Short Introduction of IEA PVPS of Task 13

Ulrike Jahn, VDE Renewables, Germany

Data Driven Mitigation Measures in Advanced PV Plant Monitoring, 06 October, 2021

Overview

- What is IEA PVPS?
- Task activities & deliverables
- Programme outline

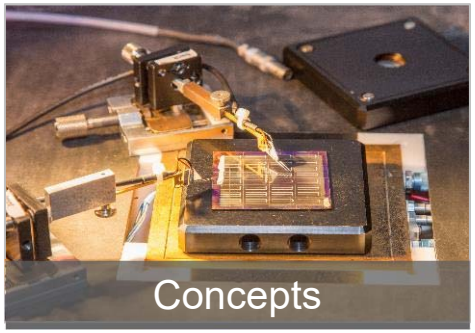
IEA PVPS TCP in a nutshell

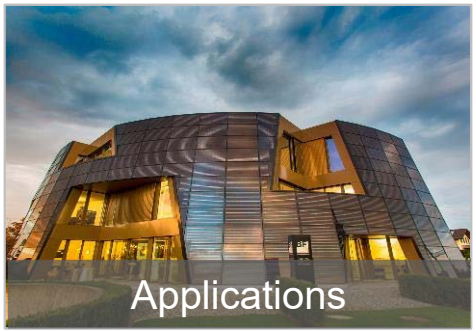
- 32 members - 27 countries covering 5 continents, European Commission, 4 associations
- A truly global and unbiased network of PV expertise
- Representing main stakeholders in R&D, industry, implementation and policy
- Covering a large majority of worldwide production, applications and markets
- *Mission: "To enhance the international collaborative efforts which facilitate the role of photovoltaic solar energy as a cornerstone in the transition to sustainable energy systems"*

European Copper Institute · SEIA · SEPA · SolarPower Europe

PVPS

Working along the value chain





PVPS

Research | Components | Systems | Integration | Market

PVPS expertise and outreach

International Cooperation: Role and Benefits

- Look into the present and future of PV worldwide
- Identify and understand relevant issues for large scale deployment
- Collect and exchange facts and experience
- Analyse precisely and draw appropriate lessons learned
- Communicate in a clear and targeted way

PVPS

- Provide sound advice to different stakeholders, including policy makers
- Accelerate the development and learning, prevent errors to be repeated
- Identify successful policy approaches and business models
- Provide long-term market, environmental and policy insights
- Expand and accelerate the deployment

8 Active PVPS Tasks…

- Task 1 - Strategic PV Analysis and Outreach
- Task 12 - PV Sustainability
- Task 13 - Performance, Operation and Reliability of Photovoltaic Systems
- Task 14 - Solar PV in the 100% RES Power System
- Task 15 - Enabling Framework for the Acceleration of BIPV
- Task 16 - Solar Resource for High Penetration and Large-Scale Applications
- Task 17 - PV and Transport (new 2018)
- Task 18 - Off-Grid and Edge-of-Grid Photovoltaic Systems (new 2019)

PVPS

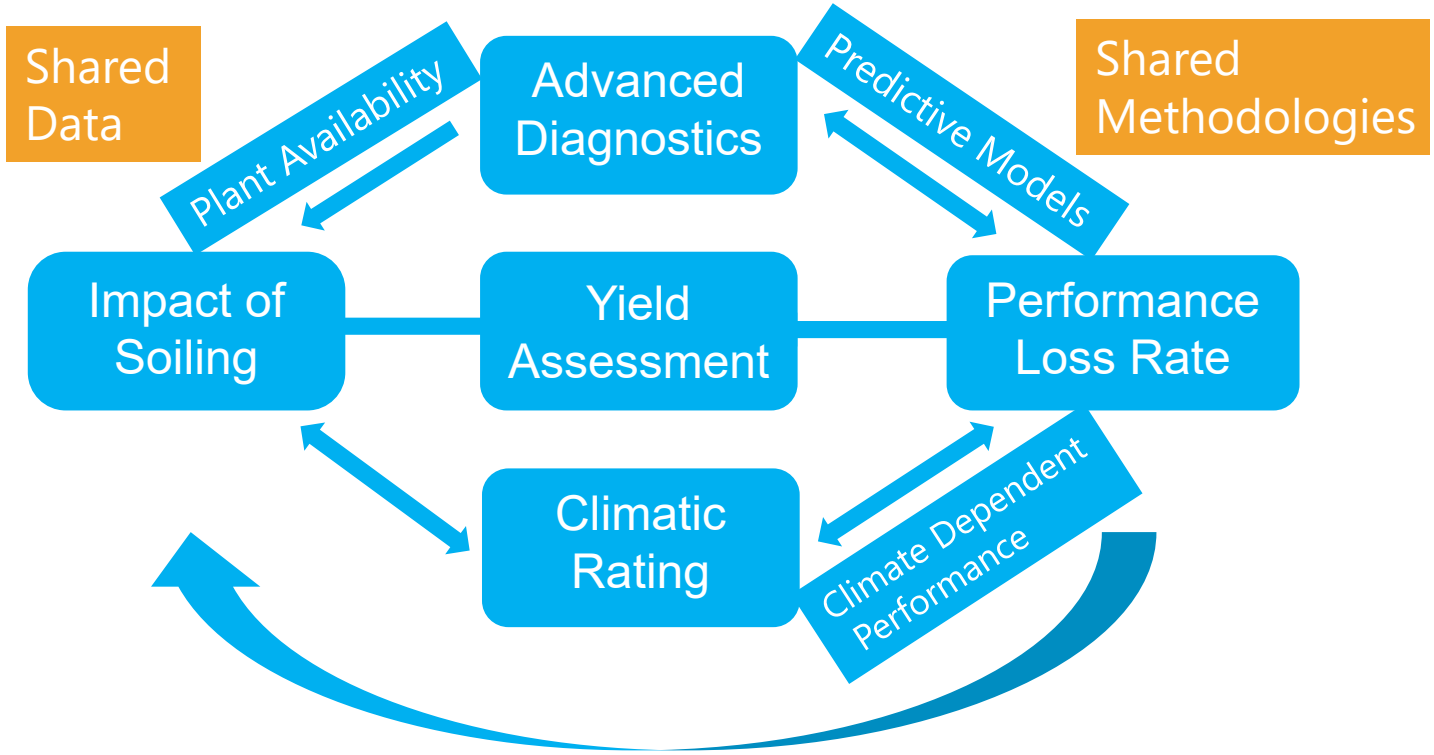
… and how they address the TW challenge

- Task 1 - Understanding markets, business and policy
- Task 12 - Providing facts about PV sustainability
- Task 13 - Tracking and securing quality and reliability
- Task 14 - Preparing for 100% renewable energy systems
- Task 15 - Understanding the BIPV market and promoting its dynamics
- Task 16 - Enabling predictable PV production
- Task 17 - Studying an important new field of applications
- Task 18 - Addressing the off-grid challenges

Task Activities & Deliverables: 2018 – 2021

- Subtask 1: New Module Concepts and System Designs
- Subtask 2: Performance of Photovoltaic Systems
  - ST 2.1 Uncertainties in Yield Assessments and PV LCOE
  - ST 2.5 Assessment of Performance Loss Rate
- Subtask 3: Monitoring - Operation & Maintenance
  - ST 3.1 Quantification of Technical Risks in PV Power Systems
  - ST 3.2 Qualification of PV Power Plants using Mobile Test Equipment
  - ST 3.3 Guidelines for O&M in Different Climates
- Subtask 4: Dissemination

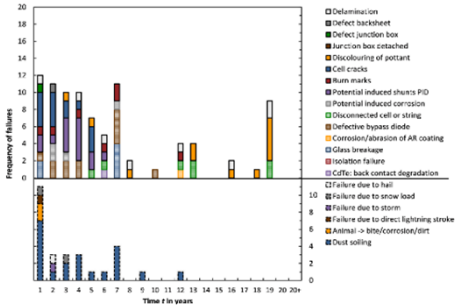
Task 13: Performance of Photovoltaic Systems

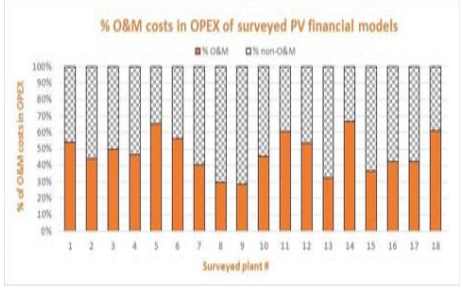


PVPS

ST 3: Monitoring – Operation & Maintenance of PV Power Plants

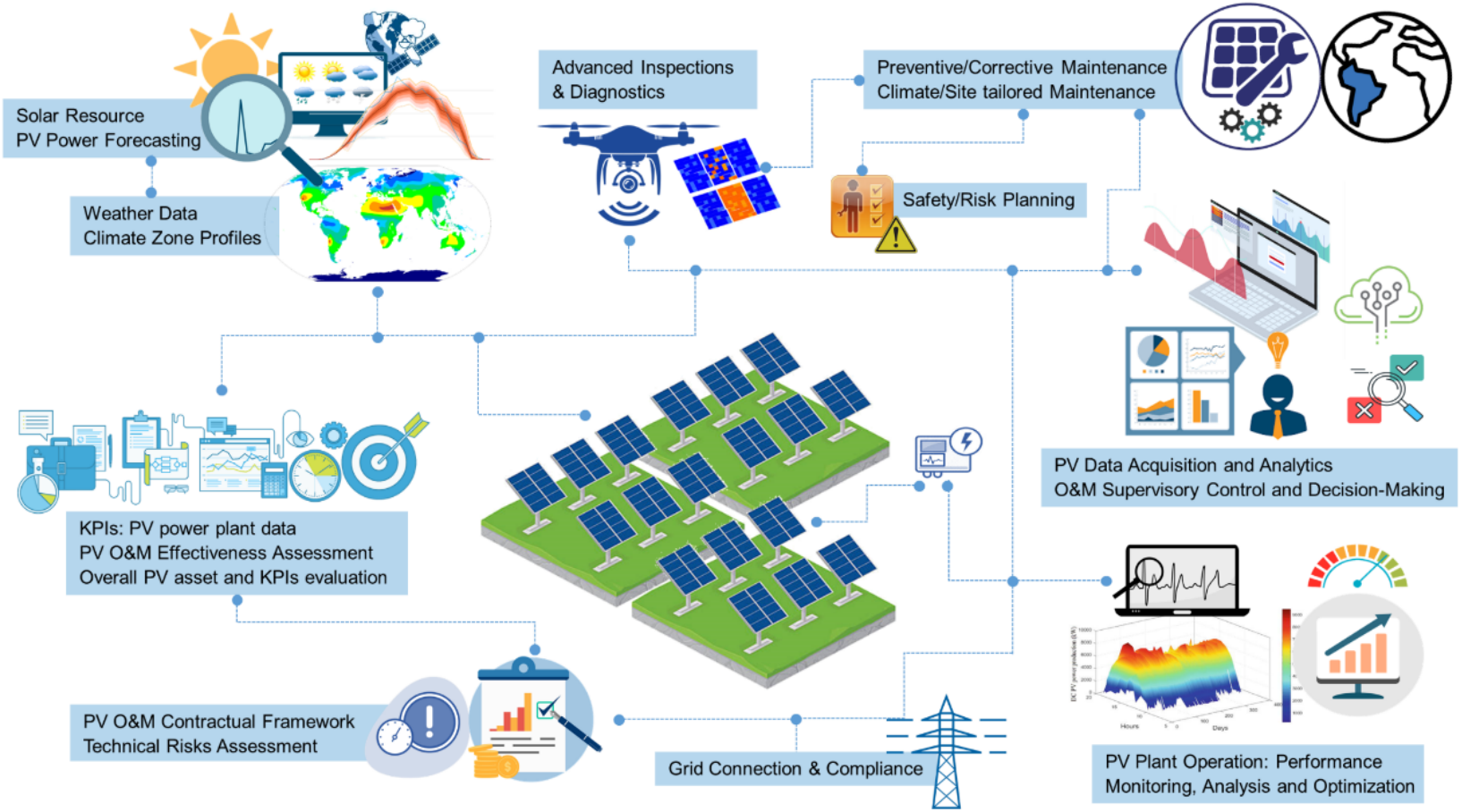
- Increase the knowledge of methodologies to assess technical risks and mitigation measures in terms of economic impact and effectiveness during operation.
- Provide best practice on methods and devices to qualify PV power plants in the field.
- Compile guidelines for O&M procedures in different climates and to evaluate how effective O&M concepts will affect the quality of power plants in the field.





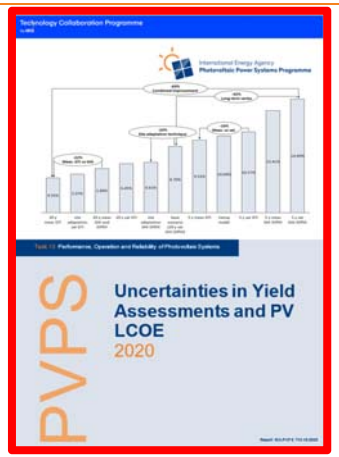
PVPS

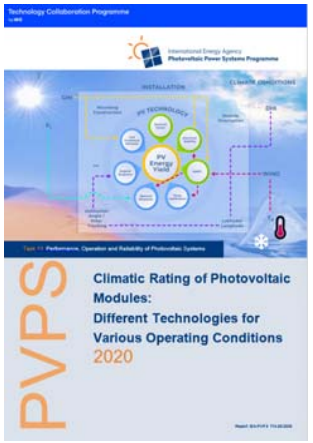
ST 3.3: Guidelines for O&M of PV Plants in Different Climates

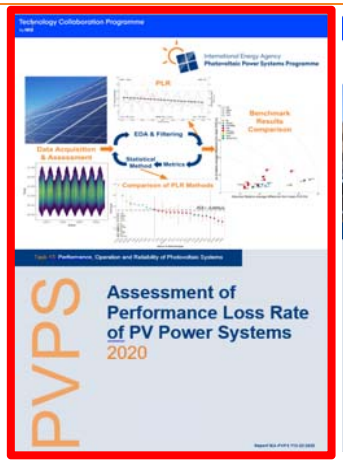


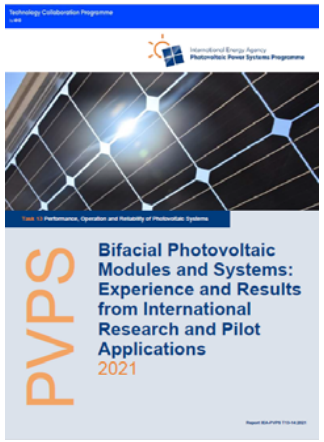
PVPS

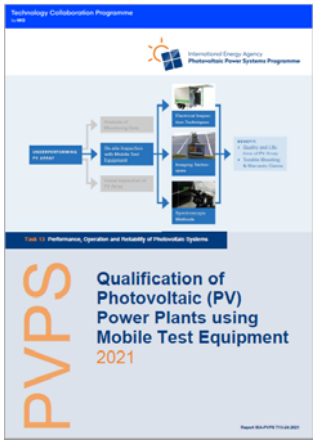
Technical Reports (https://iea-pvps.org/research-tasks/performance-operation-and-reliability-of-photovoltaic)

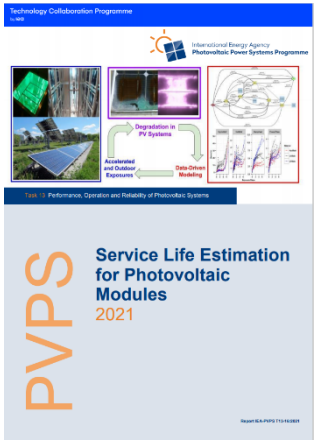


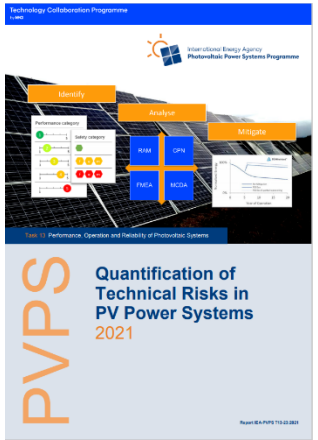


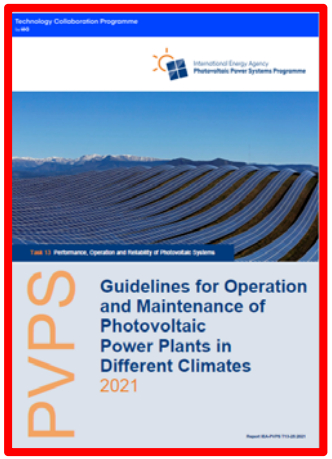












Data Driven Mitigation Measures in Advanced PV Plant Monitoring

Your Speakers of Today

Ulrike Jahn
Introduction of IEA PVPS Task 13

David Moser
Role of Digitalization in Operation and Maintenance of PV Plants

Paolo Graniero
Data Driven Mitigation Measures in Advanced PV Plant Monitoring

Julien Deckx
Strategies for Early Fault Detection and Diagnostics

Sascha Lindig
International Collaboration Framework for the Calculation of Performance Loss Rates: Data Quality, Benchmarks and Trends

Maoyi Chang (pre-recorded)
PV O&M Optimization by AI Practice

Ulrike Jahn
Wrap-up of this Workshop

PVPS

https://iea-pvps.org/research-tasks/performance-operation-and-reliability-of-photovoltaic

Thank you

Ulrike Jahn, IEA PVPS Task 13 Manager
ulrike.jahn@vde.com