MARKET MONITORS: AN INSTITUTIONAL INNOVATION IN ELECTRICITY REGULATION

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Membership:
240+ Members
100+ Transmission Service Customers
PJM is currently the largest centrally dispatched entity in North America.

- IMO: 25,414
- New York: 30,983
- New England: 25,158
- PJM & PJM Western Region: 63,762
- ERCOT: 57,000
- California: 45,900
Future Market Boundaries and Peak Load

<table>
<thead>
<tr>
<th>Current PJM</th>
<th>64,000</th>
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</thead>
<tbody>
<tr>
<td>Amer. Elec. Power</td>
<td>21,000</td>
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<tr>
<td>ComEd</td>
<td>22,000</td>
</tr>
<tr>
<td>Dominion Virginia Power</td>
<td>17,000</td>
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<tr>
<td>Dayton</td>
<td>4,000</td>
</tr>
<tr>
<td>Future PJM</td>
<td>128,000</td>
</tr>
</tbody>
</table>

Current MISO 83,000
East Kentucky Coop. 2,500
Ameren 12,000
First Energy 13,000
Consumers 12,000
Illinois Power 4,000
N. Ind. Pub. Serv. Co. 3,000

Future MISO 129,500

Current SPP 39,000
The Problem

- Stable electric utility industry
- Change
  - Nuclear power
  - PURPA
  - IRP
  - Industrial customers
• Competition
  – Market discipline on generation costs
  – Customer choices
  – Must be better than regulation
• Institutional context significant
• Power pools (PJM; NY; NE)
  – Least cost, security constrained, central dispatch
• Aggregation of utility control areas
  – Bilateral model
• Network complexities
• Real markets: State PUCs and FERC
• No plan on basic structural issues
• Bifurcated regulatory control over generation
• Retail vs wholesale perspective
• Concentration of ownership issue
  – State PUCs: mandated divestiture in some cases
  – State PUCs: contract requirements in some cases
• State retail rate caps/restructuring settlements
  – POLR obligations
• Reasonably competitive structure
• Market monitoring
• Result is presumed to be “Just and reasonable rates”
• California
• Why ISO-based market monitors?
• No developed FERC plan for validating outcome of competition
• Market monitoring to address issues on an ad hoc basis
• FERC not staffed for market monitoring
• FERC required feedback on outcomes of competition
• California
• Creation of FERC OMOI
• Need for market monitoring
  – Transition from regulated monopoly to self-regulating competition
  – Multiple, complex markets
  – Relationship between reliability and markets
  – Wholesale/retail market interactions

• Market design
  – Market design critical for effective monitoring
  – Market structure also relevant
  – Good market design does not obviate need for monitoring
Need for Monitoring

- Existing aggregate, supply-side market structure conditions not adequate to ensure competition
  - Transmission constraints limit competition in unpredictable ways
- Full demand side participation a prerequisite
- Market monitoring needed for foreseeable future
- Is electricity different?
  - Role in economy
  - Economic/financial features (fixed costs)
  - Reliability
  - Ongoing government role – statutory
• Market Monitoring Unit implemented with competitive energy markets in PJM.
  – Effective April 1, 1999.
• Members opposed to creation of MMU
• MMU goals:
  – Develop/modify market rules to **facilitate competition**
  – Limit returns to market power
  – Provide **incentives to competitive behavior**
  – Make exercise of market power more difficult
• **Independent Internal Market Monitoring**
  – *Independent* System Operator
  – ISO/RTO has no financial stake in market outcomes
  – ISO/RTO has independent Board
  – ISO and MMU are independent from all market participants
    • Market Monitoring Plan is not subject to modification by PJM members.
    • Amendment to PJM’s Open Access Transmission Tariff subject to FERC approval
  – MMU is independent from ISO
• MMU Accountability:
  – To FERC (per FERC MMU Orders and MM Plan).
  – To PJM Board.
• Monitor **compliance with rules**, standards, procedures and practices of PJM.

• Monitor **actual or potential design flaws** in rules, standards, procedures and practices of PJM.

• Monitor **structural problems** in the PJM market that may inhibit a robust and competitive market.

• Monitor the potential of Market Participants to **exercise undue market power**.
Corrective Actions of MMU

- **Discussion of issues** with relevant Market Participants; informal resolution of issues.
- **Issue demand letters** requesting a change in behavior by relevant Market Participants.
  - Provide demand letters to relevant Authorized Government Agencies.
- **Recommend modifications to rules**, standards, procedures and practices of PJM.
  - **Make recommendations** to PJM Committees or to PJM Board.
  - **Make regulatory filings** to address market issues and seek remedial measures.
- **Refer issues to FERC**
- **Evaluate additional enforcement mechanisms.**
• Extremely limited direct authority
• Limited penalty imposition
• Calls are effective – issues generally resolved informally
• Member awareness of active, ongoing, detailed monitoring
• Fear of public notification – financial markets
  – Demand letter
  – FERC notification
  – Demand letters can lead to SEC filings
• Early FERC reliance on market monitors
• OMOI created (response to California)
  – Monitor the monitors?
  – Directly monitor the markets?
• Behavior rule order (11/17/03)
  – Defined role for market monitors
  – Enforcement of clearly defined rules
  – Penalties only for bright line violations
  – All discretion reserved to FERC
    • Broad rules enforcement
MMU and FERC

- Ongoing issue of relative authorities
- FERC authority
- Level of MMU discretion at issue
  - Investigations
  - Calls
MMU and State PUCs

- Market monitor role supplanted part of state role
- States initially uncertain about approach
- States early focus on retail competition
- States limited authority over wholesale markets
- August Regional Meeting with FERC/States
- States demand for access to data
- FERC agreement
- States monitoring role – reassertion of wholesale market role
• Capacity market issue identified by PJM MMU
• MMU took issue to stakeholders, including state PUCs
• MMU notified FERC
• MMU proposed rule changes
• FERC accepted
• Time lag
• State request for report
• Confidential data issue
Lessons Learned

- Electric markets (structure, behavior and performance) are complex
- Monitoring is data intensive
- Timing issues: process needs to be more efficient
  - Real time monitoring
  - Consult with participants
  - Lag prior to action
  - Lag prior to FERC action
- Interaction with participants is critical to understanding real markets
- Interaction with RTO staff is critical to understanding real markets
- Coordination with FERC is essential to efficient monitoring and mitigation
Market Monitoring Function – Lessons Learned

• Include diverse staff expertise
  – Economics/Engineering
  – Generation
  – Transmission
  – Power markets
  – Database/IT

• Build understanding of detailed market structure
• Build understanding of physical infrastructure
• Build understanding of operations
• Build in MMU data access/storage to RTO data designs
• Confidentiality protocols
• Complaint protocols
• Reregulation risk
  – Counter cyclical regulatory response
  – Response to low revenues
  – Capacity markets
  – Capacity market demand curves
  – Mitigation and “Scarcity pricing”
• Market structure – HHIs and Cournot
• Market rules/design
• Aggregate market power
• Constraints on aggregate market power
  – Vertical integration: Generation, Transmission and Load
  – POLR: Generation and Transmission
  – Transmission investment
  – Contracts
• Local market power
• Assume competition
• All behaviors are therefore competitive
• Subtle and complex ways to exercise market power
• Generally not aggregate market issue
• Operating reserves
• Bid parameters
• Retirements/mothballing
• Ramp violations
• Loop flows
• FTR/Inc/Dec
• Creation of congestion