



Bringing Together International Research On High Penetration PV In Electricity Grids – The New Task 14 Of The IEA-PVPS Programme

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TASK 14 Work and Approach

As PV continues to expand its share of the global electricity generation mix, it becomes increasingly important to understand the key technical challenges facing high penetrations of PV within power systems. Key issues include the variable and somewhat unpredictable nature of PV generation, the power electronics interconnection between PV and the grid and its location within areas of the electricity network typically designed only for supplying loads. Power system protection, quality of supply, reliability and security may all be impacted as penetrations increase.

Overcoming these technical challenges will be critical to facilitating major PV deployment that extends from serving local loads to becoming a significant part of the overall generation mix. Such deployment will require that PV be fully integrated into power system operations and planning processes. The challenge has many shared as well as context specific aspects across the electricity industries of the world. Much can be learned from international cooperation and information sharing, hence this new IEA task.



2 MW PV system at U.S. Army Fort Carson, NREL. Photograph: Information eXchange

Task 14 investigates on issues relating to the role of PV in the future electricity supply system by international collaboration, particular facing future high-penetration scenarios, which are now becoming reality in a number of locations around the globe. The work program is organized into four main subtasks and one cross-cutting subtask, which will be the link between the main subtasks.



IEA PVPS Task 14 Planned work

Information Gathering, Analysis and Outreach: CanmetENERGY (CAN)

The scope is to collect and share state of the art information amongst the various tasks as well and collating information for the general public.

PV generation in correlation to energy demand: Planair (CHE)

This subtask will show and determine how with better prediction tools an optimized local energy management, PV penetration level can be improved in grid.

High penetration PV in local distribution grids: IWES (DEU)

This subtask addresses the identification and interpretation of the role of PV in distribution grids and includes an impact analyses of high PV penetration in distribution grids

High penetration solutions for central PV generation scenarios: Univ. Tokyo (JPN)

PV integration into power systems from the total power system view point, based on the PV generation forecasting, power system operation and power system augmentation

Smart inverter technology for high penetration of PV: AIT (AUT)

Addressing the inverter technology, technical requirements and standards, and system integration aspects for successful smart integration of a high penetration of PV.

JOIN US!

- Join one or more of our Subtask activities
- Attend Task 14 meetings (organized twice a year)
- Check out our web-site
www.iea-pvps.org/tasks/task14.htm



IEA PVPS Task 14 Experts