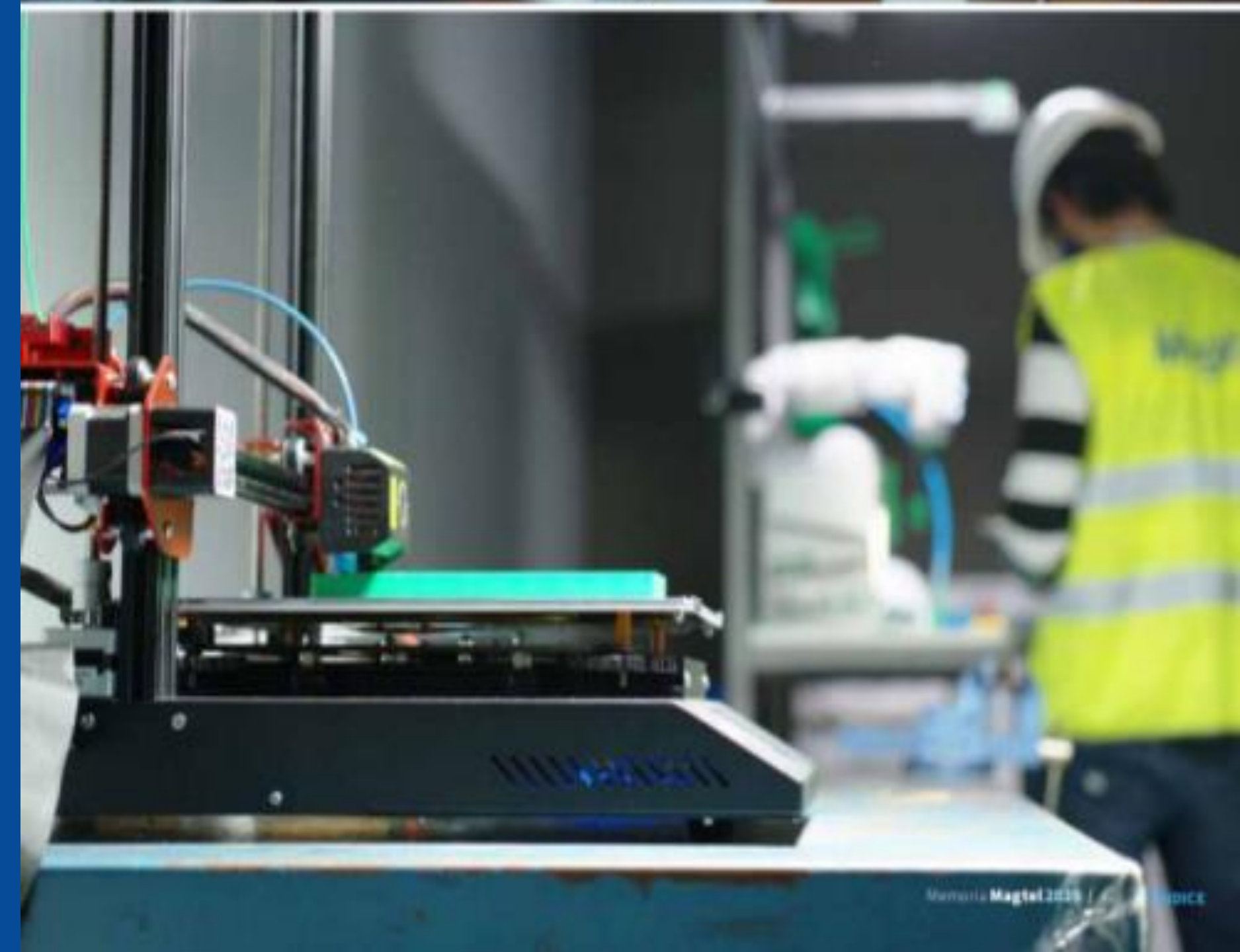




Future Trends in Solar Energy

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Magtel





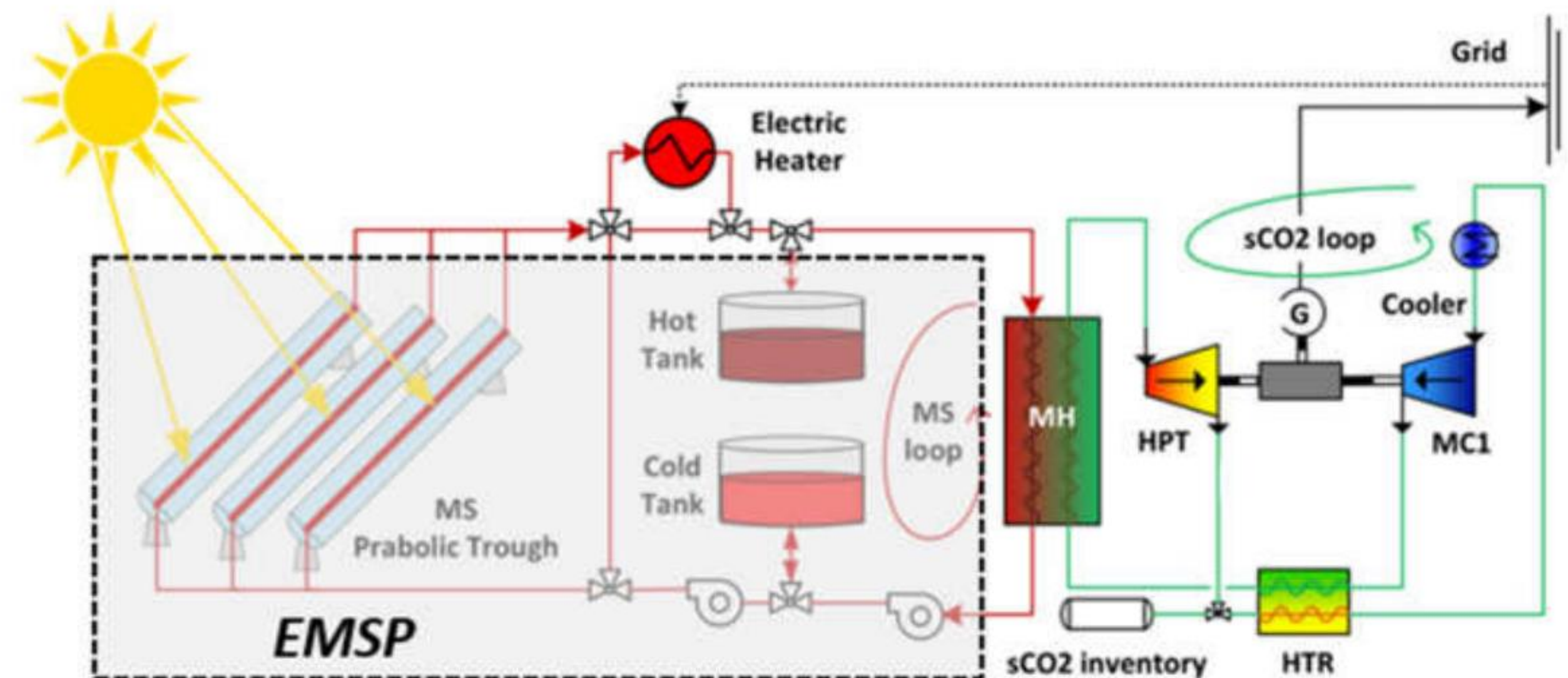
- 1. Supercritical CO₂**
- 2. Renewable energy storage for grids**
- 3. Integrated thermal storage in industry**

CALL	HORIZON-EUROPE
PARTNERS	RINA, KTH, MASEN, IKER, UNIGE, CERTH, MAGTEL, FTM, ESTELA, MAS, LOINTEK, NP, SEI, ABE, OTG, UEVORA, DLR, BZ.
PROJECT	
SOLAR based sCO2 Operating Low-cost plants	

ADVANTAGES
<ul style="list-style-type: none"> • CAPEX Reduction: -10% of full integrated CSP plant • 25% for the power unit if compared to steam CSP; • LCOE impact: reduction to 10c€/kWh or even lower; • Higher yearly Power plant efficiency: +10% thanks to high turbomachinery efficiency of the sCO2 power block and higher exploitation of TES via MS electric heater; • Reduction of GHG emissions: -90% CO2eq considering the HC/CO emission reduction related to avoided use of auxiliary boilers that would not be needed anymore thanks to sCO2 power block lower operating temperature and MS electric heater integration;

ABSTRACT

The JRC CSP platform anticipates that Concentrated Solar Power (CSP) could contribute to 11% of the EU's electricity by 2050, given improved component efficiency and cost reductions. Aligned with this vision, the SOLARSCO2OL project focuses on deploying supercritical carbon dioxide (sCO2) cycles to demonstrate the operational viability of the first MW-scale EU sCO2 power block coupled with a Molten Salt CSP system at the Evora Molten Salt platform facility. Drawing on prior EU initiatives, SOLARSCO2OL aims to bridge knowledge gaps, enhance CSP plant flexibility, and achieve market readiness by 2030 through feasibility studies and collaborations, including with the Moroccan Agency for Sustainable Energy (MASEN)



RENEWABLE ENERGY STORAGE



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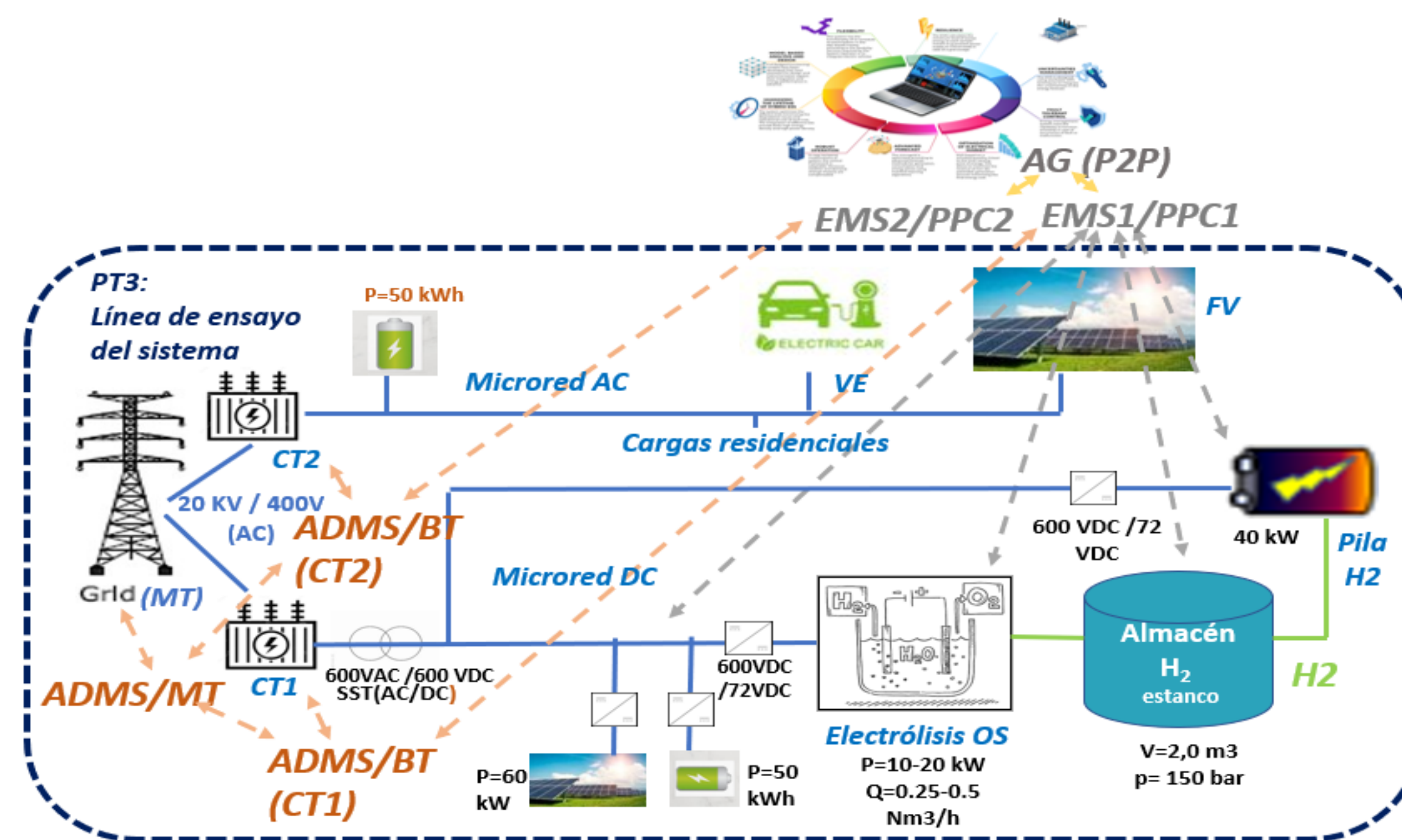
CALL	MISIONES 2022
PARTNERS	INGELECTUS, EVC, PREMIO, H2B2, PROTIO, TEQUINSON, NASIKA, UCO y LOYOLA.

PROJECT	
ADVANCED TECHNOLOGY TO INCREASE THE FLEXIBILITY AND RESILIENCE OF DISTRIBUTION NETWORKS THROUGH HYBRID AC/DC RENEWABLE ENERGY MICROGRIDS, SOLID OXIDE ELECTROLYSIS, FUEL CELL AND RECYCLABLE AND SEALED HYDROGEN STORAGE.	

ADVANTAGES
<p>The main objectives of the project are:</p> <ol style="list-style-type: none"> 1. To improve the observability of the distribution network through a structured transformation into micro-grids. 2. To increase the flexibility of the distribution network through the development of hierarchical distribution management systems (ADMS) 5. Improve interaction between prosumers and operators by applying artificial intelligence based on Model Predictive Control (MPC). 6. Integration of power electronics with PPC 6. Optimisation of fuel cell system dimensions. 7. Develop a more compact SOEL electrolyser, in order to enable the integration of this technology in large plants. 8. Development of hydrogen storage with polymers

ABSTRACT

The transformation of the smart grid towards a more structured system based on microgrids with storage systems that work in a cooperative and self-organised way appears to be key to transforming our current energy system into a smarter, more robust and sustainable one, not only by achieving a better integration of the distributed components in the wholesale electricity markets, but also by being able to be used in the management of the distribution system as ancillary services.





THERMAL ENERGY STORAGE "GIGAFACTORY"

ABSTRACT

That Brenmiller, an firm specialising in thermal energy storage, has just opened a plant in Dimona in Middle East. First "gigafactory" of Thermal Energy Storage its kind in the world. To see it fully operational, however, we will have to wait a few more months. Although it opened its doors in May, Brenmiller estimates that it will not reach full capacity until the end of 2023.

ADVANTAGES

1. Conserve thermal energy for use when needed, after hours, days or even months.
2. bGen's technology makes it possible to use renewable resources as well as waste heat to heat crushed rock to very high temperatures.



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