

# SCO2OP-TES NEWSLETTER



## PROJECT COORDINATOR UNIGE HOSTS SCO2OP-TES CONSORTIUM IN GENOA, ITALY!

*Genoa, Italy - May 7, 2024 - The first General Assembly of the SCO2OP-TES project was held in Genoa, Italy on May 7th!*

*Representatives from all partner organizations gathered to exchange insights, align on objectives, review current progress, and define the course for upcoming tasks. Attendees shared their expertise and enthusiasm for the project's ambitious goals!*



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# SCO2OP-TES

*Dear reader,*

*SCO2OP-TES aims to develop and test advanced Thermally Integrated Pumped Thermal Energy storage solutions as relevant Long Duration Energy Storage to store large amount of renewables and enhance the flexibility in fossil fuel power plants and aid industrial grid connections, also thanks to valorization of locally available industrial waste heat. The project, led by a partnership composed of SMEs, research organizations, and industrial partners, will develop and validate, in the UNIGE-TP laboratory, a first of its kind sCO<sub>2</sub> based Thermally Integrated Pumped Thermal Energy Storage (TI-PTES) . SCO2OP-TES aims also to position Europe as a leader in P2H2P solutions, promoting waste heat recovery and eco-friendly storage alternatives.*

The **1st General Assembly** provided an excellent opportunity for all partners to review the project's progress and outline the forthcoming actions. Indeed, each Work Package leader presented their respective tasks. Below there is a summary of the main outcome of each WP so far.

**KTH (WP1)** introduces the SCO2OP-TES preliminary design, covering thermodynamic points identification for UNIGE-TP pilot and test rig basic engineering.

Alternative layouts for replication have been explored as well with UNIGE support.

**POLIMI (WP2)** focuses on designing and prototyping fluid machinery for the SCO2OP-TES system, including compressors and turbines. Due to test-loop limitations in WP1, various machinery types have been considered and in this first phase of the project the conceptual design of hot and cold machines has been presented (SIT, ENOGIA).



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**UoB (WP3)** objective is to design and prototype the enabling TES/HEX components of SCO2OP-TES cycle (material selection and modeling activities) as well as to provide guidelines for upsacle and replication. In these first six months the conceptual design of TES and HEX have been discussed with relevant partners (KYOTO, RPOW, AL).

**RINA-C (WP6)** oversees Communication and Dissemination tasks, including the establishment of the project **website** and communication channels, such as **LinkedIn** and **X**. In addition, dissemination material (**roll-up** and **flyer**) has been developed to enhance SCO2OP-TES Project visibility, presented and delivered to the partners. A good opportunity for the Project is the collaboration with Sister Projects (CO2OLHEAT, SOLARSCO2OL, SHARP-sCO2, SEHERENE, Air4NRG...) and the participation in the **Horizon Result Booster**, an initiative by the European Commission which aims at optimizing the influence of publicly funded research within the EU (SCO2OP-TES submitted a joint application with AIR4NRG, SEHRENE projects).





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## WORKSHOPS

During the 1st GA in Genoa, four different workshops and technical discussions were organized and performed:

**Modeling activities towards SCO2OP-TES PTES test-rig layout design:** the scope of this discussion (and of the overall GA) was to “freeze” the preliminary design and operating layout of the SCO2OP-TES TI-PTES test-rig to be installed in TP-UNIGE lab also to facilitate the finalization of the conceptual design of machines, HEX, TES for D2.1 and D3.1 to be delivered within M6.

**Alternative layouts workshop:** the scope of this workshop was to discuss the potential TI-PTES alternative layouts identified by UNIGE in light of WP1 to drive future modelling and replication activities.

**sCO2 fluid machines for sCO2OP-TES:** the scope was to provide detailed remarks on the design of Hot Turbo-compressor, the Cold Volumetric Compressor, and the Cold Bladeless/Tesla Turbine, also to drive next steps of development.

**Exploitation workshop:** the scope was to give attendees a general overview of what exploitation activities aim at. This workshop required active participation by answering questions and gaining credits for each correct response.





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## LIST OF SUBMITTED DELIVERABLES

**WP2:** D2.1 – Conceptual design of sCO<sub>2</sub> Machines (**POLIMI**)  
(Submitted at **M6**)

**WP3:** Conceptual design of Hybrid MS-solid Thermocline Tank (**KTH**)  
(Submitted at **M6**)

**WP6:** D6.1 - SCO<sub>2</sub>OP-TES Dissemination Plan and Material (Public Website integrated with social media, public materials) (**RINA-C**)  
(Submitted at **M4**)

**WP7:** D7.1 - Executive Action Plan (including Data Management Plan and Ethics Self Assessment, Risk Matrix and project objectives/impacts KPI Panel for project reporting/tracking) (**UNIGE**)  
(Submitted at **M4**)



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