Demand Response Issues- Vertically Integrated System

National Town Meeting

May 2015

Washington, D.C.

Disclaimers

The statements made in this presentation are my own opinions and may or may not reflect the position of Alabama Power, Southern Company or its other affiliates.

Southern Company or its subsidiaries may self-build renewable generation and/or enter into purchase power agreements for energy and environmental attributes from renewable facilities. The Company(ies) retain the right to retire these environmental attributes for it customers' use or to sell the energy and environmental attributes, either bundled or separate, to third parties at its sole discretion.

Now I can say renewables if needed

The reason behind this is a presentation unto itself. --- FTC Green Guidelines and others

Challenges of DR in an Integrated System Process

- What are considered DR programs?
- Planning – Integration Process and Tools
- Operations – Reliability, Safety, Real Time Data
- Regulatory – State Commissions' Requirements/Federal Issues
- Value / Economics – Participants and Non-participants (Customer Impacts)

What are considered DR Programs?

(Typically Customer Owned, Utility Controlled)

- Load Curtailment for specified time periods
- Stand-by Generation
  - Micro-Turbines
  - Reciprocating Engine Generations
- Storage
- Pricing Programs
  - RTP
  - TOU
  - CPP
- Unknown Future Technologies

Planning – Integration Process and Tools

(How to capture the true value)

- DRs are a challenge to model due to their individual size
- Strategic and Production based models typically need several hundred MW sized blocks to work. Below this level is typically in the noise of the model.
- Transmission based models typically have DRs embedded in their load nodes and are treated as load reductions
- Distribution models have their challenges as well, since they typically model steady-state and cannot allow the generation or load to be dynamic

DRs Regulatory Issues

- Jurisdictional Issues/Policy - FERC, State, or FERC/State
- EPA' Rules – RICE/NESHAP
- Market Participation Issues – Regional Bid Markets versus Vertically Integrated Systems
- Non-jurisdicational Issues – Federal Agencies, Munis, Co-ops, and etc.
- Potential Interconnection Requirements
- Cost Recovery/Payments
- Monitoring and Verification

Value and Economics

- Whose value proposition – customer, utility, etc.
- Apples-to-apples comparison – DRs need to be equivalent to power system generation
- Example - Incremental Capacity Equivalent using EUE method
- Matrix or scenario approach
- Direct and Indirect benefits and costs to utilities
- Direct and Indirect benefits and costs to utilities-participants versus non-participants
- With or without cross-subsidization
- Accounting and Tax Practices

Types of DR on Alabama System

- Interruptible Service
- Stand-by Generation
- Centsable Switch – (AC load control through AMI)
- Pilot SmartPower – (Thermostat Controlled by pricing signals)
- Price Programs – (RTP, TOU, CPP, etc.)
- CVR – (Distribution Voltage Control)
- Other Customer Information Programs

Regulatory Challenges

- EPA's RICE/NESHAP
- FERC Order 745 Issues
- Non-Utility Environmental Issues – (Customer Based)
  - IB MACT
  - NAAQS
  - Carbon
  - Water/Waste

Questions?