Project presentation

Compact REtrofit Advanced Thermal Energy storage

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TESSE2B meeting, Bochum

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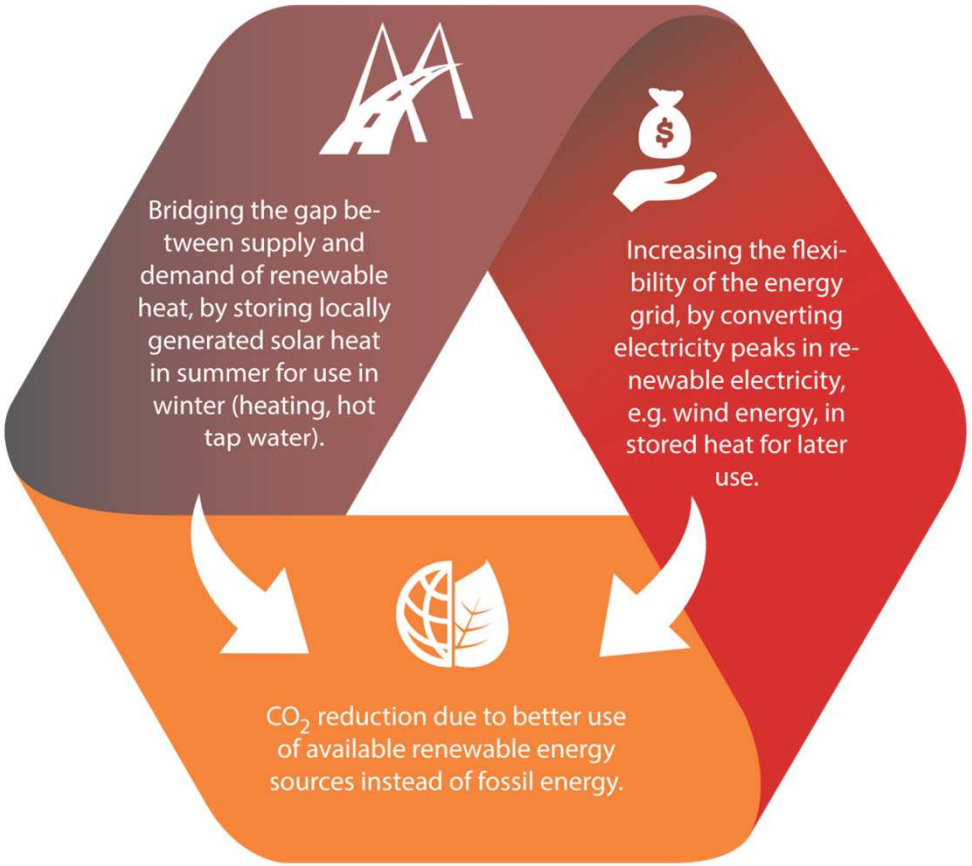
CREATE

Start date: 1st October 2015
Duration: 48 months

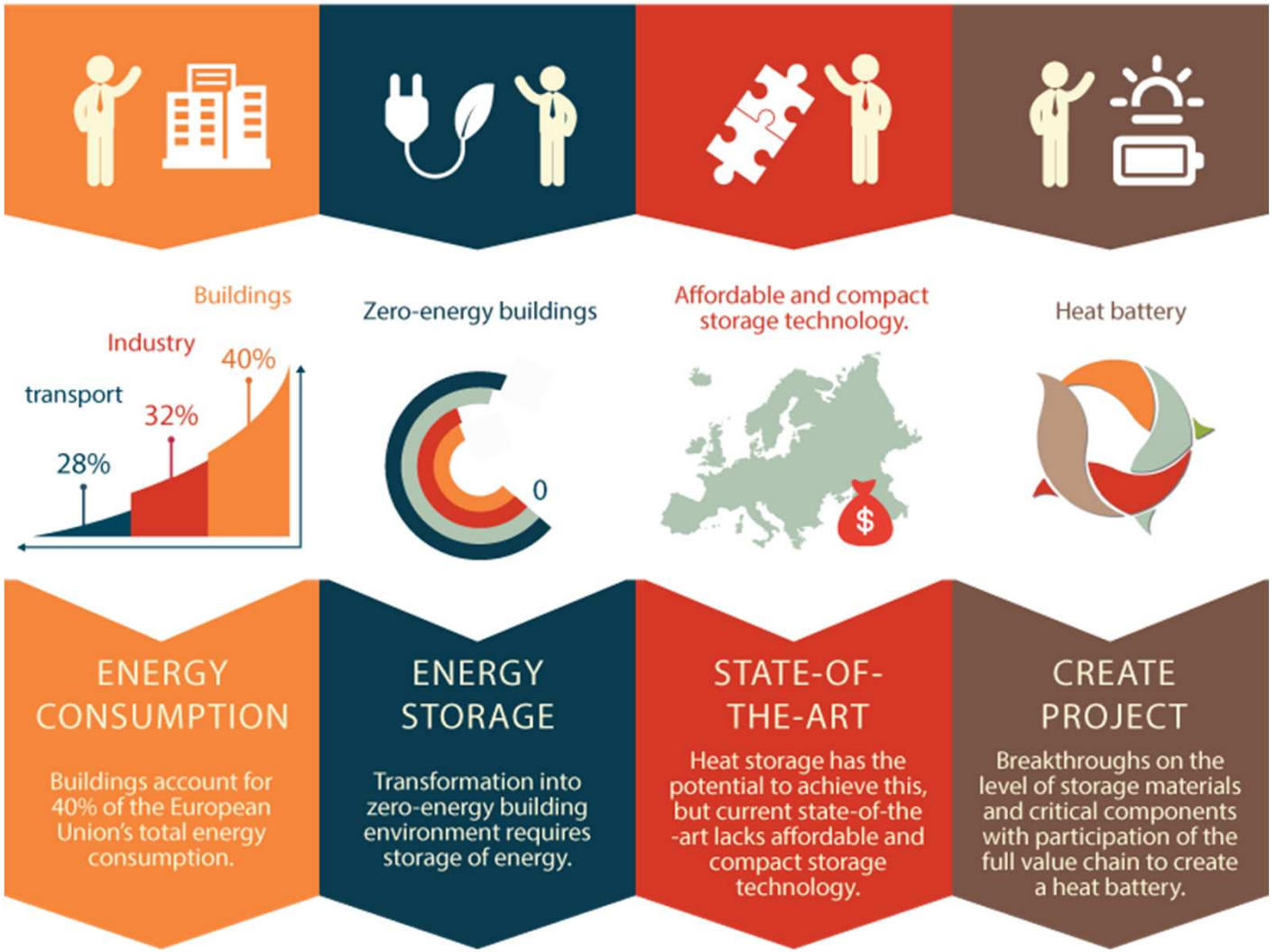
„Compact REtrofit Advanced Thermal Energy storage“

- CREATE is European Union research project under the topic EeB-06-2015 „Integrated solutions of thermal energy storage for building applications“.
- The Project aims to tackle the thermal energy storage challenge for the built environment by developing a **compact heat storage**.

The heat battery allows for better use of available renewables in two ways:

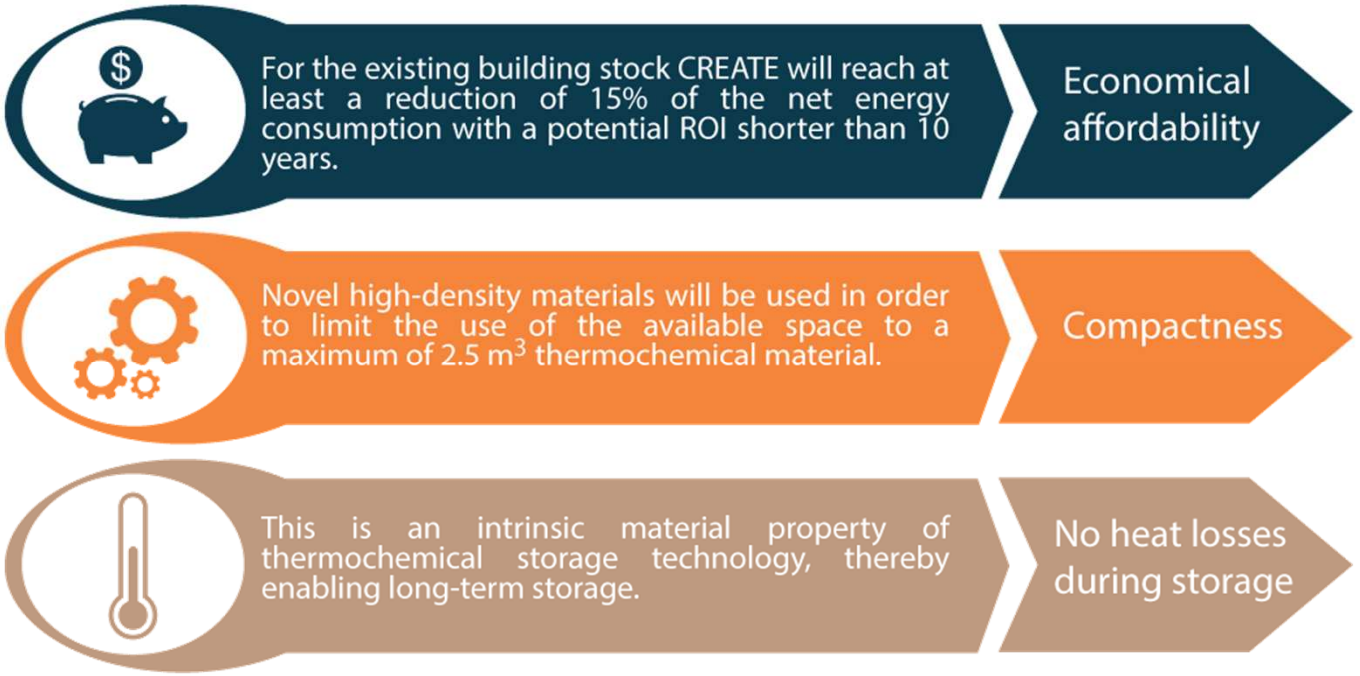


Introduction



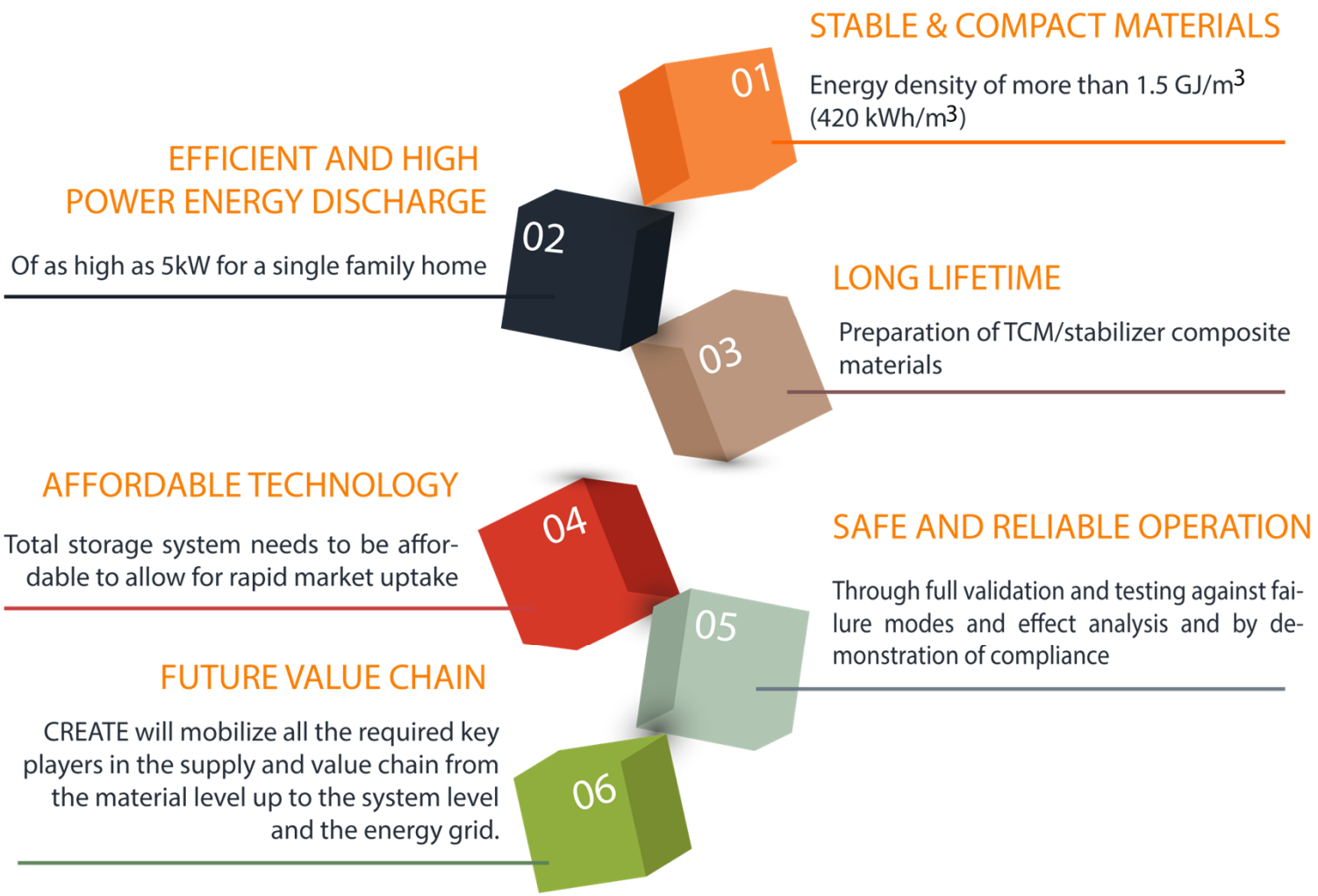
Project objectives

- To develop and demonstrate a **heat battery**, i.e. an advanced thermal storage system based on Thermo-Chemical Materials (TCMs), that enables:



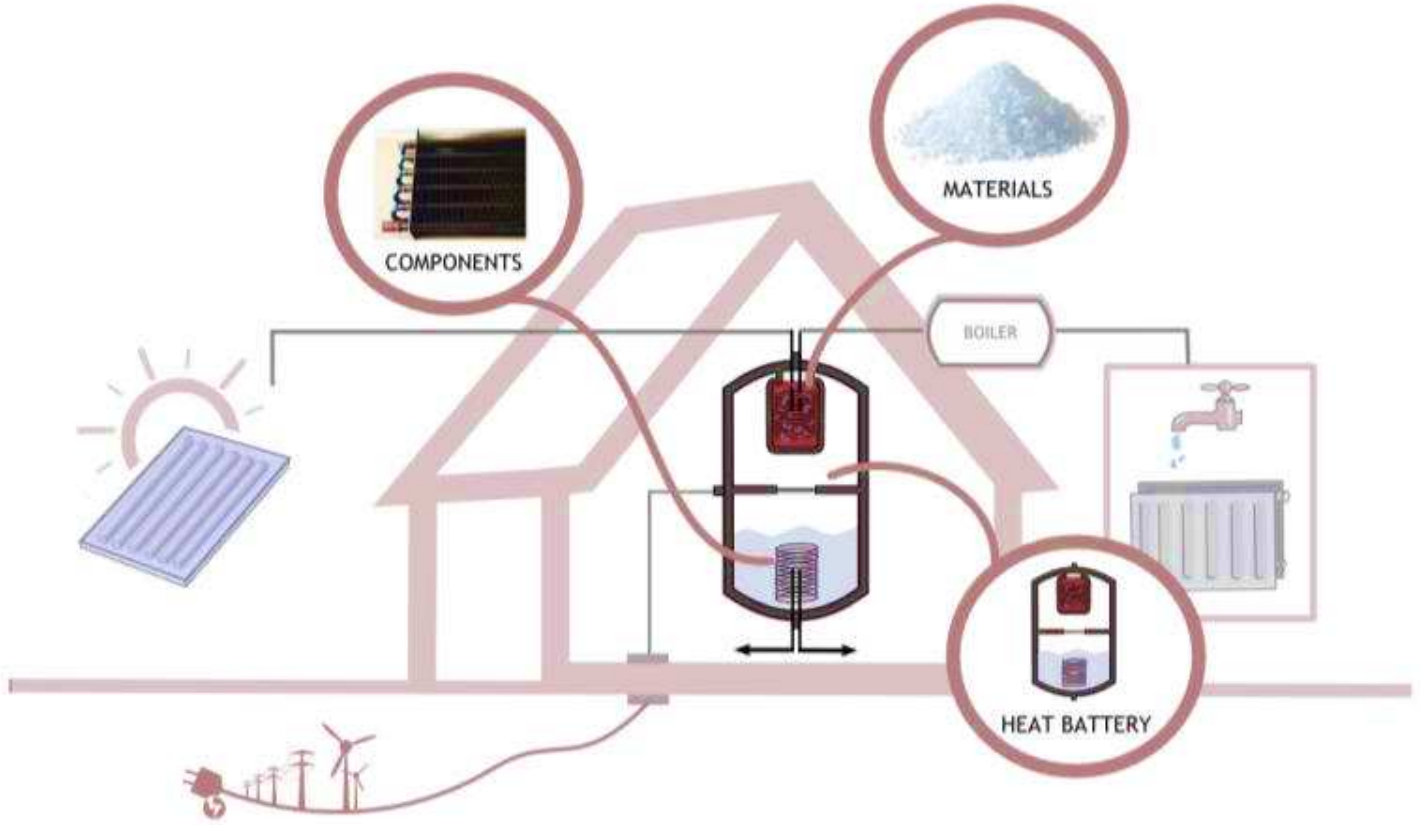
- To develop stabilized storage materials with high storage density, improved stability and low price, and package them in optimized heat exchangers, using optimized storage modules.

Sub-objectives



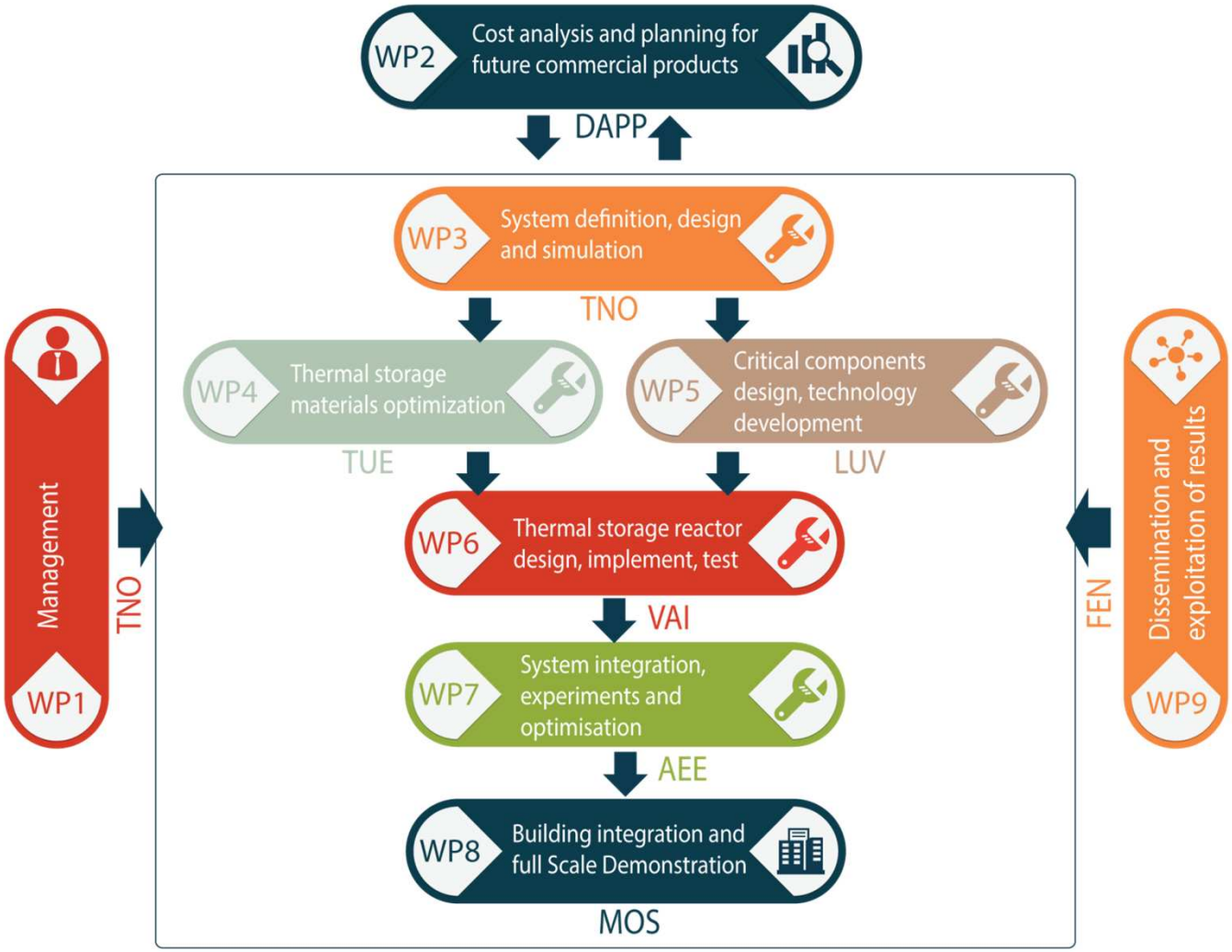
CREATE concept

- The heart of the system is the heat storage module, i.e. the heat battery.
- Different sources for heat supply exist (heat generated by solar collectors on the building or heat-pumps fed by excess electricity from the grid).

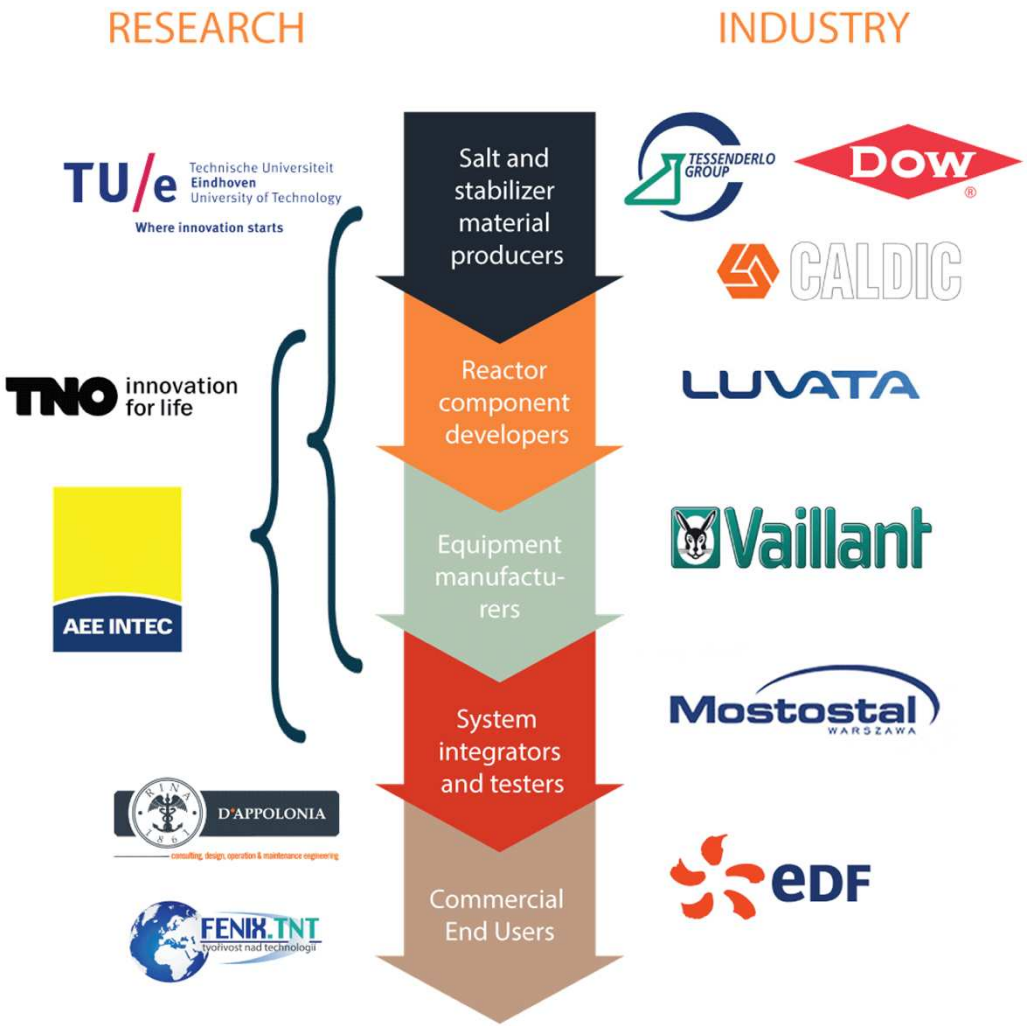


Workpackages

- The R&D work divided in 6 technical Work Packages (WPs).
- Additionally WPs for the project management, for commercial aspects and for dissemination.



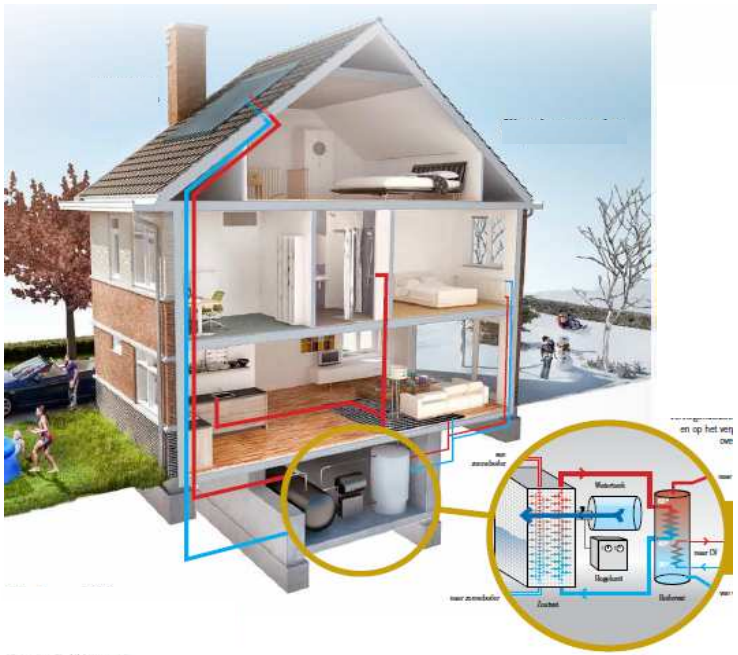
Partners



- To ensure successful exploitation, the full knowledge, value, and supply chain are mobilized in the present consortium.
- The consortium consists of multidisciplinary parties, from universities, RTO's, material suppliers and end-user companies, enabling the necessary approach to scale up and commercialization.

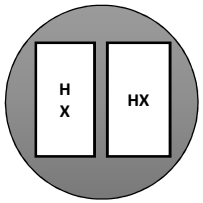
CREATE project goals

- Develop and demonstrate a heat battery, i.e. an advanced thermal storage system based on Thermo-Chemical Materials (TCMs),
- Economically affordable, compact and loss-free storage of heat in existing buildings.

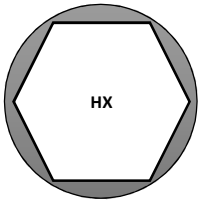


Routes to improve system storage density

- **Improve material packing density**
  - Improved compaction of TCS material
  - Optimization of size distribution
  - Improved loading of HX
- **Improve reactor HX design**
  - Optimize HX type
  - Optimize fit factor of HX units in module
- **Improve module design**
  - Optimize fit factor of modules (i.e. square shape)
  - Stacking of modules (=> mutual use of insulation)
  - Improve insulation type (i.e. vacuum insulation)
  - Reduce internal free space for valve and tubing



A_{HX}/A_{tot}= 50%



A_{HX}/A_{tot}= 83%

Contact info

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