

Iberian Centre for Research in Energy Storage, CIIAE (Cáceres)

Liliana Analía Díaz (researcher in low-temperature electrolysis and fuel cells)

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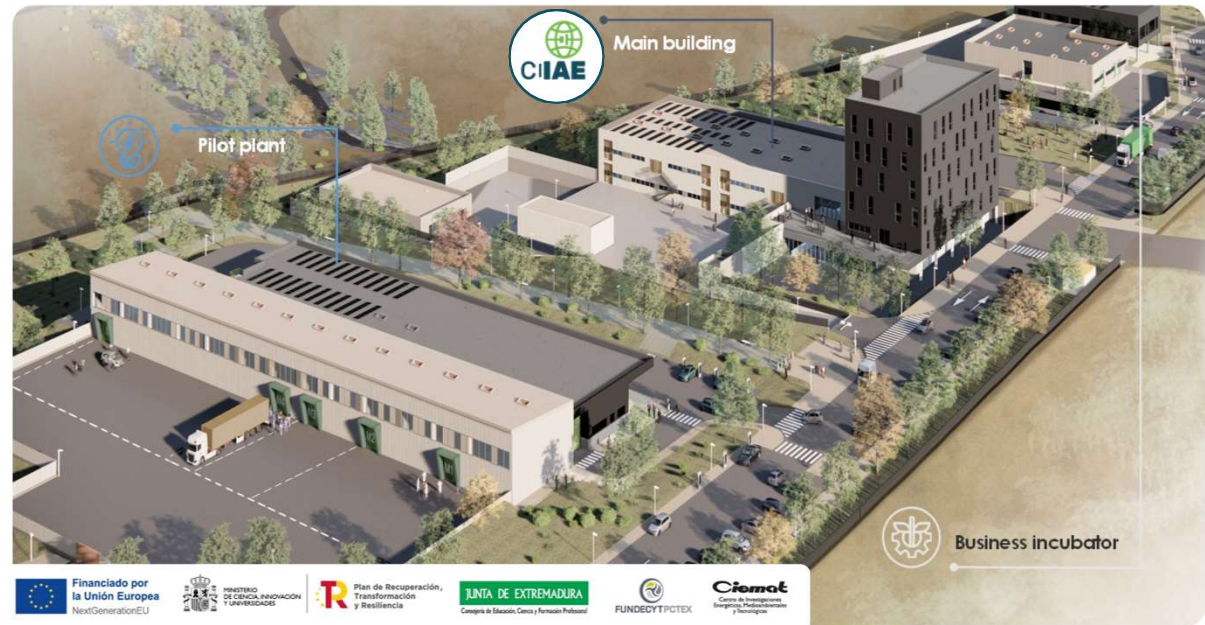
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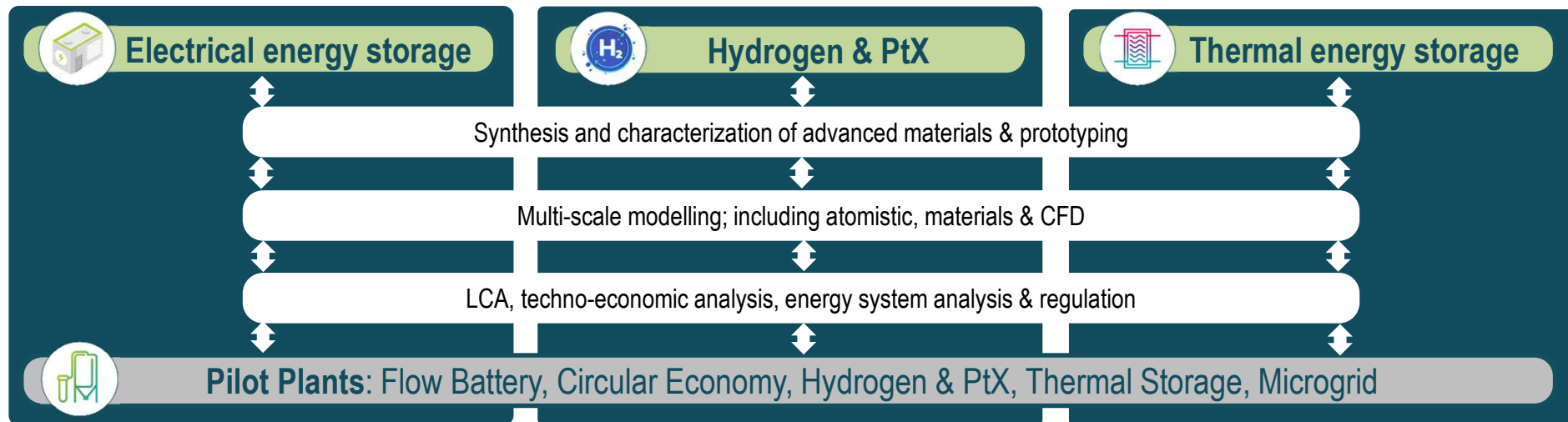
1.1 CIIAE organization and capacities



Regional Public Foundation for Science and Technology
(Legal & management support)

 4 th Nov. 2022 	 >80 M€ initial funding	 >100 researchers & engineers (135 by 2025)	 Public- private financing strategy	
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1.2 CIIAE organization and capacities



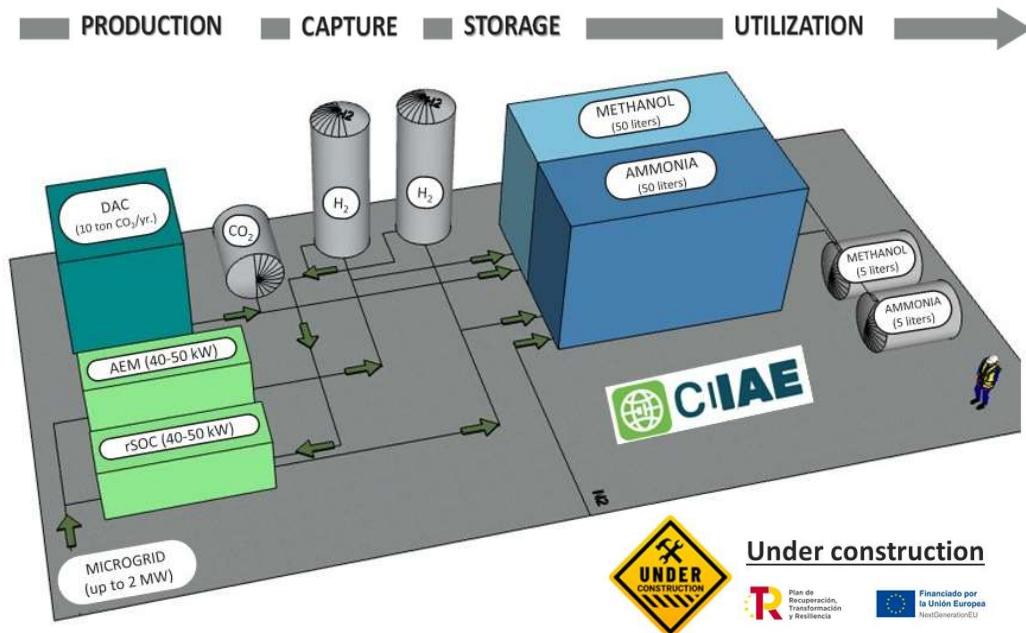
1. Hydrogen & PtX – Research lines

- **Low and high temperature electrolyzers and fuel cells** (AEL, AEM, PEM, r-SOC, co-SOEC, PCEL).
- **Hydrogen storage and transport.**
- **CO₂ capture and uses (DAC).**
- **Catalysis for chemical & synthetic fuels** (CO₂ hydrogenation, methanol and NH₃ synthesis, electro-, photo- and photoelectro- cells).



2. Hydrogen & PtX – Pilot plant at a glance

- **State-of-the-art** hydrogen and PtX technologies.
- **Modular** and **portable** units, **flexible** and fully **automated**.
- **Thermal integration** and **process optimization**.
- **Own** and **third-party** developments.
- **Testing, validation** and **training**.
- Connected to a **microgrid** (up to 2 MW).



2. Topics of interest in calls 2025

Topic	Action	TRLs	(EUR)	No. Pr.	Experience and Contribution
HORIZON-JU-CLEANH2-2025-01-01	RIA	3-4/5-6	4 M	1	<ul style="list-style-type: none"> • Synthesis and characterization materials, membranes and MEAs integration; • Prototyping (1 kW AEMWE); Pilot plan (40-48 kW AEM); • Contaminant degradation and post-mortem studies; • DFT; • TEA
HORIZON-JU-CLEANH2-2025-01-02	RIA	3/4-5	4 M	2	<ul style="list-style-type: none"> • Synthesis and characterization materials, components and cells for SOCs & PCCs; • Prototyping (1 kW r-SOC); Pilot plant (40-50 kW r-SOC); • Degradation and post-mortem studies; • CFD; • TEA
HORIZON-JU-CLEANH2-2025-01-03	RIA	4/5-6	4 M	2	<ul style="list-style-type: none"> • Recycling advisory for low temperature electrolyzers and cell stacks (AEM, PEM); • Recycle Pilot plan; • Pilot plant coupled to smartgrid; • LCA; • TEA
HORIZON-JU-CLEANH2-2025-01-04	IA	n.a./7	6 M	1	<ul style="list-style-type: none"> • Prototyping (1 kW r-SOC); • Pilot plant (40-50 kW r-SOC); • CFD; • TEA
HORIZON-JU-CLEANH2-2025-01-05	RIA	3/5	4 M	1	<ul style="list-style-type: none"> • Screening of components at cell/short-stack level; • Designing ad-hoc solutions for heat recovery, storage, integration; • Pilot plant (40-50 kW r-SOC; several downstream reactors for methanol and ammonia production; microgrid up to 2 MW); • CFD; • TEA
HORIZON-JU-CLEANH2-2025-01-06	IA	n.a./7	8 M	1	<ul style="list-style-type: none"> • Polyoxometalates (POM) driven photoelectrochemical hydrogen production from biomass waste. • Design and synthesis of high capacity and selectivity carbon • Characterisation (textural properties, FTIR, XRD) • Application of functionalised carbon (CO2 capture, electrodes, molecular sieves)
HORIZON-JU-CLEANH2-2025-01-07	RIA	2/4	2 M	1	<ul style="list-style-type: none"> • LCA and TEA; • Regulatory and legal analysis; • Geological characteristics for natural hydrogen; • Potential reservoirs identification and GIS mapping.

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Topic	Action	TRLs	(EUR)	No. Pr.	Experience and Contribution
HORIZON-JU-CLEANH2-2025-02-02	RIA	n.a./5	5 M	1	<ul style="list-style-type: none"> • Thermochemical compressors; • Metal-hydride-based materials • Synthesis at laboratory scale • Structural/Thermal Characterization • Hydrogen Uptake/Release Thermodynamic and kinetic properties • LCA • System hybridation Storage/Compression
HORIZON-JU-CLEANH2-2025-03-02	RIA	n.a/6	5 M	1	<ul style="list-style-type: none"> • Recycling assesment; • Pilot plant safety assesment; • DFT on recycling reaction; • Recycle pilot plan; • Pilot plant coupled to smartgrid; • LCA; • TEA; • Regulatory and legal analysis
HORIZON-JU-CLEANH2-2025-03-03	RIA	4/6	7 M	1	<ul style="list-style-type: none"> • Regulatory and legal analysis; • Deep fuel cell understanding; • Pilot plant safety assesment
HORIZON-JU-CLEANH2-2025-04-01	IA	5/7	5 M	1	<ul style="list-style-type: none"> • Techno-economic assessment; • Behavioral modelling; • LCA; • Regulatory and legal analysis; • Microgrid for testing of fuel cells
HORIZON-JU-CLEANH2-2025-05-01	RIA	3/5	3.5 M	1	<ul style="list-style-type: none"> • Fundamental polymer studies (Mixing polymers); • Metal salts purification; • Recycling advisory alternative applications; • Recycle Pilot plan; • Pilot plant coupled to smartgrid; • LCA; • TEA

We are open to collaborate!
Check our list of preselected calls and contact us!

**Thank you for your
attention!**

Liliana Analía Díaz (liliana.diaz@ciiae.org) -----	<input type="checkbox"/> Low temperature electrolyzers & fuel cells
Blanca Arias (blanca.arias@ciiae.org) -----	<input type="checkbox"/> High temperature electrolyzers & fuel cells
Jose Antonio Villajos (jose.villajos@ciiae.org) -----	<input type="checkbox"/> Hydrogen storage and transport
Cristina Gutiérrez (cristina.gutierrez@ciiae.org) -----	<input type="checkbox"/> CO ₂ capture and uses
Juan María González (juan.gonzalez@ciiae.org) -----	<input type="checkbox"/> Catalysis for chemicals and synthetic fuels
Juan Víctor Perales (juan.perales@ciiae.org) -----	<input type="checkbox"/> Electrocatalysts for chemicals and synthetic fuels
Rayees Ahmad Rather (rayees.ahmad@ciiae.org) -----	<input type="checkbox"/> Photo-electro-catalysts for chemicals and synthetic fuels
Rodrigo García (rodrigo.garcia@ciiae.org) -----	<input type="checkbox"/> Atomistic simulations
Santiago Laín Beatove (santiago.lain@ciiae.org) -----	<input type="checkbox"/> Computational fluid dynamics (CFD)
Romain Mauger (romain.mauger@ciiae.org) -----	<input type="checkbox"/> Senior researcher in regulation