



**Electricity, Resources,
& Building Systems
Integration**

Update on IEEE Interconnection Standards



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**Solar ABCs Stakeholder
Meeting**

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NREL is a national laboratory of the U. S. Department of Energy,
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IEEE SCC21 Standards Coordinating Committee on Fuel Cells,
Photovoltaics, Dispersed Generation, and Energy Storage

Published Standards in 2011

- IEEE 1547.4™ – Planned Island Systems
- IEEE 1547.6™ – Secondary Network Distribution Systems
- IEEE 2030™ – Smart Grid Interoperability

Standards Under Development

- IEEE P1547.7 – Impact Studies
- IEEE P1547.8 – Expanded Use of IEEE 1547
- IEEE P1547a – Amendment 1

IEEE P1547.7

Draft Guide to Conducting Distribution Impact Studies for Distributed Resource Interconnection

Purpose

“..... a described methodology for when distribution system impact studies are appropriate, what data is required, how they are performed, and how the study results are evaluated. In the absence of such guidelines, the necessity and extent of DR interconnection impact studies has been widely and inconsistently defined and applied.”

Major Study Types

- Power Flow
- Short Circuit
- Power Quality
- Quasi-Static
- Dynamic Stability
- Transient Stability

IEEE P1547.8

“Recommended Practice to Expand The Usefulness And Utilization Of IEEE Std 1547”

Overview of P1547.8

- This Guide will NOT replace IEEE 1547
- Guide reflects IEEE 1547 clauses
- Covers greater area than Point of Common Coupling (PCC)
- Focus on High Penetration Distributed Generation
- Intent is to make DG systems “Utility Friendly”
- Solutions will incorporate advanced functionality inverters

Topics of Focus for P1547.8

- Voltage Regulation
- Monitoring & Communications
- Response to Area EPS Abnormal Conditions
- Power Quality
- Coordination with NEC and UL 1741
- Optimizing Group Behavior of DG
- DR Requirements to “See” Fault Conditions
- Additional Data Requirements
- DG Greater than 10 MW (< 20MW)

IEEE P1547a

The Focus of IEEE P1547a Amendment 1

- Voltage Regulation (Volt/VAR)
- Response to abnormal frequency (FRT)
- Response to abnormal voltage (VRT)

IEEE P1547a

Working Group Information

- Preliminary meeting was held May 17-18 in Piscataway, NJ to discuss suggested changes
- Many suggestions were considered, with three topics being chosen for amendment
- First Working Group meeting November 29-30 in Piscataway, NJ

What's Next?

- IEEE P1547.7
 - Final review of Draft 8 via webcasts
 - Draft 9 will be balloted in January
- IEEE P1547.8
 - Next meeting planned for February 2013
 - Should be ready for Ballot in 2013
- IEEE P1547a
 - Working Group Meeting 2012
 - November 29-30 in Piscataway, NJ