Regional Transmission Organizations: Successes and Challenges

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2013
- Sithe Energies (IPP) 1995 – 2003
- New York State Public Service Commission 2007 - Present
RTO “markets” attempt to account for at least 5 factors:

✓ Engineering Realities
✓ Market Theory
✓ Tariff Language/Legal
✓ IT Constraints
✓ Public Policy / Politics
Engineering

Western Interconnection

Quebec Interconnection

Eastern Interconnection

ERCOT Interconnection
Eastern Interconnect With Regions
Model that Simulates Market

- Economic Theory | Pricing
- Church of Hogan vs. Tabors
- Critical Product | No Shortage Allowed
Legal

Tariffs need to accurately describe markets/engineering realities

- Frequent Disputes | FERC

- Market Manipulation Potential if Written Imprecisely (and sometimes if written well)
IT Constraints

- Much more prevalent than originally anticipated
- Often years to make changes
- Unanticipated outcomes can result in wrong price outcomes and open door for manipulation
Public Policy / Political

- RPS
- Bid / Price Caps
- Planning Responsibilities
- Retail Pricing Policy
The Case of the Missing Money

- Theory says that the market should have enough revenues to encourage new entry when supplies are tight
- Bids generally limited to marginal costs
- Reserve Margin Requirement
- Shortages are Inconceivable
Ways to Address “Missing Money”

- Capacity Markets
- Scarcity Pricing
- Demand Response Triggers
Capacity Markets

 ✓ De we need?
 ✓ Locational
 ✓ Time Duration
 ✓ Demand Curves
 ✓ Lumpiness
Demand Response

- Disconnect between wholesale and retail price
- Volatile Commodity Price
Success of RTO’s

- Open Access
- Power Plan Operations
- Risk Shifting
- Cooptimization
- Price Signals at Wholesale Level / Locational Signals
How has mission creep expanded or burdened the mission focus?

• Inadequate (or perhaps naïve) expectation that RTO’s could function separate from public policy considerations.

• Expanded and burdened
What have been the major problems and hiccups along the way?

- Market Manipulations
- Imperfect Competition
- Getting the Seams Right
- Clunky Governance
If we could roll back the clock, what would we do differently?

• Better market monitoring/financial settlements capability before start up

• Treatment of nuclear facilities
What are the most pressing challenges ahead for both operations and governance?

- More diversified system (demand response, on-site generation, increased penetration of renewables, smart grid, energy storage)
- Can rules and market models adopt?
- Are all voices being heard and considered in governance process?
- This is “rocket science”