STORAGE RESEARCH INFRASTRUCTURE ECO-SYSTEM

RI Information sheet 2022

Eni, Demo Flow Battery

Electrochemical 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)

45°27'24.6"N 8°38'24.9"E

3. Description of the research infrastructure for the webpage

Demo Vanadium Redox Flow Battery (VRFB) is settled in a microgrid, power supplied by a PV plant and having many utilities for the discharging step. The microgrid was put into operation with the aim to explore the potentials of a VRFB in providing different power and energy services to a real grid. It includes two photovoltaic (PV) power sources: a 4.8 kW crystalline system and a 1 kW organic system. The flow battery has a rated power of 2.5 kW, but it has already operated at a peak discharge power of 4 kW, while the storage capacity is 25 kWh. The stack, consisting of 40-cells with 600 cm^2 active area, electrically connected in series and hydraulically fed in parallel. The microgrid supplies several loads, including the control-room air conditioner and lighting, with a total power demand of 2.5 kW, and more loads are expected to be connected in the next future. The Distributed Control System (DCS) controls the microgrid operation, switching on/off the loads depending on the microgrid operating conditions.

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)

Available from January 2023

5. Special considerations (confidentiality / NDA agreements, insurance requirement, special training, HSE training)
Researchers access to the infrastructures must be regulated according to Eni safety procedures: only Eni personnel can operate experimentally. Users will enter only as visitors with the opportunity to attend the trials, but without operating.

This project has received funding from the European Union’s Horizon 2020
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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

Redox Flow Battery, Microgrid

8. TRL level (if applicable):

- 1-3 ☐
- 4-6 ☒
- Above ☐

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