

Monitoring of Competitive Electricity Markets

Southeast Europe
Electricity Market Monitoring Workshop
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- PJM RTO**

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- 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
 - Good market design does not obviate need for monitoring
- 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

- Independent Internal Market Monitoring
 - PJM has no financial stake in market outcomes
 - PJM has independent Board
 - PJM and MMU are independent from all market participants
 - MMU is independent from PJM
- Market Monitoring Plan is not subject to modification by PJM members.
 - Modifications subject to FERC approval
 - Attachment M of Transmission Tariff
- MMU Accountability:
 - To FERC (per FERC MMU Order).
 - To PJM Board.
 - To PJM President.

- 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**.
- Access to all **data** collected by PJM.
- Requests for **additional data**.

- Definition: Raise market price above competitive level
 - Physical withholding
 - Economic withholding
 - Offer price $>$ Marginal Cost and no output when Price $>$ Marginal Cost
 - Export when export price $<$ internal price
 - Transmission related
 - Create congestion



- Competition is benchmark
 - Price $>$ Marginal Cost is the basic test for market power
- Market price may exceed marginal cost due to scarcity or market power
- 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**

- Conditions for the exercise of market power in the energy markets:
 - High probability of running all units
 - Inelastic demand
 - Discontinuity in supply curve: Base load; mid-merit and peakers
 - Transmission constraints create small local market
- Conditions NOT required for the exercise of market power:
 - Collusion is not necessary
 - High levels of overall concentration are not necessary

- **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.
- **Evaluate additional enforcement mechanisms.**



- Energy market offer cap = \$1,000/MWh
 - Energy market offer cap includes operating reserve payments
- Start up and no load costs can be modified only biannually
- Regulation market offer cap = \$100 plus opportunity cost
- Only one market-based offer curve per day
 - Hourly price offer changes not permitted
- Local market power mitigation (units built < July 9, 1996)
 - Must run units are cost capped for determining LMP
 - Receive greater of cost plus 10% or LMP
 - Alternative methods to determine payment cap

- Required submission of cost data by unit
- If maximum economic output specified in day ahead offer is less than in real time, forced outage ticket
- If unit classified as Max Emergency in day ahead and not in real time, forced outage ticket
- Generator interconnection process (RTEP)
- Capacity market effective offer cap = capacity deficiency rate
 - \$177.30/MW-day
- Allocation of capacity deficiency payments
- Interval market

- Transmission outage notification requirements and FTR auction
- Required approval of transmission line rating and voltage limit changes
- Required coordination of transmission outages
- Required coordination of generator outages
- Increment offers/decrement bids cannot create day ahead congestion > real time congestion
- Demand elasticity initiatives
 - Demand Side Response Working Group

- Potential rules violation
 - Complaint to MMU
 - Timing of transmission outage notification and FTR auction
 - MMU analysis found no evidence of rules violation
 - Highlighted potential issue
- Solution: rule change to remove incentive
 - FTR auction typically in first two weeks of month preceding effective month
 - Transmission outage notification must be provided by first day of month preceding month of outage
 - If notification not adequate, PJM can require rescheduling of outage to minimize congestion costs
- FERC investigation and order to show cause
- FERC approved PJM modifications to transmission oversight

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Thank You