HORIZON EUROPE
BROKERAGE 2026

CLUSTER 5
CLIMATE, ENERGY & MOBILITY

14 January 2026
online

Greenet

The network of Horizon Europe
Cluster 5 National Contact Point.

AURORA - Artificial Intelligence Unified Reasoning Agents for Optimized Regulation Automation

HORIZON-CL5-2027-02-D3-07

Concentrated solar thermal systems for decarbonising industrial processes

GREENET Brokerage Event

14th January 2026

Solar Thermal Power Plants

- Generates heat for industrial processes, solar fuels, or dispatchable electricity

- More efficient than linear collector systems (e.g., parabolic troughs) but more complex and higher-risk for investors

- Up to 100,000 heliostats are biaxially open-loop controlled by a team of operators

- Heliostats up to 1 km from the tower require sub-meter pointing accuracy while costing under $100 per m² (including motors, structure, etc.)

- Wind, dust, temperature, self-shading/blocking, and clouds exacerbate the challenge

Data at Solar Thermal Power Plants
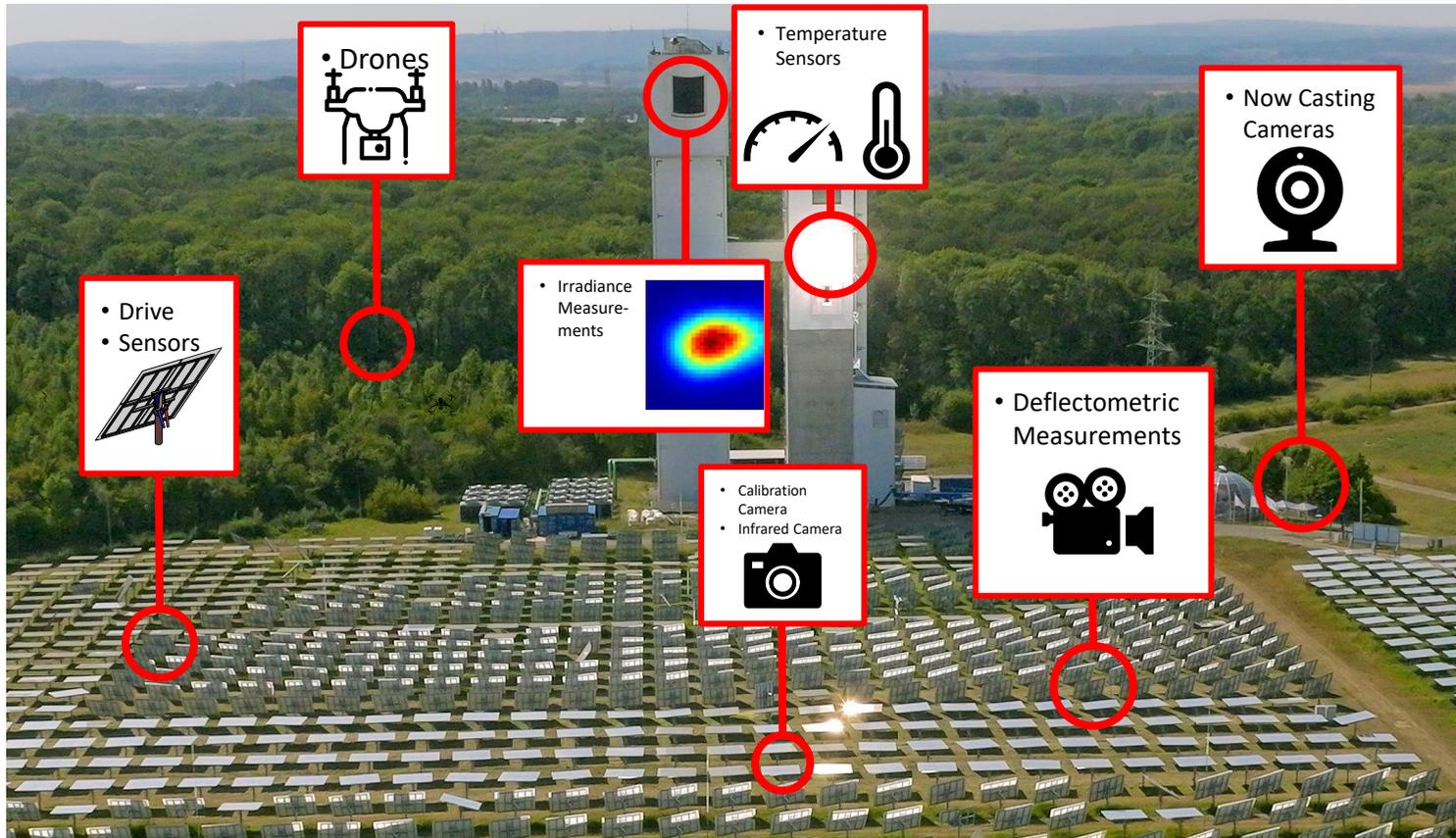
Automatization Timeline

1989

Automated heliostat surface measurement [2]

2023

2024

Automated Aim Point Optimization [4]

2025

Automatization of the heliostat calibration process [1]
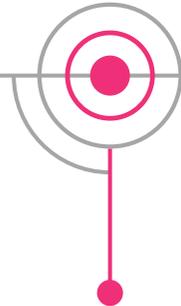
Automated Irradiance prediction based on real data [3]
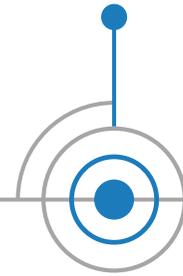
[1] Stone et al.   [2] Pargmann et al.   [3] Kuhl et al.   [4] Kuhl et al.

Heliostat Control Software

Heliostat Operating System (HeliOS) [1]

2025

**First Fully Automated Full Operation
at the solar tower in Jülich**

[1] Göhring et al.
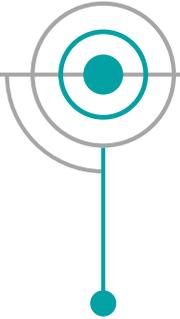
Heliostat Control Software
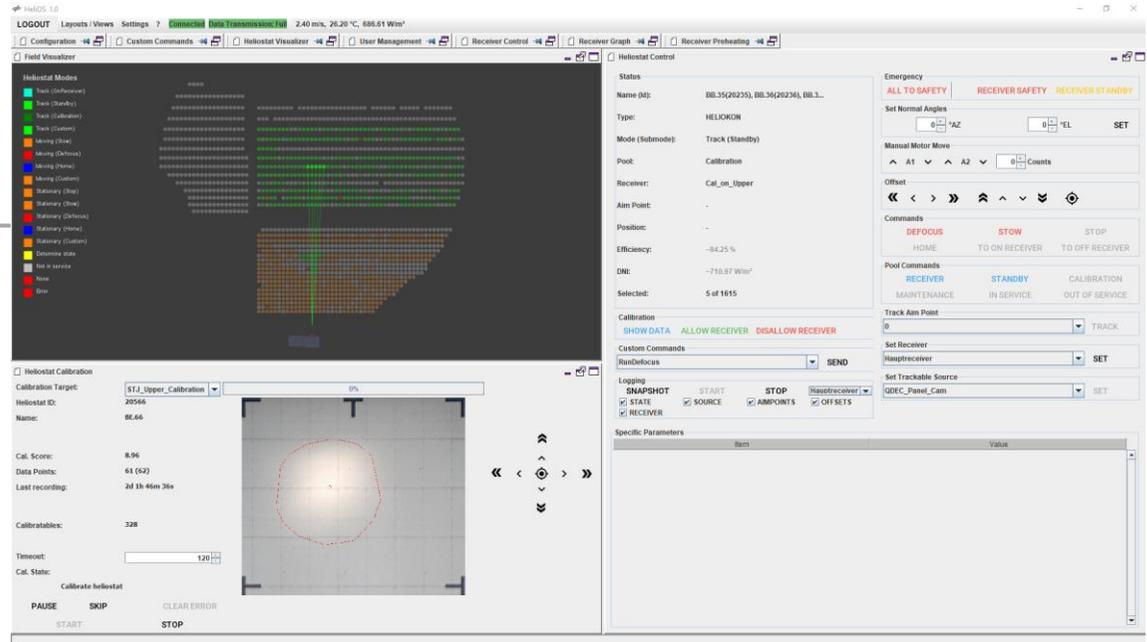
- Service-Oriented Architecture (SOA)
- Layered Software Stack
- Event-Driven Architecture (EDA)
- Native OPC UA Integration
- Proprietary Stack Interoperability

Heliostat Operating System (HeliOS)
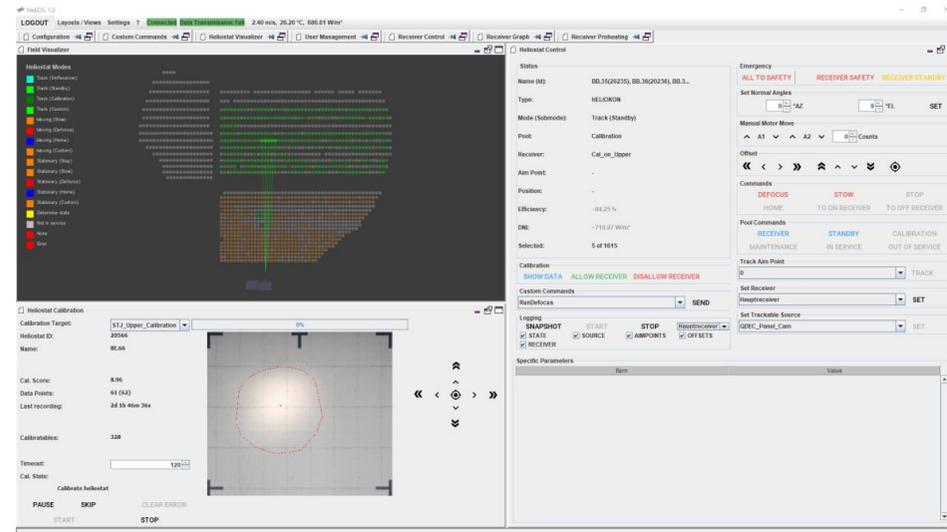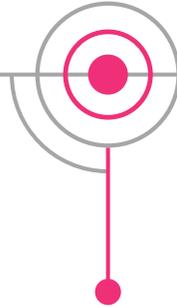
Project Goals

Phase 1

Integrate existing AI Tools from research into operation pipeline

Phase 3

Licensing of AI Operated Closed Loop HeliOS

Phase 2

Phase 4 (Project end)

Bring Automatization and Lessons learned to at least one commercial power plant

Develop Digital Operator for Enhanced AI Operation Protocols
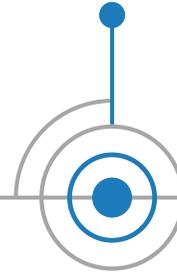
Profile of Partners Sought

- Power Plant Operators
- AI Specialists in Computer Visions and Digital Twins
- End User Software Experts
- Standardization and Qualification Bodies for Hardware and Software

Contact Details

- Dr. Max Pargmann

- German Aerospace Center

- Germany (Cologne) / Spain (Almeria)

- Solar Research Institute

- Concentrated Solar Technologies / AI Automatization and Prediction

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