Modernizing the Grid in the Southeast- Regional Issues for Discussion

Presented by:
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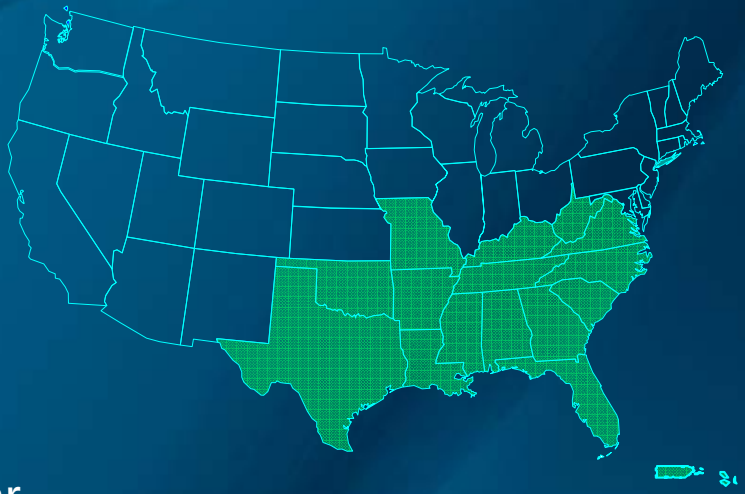
Regional Transmission System

- The South (SSEB member states are shown) has a transmission system consisting of (230 kV and above)
  - SERC: 29,000 miles
  - FRCC: 7,000 miles
  - ERCOT 8,100 miles
  - Approximate Total: 44,100 miles
  - (*does not include portions of several other NERC regions of which SSEB member states represent)
- Plans show 6% increase over 10 year period



Challenge from the National Commission on Energy Policy – Ending the Energy Stalemate

- Enhance Oil Security
- Reduce Risks for Climate Change
- Increase Energy Efficiency
- Ensure Affordable, Reliable Energy Supplies
- Strengthen Essential Energy Systems
- Develop Energy Technologies for the Future

Specific Measures to Strengthen Energy Supply Infrastructure

- Reduce siting barriers
- Protect critical infrastructure
- Support diverse generating resources
- Encourage increased Transmission investment
- Encourage deployment of Transmission technologies
- Enhance consumer protections
- Reform siting to allow needed facilities
- Reforms to improve reliability and performance

Current Challenges to the National and Regional Power Supply

- Blackouts in Texas in April
- Power Supply issues in New York, St. Louis, California and other regions
- Lack of Transmission in the Entergy region
- Temperature patterns of the past decade
- Setting electrical use records every year, with every hot period (or cold spell)

Power Generation Needs Over the Next 25 Years

- Electricity demand increase of 45%
- Requires capacity additions
- Population center growth
- Increased power quality & reliability

Challenges to the Southeast Power Supply

- Low electricity rates
- Population growth forecasts
- Dependence on coal-fired power
- Intersections of Gas lines, Transmission Lines and Power Plants
- Limited state Renewable Portfolio Standards (RPS)
- Green Power interest is building
- Storm risks to Transmission system

Challenges to the Southeast Power Supply (cont.)

- Constraints of water availability
- Demographics and housing choices
- Strengths of the Southeast Grid
- Environmental awareness
- Merchant generation
- Congestion in Southeast market
- Property rights and eminent domain

Challenges to the Southeast Power Supply (cont.)

- Need for storage and power control systems
- Maximizing Power flow in existing assets
- Patterns of Generation and Load Centers
- Weather issues require unique communications systems
- Outage management in rural radial systems
- Summer Air Conditioner Loads and fault response

Additional Challenges to Transmission Development and Optimization in the Southeast

- Siting of New Transmission Lines
- Transmission requirements with respect to:
  - Distributed Generation
  - Wind
  - Biomass, e.g. Methane Gas
  - Merchant plants
- New wave of large, central station generating units
- Impact of potential changes such as Time of Use or more customized rates for residential customers
- Impact of potential changes from EPAct of 2005, NERC Recommendations from Blackout Study (2003), other national issues

Other Energy Development that Could Impact Transmission Issues

- Carbon Sequestration
- Potential Polygen and Coal-to-Liquids Plants
- Biomass to Liquids
- Energy Efficiency Improvements
- Renewable energy such as Wind at Buffalo Mountain, TN
- New Phase of Nuclear units

Impact of State Energy Plans on Electrical Transmission System, examples

- Texas – Renewable Portfolio Standards (RPS)
- Georgia – Combined Heat and Power Roadmap (CHP)
- Florida – Streamline Siting and Permitting
  - Interact with Eminent Domain issues?
- North Carolina - RPS and CHP requirements

What does the Electric Utility Industry need to do to get from TODAY to the MODERN GRID?

- Research & Development Requirements:
  - Technology Solutions (e.g. superconductivity)
  - Distributed Generation
  - Efficiency Improvements
- Policy help on:
  - Siting and Permitting
  - ISO Interaction with Market
  - RTO and other regulatory & institutional constraints
  - Renewable Portfolio Standards
- Financial Stability and risk Sharing
  - Shared Risk of Cost, Cost Recovery, Cost Overruns

How do we get to a Modern Grid in the Southeast?

- Evolution is incremental and regional
- Need for Market Based incentives
- Improvements in Industry R&D
- New partnership Requirements
- Key need: Innovative commercial technology

Some questions to consider:

- How do low electricity rates impact transmission issues in the Southeast?
- How do each of the ‘unique challenges’ impact Transmission upgrades and modernization?
- Extreme demand growth- Can we keep up? What will we have to do?
- How do each of these concepts help with or hinder grid modernization?
  - ISO/ ESO/ FERC/ NERC/ Other?
  - Siting
  - Permitting
  - Eminent Domain

Topics for Discussion – Modernizing the Southeast Grid

- Characteristics of the grid and electricity markets in the Southeast that distinguish the Southeast from other regions
- Specific regional issues that must be addressed if the Southeast is to modernize its grid
- Particular solutions you see to key regional issues

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