

# BROKERAGE EVENT IN HORIZON EUROPE

## ENERGY TOPICS

4 MOTORS FOR EUROPE  
3<sup>rd</sup> June

IREC

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# Our project idea

## Novel high efficiency earth abundant thin film tandem photovoltaic technologies based on perovskites and low band gap chalcogenides – THINTEC

**Objectives:** Development and demonstration of perovskite/low band gap chalcogenide tandem devices based on Earth abundant chalcogenides as  $\text{Cu}_2\text{ZnSnSe}_4$  (CZTSe, kesterite).

- Expertise:

*Synthesis:* DC, DC pulse & RF sputtering, thermal & e-beam evaporator, ALD, chemical bath deposition, electrochemical workshop, spray pyrolysis, spin coating, screen printing, advanced chemical workshops, substrate washing machine, UV ozone cleaner, reactive CTP & RTP furnaces, mechanical scribing, ball-milling, electrical & module prototyping workshop.

*Characterization:* solar simulator, EQE/IQE, XRF, 4-point probe, XRD, multi-wavelength Raman, industrial integrable & portable Raman, PL, EL, AFM, UV-Vis-IR, confocal-interferometric microscope, impedance system, helium cryostat, optical workshop, 3D prototyping platform, XY platform for optical characterization, industrial process monitoring workshop.

Keywords: perovskites, Solar cells, Tandem devices, Building Integrated PV (BIPV), Vehicle Integrated PV (VIPV)

# Call HORIZON-CL-5-2021-D3-02-04

- **Topic:** “Novel tandem, high-efficiency photovoltaic...”
- **Role:** Partner (core team)
- **Applications:** Design and production of a new generation of PV integrated products with very high efficiency as required in strategic niche market applications as Building Integrated PV (BIPV), Vehicle Integrated PV (VIPV) and Product Integrated PV (PIPV).
- **Other partners:** 2 x consortium parts

## Looking for partners/coordinator :

1. Background in perovskite technologies.
2. Incorporation of groups expert in low band gap chalcogenide technologies.
3. Design/implementation of tandem devices

# Topic

Calls details	Potential role/contribution	Existing consortium	Looking for
HORIZON-CL-5-2021-D3-02-04: novel tandem, high-efficiency photovoltaic technology targeting low-cost productions with earth-abundant materials	Material development, physical and electrical characterization. Device development prototyping	1 x consortium with Coordinator Group almost closed	<b>Partner for exploration/dissemination</b> and to develop impact section of proposal
CL5-2021-D6-01-04: Cyber secure and resilient CCAM	IoT / LoRA design, State of charge of batteries evaluation.	No consortium	Partners/coordinators (all types)
CL5-2021-D6-01-03: Physical and Digital Infrastructure (PDI), connectivity and cooperation enabling and supporting CCAM	Charger integration, decentralized monitoring. GIS tool, resilient drivertrain		
CL5-2021-D5-01-11: Hyper powered vessel battery charging system	Optimal sizing of battery system (including chemistry cell selections, electrical, thermal and mechanical architecture, of course safety); BMS, Digital twin implemented on VECTO	Core group (1x French partner RTO/ 1x Spain RTO; possibly 1x industry in Spain- demo site, 1 x German)	<b>Partners/Coordinators</b> (with a background/experience with 5 MW systems)
CL5-2021-D2-01-09: Methane cracking to usable hydrogen and carbon	Material development, physical and electrical characterization. Device development prototyping	Core group (2 x Spain RTOs, 1 x Spanish industry, 1 x Italian partner)	Looking for northern European partners
CL5-2021-D2-01-04: Emerging technologies for a climate neutral Europe	Design & optimization of transformers	Core group (1x Spain RTO, 1 x German University)	Partners/Coordinators

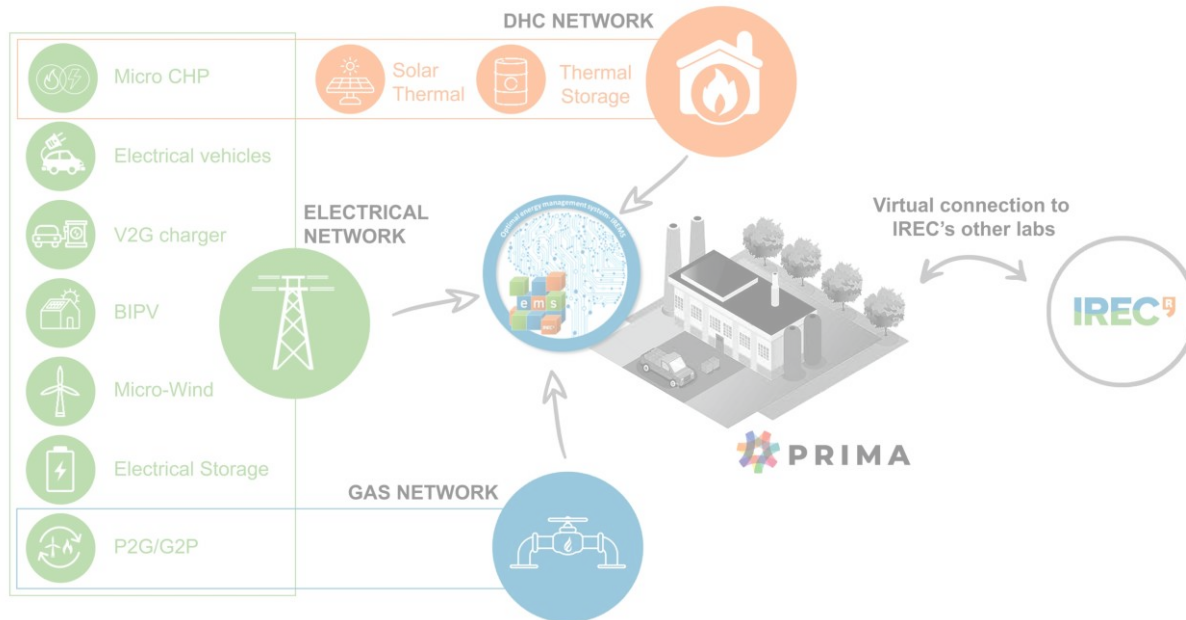
# Topic

Calls details	Potential role/contribution	Existing consortium	Looking for
CL5-2021-D3-01-11: Establish the grounds for a common European energy data space	Data identification, shared, and design aggregation mechanisms for all data- collecting electricity consumption and generation data from public buildings	No consortium	Partners/Coordinators
CL5-2021-D3-02-16: Innovative biomethane production as an energy carrier and a fuel	Material development, physical and electrical characterization. Device development prototyping characterization, Kinetic analysis	No consortium	Partners/Coordinators
CL5-2021-D4-01-03: Advanced data-driven monitoring of building stock energy performance	Advanced data-driven monitoring of building. Automate the monitoring of energy performance of buildings and relevant life-cycle performance with various aspects linking to energy efficiency	Core group (2x Spain RTO, 1x Italian partners, 2 x Danish Univ. , 1x Belgium Univ., 1x Netherlands)	Partners/Coordinators
CL5-2021-D3-01-12: Reinforcing digitalisation related know how of local energy ecosystems	open data platforms and carrying out technical analysis on third-party data usage	Core Group (1 Spain RTO, 2 x SMEs Spain, (possibly 2 demos)	Partners/Coordinators
CL5-2021-D4-01-02: Industrialisation of deep renovation workflows for energy-efficient buildings	Control model developments, Comfort and IEQ. , District level. Evaluation, at the district level, of the potential of project solution implementation. Control models testing	Core Group 3x Spanish RTOs, 1 x Danish Univ, 1x Belgium, 1x Netherlands	Partners/Coordinators from construction industry

Calls details	Potential role/contribution	Existing consortium	Looking for
CL5-2021-D2-01-01: Sustainable processing, refining and recycling of raw materials (battery partnership)	Material development, physical and electrical characterization. Device development prototyping characterization, Kinetic analysis	Core 2x Spain RTOs and 1x Italian	Partners/Coordinators
CL5-2021-D3-01-05: Energy Sector Integration: Integrating and combining energy systems to a cost-optimised and flexible energy system of systems	Multi-sector planning and operations optimization of electricity, natural gas, and transportation networks using advanced optimization algorithms-platform for exploring the impacts of various investment decisions and integration strategies, and quantification of the value of sector integration	Core  1 x German, 1 x Danish, 1 x Spanish  (demos sites : Northern Europe, southern Europe and eastern Europe)	Looking for coordinator



**Contact us!**  
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***“IREC secures 3M€ for a technological platform to support the energy transition”***



***“corporations to innovative SMEs – will work together to **scale-up technologies**, develop **supply chains** and identify **routes to market**.”***

Platform for the integration of renewable energies and storage