Topaz Power Group

Public Utility Law Seminar

Nodal Transition in ERCOT Market – A Status Report

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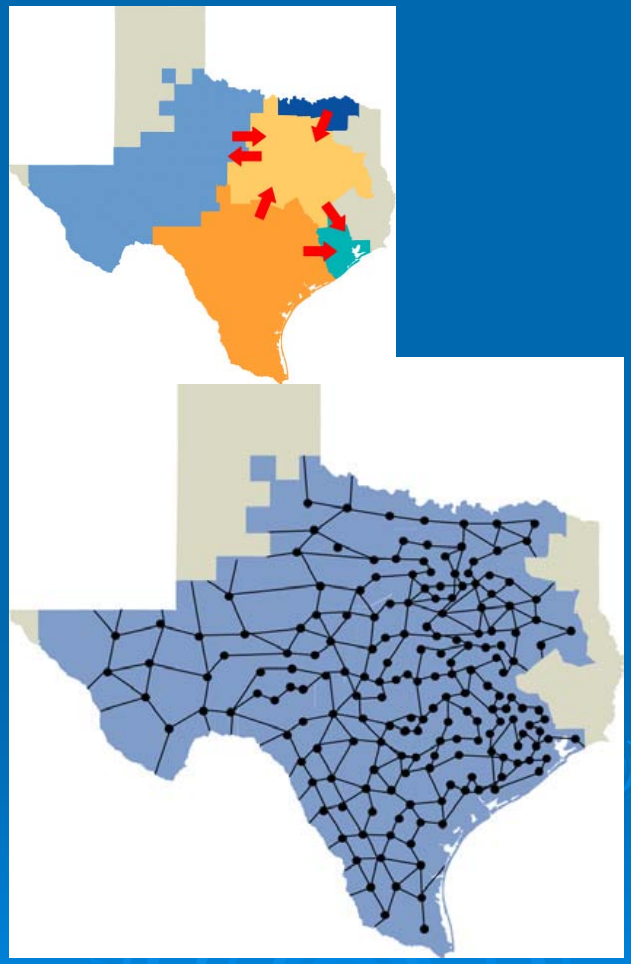
Who is Topaz

- An Austin, Texas-based energy company originally formed in 2004 with the acquisition of nine power plants in South Texas.
- Topaz focuses on the development, operation, and management of power generation assets in Texas and across the United States. Topaz currently owns and manages three power plants in Texas and manages three biomass, cogeneration facilities in North Carolina.
- Topaz Investment in TX
  - In 2007, Topaz began a 3-year project to redevelop 3 sites in south Texas
  - Topaz invested $1.2 Billion to construct or refurbish 1.5 GW of generation capacity
  - Topaz finished the Laredo Energy Center (200 MW Quick Start Peaking) in 2008 and the Nueces Bay and Barney Davis Energy Centers (over 1.3 GW in CCGT) in Q1 of 2010
  - Own and operate 1.8 GW in ERCOT

Benefits of Nodal

- Moving from portfolio-based dispatch to resource-specific dispatch
  - Increase transparency of prices
  - Improved dispatch efficiencies
  - Levels playing field between small portfolio and large portfolio generators
- Direct assignment of local congestion
  - Improved price signals



Market Issues in Nodal

Any change, even a change for the better, is always accompanied by drawbacks and discomforts.

- Lower Generator Revenues
  - The efficient Nodal dispatch is expected to lower generators revenues overall.
    - likely to exacerbate the fact that revenues are “substantially below the levels required to support market entry”
    - may be seen as a benefit to loads in the form of lower prices
    - revenue short-falls will lead to retirements and insufficient investment in new generator and ultimately higher costs

Market Issues in Nodal

- FrankenMarket
  - The ERCOT Nodal market design is unique – which has inherent risks of unintended consequences and inefficiencies
    - Identified Issues
      - PTP Options in the DAM
        - DAM can take hours to solve if too many source/sink pairs
      - Load Zone Modeling/Pricing
        - Loads do not pay LMP – rather they are exposed to Load Zone or Hub pricing
          - Reduces market-driven demand response
          - All loads are assumed to affect congestion equally
      - DAM Co-optimization of AS and Energy
        - Not truly co-optimized and no RT procurement
        - Incentives to procure based on cost-minimization not deliverability

Market Issues in Nodal

- FrankenMarket
  - Identified Issues – cont'
    - Scarcity Pricing Mechanism
      - May depress rather than increase prices in scarcity
    - RUC and RUC Clawback
      - Loads may understate demand and rely on RT
      - Generators may risk self-schedule to avoid clawback
    - No SCED Look-Ahead
      - Cannot commit Off-line Generation Resources
      - Ignores market solutions, distorting prices
      - May increase RUC
    - System Limitations & Complexities may cause Bi-lateral Trading Issues
      - Exposure to RUC charges and other disputes

Market Issues in Nodal

- Nodal Test Issues
  - "phantom congestion" during market trials due to discrepancies in the network model and incorrect contingencies
  - Massive Credit requirements – may lead to opting out of DAM
- ERCOT Unique Issues
  - Saturation of complex generation technologies not in any other market
    - Intermittent renewable technology
    - Combined-cycle technology
  - Single control-area
    - Only ERCOT can solve reliability and system performance issues
    - Could lead to excessive RUC (similar to CAISO's initial reliance on "exceptional dispatch") – costly and may lead to disputes

Conclusions

- The transition to a Nodal Market is critical to ERCOT
- Market Design by committee has created a unique market design in an already unique market
- The path forward will be challenging
- In the end, Nodal Market benefits are still expected to outweigh the risk of transition

Change is difficult but often essential to survival.