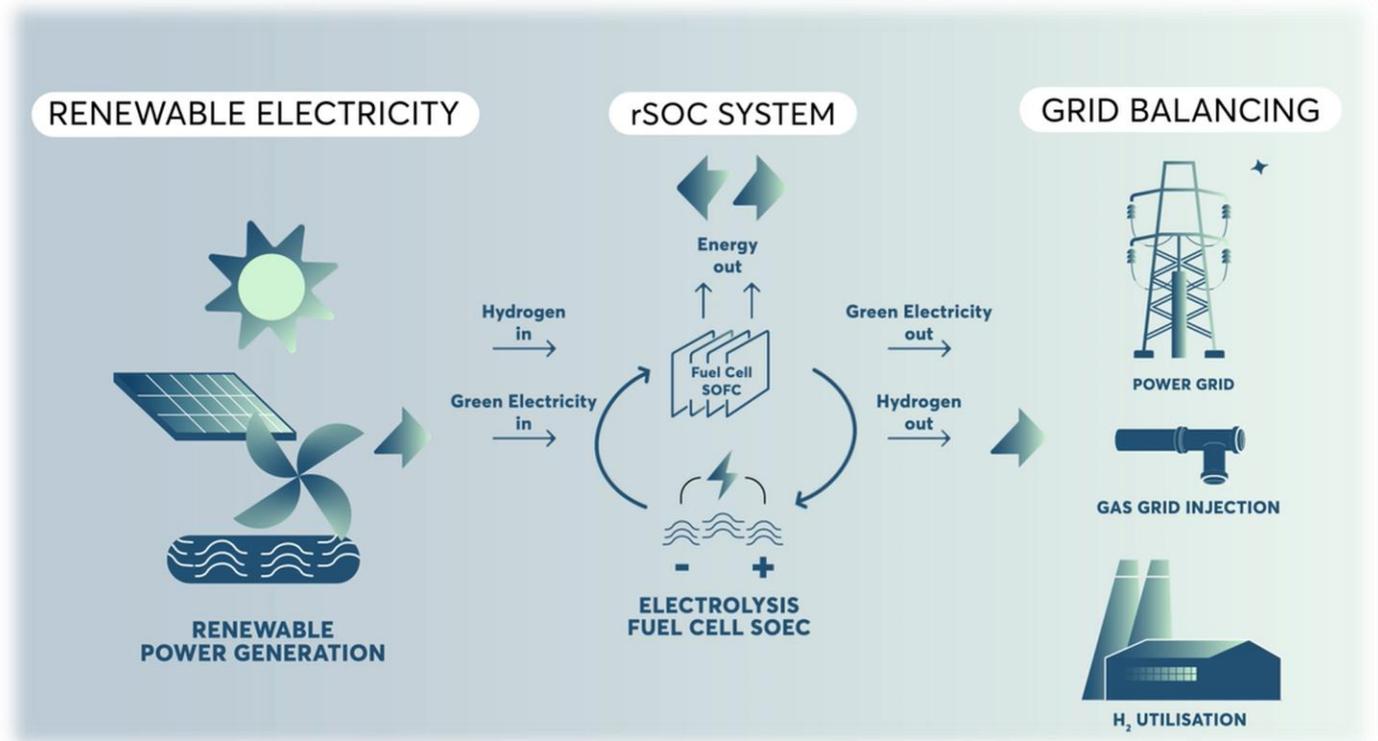




24/7 ZEN: Reversible SOEC/SOFC system for zero emission energy network



Marc Torrell Faro
Project Coordinator



Webinar "Solid Oxide Cells: from materials to systems"

19 February 2025



24/7 ZEN: Reversible SOEC/SOFC system for zero emission energy network

GENERAL OVERVIEW

TITLE

24/7 ZEN - REVERSIBLE SOEC/SOFC SYSTEM FOR A ZERO EMISSIONS NETWORK ENERGY SYSTEM

CALL / TOPIC

HORIZON-JTI-CLEANH2-2022-1 / Reversible SOC system development, operation and energy system (grid) integration

PLAN & CONSORTIUM

- **36+12M/ 7 WPs**
- **12 EU partners (4 countries)**
- **3 Swiss partners**

FUNDING

- **5,498,886 € (EU)**
- **2.268.706 € (Swiss)**



PROJECT OBJECTIVES & EXPECTED IMPACT



KPIs:

High current density
→ **1.5 A/cm² SOC**

Low degradation rate
→ **≤ 0.4%/kh**

Thermal cycling stability
→ **≤ 0.2 mV loss/cycle**

... the value chain, from the materials engineering for optimised

Scientific

... that can be scaled and replicated to multi-MW scale

Scale up

... electricity from the grid for the operation and injecting the H₂ electricity produced back to the respective grids.



Acquire both experimental data and conceptual understanding of economically viable business models to use rSOC system

- A RT efficiency of 45%
- Stack cost reduction 3500€/kW
- Mobile – Plug & Play
- Replicable Solution
- <30min transition

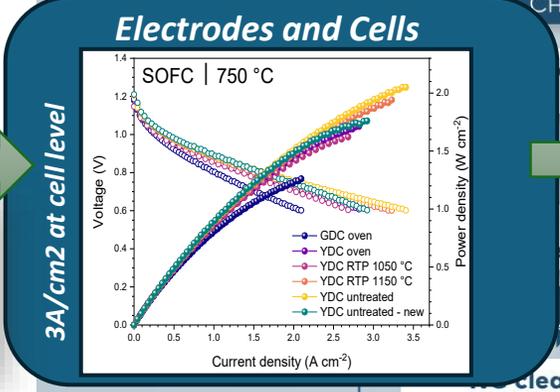
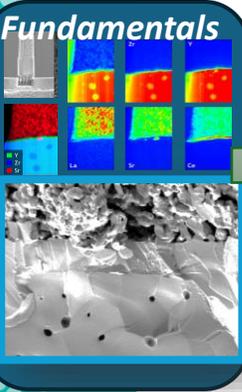
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PROJECT RESULTS: FROM MATERIALS TO SYSTEM



24/7 ZEN ECOSYSTEM DEMO PLANT (WP5)



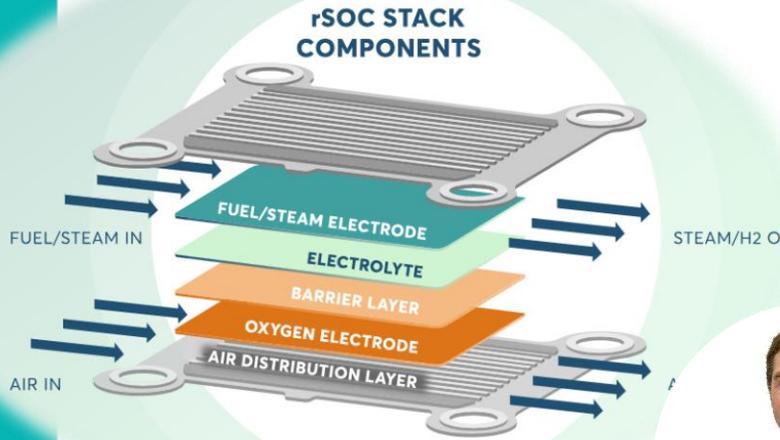
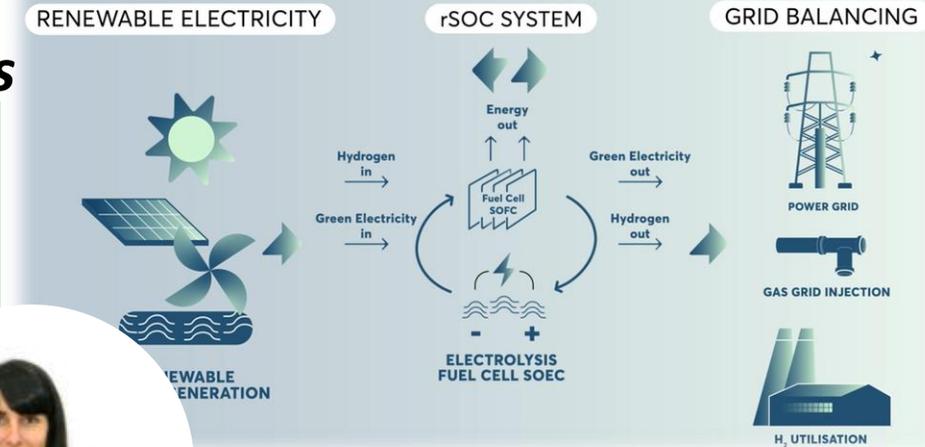
24/7 ZEN SYSTEM (WP4)

RSOC MODULE

EUNICE



www.24-7zenproject.eu
From materials to systems



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Shaping Energy for a Sustainable Future

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