



Market Monitoring Unit

ACTIVITIES OF THE MARKET MONITORING UNIT

**Market Monitoring Unit
PJM Interconnection, L.L.C.**

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Background

On November 25, 1997, the Commission approved the comprehensive restructuring of the PJM marketplace, establishing PJM as an Independent System Operator (“ISO”).¹ The Commission further authorized PJM to administer the PJM Power Exchange (“PJM PX”).

In the November 25 Order, the Commission found that the restructuring of PJM “will significantly alter the operation of the electric power market within PJM” and that, as a result, “it is important to monitor its implementation to assess undue discrimination and market operation” and to evaluate “how the pool and non-pool markets and transmission pricing arrangements are working.”² The Commission directed PJM to submit a proposed market monitoring plan that would allow PJM to monitor and report to the Commission on the potential to exercise market power within PJM.³ The Commission stated that the plan should evaluate the operation of both pool and bilateral markets to detect either design flaws or structural problems.⁴

On June 29, 1998, PJM filed a Market Monitoring Plan (“Plan”)⁵ in compliance with the November 25 Order. By order issued March 10, 1999, the Commission accepted the Plan filed by PJM as part of the PJM Tariff to be effective April 1, 1999.⁶ The Commission found the ability of the Market Monitoring Unit (“MMU”) to effectively and broadly monitor and investigate the PJM Market to be essential in view of its contemporaneous decision to approve market-based pricing authority on offers to sell energy into the PJM-PX.⁷

This Report is posted pursuant to Section VII.C of the Plan which requires that: “The Market Monitoring Unit shall prepare a detailed public annual report about the Market Monitoring Unit’s activities, subject to protection of confidential, proprietary, and commercially sensitive information and the protection of the confidentiality of ongoing investigations and monitoring activities.”

Activities

The activities of the MMU can be categorized as market analysis, development of reports, investigation of complaints, corrective actions, participation in PJM committees and working groups, cooperation with Authorized Government Agencies, data publication and market indices publication.

¹ Pennsylvania-New Jersey-Maryland Interconnection, 81 FERC ¶ 61,257 (1997); order on reh'g, 92 FERC ¶ 61,282 (2000) (“November 25 Order”).

² 81 FERC at 62,282.

³ Id.

⁴ Id.

⁵ The Plan appears in the PJM Tariff at Original Sheet No. 184 through First Revised Sheet No. 190. Section references herein are to Sections of the Plan.

⁶ See PJM Interconnection, L.L.C., 86 FERC ¶ 61,247; reh'g denied, 88 FERC ¶ 61,974 (1999) (“March 10 Order”).

⁷ Id. at 61,887 n.4 (citing Atlantic City Elec. Co., 86 FERC ¶ 61,248 (1999)).

Market Analysis

The MMU's primary objectives are to monitor and report on market issues, to evaluate the operation of the markets, to evaluate enforcement mechanisms and to take appropriate corrective actions.⁸

The MMU performs fundamental economic analysis of all the PJM markets including the day ahead and real time energy markets, the capacity market, the regulation market, the spinning reserve market and the FTR auction market.

The MMU analyzed in detail the fundamental factors affecting the real time energy market during the summer of 1999, the first summer in which the PJM energy market was fully bid based. The MMU examined the energy markets on each of the 15 high demand days, including the behavior of each individual bidder, in order to understand the factors which led to high prices. The MMU examined the physical availability of each unit on the system during the high demand days of the summer.

The MMU also examined the functioning of the energy market during the first full year of operation including a bus specific pricing analysis, an examination of unit specific bidding behavior, an analysis of the incentives of market participants, an analysis of congestion and an analysis of the economic forces driving the level of exports and imports.

The MMU analyzed the operation of the day ahead energy market, introduced in June, 2000 and the interactions between the day ahead energy market and the real time energy market.

The MMU analyzed the economic fundamentals of the capacity market, including factors affecting the supply and demand for capacity, the deliverability of energy from capacity and the actual availability of capacity on high demand days, and both supply side and demand side bidding behavior in the capacity market.

The MMU analyzed the operation of the cost-based markets for regulation and spinning reserves and the operation of the bid-based regulation market since its introduction in June, 2000.

The MMU analyzed the operation of the FTR Auction market since its introduction in April, 1999.

⁸ Market Monitoring Plan.

Reports

The MMU prepared a Report for the Washington, D.C. Public Service Commission regarding the market power implications of Potomac Electric Power Company's divestiture of selected generating stations. The report was provided in July, 1999. Subsequently, Joseph Bowring, Manager of the Market Monitoring Unit, was called to testify in support of the Report before the Commission.

The MMU prepared an affidavit which presented an analysis of the conditions in the regulation market and which supported the introduction of a competitive regulation market in PJM. The affidavit was filed with FERC on February 15, 2000.

The MMU prepared a Report to FERC on Ancillary Services Markets which covered the markets for regulation, spinning reserves and reactive services. The report was provided to FERC on April 1, 2000.

The MMU prepared a Report to FERC on Enforcing Data Requests. The report was provided to FERC on April 1, 2000.

The MMU prepared a Report to the PJM Board of Managers on the State of the PJM Markets 1999 which was published in June, 2000. The report included an overview of the markets, recommendations for improving the functioning of PJM markets, a comparative analysis of energy market prices, an analysis of energy market dynamics on high demand days and an analysis of the capacity markets.⁹

The MMU prepared a confidential Report to FERC regarding the timing of transmission outages and the FTR auction. The report was provided to FERC in June, 2000.

The MMU prepared a Report for the Delaware Public Service Commission regarding the market power implications of Conectiv's divestiture of selected generating stations. The report was provided in July, 2000.

The MMU prepared a Report to FERC on the FTR Auction. The report was provided to FERC on August 1, 2000.

The MMU prepared a Report on the Capacity Market Conditions in June 2000. The report was distributed to PJM Members and made available publicly in October, 2000.

The MMU prepared a public Report on the Categories of Data Collected by the MMU. The report was published in November, 2000.

Complaints

In June, 1999, the MMU established an internet based complaint process which made it possible to file a complaint with the MMU from the PJM web site.

⁹ The public reports of the MMU are available at pjm.com under the Market Monitoring Unit link.

The MMU has received numerous formal and generally confidential complaints on a variety of topics and has, in addition, addressed complaints regarding PJM markets which were made to other representatives of PJM. The Market Monitoring Plan gives the MMU discretion with regard to the treatment of complaints and the MMU investigated each complaint received.

The most significant such complaints have concerned:

- Energy market pricing for each of the high demand days in the summer of 1999
- Energy market pricing for certain shoulder periods in 1999 and 2000
- Capacity market pricing during the summer of 2000
- Congestion costs in northern New Jersey
- Congestion costs on the Delmarva peninsula
- The timing of transmission outages
- The level of operating reserve costs
- The treatment of cost capped units

Corrective Actions

The Market Monitoring Plan provides for corrective actions by the MMU which include: engage in informal discussions with market participants to resolve issues; recommend modifications to PJM rules; send demand letters to market participants; make recommendations for action to PJM Committees or the PJM Board; make appropriate regulatory filings to address issues; consider a broad range of additional enforcement mechanisms.

The MMU has identified incidents in which PJM Members violated specific, existing PJM market rules and the MMU has identified market rules which required modification in order to prevent the exercise of market power in the PJM markets. In response, the MMU has employed all of the available corrective actions at various times. The MMU has held informal discussion with market participants regarding issues related to PJM rules and the potential exercise of market power. The MMU has recommended modifications to the PJM rules. The MMU has used its authority to send demand letters. The MMU has made recommendations for action to PJM committees and to the PJM Board. The MMU has made regulatory filings to address issues.

The MMU investigated a violation of capacity market rules which was addressed via the application of a penalty as provided for in the Reliability Assurance Agreement.

The MMU investigated the use of unit specific operating constraints to evade the PJM \$1,000 bid cap, proposed a rule change to prevent gaming and managed a collaborative process to develop and implement the rule change.

The MMU has analyzed alternative approaches to implementation of the PJM Operating Agreement, Schedule 1, Section 6 options for implementing cost caps for units which are designated as must run for transmission constraints.

The MMU investigated bids submitted for combustion turbines to provide spinning reserves to the PJM market. The MMU pursued recovery of charges in excess of authorized levels.

The MMU investigated the use of both cost and market based bids by multiple units at a plant with single point telemetry.

The MMU investigated the use of increment and decrement bids in the day ahead energy market to create congestion and add value to FTR positions.

The MMU investigated withholding in the day ahead energy market.

Participation in PJM Committees and Cooperation with Authorized Government Agencies

The MMU briefs the Energy Market Committee every month.

The MMU briefs the Members Committee as required.

The MMU briefs the Operating Committee as required.

The MMU briefs the Public Interest and Environmental Users Group as requested.

The MMU briefs the state public service commissions as appropriate.

The MMU has participated in the Cost Development Task Force on a variety of issues including the costs of condensing and the implementation of cost caps for must run units.

The MMU has participated in the Spinning Reserve Working Group in helping to develop cost effective, efficient rules for implementing a competitive market in spinning reserves.

The MMU facilitated the Operating Constraints Working Group which developed a new rule, adopted by the Members and accepted by FERC, to address the use of operating constraints to evade the \$1,000 bid cap.

The MMU facilitates the Transmission Outage Working Group which is developing reporting requirements for Transmission Owners regarding transmission outages and the maintenance of current facility ratings.

The MMU participates in the Future Adequacy Working Group which is working to develop modifications to the capacity market rules.

The MMU participates in the Reactive Services Working Group which is considering the development of a market in reactive services.

The MMU participates in the Two Settlement Working Group which addresses the two settlement markets and systems.

The MMU has responded to requests for information from the FERC.

The MMU meets regularly with market monitoring staff of other ISOs.

The MMU meets regularly with FERC Staff.

The MMU meets with the representatives of Authorized Government Agencies as appropriate.

Publish Data

The MMU publishes energy market bid data pursuant to the March 10 Order of FERC requiring PJM to publish bid data with a six month lag. In addition, the MMU publishes data, consistent with confidentiality requirements, which contributes to more complete knowledge by market participants and allows interested parties to monitor market activities.

In particular, the MMU publishes:

- Unit and company specific real time energy market bid data on an anonymous basis with a six month lag;
- Unit and company specific day ahead energy market bid data on an anonymous basis with a six month lag;
- Aggregate capacity market data with a one month lag including the sum of excess capacity credits, daily capacity credits, monthly capacity credits, multi-monthly capacity credits, ALM credits and imports;
- Detailed capacity market data with a six month lag including installed capacity, unforced capacity, capacity obligation, sum of excess capacity, sum of capacity deficiency, net excess capacity, imports, exports, net exports, internal bilateral transactions, daily capacity credits, monthly capacity credits, multi monthly capacity credits, ALM credits;
- Condensing data including total condensing payments, number of condensing units, total spinning capacity, maximum required spinning reserve and condenser bids, with a six month lag
- FTR Auction bid data with a six month lag.

Publish Indices

The MMU published, for comment, a list of proposed indices which would be used to monitor the PJM markets. The MMU is implementing the use of these indices.

The MMU publishes:

- A weekly report which includes a comparison of real time, day ahead and forward market energy prices; data on congestion in PJM, PJM loads in the day ahead and real time markets; volumes in the day ahead and real time spot markets; and results of PJM capacity markets.
- Monthly LMP price duration curves
- Monthly LMP frequency distribution tables
- Monthly Distribution of Constrained LMPs