

The technical aspects of harvesting waste heat from data centers and seasonal storage

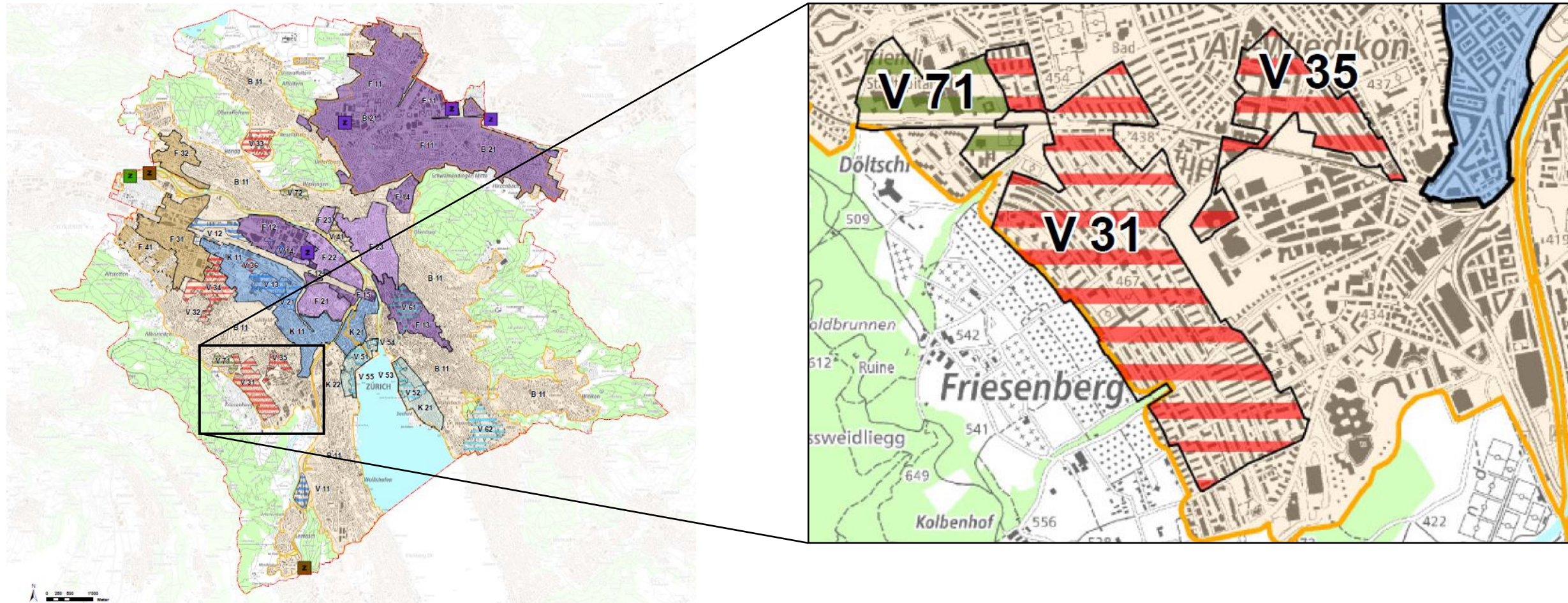
DecarbCityPipe, 29.10.2021



Agenda

- Overview Friesenberg Zurich
- Technical Concept
- Some operational figures

The Friesenberg anergy network of Familienheim-Genossenschaft Zurich (family home cooperative)





Swisscom Binz

CS Uetlihof

Friesenberg area

Familienheim-Genossenschaft Zurich

- 5'500 residents
- 2'300 housing units (town houses / flats)
- 190'000 m² energy supply area
- 35 GWh/a heating requirement



Swisscom Binz

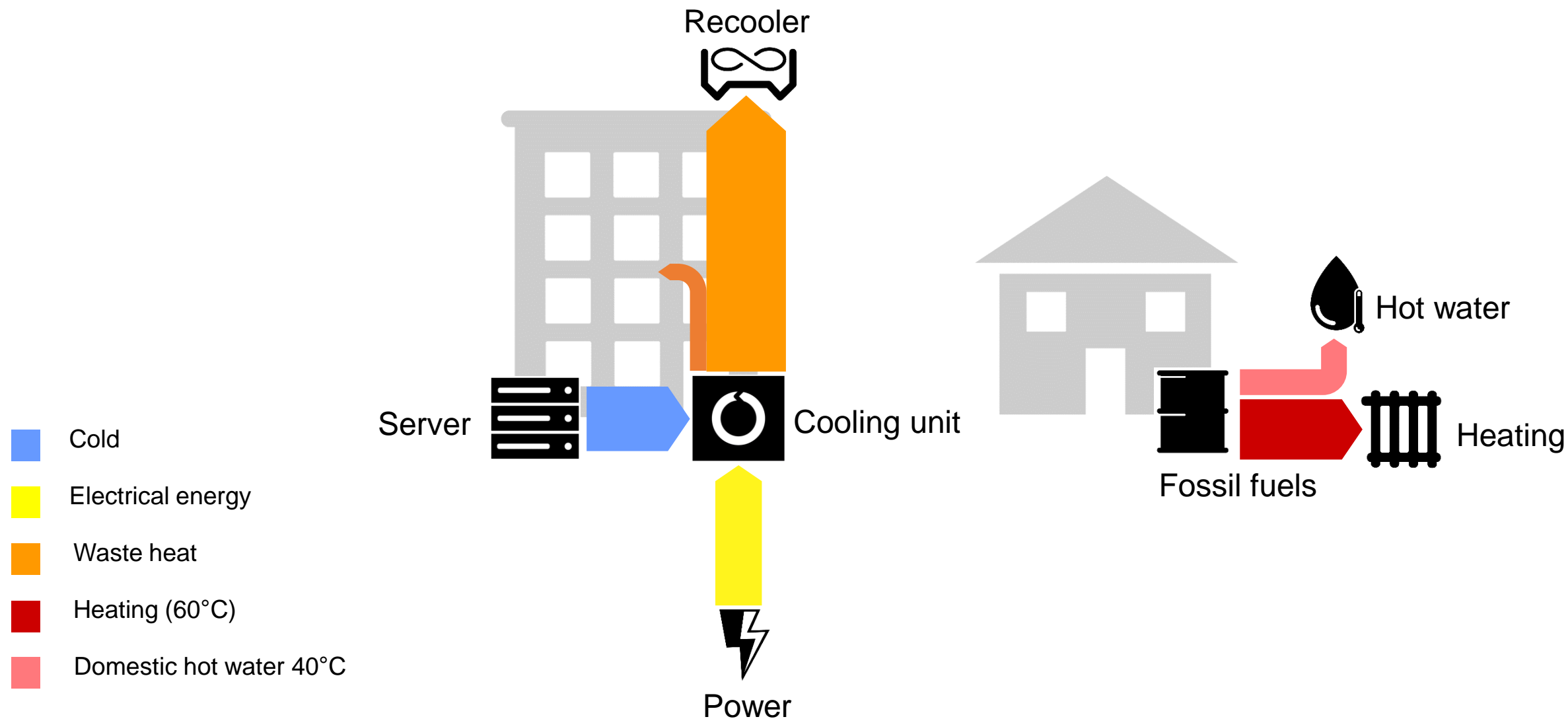
- One of four Swisscom-wide main locations throughout Switzerland
- Cooling requirements data centre
2.3 MW, 20 GWh/a bis 4.0 MW, 35 GWh/a



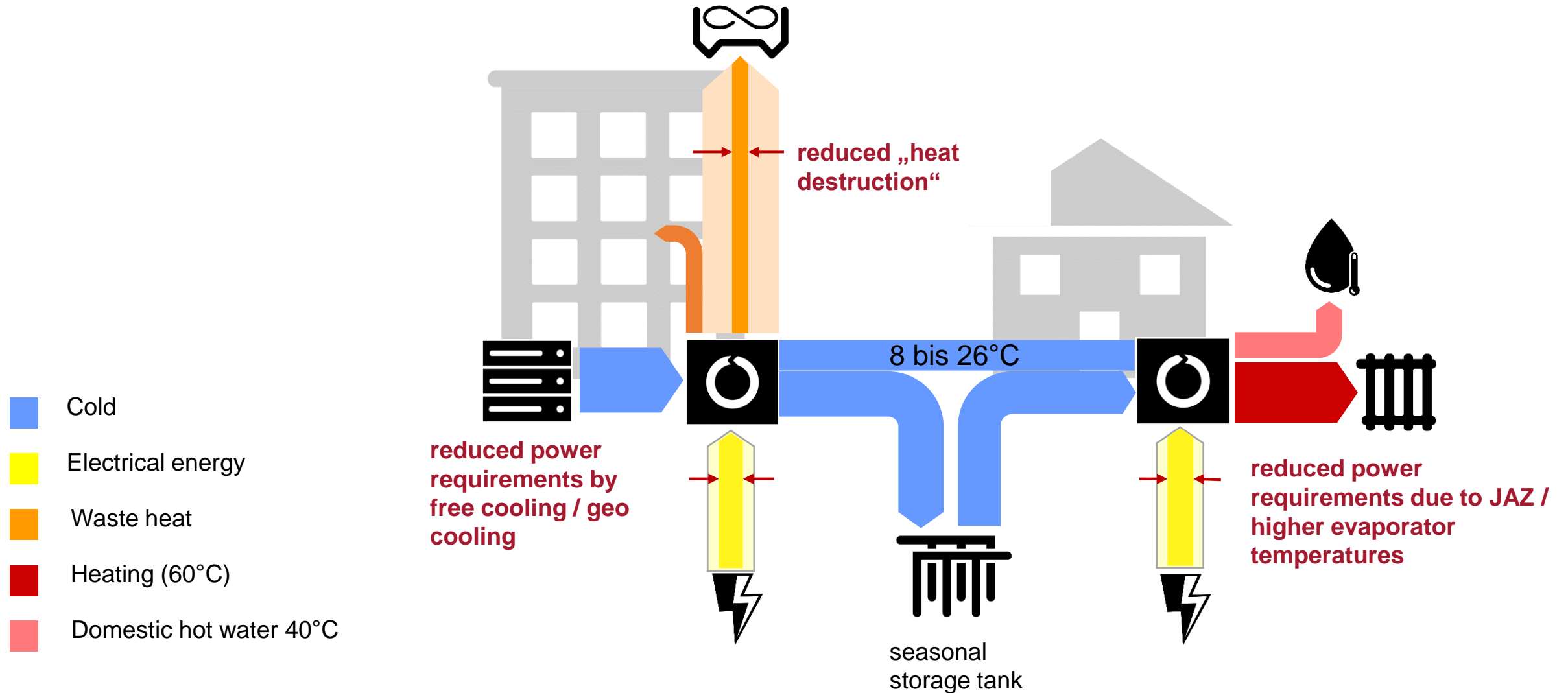
Credit Suisse Uetlihof

- Total building area in a size of 36 football fields
- 8'300 work places
- 3'300 meals daily
- 6'600m² data centre
- 900 parking lots

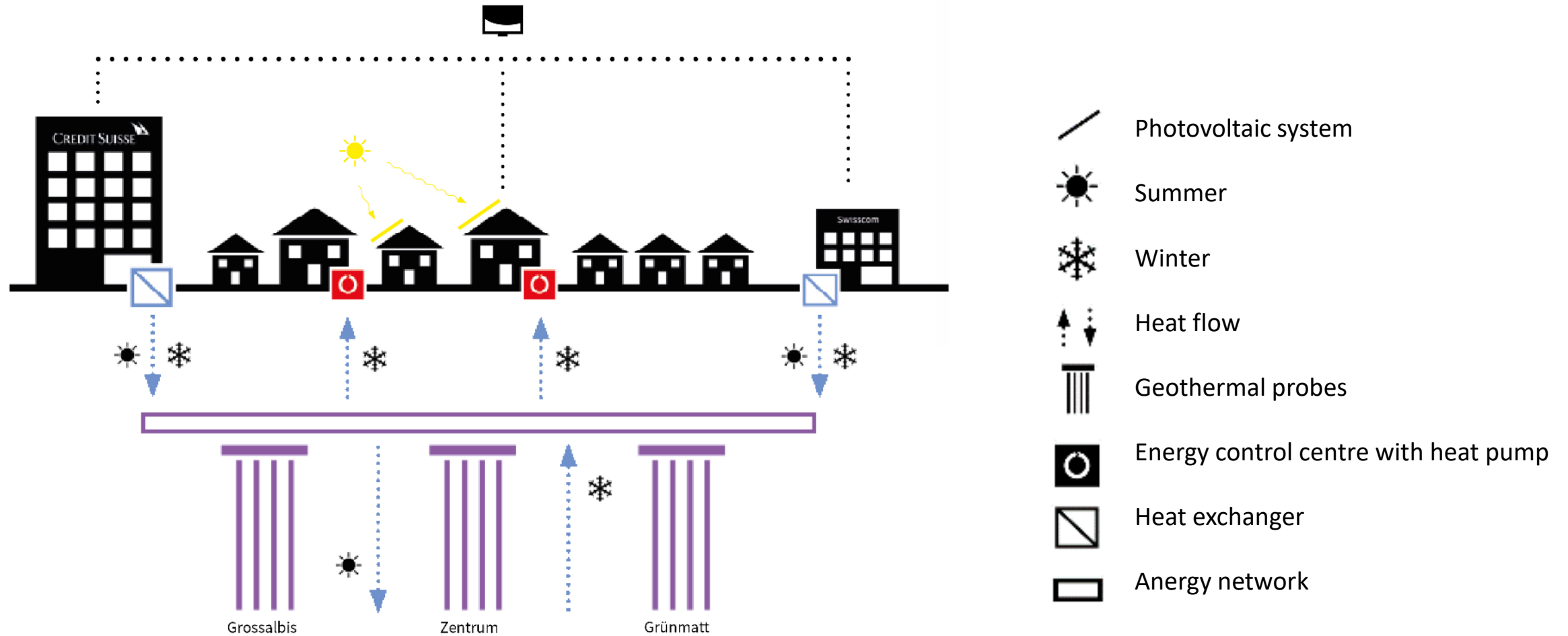
Cooling of data centre and heating of housing units



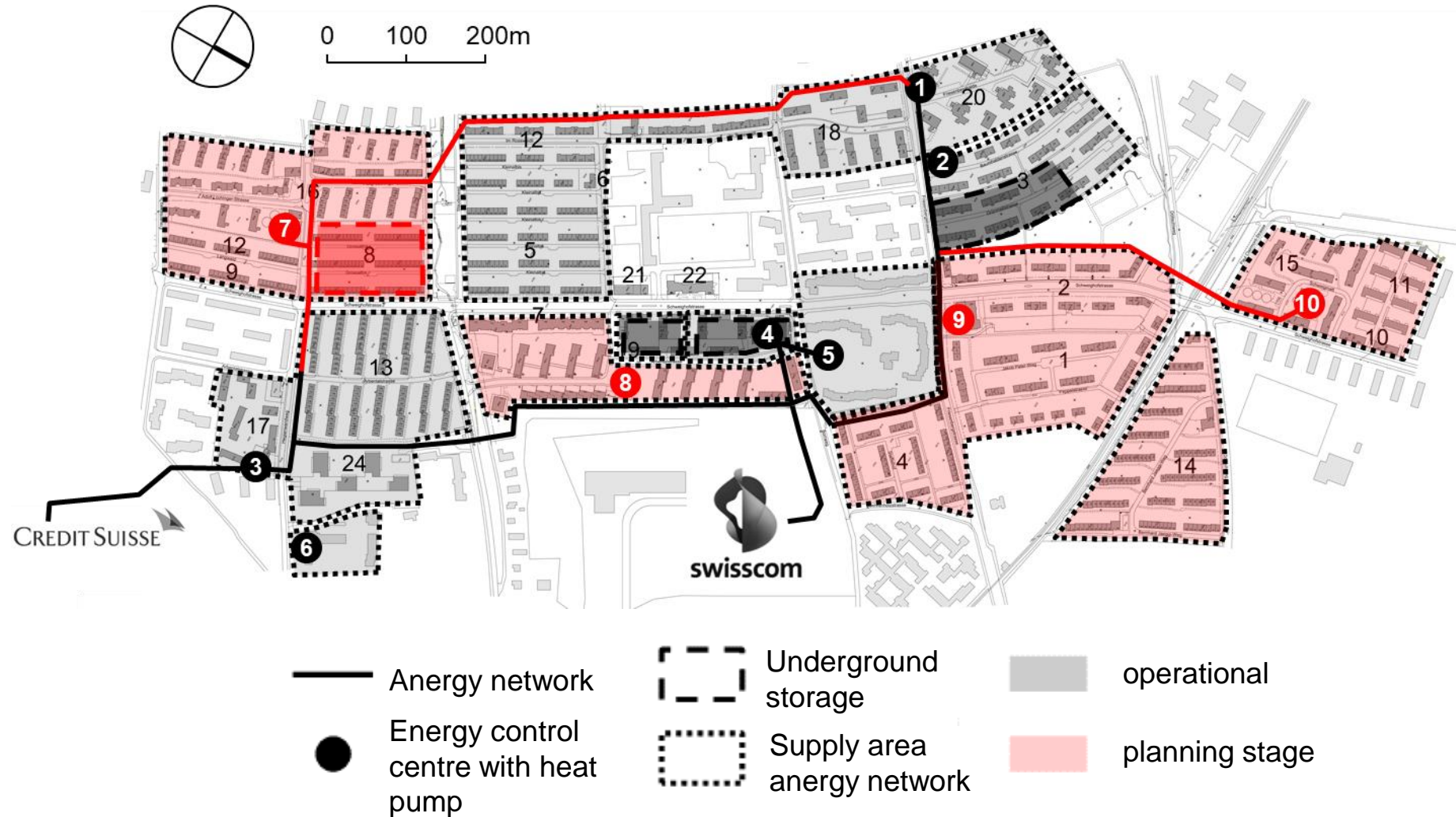
Cooling of data centres by heating of housing units



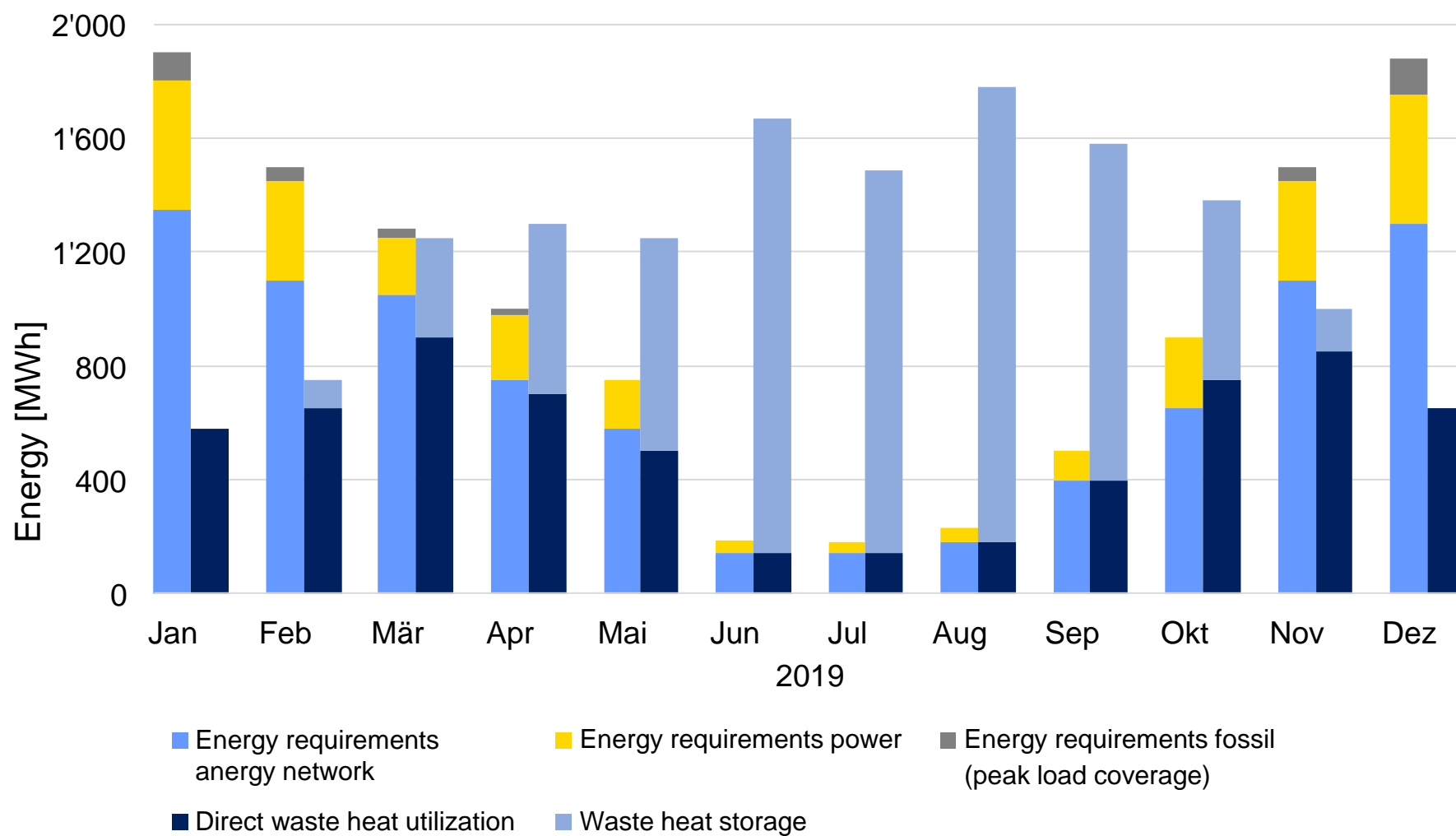
Anergy network Friesenberg - Functionality



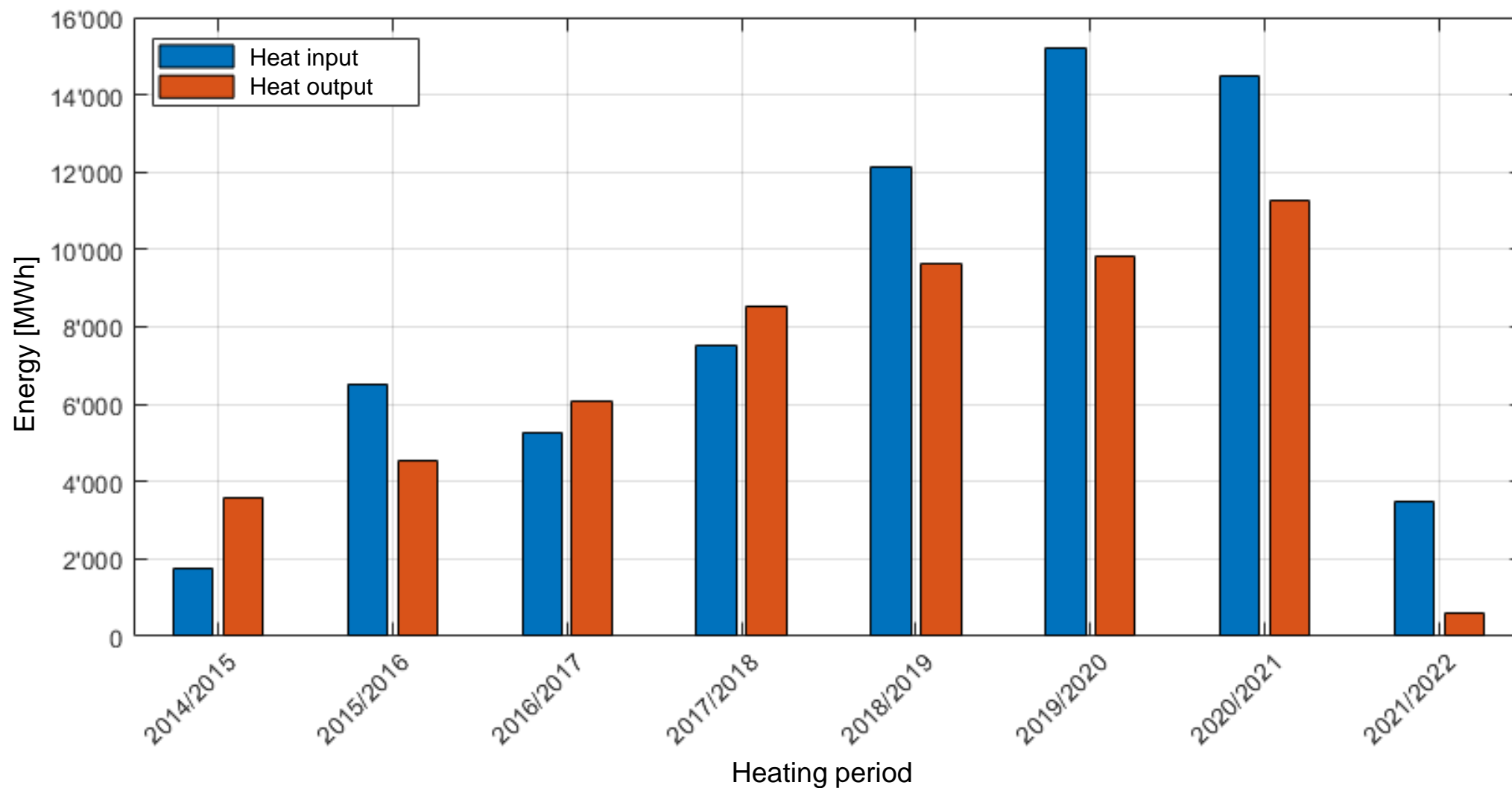
Anergy network Friesenberg



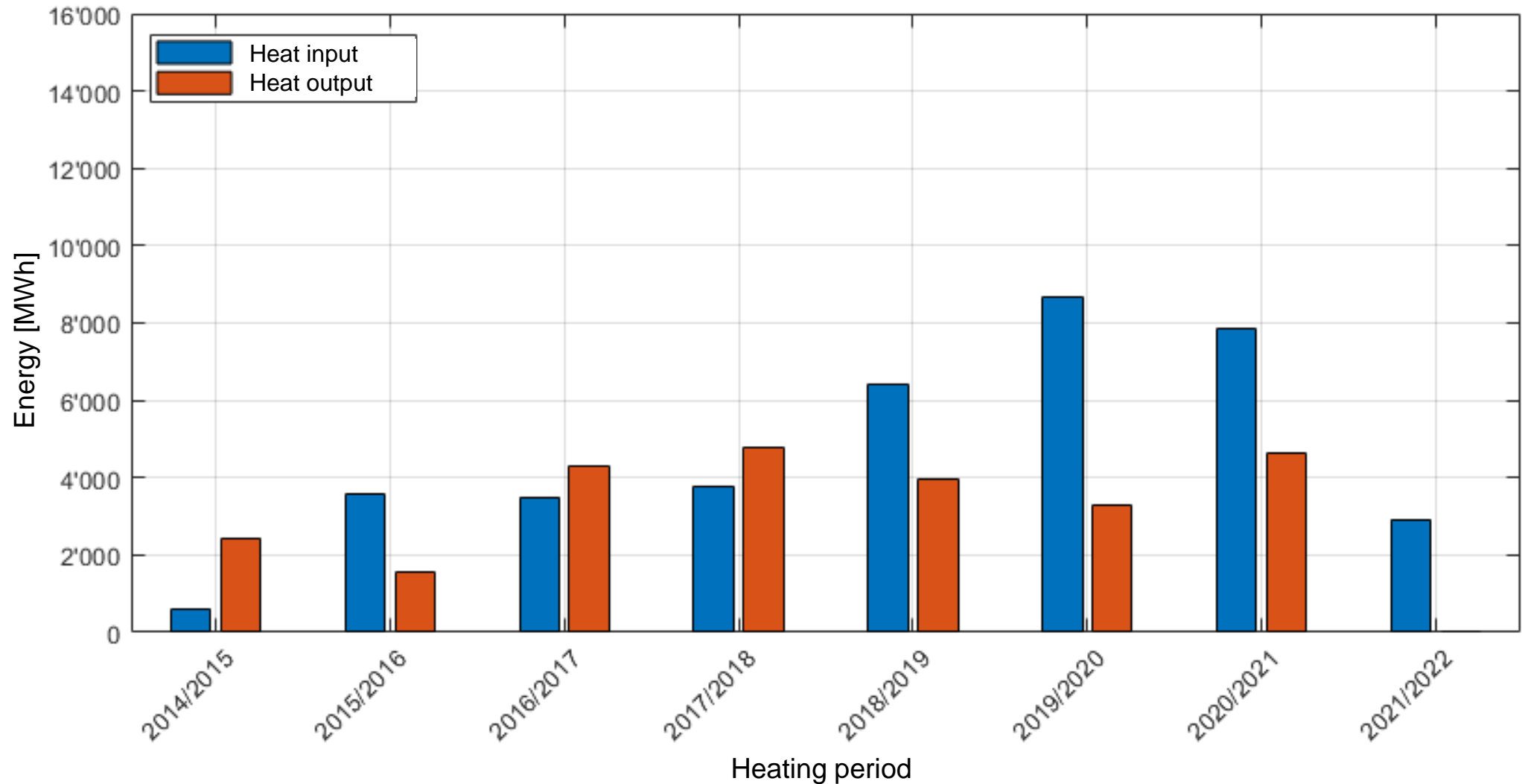
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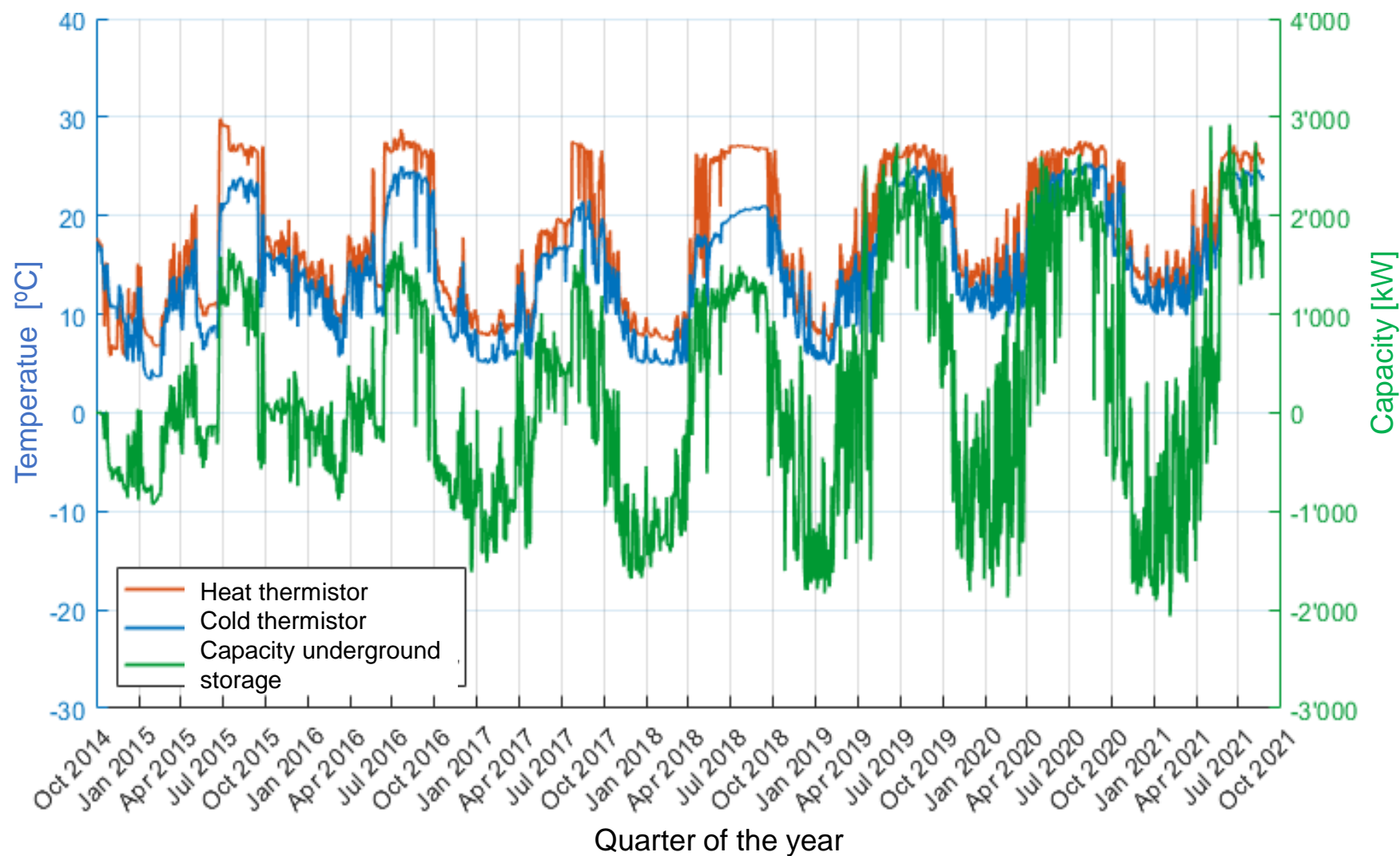
Cold and heat via the anergy network



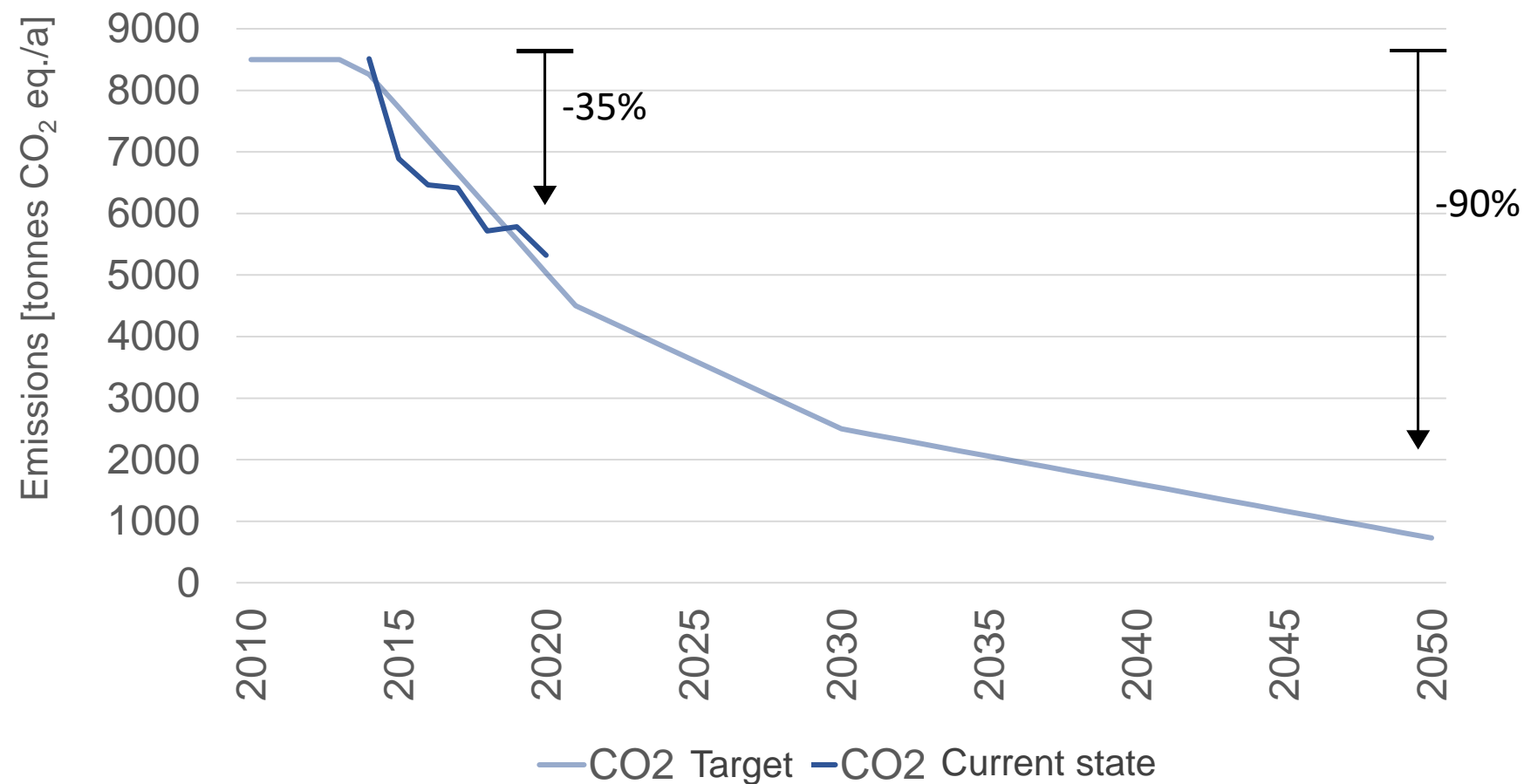
Cold and heat storage with geothermal probes



Temperatures and charging capacity underground storage

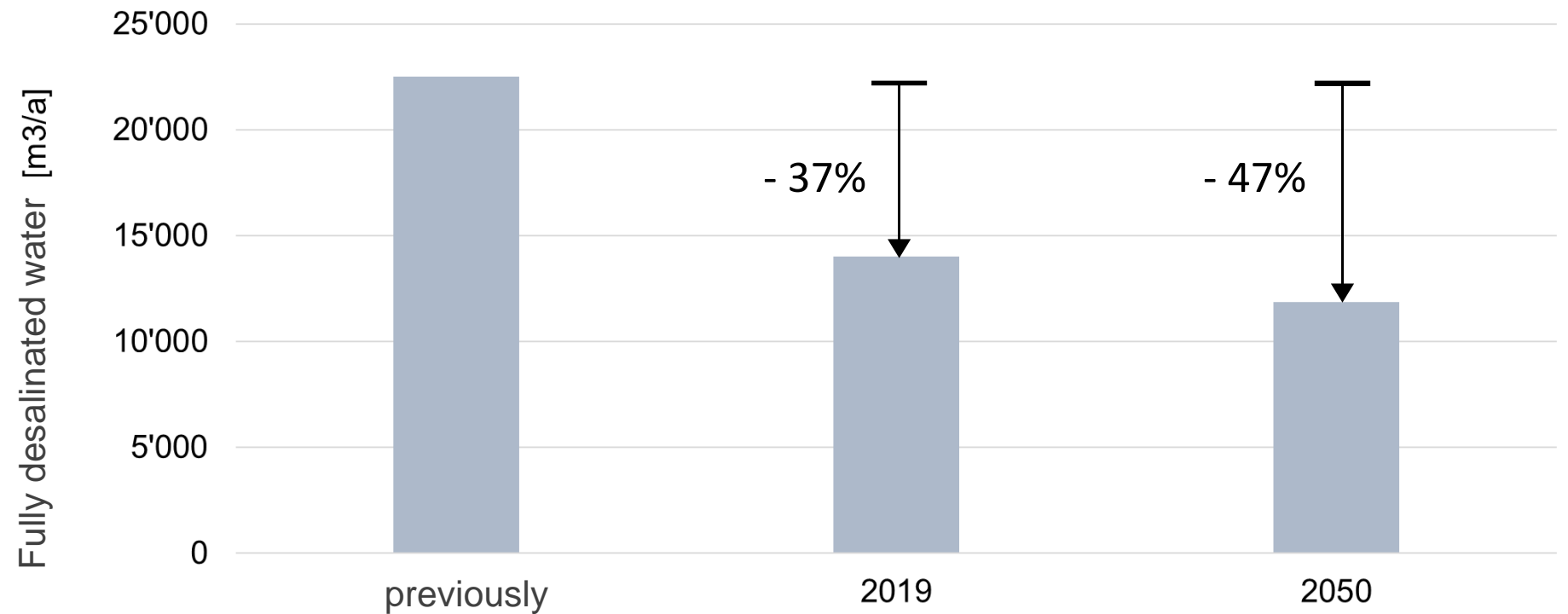


Targeted reductions CO₂eq emissions FGZ



Source: Monitoring FGZ

Saving fully desalinated water for recoolers



Annual water savings correspond to about 4 times the content of a 50 m swimming pool.

Implementing district heating in interaction with local actors (examples of Zürich, and St Gallen)

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Energy network GSG – industrial area Gossau St. Gallen Gaiswerwald

Challenge

- Involvement of 17 private companies
- Cross-community
- Low energy tariffs
- Short access routes
- high waste heat density (enormous, unexploited waste heat potential)

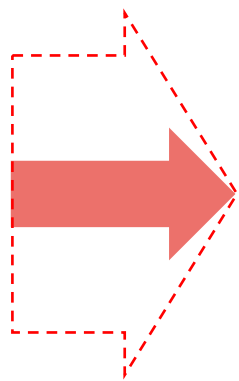


Networks provide a multiple efficiency potential than the sum of individual solutions

- Building internal heat recovery potential is rather small due to processes
- Usable renewable energy sources restricted
- High primary energy demand "from the outside"



Networks provide a multiple efficiency potential than the sum of individual solutions

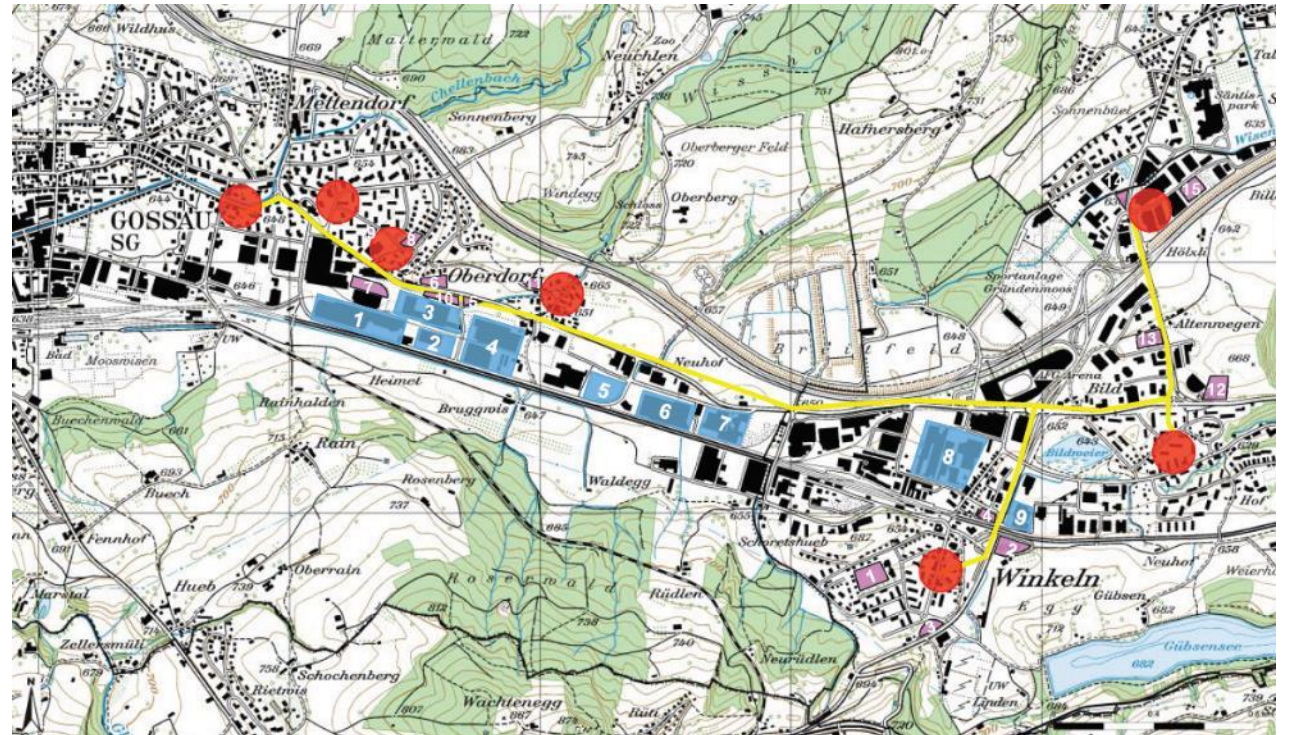


- Cross-building heat recovery potential is much higher
- Usable renewable energy sources are more versatile
- Reduction of primary energy demand "from the outside"

Energy network GSG

Solution

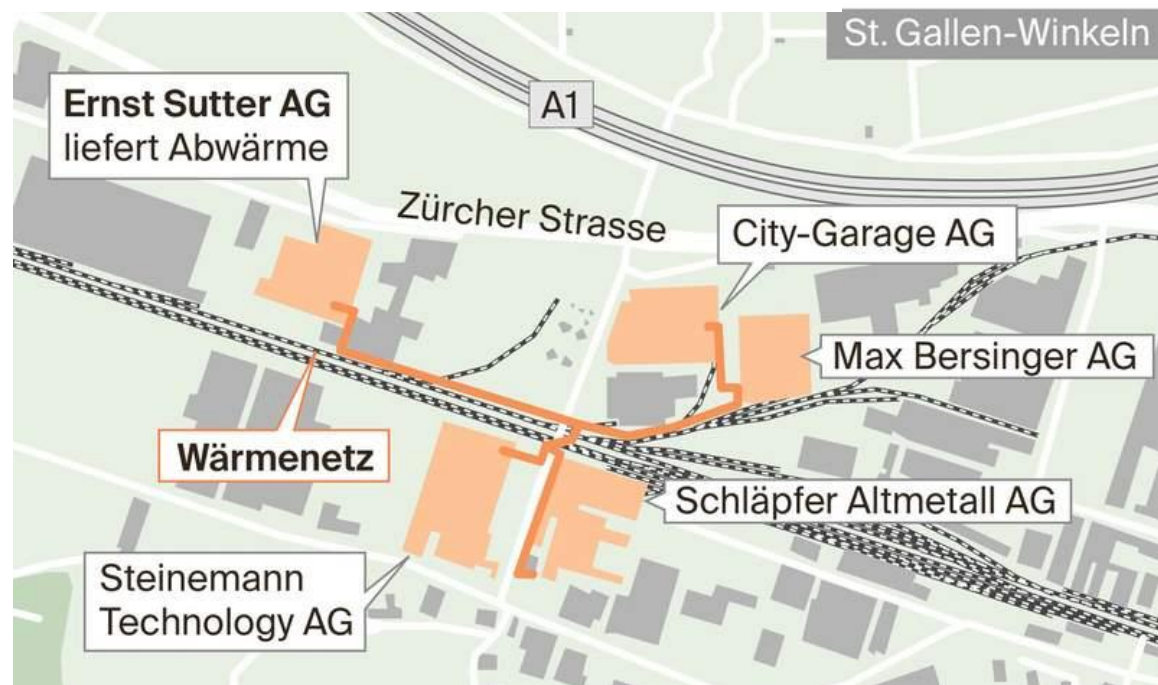
- Association Energienetz GSG as a common platform for companies and the public sector
- Energy as a core topic
- Implementation of an energy network as a "private-public partnership"



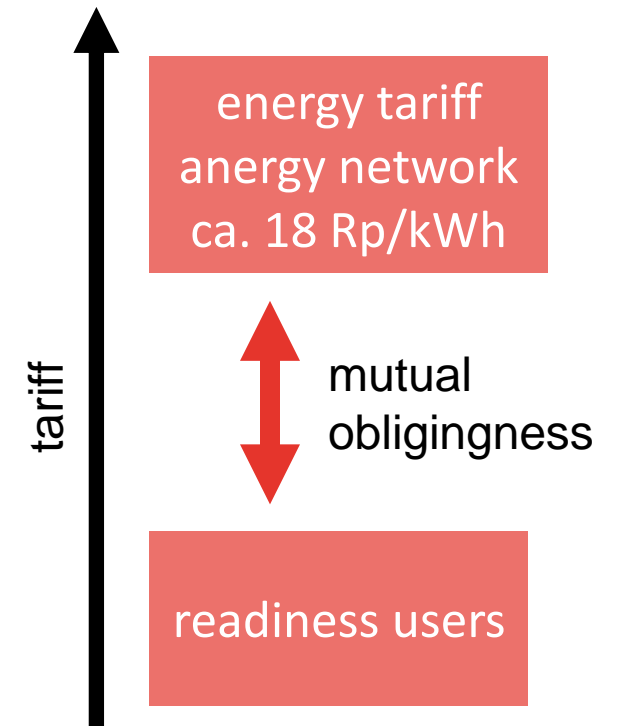
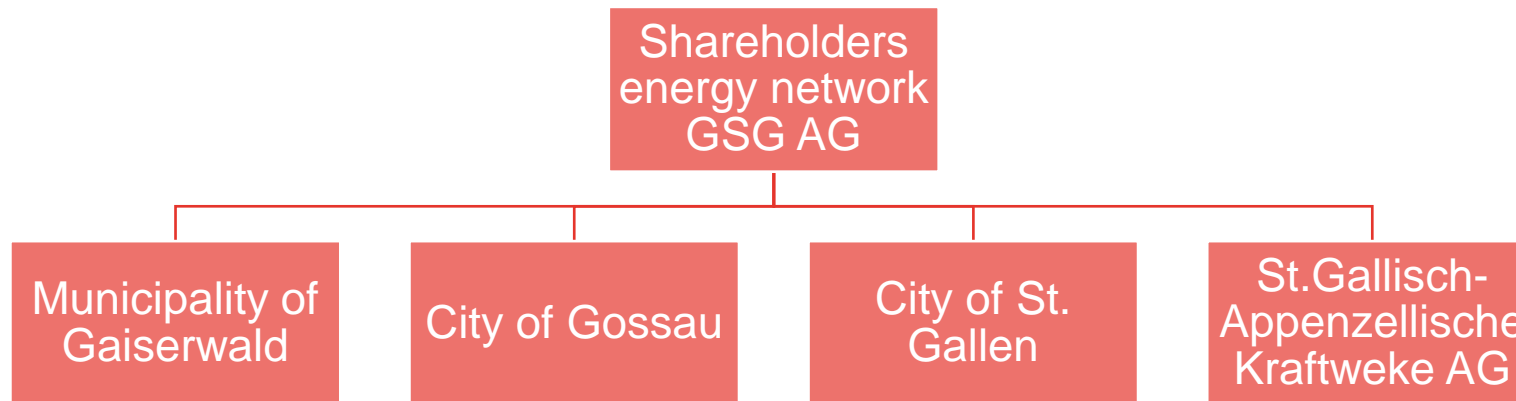
Energy network GSG



Initial cluster waste heat network GSG



Energy network GSG - organization





Discussion

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