DEMONSTRATION SITES

IN HARSH CLIMATE CONDITIONS TO EVALUATE COST EFFICIENCY AND DEMONSTRATE COMPETITIVENESS OF THE SOLUTIONS

Temperate (cold/wet) climate

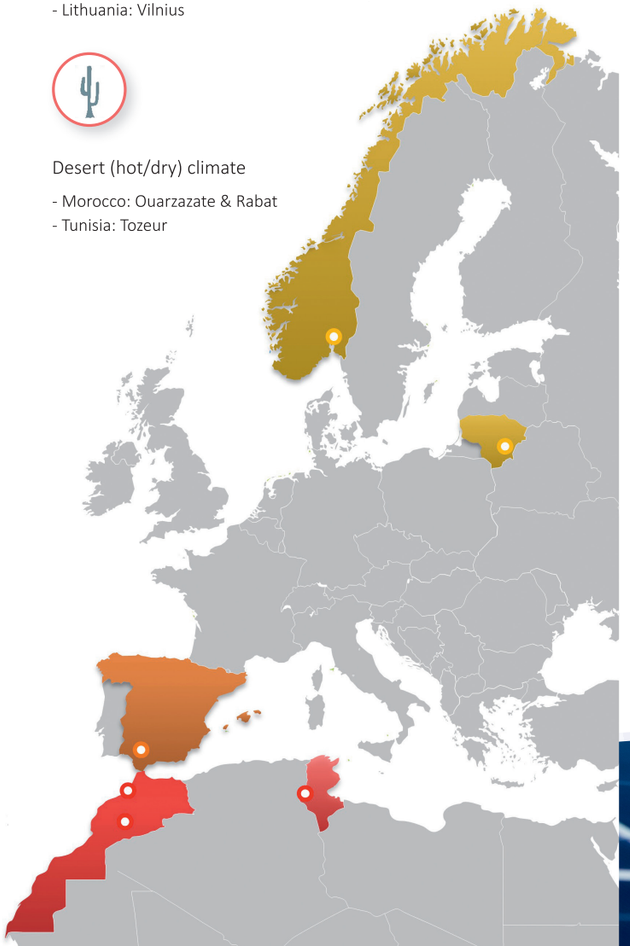
- Norway: Oslo
- Lithuania: Vilnius

Tropical (hot/wet) climate

- Spain: Sevilla

Desert (hot/dry) climate

- Morocco: Ouarzazate & Rabat
- Tunisia: Tozeur



SUPER PV

LEARN MORE ABOUT OUR PROJECT:
www.superpv.eu
#SuperPV / @SUPERPV_H2020

SUPER PV

Cost reduction and enhanced performance of PV systems

This project has received findings from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 792245.

PROJECT PARTNERS

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TNO innovation for life
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ayesa
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masen
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SOLITEK R&D
PROTECH

SUPER PV PROJECT TARGETS A SIGNIFICANTLY LCOE REDUCTION (26%-37%) FOR PV EUROPEAN PRODUCTION BY TACKLING IN AN INTEGRAL WAY THREE CORNERSTONE STEPS

PV Module innovation level

Introducing and combining five PV module innovations applied to c-Si based bifacial modules and CIGS modules

System integration level

Developing a new digital and holistic process: PIM (PV information Modelling / Management). The main objective is to adopt digital software and hardware tools ensuring integrated information flow through the PV value chain this way reducing costs related to the PV projects implementation and operation.

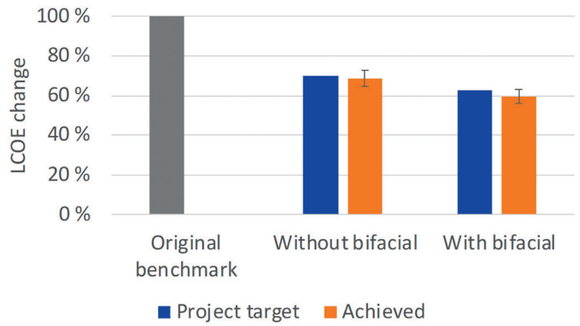
Power electronics innovation level

Ensuring higher power output, performance monitoring and data collection on string level, and long-term stability of operation

The combination of SUPER PV innovations and cost reductions in parts of the PV supply chain not covered by the project leads to a **total estimated LCOE reduction of about 40-42%**, as compared with 37-39% LCOE reduction as the project target.

For the 8 most promising **SUPER PV** innovations, initial business plans and commercial prospects are developed at the end of the project. The main purpose of developing business plans for individual innovations has been to enable innovators and commercialising parties so that they have as good a starting point as possible for **taking their innovations further towards commercialisation after the end of SUPER PV**.

Out of 13 identified prospective innovations in SUPER PV, there is at the end of the project only 2 innovations with a commercialisation risk level of high or critical, meaning that the **majority of innovations at project end has a real possibility of achieving commercial success**.



PV MODULE INNOVATIONS

Introducing and combining four PV module innovations applied to c-Si based bifacial modules and CIGS modules

- A combination of anti-Soiling (AS) and anti-reflection (AR) based on nanoparticles, which aims to increase the annual yield of the PV modules;
- Application of Aluminium oxide (Al2O3) gas barrier coatings (for CIGS modules) deposited by spatial atomic layer deposition (SALD);
- Demonstration of a laboratory-recycling tool for all considered module types (c-Si and CIGS) to evaluate the possibility to recycle and re-use the module materials.

POWER ELECTRONICS INNOVATIONS

Ensuring higher power output, performance monitoring and data collection on string level, and long-term stability of operation

- Micro-inverters with smart functionality such as active/reactive power generation;
- Fault-tolerant converter topologies and converter algorithms;
- MPP Optimizers or Smart Boxes with Rapid Shut Down (RSD) functionality that represent dramatic increase of Power Plants fire safety, long-term energy yield, module reliability and PV power plant design flexibility, modularity and longer operation times without maintenance.

SYSTEM LEVEL INNOVATIONS

Developing a new digital and holistic process: PIM (PV information Modelling / Management).

The main objective is to adopt digital software and hardware tools ensuring integrated information flow through the PV value chain this way reducing costs related to the PV projects implementation and operation.

- The development of a digital platform for design, simulation and operation supporting the cost reduction of PV systems;
- The development of a tool for extending the PIM-based platform functionalities for O&M operations through a Digital Twin Model, continually updated to include the events sustained while in use, thanks to a sensor-enabled digital model that simulates the object in a live setting.