

The Current Smart Grid Landscape

Gridposium 2011

May 12, 2011
Barton Creek Resort
Austin, Texas

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DOE/CRN Demonstration (I)

- \$34M grant/\$68M Project
- Demand Response
 - In-home Displays/Web Portals
 - Demand Response Over AMI
 - Prepaid Metering
 - Interactive Thermal Storage
- Distribution Automation
 - Renewable Integration
 - Smart Feeder Switching
 - Advanced Volt/Var Control
 - Conservation Voltage Reduction

DOE/CRN Demonstration (II)

- Cost/Benefit Models
 - Smart Grid Consortium Model (Texas A&M)
 - Smart Grid Maturity Model (IBM/Carnegie Mellon University)
 - DOE Model
- Cyber Security Support
 - Cyber Security Guide
 - Cyber Security Risk Mitigation Checklist
 - Cyber Security Plan Template

Four Key Areas of Research

- Data Requirements
- Interoperability
- Cyber Security
- Telecommunications

Data Requirements

- Significant Increase in Data Flow
- Validation, Estimation and Editing (VEE)
- Next-generation meter data management
- Bus-centered architectures
- Virtualization (Cloud Computing)

Interoperability

- Standardization of the Presentation and Application Layers of Smart Grid Information Systems
- Development of New MultiSpeak[©] Interfaces
- Improved MultiSpeak[©] Interoperability Testing
- Additional Security Extensions to MultiSpeak[©]

Cyber Security

- Adoption of Four-Step Model of Security
 - Secure Components
 - Secure Organizations
 - Secure Systems
 - Secure Partners
- Guides and Templates
- Cyber Security Testing Facility

Telecommunications

- Power Line Carrier Bandwidth Expansion
- Fiber Costs
- Spectrum Allocation
- Spectrum Technology Advancement
- Telecom Partnerships

Member Communications

- Co-op Focus Group and Survey Findings
 - No concerns about new meters
 - Top perceived benefits
 - Identifying energy wasting appliances
 - Faster outage tracking and response
 - Power quality monitoring
 - Privacy concerns
- New Guide for Communicators