STORAGE RESEARCH INFRASTRUCTURE ECO-SYSTEM

RI Information sheet 2022

EDF R&D, Battery Test Facility

Electrochemical Storage

Contact person 1:

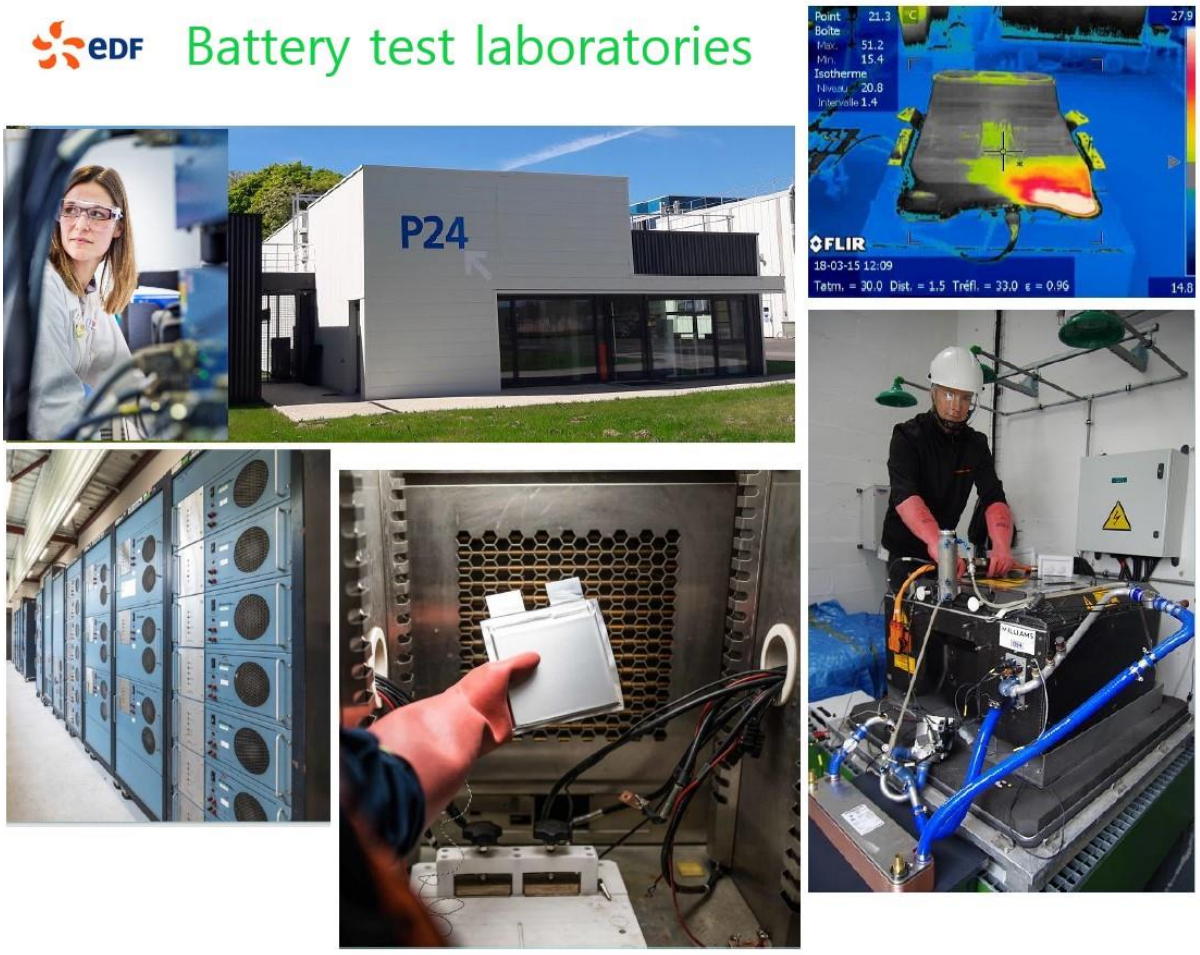
Philippe STEVENS, philippe.stevens@edf.fr

Contact person 2:

Julien LHERMENAULT, julien.lhermenault@edf.fr

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



2. Geographical coordinates (48.375555019730534, 2.843303329527817)

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3. Description of the research infrastructure for the webpage

The EDF Battery testing platform includes several labs that covers all TRL's. The lab offers a complete solution for performance, safety and ageing testing at all sizes from full systems to packs, modules cells right down to materials characterisation at a half-cell level. pack level. Testing protocols can be derived from standard regulations and norms or more broadly tailored to the application. Protocols can also be derived from real field operation data in order to be as close as possible to the final usecase. The teams operating the labs have a strong knowhow in complete system testing, including state of the art prototypes.

These include the following :

1. **Pack and systems testing laboratory**

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The **A10 laboratory** is equipped with 8 test channels for large battery systems (up to 1000 V – 320 kW- 800 A) with intermediate voltage monitoring and electronic communication (such as CAN). Our tests are done in controlled temperature chambers and battery systems can be thermally controlled (including liquid cooling). The lab also offers safety tests capabilities with dedicated areas for testing of li-ion large systems in abusive conditions with HD video recording, IR video recording, high sampling rate current, voltage and temperature recording. With this lab, battery researchers can assess the performance of a prototype (at the pack level) in conditions very closed to the field conditions.

2. Large cell testing laboratory

The **P24 laboratory** is equipped with 150 test channels for cells (from 50 A to 800 A) and 10 tests channels for modules with intermediate voltage monitoring and electronic communication (such as CAN). Several channels are fitted with electrochemical impedance measurement devices

Our tests are done in controlled temperature chambers from -60°C to + 120°C.

The lab also offers safety tests capabilities with dedicated areas for testing li-ion cells and modules in abusive conditions with HD video recording, IR video recording, high sampling rate current, voltage and temperature recording

3. **Small cell testing laboratory**

The **D14 laboratory** is equipped with 50 galvanostat-potentiostat-EIS channels (from µA to 20A) and coincell/pouchcell/swagelok cell assembly as well as all the equipment to prepare small scale cells and half cells (glove boxes, calendering, tape casting, ink preparation, etc.). It is also equipped with a RF magnetron to deposit thin ceramic and metallic layers and a Li evaporator.

4. Analysis Lab

The **post-mortem** lab offers a complete solution for detailed analysis of battery cells to provide an understanding of ageing and degradation mechanisms. Materials extracted from the cell can be directly analysed with state of the art equipment and with the support of a highly qualified technical team. The lab is equipped with several glove boxes for opening the cells and for coin cell/ pouch cell preparation, and advanced analysis equipment including IR, DSC, XRD, X-ray Tomography, SEM

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)

This is not known at this stage

5. Special considerations (confidentiality / NDA agreements, insurance requirement, special training, HSE training)

…

A contract will be drawn up for each test campaign that will include confidentiality, safety and other requirements. No specific HSE training is required, operations which pose a risk can be performed by trained and qualified EDF personnel.

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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

Battery systems, packs, modules, cells, post mortem analysis

8. TRL level (if applicable):

- 1-3 ☒
- 4-6 ☒
- Above ☒

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