

Call: HORIZON-CL5-2025-02-D2-02. Cost-effective next-generation batteries for long-duration stationary storage



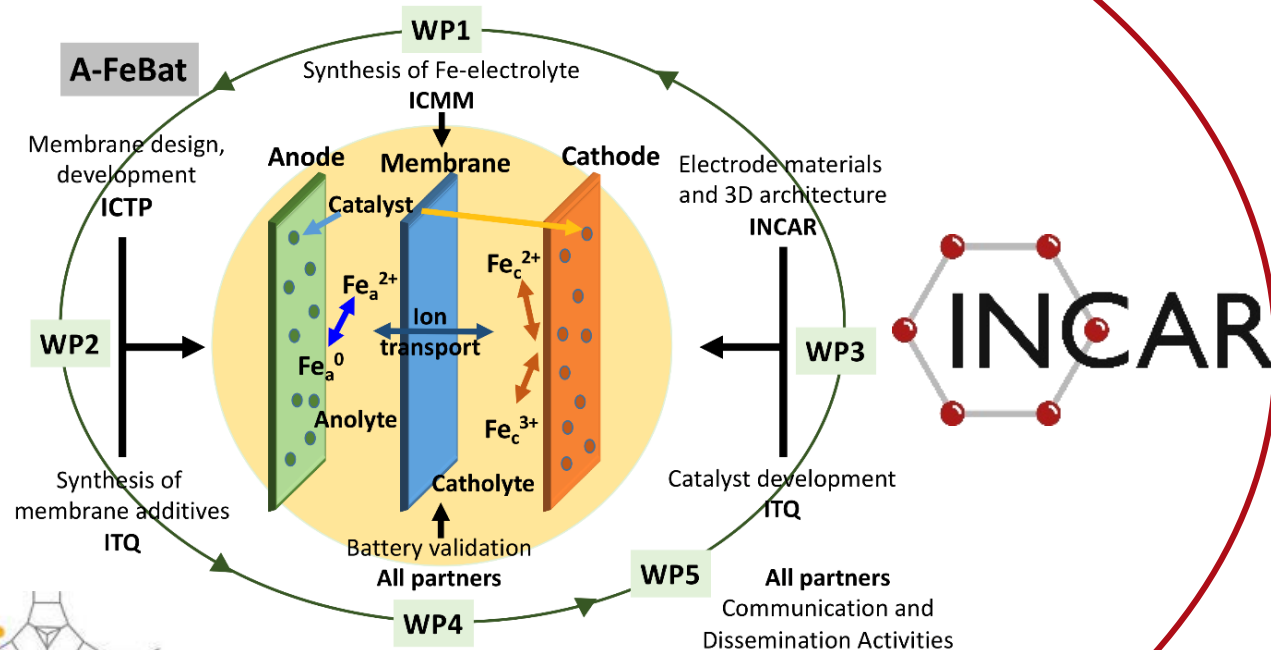
CSIC is the main and largest Spanish Research Institution



Aiming to develop advanced **All Iron Redox Flow Batteries** CSIC seeks Project Partners to fill some knowledge gaps

CSIC Contribution to the potential consortium: **Coordinator and/or Partner**

# A-FeBat Towards sustainable and efficient all-iron based Redox Flow Batteries: Design, optimization and validation of components



TED2021-130372B-C41



MINISTERIO  
DE CIENCIA  
E INNOVACIÓN



Financiado por  
la Unión Europea  
NextGenerationEU



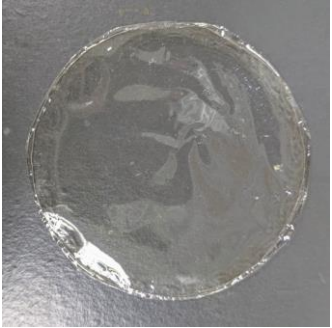
Plan de Recuperación,  
Transformación y  
Resiliencia



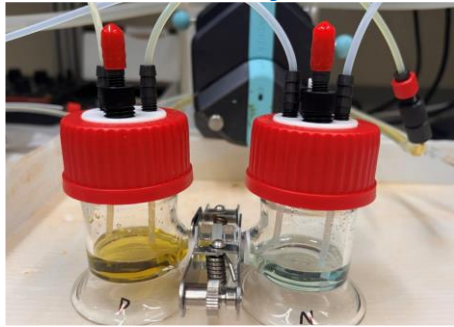
AGENCIA  
ESTATAL DE  
INVESTIGACIÓN

# A-FeBat achievements

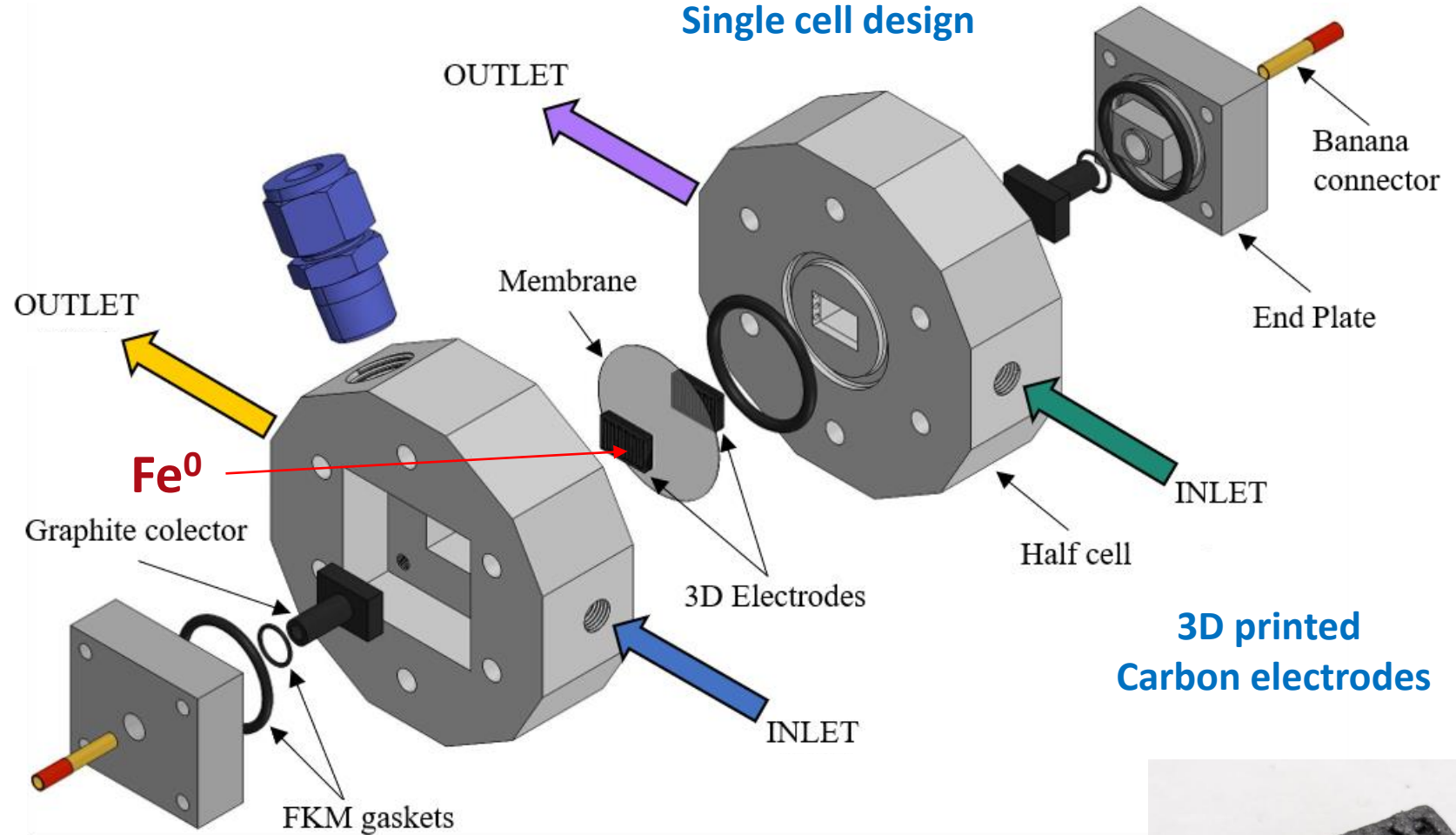
## Fluorine Free Membranes



## Aqueous iron-based electrolytes



## Single cell design



## 3D printed Carbon electrodes

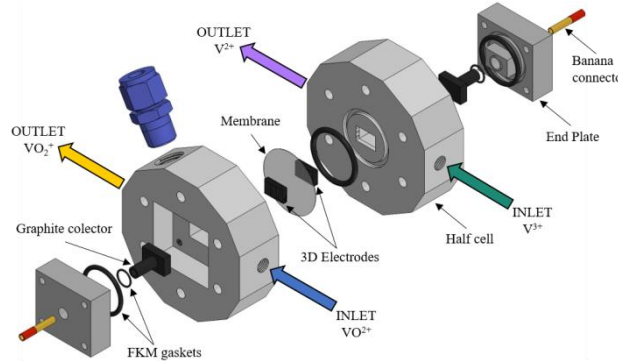


- **ELECTROLYTE PATENT:** An iron electrolyte, its process of obtainment and iron redox flow battery comprising said electrolyte (EP24382234.3)
- **Deep Eutectic Solvents based iron electrolytes**

# CSIC seeks Project Partners with experience at:

## Novel Fe-RFB conceptualization by Additive Manufacturing

- Scaling up **3D printing of carbon-based electrodes**
- Modelling/optimization of **electrolyte fluid dynamics**
- Design and development of a novel **3D printed single-cell and stack**



## Membranes

- Optimization of **selective membranes** (maintaining high conductivity, mechanical and chemical stability)
- **Large scale fabrication** (cost effective and sustainable methods)

## Feasibility - Sustainability

- **Life cycle** assessment
- **Market** studies

## Sustainable iron-based electrolytes

- Electrolytes with high energy density

[Redox Flow Battery Company](#)  
[\(preferably focused on aqueous based chemistries\)](#)

## Theory/Machine Learning/A.I.

- **Cell and stack design (3D printing)** and assembling (including fluid dynamics)
- **Fundamental Understanding** of metallic iron plating/stripping and Interface long-term behavior/performance