IEA PVPS
Global co-operation towards sustainable deployment of photovoltaic power systems
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IEA-PVPS Vice chair
The IEA

- The IEA is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 29 member countries and beyond
- Founded in 1973, by 17 OECD countries
- Headquarter in Paris
Photovoltaic – Global Development
& Comparison with other electricity sources

Worldwide installed capacities as of 2017

- **Wind**  >500 GW
- **Hydro**  >1200 GW
- **Nuclear** 366 GW

*IEA PVPS Snapshot Report:*
The 38 IEA Technology collaboration programmes (TCP’s)

• …involve about 6 000 experts from government, industry and research organisations in more than 50 countries
• The TCP on “Photovoltaic Power Systems” (IEA-PVPS) was founded in 1993
The 32 IEA PVPS Members (as of 2018)

Australia  
Austria  
Belgium  
Canada  
Chile  
China  
Denmark  
Solar Power Europe  
European Union  
Finland  
France  
Germany  
International Copper Association  
Israel  
Italy  
Japan  
Korea  

Malaysia  
Mexico  
Morocco  
The Netherlands  
Norway  
Portugal  
Solar Energy Industries Association  
Solar Electric Power Association  
South Africa  
Spain  
Sweden  
Switzerland  
Thailand  
Turkey  
United States
The IEA PVPS 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".
IEA-PVPS Basics

- Activities are carried out collaboratively on a country basis along a number of technical and non-technical subjects
- Currently 8 Tasks are active
- Currently the largest Technology Collaboration programme (out of 38) within the IEA framework

With > 250 experts collaborating
The IEA-Experts Network

- Global network of expertise
- Broad variety of stakeholders
- Independent, objective, neutral
- Country based, task-shared

- Analysis, Best practice,…
- Recommendations
- Communication & interaction
IEA PVPS Tasks (ongoing and concluded)

- Task 1 – PV strategy and outreach
- Task 2 - Operational performance, maintenance and sizing of PV power systems and subsystems (concluded 2008)
- Task 3 - Use of PV power systems in stand-alone and island applications (concluded 2004)
- Task 5 - Grid interconnection of building integrated and other dispersed PV systems (concluded 2001)
- Task 6 - Design and operation of modular PV plants for large scale power generation (concluded 1997)
- Task 7 - PV power systems in the built environment (concluded 2001)
- Task 8 - Very large scale PV power generation systems (concluded 2015)
- Task 9 - Deployment of PV technologies: co-operation with developing countries
- Task 10 - Urban Scale PV Applications (concluded 2009)
- Task 11 - PV hybrid systems within mini-grids (concluded 2013)
- Task 12 - PV environmental, health & safety activities
- Task 13 - PV performance, quality and reliability
- Task 14 - High-penetration of PV systems in electricity grids
- Task 15 - PV Building Integration
- Task 16 – Solar resource assessment for high penetration and large scale applications
- Task 17 – PV & Mobility
Task 9 – Deploying PV Services for regional Development

To increase the **sustainable** use of PV in developing countries (and contribute to meeting the Millennium Development Goals)

Focus on energy services
Task 12 Sustainable PV

- Subtask 1: Recycling of manufacturing waste and spent modules
- Subtask 2: Life cycle assessment
- Subtask 3: EH&S in Manufacturing Facilities
- Subtask 4: EHS Information Dissemination
Task 13 Performance and reliability of PV systems

Subtask 1: Statistical System Performance Analysis
Subtask 2: Analytical PV System Assessment
Subtask 3: PV Module Characterisation and Performance Assessment
Subtask 4: Dissemination
Task 14 The role of PV in a 100% RES Scenario

- PV generation in correlation to energy demand focusing on the consumer behavior to be better linked to the generation profile.
- The effects on PV generation to the local grid as well as to the general electricity system.
- Smart inverter technology dealing with requirements for inverters at high PV penetration.
- Convincing case studies, Simulation.
Task 15 Building Integration of Photovoltaics

…to create an enabling framework to **accelerate the penetration of BIPV products** in the global market of renewables, resulting in an equal playing field for BIPV products, BAPV products and regular building envelope components, **respecting mandatory issues, aesthetic issues, reliability and financial issues**.

Subtask A: BIPV project database
Subtask B: Transition towards sound BIPV business models
Subtask C: International framework of BIPV specifications
Subtask D: Environmental benefits of BIPV
Subtask E: Demonstration
Subtask F: Dissemination
Task 16 Solar resource assessment for high penetration and large scale applications

Goals:
to lower barriers and costs of grid integration of PV and lowering planning and investment costs for PV by enhancing the quality of the forecasts and the resources assessments.
Task 17 PV for Transport

- PV and automotive – integration into vehicles
- The role of PV for charging processes of E-Vehicles
- The role of PV in tomorrow’s mobility

- Operating Agent: Toshio Hirota
Benefits of IEA PVPS co-operation

- Providing credible information and analysis – a worldwide reference
- Homogeneous national and global market data
- Understanding policy frameworks, business drivers and values
- Tracking worldwide performance and reliability
- Analysis of new concepts in a very early stage, e.g.
  - Urban scale PV (2002)
  - Hybrid PV mini grids (2006)
  - High-penetrations in Grids (2008)
  - PV & mobility (2017)
Task 1  Strategic PV Analysis and outreach

Main publications:

- Trends in photovoltaic applications in selected IEA countries, 23rd ed. 1992 – 2017
- Snapshot report
- Other reports (Self-Consumption, PV registering, Retroactive measures, …)

3 to 4 Topic specific workshops per year
Task 1 benefits

- Providing credible information and analysis on market and industry trends – a worldwide reference
- Homogeneous national and global data
- Recommendations for decision makers
  - Policy
  - Regulation
  - Industry
  - Innovation
• http://www.iea-pvps.org
• http://www.iea.org

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