

AI⁴ PV



Artificial Intelligence for Operation and Maintenance of PV Plants



AI⁴PV is an EUROGIA2030 and ITEA⁴ project part of the EUREKA cluster. This work is financed by the ERDF - European Regional Development Fund - through the Operational Programme for Competitiveness and Internationalisation COMPETE 2020 under the Portugal 2020 Partnership Agreement within project AI⁴PV, with reference POCI-01-0247-FEDER-111936 – and Spain's Multi-regional Operational Programme 2014-202, under CDTI Agreement for the project AI⁴PV, with reference IDI-20201080. International collaborative project EUR 2020058 with the seal of the AI EUREKA CLUSTER.

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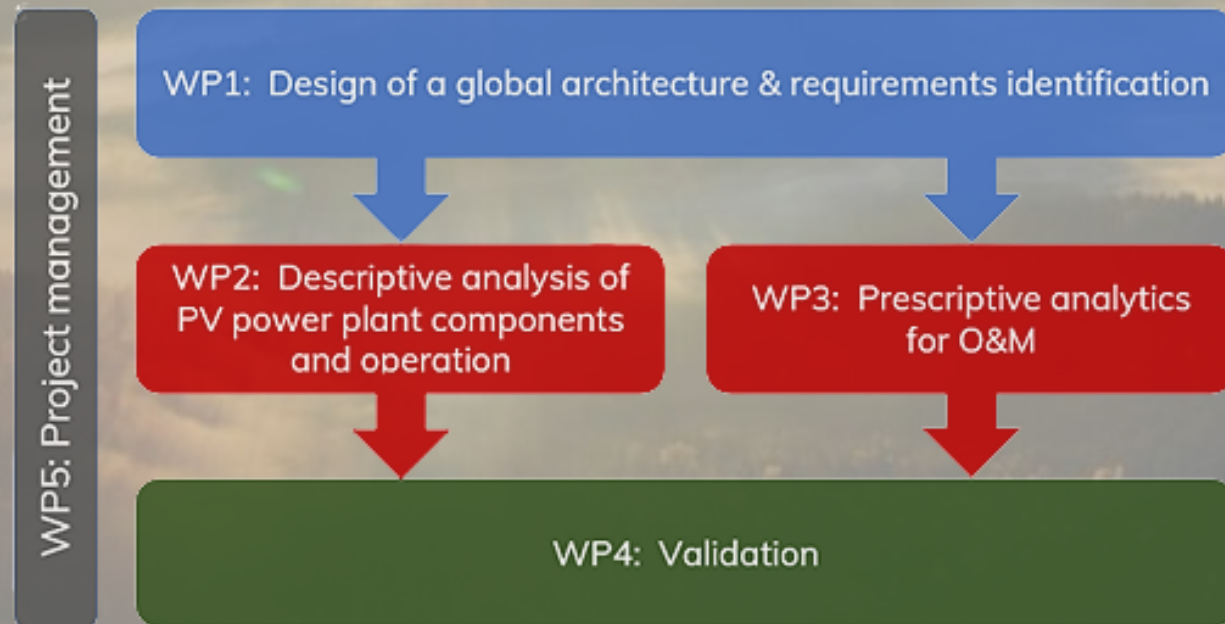


Description

This **24-month project** (July 2021-June 2023) with a total budget of **813 thousands euros**, will develop **AI-based tools and Digital Twin to enhance O&M in PV parks**, thus reducing costs and increasing plant reliability and availability.



Structure





Objectives

- **Specific objective 1** – Increasing PV Plant reliability through development and validation of models, simulation tools and AI-based data analysis for fault prediction and detection:
 - ❖ **SO 1.1- Early fault detection tools** through advanced monitoring, automated data analysis and comparison with model-generated values.
 - ❖ **SO 1.2 Predictive maintenance tools for increased reliability.**
- **Specific objective 2** - Optimizing PV Plant generation performance:
 - ❖ **SO 2.1 - Early degradation and underperformance detection tools.**
 - ❖ **SO 2.2 - Root cause analysis for prescriptive maintenance tools.**



Results

The expected result of the Project is a set of tools for PV plant O&M and Asset Managers for:

- **increasing the operational reliability and efficiency of PV plants:** high accuracy of early detection of faults and degradation problems and Optimization of O&M activities;
- **enhance economic performance:** reduction of downtimes of elements, detection of underperformance problems that can affect the energy production.



Partners



EDP NEW

EDP NEW is a subsidiary of the EDP Group with the mission to create value through collaborative R&D in the energy sector. EDP NEW is the coordinator of the project, and will also lead the validation activities, providing both test sites and datasets from existing PV farms for the validation of the AI4PV solutions.



INESC TEC

INESC TEC is an Associate Laboratory with 35 years of experience in R&D and technology transfer. In AI4PV, it contributes with the development of root-cause analysis and intelligent maintenance strategies for photovoltaic power plants. Participation in the modelling of power electronic inverters.



ISOTROL

Isotrol is an ICT company specialized on services and solutions for utility-scale renewable energy generation, with over 37 years' experience. In AI4PV Isotrol will lead the conceptual definition of the project as well as the design, implementation and validation of the Digital Twin of photovoltaic plants.

Keep
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