KGk. | Kooperatives Graduiertenkolleg Gebäudetechnik & Energieeffizienz

HOCHSCHULE FÜR ANGEWANDTE WISSENSCHAFTEN MÜNCHEN

Project SolarSplit

Solar-electric-powered heating and cooling including thermal storages and optimized grid connection

Author:

Felix Loistl, M.Eng.
Timo Korth, M.Sc.
Department 05: Building Services & Energy Efficiency

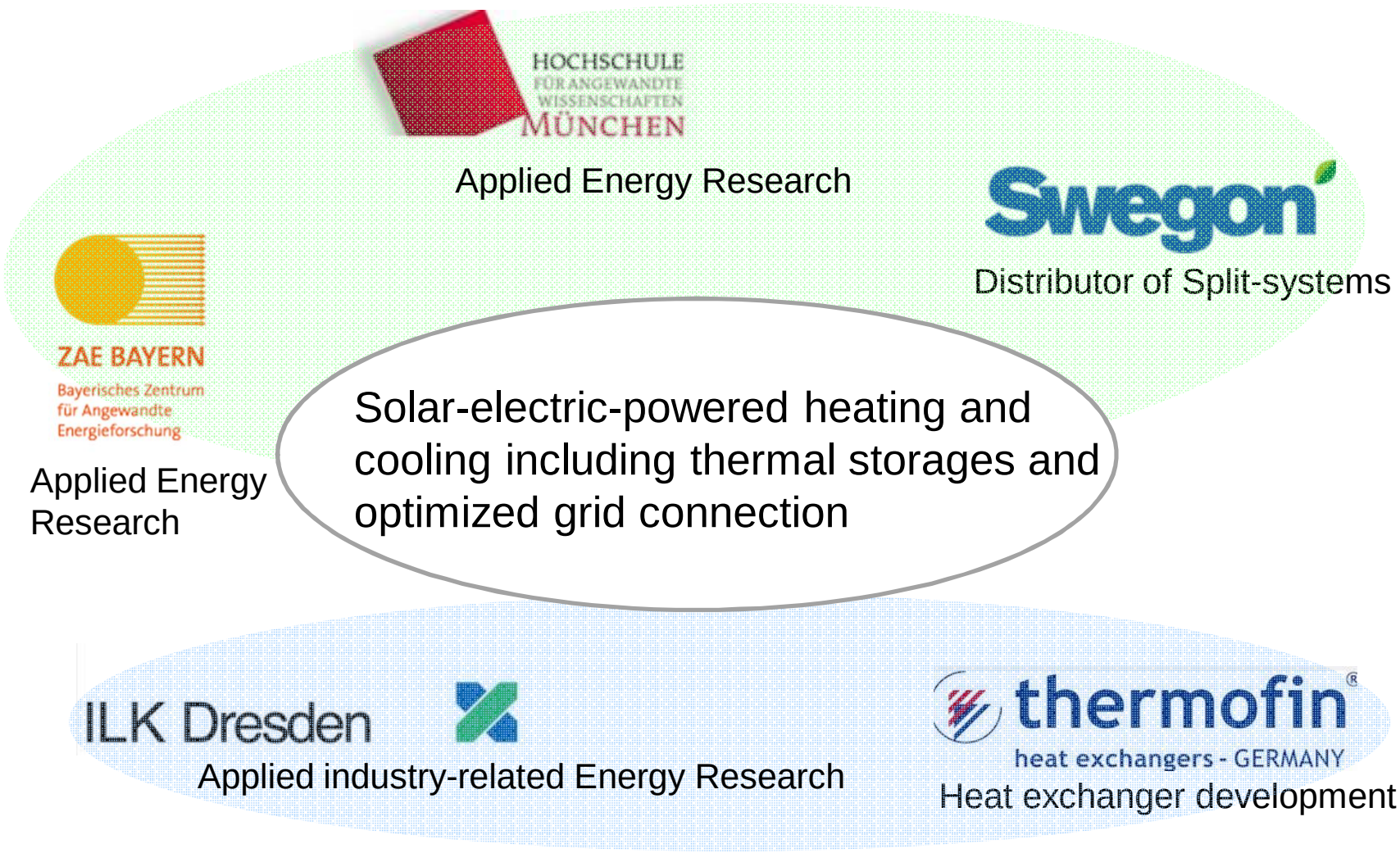
Supervisor:

Prof. Dr. C. Schweigler (University of Applied Sciences Munich)

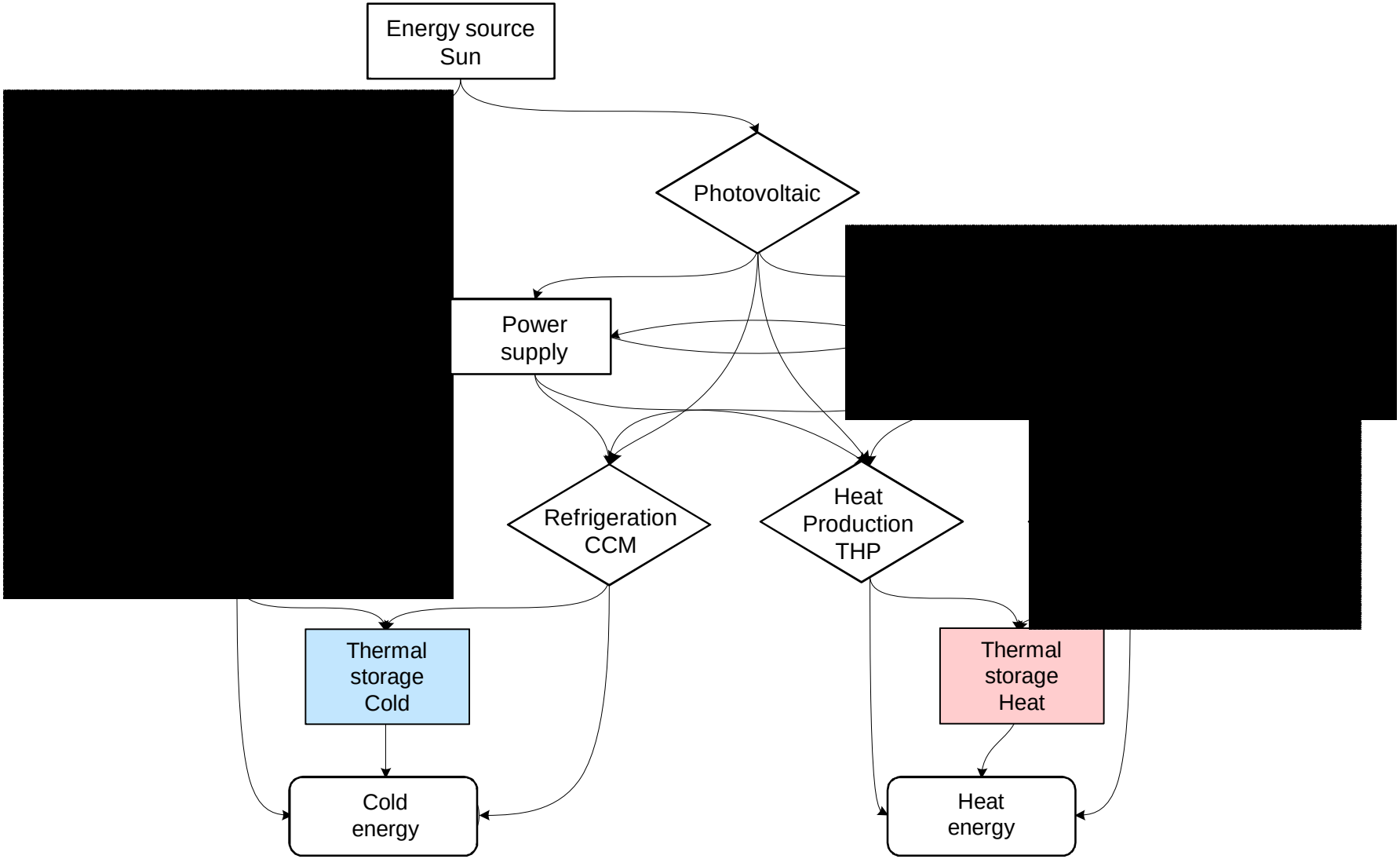
Agenda

- Project partners and focus
- Introduction
- Work packages
- Subtask

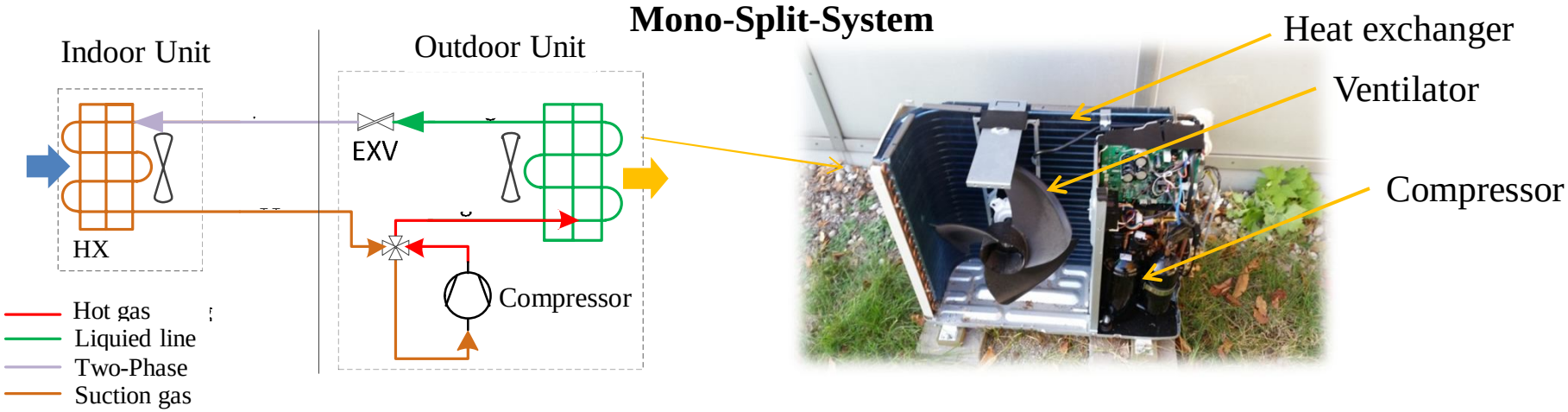
Project partners and focus

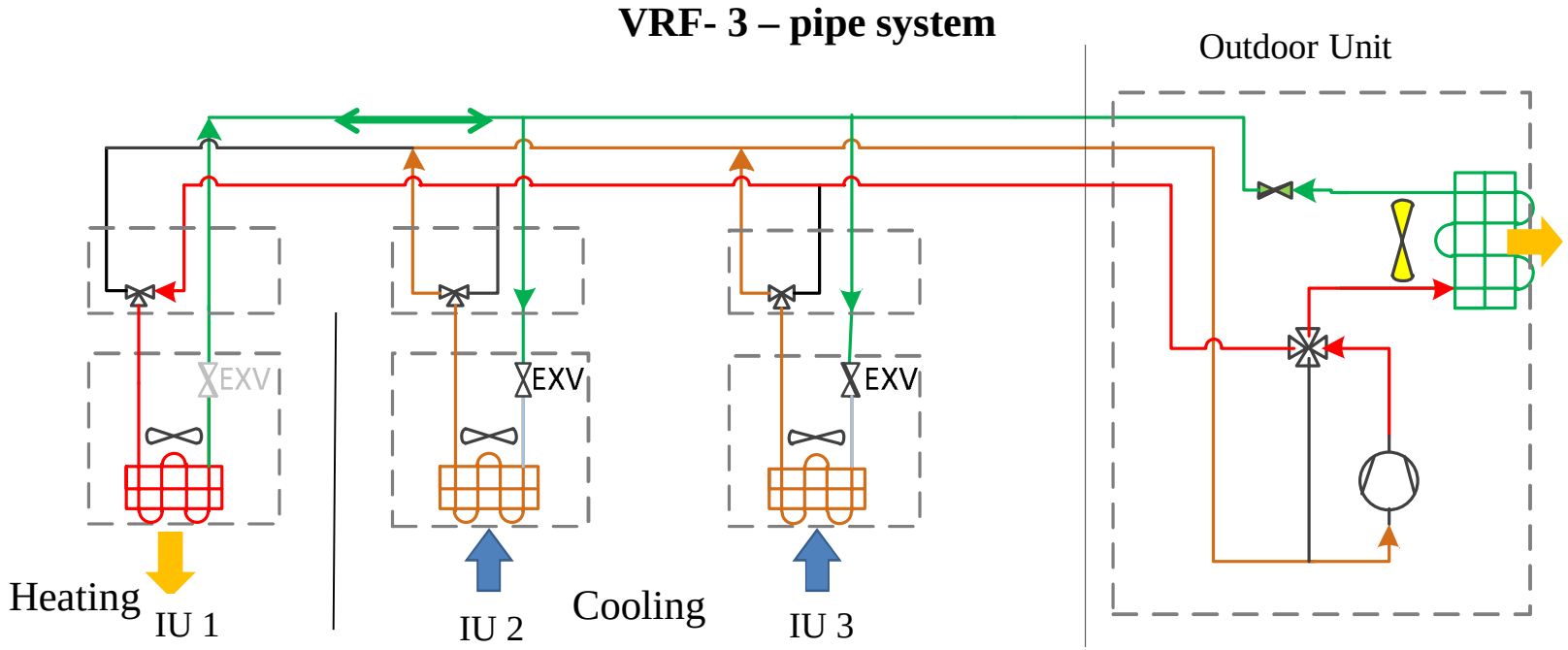


Project partners and focus



Introduction - Refrigeration technologies





Introduction - Motivation

Ambient:

Increase efficiency by decoupling of energy production and consumption (day / night; load fluctuations)

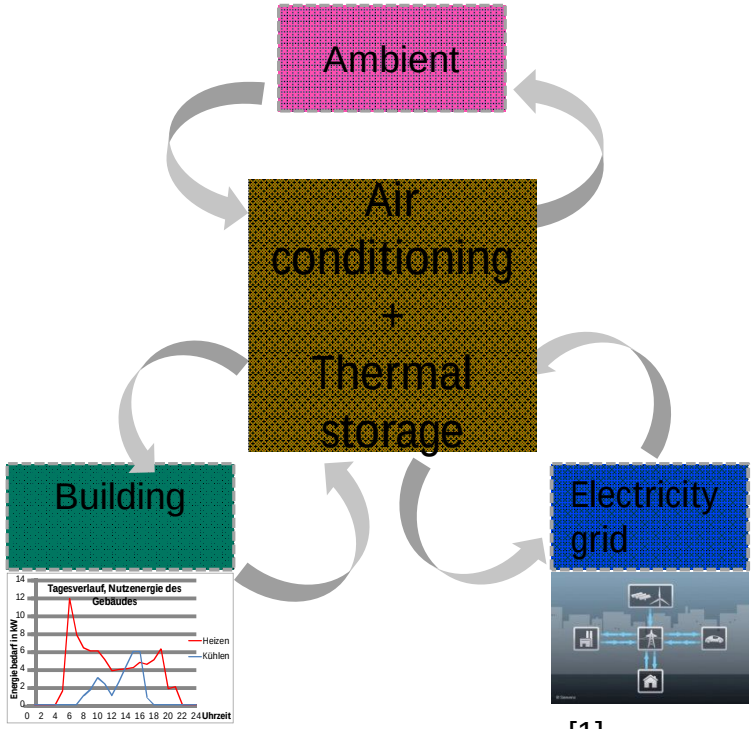
Building:

Increasing the thermal energy use by load shifting (using synergies between heating and cooling)

Electricity grid:

Smart grid
Compensation of fluctuations in the power grid

Interactions



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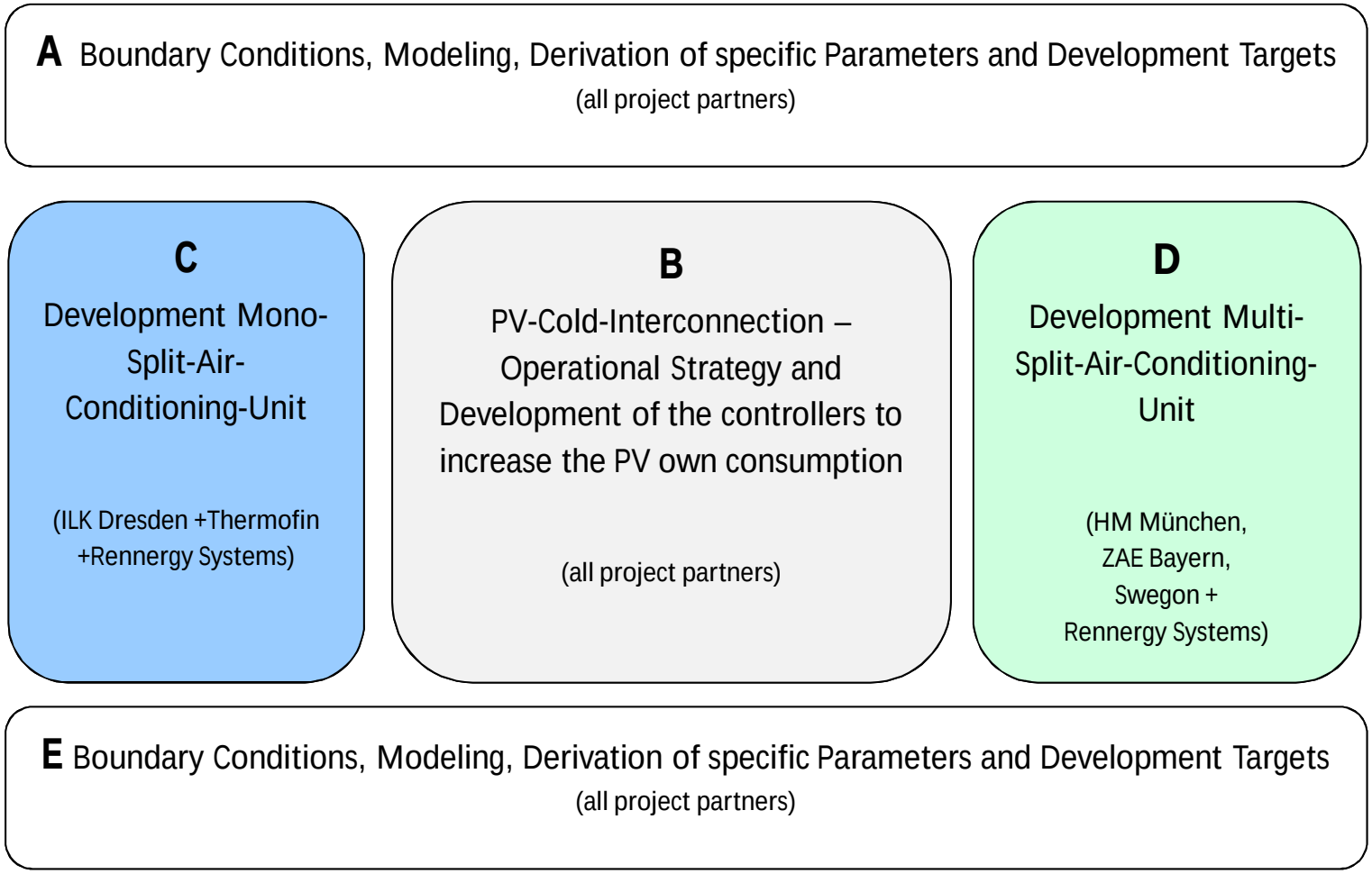
Work packages



Sub task Mono Split

ILK Dresden

thermofin® heat exchangers - GERMANY

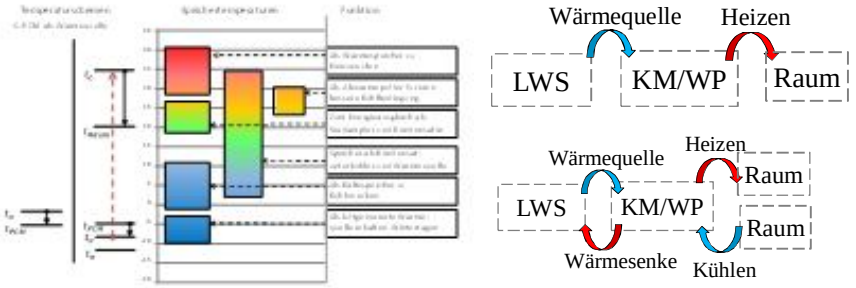
Mono-split-system with ice storage

- System concepts
- Simulation modeling
- Technical implementation
- Laboratory experiments
- Controller development
- Heat exchanger design

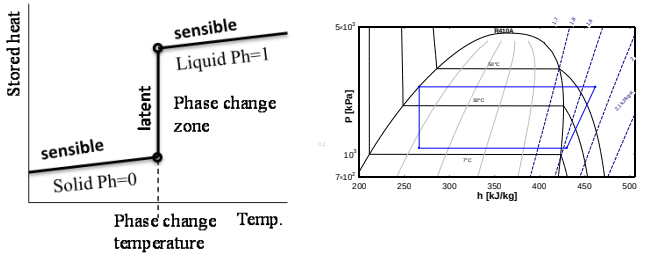
Sub task Multi-Split

VRF-System with latent heat storage – system concepts

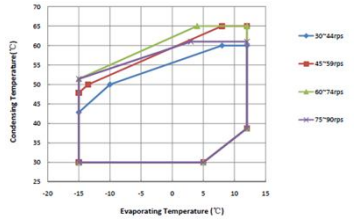
- Options for system integration



- System modeling Latent Heat Storage (LHS) and chiller



- Laboratory experiments for direct expansion LHS



- Dimensioning parameters for DX-LHS

Parts of project

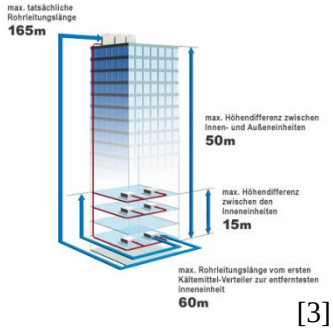
Swegon

VRF-System with latent heat storage – system configuration

- Technical implementation
- Split system planning and design
- Interfaces for communication

[2]

Indoor Units



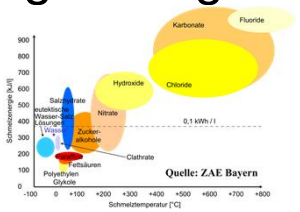
[3]

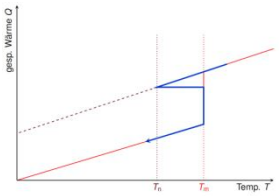
Piping

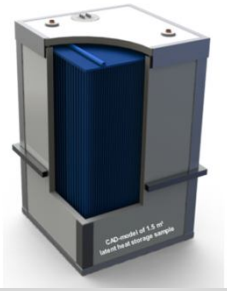
ZAE BAYERN
Bayerisches Zentrum für Angewandte Energieforschung

VRF-System with latent heat storage – storage design and development

- Phase change material research
- Design of Latent Heat Storage
- Storage development
- Demonstration plant at ZAE Bayern







Thank you for your attention!

Literature

[1] Siemens

[2] Indoor Units: http://www.selz.net/contents/de/d18.html

[2] Piping: http://www.fujitsu-general.de/vrf-systeme/airstage-vr-ii-serie.html