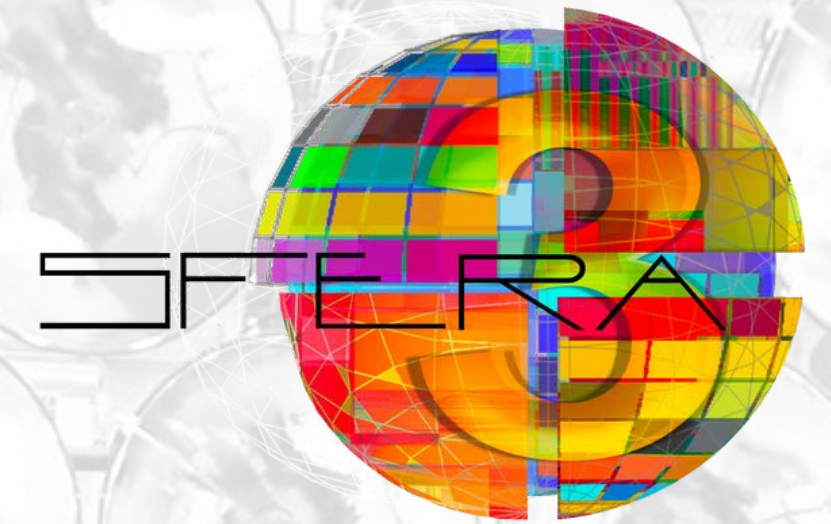




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Solar Facilities for the European Research Area – Third Phase

SFERA-III
Final Event

December 13, 2023 | Madrid, Spain

Ricardo Sánchez, CIEMAT



THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020
RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO 823802

Project and consortium



Start date

1 January 2019

End date

31 December 2023

Funded under

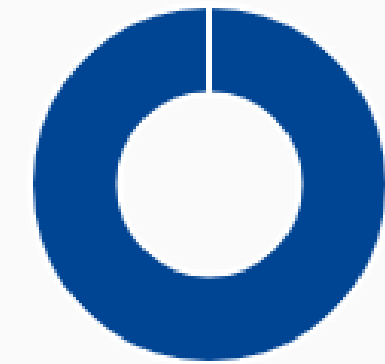
EXCELLENT SCIENCE - Research Infrastructures

Total cost

€ 9 102 630,66

EU contribution

€ 9 102 630,66



Coordinated by

CENTRO DE INVESTIGACIONES ENERGETICAS,
MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT

 Spain

Expected outcomes

Developing a coherent **landscape of leading-edge RI in Europe**

Promoting the **opening of key RIs in solar concentrating systems** for both academia and industries

Providing training **for a new generation of researchers and engineers**

Ensuring the **EU's scientific leadership** and **industrial competitiveness**

Expected outcomes

Ensuring the **optimal use and joint development of the RIs** avoiding duplication of the new services to be offered in the future

Supporting the **European Strategic Energy Technology Plan (SET- Plan)** through the implementation of the JRAs

Activities implemented

Networking Activities

Transnational Access Activities

Joint Research Activities

Networking activities

- **Outreach and educational activities** for new European researchers
- Activities to accelerate the **transfer of knowledge** between the participants
- Activities for the **coordination of a more effective use of different funding sources** at national and European level
- Activities for the **effective management of the access** to the RIs

<https://sfera3.sollab.eu/networking-activities/>



Networking activities

- Activities to **enhance and strengthen the cooperation** between the RIs, the CST community (including the industry) and other stakeholders
- Activities to **broaden international cooperation**
- Activities to **fostering the use and deployment of global standards**
- Activities to **fostering the potential innovation of the RIs**

<https://sfera3.sollab.eu/networking-activities/>



Transnational Access Program

- 4 access campaigns to our RIs
- 9 partners participating for the very first time (third phase of SFERA)
- 13 European advanced solar laboratories
- A total of 15 RIs (**11 new RIs**)
- With a total of 47 installations (**31 new installations**)
- 452 weeks of access to the RIs
- 357 Users accessing the RIs

<https://sfera3.sollab.eu/access/>



Transnational Access Programme

The objectives of this transnational access programme are:

- **Offering** European and non-European researchers from academy and industry **effective and well-organised access** to unique and diverse advanced solar laboratories
- **Providing high quality infrastructures and services** that enable users to conduct first-class experimental research focusing on CST activities
- **Supporting promising researchers** who do not have access to high quality RIs in their own country

<https://sfera3.sollab.eu/access/>



Transnational Access Programme

1. SOLAR RESOURCE (DNI) AND METEOROLOGICAL PARAMETERS ASSESSMENT

2. SERVICES ON REFLECTORS AND CONCENTRATORS

2.1. Experimental Services on Reflectors

2.2. Available Services on Concentrator's Experimental Characterization

3. EXPERIMENTAL SERVICES ON ABSORBERS AND RECEIVERS

3.1. Experimental Services on Absorbers

3.2. Experimental Services on Linear Focus Receivers

3.3. Experimental Services on Anti-Reflective Materials

3.4. Experimental Services on Point Focus Receivers

4. SERVICES ON HEAT TRANSFER FLUIDS

5. SERVICES ON AUXILIARY EQUIPMENT

6. SERVICES ON THERMAL ENERGY STORAGE (MEDIA & SYSTEMS)

7. SERVICES ON ENGINES AND POWER BLOCS

7.1. Solarized Stirling Engines

7.2. Other Services on Engines and Power Blocks for CSP

8. SERVICES ON CALIBRATION OF KEY SENSORS & MEASUREMENTS FOR STE

9. SERVICES ON SOLAR CHEMISTRY

9.1. Water Treatment, Disinfection and Desalination

9.2. High Temperature Solar Chemistry

9.3. Solar Hydrogen

10. SERVICES ON MATERIALS TESTING AND QUALIFICATION

11. SERVICES USING EXTREME TEMPERATURE CONDITIONS IN SOLAR CONCENTRATORS

[SFERA III ACCESS SERVICES | MindMeister](#)

Joint Research Activities

- Improvement of the services offered by the RIs
- Design of an e-Infrastructure for data, computing and networking
- Support of the definition of common standards and protocols
- Support the implementation of the SET-Plan
- Curation, preservation and provision of access to data collected or produced under the project

Joint Research Activities

- **JRA1** provides upgraded services to develop **more reliable storage systems**.
- **JRA2** provides an **increase in the efficiency** of both multiple-effect distillation (MED) and membrane distillation (MD) technologies and **improves the process reliability** for water treatments and disinfection.
- **JRA3** improves testing procedures for chemically active materials used in solar thermochemical fuel production technologies, as well as standard KPIs for assessing the performance of solar fuel production reactors.
- **JRA4** provides several new and upgraded services to qualify solar receivers, addressing both their inner mechanical and their optical thermoradiative properties degradation.
- **JRA5** addresses the increase of accuracy in optical, thermal and mechanical measurement services, allowing better optimization of components of the solar field and receiver.



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Thank You

For Your Attention

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