



# On design process for integrating renewables into existing district heating systems

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# Urban – DH – Extended Project

## Project partners



## Objective

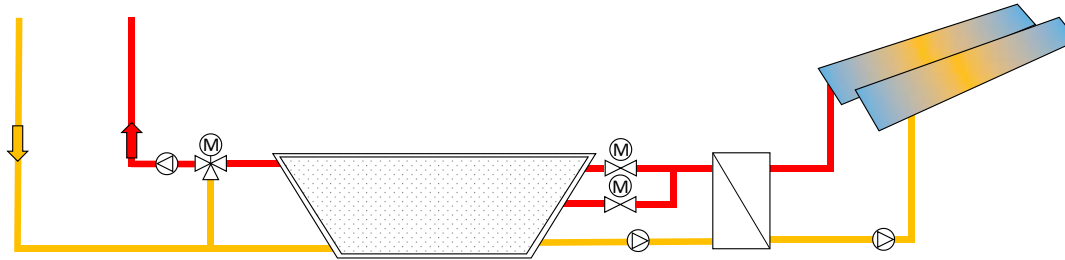
Develop and simulate new energy concepts for the expansion of urban district heating systems

## DH - Challenges

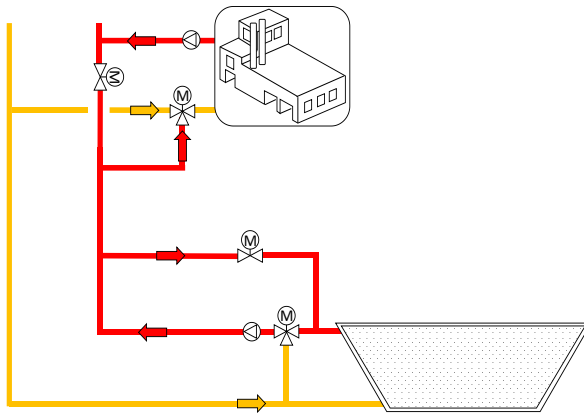
- Decarbonization
  - Increase solar fraction
  - Integration of waste heat
  - Increase operating hours of biomass heat production units
- Flexibility increase
  - Integration of (large-) thermal energy storages

# Energy concepts

- Large solar field and thermal storage (with/without AHP)



- Integration of large thermal energy storage with biomass unit



- Integration of residual heat into DH

- **Simplified modelling of the energy system in Modelica**
- Analysis of the energy system by
  - Testing different unit commitment and control strategies
  - Carrying out parameter studies
- Results evaluated based on key performance indicators,
  - Specific solar yield
  - Share of the different production units
  - Heat production costs



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**IDEA TO ACTION**

**Thanks for your  
attention!**