STORAGE RESEARCH INFRASTRUCTURE ECO-SYSTEM

RI Information sheet 2022

Ciemat, MOSA

Technology(ies) of Energy Storage: Thermal energy storage

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Project Acronym	StoRIES
Call	H2020-LC-GD-2020
Grant Agreement No.	101036910
Project Start Date	01-11-2021
Project End Date	31-10-2025
Duration	48 months

1. Photo

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2. Geographical coordinates (˚, “, … N/S, E/W)

Latitude: 37,097005 N
Longitude: 2,364750 W

3. Description of the research infrastructure for the webpage

MOSA facility is composed by (A) an outdoor test loop, which is a replica of a commercial thermal energy storage system with a two-tank configuration based on molten salts (60%w NaNo3- 40%w KNO3). With 40t of molten salts plant, this facility consists basically in:

- Two tanks, one vertical, for hot molten salts, and another horizontal, for cold molten salts.
- A thermal oil loop that can be used for heating the salt up to 380°C and cooling it to 290°C.
- An electric heater for heating the salt up to 500°C.
- Two flanged sections, where different components for this type of loops (e.g. valves, flow meters, heat trace, pumps…) can be tested

MOSA facility is nowadays the largest test facility similar to a commercial two-tank molten salt storage installation so that everything related to this kind of

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systems (components like heat exchangers, pumps, electric heaters, etc. and also operating and control strategies, validation of models, characterization of thermocline tanks...) can be tested in relevant conditions and subsequently extrapolated to real situations;

(B) two indoor test benches, named BES-II and BES-II, which are used for testing mainly small hydraulic components (valves, pressure transducers, etc. with a nominal diameter from 2" up to 6") for molten salt circuits under real working conditions up to 600ºC and 40 bar;

(C) a laboratory for studying the feasibility of storage materials for both sensible and latent heat.

4. Availability of the research infrastructure

(Please indicate time periods in which infrastructure will not be available for StoRIES in the next 2 years – if already known)

1/03/2022 – 01/10/2022

5. Special considerations (confidentiality / NDA agreements, insurance requirement, special training, HSE training)
NDA required when infrastructure drawings have to be shared.

6. Energy storage technology that can be analysed/studied by using the research infrastructure

- Electrochemical ☐
- Chemical ☐
- Thermal ☒
- Mechanical ☐
- Superconducting Magnetic ☐
- Cross-cutting ☐ (Specifically: ...)

7. Key words for the webpage
Molten salts,
Thermal energy storage,
Test loops

8. TRL level (if applicable):

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- 1-3 ☐
- 4-6 ☐
- Above ☒

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