IEA ES Task 45:

"Accelerating the uptake of Large Thermal Energy Storages"

IEA Experts Group on R&D Priority-setting and Evaluation Workshop

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Photo: Aalborg CSP

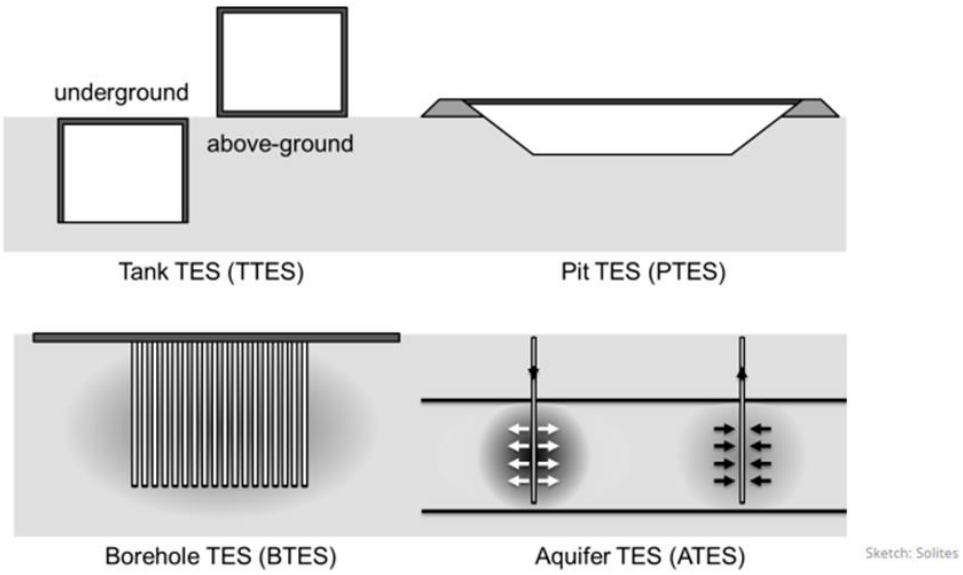
About

01.01.2021 – 31.12.2023

IEA ES TASK 39 – *“Large Thermal Energy Storages for District Heating”*

01.01.2024 – 31.12.2027

IEA ES Task 45 - *"Accelerating the uptake of Large Thermal Energy Storages”*



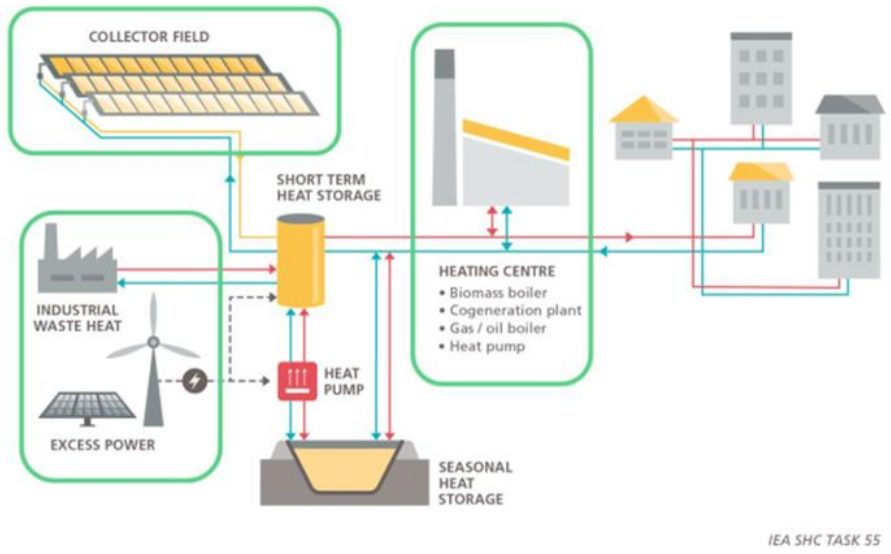
Large Thermal Energy Storages (LTES):

- *Minimal LTES size is 1 GWh, charged/discharged per year.*
- *Storage medium: water or soil*
- *Coupling District Heating or industrial applications*
- *Typical storage temperature for DH, 100 °C, Improved concepts up to 120 °C.*
- *Application: seasonal, daily and multifunctional*

Motivation

Main Outcomes from Task 39 to accelerate the uptake of LTES:

- fast and simple (pre)design tools needed;
- process from idea to implementation needs to be shortened through standardised approach



- Gas crisis of 2022 led to a sharp increase in interest in LTES with DH companies and with policy makers
- LTES is now broadly seen as solution to 100% renewable and independent DH systems, while outlook on cost balance has improved considerably
- EU published a call for demonstration projects for large thermal energy storage, connecting the knowledge sharing to Task 39

Context

- 3 Project on demonstration of LTES have been funded and will be invited to actively participate and exchange

- USES4HEAT (lead: KTH, SE)
  ATES and BTES, 2 demonstrators, 27 partners from 8 countries

- TREASURE (lead: AEE INTEC, AT)
  PTES, 7 demonstrators, 25 partners from 9 countries.

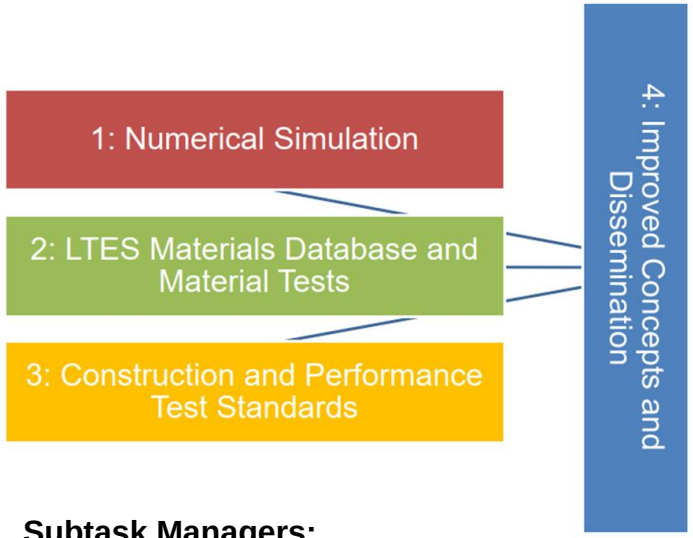
- INTERSTORES (lead: Univ. Halle-Wittenberg, DE)
  CTES and renovation TES, 2 Demonstrators (DE, FI), 14 partners from 9 countries.

Partners

Country	Organisations
AT	AEE INTEC/AIT/UIBK/JKU/SOLID
AT	AGRU/gQuadrat
CA	Thermal Energy System Specialists TESS
DE	Solites
DE	THU/Steinbeis
DE	Hamburg Institute
DE	Solmax
DE	Vattenfall Wärme Berlin
DK	Planenergi/DTU/BobSol/ACSP
FR	Newheat
SE	Chalmers
SE	MuoviTech
UK	Univ. of Birmingham

Aim

The aim of Task 45 is to accelerate the market launch of large-scale heat storage systems.



Subtask Managers:
ST1: Thomas Schmidt, Solites, DE.
ST2: Bijan Adl-Zarrabi, Chalmers University, SE
ST3: Pierre Delmas, Newheat, FR
ST4: Geoffroy Gauthier, Planenergi, DK

- Comparative Storage Simulations -> 2nd Stage
- Develop simplified pre-design tools + use them for typical applications

- Expansion of material database + find agreements on standards for testing
- Define material test methods + Lifetime calculation models

- Guidelines for Construction and Legal Aspects
- Guidelines for LTES Performance Assessment

- Inventory of Improved Large Thermal Energy Storage Concepts
- Targeted information and training material for decision makers, implementers and developers
- Create a knowledge platform

Thank you for listening!



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