

# Anergy2Plus

Demonstration and expansion of an anergy network as part of a holistic energy concept and plus-energy district

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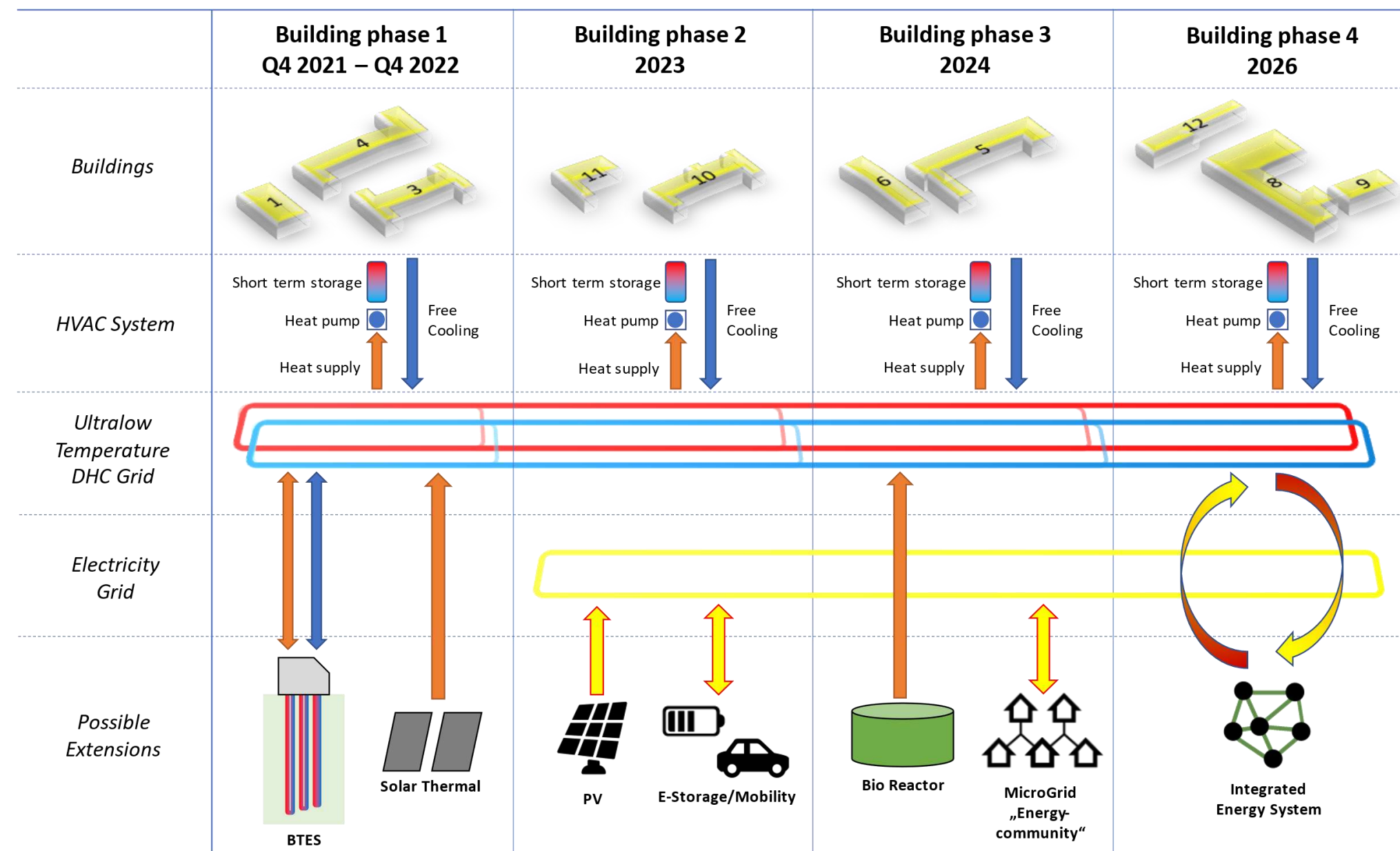
# Content

- „Garten der Generationen“
  - Building project in Herzogenburg (Lower Austria)
  - Several consecutive building phases
  - Core concept of the association is to think in „circles“ and in „cycles“
  - Financial, energetic, biological cycles
  
- Energy System / Anergy Grid
  
- Simulation results first phase
  
- Outlook on next building phases



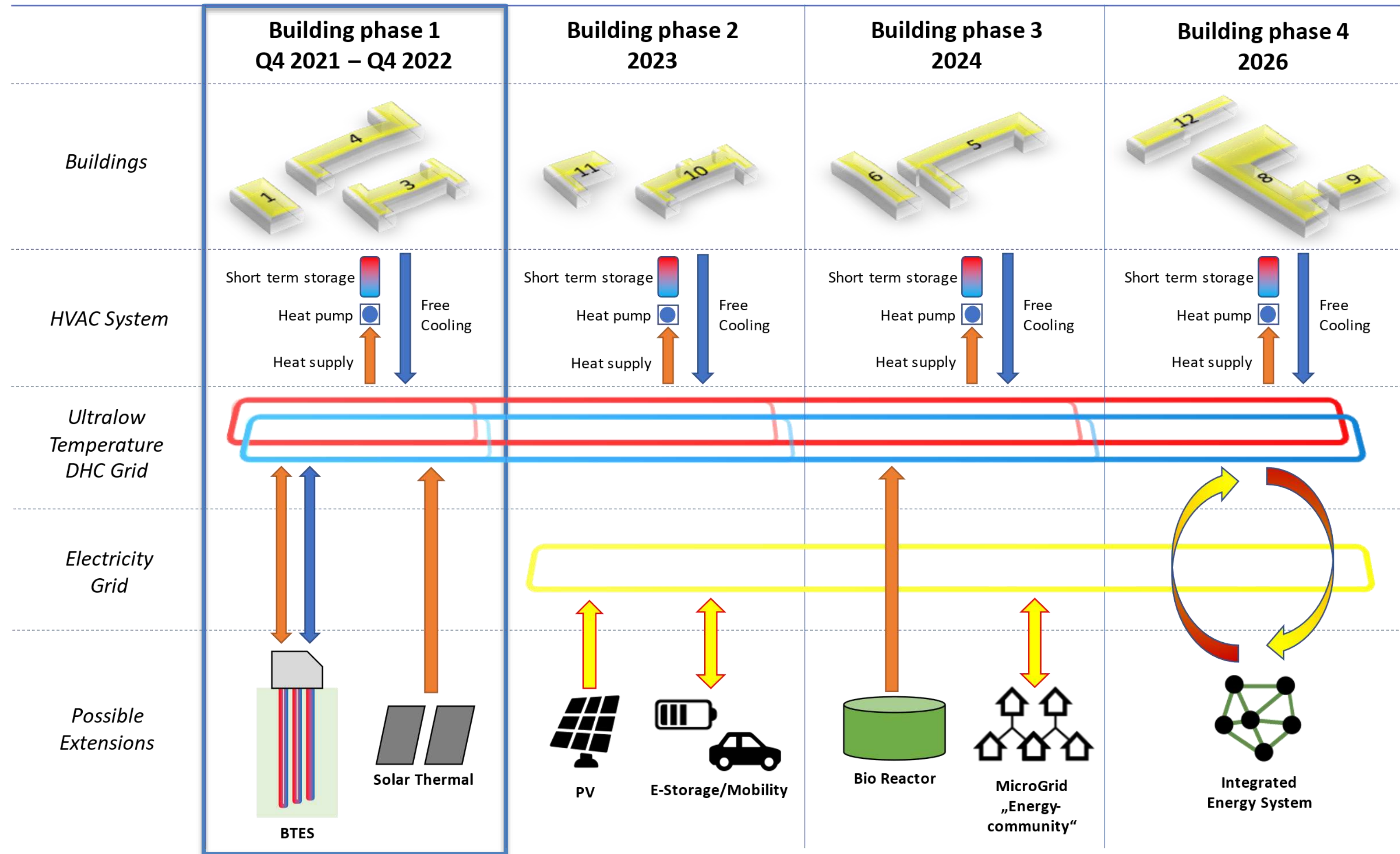
# Energy Supply in the „Garten der Generationen“

- Vision
  - Sustainable heating, cooling and electricity based on local resources
- „Heart piece“
  - Anergy grid in combination with heat pumps & long-term thermal storage
- Long-term Goal
  - Further innovative expansion up to a PlusEnergy quarter





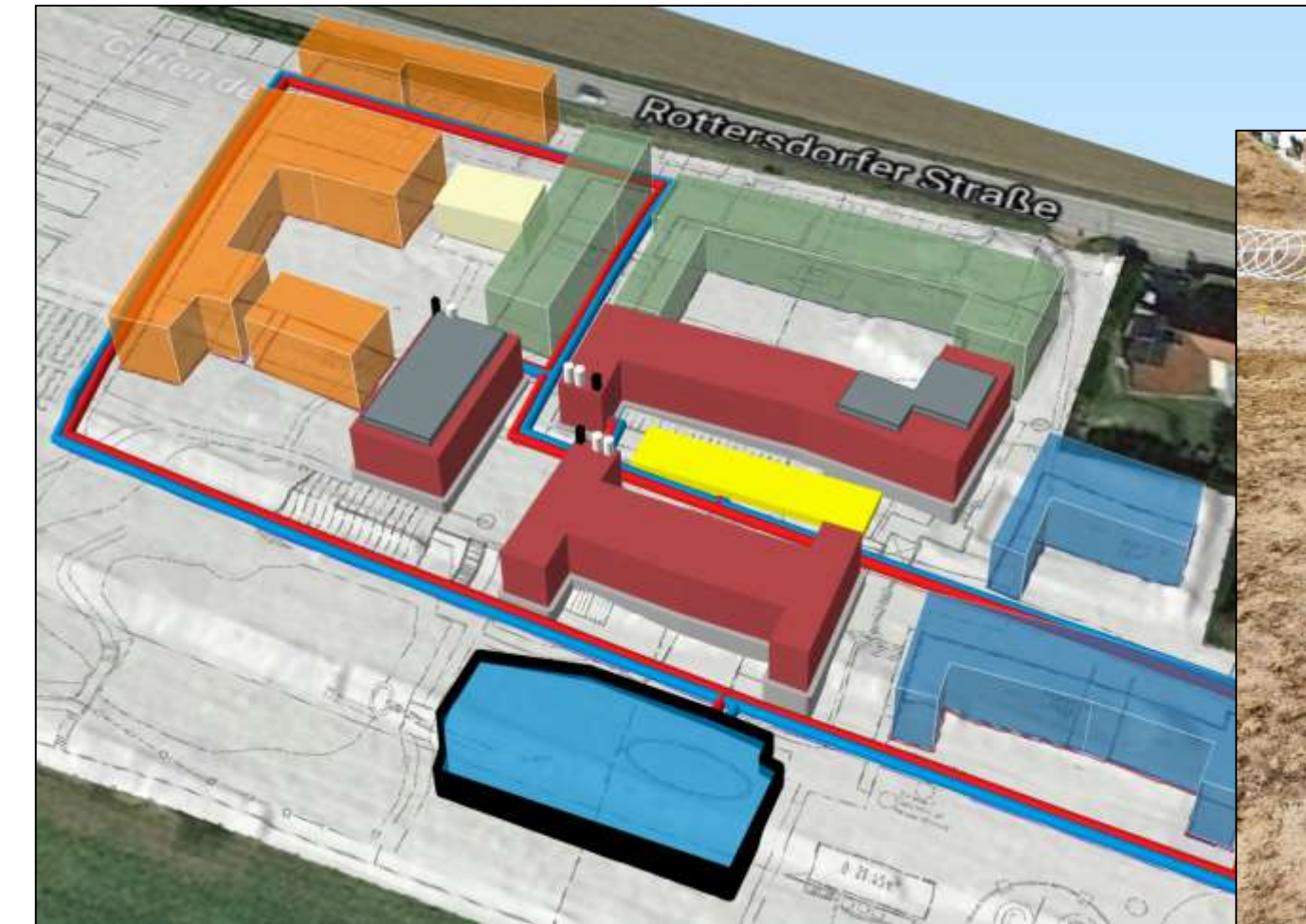
# Energy System Building Phase 1





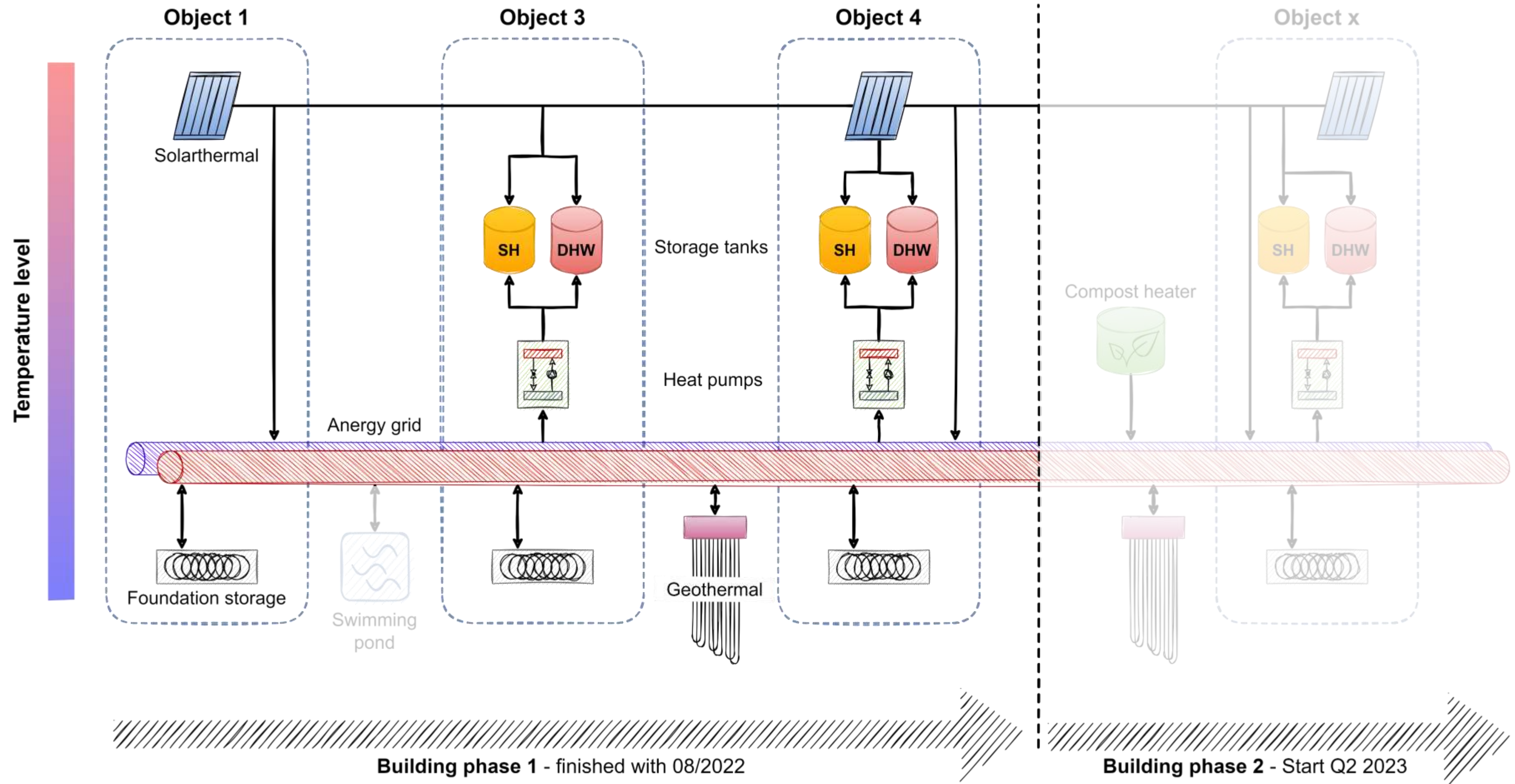
# Building Phase 1: Numbers and Facts

- First Building Phase:
  - 3 Buildings:
    - 2 Residential buildings with mixed use
    - 1 Community house/kitchen
  - Around 10.000 m<sup>2</sup> gross floor area
    - 19 residential units
    - 4 assisted living flat-sharing rooms
    - 1 coworking space & 1 guest room
- Technical elements
  - Anergy grid system
  - Decentralized heat pumps for heating and hot water supply in the buildings, as well as short-term thermal storage tanks
  - Boreholes and foundation storage for seasonal heat storage
  - Solar thermal collectors 100 m<sup>2</sup>



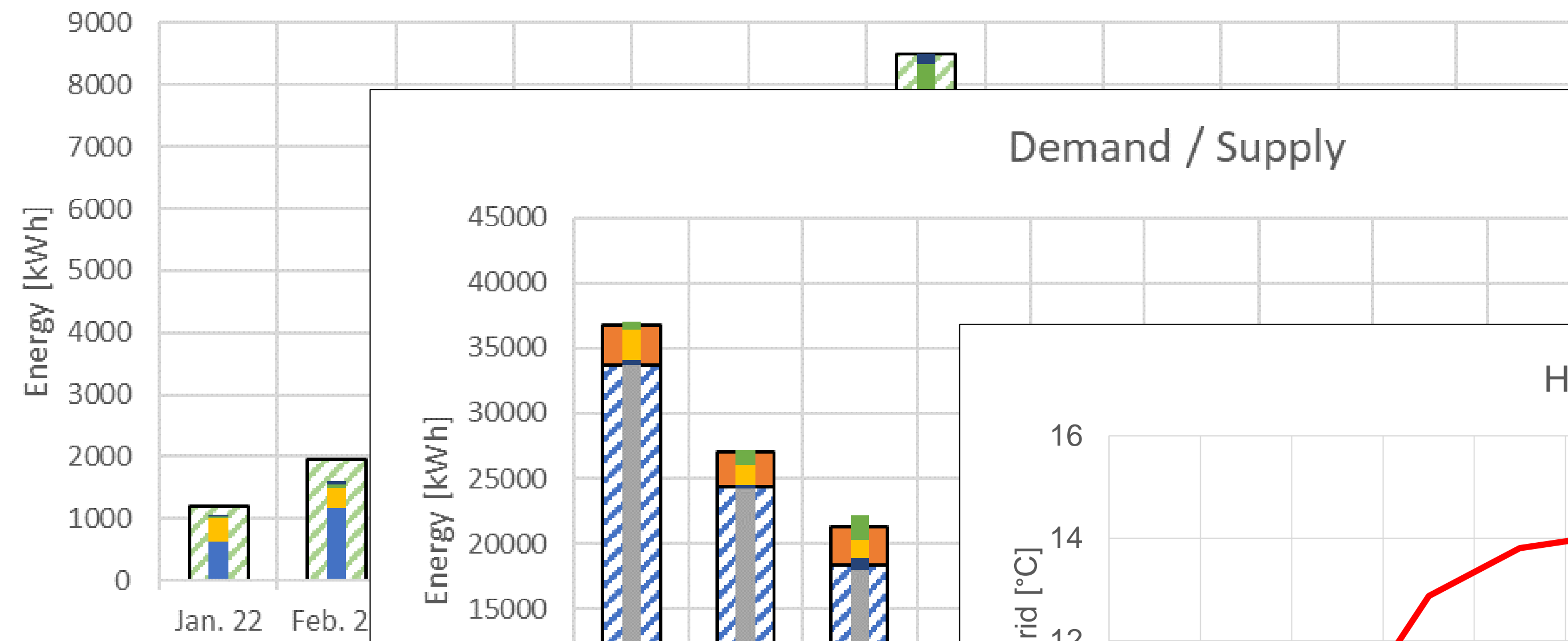


# Energy System Building Phase 1

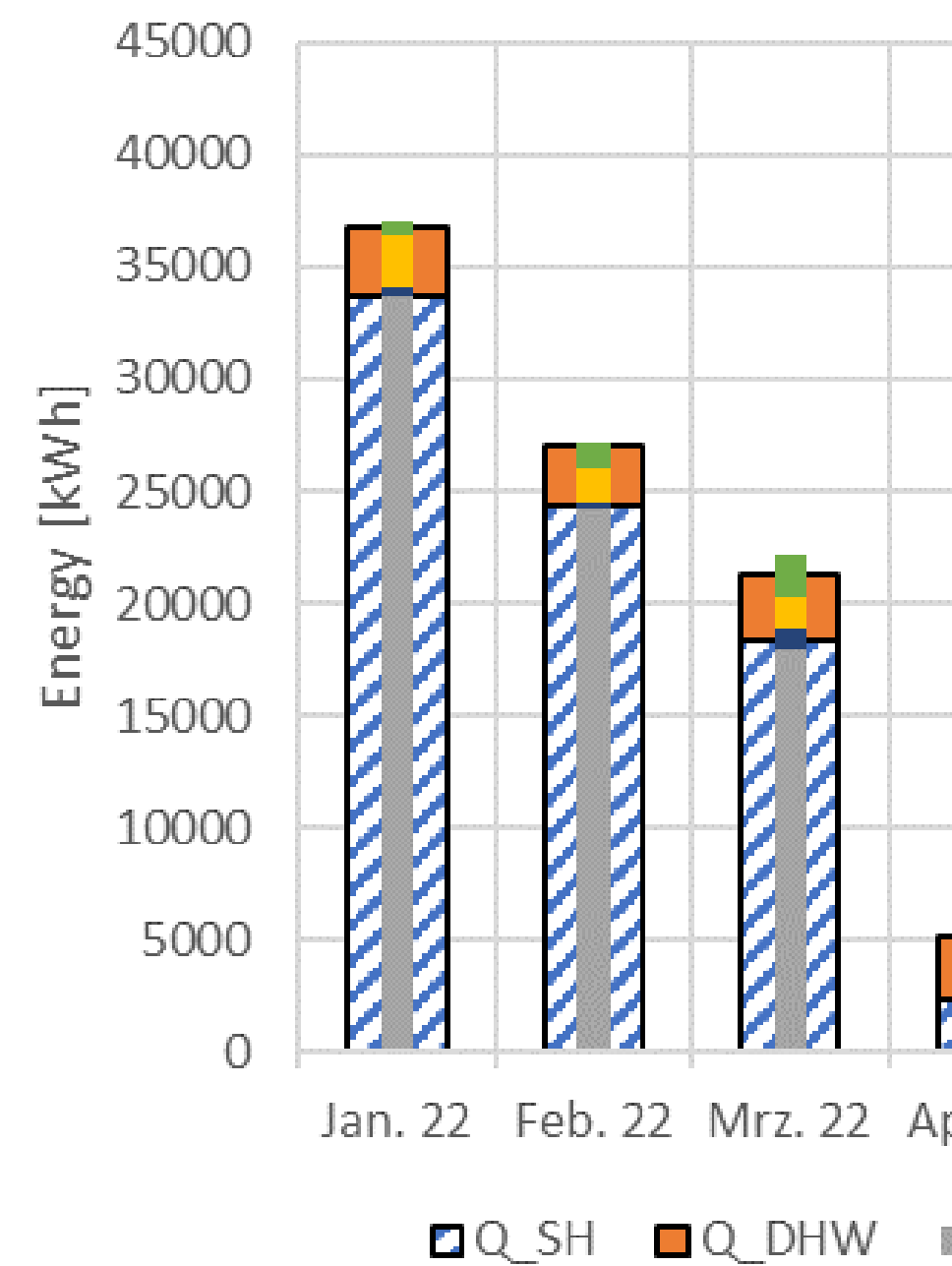


# Simulation Results Phase 1

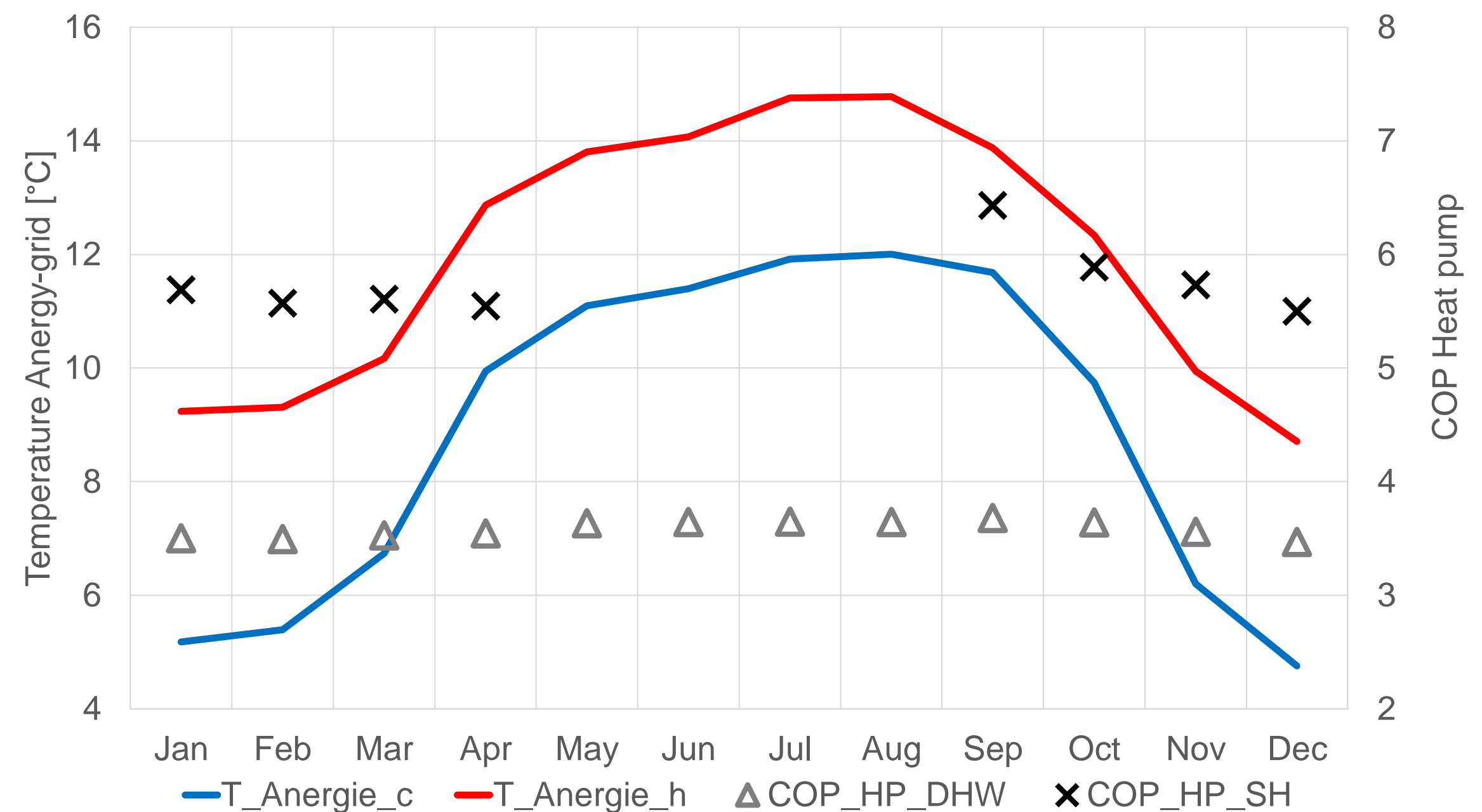
### Solar Gains



### Demand / Supply



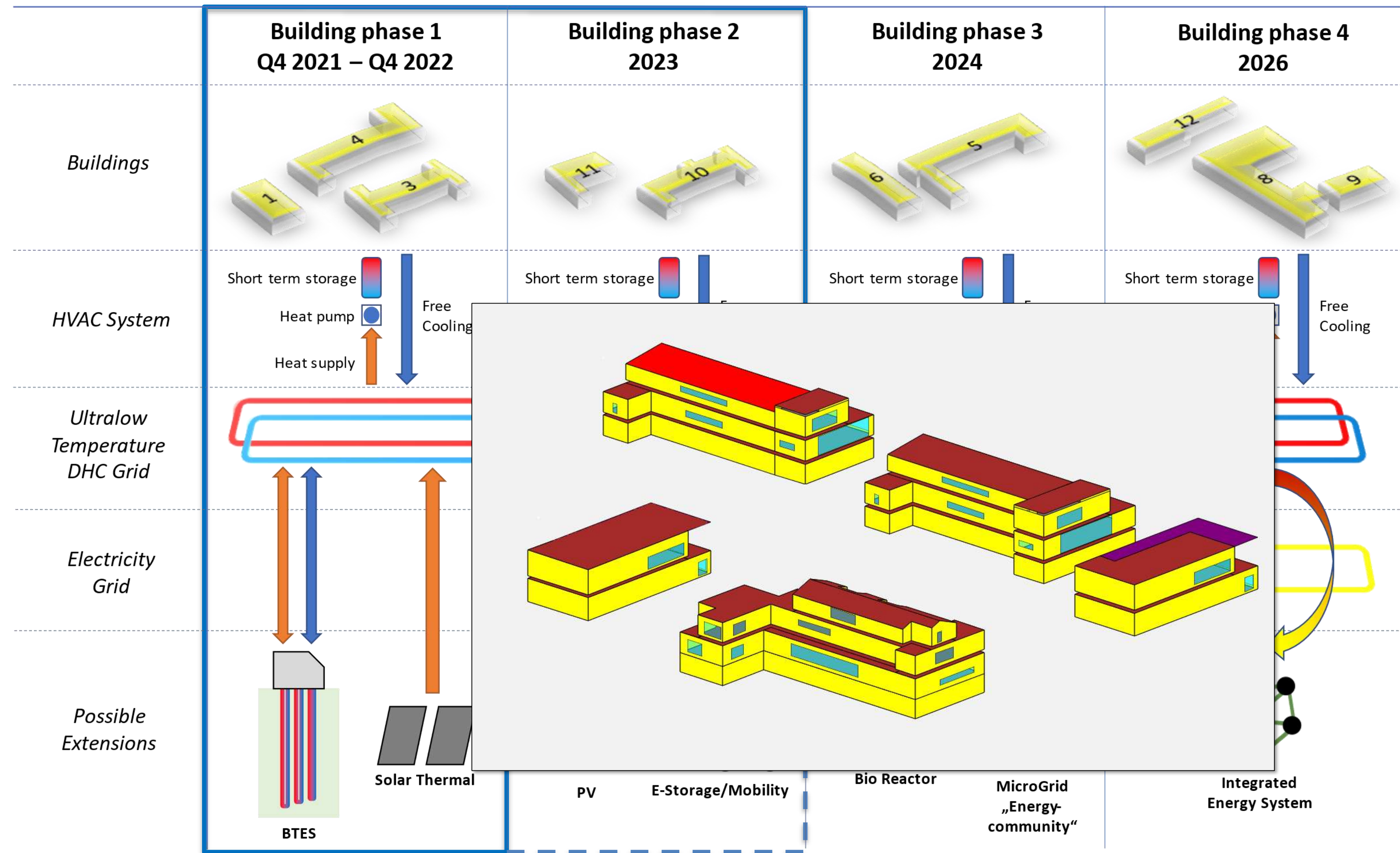
### HP COP





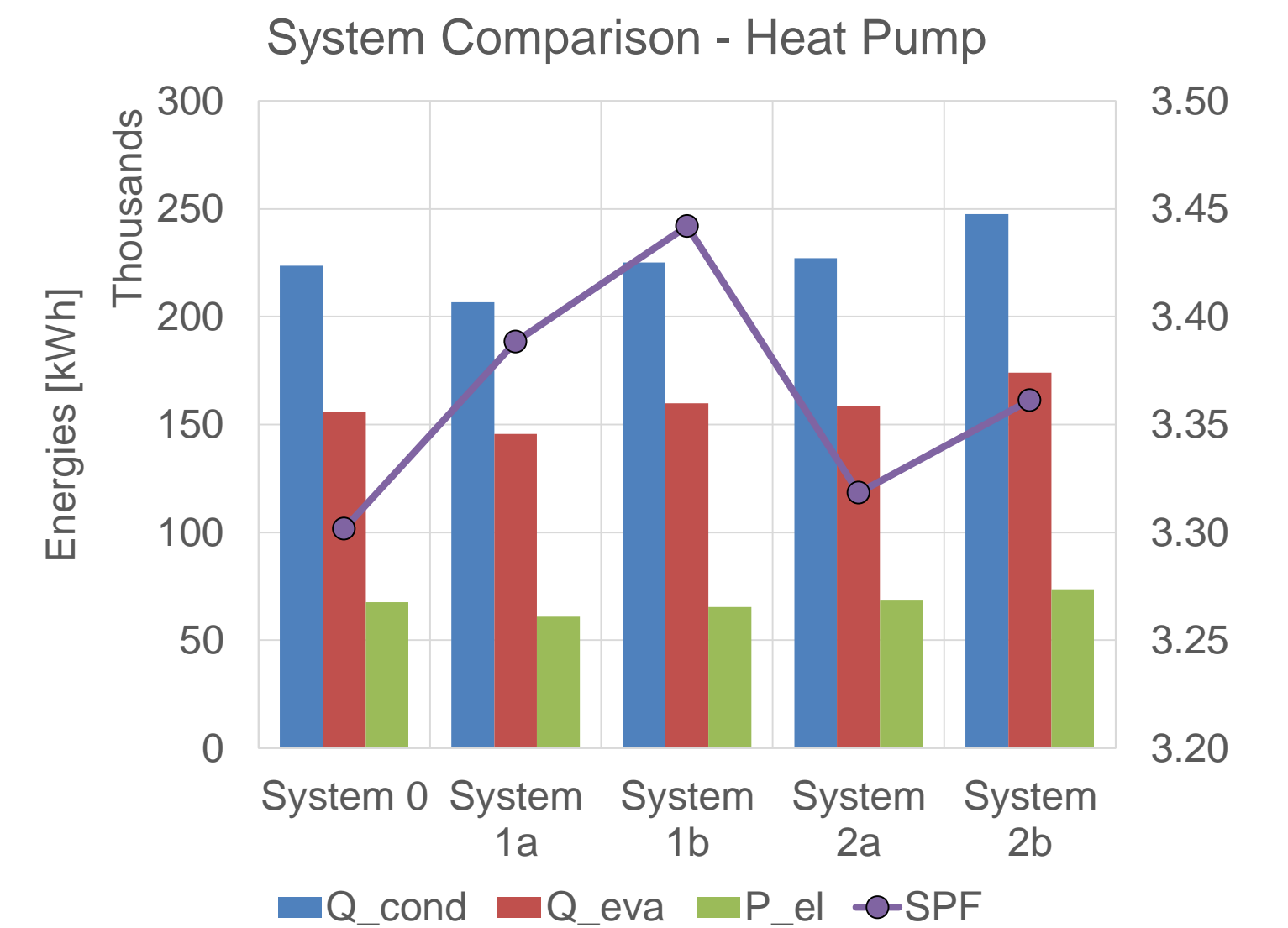
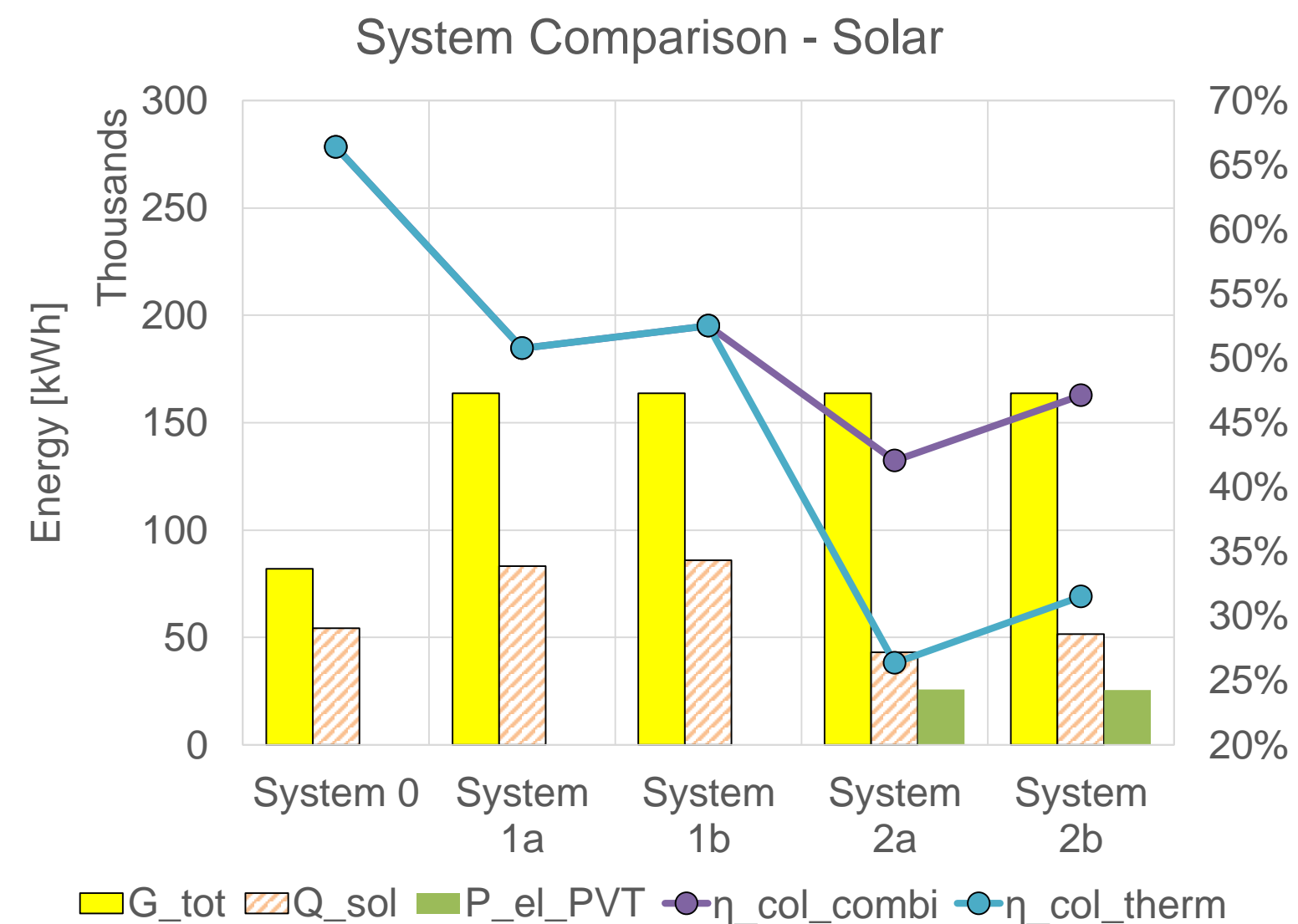
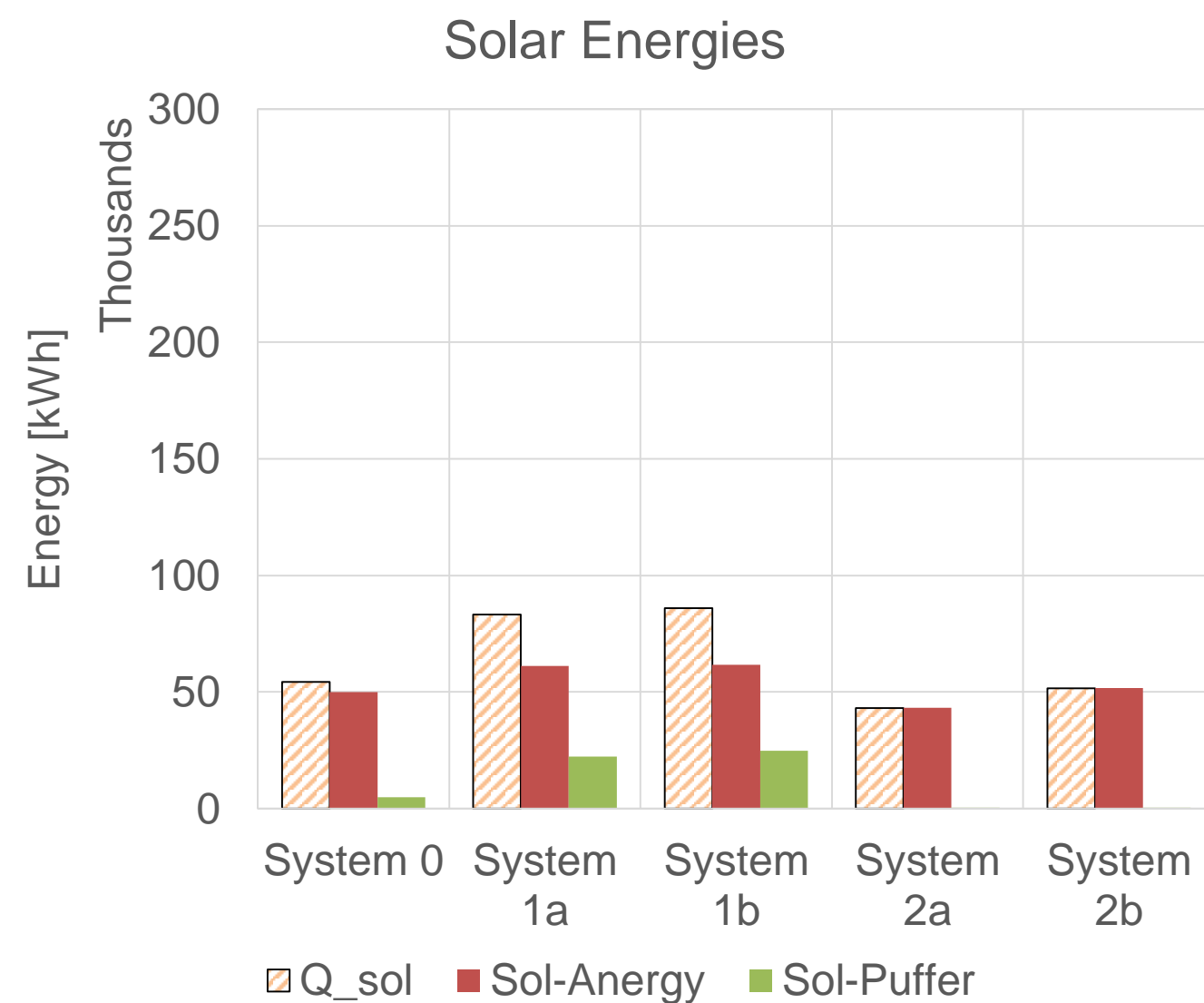


# Outlook Further Construction Phases



# System Variants of Further Construction Phases

System	Solar thermal collector	PV-T	Borehole storage	Ground coupling under buildings	Puffer size
System 0	100 m <sup>2</sup>	-	-	Yes	6m <sup>3</sup>
System 1a	200 m <sup>2</sup>	-	-	Yes	6m <sup>3</sup>
System 1b	200 m <sup>2</sup>	-	Yes	-	6m <sup>3</sup>
System 2a	-	200 m <sup>2</sup>	-	Yes	6m <sup>3</sup>
System 2b	-	200 m <sup>2</sup>	Yes	-	6m <sup>3</sup>



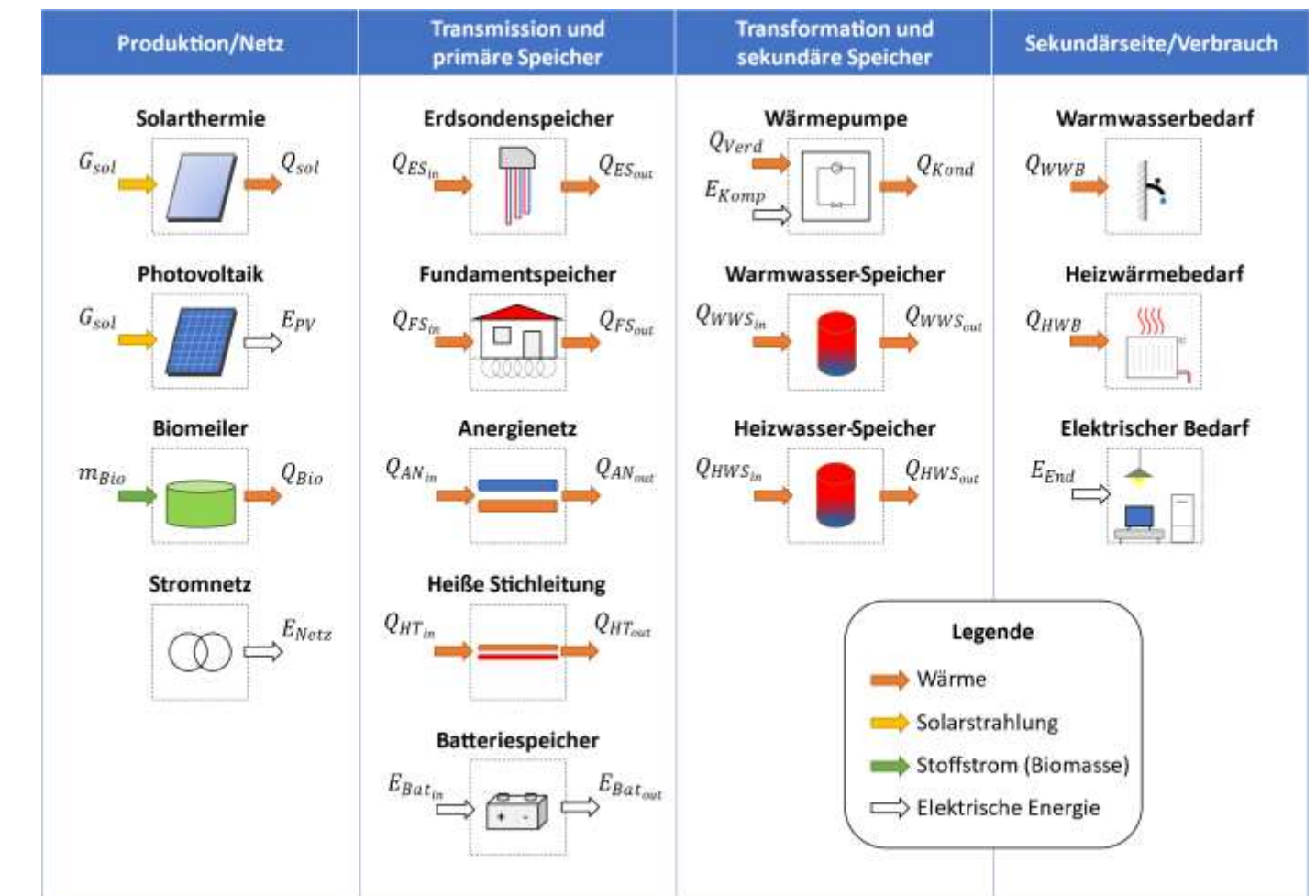


# Outlook Further Construction Phases

- Planned system extensions:
  - Additional buildings
  - 30kWp PV System with electrical storage
    - Electric supply of heat pump and appliances
  - E-Mobility concept (EV-charging station installed)
  - Compost heater
    - Batch-wise heating supply

# User Integration and Monitoring

- System-wide monitoring installed
  - Monitoring and optimization of the system during operation
  - Balancing of energy in system
  - Gathering experience for further expansions
  
- User integration
  - Processing of results for residents via Info screen (recommendations for action)
    - Accompanying dialog and workshop series
    - Construction progress
    - Supply and monitoring concept
    - Operational management strategies for the entire neighborhood







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**IDEA TO ACTION**

# Thank you!

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