New SOLARSCO2OL Project: the new era of CSP plants, more flexible and no-more water needs thanks to SOLAR based sCO2 Operating Low-cost plants

€ 9 999 997,51 financed by the EU Commission to unlock the potential of integrating sCO2 in all kinds of CSP plants

On October 1st SOLARSCO2OL project officially started and the kick-off meeting of the project was organized on 7/10/20 in Stockholm.

Boasting an industry-driven Project Consortium made up of 14 international partners coordinated by RINA Consulting S.p.A. and located in 6 EU countries (Italy, Spain, Germany, Greece, Belgium, Sweden) and 1 extra-EU country (Morocco), the main objective of SOLARSCO2OL Project Consortium is to demonstrate an innovative, economically viable and easily replicable sCO2 power block that, also coupled with fast reactive electric heater and efficient heat exchangers (HEXs), will enable the operation and design of a novel integrated power plant layout in order to un-tap Concentrated Solar Power(CSP) plant potential flexibility and reduce their Levelised Cost of Electricity (LCOE) to values below 10 c€/kWh, also promoting an innovative power plant cycle layout not requiring water.

SOLARSCO2OL Project tackles a potential new era for CSP plants: according to the JRC CSP platform, indeed, with an increased efficiency of component and price reduction, it could be feasible that 11 % of EU electricity will be produced by solar thermal electricity by 2050. In parallel, sCO2 is globally attracting more and more industrial interest, but also EU stakeholders haven't had the opportunity to test MW scale turbomachinery on real EU operating plants yet.

For this reason, SOLARSCO2OL will collect all the technological and nontechnological evidences to unlock the potential of integrating sCO2 in all kinds of CSP plants towards higher efficiency and higher responsiveness to grid flexibility requests, demonstrating them on the field and planning next steps towards technical maturity and marketability within 2030, also studying sCO2 application in other market segments (industrial application, waste heat, other thermal RES).

By 2024, SOLARSCO2OL technological solution will be deployed and demonstrate in a real CSP plant in Spain (La Africana) and studied for replication also in extra-EU countries for example in "Noor III solar tower plant" in Morocco thanks to MASEN support.

It is relevant to highlight that in EU most CSP Plants are similar to La Africana (parabolic trough plants with a 50 MW capacity), and Noor 3 is a larger version of the Gemasolar solar tower plant, EU's FOK MW-scale molten salt tower plant, thus unlocking a strong replication potential in EU.

The innovative **SOLARSCO2OL layouts will enable lower LCOEs, which is in line with SET Plan targets of <10c€/kWh for and it will guarantee short payback periods also by diversifying revenues for plant owners by maximizing the sale of ancillary service**s.

Moreover, SOLARSCO2OL will overcome non-technical barriers that prevent stakeholders from installing sCO2 solutions paving the ground for **new investment by energy utilities through dedicated replication feasibility studies and business models**.

Link to project website/social media for more information

Project FactSheet

Start Date: 01/10/2020

End Date: 30/09/2024

Overall budget: € 13 419 700,71

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