Energy Week 2024
PATHFNDR CONFERENCE

Input presentation

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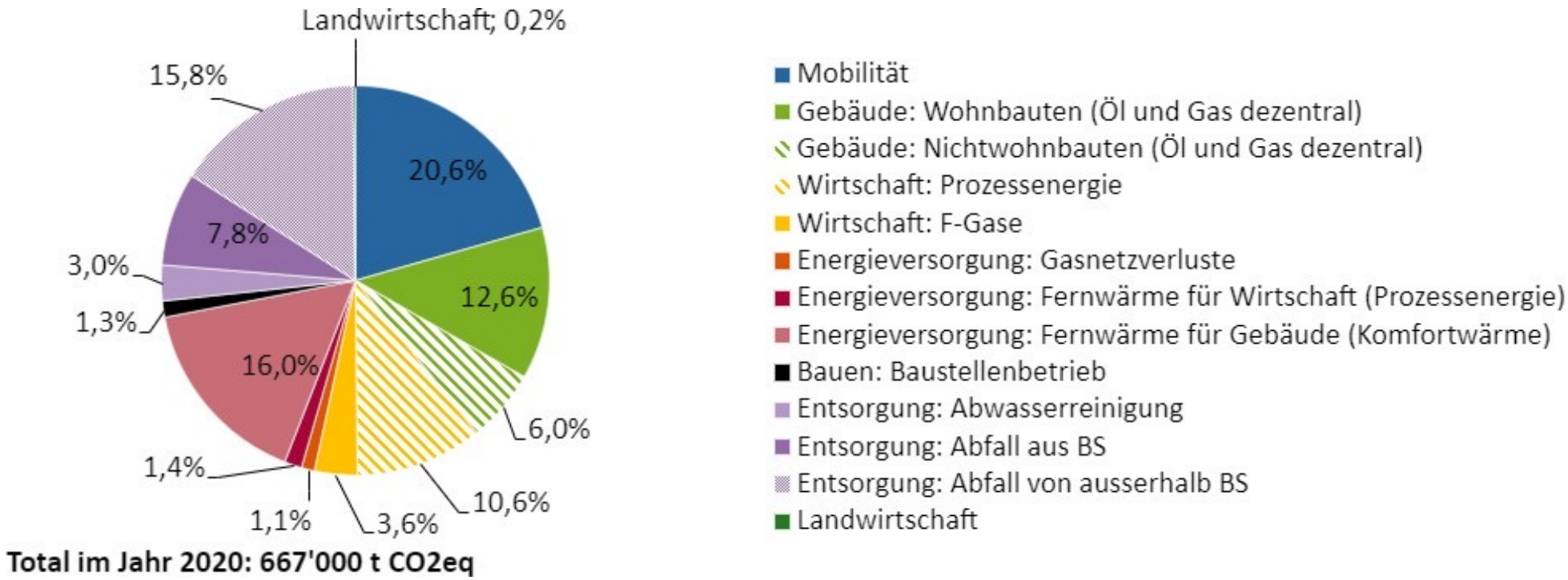
Increasing the local flexibility potential of buildings: small-scale flexibility systems (nanogrid)

sweet swiss energy research for the energy transition
PATHFNDR

Background



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

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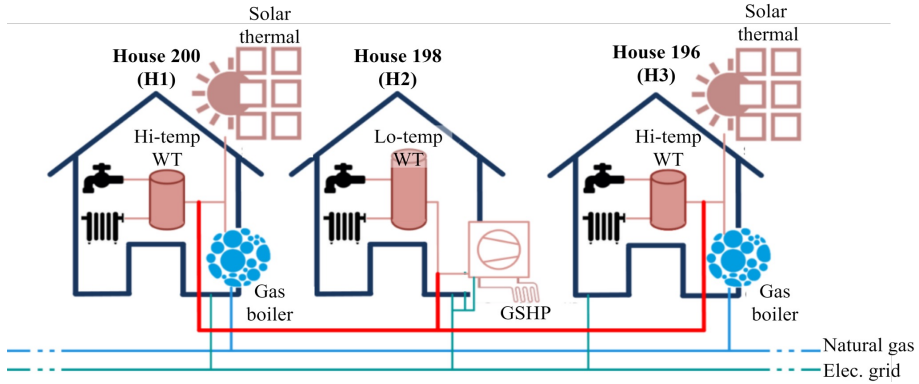
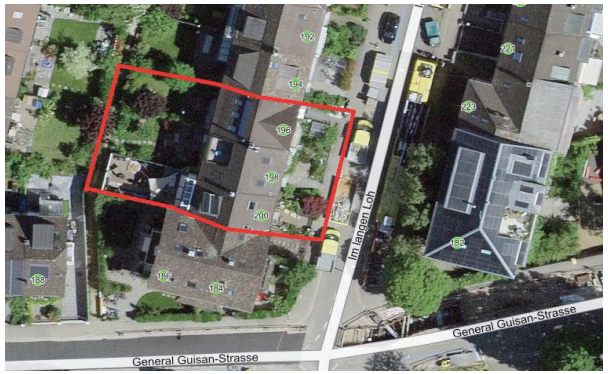
Overall setup:

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

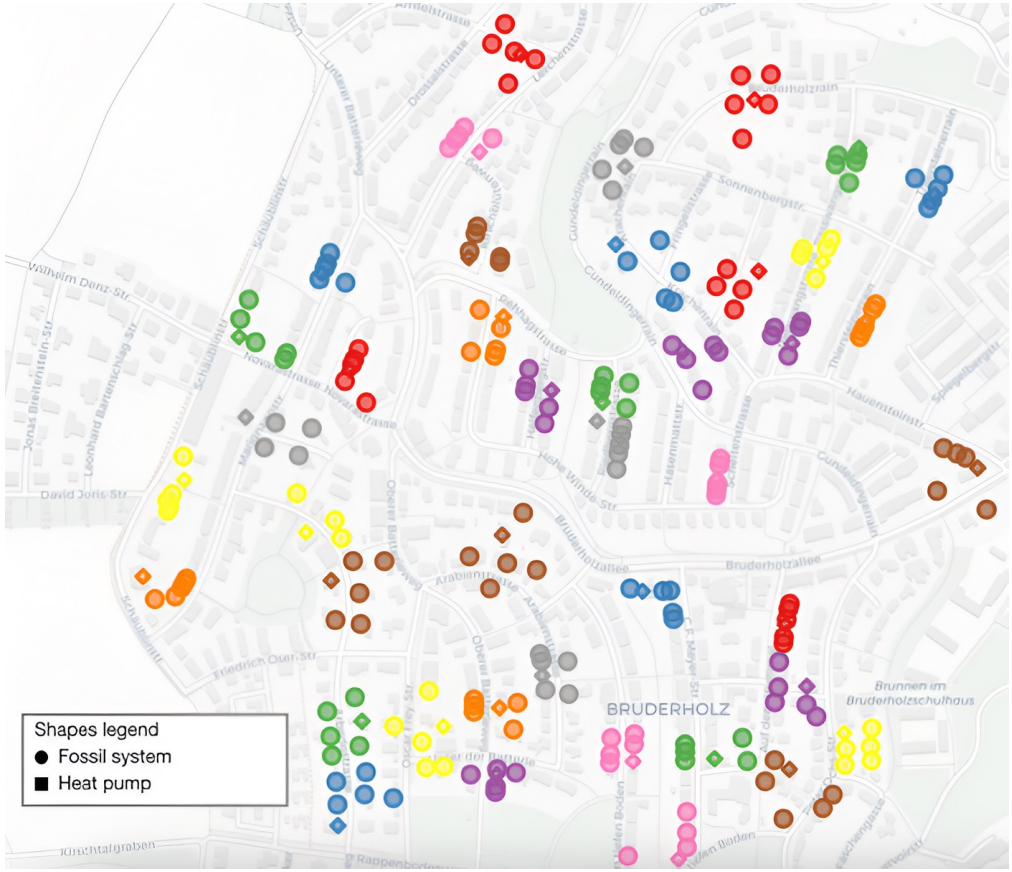




Who and where?

Preliminary studies:

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

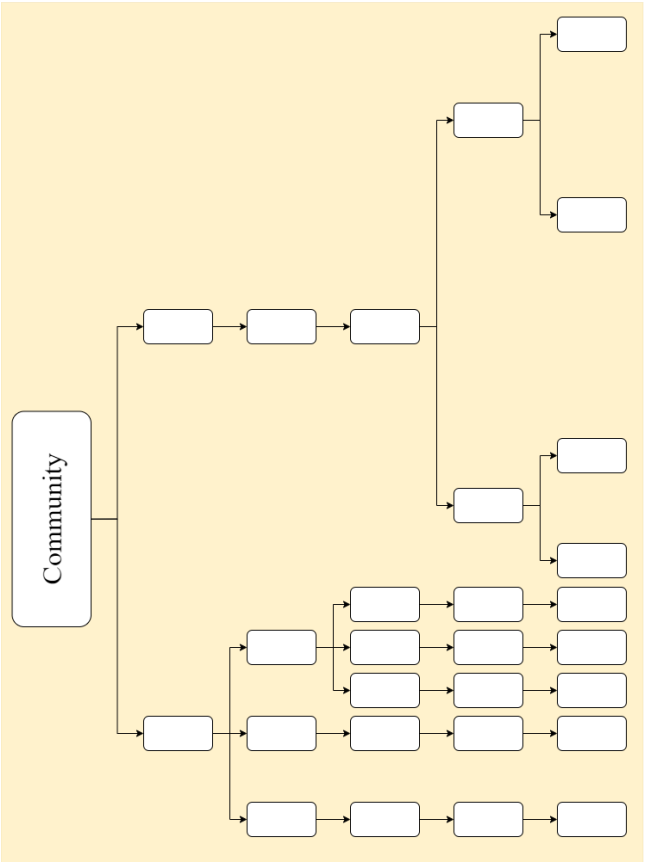


Preliminary results for Basel

Is it economically and ecologically feasible?

Preliminary observations:

- As network loss/distance increases, costs and emissions also increase.
- Electricity/heat/gas sector coupling levels vary.
- In many cases, nanogrid can already be more cost-efficient than individual solutions.

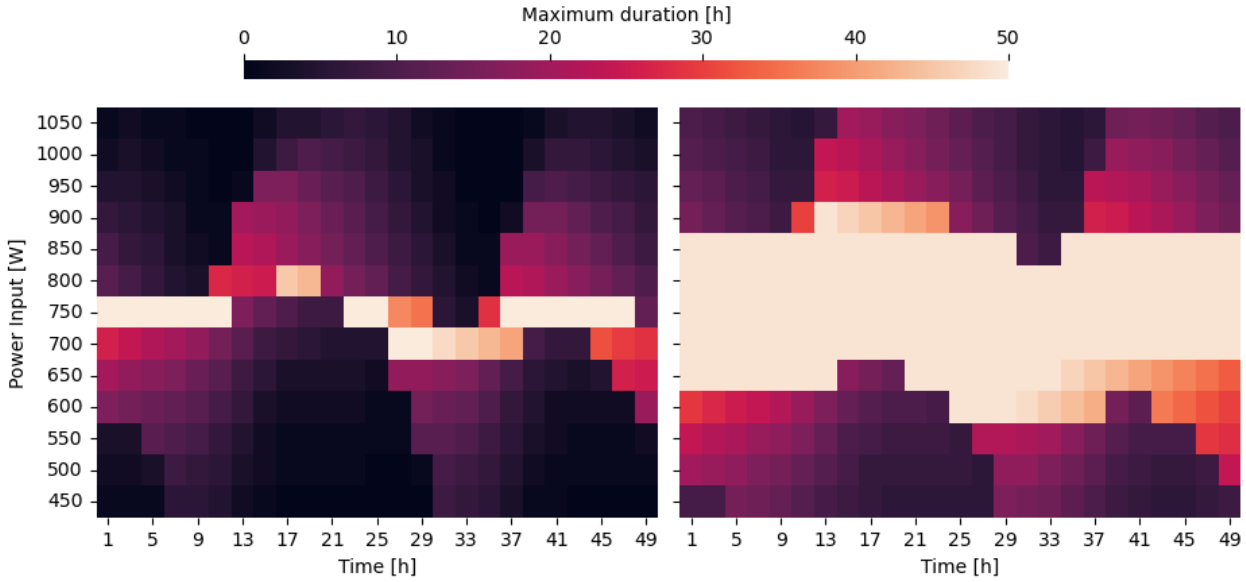


How much flexibility do we have?

Preliminary observations:

- Thermal connection increases flexibility potentials.

- When aggregated, these nanogrids can support large systems with flexibility.



Business-as-usual

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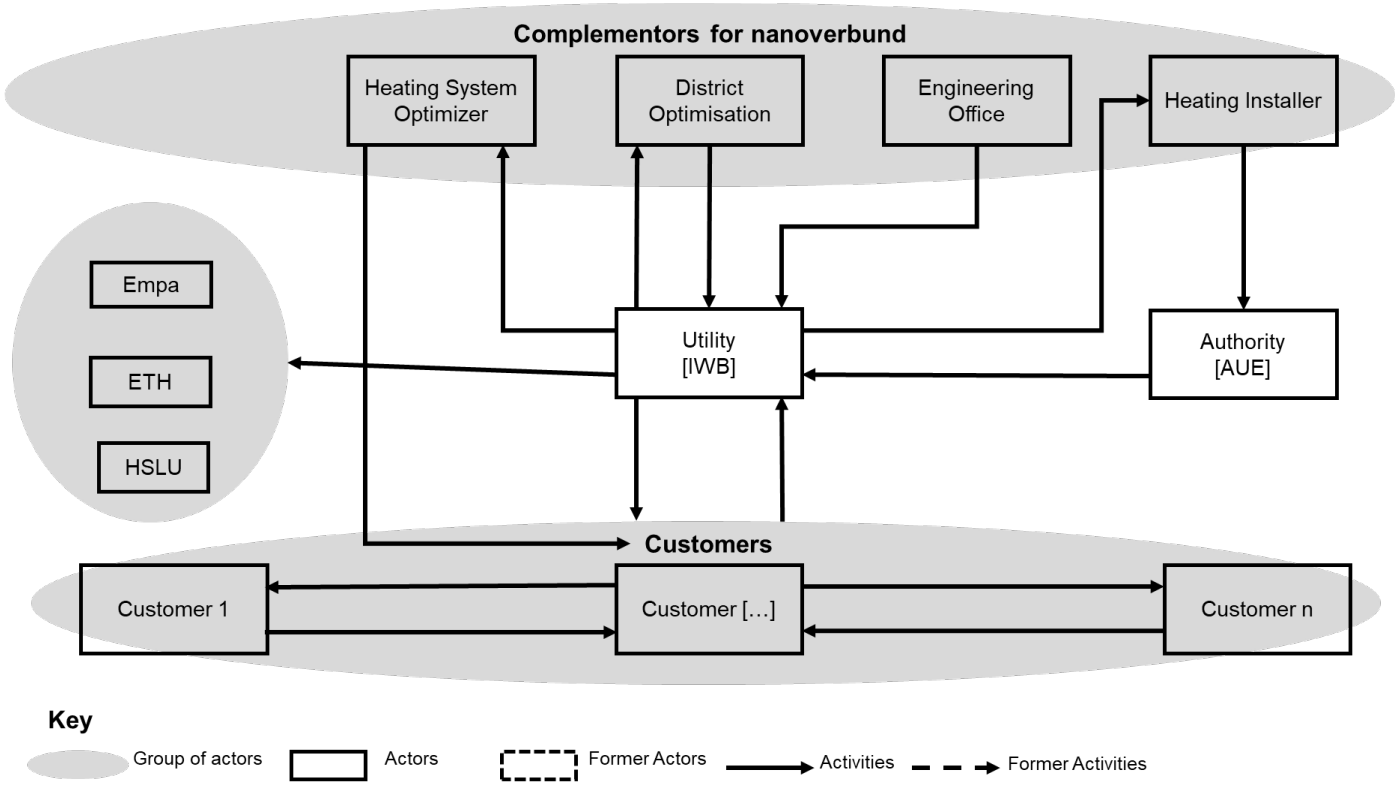
What's in there for me?

Preliminary observations:

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



The coordinated design of **heating nanogrids** is more beneficial **for society** than isolated changes in individual building.