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SCARABEUS

H2020 LCE program
Grant Agreement number 814985

Supercritical CARbon dioxide/Alternative fluids Blends for Efficiency Upgrade of Solar power plant

-PRESS RELEASE-

On the 10th of April, the SCARABEUS project was officially launched with the kick-off meeting held in Brussels. All nine members of the consortium and representatives of the European Commission's Directorate-General for Research and Innovation met in a full-day meeting to get to know the institutions and people involved, the methodologies and procedures to implement Research and Innovation Actions in the H2020 programme, and to align forces in order to accomplish the project's objectives.

The main objective of the SCARABEUS project is the reduction of the CAPEX and OPEX in concentrated solar power technologies by about 32% and 40% respectively, leading to a final cost of Electricity below 96 €/MWh (lower than 30% of the actual value) through an innovative power cycle based on CO_2 blends. The addition of small quantities of selected elements to pure CO_2 (i.e. inorganic compounds and fluorocarbons), known as CO_2 blending, can increase the critical temperature of CO_2, compared to conventional sCO_2 cycles, hence enabling the adoption of condensing cycle in typical CSP plant locations. The associated cost reduction will be able to close the gap between CSP and other renewable technologies.

The scope of SCARABEUS is not only to validate the concept theoretically, but also to characterise the thermo-physical properties of the CO_2 blends developed and to demonstrate their long-term thermal stability when exposed to typical operating conditions for 2000 hours. Moreover, new heat exchanger design concepts specifically tailored to these working fluids will be tested under typical CSP conditions for 300 hours in a 300 kW_{th} test loop, assessing also compatibility of materials and potential material-related problems. In addition, turbomachinery designs for large scale power plants will be developed.

SCARABEUS is a 48-month project starting in April 2019 and ending in March 2023, coordinated by Prof. Giampaolo Manzolini, Politecnico di Milano (Italy). The project is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 814985.

SCARABEUS partners	
Academia and R&D	**Industry**
Politecnico di Milano (IT)	Exergy (IT)
University of Seville (ES)	Kelvion (FR)
City, University of London (UK)	Abengoa (ES)
Vienna University of Technology (AT)	Quantis (CH)
Unversity of Brescia (IT)	

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