



Call for Papers

Area 9: PV Modules and Terrestrial Systems

Chair: Angèle Reinders, University of Twente, Delft University of Technology
Co-Chair: Terry Jester, Hudson Clean Energy Partners, USA
Co-Chair: Scott Norquist, 3M Renewable Energy Division, USA
Co-Chair: BJ Stanbery, HelioVolt, USA

Sub-area 9.1: Irradiance Resources
Sub-area 9.2: PV Module Materials, Durability and Performance
Sub-area 9.3: Inverters, Batteries and other BOS Components
Sub-area 9.4: Grid Connected Systems and Smart Grids
Sub-area 9.5: Stand Alone Applications and PV products

Dear Colleagues,

On behalf of the technical program committee it is our pleasure to invite you to submit papers for **Area 9: “PV Modules and Terrestrial Systems”** of the 37th IEEE Photovoltaic Specialists Conference, which will be held in Seattle, Washington, the week of June 19-24 2011. The IEEE PVSC meeting is the established international platform for presenting PV related research of high scientific level.

PV modules are a vital commodity in the market of PV systems. We encourage submissions in all subjects associated with PV module materials, durability and the performance of PV modules. Also papers reporting on irradiance resources in relation to the energy yield (kWh/kWp) of PV modules and PV systems are encouraged. In particular we are interested in testing protocols for site-dependent energy yields. Power conditioning equipment affects the reliability and efficiency of PV systems. Therefore, contributions describing technical issues and standardization of inverters and Balance-of-Systems (BOS) components are encouraged.

Papers about design engineering, monitoring and control of very large scale grid-connected PV installations are welcome, as well as papers about incentives for, and experiences with residential grid-connected systems and building-integrated PV systems in the context of smart grids.

The growing need for renewable electricity supply is advancing the development of stand-alone PV solutions and various innovative PV products for both grid-connected and autonomous applications. As such we welcome contributions that explore the development of system integrated PV in the context of functionality, regulations and costs.



In Area 9, contributions can range from material research and technology development to papers about design, engineering and multi-disciplinary evaluations of realized PV projects.

Confirmed speakers include: Michael Kempe (NREL, USA), Klaus Kiefer (FhG-ISE, Germany), Joop Schoonman (Delft University of Technology, Netherlands)

9.1: Irradiance Resources

Sub-area chair: Wilfried van Sark, Utrecht University, NL

Subarea 9.1 covers topics related to irradiance resources because of their immediate effect on the energy yield (kWh/kWp) of PV modules and PV systems. In this subarea we welcome papers about advances in the measurement of irradiance regarding accuracy, spatial distributions, time-dependency and spectral distributions. In this framework, methods to forecast irradiance on large areas are of particular interest. Also we welcome contributions about the simulation of irradiance for both outdoor and indoor locations, as well as contributions regarding geographic mapping of irradiance.

9.2: PV Module Materials, Durability and Performance

Sub-area chair: Peter Hacke, NREL, USA

Subarea 9.2 seeks contributions in energy performance, durability, safety, and reliability of fielded and accelerated lifetime-tested modules along with the comparisons between the outdoor and indoor data. This subarea also focuses on performance factors and cost-benefits of emerging module materials, designs and technology, including module-integrated electronics. Design for reliability, best practices for manufacturing, testing methodologies, failure analysis, standards development, modeling of degradation mechanisms and lifetime, and the relation between the system cost and the module durability are themes that are also covered. Emerging topics including location-dependent module designs for cost-reduction are also sought. Papers in subarea 9.2 can cover all PV technologies: such as, crystalline silicon, thin film PV, organic PV and low concentrator PV modules.

9.3: Inverters, Batteries and other BOS Components

Sub-area chair: Ward Bower, Sandia National Laboratories, USA

Power conditioning equipment affects crucial performance factors of PV systems such as their reliability and efficiency. Therefore, in subarea 9.3 contributions describing technical issues and standardization of inverters and other Balance-of-System (BOS) components are encouraged. Papers about the design, performance analysis and reliability of inverters, DC/DC converters and maximum power point (MPP) trackers, as well as developments regarding micro-inverters and power optimizers for improving shading tolerance of PV systems, are welcomed. In subarea 9.3 papers about battery design, battery management and alternative means for energy storage in PV systems are of particular interest as well.



Washington State Convention Center, Seattle, Washington

9.4: Grid Connected Systems and Smart Grids

Sub-area chair: Greg Ball, BEW Engineering, USA

In subarea 9.4, we encourage abstracts about design, engineering, monitoring, control, safety and performance of grid-connected PV installations, including large utility scale ground mounted systems, residential grid-connected systems, building-integrated PV systems, and concentrating PV systems. We particularly welcome papers describing new experiences or findings related to innovative design, system performance testing, performance validation, safety and equipment protection related issues or enhancements, monitoring or control advances, and market or tariff driven design optimization. Papers related to the general themes of smart grids, among others ancillary services, plant control, enhanced communications and component control, are also of particular interest.

9.5: Stand Alone Applications and PV products

Sub-area chair: Alain Garnier, Saint Gobain, USA/France

In subarea 9.5 we welcome papers about recent advances in stand-alone PV systems, hybrid systems and mini-grids describing design, engineering, simulations and experiences with installed systems in the context of energy performance, functionality, costs, socio-economic aspects and environmental benefits. In particular we welcome contributions about integrated power systems with PV technology for a variety of applications, in particular building-integrated PV, product-integrated PV, lighting systems and business-to-business applications. In this subarea we encourage abstracts describing energy performance, energy rating and testing of systems or products and their components. Papers about product development and prototyping are welcomed as well.

Please check our website for the 37th IEEE PVSC at www.ieee-pvsc.org. Please, submit your extended abstract of three pages in length before the deadline of **February, 21, 2011** using the conference website.

Looking forward to seeing you all in Seattle.

Sincerely,

Angèle Reinders, *University of Twente, Delft University of Technology*

Area 9 Chair

Terry Jester, *Hudson Clean Energy Partners, USA*

Scott Norquist, *3M Renewable Energy Division, USA*

BJ Stanbery, *HelioVolt, USA*

Area 9 Co-Chairs