



Monitoring
Analytics

**Activities of the
Market Monitoring Unit
2015**

Independent Market Monitor for PJM
August 1, 2016

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Preface

This report is posted pursuant to Section VI.C of Attachment M to the PJM Open Access Transmission Tariff (the “PJM Market Monitoring Plan” or “Plan”), which directs the Market Monitoring Unit (“Market Monitor,” also known as the “MMU,” Independent Market Monitor for PJM” or “IMM”) “to 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.”¹

Monitoring Analytics, LLC serves as the Independent Market Monitor for PJM.² PJM is a regional transmission organization (RTO) that is responsible for ensuring the reliability of the electric power supply system in 13 states and the District of Columbia. The MMU is responsible for promoting a robust, competitive and nondiscriminatory electric power market in PJM by implementing the PJM Market Monitoring Plan.

The FERC assigns three core functions to MMUs: reporting, monitoring and market design.³ These functions are interrelated and overlap. The PJM Market Monitoring Plan establishes these functions, providing that the MMU is responsible for monitoring: compliance with the PJM Market Rules; actual or potential design flaws in the PJM Market Rules; structural problems in the PJM Markets that may inhibit a robust and competitive market; the actual or potential exercise of market power or violation of the market rules by a Market Participant; PJM’s implementation of the PJM Market Rules or operation of the PJM Markets; and such matters as are necessary to prepare reports.⁴

The MMU performs its reporting function primarily by issuing and filing annual and quarterly state of the market reports, and reports on market issues. The MMU also issues in depth reports on specific topics. The MMU regularly issues reports on RPM auctions. In other reports, the MMU responds to the needs of FERC, state regulators, or other regulatory authorities, in order to assist policy development, decision making in regulatory proceedings, and in support of investigations. The MMU also participates in FERC technical conferences as appropriate.

To perform its monitoring function, the MMU screens and monitors the conduct of Market Participants under the MMU’s broad purview to monitor, investigate, evaluate

¹ PJM Open Access Transmission Tariff (OATT) Attachment M § VI.C.

² See 144 FERC ¶ 61,238 (2013).

³ 18 CFR § 35.28(g)(3)(ii); see also *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats. & Regs. ¶31,281 (2008) (“Order No. 719”), *order on reh’g*, Order No. 719-A, FERC Stats. & Regs. ¶31,292 (2009), *reh’g denied*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

⁴ OATT Attachment M § IV; 18 CFR § 1c.2.

and report on the PJM Markets.⁵ The MMU has direct, confidential access to the FERC.⁶ The MMU may also refer matters to the attention of state commissions.⁷

The MMU monitors market behavior for violations of FERC Market Rules.⁸ The MMU will investigate and refer “Market Violations,” which refers to any “tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies...”⁹ ¹⁰ The MMU also monitors PJM for compliance with the rules, in addition to market participants.¹¹

Another important component of the monitoring function is the review of inputs to mitigation. The actual or potential exercise of market power is addressed in part through *ex ante* mitigation rules incorporated in PJM’s market clearing software for the energy market, the capacity market and the regulation market. If a market participant fails the TPS test in any of these markets its offer is set to the lower of its price-based or cost-based offer. This prevents the exercise of market power and ensures competitive pricing, provided that the cost-based offer accurately reflects short run marginal costs. Cost-

⁵ OATT Attachment M § IV.

⁶ OATT Attachment M § IV.K.3.

⁷ OATT Attachment M § IV.H.

⁸ OATT Attachment M § II(d)&(q) (“FERC Market Rules” mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish... “PJM Market Rules” mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.”)

⁹ The FERC defines manipulation as engaging “in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity.” 18 CFR § 1c.2(a)(3). Manipulation may involve behavior that is consistent with the letter of the rules, but violates their spirit. An example is market behavior that is economically meaningless, such as equal and opposite transactions, which may entitle the transacting party to a benefit associated with volume. Unlike market power or rule violations, manipulation must be intentional. The MMU must build its case, including an inference of intent, on the basis of market data.

¹⁰ OATT Attachment M § II(h-1).

¹¹ OATT Attachment M § IV.C.

based offers for the energy market and the regulation market are based on incremental costs as defined in the PJM Cost Development Guidelines (PJM Manual 15).¹²

In order to perform its role in PJM market design, the MMU evaluates existing and proposed PJM Market Rules and the design of the PJM Markets.¹³ The MMU initiates and proposes changes to the design of such markets or the PJM Market Rules in stakeholder or regulatory proceedings.¹⁴ In support of this function, the MMU engages in discussions with stakeholders, State Commissions, PJM Management, and the PJM Board; participates in PJM stakeholder meetings or working groups regarding market design matters; publishes proposals, reports or studies on such market design issues; and makes filings with the Commission on market design issues.¹⁵ The MMU also recommends changes to the PJM Market Rules to the staff of the Commission's Office of Energy Market Regulation, State Commissions, and the PJM Board.¹⁶ The MMU may provide in its annual, quarterly and other reports "recommendations regarding any matter within its purview."¹⁷

The MMU posts market data, public reports, presentations and market messages on the Monitoring Analytics web page at: <http://www.monitoringanalytics.com>.

Monitoring

Market Surveillance

The MMU analyzes and monitors all of the PJM markets, including the Day-Ahead Energy Market, the Real-Time Energy Market, the RPM Base Residual Auctions and Incremental Auctions, the Regulation Market, the Synchronized Reserve Market, the Day-Ahead Scheduling Reserve Market and the Annual, Monthly, Long Term and Balance of Planning Period Auction Markets in Financial Transmission Rights (FTRs). This ongoing market analysis and monitoring forms the basis for all MMU activities. The MMU monitors participant development of inputs to prospective mitigation, including Avoidable Cost Rates and net revenues in RPM; unit-specific offers under the Minimum Offer Price Rule; and cost offers and parameter limited schedules in the energy markets, including eligibility for Frequently Mitigated Unit (FMU) adders. In the course of this monitoring, the MMU provides feedback to participants and engages in discussions about the appropriateness of costs and cost levels. The MMU applies the FTR forfeiture

¹² See OATT Attachment M–Appendix § II.A.

¹³ OATT Attachment M § IV.D.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ OATT Attachment M § VI.A.

rule, a retroactive mitigation measure, the results of which are reviewed by PJM prior to billing PJM members. The MMU monitors compliance with the must offer rule in RPM. The MMU monitors compliance with the must offer rule for capacity resources in the Day-Ahead Energy Market. The MMU monitors costs included in black start service rates. The MMU reviews proposed deactivations to identify potential market power issues. The MMU prepares monthly notifications to PJM generation owners regarding the status of Frequently Mitigated Units per Schedule 1, Section 6.4.2 of the PJM Operating Agreement.

In 2015, the MMU analyzed the costs of synchronized reserve and concluded that the current rule paying tier 1 synchronized reserve the tier 2 synchronized reserve market clearing price whenever the non-synchronized reserve market clearing price is above \$0 is flawed and needs to be removed. Further analysis revealed that the method of calculating tier 1 MW paid under this rule was flawed. The MMU presented its findings along with calculated overcharges to PJM Market Operations, to the Operating Committee, to the MIC, and to the MRC.

In 2015, several procedural changes to the Tier 2 Synchronized Reserve Market and the Day-Ahead Scheduled Reserve Market (DASR) that came from the ERPIV were implemented. The MMU has monitored the impact on the market of these changes and proposed additional changes for the DASR Market.

The MMU conducted an analysis of the Regulation Market structure and concluded that the Regulation Market suffers from a number of flaws. The MMU documented the failure of the Regulation Market to correctly clear the correct mix of RegA signal following and RegD signal following resources and the failure to send the correct price signals to RegD signal following resource. The identified problems stem from the disparate treatment of RegD in market clearing, market optimization and market settlements. The MMU's findings were presented to both the OC and the MRC. This analysis led to the forming of the Regulation Market Issues Senior Task Force (RMISTF) to redesign the regulation market. The MMU is working closely with PJM in this effort to correct the Regulation Market design.

Market Participant Discussions

The PJM Market Monitoring Plan provides that in addition to informing Commission staff, the MMU may “Engage in discussions regarding issues relating to the PJM Market Rules or FERC Market Rules in order to understand such issues and to attempt to resolve informally such issues or other issues.”¹⁸ In fulfilling this role in 2015, the MMU monitored participant behavior and discussed relevant matters with FERC staff and with market participants. In addition, the MMU received and investigated confidential complaints. The provision of additional details on these issues is governed by confidentiality rules.

¹⁸ OATT Attachment M, § IV.J.1.

The MMU engaged in extensive discussions with generating unit owners about their fuel cost policies and requirements for compliance with Market Rules.

In 2015, the MMU received confidential complaints and when appropriate, publicly proposed rule modifications while maintaining market participant confidentiality. A confidential complaint can reveal flaws in existing rules or procedures.

In addition to discussing notices and/or referrals on a confidential basis regarding the activities in the markets in 2015, the MMU engaged in numerous discussions with Market Participants about issues related to participant behavior in the PJM markets.

The MMU was involved, along with PJM staff, in reviewing the generator parameter adjustment requests for Capacity Performance Resources, and in discussing the technical issues raised by generation owners for the adjustment requests.

Communications with Regulators

The MMU provides information to regulators, subject to compliance with applicable rules protecting confidentiality. In 2015, the MMU engaged in the following activities:

- Communicated with FERC staff regarding current issues, including formal referrals.
- Provided data in response to requests from the FERC's Office of Enforcement.
- Attended meetings and conference calls with state regulators, state consumer advocates, industrial customer coalitions, Midwest ISO and the Organization of PJM States, Inc. (OPSI) to answer questions and discuss a range of topics including monitoring, capacity markets and the operation of PJM markets.

Reporting¹⁹

Reports and Analyses

The state of the market reports fulfilled both the tariff reporting requirements and the criteria listed in the Commission policy by providing a comprehensive analysis of the markets within PJM and an assessment of the competitiveness of each market.²⁰ The reports also provided recommendations regarding retention and enhancement of market rules.

- The *2014 State of the Market Report for PJM* (March 12).
- The *2015 Quarterly State of the Market Report for PJM: January through March* (May 18).
- The *2015 Quarterly State of the Market Report for PJM: January through June* (August 13).
- The *2015 Quarterly State of the Market Report for PJM: January through September* (November 12).

¹⁹ Public reports by the MMU are posted at <<http://www.monitoringanalytics.com>>.

²⁰ OATT Attachment M § VII.A

The MMU issued the following reports in 2015:

- Activities of the Market Monitoring Unit 2014 (November 23).

The MMU issued the following Market Messages in 2015:

- Generation Capacity Resources in PJM Region Subject to RPM Must Offer Obligation for 2015/2016, 2016/2017 and 2017/2018 Delivery Years (February 22).
- Press Release. 2014 State of the Market Report for PJM (March 12).
- Members Committee Letter. 2014 State of the Market Report for PJM (March 12).
- Press Release. 2015 Quarterly State of the Market Report for PJM: January through March (May 18).
- Members Committee Letter. Quarterly State of the Market Report for PJM: January through March (May 18).
- Generation Capacity Resources in PJM Region Subject to RPM Must Offer Obligation for 2016/2017, 2017/2018 and 2018/2019 Delivery Years (June 30).
- Intermittent Resources Capacity Performance Value Methodology (July 8).
- Press Release. 2015 Quarterly State of the Market Report for PJM: January through June (August 13).
- Members Committee Letter. 2015 Quarterly State of the Market Report for PJM: January through June (August 13).
- Generation Capacity Resources in PJM Region Subject to RPM Must Offer Obligation for 2016/2017, 2017/2018 and 2018/2019 Delivery Years (September 11).
- IMM Fuel Cost Policy Guidelines (September 24).
- Press Release. 2015 Quarterly State of the Market Report for PJM: January through September (November 12).
- Members Committee Letter. 2015 Quarterly State of the Market Report for PJM: January through September (November 12).
- Generation Capacity Resources in PJM Region Subject to RPM Must Offer Obligation for 2016/2017, 2017/2018 and 2018/2019 Delivery Years (December 23).
- Market Notice re: Parameter Limited Schedule Matrix (December 24).

Industry Briefings

As part of its reporting role, the MMU provided briefings and presentations to industry groups and the Federal Energy Regulatory Commission (FERC). The MMU shared the results of its analyses, experience and knowledge regarding competitive markets, market monitoring and market power mitigation.

In 2015, the MMU:

- Keynote speaker. Electricity Bar Association Conference, Houston, TX (January 30).
- Speaker. 19 Annual Ohio Energy Management Conference, Columbus, Ohio (February 26).

- Speaker. Skadden Energy Regulatory & Litigation Group Tenth Annual Energy Conference, Washington, D.C. (March 10).
- Speaker. OPSI Spring Meeting, Valley Forge, PA (April 13).
- Testified. Ohio Energy Mandates Study Committee, Columbus, Ohio (April 16).
- Speaker. National Energy Marketers Association Restructuring Conference, Washington, D.C. (April 29-May 1).
- Speaker. Platts 10th Annual North American Power & Gas Markets Conference, New York, NY (May 28).
- Speaker. Western Power Trading Forum 8th Roundtable Discussion, Washington, D.C. (August 7).
- Speaker. EUCI, Capacity Markets Conference, Boston, Massachusetts (August 31-August 1).
- Speaker. Korean Power Exchange, Townsend, Delaware (September 30).
- Testified. Ohio Public Utilities Commission, FE OPUC 14-1297, Columbus, Ohio (October 6).
- Testified. Ohio Public Utilities Commission, AEP Subsidies OPUC 14-1693, Columbus, Ohio (October 16).
- Speaker. Platts the Nodal Trader, New York, New York (October 22).

Market Design

Attachment M, Section IV.D provides “if the Market Monitoring Unit detects a design flaw or other problem with the PJM Markets, the Market Monitoring Unit may initiate and propose, through the appropriate stakeholder processes, changes to the design of such market. In support of this function, the Market Monitoring Unit may engage in discussions with stakeholders, State Commissions, PJM Management, or the PJM Board; participate in PJM stakeholder meetings or working groups regarding market design matters; publish proposals, reports or studies on such market design issues; and make filings with the Commission on market design issues.”²¹ In FERC Order No. 719 and its order on compliance for PJM, the Commission has emphasized this MMU core function.²²

²¹ OATT Attachment M § IV.D.

²² See Order No. 719 at P 357 (“[W]e do expect the MMU to advise the Commission, the RTO or ISO, and other interested entities of its views regarding any needed rule and tariff changes. Likewise, in the event an RTO or ISO files for a proposed tariff change with which the MMU disagrees, we expect the RTO or ISO to inform the Commission of that disagreement, although not necessarily to include a written proposal with its filing.”), codified at 18 C.F.R. § 35.28 (g)(3)(ii)(A) (“The Market Monitoring Unit must perform the following core functions: (A) Evaluate existing and proposed market rules, tariff provisions and market design elements and recommend proposed rule and tariff changes to the Commission-Approved

In 2015, the MMU conducted an analysis of the Regulation Market structure and concluded that the Regulation Market suffers from a number of flaws. The MMU documented the failure of the Regulation Market to correctly clear the correct mix of RegA signal following and RegD signal following resources and the failure to send the correct price signals to RegD signal following resource. The identified problems stem from the disparate treatment of RegD in market clearing, market optimization and market settlements. The MMU's findings were presented to both the OC and the MRC. This analysis led to the forming of the Regulation Market Issues Senior Task Force (RMISTF) to redesign the regulation market. The MMU is working closely with PJM in this effort to correct the Regulation Market design.

FERC Proceedings

In 2015, the MMU intervened in the following proceedings at the FERC and filed substantive pleadings:

- **FirstEnergy Net Revenues (EL14-94-000)**. Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (January 12).
- **Reactive Payments (ER15-696-000)**. Comments of the Independent Market Monitor for PJM (January 12).
- **Capacity Agreement Waiver (ER15-738-000, ER15-739-000)**. Comments of the Independent Market Monitor for PJM (January 14).
- **Capacity Performance (ER15-623-000, EL15-29-000)**. Comments of the Independent Market Monitor for PJM (January 20). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (February 25). Errata (February 27). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (March 20). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (March 26). Limited Request for Rehearing of the

independent system operator or regional transmission organizations, to the Commission's Office of Energy Market Regulation staff and to other interested entities such as state commissions and market participants"). In its order of December 18, 2009, on PJM's filing in compliance with Order No. 719, the Commission required additional changes to ensure that the PJM Market Monitoring Plan fully conforms to Order No. 719's requirements concerning the role of MMUs in market design. 125 FERC ¶61,250 at P 113 (2009) ("PJM's OATT fails to specify the MMU's responsibility for evaluating existing and proposed market rules, tariff provisions and market design elements, and for recommending proposed rule and tariff changes to PJM, the Commission's Office of Energy Market Regulation and to other interested entities (i.e., state commissions and market participants). Attachment M, section IV.C, in this regard, provides only that, if the MMU "detects a design flaw or other problem with the PJM Markets," it may initiate and propose changes to such market design. This language, however, is limited to "design" issues relating to existing provisions and thus does not address the full scope of the core MMU function addressed by the Commission in Order No. 719").

Independent Market Monitor for PJM (July 6). **(ER15-623-004)** Comments of the Independent Market Monitor for PJM (July 20). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (July 31). **(ER15-623-008)** Answer of the Independent Market Monitor for PJM (December 2). **(ER15-1470-000)(ER15-623-001)** Comments of the Independent Market Monitor for PJM (April 15).

- **Demand Response (ER15-852-000)**. Motion in Support of Extension of Time of the Independent Market Monitor for PJM. (January 26). Comments of the Independent Market Monitor for PJM (February 13).
- **Indiana Municipal Electric Agency Waiver (ER15-834-000)**. Protest of the Independent Market Monitor for PJM (January 29).
- **Calpine Gas Waiver (ER15-376-000)**. Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (January 30).
- **DC Energy (EL13-47-001)**. Answer of the Independent Market Monitor for PJM (February 11). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (May 11).
- **RTO Energy Training (Docket No. EL15-38-000)**. Protest of the Independent Market Monitor for PJM (February 25). Answer of the Independent Market Monitor for PJM (April 23).
- **Champion Energy Complaint (EL15-46-000)**. Comments of the Independent Market Monitor for PJM (March 6).
- **IMEA Waiver Request (ER15-1232-000)**. Protest of the Independent Market Monitor for PJM (March 25). Motion to Permit Comments Filed Three Days Out-Of-Time of the Independent Market Monitor for PJM (March 31).
- **Frequency Response (RM15-2-000)**. Comment of the Independent Market Monitor for PJM (April 27).
- **Offer Caps (EL15-31-000)**. Informational Filing of the Independent Market Monitor for PJM (May 5).
- **PJM/MISO Seams (AD14-3-000)**. Response to Request for Information of the Independent Market Monitor for PJM (May 13). Reply to Replies to Responses to Request for Information of the Independent Market Monitor for PJM (July 2).
- **FTR Forfeiture Rule (EL14-37-000)**. Comments of the Independent Market Monitor for PJM (May 29). Reply Comments of the Independent Market Monitor for PJM (June 23). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (July 17).
- **Lost Opportunity Cost (ER15-1966-000)**. Comments of the Independent Market Monitor for PJM (July 16). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (July 30). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (July 30).
- **TranSource (EL15-79-000)**. Motion for Investigative Process of the Independent Market Monitor for PJM (August 6).

- **SPP SRMC (ER15-2268-000)**. Protest of the Independent Market Monitor for PJM (August 14). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (September 18).
- **MISO Resources (EL15-70-000, EL15-71-000, EL15-72-000, EL15-80-000)**. Comments of the Independent Market Monitor for PJM (November 4).
- **System Offer Caps (ER16-76-000)**. Comments of the Independent Market Monitor for PJM (November 4). Answer of the Independent Market Monitor for PJM (December 3). Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM (December 10).
- **FTR/ARR Netting (ER16-121-000, EL16-6-000)**. Comments of the Independent Market Monitor for PJM (November 10).
- **NJEA Complaint (ER15-952-000, -001)**. Comment of the Independent Market Monitor for PJM (November 18).
- **AEP Waiver Request (ER16-298-000)**. Comment of the Independent Market Monitor for PJM (November 30).
- **Price Formation NOPR (RM15-24-000)**. Comment of the Independent Market Monitor for PJM (November 30).
- **Tenaska Complaint (EL16-9-000)**. Comments of the Independent Market Monitor for PJM (December 3).
- **Hourly Offer Flexibility (EL15-73-000, ER16-372-000)**. Protest of the Independent Market Monitor for PJM (December 14).

Technical Conferences

- **FTR Forfeiture Rule (EL14-37-000)**. The IMM spoke at a technical conference on January 7.
- **Connected Entity NOPR (RM15-23-000)**. The IMM spoke at a technical conference on December 8.

State Proceedings

In 2015, the MMU addressed the following market topics in proceedings at state public utility commissions, in response to requests from state public utility commissions or at hearings at state legislatures:

Exelon/PHI Merger

- IMM Initial Brief, Feb. 24, 2015 (Del. PSC 14-193).
- IMM Pre-Hearing Brief, April 1, 2015 (Del. PSC 14-193).
- Hearing on Settlement, April 7, 2015, Dover, DE (Del. PSC 14-193).
- IMM Initial Brief, March 3, 2015 (Md. PSC 9361).
- IMM Reply Brief, March 17, 2015 (Md. PSC 9361)
- IMM Comments re Settlement, April 14, 2015 (Md. PSC 9361)
- Post-Hearing Brief, April 29, 2015 (DC PSC FC 1119).

- Post-Hearing Reply Brief, May 27, 2015 (DC PSC FC 1119).
- IMM Settlement Brief, Dec. 11, 2015 (DC PSC FC 1119).

FirstEnergy Ohio

- First Supplemental Testimony of Joseph E. Bowring, Public Utilities Commission of Ohio. Case No. 14-1297 EL-SS) (December 30).

AEP Ohio

- Direct Testimony of Joseph E. Bowring, Public Utilities Commission of Ohio. Case No. 14-1693-EL-RDR and Case No. 14-1694. (September 11).
- First Supplemental Testimony of Joseph E. Bowring, Public Utilities Commission of Ohio. Case No. 14-1693 and Case No. 14-1694 (December 28).

Recommendations Regarding PJM Market Rules

In 2015, the MMU presented information, analysis and recommendations to PJM Committees.²³

EMUSTF

On, June 23, 2015, stakeholders agreed to put the EMUSTF on hiatus to wait for a FERC decision in Docket No. EL14-37-000 which included the reexamination of energy uplift charges to virtual transactions including up-to congestion transaction.

- MMU Energy Uplift Allocation Proposal Results (June 23).

FC

- MA 2015 Financial Results (March 26).
- MA 2015 Financial Statements (May 13).
- MA 2017 Preliminary Budget (August 13).
- MA 2017 Proposed Budget (September 17).

FTRSTF

FTR funding issues were discussed. The MMU presented proposals including the elimination of portfolio netting, the addition of an underfunding component to counter flow FTRs and a seasonal/quarterly FTR market.

- New IMM Package (February 13).
- FTR Package 12 and 12A – Executive Summary (March 31).

GESTF

The GESTF was put on hiatus after the MRC approved a problem statement on Gas Fired Unit Commitment Coordination and assigned the work to the OC.

²³ OATT Attachment M § IV.D.

GOFSTF

The PJM Markets and Reliability Committee authorized the creation of this Senior Task Force to investigate process and rule changes necessary to allow day-ahead and balancing market offers for physical resources to vary hour by hour. The MMU developed a proposal to implement hourly offers, presented the details of the components, and provided feedback on PJM's proposal and draft tariff language.

- Generator Offer Flexibility (June 29).
- Overview of Three Pivotal Supplier Test (July 22).
- IMM Solutions Matrix Proposal (August 21).
- Hourly Offers – Fixed Markup Examples (September 3).
- IMM Proposal Summary (October 7).

PJM/JCM

The MMU participated in discussions about interface pricing between PJM and MISO with MISO, PJM, and the MISO IMM.

- Modeling Interface between PJM and MISO (May 27).
- Modeling Interface between PJM and MISO (August 20).
- External Capacity: Pseudo Ties (November 18).
- Interface Pricing Recommendations (November 18).

MC

- Market Monitor Report for the MC (January 20).
- Market Monitor Report for the MC Special SOM Session (March 26).

MC Webinar

- Market Monitor Report for the MC (February 23).
- Market Monitor Report for the MC (April 20).
- Market Monitor Report for the MC (June 22).
- Market Monitor Report for the MC (August 24).
- Market Monitor Report for the MC (September 28).
- Market Monitor Report for the MC (November 16).

MIC

The MMU presented its recommendation that payments for tier 1 synchronized reserve should only be made for spinning event response to the OC. This proposal was subsequently presented to the MIC where it was voted on along with an alternative proposal by PJM.

- PJM Tier 1 Compensation (January 5).
- Fuel Cost Policy Guidelines: Gas Replacement Cost (September 24).

MIC. Energy/Reserve Pricing and Interchange Volatility (ERPIV)

The ERPIV subgroup of the MIC was charged with examining the rules regarding reserve targets and Shortage Pricing, as well as the rules and incentives to interchange transaction scheduling. The group was asked to determine whether enhancements can be made to better capture PJM operator actions in the market clearing prices, and to improve system and price stability. While the work of this group concluded in October 2014, the changes it made were implemented in 2015.

MRC

- Regulation Market Problem Statement (June 25).
- Regulation Market Issue Charge (June 25).
- Regulation Market Issues (June 25).

Special MRC. Energy Market Offer Cap

- \$1,000 per MWh Offer Caps: MMU Approach (August 27, September 9).

OC

- PJM-IMM Problem Issue Charge – Regulation Performance Impacts (August 8).
- Regulation Market Design Review (June 9).
- Regulation Market Issues (May 5).

OC. Regulation Performance Impacts

- Regulation Market Design Issues (July 16).
- Regulation Market Design Issues (July 7).
- Regulation Market Design Issues (July 1).

RMISTF (Regulation Market Issues Task Force)

The RMISTF is a subgroup of the MRC charged with examining and recommending solutions to identified market design issues with the regulation market.

- Regulation Market Issues (October 16, November 11).

Data Postings

Marginal Fuel Posting

- 201411_Marginal_Fuel_Postings.csv (January 2).
- 201412_Marginal_Fuel_Postings.csv (February 2).
- 201501_Marginal_Fuel_Postings.csv (March 3).
- 201502_Marginal_Fuel_Postings.csv (April 1).
- 201503_Marginal_Fuel_Postings.csv (May 1).
- 201504_Marginal_Fuel_Postings.csv (June 1).
- 201505_Marginal_Fuel_Postings.csv (July 2).
- 201506_Marginal_Fuel_Postings.csv (August 3).

- 201507_Marginal_Fuel_Postings.csv (September 1).
- 201508_Marginal_Fuel_Postings.csv (October 1).
- 201509_Marginal_Fuel_Postings.csv (November 2).
- 201510_Marginal_Fuel_Postings.csv (December 1).

Percentage of PJM Load by State

- PJM Load by State – 2015 (July 20).
- PJM Load by State – 2014 (July 20)

Other Activities

OPSI Advisory Committee

The OPSI Advisory Committee is established pursuant to Section III.G of Attachment M of the OATT, which provides:

“There shall be an OPSI Advisory Committee comprised of five (5) representatives appointed by the Organization of PJM States, Inc. The OPSI Advisory Committee shall meet with the Market Monitoring Unit on a regular basis and as otherwise necessary to receive and discuss information relevant to this Plan. In addition to the specific responsibilities regarding budget and termination set forth in Sections III.E and III.F, the OPSI Advisory Committee may provide advice to the Commission, Market Monitor, the PJM Board, stakeholder committees, and stakeholder working groups regarding any matter concerning the Market Monitor, Market Monitoring Unit or Market Monitoring Plan. Any formal advice shall be in writing and, subject to confidentiality provisions, shall be made publicly available.”

In 2015, the Market Monitor met with the OPSI Advisory Committee on Monday, October 12, 2015.

Market Monitoring Unit Advisory Committee

The Market Monitoring Unit Advisory Committee (“MMUAC”) is established pursuant to Section III.H of Attachment M of the OATT, which provides:

“There shall be an MMU Advisory Committee, chaired by the Market Monitor that is open to all stakeholders and representatives of Authorized Government Agencies. The MMU Advisory Committee shall act as a liaison between stakeholders and the MMU and shall provide advice from time to time on matters relevant to the MMU's responsibilities under this Plan. The MMU Advisory

Committee shall have no authority to direct, supervise, review, or otherwise interfere with the functions of the MMU under this Plan, nor any authority to terminate or propose to terminate the Market Monitor.”

The MMUAC succeeded the PJM Market Monitoring Advisory Committee (“MMAC”).

The Market Monitor convened a meeting of the MMUAC on December 4, 2015. In addition to requesting comments from stakeholders concerning the IMM’s implementation of the PJM Market Monitoring Plan, the IMM provided an overview of (i) the deadlines and process applicable to RPM auctions, (ii) the IMM’s proposed correction to the inconsistent and inaccurate approach for calculating lost opportunity costs in the current PJM market rules, and (iii) the IMM’s concerns about sham scheduling and examples of patterns of conduct that raise particular concern.