



Seville, February 13th 2023
MSCA Programme, Horizon Europe
Grant Agreement No. 101073266

Innovation in Supercritical Carbon Dioxide Power Generation Systems ISOP

Kick-Off Meeting held at University of Seville

-PRESS RELEASE-

Innovation in Supercritical Carbon Dioxide Power Generation Systems – ISOP is an action funded by the European Union through the Marie-Sklodowska-Curie subprogramme (MSCA) of Horizon Europe, under Grant Agreement No. 101073266. The consortium is comprised of nine industrial beneficiaries, six academic beneficiaries, one associated partner whose action is funded by United Kingdom Research and Innovation (UKRI) and five additional associated partners supporting secondments of the doctoral candidates (see below for details).

The project is coordinated by Prof. David T. Sánchez Martínez, University of Seville (Spain), and has a total duration of forty eight months, from January 2023 to December 2026. The total budget is M4.45 €, of which M3.84 € are funded by the European Commission and M0.61 € are funded by UKRI.

The aim of this four-year work programme is to undertake cutting edge multidisciplinary research and development to make a step change in understanding and advancing Supercritical CO₂ based power generation systems' technology. This will enable a step change in the role played by power and heat cycles to become major contributors to achieving the 2050 zero emissions targets. ISOP will achieve this goal while providing specialised training for 17 doctoral researchers to help establish the backbone of an important industry.

The technical objectives of this research are:

- 1- Develop advanced models and design tools that enable the optimal integration of sCO₂ power systems components for various thermal energy sources and end use applications
- 2- Develop accurate prediction tools for the simulation of transient operation of sCO₂ power cycles and investigate innovative concepts of control and optimisation of operation
- 3- Develop innovative methods to enhance aerodynamic and mechanical performance, reliability, and operability of key system components
- 4- Develop advanced modelling and experimental methods that enable selection and development of materials, coatings and manufacturing techniques

The project aims to contribute to the EU agenda on European Research Area by training “a new generation of creative, entrepreneurial and innovative early-stage researchers”, who can face future challenges and to “convert knowledge and ideas into products and services for economic and social benefit”. In addition,

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support to and compliance with the United Nation's Sustainable Development Goals will be at the heart of the training of the doctoral candidates and the scientific and economic outcomes of this research.

ISOP partners	
Beneficiaries (country)	Affiliation
University of Seville (Spain)	Academia
Instituto Superior Tecnico (Portugal)	Academia
University of Stuttgart (Germany)	Academia
Baker-Hughes (Italy)	Industry
Fives Cryo (France)	Industry
European Turbine Network (Belgium)	Industry
Empresarios Agrupados Internacional (Spain)	Industry
Advanced Center for Aerospace Technologies (Spain)	Industry
SoftInWay (Switzerland)	Industry
Technical University Wien (Austria)	Academia
Técnicas Reunidas (Spain)	Industry
Czech Technical University in Prague (Czech Republic)	Academia
Politecnico di Milano (Italy)	Academia
Siemens Energy (Germany)	Industry
RPOW Consulting (Spain)	Industry
Associated Partners (country)	
City, University of London (United Kingdom)	Academia
INERCO (Spain)	Industry
EASY Energy (Switzerland)	Industry
Rosswag (Germany)	Industry
Doosan-Skoda Power (Czech Republic)	Industry
Azzero CO2 (Italy)	Industry
Plataforma Solar de Almería (Spain)	R&D

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