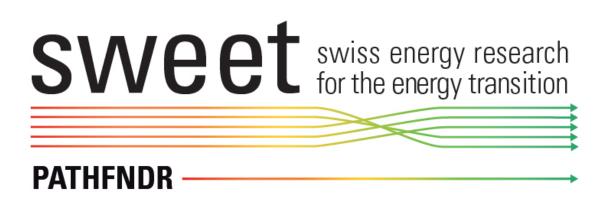
P&D nanoverbund

DeCarbCH annual event Hanmin Cai 04 March 2025









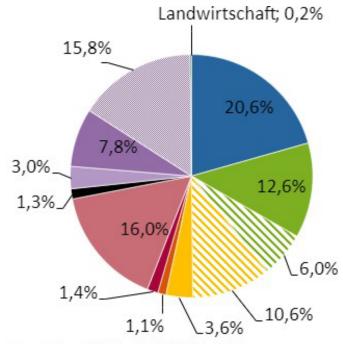








Background



Total im Jahr 2020: 667'000 t CO2eq

- Mobilität
- Gebäude: Wohnbauten (Öl und Gas dezentral)
- Gebäude: Nichtwohnbauten (Öl und Gas dezentral)
- Wirtschaft: Prozessenergie
- Wirtschaft: F-Gase
- Energieversorgung: Gasnetzverluste
- Energieversorgung: Fernwärme für Wirtschaft (Prozessenergie)
- Energieversorgung: Fernwärme für Gebäude (Komfortwärme)
- Bauen: Baustellenbetrieb
- Entsorgung: Abwasserreinigung
- Entsorgung: Abfall aus BS
- Entsorgung: Abfall von ausserhalb BS
- Landwirtschaft

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

Nanoverbund

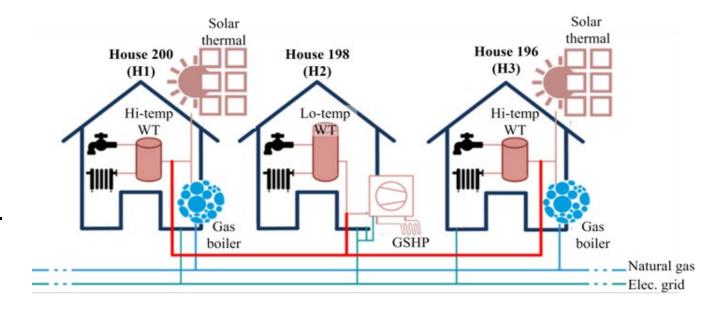
Overall setup:

Connected with a nano heating network.



 Three-phase approach: connect, measure (to update size calculations), replace, and achieve carbon neutrality.

• July 2023 – July 2025



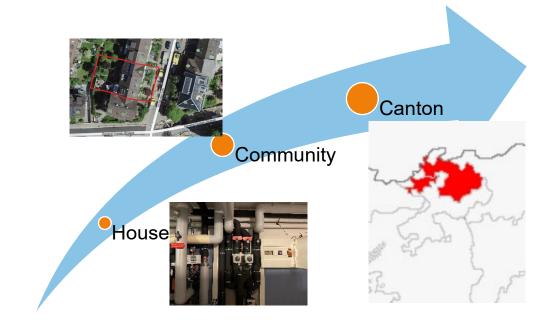


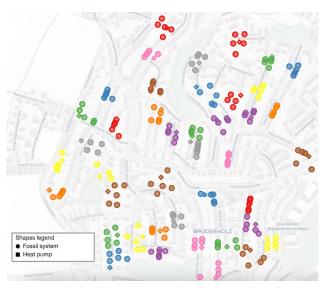
Who and where?

Preliminary studies:

 Consider types of buildings and their distance from each other.

- Heating demand considering climate change.
- Who are they, and where are they?



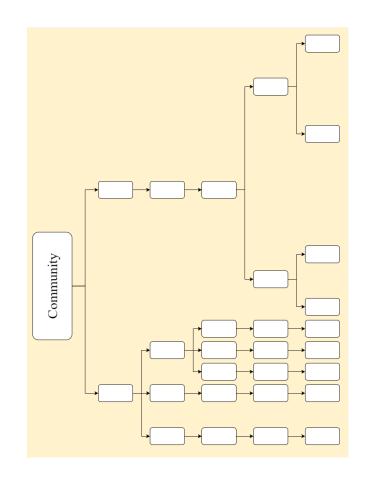


Is it economically and ecologically feasible?

Preliminary observations:

 As network loss/distance increases, costs and emissions also increase.

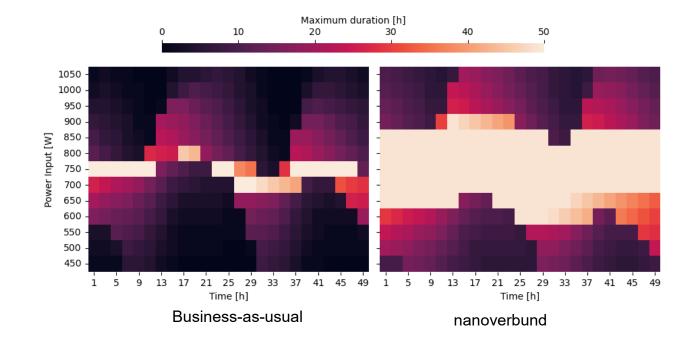
- Electricity/heat/gas sector coupling levels vary.
- In many cases, nanogrid can already be more cost-efficient than individual solutions.



How much flexibility do we have?

Preliminary observations:

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

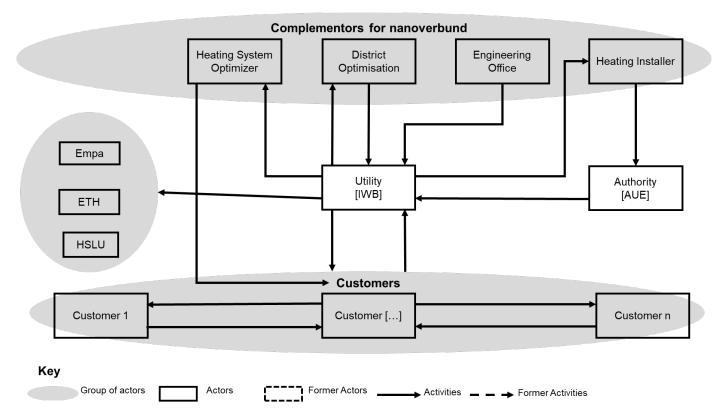


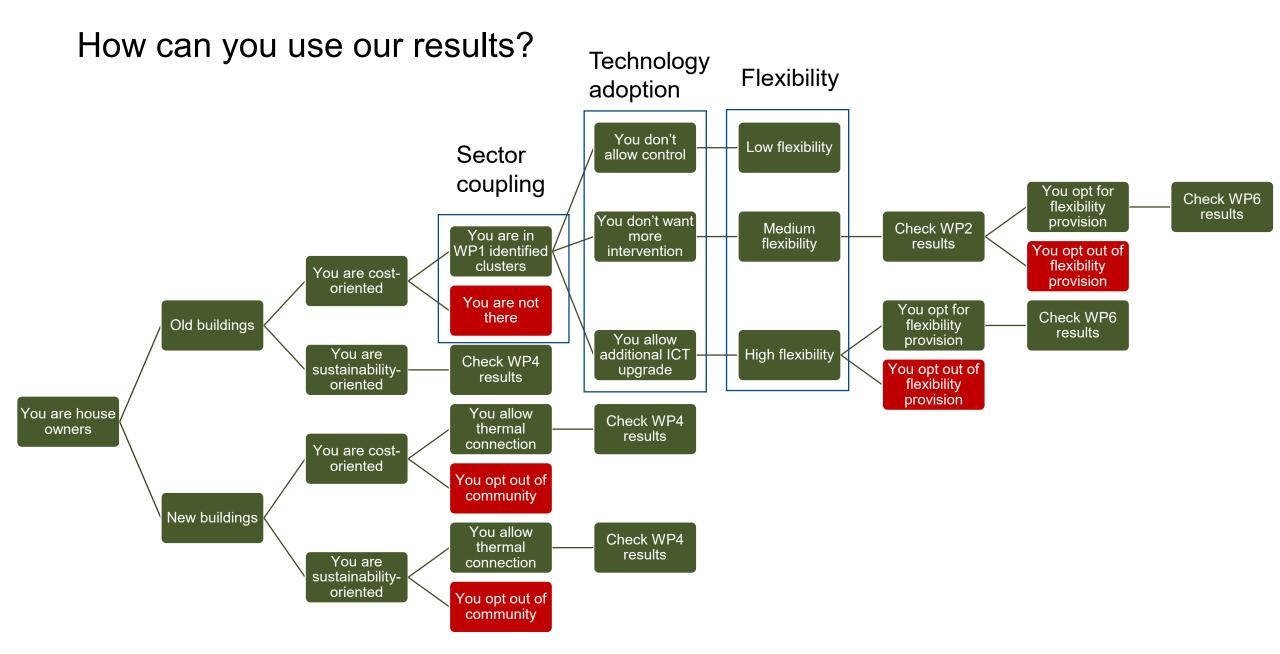
What's in there for me?

Preliminary observations:

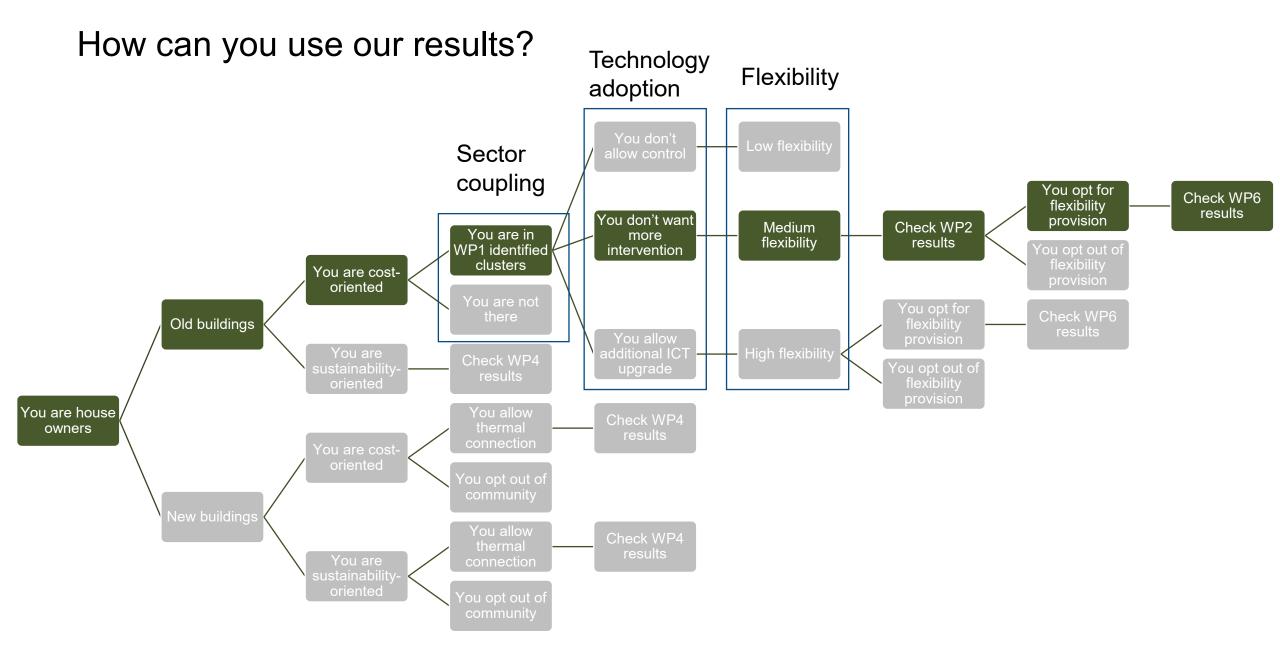
- Utility provides heating as a service.
- An integrator involving all stakeholders.

 A new business model for Switzerland's ecosystem.





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



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



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