



Reversible solid oxide Electrolyzer and Fuel cell for optimized Local Energy miX

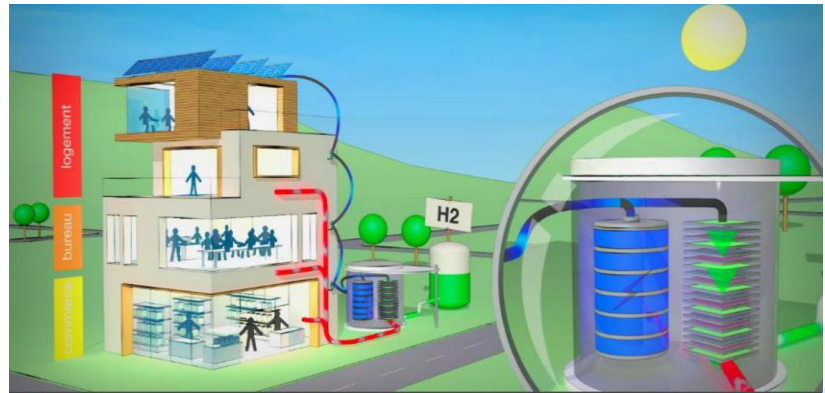
Objective

Developing an innovative renewable energies storage solution, the “**Smart Energy Hub**”, based on **reversible Solid Oxide Cell (rSOC)** technology

- Operates either in **electrolysis mode** (SOEC) to **store excess electricity** to produce H_2 , or in **fuel cell mode** (SOFC) when energy needs exceed local production, to **produce electricity and heat** again from H_2 or any other fuel locally available.

- Power:

>**50 kW** in SOEC - **10 kW_e** + **6 kW_{th}** in SOFC



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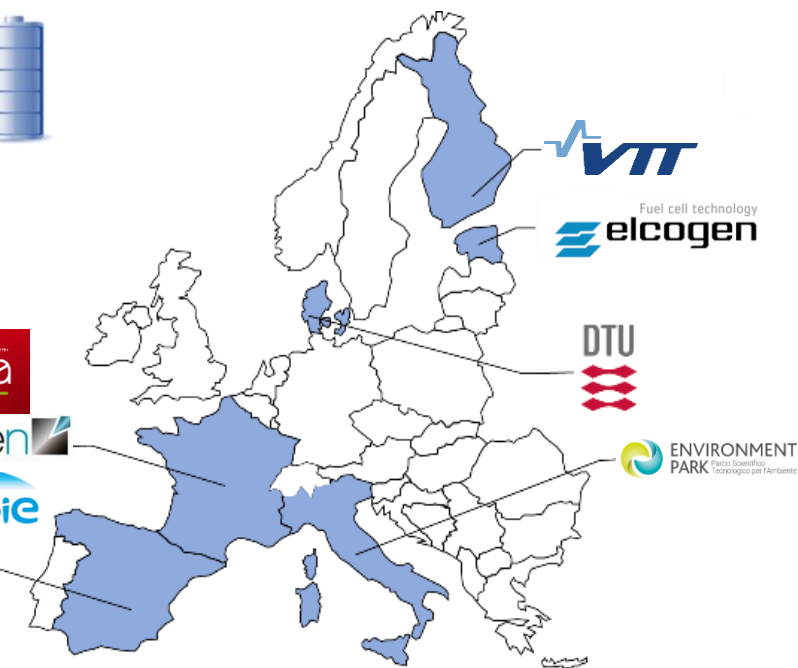
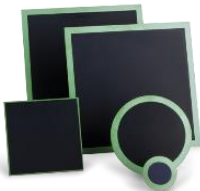


Challenge

Achieving concomitantly high **efficiency**, high **flexibility** in operation and **cost optimum**

Methodology

- Improvements of **rSOC components**
- **Modular** system design
- Definition of **advanced operation strategies**.



- **In-field demonstration** in a technological park
 - Smart Energy Hub coupled to local renewable sources (solar)
 - Delivery of electricity and heat to the park

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