



DOE EAC Smart Grid Subcommittee Report

Activities and Plans

Presented by: Wanda Reder, Smart Grid Sub-Committee Chair

Electricity Advisory Committee Meeting
March 27, 2015

Smart Grid Subcommittee Plans



- ▶ Research and Development paper
 - Utilized a survey to gain priority insight from EAC members
 - Clark Gellings - requesting EAC approval at the March meeting

- ▶ National Strategy for Distributed Energy Storage
 - Joint effort: EAC Smart Grid (lead) / Energy Storage Subcommittees
 - Carlos Coe report on status
 - Finish in 2015

- ▶ ARRA Work Product
 - Members: Wanda Reder, Marilyn Brown, Sonny Popowsky and DOE - Joe Paladino
 - Preliminary draft in June, final deliverable in Fall, 2015

ARRA Work Product



- ▶ Background
- ▶ Technology Lessons
- ▶ Policy and Economics Lessons
- ▶ Organizational Lessons
- ▶ Advantages , successes...
 - ✓ Expedited adoption
 - ✓ Developed skills and processes
 - ✓ Yielded greater understanding of the value proposition
 - ✓ Began foundational movement for grid modernization
 - ✓ Build a community that more readily shares information
 - ✓ Furthered standards development

ARRA Work Product



▶ Remaining work - Capacity Building

- ✓ Develop marketplace confidence that a nimble and dynamic is viable
- ✓ Develop planning, analysis, & operations tools for federated systems
- ✓ Advance communications capability
- ✓ Unleash power electronics capability to provide for grid needs

▶ Remaining work - Technology Performance Improvements

- ✓ Develop micro-grid controllers that handle economic, control and balance AND coordination with other micro-grids / the grid itself
- ✓ Reduce energy storage costs and explore applications

ARRA Work Product



- ▶ Remaining work - Business Case Development
 - ✓ Investment decision framework linking decisions to society objectives
 - ✓ Market development
 - ✓ Metric advancement
 - ✓ Jurisdictional advancement

- ▶ Remaining work - Systems integration
 - ✓ Identify gaps that bridge the consumer with the grid
 - ✓ Enabling micro-grid standards, planning tools, testing methodologies, operational tools, and resource optimization capability
 - ✓ Integrate the islands of technology in a holistic system approach

ARRA Work Product



▶ Remaining work - Standards and Policies

- ✓ Plug-and-play standards across medium / low voltage boundaries
- ✓ Facilitating large penetrations (20%+) of DER
- ✓ Market and regulatory for DER investment and deployment
- ✓ Use smart inverters capability for grid operations
- ✓ Gaps, barriers, best practices for micro-grids and energy storage

▶ Preliminary DOE Recommendations

- ✓ Demonstrations that advance integration elements
- ✓ Planning / operating tool development
- ✓ Metrics and methods for analysis
- ✓ National Labs and their role
- ✓ Visible connection to the vision for Grid Modernization

ARRA Work Product



- Work Plan outline draft Completed
- ARRA EAC Panel #1 March
- Finalize members (need contributors) March
- DOE and project reports Circulating
- Draft, preliminary recommendations June
- ARRA EAC Panel #2 June
- Develop Recommendations July - Aug
- Target Completion Date Fall 2015