



# Welcome to the IEA PVPS Task 13 Workshop

## Adapting Solar PV Solutions for Climate and Applications

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# What is IEA PVPS?



The IEA Photovoltaic Power Systems Programme (IEA PVPS) is one of the **Technological Collaboration Programmes (TCP)** established within the International Energy Agency (IEA). Since 1993, international participants have collaborated on a diverse range of joint projects, all aimed at **advancing the application of photovoltaic technology** for the conversion of solar energy into electricity.



PVPS

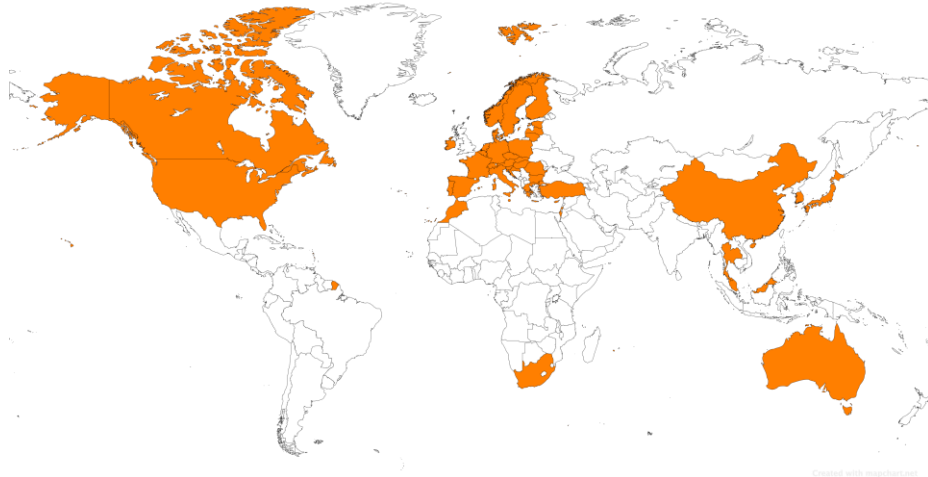
The IEA PVPS Executive Committee and PVPS Task Experts in 2023

**9** Research Projects are currently operational

around  
**340** Individuals from all over the globe are participating in PVPS

over  
**175** Scientific reports have been published since 1998

# Our members



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PVPS

-  Australia
-  Austria
-  Belgium
-  Canada
-  China
-  Denmark
-  EnergyCity
-  European Union
-  Finland
-  France
-  Germany
-  Israel
-  Italy
-  Japan
-  Korea
-  Malaysia
-  Morocco
-  the Netherlands
-  Norway
-  Portugal
-  Solar Energy Research Institute of Singapore
-  Solar Power Europe
-  South Africa
-  Spain
-  Sweden
-  Switzerland
-  Thailand
-  Türkiye
-  United States

# Our mission



- to serve as a **global reference on PV** for policy and industry decision makers;
- to provide a **global network for expertise** for information exchange and analysis;
- to provide meaningful **guidelines and recommended practices** for state-of-the-art PV applications;
- to contribute to advancing the understanding and solutions for **integration of PV power systems** in utility distribution grids;
- to provide an **overview of successful business models** in various markets segments;
- to support the **definition of regulatory and policy parameters** for effective PV markets to operate.

## For more information:

Visit our website:

[www.iea-pvps.org](http://www.iea-pvps.org)

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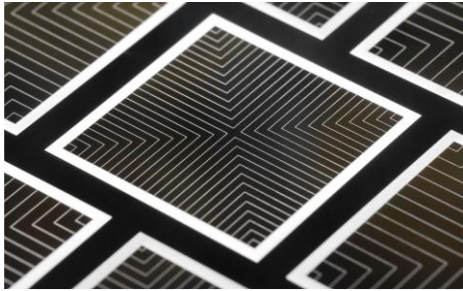


ST1: Reliability of novel PV materials, components and modules (Marc Köntges)

ST2: Performance and durability of PV applications (Anna Heimsath)

ST3: Techno-economic key performance indicators (David Moser)

ST4: Dissemination and outreach (Ulrike Jahn)

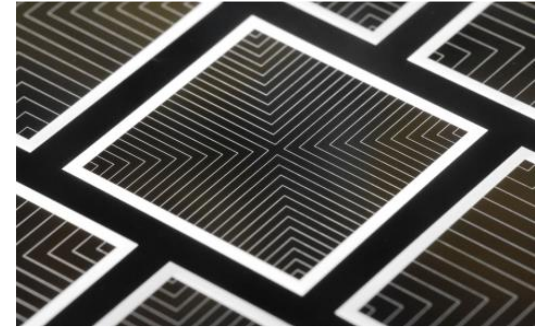






## *PV Cells and Modules*

- Degradations modes of new backsheet materials
- Degradation modes in new cell and module technology
- Impact of testing strategies under specific load conditions
- Review of PV module repair strategies
- Re-qualification & standardization of 2<sup>nd</sup> life PV



## *PV + Storage Systems*

- Application-specific performance and degradation
- Estimating lifetime of PV + storage systems
- Guidelines for O&M of PV + storage systems
- Cost estimations for O&M of PV + storage systems



# Task 13: Performance and Durability of PV Applications (ST2)



## *PV Applications*

- Floating PV performance (modelling vs. real data)
- Floating PV - Degradation modes and PLR
- Agri PV: Performance of dual land use
- Bifacial PV tracking systems: Performance modelling
- Bifacial PV tracking for optimal performance and cost



## *PV Integration*

- Digital integration of PV systems from design to O&M
- Digital twinning of PV power plants
- Module Level Power Electronics (MLPE) in PV systems
- Performance comparison of MLPE vs. string inverter



# Task 13: Techno-Economic Key Performance Indicators (ST3)



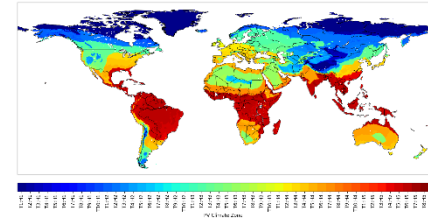
## *Overview and Assessment of*

- Extreme weather events and impact on KPIs
- Diagnostics, repair and mitigation strategies
- **Best performing technologies for climatic conditions**
- **Guidelines for module selection and system design**



## *Mapping of PV economic KPIs*

- Decision matrix of KPIs along the value chain
- Develop best practice flowcharts for PV projects
- Analysis of large-scale impact on reliability KPIs
- Visualization of techno-economic KPIs and global mapping





# Stay connected!



More information on IEA PVPS:

[www.iea-pvps.org](http://www.iea-pvps.org)

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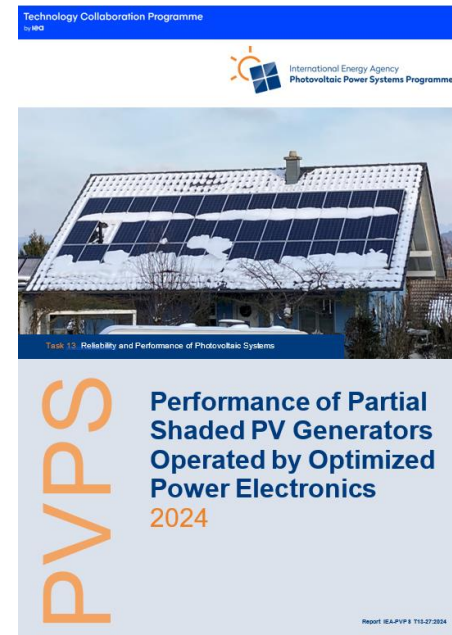
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This report overviews current best practices for optimizing the performance of such systems.



This report provides insights on partial shading and power electronics for maximizing PV system performance.

# Thank You

