

National Renewable Energy Laboratory IEEE Standards Update



Solar ABCs Stakeholder
Meeting 2009

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NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

Institute of Electrical and Electronic Engineers Standards Coordinating Committee 21

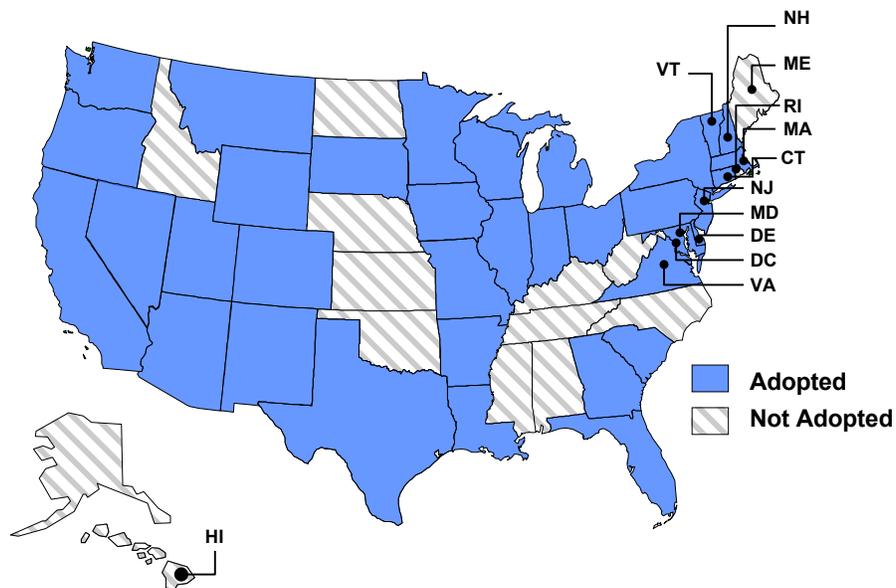
IEEE SCC21

Fuel Cells, Photovoltaics, Dispersed Generation, & Energy Storage

IEEE 1547 Series of Standards

- **1547- 2003** Standard for Interconnecting Distributed Resources with Electric Power Systems – Reaffirmed 2008
- **1547.1 - 2005** Conformance Test Procedures for Equipment Interconnecting DR with EPS
- **1547.2 - 2008** Application Guide for IEEE 1547 Standard for Interconnection of DR with EPS
- **1547.3 - 2007** Guide for Monitoring, Information Exchange and Control of DR

State Adoption of Interconnection Standard *IEEE 1547-2003*



IEEE 1547 Series - Current Projects

- **P1547.4** Guide for Design, Operation, and Integration of DR Island Systems with EPS
- **P1547.6** Recommended Practice for Interconnecting DR With EPS Distribution Secondary Networks
- **P1547.7** Draft Guide to Conducting Distribution Impact Studies for Distributed Resource Interconnection

IEEE SCC21 Photovoltaic (PV) Standards

- **IEEE 937-2007** Recommended Practice for the Sizing of Lead-Acid Batteries for Photovoltaic (PV) Applications
- **IEEE 1013-2007** Recommended Practice for the Installation and Maintenance of Lead-Acid Batteries in PV Applications
- **IEEE 1361-2003** Guide for Selection, Charging, Test & Eval. of Lead-Acid Batteries Used in Stand-Alone PV Systems (reaffirmation in process)
- **IEEE 1526-2003** Recommended Practice For Testing the Performance of Stand Alone Photovoltaic Systems (reaffirmed)

IEEE SCC21 Photovoltaic (PV) Standards

- **IEEE 1561-2007** Guide for Optimizing the Performance and Life of Lead-Acid Batteries in Remote Hybrid Power Systems
- **IEEE 1562-2007** Guide for Array and Battery Sizing in Stand-Alone Photovoltaic (PV) Systems
- **IEEE 1661-2007** Guide for Test and Evaluation of Lead-Acid Batteries Used in PV Hybrid Power Systems

IEEE American National Standards Focus on Distributed Generation and PV

New Project Areas

- **P2030 Smart Grid Interoperability**
 - TF1 – Power Engineering Technology
 - TF2 – Information Technology
 - TF3 – Communications Technology

Potential Project Areas

- PHEV/V2G (Plug-in Hybrid Electric Vehicles/Vehicle to Grid)
 - Grid interface
 - Batteries
- High-Penetration PV
- Future wind, solar, geothermal, hydro

IEEE Standards Development – Join Us

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- Submit Project Request - to start a new standard
- Join Working Groups – to develop standards

- Contact **michael.coddington@nrel.gov**