

# Accelerating the Heating and Cooling Transition



## Joint Call 2021 HECTAPUS

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# HECTAPUS

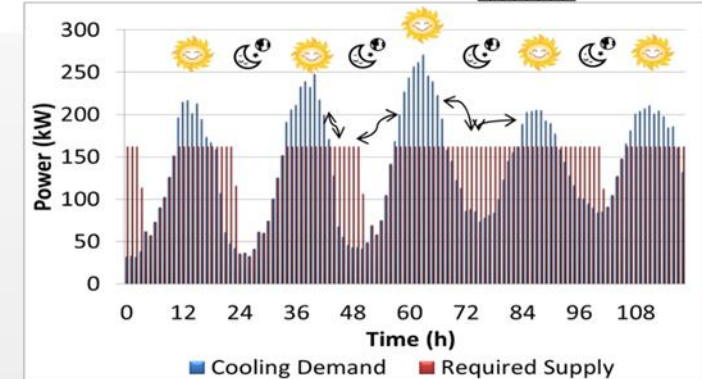
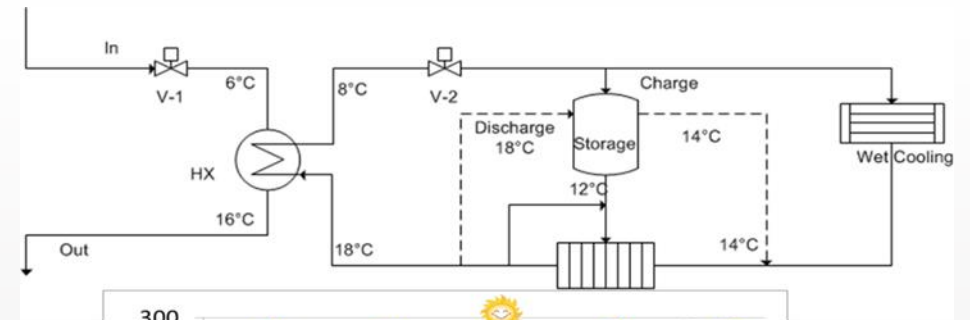
## HEating Cooling Transition and Acceleration with Phase change energy Utilization Storage

Are energy storage systems performing as they should be?  
-Monitoring and performance evaluation of existing projects.



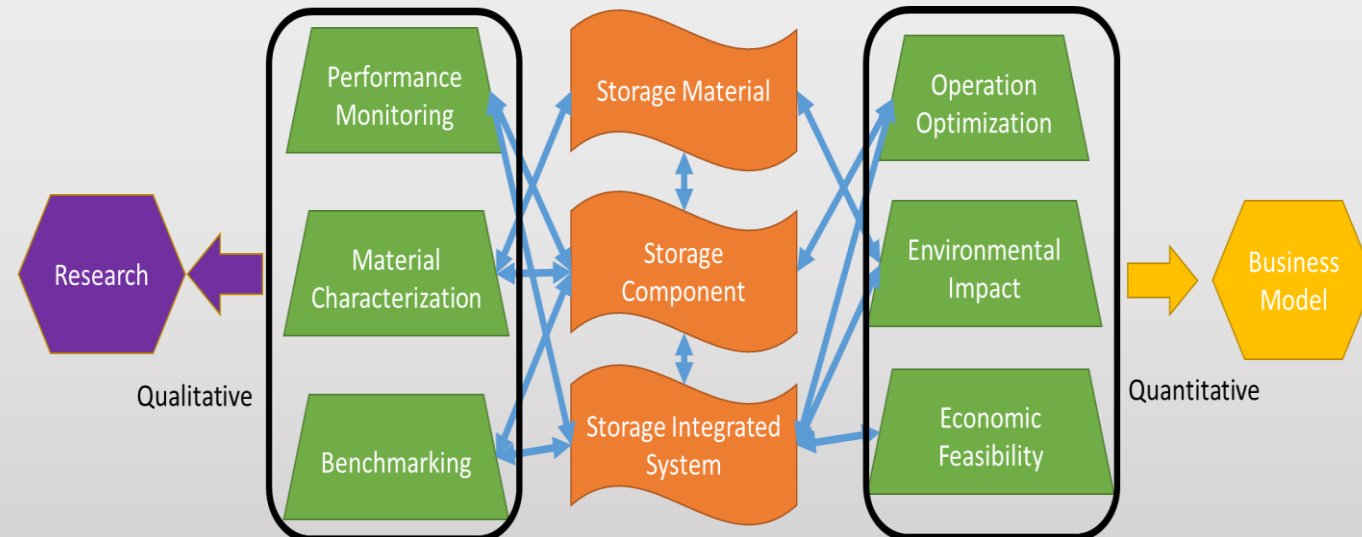
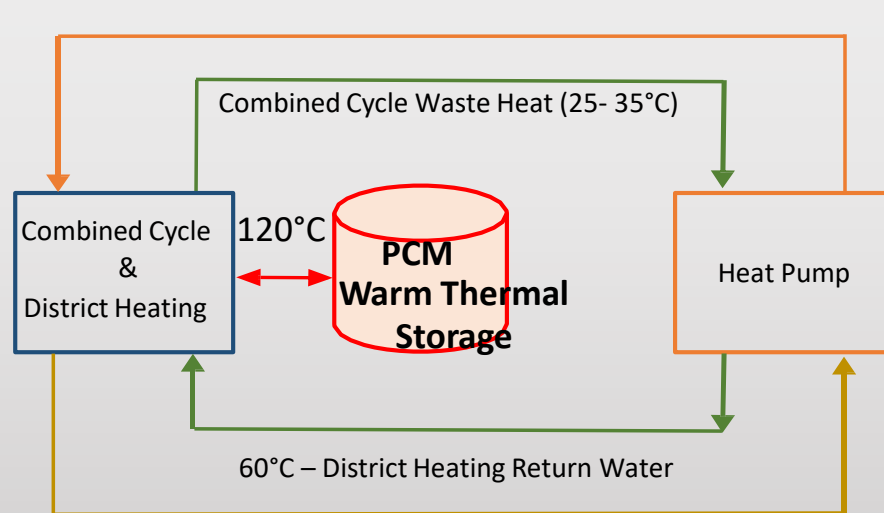
# Introduction- Consortium

- KTH Royal Institute of Technology, Sweden  
Assoc. Prof. Docent. Justin NW Chiu
- Consortium Members
  1. Cukurova University, Turkey  
Prof. Halime Ö. Paksoy
  2. Norwegian Research Center, Norway  
Dr. Kirsti Midttømme
  3. HUURRE Caverion, Sweden  
Manager Mr. Strengbohm Fredrik
  4. Baris Tek. Tes. LTD, Turkey  
R&D manager Mr. İbrahim Südaş
  5. Cowi AS, Norway  
Expert and project leader Mr. Rune Teigland



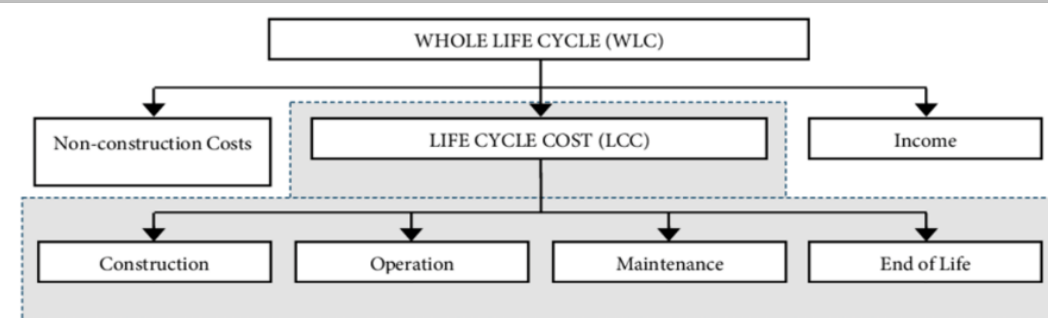
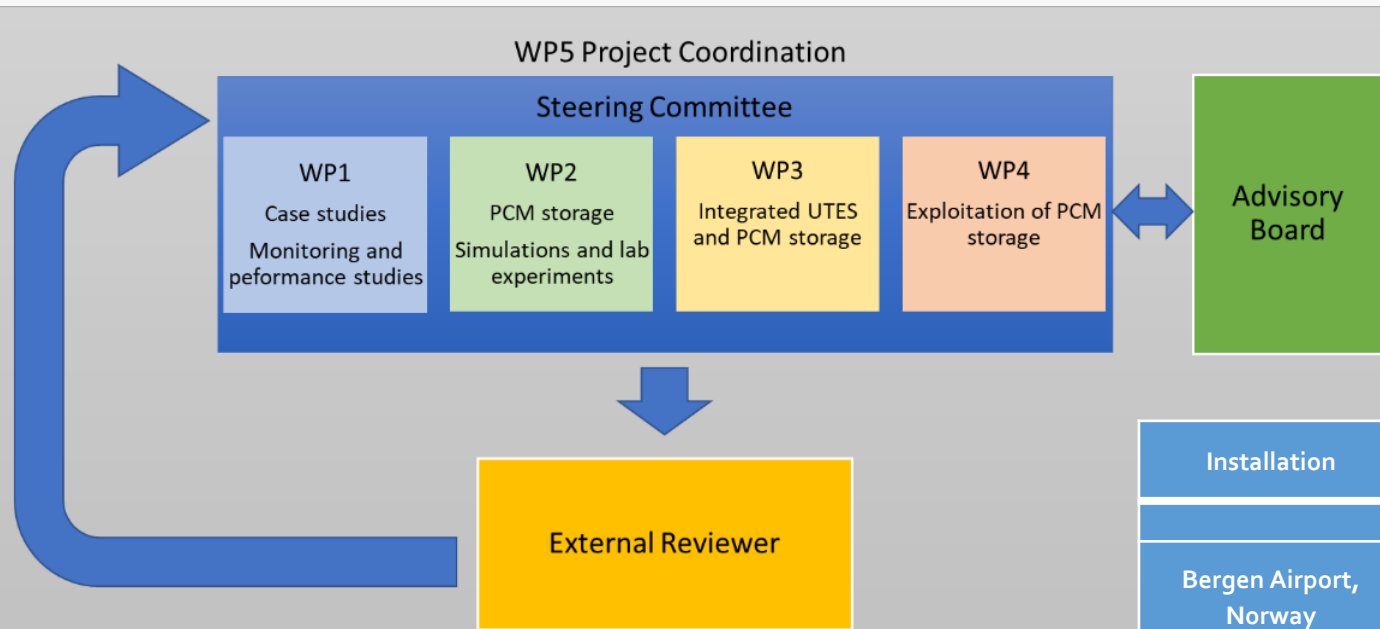
# Challenges: Energy Storage on Heating/Cooling Transition

- Integration of energy storage in heating/cooling systems is scarcely monitored and benchmarked
- Impact on stakeholders for sector coupling and load management
- Full range of expertise is needed for performance evaluation: Material, Component and System
- Perform real case monitoring, evaluation and new business model creation





# Solutions- Monitoring, Evaluation, Benchmarking and Exploitation of New Business Solutions



Installation	Owner	Use	PCM storage	Capacity	Other energy sources	Year Constructed
				kWh		
Bergen Airport, Norway	Avinor	Heating / Cooling	Tanks of flat ice elements of salt hydrate	11000	District Heating	2017
Western Norway University, Norway	Statsbygg	Heating / Cooling	Tanks of flat ice elements with salt hydrates	11200	Borehole TES / District Heating	2014
AWL Building, Sweden	Akademiska Hus	Cooling	Tank with salt hydrate	275	District Cooling	2019
Sigba Office & warehouse, Norway	Sigba	Cooling	Tanks of flat ice elements with paraffin	120	TBD	2018-2019
Shelter for refugee camps, Turkey	Cukurova / Northumbria Universities	Heating / Cooling	Paraffin tank for heating / coco oil tank for cooling	24	Solar Thermal Collectors	2021