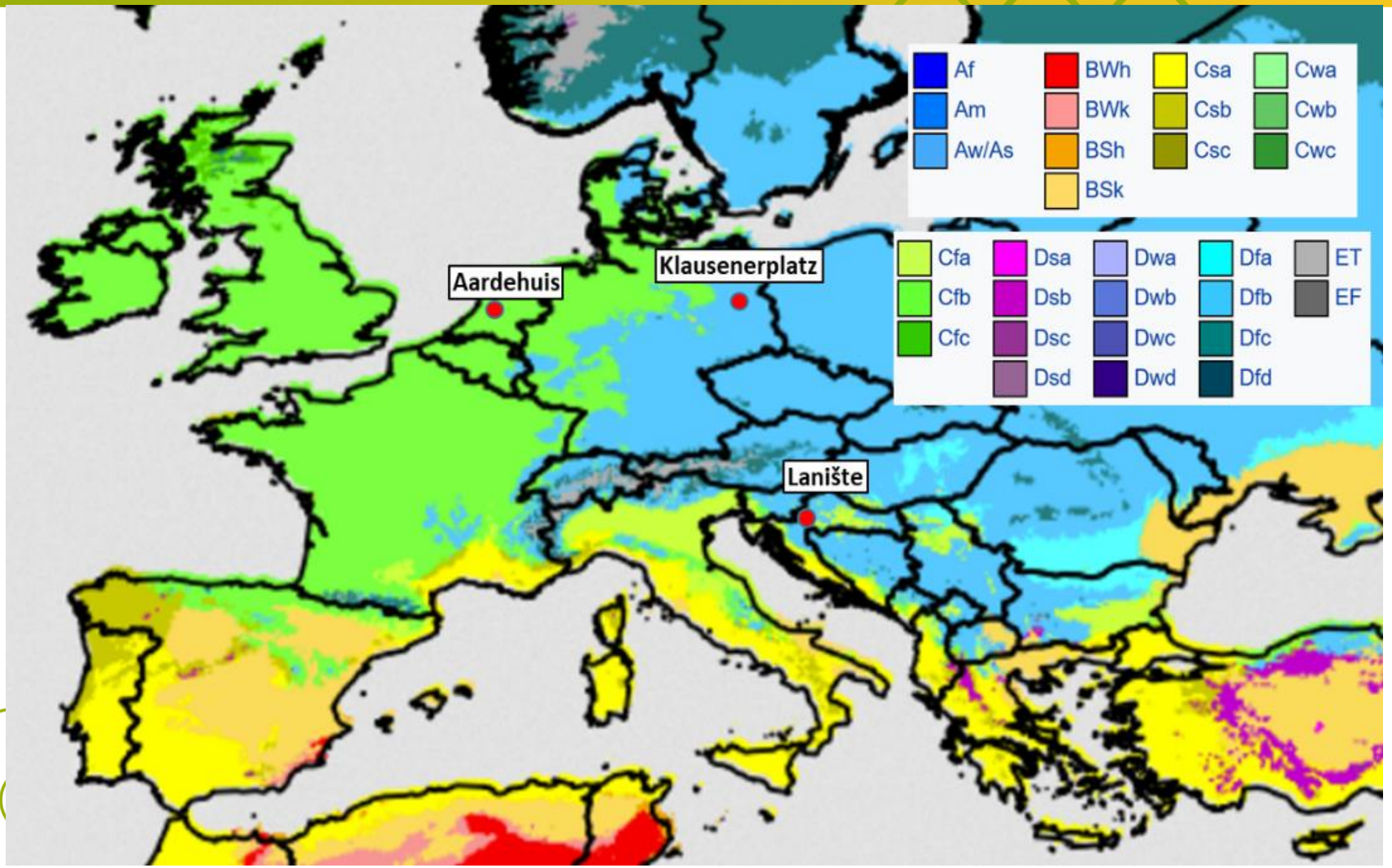
Neighbourhood level



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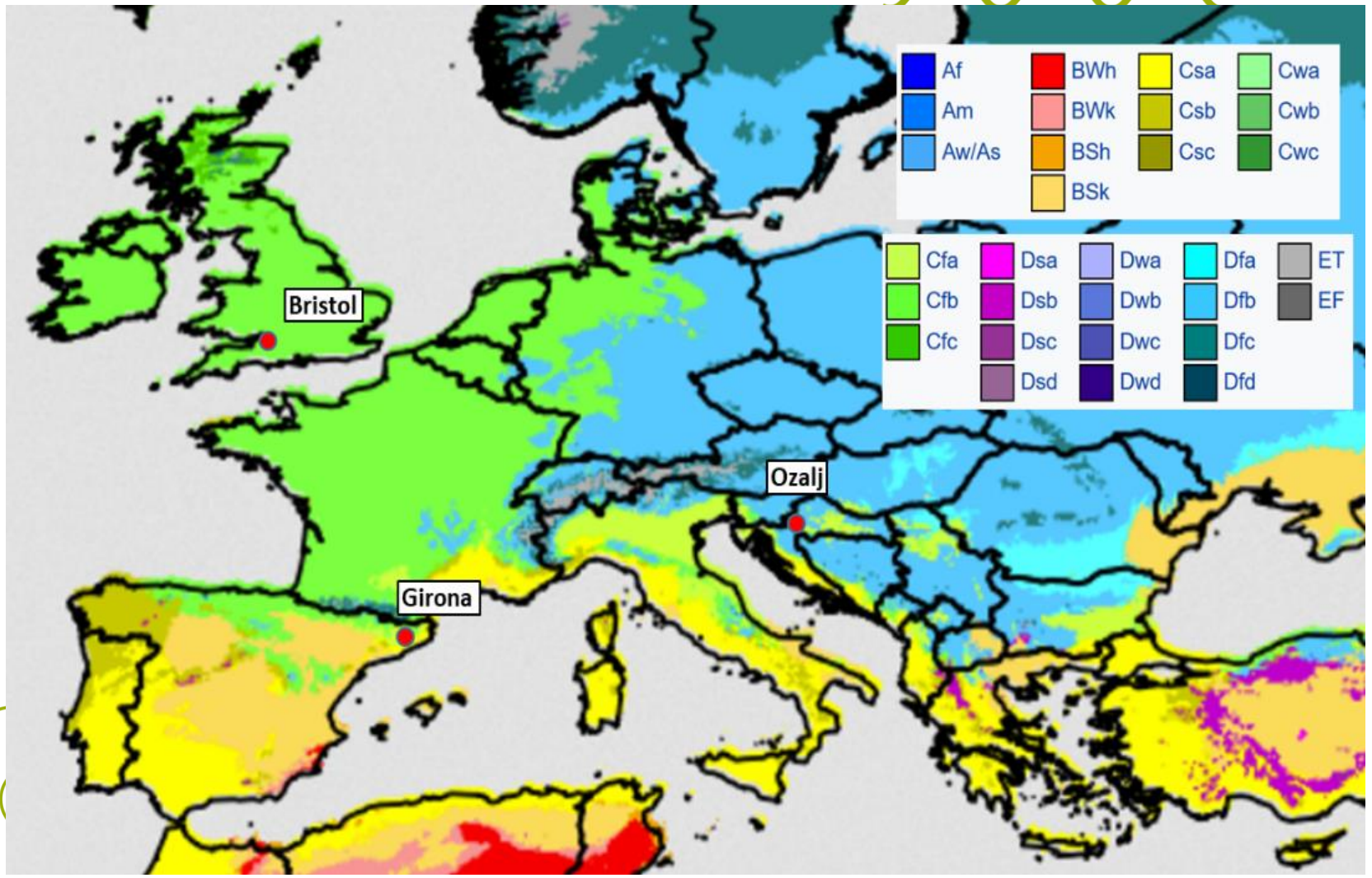
City level



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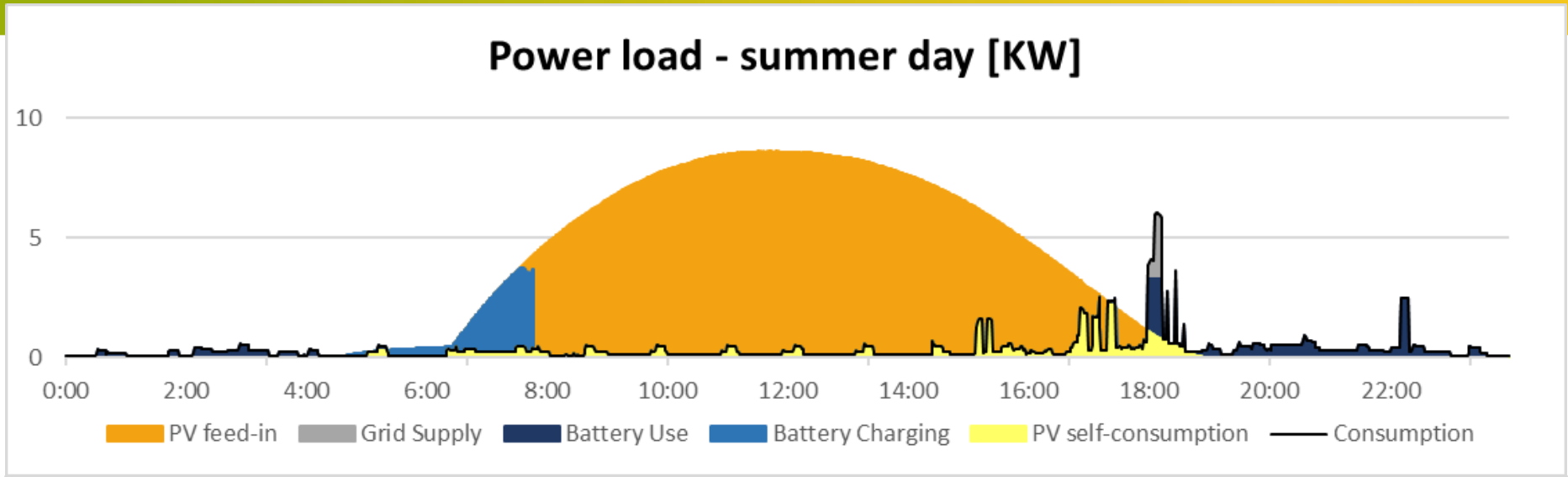
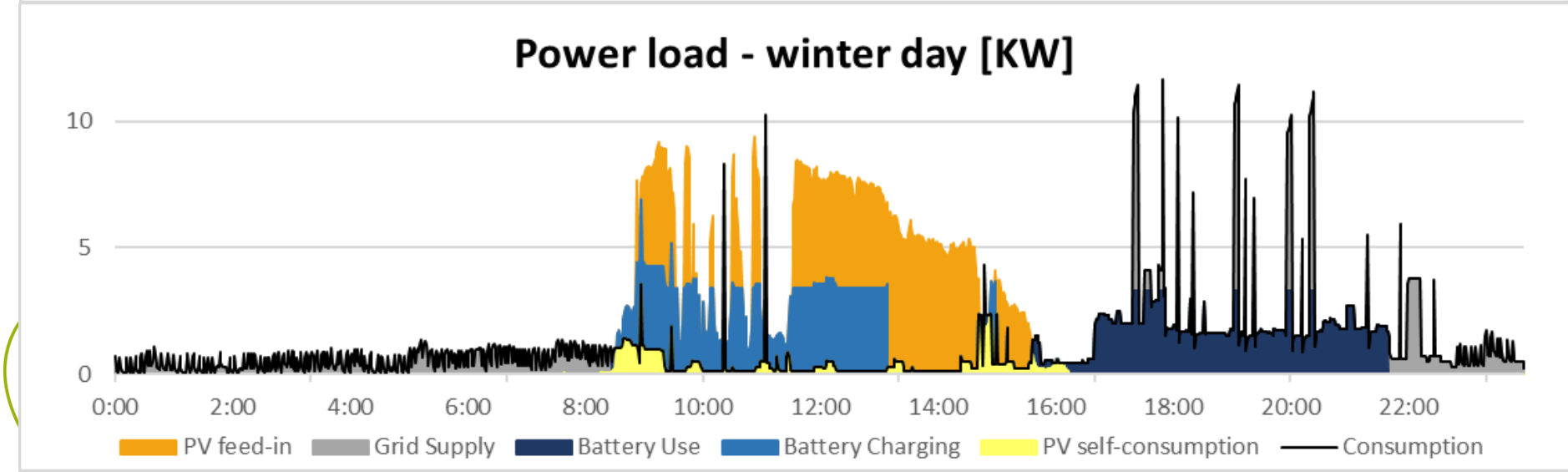
Some results - individual





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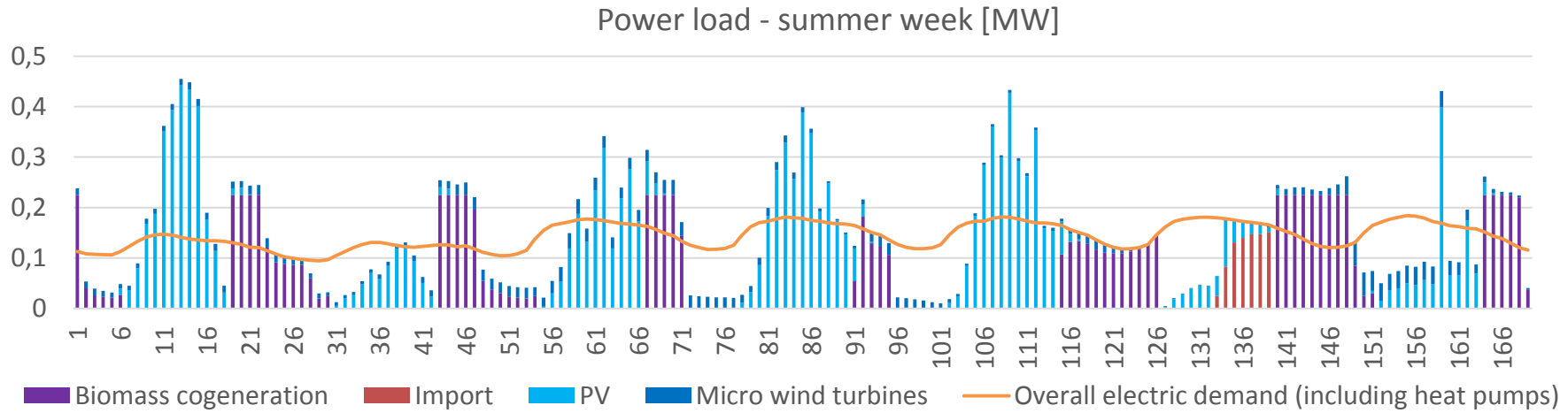
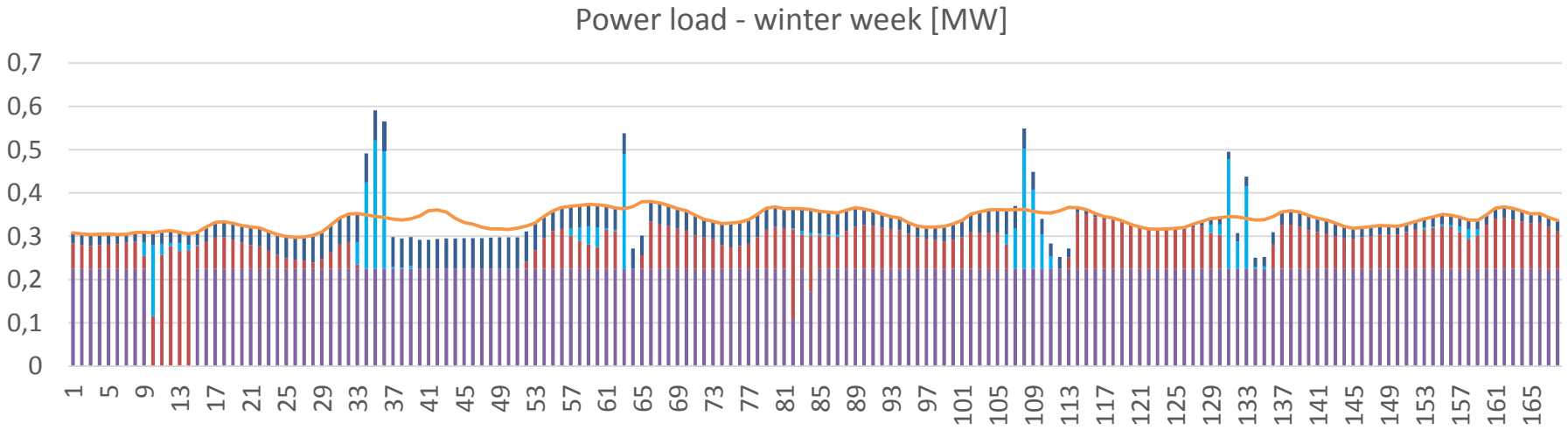
Some results – neighbourhood





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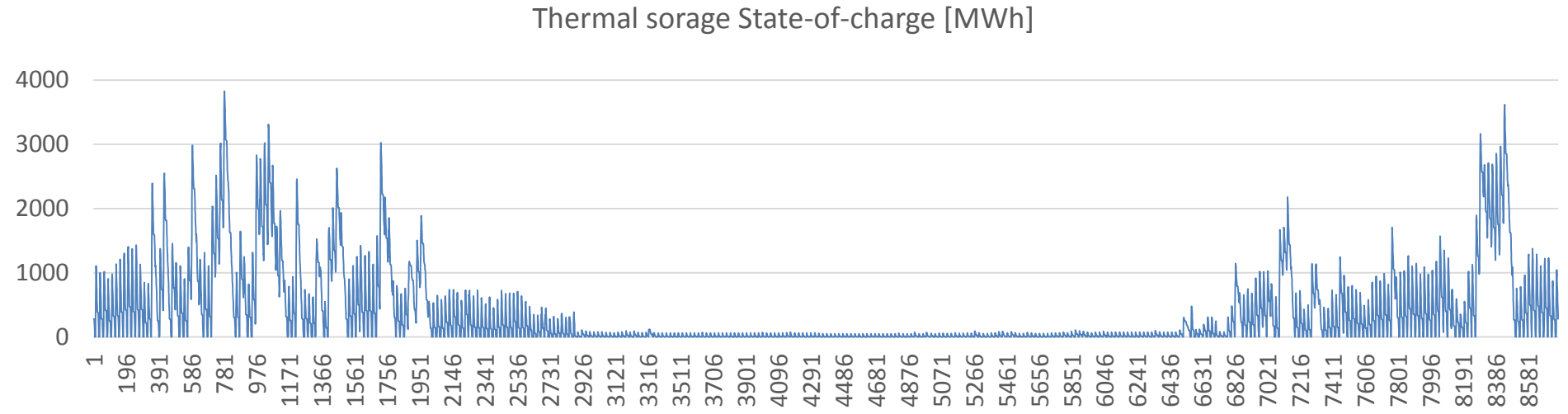
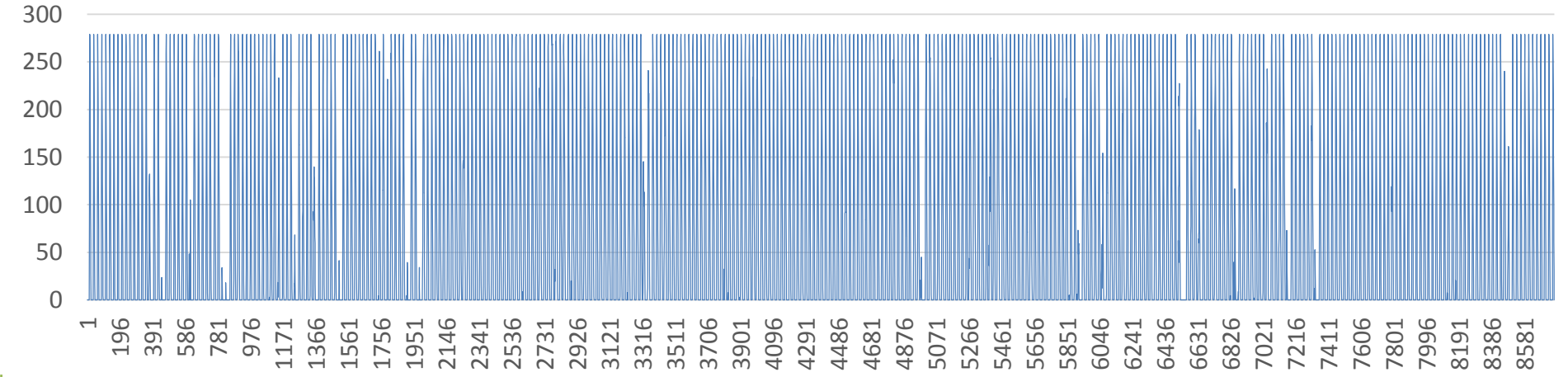
Some results - city





Some conclusions

- Households with prosumer technologies could lower CO2 emissions considerably, while lowering LCOE and LCOH
- The focus on the individual level: **heat pumps** and **solar thermal** for heat production and **PV** for the production of electricity → favourable outcomes from an **economic and environmental** perspective
- Part of the electricity for covering the demand of appliances, light as well as heat pumps is still obtained from the grid
- higher CO2 reductions for heating even when low renewable autarkies are achieved due to a rather negative current state of the heating sector with mostly fossil fuels being used.

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Thanks for your attention!
Any questions?

For more information:

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This project received funding from the EU's Horizon 2020 research and innovation programme under grant agreement N°764056.
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