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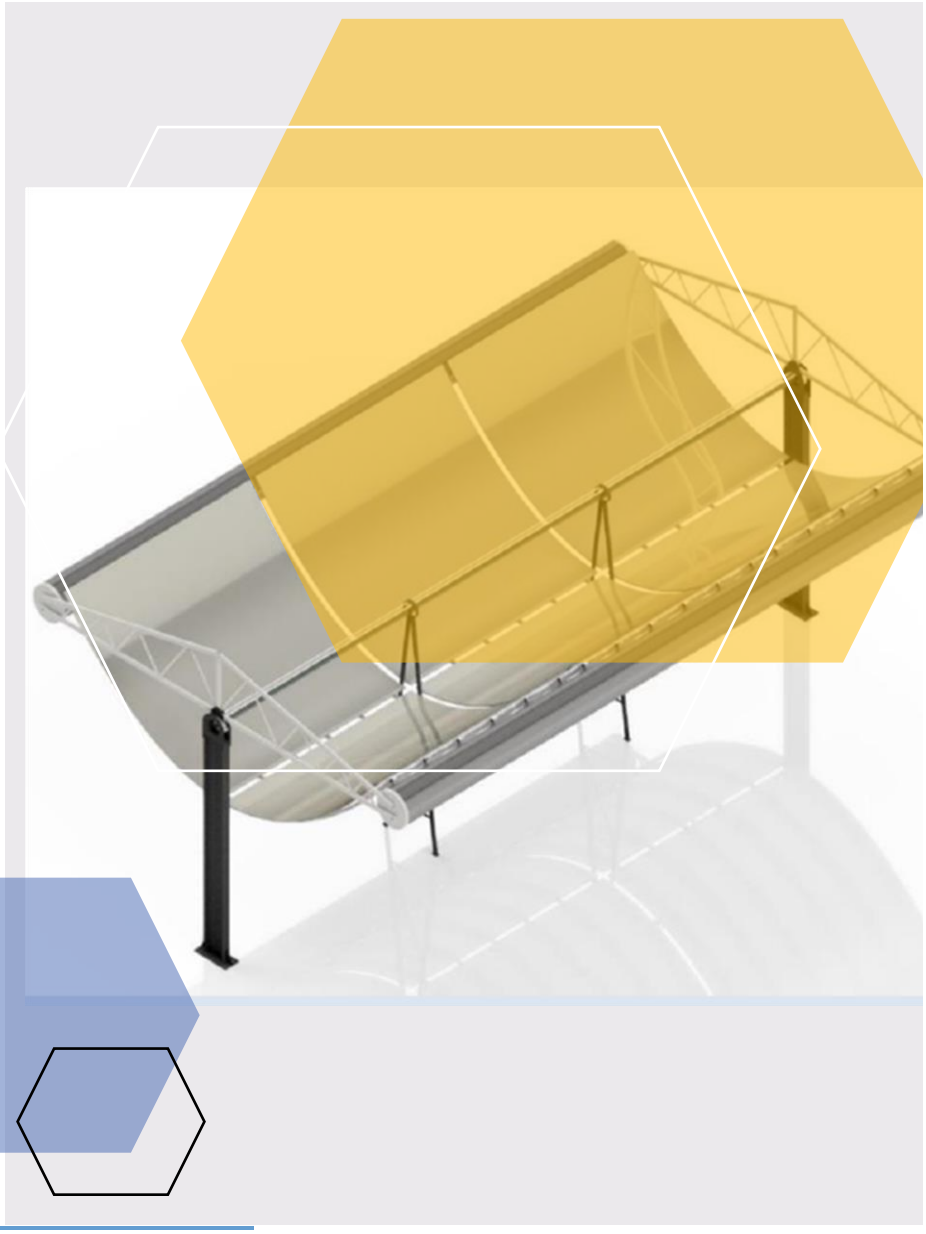
MSA TROUGH

MSA-Trough NEWSLETTER



CONTENS

MSA-TROUGH

FIRST ISSUE

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UNIVERSIDADE DE ÉVORA · Ferrum tecnoindustrial · solarlite · DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center · ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development · ome · RODAMA

WELCOME

Dear colleagues,

Considering the present cost-competitiveness of several renewable energy technologies on electrical power generation, such as solar PV and wind, Concentrated Solar Power (CSP) technologies are facing a tremendous challenge to both increase their efficiency and to pursue their cost-reduction road.

MSA-Trough project encompasses the development, installation and testing of an industrial-scale innovative parabolic trough collector for CSP plants. MSA-Trough is a novel parabolic trough collector that is visibly different from conventional collector designs due to its fixed focus and its innovative torque frame structure, which improves the optical collector efficiency and decreases investment costs at the same time.

The project will demonstrate the technology at the Évora Molten Salt Platform (EMSP) facility, located in Évora, Portugal. This platform, jointly managed by UEVORA and DLR, offers unique conditions for the large-scale demonstration of molten salt-driven technologies, ensuring its validation up to TRL7. Such results will be crucial not only for the demonstration of the potential CAPEX/OPEX reduction of the technology but also to set the appropriate conditions for its future market penetration and respective commercialization, especially in the European southern regions and northern Africa.

During the project's lifetime the project will continuously produce newsletters about the project's tasks, results and links to other similar projects. Additionally, it will also share important information regarding regional/ national/ European policy-making decisions, commercial opportunities and other similar topics that are directly and indirectly related to CSP technologies. As a matter of fact, the MSA-Trough project will put a strong emphasis on Dissemination, Communication and Exploitation activities considering all the major stakeholders around the CSP field.

Pedro Horta
Project Coordinator

MSA-TROUGH KEYWORDS SUMMARY

ABOUT MSA-TROUGH

The objective of the MSA-Trough project is to **develop and demonstrate** a novel parabolic trough collector which is **more efficient**, **less costly, more reliable** and **more sustainable** than current trough collectors and which is optimized to generate **cheap dispatchable electricity** in order to **stabilize electrical grids** and **enable higher shares of variable renewables** in the energy systems.

To reach this goal a 350m-long MSA-Trough Prototype will be designed, manufactured, built, tested and demonstrated at the Évora Molten Salt Platform (EMSP) (link here) located in Évora, Portugal.

Why do we need MSA-Trough technology?

MSA-Trough presents a series of competitive advantages compared to current CSP systems.

The main differences to state-of-the-art technology are:

- **Fixed focus**—absorber tube is not moved with the concentrator
- **New storm position**—wind loads are reduced
- Use of **torsion compensators**—optical collector efficiency is improved
- **Thin glass mirrors** with composite back structure—higher reflectivity and resistance
- **Integration of mirror cones**—improved optical efficiency
- Use of **automatic washing system** with water recycling—improved solar field efficiency and water saving
- **Lighter drilling foundation**, material consumption is reduced
- **Continuous tracking system**—higher efficiency
- Overnight draining strategy eliminates night losses

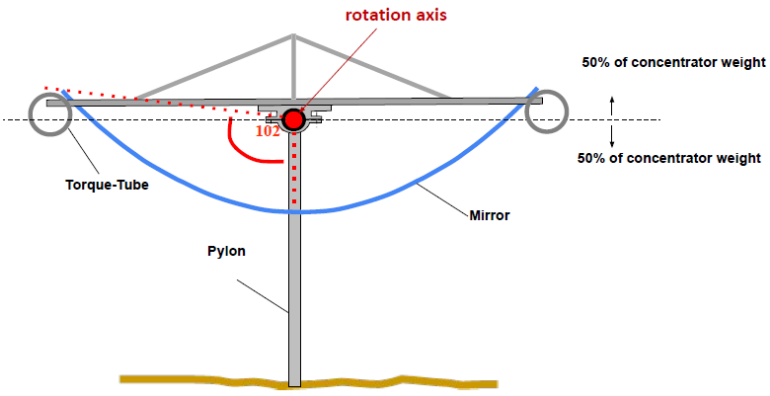


FIGURE 1: MSA-TROUGH CONCEPT

MSA-Trough project will be implemented over a three-and-a-half-year term: October 2023—March 2027.

TEAM

The MSA-Trough consortium is composed of seven partners, and is coordinated by the University of Évora (Portugal)

UEVORA	UNIVERSIDADE DE EVORA	Portugal
FERRUM	FERRUM TECNOINDUSTRIAL SL	Spain
Solarlite	SOLARLITE CSP TECHNOLOGY GMBH	Germany
DLR	DEUTSCHES ZENTRUM FUER LUFT UND RAUMFAHRT EV	Germany
ENEA	AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUP PO ECONOMICO SOSTENIBILE	Italy
OME	OBSERVATOIRE MEDITERRANEEN DE L'ENERGIE	France
RODAMA	RODAMA MAQUINARIA SL	Spain

DELIVERABLES & MILESTONES

During the first six months of the project implementation, the following deliverables have been produced:.

Deliverables:

D1.1: Detailed drawing "collector structure" - considering all the major aspects of collector's support structure, namely steel structure, pylons, bearings, etc., FERRUM, SEN, M6.

D1.2: Technical drawing - bearing system - including the torsion compensators to be implemented in the experimental campaign, DLR, SEN, M4.

D1.3: Detailed drawing- absorber sliding system– able to accommodate thermal expansions and deviation, DLR, SEN, M3.

D1.4: Detailed drawing collector drive system - evaluating the use of electrical motors with integrated rotation counters to calculate the exact collector position, RODAMA, SEN, M5.

D1.5: Technical drawing collector foundation - considering the potential reduction of wind loads by 75% of the new concept, FERRUM, SEN, M3.

D1.8: Isometric drawing - connection pipes – considering the existing loop and including supports, valves and thermal insulation, FERRUM, SEN, M5.

D1.9: Piping and Instrumentation Diagram - including the design of the heat tracing system and the data instrumentation, DLR, SEN, M5.

D7.1: MSA-Trough website and communication materials - elaboration of MSA-Trough website and communication materials related to the project visibility, OME, PU, M3.

D7.2: Plan for dissemination and exploitation including communication activities – aiming at maximizing MSA-Trough impact by establishing a set of different dissemination and communication activities, OME, PU, M6.

D7.4: Data Management Plan – describing the data management life cycle for the data being collected, processed and/or generating during the project, OME, SEN, M6.

D8.1: Project Management Plan– serving as the core management handbook ad describing the structure that will provide guidelines for the project manager and the project members to follow during the full cycle of the project, UEVORA, PU, M2.

Accomplished milestones:

MS1 – Project launch, UEVORA, M1

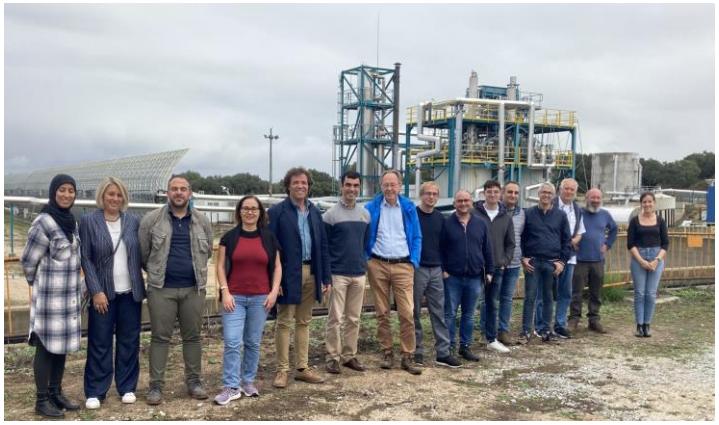
MS2 – Project website developed, OME, M3

MS3 – Design freeze "drive and tracking control", RODAMA, M5

MS4 – Design freeze "collector hardware", FERRUM, M6

EVENTS & OUTREACH

Kick-Off Meeting (KoM): MSA-Trough KoM took place on October 17th and 18th, 2023 at the University of Évora, Évora, Portugal. The MSA-Trough team discussed the overall project goals, the expected work, scope and activities to be performed within each work package and next steps. A technical visit to EMSP facilities was also organized.



Second General Assembly Meeting: The second project meeting will be held on April 16th – 17th online to discuss the overall progress, challenges and next steps.

STAKEHOLDERS

MSA-Trough has a comprehensive approach to communication and dissemination beyond the research component. The key elements involve: a communication and dissemination package targeting and engaging with **different groups**; the organization of **stakeholders workshops** and **open days** allowing for the presentation and validation of the main findings to both the research and industry communities and also to facilitate information exchange among experts; the use of **social media** to disseminate key messages regarding the project's outcomes, enabling a broader community engagement; and **scientific papers and presentations** documenting the detailed research findings; as well as **policy briefs** to raise awareness and promote the development of a supportive institutional and regulatory framework for CSP technologies and **informative papers** envisioned to effectively communicate the project's outcomes in a more accessible manner.

In order to get involved in and receive updates about the project activities, you are kindly asked to send us your contact details through the following form.

For more information about the project, please visit the project website and follow-us through social media related channels:

Project Website

LinkedIn Account

X Account

MSA-Trough Project is funded by Horizon Europe - European Climate, Infrastructure and Environment Executive Agency (CINEA).

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