

Electric Distribution R&D Peer Review 2006 Project Summary

YOUR ORGANIZATION:	ACN ENERGY VENTURES LLC., AND NATIONAL RENEWABLE ENERGY LABORATORY (NREL)
PROJECT TITLE:	REGIONAL IMPLEMENTATION OF IEEE STD 1547
PRESENTERS:	Brad Johnson (ACN) and Tom Basso (NREL)
FY 2005 FUNDING:	\$98,300 (ACN) \$200,000 NREL
FY 2006 FUNDING:	\$ 110,50 (ACN) \$239,500 (NREL)
START/COMPLETION DATES:	FY 2006: October 2005 - September 2006

Overall Project Purpose and Objectives:

The purpose is to implement interconnection infrastructure adoption consistency and content uniformity for regions and states by providing technical assistance to them for developing and implementing their interconnection procedures/agreements based on the technical requirements of IEEE 1547. The project objectives are: to provide technical assistance to PJM Interconnect, Inc. to expand its "PJM Two MW Small Generator Interconnection Standard" (FERC approved early 2005) that is based on IEEE Std 1547 and IEEE Std 1547.1 to ten-MW then to twenty-MW; complete the establishment of the Mid-Atlantic Distributed Resources Initiative rule - *MADRI Draft Interconnection Rule* (procedures and agreements) and promote its adaptation/adoption in states; to promote consideration for regional adoption by non-PJM regional transmission organizations (RTO) for developing small generator interconnection standards and procedures like PJM's technical standard and the *MADRI Interconnection Rule*. Specifically, the work includes: supporting MADRI states (DC, DE, MD, NJ and PA) interconnection procedures development; conducting regional/state stakeholder meetings (e.g., PJM, MADRI, state commission staff, utilities, and NREL), identifying strategies for implementing each voluntarily participating state's interconnection procedures; and, begin developing regional interconnection requirements and procedures most likely with the Midwest Independent System Operator (MISO) RTO and the Organization of MISO states (OMS).

The implementation project work contributes to the overall ED Program by ensuring the understanding, adoption or reference, and maximum impact of the ED Program standards by the relevant operating, regulatory and related institutions (authorities having jurisdiction - AHJ) over the electric power system (EPS). Benefits include:

- Helping satisfy 2005 EPACT with uniform implementation of 1547 standards and best practices for interconnection procedures/agreements.
- Helping to ensure that IEEE 1547 gets implemented as the local/regional interconnection standard.
- Providing consistency between wholesale and retail level requirements for small generator interconnections.
- Making interconnection procedures more transparent so that manufacturers could better understand the technical requirements and regulators could better determine that interconnection procedures are being fairly applied.
- Streamlining the interconnection process and making it less costly and burdensome.
- Developing a regional approach to interconnection that could be applied throughout in the country.

FY 2005 and FY 2006 Results and Accomplishments.

MADRI Model Interconnection Procedures Completed - November 2005

- Foster regional consistency among states' small generator interconnection procedures across MADRI states.
- Key Considerations: Establish common technical standards requirements, and Establish model implementation procedures, rules and agreements.

PJM Progress Report – 2 MW PJM Std Expansion To 10 MW Technical Requirements.

- Approved by Stakeholder Group in Late 2005 Subject to Further Testing of Monitoring Provisions (FERC approval may not be required)
- Proposed Monitoring Provisions Call for PJM to Install a Low Cost SCADA System on Small Generators
- Utilities Access Generator Data Through PJM
- Ensures Consistent Monitoring Requirements Throughout PJM and Provides Greater Certainty to Developer Regarding Monitoring Requirements and Cost

PJM Progress Report – 10 MW To 20 MW Technical Requirements.

- PJM Stakeholder Group Began Consideration of 10-20 MW Technical Requirements in January of 2006
- Goes Beyond IEEE 1547 Which Covers Projects Up to 10 MW; However, Both FERC and PJM Small Generator Interconnection Procedures Include Projects Up to 20 MW

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Implementation Progress MADRI States (DC, DE, MD, NJ, and PA)

- Pennsylvania Interconnection Rulemaking (0-2MW) Issued 11/05 Based on MADRI
- Maryland Interconnection Proceeding Opened on 04/06 Based on MADRI
- New Jersey Side-By-Side Showed High Degree Of Similarity Between NJ Standards & MADRI
- District of Columbia – Plans to Open Interconnection Proceeding Based on MADRI Procedures in 2006
- Delaware – Interconnection Plans Are Uncertain; Focused on Resolving Issues Related to 59% Increase In Residential Rates

Progress Report – OMS & MISO

- Organization of MISO States (OMS) Is Considering A Role Similar to What MADRI Played to Coordinate Development of Model State Interconnection Procedures for States to Consider
- Midwest ISO (MISO) is Contemplating a Role Similar to What PJM Played to Coordinate Development of Technical Requirements
- Next Step is Midwest Stakeholder Workshop in June/July Timeframe

FY 2007 Plans and Expectations.

What's Next – FY 2007 Plan

- Finalize MISO/OMS Activity
- Harmonize PJM & MISO Interconnection Standards In States That Belong to Both ISOs
- Take Advantage of Window of Opportunity – Support States to Meet EPACT Interconnection Requirements
- Continue to Pursue Regional Implementation Opportunities

Lack of Consistent Implementation Approach By States Can Be a Barrier:

- States individually implementing approaches
- Until recently, no mandate for uniform implementation -- Federal 2005 EPAct Sec 1254 Interconnection: utilities required to consider IEEE 1547, and promote agreements/procedures via current best practices
- Different ways of implementing IEEE 1547
- How to ensure validity, quality and consistency?
 - Incorporate or Mandate 1547 Standard?
 - Certification of Equipment?
 - Standardized Interconnection Rules/Procedures?

Utility Interconnection Practices Can Also Be a Barrier for DG

- Requirements vary from utility to utility
- Requirements not transparent
- Requirements not uniformly applied
- Many additional requirements – probably not necessary

Jurisdictional Issues Between States & FERC Are A Complicating Factor

- FERC Has Jurisdiction for DG Participating in Wholesale Markets Even if it Interconnects at Distribution Level
- All Retail Interconnections Fall Under Jurisdiction of State PUCs, e.g. Net Metering
- Ideally, Wholesale and Retail Interconnection Requirements Should Be Similar

Public/Private Partnerships.

All partners fully pay their own cost in participating. Interactions and collaborations include the following.

- ISOs – PJM & MISO
- State Regional Organizations – MADRI & OMS
- Various State Agencies, e.g. Public Utility Commissions, State Energy Offices, e.g., interactions included the following states -- AZ, CO, DC, DE, FL, GA, IN, IL, MD, MI, MT, OH, OR, PA, NJ, NM, WA
- DG Stakeholders, e.g. Advocates, DG Developers
- Other Federal Agencies – FERC, EPA
- NCEP- National Council for Electricity Policy ncouncil.org - a joint venture among the National Conference of State Legislatures (NCSL), the National Association of Regulatory Utility Commissioners (NARUC), the National Association of State Energy Officials (NASEO), and the National Governor's Association (NGA).