Smart Grid Implementation Workshop

Breakout Group Report

Accommodating all Generation and Storage Options

June 20, 2008

Washington DC

Focus of the Characteristic

- Focus on new challenges and integrating and balancing new and old technologies
- Discussion on accommodating all generation and storage options at the distribution level and renewable resources and storage on transmission

Major Findings/Caveats

- Interconnecting distributed resources of all sizes across all technologies is a challenge to the “plug and play” concept

- Accommodating the distributed resources needs to balance the interest of the full range of stakeholders – Consumers; third party developers/providers/aggregators; regulators; utilities

- As we track distributed resources, we need to measure various subcategories such as renewables, storage, etc.

- Accommodating all types of DER includes emerging technologies, i.e., electric vehicles

- Storage goals are varied, both long and short-term, such as shifting off-peak generation to relieve on-peak loads and system regulation

Metrics for Measuring Progress

- Information Infrastructure: Percent of grid that is networked to identified standards
- Real time Operation: Percent of real time operation of DG and storage that can be controlled
- Penetration: Percent of load as measured by kWH served by distributed resources
- Storage: Percent of systems accommodating off-peak renewable energy and dispatching on-peak through storage
- Deployment: Number of days from initial application to build a DER to operation (spilt by size class of the DER)

Issues with Data, Methods, Analysis

- Information Infrastructure
  - Needs standards defined for info network for power companies adoption
  - Should FERC get in the business of measuring data?
- Real time Operation
  - Location of DG and storage, Operational status, and Communication system architecture
  - What type of R&D is needed for gathering data for large scale deployments?
- Penetration
  - Verification of DR output overall and by various types
  - Defining the baseline: Does it include existing generation that's not dispatchable?
- Storage
  - Knowledge that the renewable energy is there and its location
  - How is the performance of the storage systems measured and reported?
- Deployment
  - Number of locations applications are submitted to
  - Can the data be aggregated and how to deal with state-to-state variances?

Path(s) Forward

- Energy Storage Subcommittee (of the Electricity Advisory Com/DOE FACA) designated to prepare a plan this year and report progress
- Electricity Storage Association forum
- Accelerate IEEE standards for interoperability
- Defining the characteristics that the standards must have
- Integration of DER into the smart grid
- Coordinated and published demonstrations that validate the functionality and economics of applications
- Validation and Certification of the interoperability of technologies
- Collaboration and outreach with regulators regarding the value chain

Suggestions for DOE

- Strong coordination with stakeholders, e.g., state governments (RD&D cost-sharing; workshop participation)
- Coordination with other Federal agencies involved
- Develop public benefits/value proposition
- Library of generic business cases
- Develop a strategy for dealing with potentially widely divergent timeframes for implementation of the smart grid
- Support coordinated development of smart grid hardware and software
- Facilitation role to bring experts together for developing common specifications and criteria for hardware and software (i.e. consensus standards process)