

OSMOSE

OPTIMAL SYSTEM-MIX OF FLEXIBILITY
SOLUTIONS FOR EUROPEAN ELECTRICITY

Meeting Crossbow-Osmose

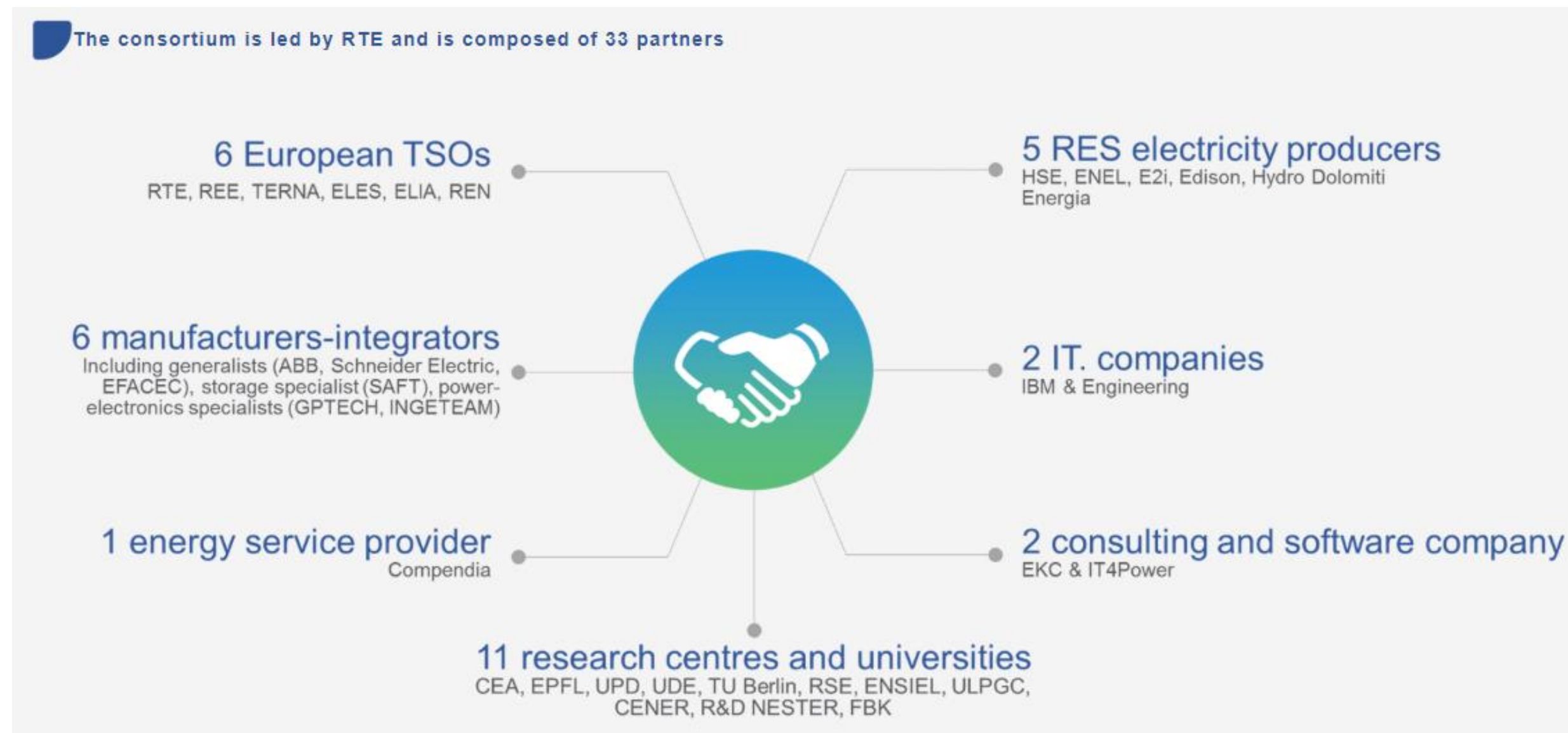
Overview of Osmose Project and
REE demo presentation

January 31th , 2020

Alberto Escalera Blasco
Grupo Red Eléctrica

PROJECT DATA

OSMOSE = Optimal System-Mix of Flexibility Solutions for European Electricity

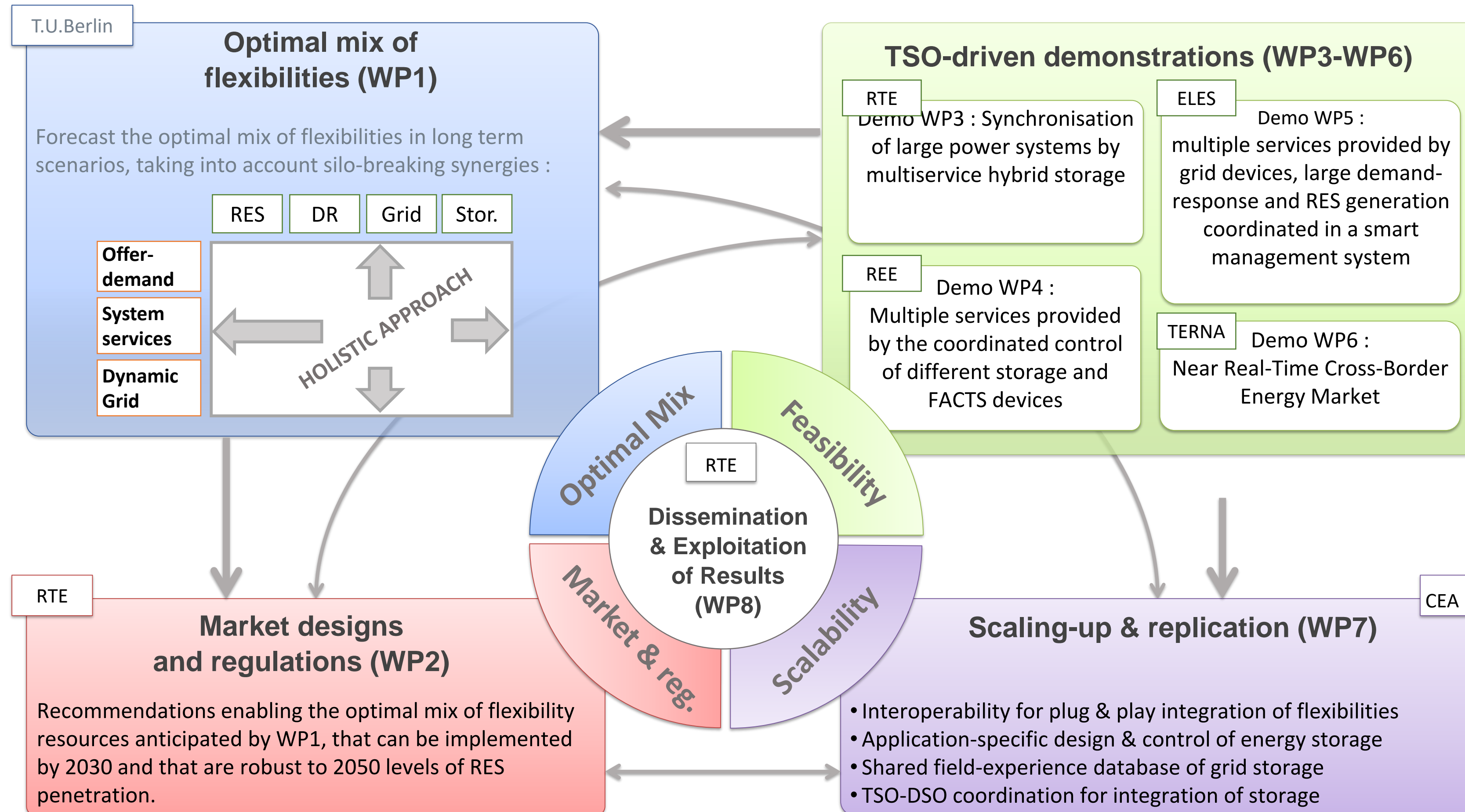


Project coordinator:



Nathalie Grisey
nathalie.grisey@rte-france.com

PROJECT ORGANISATION



WP4 DESCRIPTION

Multiple services provided by the coordinated control of different storage and FACTS devices



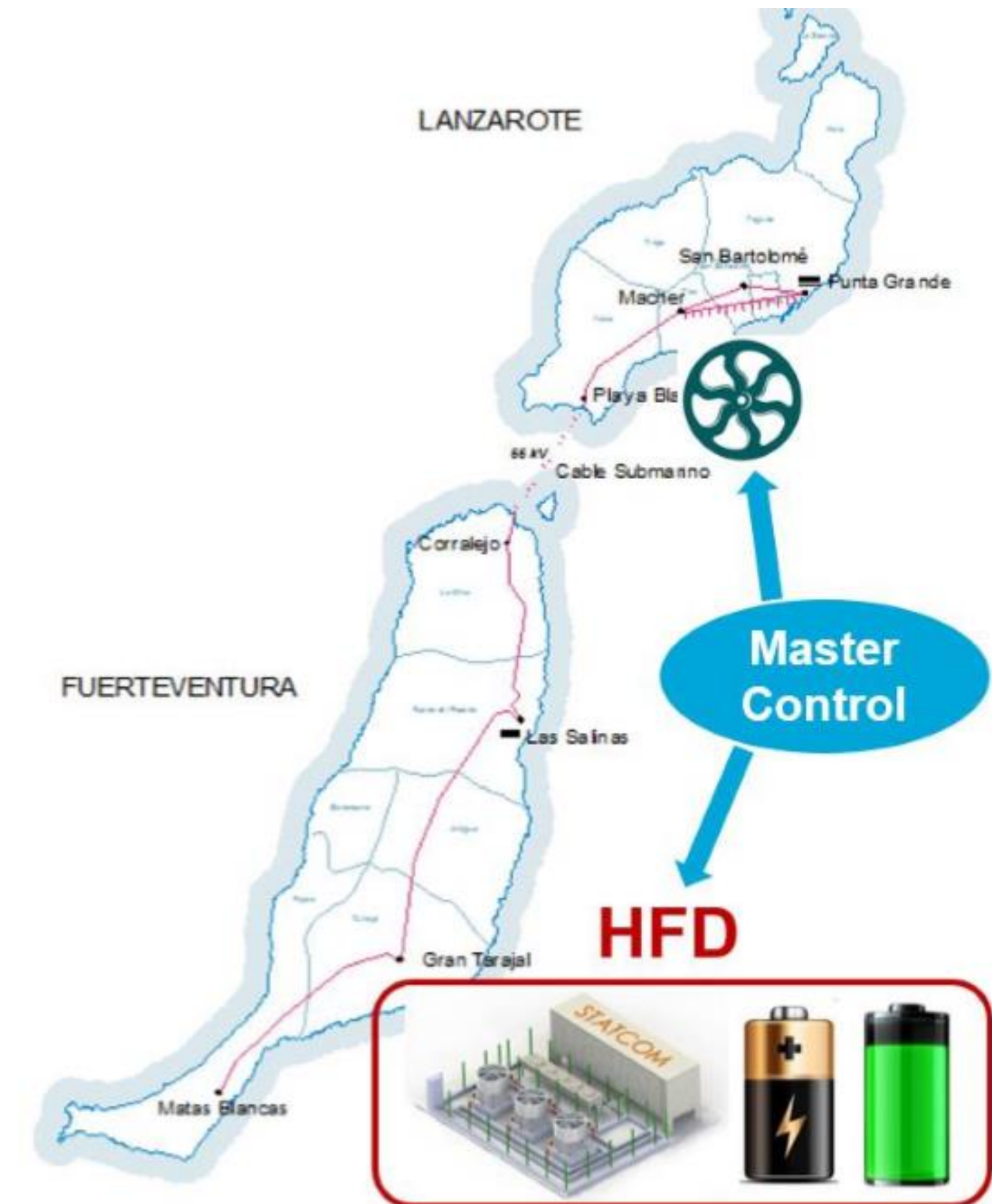
WORK PACKAGE 4 - OBJECTIVES

Multiple services provided by the coordinated control of different storage and FACTS devices

High penetration of RES is planned for Canary Islands (isolated systems)

Improvement of system stability:

- **Frequency control:** reduce the impact of variations of RES production and load shedding after contingency
- **Voltage control:** reduce the voltages out of limits and load shedding due to undervoltages, considering interactions and limitations between active and reactive power
- **Congestion management:** reduce the network constraints for an increased access capacity in specific areas of the power system



WORK PACKAGE 4 - OBJECTIVES

Multiple services provided by the coordinated control of different storage and FACTS devices



Development and demonstration of a hybrid solution composed of:

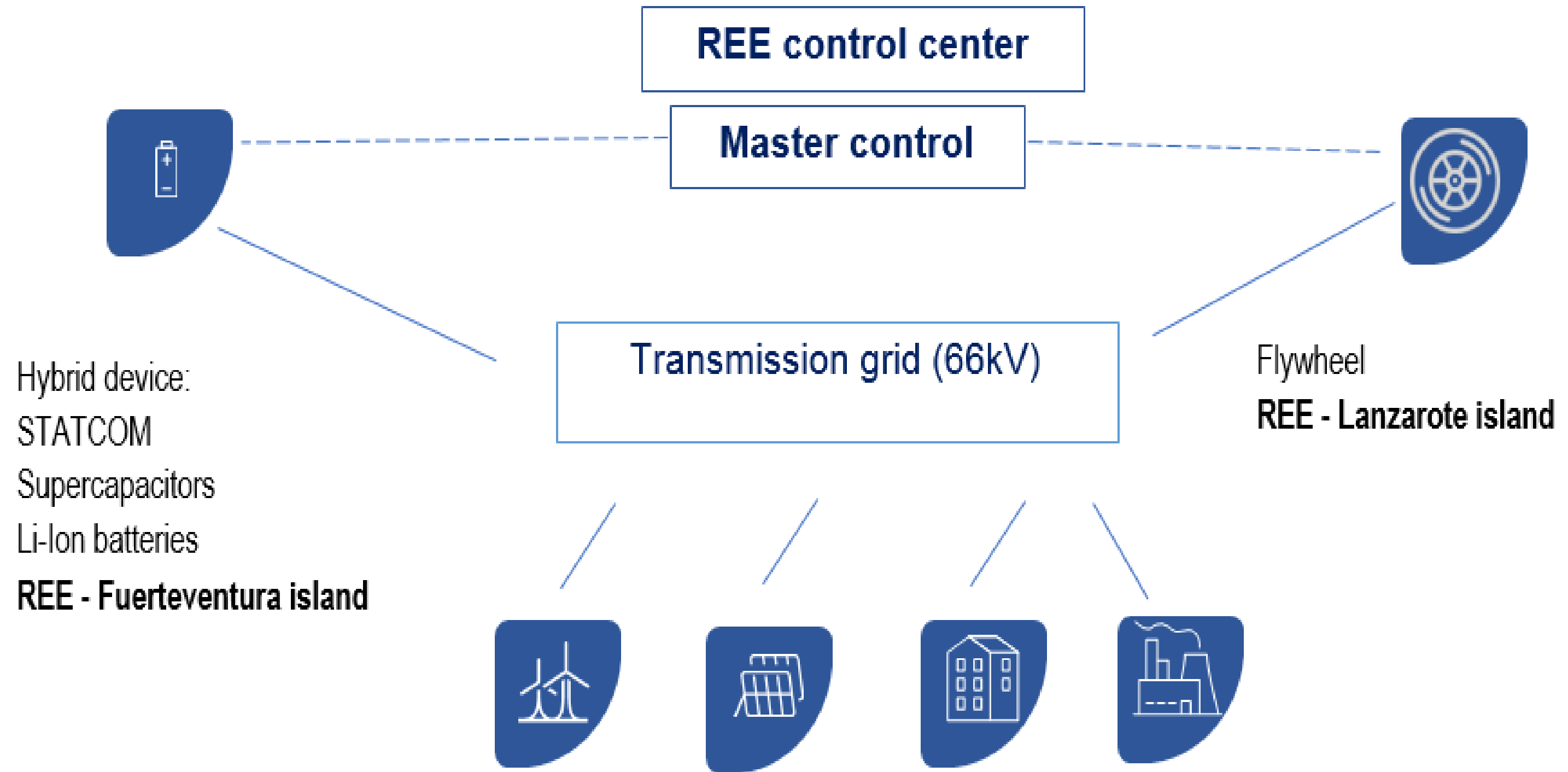
- **New hybrid and modular storage solution with the capability to offer multiple system services.** Development and implementation of a FACTS device based on power electronics in electrical substation, will enable the integration of supercapacitors with hybrid storage of lithium batteries.
- **HV Energy Storage.** The development of a lithium-ion battery connected at high voltage in DC (1,5 kV) to improve the integration of batteries in the HV grid. Indeed, for a given DC power on Battery side, increasing the voltage range leads to decreasing of the current and as a consequence to reduce losses.
- **A Master Control System to integrate different flexibility solutions, coordinate their operation and identify new control strategies.** Development of a master coordination system for flexibility devices (hybrid storage, STATCOM and flywheel).

WORK PACKAGE 4. SOLUTION



Multiple services provided by the coordinated control of different storage and FACTS devices

Architecture of the proposed solution:



DISCUSSION

NEXT STEPS IN THE PROJECT...

CROSSBOW AND OSMOSE SINERGIES:

- *Topics of Crossbow project*
- *Connections between the two projects?*
- *Similar experiences to WP4 – Hybrid Flexible Device and Control?*
- *Practices in Scalability and Replicability?*

Thank you!