

P&D nanoverbund

DeCarbCH annual event
Hanmin Cai
04 March 2025



ETH zürich



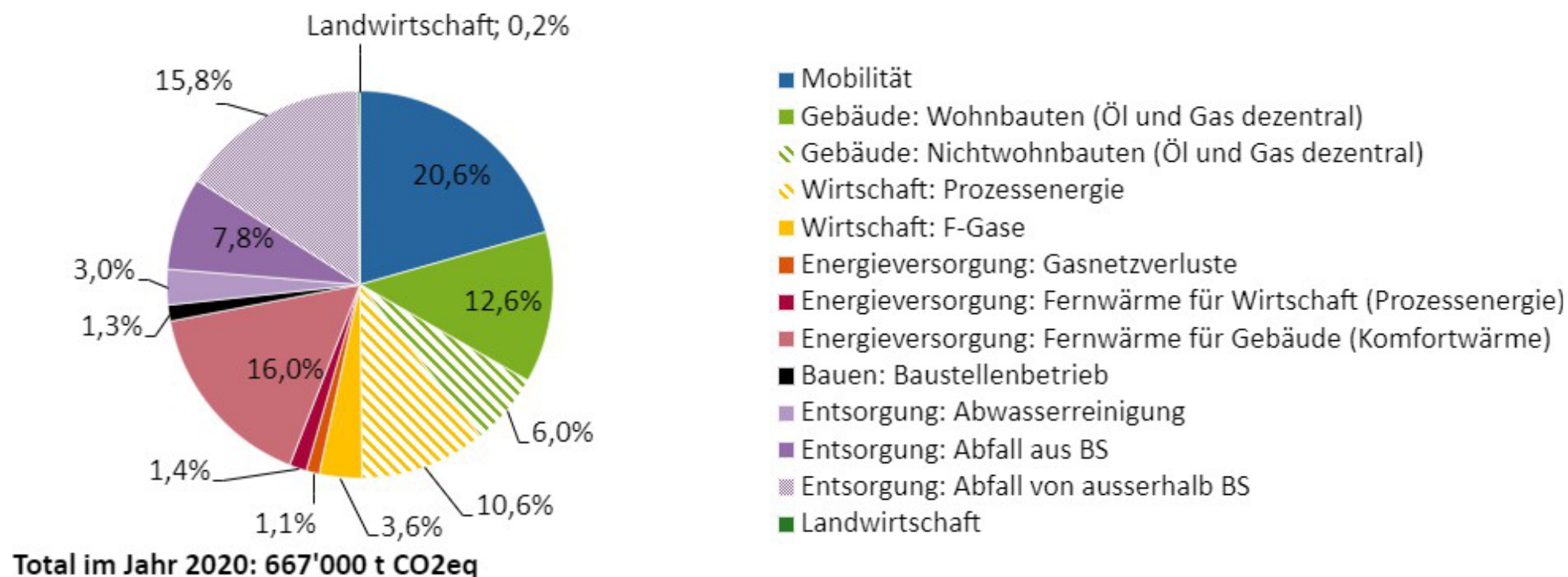
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Background

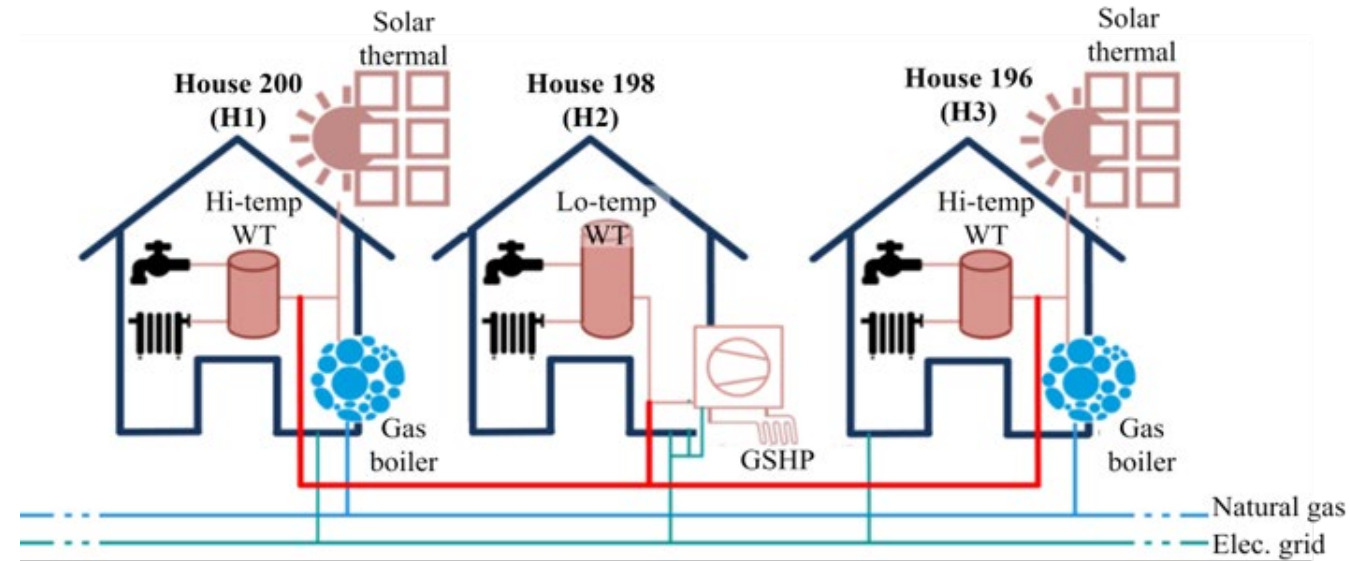


Direct greenhouse gas emissions in 2020 (in t CO₂eq). Source: Regierungsrat des Kantons Basel-Stadt

Nanoverbund

Overall setup:

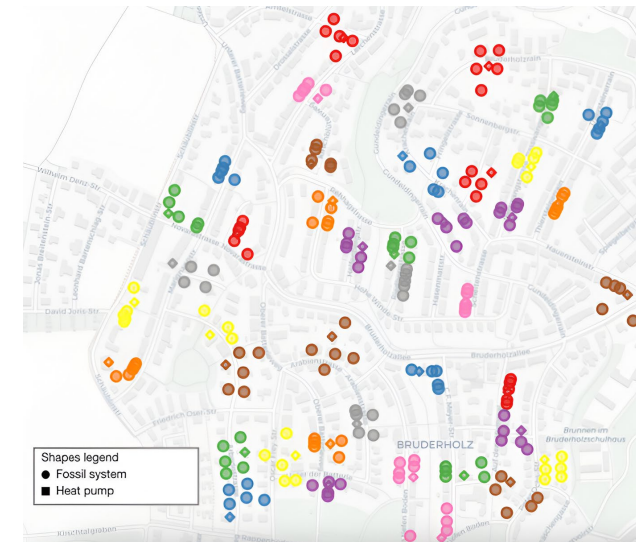
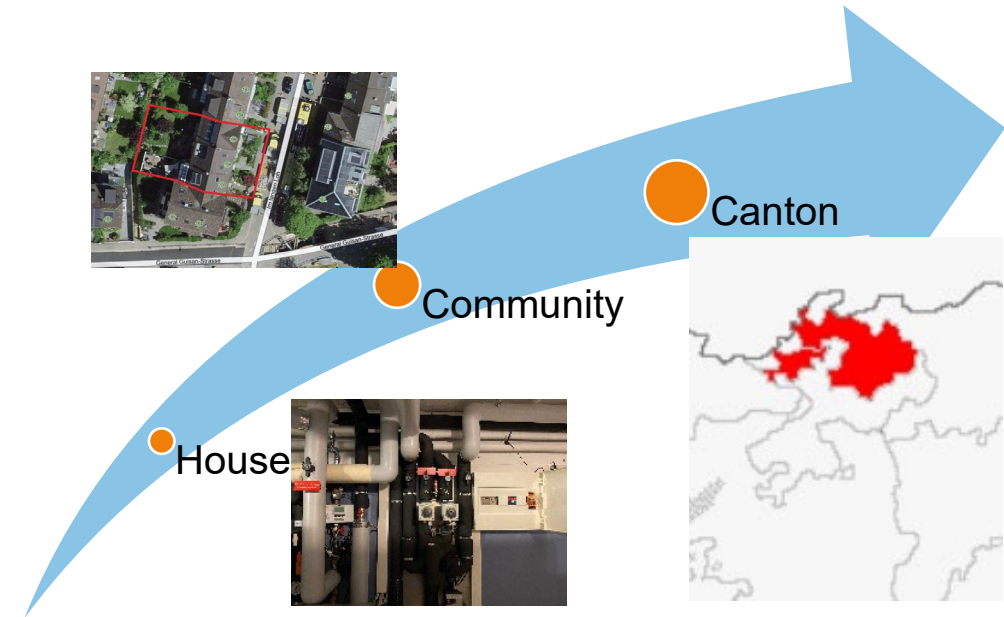
- Connected with a nano heating network.
- Heat as a service.
- Three-phase approach: connect, measure (to update size calculations), replace, and achieve carbon neutrality.
- July 2023 – July 2025



Who and where?

Preliminary studies:

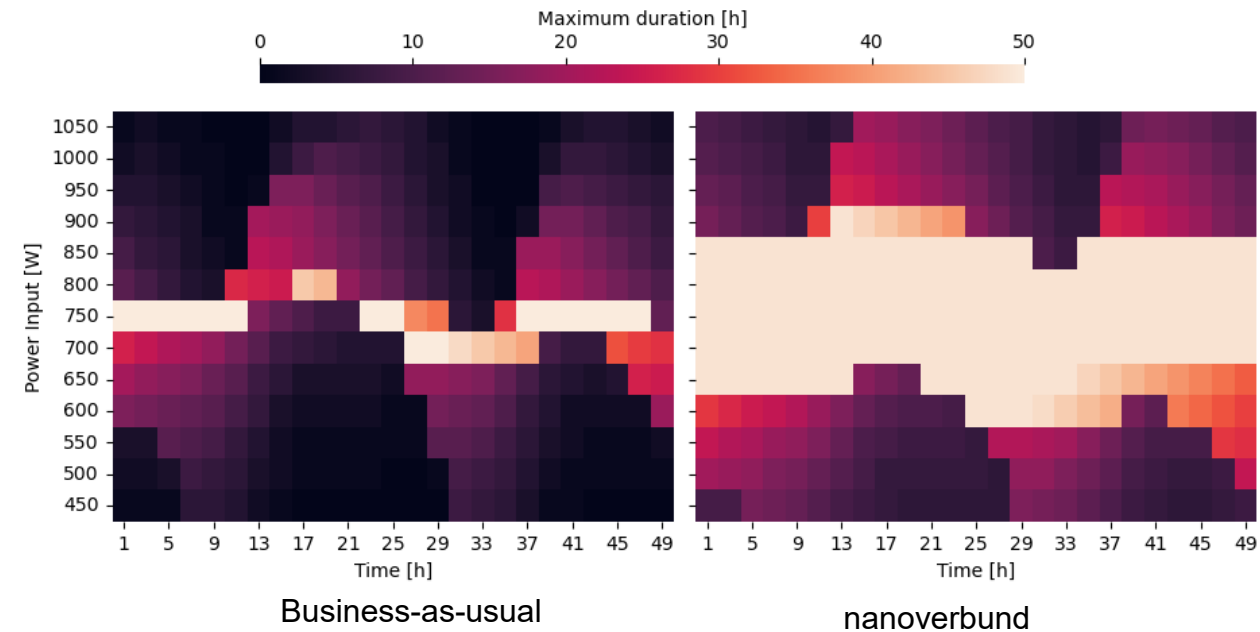
- Consider types of buildings and their distance from each other.
- Heating demand considering climate change.
- Who are they, and where are they?



How much flexibility do we have?

Preliminary observations:

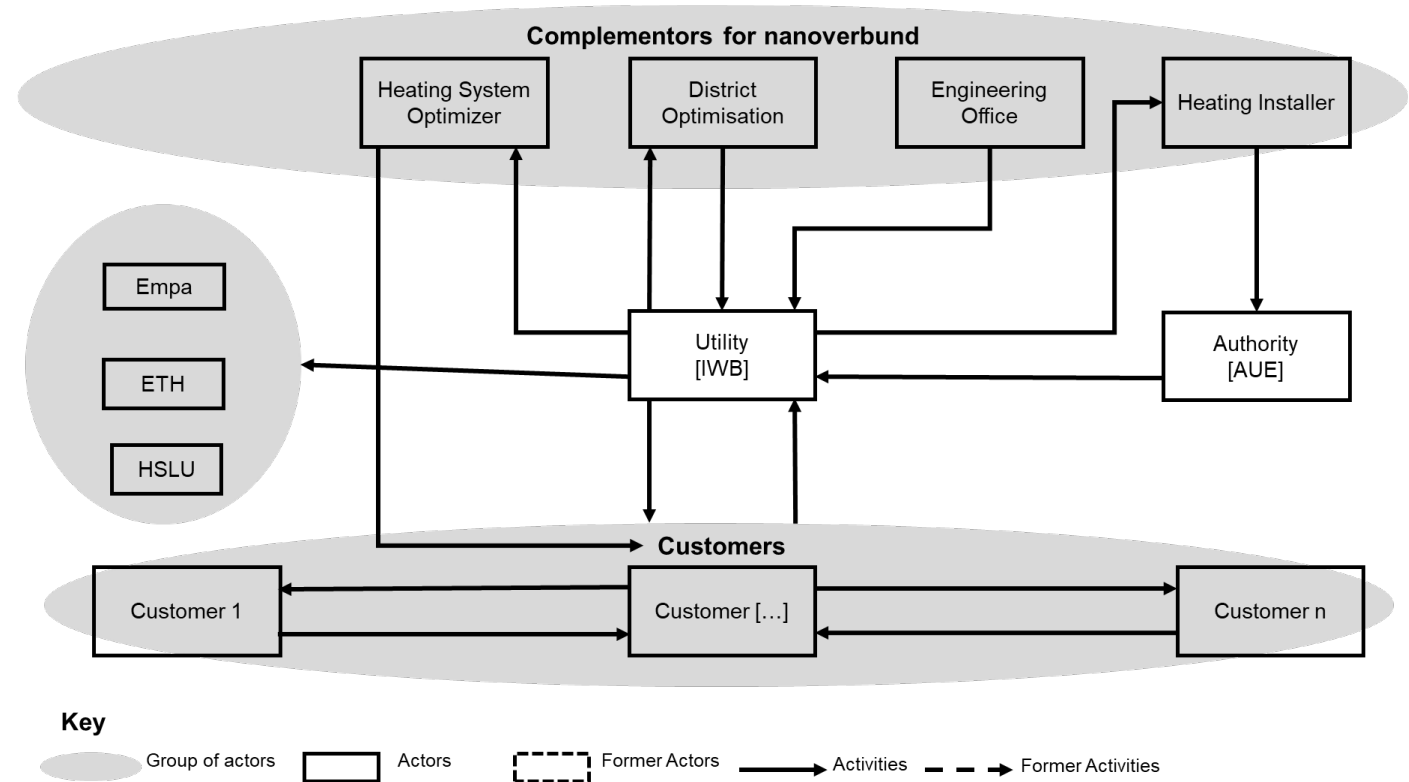
- Thermal connection increases flexibility potentials.
- When aggregated, these nanogrids can support large systems with flexibility.



What's in there for me?

Preliminary observations:

- Utility provides heating as a service.
- An integrator involving all stakeholders.
- A new business model for Switzerland's ecosystem.

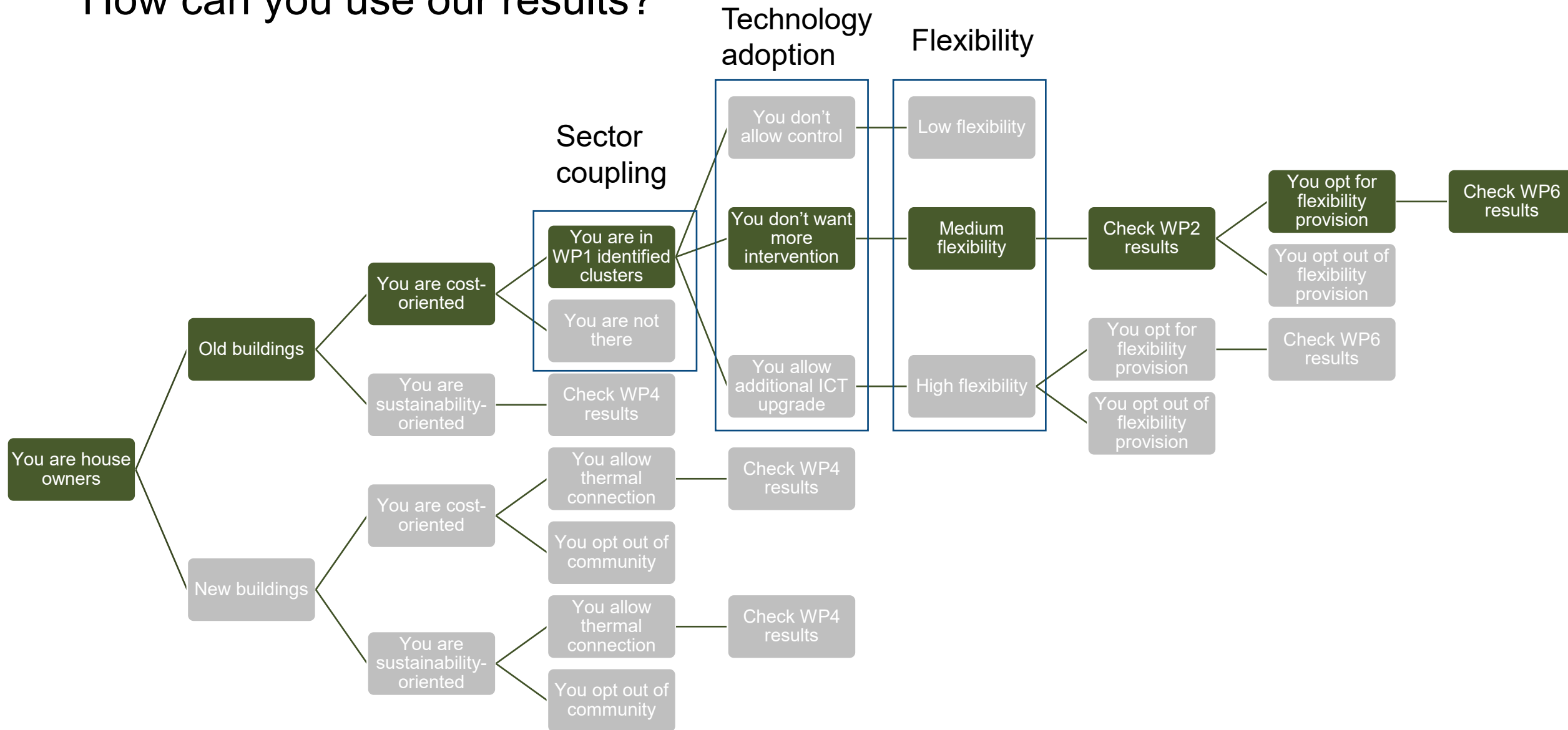


How can you use our results?



A non-exhaustive decision tree for bottom-up decisions and their impacts

How can you use our results?

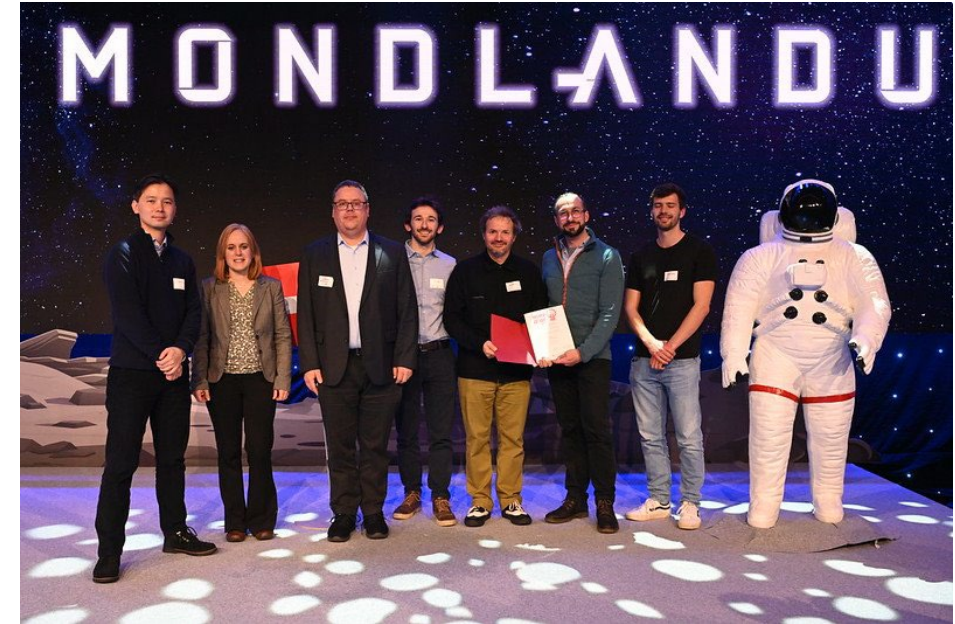


A non-exhaustive decision tree for bottom-up decisions and their impacts

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Watt d'Or 2025



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