Smart Grid Demonstration Projects focused on Large Scale Distributed Resource Integration

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March 11 2009
What is the Smart Grid?

An advanced, telecommunication / electric grid with sensors and smart devices linking all aspects of the grid, from generator to consumer, and delivering enhanced operational capabilities that:

1. Provide CONSUMERS with the information and tools necessary to be responsive to electricity grid conditions (including price and reliability) through the use of electric devices and new services (from smart thermostats to PHEV)

2. Ensure EFFICIENT use of the electric grid (optimizing current assets while integrating emerging technologies such as renewables and storage devices)

3. Enhance RELIABILITY (protecting the grid from cyber and natural attacks, increasing power quality and promoting early detection and self correcting grid “self-healing”)
EPRI Smart Grid Research – 3 Categories

• IntelliGrid Architecture
  – Foundation for the Smart Grid (Communications, information infrastructure)
  – Industry Standards

• Applications that Build on the Infrastructure
  • Smart sensors and substation smart grid architecture
  • Smart distribution systems
  • AMI enabling energy efficiency
  • Renewable integration
  • Asset management and equipment diagnostics

• Smart Grid Industry Demonstrations
  – Accelerating standards and technology development through field demonstrations
Utilities are developing smart grid roadmaps

Vision

Objectives

Strategy

Studies

Pilots

Standards

Skills, Resources

Implementation
American Recovery and Reinvestment Act of 2009

- Appropriated $4.5 billion for smart grid programs
- Up to 50% matching funds for eligible entities
- $100 million/year for regional demonstration programs
- DOE (w/in 60 days) determine how funds will be allocated
- Commit all funds before September 2010
- Grants paid out within 5 years
Agenda

• Introduction – Mark McGranaghan (EPRI)
  – MMcGranaghan@epri.com
• Overview of the EPRI Smart Grids Demonstration Initiative – Matt Wakefield (EPRI)
  – mwakefield@epri.com
• Modern Grid Strategy (MGS) Developmental Field Test (DFT) Results – Joe Miller (Horizon Energy Group)
  – jmiller@horizonenergygroup.com
• Smart Energy. Now. - Tim Morgan (Duke Energy)
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• Architecture for Distributed Energy Resource Control including Demand Response and Distribution Automation at FirstEnergy – Joe Waligorski (FirstEnergy)
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• AEP GridSmart Program – Tom Weaver (AEP)
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Questions?