PV Data Management and the PEARL Data Challenge
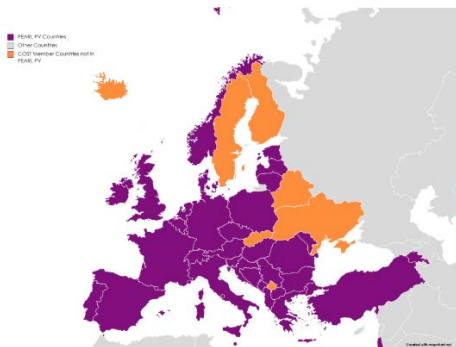
Chair:
Dr. Atse Louwen, Eurac Research, Institute for Renewable Energy, Italy

Co-Chairs:
Dr. Carolin Ulbrich, Helmholtz-Zentrum Berlin, Germany
Dr. Eli Shirazi, University of Twente, Netherlands
Prof. Angèle Reinders, University of Twente/ Eindhoven University of Technology, Netherlands

EU COST Action PEARL PV is an inclusive network of PV system researchers focused on "Performance and Reliability of Photovoltaic Systems: Evaluations of Large-Scale Monitoring Data". A significant part of this project is based on the idea of sharing monitoring data in a European context.

Namely the aim of PEARL PV **to improve the energy performance and reliability of photovoltaic (PV) solar energy systems** in Europe leading to lower costs of electricity produced by PV systems by a **higher energy yield**, **a longer lifetime** eventually beyond the guaranteed 20 years as specified by manufacturers, and **a reduction in the perceived risk** in investments in PV projects. This will be achieved by analyzing data of the actual monitored long-term performance, defects and failures in PV systems installed all over Europe to quantitatively determine the absolute influences of components rated performance, key design of systems, installation, operation, maintenance practice, geographic location and weather factors on the performance, performance degradation over time and failure modes of these PV systems.

This workshop is of interest to you, if you want to evaluate PV system data, if you own PV monitoring data, and/or if you want to collaborate by exchanging and analyzing (synthetic) PV plant and meteo-data. Namely, PEARL PV aims at forming the largest-ever agglomeration of PV systems performance data in Europe. By that, experts can evaluate and compare PV system performance and, also, validate smart system evaluation methods and evidence-based simulation and design tools. A key part of this initiative is the PEARL PV CKAN database, to which you can contribute!

In this online event we aim to inform the PV audience about how to use this CKAN database. The program of this session, hence, includes two keynote presentations, 2 short research presentations, and a short

workshop on the features of the CKAN database. Finally, we will announce two data challenges organized within Pearl PV.

Website COST Action PEARL PV: [Welcome - PEARL PV (pearlpv-cost.eu)](#)
CKAN database of PEARL PV: [Welcome - Pearl PV CKAN Repository (pearlpv-cost.eu)](#)

Contact data of Chair of the session: Dr. Atse Louwen (atse.louwen@eurac.edu)

Programme Outline:

Moderation: Atse Louwen, Eurac Research, Institute of Renewable Energy, Bolzano, Italy

10:00-10:30
Data analysis of big data of PV systems using the CKAN database of PEARL PV
Prof. Dr. Ralph Gottschalg

10:30-11:00
The importance of shared and synthetic datasets
Prof. Dr. Angèle Reinders (University of Twente / Eindhoven University of Technology)

11:00-11:20
Use of PEARL PV platform to Share Spectral data
Basant Raj Paudyal (University of Agder)

11:20-11:40
Performance Analysis and Degradation of a Large Fleet of PV Systems
Dr. Sascha Lindig (Eurac Research)

11:40-11:55
How to use the Pearl PV CKAN database
Dr. Atse Louwen (Eurac Research)

11:55-12:30
Announcement of data challenges using the Pearl PV CKAN database + session wrap-up
Dr. Elham Shirazi (University of Twente)
Dr. Atse Louwen (Eurac Research)