Fact Sheet

FULL TITLE MeBattery – Mediated Biphasic Battery

PROGRAMME HORIZON-EIC-2021-PATHFINDEROPEN-01

CONTRACT NUMBER 101046742

ABSTRACT Energy Storage Systems (ESSs) have become key elements for achieving a sustainable energy and transportation system. Among the EESs, different battery technologies hold great promises for enabling the necessary transition from fossil fuels to renewable sources. However, state-of-the-art flow (All-Vanadium and Zinc – Br2) and static (Na-ion and Li-ion) battery technologies fail to satisfy all key performance indicators, e.g. sustainability, cycle life, recyclability, energy and power decoupling, cost or energy density. The overall objective of the MeBattery project is to lay the foundations of a next generation battery technology, which will overcome critical limitations of state-of-the-art battery technologies exhibiting an excellent balance among these key performance indicators. The radically new vision of this novel battery technology relies on a combination of unconventional thermodynamically-driven concepts that will lead to a paradigm shift in energy storage. The proposed new battery technology relies on a flowing configuration system that i) possess the intrinsic benefits of flowing systems (energy conversion reactor separated from energy storage reservoir), ii) boost the energy density by storing energy in solid materials confined in the external reservoirs, and iii) guarantee the stability of the systems over long periods of time by using immiscible liquids. Using the complementary expertise of the highly qualified partners of MeBattery consortium (including 3 ERC awardees) in computational science, materials science, organic chemistry, environmental chemistry, chemical engineering, electrochemistry and battery prototyping, the final prototype aims to demonstrate a long-life, safe and eco-friendly flow battery technology based on non-critical materials with an energy density of > 60 Wh L-1, projected lifespan of 10.000 cycles, energy efficiency of > 75 % and thermal stability up to 50 °C.

DURATION 36 months (01/05/2022 – 30/04/2025)

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COORDINATOR
Dr Edgar Ventosa
Universidad de Burgos
Email: eventosa@ubu.es

PARTNERS
- Universidad de Burgos
- Fundación IMDEA Energía
- Institute of Science and Technology Austria
- Universidade de Aveiro
- Ruhr-Universität Bochum
- Eurice – European Research and Project Office GmbH

WEBSITE https://www.mebattery-project.eu