

Scale-up of a zinc-air redox flow battery system: LIFE ZAESS PROJECT

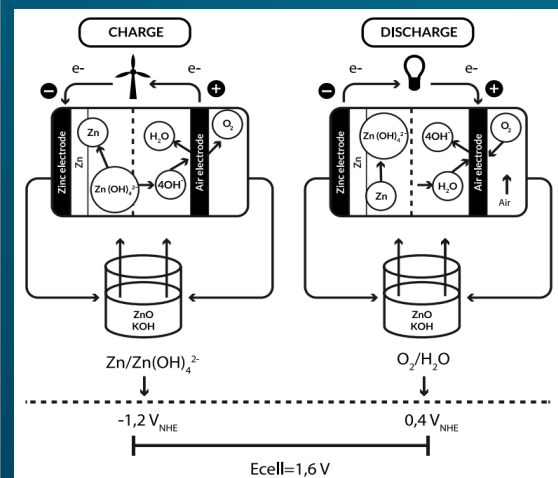
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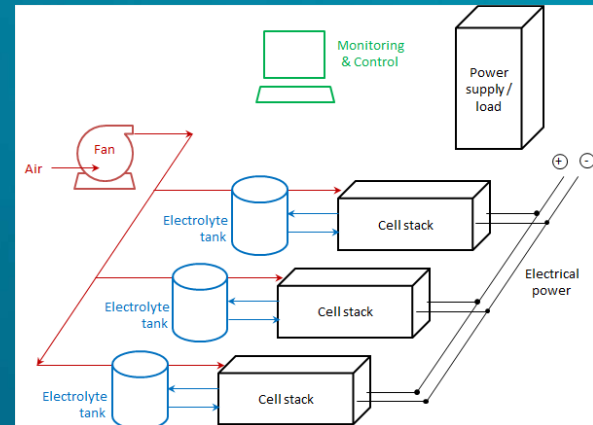
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TÉCNICAS REUNIDAS is developing zinc-air flow battery technology for stationary energy storage applications. Within this broad objective the LIFE ZAESS project aims to demonstrate a Zinc-Air Energy Storage System for renewable energy integration. The project includes the design and construction of a pilot plant, a technical and economic validation of zinc-air flow battery technology and an environmental impact analysis and legal and regulatory assessment in collaboration with **CENER**. The pilot plant has a rated power and energy of 1 kW, 4 kWh. More info at: www.zaess.eu

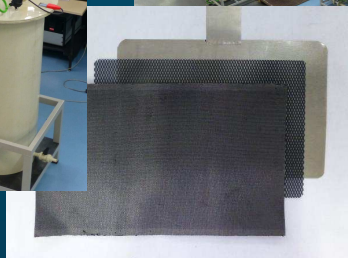
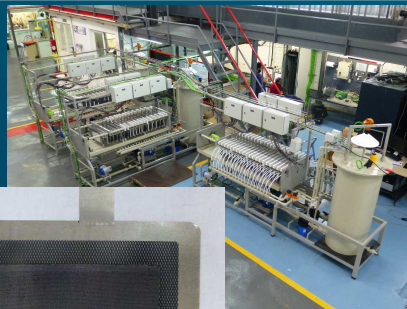
FROM ZINC-AIR REDOX FLOW BATTERY TO ZAESS PROJECT



Nominal	Total
Power	1 kW
Energy	4 kWh
Voltage	20 V
Current	50 A
Capacity	200Ah
Electrolyte	900 L
DoD	20-40%



STATUS

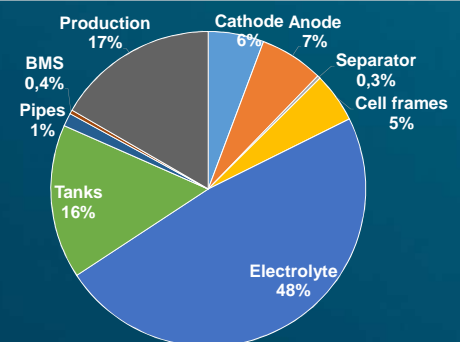


Challenges in scale-up

- 3 electrodes (non-optimal BUT good as baseline to evaluate system performance)
- Leakage → uniform pressure distribution
- Ohmic resistance → thick current collectors
- Separator movement → plastic meshes
- Gas diffusion electrode flooding

NEXT STEPS

- **Environmental Assessment**
 - The environmental footprint of the 1 MW system will be analysed, with a special focus on GHG emissions, and a comparison will be made with the footprint of a baseline scenario without storage.
- **Legal & Regulatory Assessment**
 - The purpose of these works is to identify the legal and regulatory framework and the possible barriers to carry out the implementation of the Zinc-Air technology for renewable energy integration.



Breakdown of the environmental impact (CO₂eq) of the different components of the battery

The LIFE ZAESS project is funded by the European LIFE Programme, Grant Agreement LIFE13 ENV/ES/001159.