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MSA TROUGH

NEWSLETTER · THIRD ISSUE · JUNE 2026

MSA-TROUGH

FIXED-FOCUS SOLAR POWER

Fixed-focus parabolic-trough technology for low-cost, dispatchable, molten-salt concentrated solar power.

Construction permit approved **Absorber tubes at EMSP** **Design phase complete**

The MSA-Trough collector — a fixed-focus concentrator with a detached, continuous absorber line.

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THE CONSORTIUM · SIX PARTNERS, SIX COUNTRIES

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

MSA-TROUGH COORDINATOR

Welcoming message

Dear Stakeholder,

I am pleased to share with you the latest updates on the MSA-Trough project following the resumption of activities after a period of transition resulting from the restructuring of the consortium. Despite this interruption, the partners successfully reorganised responsibilities and resumed the implementation of the work programme with remarkable dedication, efficiency, and a strong spirit of collaboration. In the following sections, you will find an overview of the project's main achievements and recent developments. I would also like to warmly invite you to join our next webinar on “Ecodesign concepts in CSP manufacturing for increased environmental and economic competitiveness – Insights from the MSA-Trough”, where we will present further insights and discuss the latest progress of the project.

Thank you for your continued interest and support. I hope you enjoy reading this newsletter.

Best regards,

Diogo Canavarro, Project Coordinator

MSA-TROUGH IN NUMBERS

Innovation, performance and impact

MSA-Trough detaches the concentrator from a fixed absorber line of more than 0.8 km, removing connection piping and flexible joints to cut cost, pressure drop and heat losses — while a horizontal “storm position” reduces wind loads by about 75%. The result is a lighter, cheaper collector for dispatchable power at 555 °C, using molten salt directly as both heat-transfer fluid and storage medium.

+24.5%

Higher annual electrical output vs. current parabolic-trough plants

−30%

Lower solar-field cost

555°C

Direct molten-salt operating temperature

−75%

Wind loads, thanks to the horizontal “storm position”

+2%

Optical efficiency gain from thin-glass sandwich mirrors

~90%

Wash-water recycled by the automatic mirror washer (+4% solar field performance thanks to daily washing)

0.8km+

Continuous absorber line — no flexible field connections

350m

Demonstration collector at EMSP (7.2 m aperture)

6

Partners across 6 countries, led by the University of Évora

PROJECT KEYWORDS

Modularity Reliability Circularity Innovation

Parabolic Trough **Concentrated Solar Power** Molten Salt

Renewable Electricity System Stability Efficiency

MAIN ACHIEVEMENTS

From design to components manufacturing

HEADLINE

Construction permit approved at EMSP

UEVORA secured the building permit and environmental approvals for the MSA-Trough collector and has launched the request for quotation for the civil works. With the design complete and components in production, the project is now clearing the path to on-site construction.

DESIGN · COMPLETE

Design phase complete

The full collector and assembly-jig design is delivered: optimised torsion-box structure, bearings, sliding system, drive & controls, foundations, piping and the automatic mirror washer.

MANUFACTURING

Absorber tubes received at EMSP

DLR-patented components are in production — concentrator bearings, mirror cones and torsion compensators — and the redesigned sliding system is finalised.

MIRRORS & MATERIALS

Mirror technology upgraded

Panels moved from Sheet Molding Compound/Composite (SMC) technology to a sandwich panel with Glass Fiber Reinforced Polyester (GFP), jointly engineered with DLR and FERRUM; raw materials are in stock and the production mould is under construction.

CONTROLS & TRACKING

Drive & control ready

RODAMA completed the control program and control boxes; tracking hardware for five concentrator units is being procured for installation after assembly.

Steel structure and pylons in fabrication at FERRUM.

DLR mirror-mould form structures under assembly

Detailed design COMPLETE

The detailed design of the collector and assembly jig is complete, spanning ten engineering streams:

- Collector structure optimised with wind-load simulations — torsion boxes and triangular beams give greater strength and load distribution, cutting material weight while improving stability in strong winds.
- Bearings and torsion compensators engineered to minimise friction, maximise durability and withstand extreme conditions — cost-effective and easy to install.
- A robust absorber sliding system and precision-engineered mirror cones maximise heat production and optimise solar capture with minimal shading.
- Collector drive system for precise sun tracking with real-time monitoring and remote control, with integrated emergency safety features for diverse weather.
- Collector foundation designed for stability while minimising material cost, adjusted to European safety regulations, with ongoing research into optimised drilled structures.
- Innovative composite mirrors using sustainable and renewable materials, with new collaborations to explore cost-effective manufacturing.
- Assembly jig engineered for precise mirror alignment with the absorber tube through a step-by-step assembly procedure.
- Piping system integrating the collector with molten-salt storage tanks, handling high temperatures and pressures while minimising thermal losses.
- Electrical and instrumentation layout developed, including sensor placement and a heat-tracing system to keep the molten salt at optimal temperature.
- An eco-friendly, self-operating automatic mirror-washing device that reuses wash water to minimise fresh-water use.

Triangular truss frames and torque boxes fabricated at FERRUM.

Mirror-mould prepared for sandwich-panel production.

Structure & steelwork IN PROGRESS

FERRUM is manufacturing the collector structure and the assembly jig:

- All assembly-jig components have been manufactured — in-house plus outsourced laser-cut parts — and verified by DLR quality control.
- Pylons, front beams and torque boxes are in fabrication; completion, including galvanisation, is expected in end of July 2026.
- External manufacturing is coordinated for specialised components, with DLR running ongoing inspections.

Mirrors & materials IN PROGRESS

Panels moved from Sheet Molding Compound/Composite (SMC) technology to a sandwich panel with Glass Fiber Reinforced Polyester (GFP), jointly defined with DLR:

- All raw materials are in stock: GFK sheets, recycled PET foam, adhesives and optical mirrors.
- DLR built the jig for the “single form structures” and assembled the first — the most critical step; the mould concrete foundation is finished.
- Next: resin layer, remaining form structures under a plexiglass plate, position stops, then mirror production.

Patented components & tracking IN PROGRESS

DLR supplies the patented components; RODAMA the controls:

- Material processing started for the concentrator bearings, mirror cones and torsion compensators; the redesigned sliding system is finalised.
- The absorber tubes have been received at EMSP; basic parts in-house, complex parts outsourced.
- Control program and control boxes complete; tracking hardware for five units on order.

Balance of plant & logistics IN PROGRESS

Plant-connection components are procured and staged:

- FERRUM purchased all valves, compensators and pipes, now stored and awaiting dispatch to EMSP.
- Repair and tracing cables are installed; new electrical circuits await the specialised contractor.
- An optimised shipment series will follow once the structure and mirrors are complete.

Mirror washing device IN PROGRESS

A joint RODAMA–FERRUM build:

- All technical specifications are finalised and the structural components are complete.
- Electronic components are in the vendor-quotation phase.

Foundations & site erection IN PROGRESS

UEVORA prepared the site works and approvals:

- The construction application was submitted and the building permit granted; two local firms were asked to baseline the cost.
- A first quotation for the civil works is under assessment ahead of the tender (micropiles drive the cost).

Glass Fiber Reinforced Polyester (GFP) sheets at FERRUM.

Mirror form-structure template at the production site.

Sustainability & life-cycle assessment STARTED

OME leads the cradle-to-grave Life Cycle Assessment, running to the end of the project:

- Review of the design deliverables and SolidWorks annexes to build life-cycle inventories for collector-component manufacturing.
- Collaboration with FERRUM to refine input quantities and model manufacturing processes — material type and quantity, origin, resource consumption and releases.
- Ongoing analysis of manufacturing data, gathering input/output figures on energy, water, materials and emissions.

DELIVERABLES & MILESTONES

Deliverables

D2.1 Assembly jig parts manufacturing report — FERRUM · **approved**

D2.4 Tracking software programme — RODAMA · **approved**

D2.6 Construction application — UEVORA · **approved**

D2.5 Functional description of mirror washer — RODAMA · **submitted**

D7.2 Dissemination, exploitation & communication plan — OME · **updated**

D7.4 Data Management Plan — OME · **updated**

ACCOMPLISHED MILESTONES

MS7 — Construction permit granted

Led by UEVORA — clearing the way for on-site construction.

MS8 — Collector tracking software finished

Led by RODAMA — the control programme is complete and verified.

DISSEMINATION & OUTREACH

Sharing results with the CSP community

Scientific conferences ONGOING

Two abstracts led by ENEA have been submitted to leading 2026 conferences:

- "A next-generation parabolic-trough collector concept for low-cost, dispatchable, high-temperature solar thermal power" — ATI Conference, Italy, September 2026.
- "Energy analysis-based design of an insulating cover for molten-salt parabolic-trough collectors" — SolarPACES 2026, September 2026.

Webinars & community ONGOING

The project keeps stakeholders engaged through an ongoing webinar series.

- Webinar 2 — "Ecodesign concepts in CSP manufacturing" — 7 July 2026, online (see next page for full programme).
- Newsletters and social channels continue to share progress with researchers, industry and policymakers.

UPCOMING · SAVE THE DATE

Webinar 2 — Ecodesign in CSP manufacturing

ECODESIGN CONCEPTS IN CSP MANUFACTURING

For increased environmental and economic competitiveness — insights from the MSA-Trough project

7 July 2026 · 10:00–11:30 CEST · Online via Microsoft Teams

As Europe advances toward its 2050 climate-neutrality objectives, circular-economy principles, life-cycle thinking and resource efficiency are becoming essential drivers of industrial competitiveness. This webinar explores how eco-design approaches and technological innovation can reduce costs and environmental impacts across the CSP value chain — with

special attention to manufacturing, which accounts for more than 60% of the environmental footprint of CSP plants, and to strategies that improve durability, material efficiency, recyclability and supply-chain resilience.

KEY TOPICS

- MSA-Trough concept and project objectives
- Key improvements compared with current CSP technologies
- Eco-design methodologies and sustainability assessment tools
- Efficiency gains and cost-reduction opportunities
- Design and material innovations for sustainable CSP manufacturing
- Strengthening supply-chain resilience in renewable energy

ROUNDTABLE

Experts from UEVORA, DLR, OME, FERRUM and RODAMA will discuss:

- Collector design challenges for molten-salt applications
- Sustainability assessment of system components
- Environmental and economic performance improvements
- Future opportunities for CSP innovation and deployment

SPEAKERS

Diogo Canavarro (UEVORA – Project Coordinator) · Martin Eickhoff (DLR) · Dirk Krüger (DLR) · Emanuela Menichetti (OME) · Daniel Morales (FERRUM) · Francisco Morales (RODAMA)

Who should attend: Researchers · Engineers · Manufacturers · Policymakers · Sustainability experts · Renewable-energy stakeholders

Registration: Webinar Registration · Programme: Webinar Programme (PDF) · contact@msa-trough.eu

MEETINGS

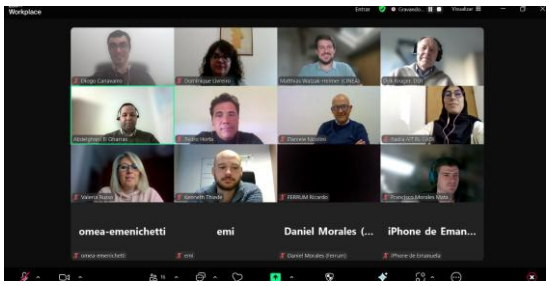
Meeting, reviewing, resuming

26 FEBRUARY 2025 · ONLINE

1st Periodic Review Meeting

The 1st Periodic Review Meeting successfully took place on 26 February 2025 — a pivotal moment in our mission to advance solar thermal technology and drive innovation in renewable energy. The project's objectives, deliverables and milestones were reviewed, with emphasis on the significant progress achieved across all work packages. Updates were provided on the dissemination and communication activities carried out to date, ensuring transparency and continued engagement with stakeholders, while potential risks and deviations were discussed alongside the mitigation measures implemented to keep the project on track.

22 JANUARY 2026 · ONLINE



4th General Assembly

After a project break caused by the reorganisation of the consortium composition, MSA-Trough activities have successfully resumed. On 22 January, the consortium met online for the project's fourth General Assembly, where discussions focused on assessing the innovation generated across the different work packages, reviewing progress on milestones and deliverables, and defining strategies to enhance project visibility. The meeting also addressed preparation for upcoming activities — including the next webinar — the planning of forthcoming deliverables and milestones, and key aspects of quality assurance and risk mitigation.

ABOUT · TEAM · CONNECT

The consortium behind MSA-Trough

MSA-Trough develops, installs and tests an industrial-scale, fixed-focus parabolic-trough collector for CSP plants. Visibly different from conventional designs, its innovative torque-frame structure improves optical efficiency while lowering investment cost. The technology is demonstrated at the Évora Molten Salt Platform — jointly managed by UEVORA and DLR — which offers unique conditions for large-scale molten-salt demonstration, validating the concept up to TRL 7 and the CAPEX/OPEX reductions needed for market uptake in southern Europe and North Africa.

SIX PARTNERS · COORDINATED BY THE UNIVERSITY OF ÉVORA

UEVORA — Universidade de Évora · Portugal (Coordinator)

FERRUM — Ferrum Tecnoindustrial · Spain

DLR — German Aerospace Center · Germany

ENEA — Italian Nat. Agency for New Technologies, Energy and Sustainable Economic Development · Italy

OME — Observatoire Méditerranéen de l'Énergie · France

RODAMA — Rodama Maquinaria · Spain

Évora Molten Salt Platform (EMSP) — the MSA-Trough demonstration site.

GET INVOLVED

Join our stakeholder network for updates and events. Researchers, engineers, manufacturers, policymakers and energy stakeholders are all welcome — get in touch through the form on our website.

FOLLOW THE PROJECT

Web: www.msa-trough.eu
LinkedIn: MSA-Trough · Bluesky: @msa-trough
Contact: contact@msa-trough.eu

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