



ENOGIA

Micro-turbomachinery for a more sustainable world

A revolution in mass electricity storage : ENOGIA will design and deliver the supercritical CO₂ turbomachinery of the SCO₂OP-TES project

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ENOGIA (code ISIN : FR0014004974 – mnémonique : ALENO), expert en micro-turbomachines au service de la transition énergétique, is proud to be part of the ambitious Horizon Europe SCO₂OP-TES project, aiming at revolutionizing mass electricity storage thanks to innovative carnot battery architecture, which started as its kick-off was held in Brussels on this December 14th and 15th.

Capitalizing on more than a decade of high technology turbomachinery research and development, ENOGIA was selected as the main turbomachinery manufacturing partner of the SCO₂OP-TES project. ENOGIA will design, engineer, manufacture and test the main supercritical CO₂ turbomachines used in this project where a groundbreaking Carnot battery architecture will be developed and tested by the partners of the project.

This project emphasizes ENOGIA's recognized ability to develop cutting-edge supercritical CO₂ turbomachinery, acquired through years of research and several development projects (including the H2020 I-Therm project). ENOGIA is also heavily involved in thermodynamic electricity storage research, which is a promising way of storing electricity without using limited and polluting resources such as chemical batteries.

Total funding of the project is 4,7M€, including a grant of 875,5 k€ for ENOGIA to support its activities in the project critical hot sCO₂ turbomachinery design, manufacturing and testing.

Introducing SCO₂OP-TES's Groundbreaking "Carnot Batteries" : EU Pioneers in Revolutionizing Energy Storage

In a bold move to revolutionize energy storage and transition towards renewable energy sources, the European Union has intensified its efforts through the innovative SCO₂OP-TES project. This initiative is a pivotal part of the EU's strategy to reduce emissions in the energy and industrial sectors, further propelled by the recent REPowerEU Plan. The plan sets an ambitious goal of achieving 1236 GW of installed renewable energy source (RES) power capacity by 2030, a significant increase from the 1067 GW target set in the "Fit for 55" package. But this huge amount of RES needs a proper energy storage solution, that can guarantee both grid stability and the possibility to exploit RES all over the day and the year.

Addressing the Challenges of Energy Transition

The transition towards 100% RES by 2050 is indeed not without its challenges. Current inverter-driven storage methods, like batteries and power-to-hydrogen systems, fall short in covering specific grid flexibility services that only rotating machines can provide. In this sense the estimated 780 TWh electricity storage needed for EU RES transition cannot be provided only by battery, thus the EU is on the lookout for novel energy storage solutions that are not only cost-effective but also provide extended storage durations and grid services.

SCO2OP-TES: A Step Towards Sustainable Energy Future

Enter SCO2OP-TES, a project that aims to develop and validate the next generation of Power-to-Heat-to-Power (P2H2P) energy storage solutions. This project is a collaborative effort of 16 partners from 10 European countries, combining their expertise in advanced energy systems and turbomachinery, with a particular focus on sCO₂ ones. The SCO2OP-TES project focuses on developing a new type of Carnot Battery that valorises freely available heat from thermal RES or waste heat from industries and fossil-based power plants, can guarantee high round-trip efficiency and makes industrial/power plants more grid-flexible.

Empowering Europe's Energy Transition

SCO2OP-TES is more than just an energy storage project. It represents a technological paradigm shift, integrating Thermally Integrated-Pumped Thermal Energy Storage (TI-PTES) with supercritical CO₂ (sCO₂) cycles. This approach promises affordable long-duration (>10hrs) and large-scale storage solutions, crucial for integrating bulky RES into the EU energy systems and transforming traditional power plants into flexible renewable energy plants.

Consortium Partners

The SCO2OP-TES project brings together a diverse group of partners, each contributing unique expertise. The consortium partners, including leading universities, research centers, and industry experts, are united in their mission to develop sustainable, technically viable, and environmentally friendly energy storage solutions. Together, they are paving the way.

To learn more about the SCO2OP-TES project and partners :

<https://cordis.europa.eu/project/id/10113600>



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About ENOGIA

ENOGIA responds to the major challenges of the ecological and energy transition with its unique and patented technology of compact, light and durable micro-turbomachinery. As the French leader in heat-to-electricity conversion with its wide range of ORC modules, ENOGIA enables its customers to produce decarbonised electricity and to recover waste or renewable heat. Since 2020, ENOGIA has also been marketing air compressors for Hydrogen Fuel Cells, thereby contributing to the development of hydrogen mobility, a booming market. With sales in more than 25 countries, ENOGIA continues to prospect for new customers in France and internationally. Founded in 2009 and based in Marseille, ENOGIA has some 60 employees involved in the design, production and marketing of environmentally friendly technological solutions. ENOGIA's CSR commitment represents an "Advanced" level of performance according to Ethifinance.

ENOGIA is listed on Euronext Growth Paris.

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