Georgia Tech Clean Energy Speaker Series: Regulation and the High-Voltage Grid of the Future

Atlanta, GA
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Topics Addressed Today

- Background on FERC Regulation
- Promoting Transmission Development
- Planning and Cost Allocation Issues
- Reliability and the High-Voltage Grid
Background
Background

• Federal Energy Regulatory Commission (FERC)
  ▪ Independent federal agency with regulatory and enforcement authority over wholesale electricity markets
  ▪ Principal regulatory authority for the high-voltage transmission grid

• FERC regulates rates, terms and conditions of transmission of electric energy in interstate commerce
  ▪ Virtually everything outside Texas is interstate
  ▪ But not local distribution
Background (cont’d)

• Massive quantities of planned renewable generation located far from load centers
  ▪ How to get the required transmission built?
  ▪ How to ensure continued reliable operation of the transmission system?

• Regulatory complications
  ▪ FERC lacks siting authority (with limited exception)
  ▪ Courts to FERC: Costs must be “roughly commensurate” with benefits
Promoting Transmission Development
Rate Incentives

• FERC required to encourage development of transmission through rate incentives
  ▪ Examples: ROE adders, recovery of certain costs
  ▪ Goals: Enhanced reliability, investment, new technologies

• How much is too much?
  ▪ Developer must show:
    – Reliability and/or economic benefits resulting from reduced congestion (rebuttable presumption if project approved through regional planning process or by state commission)
    – Nexus between incentive and the project
  ▪ Recent concerns that, in practice, threshold has been set too low
Merchant Transmission

• Merchant projects – no captive customers; developer assumes market risk
  ▪ Example: High-voltage DC transmission line to connect renewable generation projects to load centers

• FERC can grant negotiated rate authority (as opposed to traditional cost-of-service rates) for merchant projects
  ▪ Scrutiny of open season, affiliate preferences
  ▪ Transfer of operational control to independent grid operator
Priority Rights to Transmission

• Incumbent vs. independent / merchant developers
  ▪ Different rules – okay or undue discrimination?
  ▪ Anchor customers
  ▪ Future of OATT
  ▪ Collaboration & coordination
  ▪ Interconnection queues

• Special cases
  ▪ Generator lead lines
  ▪ Participant-funded expansions

• Ongoing inquiry at FERC (Docket No. AD11-11)
Planning & Cost Allocation Issues
Planning Issues

• Each RTO and transmission provider has a planning process intended to be coordinated, open and transparent
  ▪ Required by Order No. 890 (2007)
• But additional reforms needed
  ▪ Lack of regional planning requirement
  ▪ Lack of inter-regional coordination
  ▪ Failure to account for transmission needs driven by public policy requirements
  ▪ Right of first refusal and role of non-incumbents
Cost Allocation Issues

• Reforms also needed on cost allocation rules
  ▪ A major concern is retail ratepayers being obligated to fund transmission to move renewable energy from source to distant load centers
  ▪ But rules requiring generation developer to pay may inhibit construction of required transmission
  ▪ Lack of link between transmission planning and cost allocation rules also may inhibit new transmission development
FERC Proposal

- FERC proposal to address planning and cost allocation issues (Docket No. RM10-23)
- Main elements:
  - Each region required to have transmissions plans (not just studies)
  - Each region must coordinate with neighboring regions
  - Each region must consider state Renewable Portfolio Standards (RPS) requirements in planning
  - Eliminates right of first refusal for incumbent transmission owners
  - Cost allocation determined on a regional basis, subject to principles of “cost causation” and “beneficiary pays”
FERC Proposal (cont’d)

• Additional cost allocation criteria in RM10-23 proposal:
  ▪ Costs allocated to beneficiaries must be roughly commensurate with benefits (including public policy benefits)
  ▪ No benefits, no involuntary allocation of costs
  ▪ Benefit-to-cost ratio must not be excessively high
  ▪ Costs may not be allocated outside region without consent
  ▪ Cost allocation must be transparent
  ▪ Different allocation methodologies may be used for different types of projects (reliability, congestion relief, public policy goals)
FERC VER Integration Proposal

- FERC proposal to facilitate development of wind and solar generation (variable energy resources – VERs) (Docket No. RM10-11)

- Three main proposals:
  - Allow intra-hour scheduling (every 15 minutes)
  - Require data sharing for production forecasting
  - Authorize charges for generator regulation service

- Really just tinkering with existing regime – not the game-changing initiative that VER developers say is required
TVA Integrated Resource Plan

- Approved in April 2011, outlines a 20-year planning roadmap to meet future energy needs:
  - More EEDR, nuclear, and pumped storage capacity
  - Use of natural gas as an intermediary resource
  - Idling of coal-fired capacity instead of additional environmental controls
  - Coal-fired with carbon capture remains an option
- Impact of new high-voltage transmission
Southern Company

• Diversify fuel options
  ▪ Affordable and reliable generation
• Increased renewable
  ▪ Biomass
  ▪ Solar
  ▪ Wind
  ▪ Landfill gas
  ▪ Hydro
• Promote energy efficiency – reduce demand
• Nuclear
Georgia Power IRP

- Under 2010 IRP, plans to decertify coal fired generation units
  - Heightened environmental controls = uneconomical
  - Decertify in 2013
- Possible move to increase renewable generation
Siting Issues

- FERC has “backstop” construction permit authority for projects in National Interest Electric Transmission Corridors where states lack authority or “withhold” approval for more than a year
  - Two DOE-designated NIETCs: Mid-Atlantic and Desert Southwest
  - Court ruling (2009): withhold ≠ denial
  - Court ruling (2011): DOE did not consider states’ views in establishing NIETCs
  - Questionable effectiveness going forward
Reliability
Reliability Regime in SE

• **NERC – North American Electric Reliability Corporation**
  - Develops mandatory and enforceable Reliability Standards
  - Apply to users, owners and operators of Bulk Power System
  - Also conducts reliability assessments of transmission grid

• **SERC – Regional reliability entity in Southeast**
  - Front-line enforcer of Reliability Standards
  - Compliance actions subject to review by NERC and FERC
Reliability and High-Voltage Grid

• **Concern with potential impacts of decommissioning large amounts of coal-fired generation**
  ▪ May be particularly pronounced in SE due to low penetration of replacement renewable generation

• **Reliability Standards include transmission planning requirements**
  ▪ But no mandate to build transmission to accommodate renewable energy

• **Issues on the horizon**
  ▪ Deployment of smart grid infrastructure
  ▪ Incorporation and regulation of other new technologies
  ▪ Cybersecurity threats
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Thank you!