

## COMTES - Combined development of compact thermal energy storage technologies

The COMTES project has as goal to develop and demonstrate three novel systems for compact seasonal storage of solar thermal energy. These systems will contribute to the EU 20-20-20 targets by covering a larger share of the domestic energy demand with solar thermal energy. Main objective of COMTES is to develop and demonstrate systems for seasonal storage that are significantly better than water based systems. The three technologies are covered in COMTES by three parallel development lines: solid sorption, liquid sorption and supercooling PCM. Strength of this approach is the collaboration of three development groups in activities that pertain to the analyses, methods and techniques that concern all technologies, without risking the exchange of confidential material. In this way, the development is much more effective than in three separate projects. The project starts with a definition of system boundary conditions and target applications. Next comes the investigation of the best available storage materials. Detailed numerical modelling of the physical processes, backed by experimental validations, will lead to optimum component design. Full-scale prototypes are simulated, constructed and tested in the laboratory in order to optimize process design. One year of fully monitored operation in demonstration buildings is followed by an integrated evaluation of the systems and their potential. When deemed successful, the involved industry partners will pick up the developed storage concepts and bring them further to a commercial level. The COMTES project is a cooperation of key scientific institutions active in the above mentioned heat storage technologies. For the first time, all relevant research disciplines are covered in an international effort. For each development line, a top-leading industry partner contributes its know-how and experience, providing the basis for further industrial development and exploitation of project results.

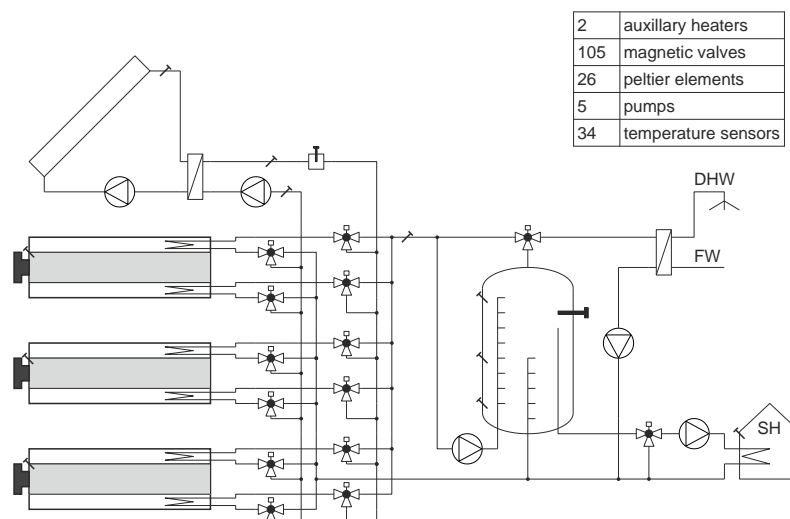


Figure: First draft for a storage system containing PCM modules (left side) and a small water storage (middle) in a solar system supplying energy for domestic hot water (DHW) and heating (SH)

**Project Coordination:**

AEE INTEC, Gleisdorf, Austria, <http://www.aee-intec.at/>

**Project partners:**

EMPA	Swiss Federal Laboratories for Materials Science and Technology
DTU	Technical University of Denmark
ITW	Institut für Thermodynamik und Wärmetechnik, Universität Stuttgart
UAS Wildau	Technical University of Applied Sciences Wildau
Vaillant	Vaillant GmbH
Kingspan	Kingspan Renewables Ltd
HSR-SPF	HSR Hochschule für Technik, Institut für Solartechnik SPF
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