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September 7, 2018

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E. Room 1A
Washington, D.C. 20426

*Re: PJM Interconnection, L.L.C., Docket No. ER18-2402-000
PJM Rate Schedule FERC No. 46, Market Monitoring Services Agreement*

Dear Secretary Bose:

Pursuant to Federal Power Act, section 205,¹ and the Federal Energy Regulatory Commission's ("Commission") regulations,² PJM Interconnection, L.L.C. ("PJM"), supported by its independent market monitor and counterparty, Monitoring Analytics, LLC ("Monitoring Analytics"), hereby submits for filing a new Market Monitoring Services Agreement between PJM and Monitoring Analytics ("New MMSA") as PJM Rate Schedule FERC No. 46. The New MMSA replaces, as of the Commencement Date, i.e. January 1, 2020, the currently effective Market Monitoring Services Agreement between PJM and Monitoring Analytics, dated July 8, 2013, designated as PJM Rate Schedule FERC No. 46 ("Current MMSA"). PJM is also contemporaneously filing revisions to the Service Level Agreement between PJM Interconnection, L.L.C. and Monitoring Analytics, LLC ("SLA"), designated as PJM Rate Schedule FERC No. 47 today in a separate docket.

The Current MMSA, which provides the terms and conditions for Monitoring Analytics to perform the market monitoring services set forth in PJM Open Access Transmission Tariff

¹ 16 U.S.C. § 824d.

² 18 C.F.R. § 35.13.

(“Tariff”), Attachment M and Attachment M-Appendix, expires on December 31, 2019 at the end of its current term of six years and four months. In view of the impending end of the Current MMSA, and following discussions between the PJM Board of Managers (“PJM Board”), the Organization of PJM States, Inc. and Monitoring Analytics, the PJM Board decided to open negotiations with Monitoring Analytics to explore a new agreement which would result in Monitoring Analytics continuing to provide market monitoring services to PJM.

As discussed below, the PJM Board and Monitoring Analytics have executed a new agreement that, although substantially similar in most respects to the Current MMSA, incorporates a new audit and reporting requirement, clarifies the protections of the limitation of liabilities protections to additional Monitoring Analytics employees, contractors and consultants, and makes other corrections and formatting changes. The New MMSA provides for a review intended to ensure that the services being provided to PJM by Monitoring Analytics are being completed consistent with the systems and controls in place for the provision of those services, similar to the reviews PJM conducts of its own systems and controls. Both PJM and Monitoring Analytics desire that the New MMSA become effective as of the Commencement Date, replacing the current MMSA when it terminates.

PJM and Monitoring Analytics have agreed to a six year term for the New MMSA, extending from January 1, 2020 to December 31, 2025. The PJM Board and Monitoring Analytics believe that this extended term has many benefits, including bringing stability and certainty to the market monitoring function to the benefit of all stakeholders.

Accordingly, PJM and Monitoring Analytics request that the Commission issue its order accepting the enclosed revisions by no later than November 6, 2018, sixty (60) days from the date of this filing, with an effective date of January 1, 2020, which is more than one hundred

twenty (120) days from the date of this filing. PJM requests waiver of the Commission's regulations requiring the submission of this filing more than one hundred twenty (120) days prior to the requested effective date of January 1, 2020.

No changes are proposed in this filing to Tariff, Attachment M ("PJM Market Monitoring Plan").

I. BACKGROUND

A. Current MMSA

The original Market Monitoring Services Agreement between PJM and Monitoring Analytics ("Original MMSA") was accepted by the Commission on June 30, 2008,³ and has been revised several times since that date. Tariff, Attachment M, section III.F sets forth the term and termination provisions for market monitoring contracts. Tariff, Attachment M, section III.F.1 provides that at the end of the initial term of the Original MMSA, the PJM Board may propose to terminate the contract for market monitoring services after following certain procedures, or, alternatively, the contract may be renewed if both parties agree.⁴ It further provides that if both parties choose to renew the contract, upon expiration of the initial six year term of the Original MMSA, the contract may be renewed for subsequent terms of three years.⁵

The Current MMSA was filed with the Commission on July 29, 2013 and was accepted by the Commission on September 27, 2013, effective that same day,⁶ and provides for a term of six years and four months, commencing on September 27, 2013 and running through to

³ *Allegheny Elec. Coop. Inc. v. PJM Interconnection, L.L.C.*, Letter Order, Docket Nos. EL07-56-003 and EL07-58-003 (June 30, 2008).

⁴ Tariff, Attachment M, section III.F.

⁵ Tariff, Attachment M, section III.F.1.

⁶ *PJM Interconnection, L.L.C.*, 144 FERC ¶ 61,238 (2013).

December 31, 2019.⁷

B. No Changes to Attachment M

This filing does not propose any changes to Tariff, Attachment M, Tariff, Attachment M-Appendix, Tariff, Schedule 9-MMU, or the SLA. Nevertheless, revisions to the SLA are being filed contemporaneously with the New MMSA in a separate docket.

C. Order No. 719 Compliance

The New MMSA complies with Order No. 719⁸ and Tariff, Attachment M.

II. DESCRIPTION OF NEW MMSA

The New MMSA is similar to the Current MMSA, but includes changes reflecting the parties' experience over the almost five-year period the Current MMSA has been in effect. The principal revision in the New MMSA provides for a review intended to ensure that the services being provided to PJM by Monitoring Analytics are being completed consistent with the systems and controls in place for the provision of those services, similar to the review applicable to PJM's performance. Several provisions are updated to reflect current requirements, and the New MMSA includes several minor corrections and many standard reference/standard formatting changes. Throughout the New MMSA, the contract provisions continue to reinforce the importance of independent market monitoring.

⁷ Current MMSA, section 3.

⁸ *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).

A. Principal Revisions in the New MMSA

1. Section 15. Budgeting and Auditing

The most significant change being made in the New MMSA is the addition of a provision to section 15 that requires Monitoring Analytics, on an annual basis, to have an attest engagement which will be conducted by an accounting firm and will result in issuance of an Agreed-Upon Procedures Report to address whether Monitoring Analytics has followed the procedures and controls in place that relate to its calculations and conclusions relating to Frequently Mitigated Unit status, Associated Unit status, affiliate mapping for the three pivotal supplier test, net Avoidable Cost Rates, Fuel Cost Policies and all components of cost-based energy market offers. PJM and Market Participants rely on Monitoring Analytics determinations regarding these values in the administration and operation of its markets.

An agreed-upon procedures engagement is similar to the audits PJM conducts of its own performance. This type of engagement is described by the American Institute of Certified Public Accountants, Inc. as follows:

An agreed-upon procedures engagement is one in which a practitioner is engaged to issue, or does issue, a practitioner's report of findings based on specific agreed-upon procedures applied to subject matter for use by specified parties. Because the specified parties require that findings be independently derived, the services of a practitioner are obtained to perform procedures and report the practitioner's findings. The specified parties determine the procedures they believe to be appropriate to be applied by the practitioner. Because the needs of the specified parties may vary widely, the nature, timing, and extent of the agreed-upon procedures may vary as well; consequently, the specified parties assume responsibility for the sufficiency of the procedures since they best understand their own needs. In an engagement performed under this section, the practitioner does not perform an examination or a review, and does not provide an opinion or

conclusion. Instead, the report on agreed-upon procedures is in the form of procedures and findings.⁹

This requirement that Monitoring Analytics annually retain an accounting firm to conduct an attest engagement and issue an Agreed-Upon Procedures Report was incorporated into the New MMSA to provide additional assurance and third party confirmation that Monitoring Analytics is carrying out its contract functions consistent with the terms and conditions of the New MMSA. Such reviews are standard practice, particularly for contractual arrangements of the size and extent of the services Monitoring Analytics provides to PJM. PJM is not conducting, nor will it have any role, in the agreed-upon procedures audit. Instead, Monitoring Analytics will retain an independent firm to conduct that agreed-upon procedures audit. The review is intended to alert Monitoring Analytics to any procedural deficiencies and provide an opportunity to correct them. The parties agree that the attest engagement will be beneficial and will allow the PJM Board to better fulfill its responsibilities under Tariff, Attachment M, section III.D, including but not limited to the requirement that the PJM Board meet and confer with Monitoring Analytics “from time to time on matters relevant to the discharge of the PJM Board’s and the Market Monitoring Unit’s duties under this Plan.”¹⁰

2. *Section 24. Liability*

Tariff, Attachment M, section VIII contains the limitation of liability provisions that make clear that PJM, the Market Monitoring Unit, the PJM Board, and PJM’s officers, employees, representatives, advisors, contractors, and consultants (“PJM Entities”) are not liable to Market

⁹ American Institute of Certified Public Accountants (2017). Agreed-Upon Procedures Engagements. In *AICPA Professional Standards* (§ AT-C 215.02, p. 1523). New York, NY: American Institute of Certified Public Accountants, Inc.), at <https://www.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/at-c-00215.pdf>. (This standard was originally SSAE No. 18.)

¹⁰ Tariff, Attachment M, section III.D.2.

Participants, PJM Members, any customer under the Tariff or any other entity subject to the PJM Market Monitoring Plan with regard to any matter that is described or contemplated therein for any loss, damages, costs resulting from or attributable to any act or omission of any of PJM and its affiliated entities under the PJM Market Monitoring Plan. The parties have revised the liability provisions in the New MMSA to clarify that these limitation of liability protections apply to the officers, employees, representatives, advisors, contractors and consultants of Monitoring Analytics, similar to the protection that is afforded to those same individuals and entities employed by PJM.

This revision is appropriate and is intended to correct an inadvertent error in the MMSA and to make clear that the protection is provided to those individuals and entities providing services to Monitoring Analytics in furtherance of the work it performs and services provided to PJM under the PJM Market Monitoring Plan.

B. Term

1. Section 3. Term

Section 3 prescribes the term of the New MMSA as from the Commencement Date (January 1, 2020) running through December 31, 2025. Any termination of the New MMSA shall be in accordance with the provisions regarding termination set forth in Tariff, Attachment M, as referenced in New MMSA, section 4.

Tariff, Attachment M, section III.F.1 provides that at the end of the initial six year term of the Original MMSA, “the contract may be renewed for subsequent term(s) of three (3) years if both parties agree.” Here, both parties have agreed to a term ending December 31, 2025. The PJM Board and Monitoring Analytics believe this extended term has many benefits, including

bringing greater certainty and stability to the market monitoring function, which is beneficial to PJM, Monitoring Analytics and their employees, and all PJM stakeholders.¹¹

The parties also corrected an incorrect reference to “paragraph 4,” changing it to the correct reference “section 4.”

C. Other Revisions

1. Section 1. Definitions

The Parties deleted the definition of “Attachment M” because the definition is no longer needed with the incorporation of the more complete Tariff references throughout the agreement. In other words, rather than referring to Attachment M in the agreement, those references are being changed to Tariff, Attachment M. These changes are being made as part of a larger effort that PJM is undertaking to create more user-friendly versions of all of its Commission-filed agreements, as described in detail in PJM’s filing in Docket No. ER18-1905-000, and which are more fully described below.¹²

In addition, the definition of “Commencement Date” is being changed to reflect that the term of the New MMSA commences as of January 1, 2020. The definition of “Principals” is being revised to expand who may be deemed a Principal to include additional individuals who the Market Monitor designates beyond the Market Monitor, Chief Economist, Chief Information Officer and General Counsel.

¹¹ While PJM and Monitoring Analytics believe Tariff, Attachment M fully permits an extension of Monitoring Analytics services for more than three years, if for any reason the Commission concludes that Tariff, Attachment M permits only a three-year extension, then PJM and Monitoring Analytics request the Commission to waive any such limitation because of the benefits of the longer term, described above.

¹² *PJM Interconnection, L.L.C.*, Revisions to the PJM Tariff RE GDECS Standard Format Clean-Ups, Docket No. ER18-1905-000 (June 29, 2018).

2. *Section 11.3. Budget Estimates*

The provisions of Current MMSA, section 11.3 refer to budget submissions for prior years. In the New MMSA, the parties propose revisions to that section to eliminate the outdated references to the budgets for 2013 and 2014 and deadlines associated with those budgets, and replace them with general references for dates when Monitoring Analytics must submit its budget to the PJM Finance Committee, i.e. September 15 of each year, and inform the PJM Board of potential increases and decreases in the budget, i.e. September 15 of each year. The revisions are also consistent with Tariff, Attachment M, section III.E.2, which makes no reference to any particular year but generally requires Monitoring Analytics to submit its draft budget to the Finance Committee, PJM Board and others no later than September 15.

3. *Section 14. IMM Employee Benefit Plans*

Section 14 of the Current MMSA refers to PJM converting its 401(k) and pension plans to multiple employer plans that make coverage available to both employees of PJM and Monitoring Analytics. Since the effective date of the Current MMSA, PJM has made changes to its employee benefit plans such that PJM no longer offers a pension plan to new employees. Monitoring Analytics also terminated its pension plan. That being the case, the parties propose revisions to New MMSA, section 14 to remove reference to the PJM pension plan, make singular the references from “plans” to “plan” to reflect that only the PJM 401(k) is available to PJM and Monitoring Analytics employees hired after the Commencement Date of the New MMSA, and other related grammatical corrections associated with those changes.

4. *Corrections*

In the New MMSA, the parties also make the following changes:

- corrected PJM’s corporate address in the introductory paragraph;

- corrected the name of two PJM’s governing agreements where they are first mentioned in the New MMSA in the recitals;
- in section 1.7 (renumbered to section 1.6), corrected typographical error to change “Marketing Monitoring Unit” to “Market Monitoring Unit;”
- in section 27, changed the incorrect reference to “paragraph 27” to the correct reference “section 27;”
- corrected the email address to whom notices to PJM must be sent in section 29;
- made lower case the “f” in “Federal” in section 34, changing it to “federal;” and
- fixed formatting in the signature block on the last page and updated the names of the signatories as required.

5. *Throughout the New MMSA*

Finally, the parties made numerous non-substantive, clerical and ministerial revisions to correct, clarify and/or make consistent certain provisions contained within the New MMSA, consistent with its standard naming and formatting convention which is described in detail in PJM’s filing in Docket No. ER18-1905-000.

The first universal revision is to change the word Section to section (making the s lower case). Second, for purposes of clarification, PJM proposes to insert the words “above,” “below,” “in this section,” “in this Agreement,” and similar revisions to make clear which provision, section, part, schedule, appendix or attachment of the PJM governing document is being referenced. The third universal revision is to utilize the standard naming convention for governing document provisions as follows: [Agreement name, i.e. Tariff/Operating Agreement/RAA], [subpart, i.e. Attachment/Appendix/ Part/Schedule, if applicable], [section number] – for

example, Tariff, Attachment K-Appendix, section 1, not Section 1 of Attachment K-Appendix of the Tariff.

As PJM indicated in its filing with the Commission in Docket No. ER18-1905-000, this standard naming and formatting convention was developed so that PJM's governing documents would have consistency in the references within each document. While those non-standard format references are not wrong, PJM is taking the time now to make them standard. As PJM indicated in that filing, because there has been inconsistency in the use of this standard naming convention, PJM will need to submit a number of "clean-up" filings to conform its existing provisions so that they utilize this standard format as well. Making the referenced "clean-up" revisions as part of this filing is part of that same effort. The list of sections in which these standard naming and formatting convention revisions are being made is contained in Attachment C to this filing.

III. EFFECTIVE DATE AND REQUEST FOR WAIVER

PJM and Monitoring Analytics request that the Commission issue an order accepting the proposed New MMSA by no later than November 6, 2018, with an effective date of January 1, 2020. Because the requested effective date proposed for the New MMSA is more than one hundred twenty (120) days after the submission of this filing, PJM requests waiver of the Commission's notice requirements.¹³ Good cause exists to allow the New MMSA to be effective on the requested date in accordance with the Commission's waiver of notice requirement codified in Commission regulations¹⁴ because advance approval of the New MMSA facilitates

¹³ 18 C.F.R. § 35.3(a)(1).

¹⁴ See 18 C.F.R. § 35.11.

bringing stability and certainty to the market monitoring function to the benefit of all stakeholders.

Additionally, and perhaps more importantly to some extent, is that filing the New MMSA well in advance of the requested effective date gives employees of Monitoring Analytics some certainty with respect to the long term viability of Monitoring Analytics contractual arrangement with PJM to serve as its independent market monitor since PJM is Monitoring Analytics primary client and as such the primary source of funding for its operations.

IV. DOCUMENTS ENCLOSED

This filing consists of the following:

1. This transmittal letter
2. Electronic versions of the Market Monitoring Services Agreement By and Between PJM Interconnection, L.L.C. and Monitoring Analytics, LLC Rate Schedule FERC No. 46 (market/redline format) as Attachment A
3. Electronic versions of the Market Monitoring Services Agreement By and Between PJM Interconnection, L.L.C. and Monitoring Analytics, LLC Rate Schedule FERC No. 46 (clean format) as Attachment B
4. Chart of standard reference/formatting revisions as Attachment C

V. CORRESPONDENCE AND COMMUNICATIONS

Correspondence and communications regarding this filing should be sent to the following individuals:

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VI. SERVICE

PJM has served a copy of this filing on all PJM Members and on all state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations,¹⁵ PJM will post a copy of this filing to the FERC filings section of its internet site, at the following link: <http://www.pjm.com/documents/ferc-manuals/ferc-filings.aspx> with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region¹⁶ alerting them this filing has been made by PJM and is available by following such link. If the document is not immediately available by using the referenced link, the document will be available through the referenced link within twenty-four hours of the filing. A copy of this filing will be available on the Commission's eLibrary website at the following link: <http://www.ferc.gov/docs-filing/elibrary.asp> in accordance with the Commission's regulations and Order No. 714.


¹⁵ See 18 C.F.R §§ 35.2(e) and 385.2010(f)(3).

¹⁶ PJM already maintains, updates, and regularly uses e-mail lists for all PJM Members and affected state commissions.

VII. CONCLUSION

Accordingly, PJM and Monitoring Analytics request that the Commission accept the revisions to the MMSA, as described herein, and issue an order by no later than November 6, 2018, sixty days from the date of this filing, effective January 1, 2020, as discussed herein.

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Respectfully submitted,

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Attachment A

Revisions to the Service Agreement
between
PJM Interconnection, L.L.C. and
Monitoring Analytics, LLC

(Marked / Redline Format)

Market Monitoring Services Agreement
By And Between
PJM Interconnection, L.L.C. And Monitoring Analytics, LLC
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Market Monitoring Services Agreement

This Market Monitoring Services Agreement (“Agreement”) is entered into as of this 8th day of July, 2013, by and between PJM Interconnection, L.L.C. (“PJM”), a Delaware limited liability company with an address at ~~955 Jefferson Avenue, Valley Forge Corporate Center, Norristown~~2750 Monroe Boulevard, Audubon, PA 19403 and Monitoring Analytics, LLC (“IMM”), a Pennsylvania limited liability company with an address at P.O. Box 768, Southeastern, PA 19399-0768. PJM and IMM shall be referred to herein individually as a “Party” and collectively as “the Parties.”

RECITALS:

WHEREAS, PJM is a regional transmission organization (“RTO”) that provides grid operations and reliability functions and administers wholesale markets for energy, capacity and energy-related services in portions of the Mid-Atlantic, Southeastern and Midwest United States pursuant to ~~an~~the PJM Open Access Transmission Tariff (“PJM Tariff”), ~~an Amended and Restated~~ Operating Agreement of PJM Interconnection L.L.C. (“Operating Agreement”) and other documents and rules;

WHEREAS, PJM is required to provide independent market monitoring of its markets and operations affecting market outcomes;

WHEREAS, independent market monitoring plays a critical role in ensuring PJM’s wholesale electricity markets operate competitively and fairly;

WHEREAS, IMM is a Pennsylvania limited liability company that provides market monitoring services to PJM and has informed PJM about its capabilities to provide such services to PJM as more fully detailed in this Agreement;

WHEREAS, PJM, through the PJM Board, having considered the information provided by IMM, the qualifications presented by IMM, and IMM’s history in providing market monitoring services to PJM, has concluded that IMM has demonstrated strong technical proficiency to provide the services sought, and accordingly, desires to engage IMM, pursuant to the terms and conditions of this Agreement, as an independent contractor to perform the market monitoring services set forth in PJM Tariff, Attachment M of the PJM Tariff and PJM Tariff, Attachment M-Appendix;

WHEREAS, IMM desires to undertake the performance of such Services, pursuant to the terms and conditions of this Agreement;

WHEREAS, the Parties acknowledge that PJM, its Members, and Authorized Government Agencies are entitled to strong, robust and independent market monitoring, including the functions and responsibilities set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and the following core functions included in the Commission’s regulations: (i) evaluating existing and proposed market rules, tariff provisions and market design elements and recommending proposed rule and tariff

changes, (ii) evaluating, reviewing and reporting on the performance of the wholesale markets, (iii) monitoring the conduct of PJM market participants to identify anomalous or suspect behavior that evidence a scheme to manipulate prices, distort market outcomes, or avoid the intended application of market rules and (iv) monitoring PJM's implementation of the PJM Market Rules and operation of the PJM Markets;

WHEREAS, the Parties further acknowledge and agree that their mutual obligations under this Agreement are to be performed in a dispassionate, fair and open manner;

WHEREAS, the Parties further acknowledge and agree that both PJM management and staff and IMM will undertake their respective functions and their mutual interactions with professionalism and appreciation by each group for the important functions of the other;

WHEREAS, the PJM Board of Managers is independent of PJM management and staff and has the responsibility of overseeing their activities;

WHEREAS, the PJM Board of Managers has the responsibility of overseeing the implementation of the contractual arrangements with the IMM; and

WHEREAS, the Parties are committed to acting in good faith and understand the importance of their acting in good faith to all stakeholders.

NOW, THEREFORE, in consideration of the premises, covenants and agreements contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned parties, intending to be legally bound, hereby agree as follows:

1. Definitions

Terms capitalized and not otherwise defined herein shall have the meanings set forth in PJM Tariff, Attachment M ~~of the PJM Tariff and PJM Tariff, Attachment M-Appendix~~. For purposes of this Agreement, the following terms shall have the following meanings:

1.1 “**Agreement**” means this Market Monitoring Services Agreement between PJM and IMM.

~~**1.2** “**Attachment M**” means Attachment M and Attachment M-Appendix to the PJM Tariff, as may be amended from time to time.~~

1.23 “**Commission**” means the Federal Energy Regulatory Commission.

1.34 “**Confidential Information**” means (i) in the case of information provided by PJM to IMM, any documents, data or other information where confidentiality is protected under the Operating Agreement, ~~or PJM Tariff, Attachment M or PJM Tariff, Attachment M-Appendix~~ as applied by PJM or other information that PJM advises is confidential; and (ii) in the case of information provided by IMM to PJM, any documents, data or other information that IMM advises is confidential.

1.45 “**Commencement Date**” means January 1, 2020 ~~the date the Commission accepts this Agreement~~.

1.56 “**Interested Party**” has the meaning set forth in PJM Tariff, Attachment M, sSection XI ~~of Attachment M~~.

1.67 “**IMM or Independent Market Monitor**” has the meaning set forth in the first paragraph of this Agreement and shall have the same meaning as “**Market Monitoring Unit**” or “**MMU**” as set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and as those terms are used elsewhere in the PJM Tariff.

1.78 “**Market Monitor**” means the head of the IMM.

1.89 “**Party**” or “**Parties**” has the meaning set forth in the first paragraph of this Agreement.

1.910 “**PJM Board**” means the independent Board of Managers of PJM Interconnection, L.L.C. exclusive of any members of PJM Management.

~~**1.101** “**PJM Liaison**” has the meaning set forth in PJM Tariff, Attachment M.~~

1.112 “**PJM Member**” means a member of PJM Interconnection, L.L.C.

1.123 “**PJM Region**” shall have the meaning set forth in ~~Part I of the~~ PJM Tariff, Part I.

1.134 “PJM Tariff” means the PJM Open Access Transmission Tariff ~~of PJM Interconnection, L.L.C.~~

1.145 “Plan” means the PJM market monitoring plan set forth in PJM Tariff, Attachment M ~~to the PJM Tariff~~ and PJM Tariff, Attachment M-Appendix.

1.156 “Principals” means the Market Monitor, the IMM’s Chief Economist (or closest equivalent), the IMM’s Chief Information Officer (or closest equivalent), ~~and~~ the IMM’s General Counsel (or closest equivalent) and such other IMM personnel as the Market Monitor designates as a Principal.

1.167 “Services” has the meaning set forth in sSection 6 hereof.

2. Responsibility For Administering Contract.

Any question or issue arising out of the performance of this Agreement, or the respective rights and obligations of the Parties ultimately shall be administered by the PJM Board or a subcommittee thereof, on behalf of PJM, and by the Market Monitor, on behalf of IMM. Notwithstanding the foregoing, any dispute arising out of the performance of this Agreement that the above-described counterparty representatives are unable to resolve shall be subject to resolution by the Commission in accordance with its applicable procedures, except as provided for in ~~Section 12 of~~ this Agreement, section 12.

3. Term.

The ~~initial~~ term of this Agreement shall be ~~from the Commencement Date until December 31, 20~~25~~19~~ and terminating as provided in ~~paragraph 4 of this Agreement,~~ section 4.

|
4. Termination.

| Any termination of this Agreement shall be in accordance with the provisions
| regarding termination set forth in PJM Tariff, Attachment M ~~of the PJM Tariff~~.

5.1 Rate.

In payment for the Services to be performed by IMM under this Agreement, effective upon the Commencement Date, and subject to adjustment as set forth in PJM Tariff, Schedule 9-MMU, PJM shall collect from Market Participants and pay IMM the rate established pursuant to the budgeting process described in PJM Tariff, Attachment M ~~of the PJM Tariff~~.

5.2 **Schedule 9-MMU.**

PJM shall collect and pay to IMM the rate set forth in ~~s~~Section 5.1 of this Agreement pursuant to PJM Tariff, Schedule 9-MMU ~~of the PJM Tariff~~.

5.3 Expenses and Capital Expenditures.

For the Services it is rendering to PJM, IMM shall pay for all of its expenses, including capital expenditures, office overhead, administrative support, rent, utilities and other support services, out of the rate referenced in [Section 5.1 of this Agreement](#).

6. **General Statement of Services.**

In accordance with FERC Order No. 719 and Commission rules and policies for market monitoring, IMM shall exclusively perform the market monitoring functions set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, and have only the responsibilities set forth in PJM Tariff, Attachment M, including PJM Tariff, Attachment M~~the~~-Appendix ~~thereto~~ (“Services”).

8.1 IMM Data Access.

IMM shall have access to data and information from PJM as set forth in [PJM Tariff, Attachment M](#) and [PJM Tariff, Attachment M-Appendix](#), which access will be implemented in accordance with the separate service level agreement. Providing data access to the IMM under this section shall not be construed to provide IMM any ownership rights to data owned by PJM.

11.3 Budget Estimates.

In accordance with PJM Tariff, Attachment M, ~~IMM already has provided to the PJM Board its budget for 2013 by~~ Not later than September 15 of each year, ~~2013~~, IMM shall provide a budget for ~~2014~~ the subsequent year, including total labor compensation, non-employee labor expense, current full-time employee and contractor head count, depreciation expense, interest expense, technology expense, other expense, and capital spending, including a level of supporting detail consistent with that provided by PJM in its annual budget review to the Finance Committee. In addition, not later than September 15 ~~of, 2013, and~~ each year ~~thereafter~~, IMM shall inform the PJM Board of the key drivers of potential increases and decreases in the budget, and estimates of such increases and decreases, for the subsequent two years.

11.4 No Conflicts.

IMM represents that (a) it has made full disclosure in writing of any business relationships with PJM personnel or business relationships with any PJM members or their personnel, (b) no relationship between IMM and PJM or a PJM market participant or its affiliates exists that would contravene the Code of Ethics set forth in PJM Tariff, Attachment M, Section XI ~~of Attachment M~~, and (c) no relationship between IMM and PJM or a PJM market participant or its affiliates will be established that would contravene the Code of Ethics set forth in PJM Tariff, Attachment M, Section XI ~~of Attachment M~~ during the term of this Agreement.

11.5 No Prohibited Engagements.

IMM has provided to PJM a complete list of its present engagements on behalf of or against any Interested Party. IMM represents that (a) it is not presently engaged in any prohibited activity described in PJM Tariff, Attachment M, sSection XI-of Attachment M, (b) it will not engage in any prohibited activity as described in PJM Tariff, Attachment M, sSection XI of Attachment M, and (c) it has fully informed PJM of any engagement on behalf of or against an Interested Party, as required by PJM Tariff, Attachment M, sSection XI-of Attachment M.

12.1 Applicability.

This Section 12 shall apply to any disputes between IMM and PJM under ~~sections~~ PJM Tariff, Attachment M, section V.A and PJM Tariff, Attachment M, section V.E ~~of Attachment M~~ and any provisions of this Agreement implementing these sections of PJM Tariff, Attachment M.

12.2 Procedures.

For any dispute between IMM and PJM for which ~~this s~~Section 12 of this Agreement is applicable, the Parties shall use the procedures set forth in this ~~s~~Section 12.2.

(a) The Parties shall refer any continuing dispute between IMM and PJM to the PJM Liaison. The PJM Liaison shall attempt to facilitate resolution of such dispute by facilitating discussions among appropriate PJM employees and management and IMM.

(b) If the PJM Liaison is unable to facilitate the resolution of any continuing dispute to the satisfaction of either IMM or PJM within 7 business days, or such other time as the Parties may agree, then either Party may refer on a non-public, confidential basis any continuing dispute to the Commission's Dispute Resolution Service and request that the dispute resolution service attempt to mediate the dispute.

(c) If the Commission's Dispute Resolution Service is unable to resolve any continuing dispute to the satisfaction of either IMM or PJM within 15 business days, or such other time as the Parties may agree, then either Party may refer such dispute to the PJM Board or a designated committee of the PJM Board for assistance in resolving the dispute. The PJM Board or designated committee shall have the opportunity to attempt to resolve the dispute within 15 business days or such other time as the Parties may agree.

(d) No formal proceeding may be commenced with the Commission regarding any dispute for which ~~this s~~Section 12 of this Agreement is applicable without first exhausting the procedures set forth in the foregoing ~~s~~Sections 12.2(a)-(c).

|

12.3 Data Preservation.

| Upon the initiation of the procedures set forth in [sSection 12.2 above](#), the Parties shall preserve any data or information that is the subject of such dispute pending resolution of such dispute.

13. Independent Contractor.

Nothing herein shall be construed to create an employer-employee relationship between PJM and IMM or any of IMM's employees. IMM is an independent contractor and not an employee of PJM or any of its subsidiaries or affiliates. The consideration set forth in [Section 5 of this Agreement](#) shall be the sole consideration due to IMM for the Services rendered hereunder. IMM and IMM's employees will not represent to be or hold themselves out as employees of PJM. No workers' compensation insurance shall be obtained by PJM covering IMM or IMM's employees.

14. IMM Employee Benefit Plans.

PJM has converted its 401(k) ~~and pension plans~~ to a multiple employer plans that makes coverage available to both PJM and IMM employees, and IMM has adopted such plans as a participating employer. PJM and IMM will each be responsible for the employer contribution costs for their respective employees, and PJM and IMM will arrange an equitable sharing of the administrative costs for such jointly-sponsored plans.

15. Budgeting and Auditing.

The procedures for the submission and approval of budgets and for independent financial auditing shall be as set forth in PJM Tariff, Attachment M.

The IMM will, on an annual basis, have an attest engagement conducted by a reputable and experienced accounting firm in accordance with attestation standards developed by the American Institute of Certified Public Accountants, and have such firm issue an Agreed-Upon Procedures Report that addresses whether the IMM follows procedures and controls in place relating to the IMM's determinations regarding Frequently Mitigated Unit status, Associated Unit status, affiliate mapping for the three pivotal supplier test, net Avoidable Cost Rates, Fuel Cost Policies, and all components of cost-based energy market offers.

18.1 Code of Ethics.

The IMM shall comply with the Code of Ethics provisions set forth in PJM Tariff, Attachment M, sSection XI-of Attachment M, including informing the PJM Board of engagements on behalf of or against an Interested Party as defined in PJM Tariff, Attachment M.

20. Confidentiality.

IMM and its employees and contractors shall comply with the confidentiality provisions set forth in PJM Tariff, Attachment M ~~of the PJM Tariff~~ and PJM Tariff, Attachment M-Appendix.

21. Intellectual Property.

PJM and IMM shall jointly own all intellectual property that the PJM Market Monitoring Unit developed prior to August 1, 2008. During the term of this Agreement, PJM and IMM shall have reciprocal licenses to use, without charge, each other's intellectual property in connection with, in the case of IMM, its rights and obligations under PJM Tariff, Attachment M ~~to the PJM Tariff and PJM Tariff, Attachment M-Appendix~~ and, in the case of PJM, its rights and obligations as an RTO. The Parties shall execute a reciprocal license agreement to implement this paragraph. After the term of this Agreement, at its election, PJM may continue to license the use of any IMM intellectual property developed predominantly in connection with the provision of the Services to PJM since August 1, 2008; such continuing license shall be provided by IMM to PJM at a mutually agreed fair and reasonable market price, or, in the absence of agreement, at a fair and reasonable market price determined by a mutually agreed third party qualified to make such determination.

24. Liability.

The provisions ~~regarding limiting~~ liability to third parties set forth in PJM Tariff, Attachment M ~~to the PJM Tariff~~ shall apply with respect to this Agreement, and shall include and apply to the IMM's officers, employees, representatives, advisors, contractors, and consultants. Any monetary liability as between PJM and IMM shall be limited in amount to the rate paid to IMM as set forth in Section 5 of this Agreement. This limitation on damages shall not affect either Party's rights to obtain equitable relief as otherwise provided in this Agreement. The provisions ~~regarding limiting~~ liability shall continue in full force and effect notwithstanding the expiration or termination of this Agreement with respect to events that occurred prior to such termination.

25. Indemnification.

Each Party shall indemnify and hold harmless the other Party, and the other Party's employees, from and against any and all loss, liability, damage, cost or expense to third parties, including damage and liability for bodily injury to or death of persons, or damage to property or persons (including reasonable attorneys' fees and expenses, litigation costs, consultant fees, investigation fees, penalties or fines, and any such fees and expenses incurred in enforcing this indemnity or collecting any sums due hereunder) (collectively, "Loss") to the extent arising out of, in connection with, or resulting from the negligence or willful misconduct of the indemnifying Party or its contractors, including but not limited to any claims arising under any employment law; provided, however, that no Party shall have any indemnification obligations under this ~~s~~Section 25 in respect of any Loss to the extent the Loss results from the negligence or willful misconduct of the Party seeking indemnity.

27. Adequate Performance Under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix.

It is critical that IMM independence be maintained and that the IMM be accountable to the PJM Board as stated in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and delineated here.

Pursuant to its authority and responsibility in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board evaluates whether IMM is adequately performing its functions. The PJM Board has the authority and responsibility to determine the adequacy of the performance of the independent market monitoring function, but has no authority to manage or direct the activities of such independent function.

To enable this authority and responsibility, the PJM Board or a committee of the PJM Board and IMM shall meet periodically, not less than annually, to review the IMM's performance under this Agreement (Performance Meetings). The PJM Board or a committee of the PJM Board may increase such reviews to semi-annually. Upon request, IMM also shall meet with the PJM Board (and any outside advisors it may retain) to explain its methods, systems, analyses, findings, conclusions, and work product and shall cooperate and respond to questions regarding the same.

Review of the IMM's performance referenced in this ~~paragraph~~section 27 may include, but not be limited to, the following:

1. Maintaining independence. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under the Agreement, the PJM Board will review and evaluate whether IMM is providing the Services in an independent manner, without improper influence from PJM management, PJM staff, market participants, state commissions, or other stakeholders. The PJM Board expects IMM to keep it, the Commission, stakeholders and the public fully informed and that IMM will express its professional opinions, consistent with its independence, even where such positions differ from the positions of PJM management, PJM staff, market participants, state commissions, or other stakeholders.

2. Promoting competitive and efficient PJM markets. The PJM Board expects that the IMM will be a vigorous and competent advocate for competitive and efficient PJM markets, and that it will protect the integrity of PJM markets. In evaluating whether the IMM performs adequately, the Board shall consider, among other things, the level and quality of the IMM's efforts to promote (i) efficient and accurate pricing; (ii) a competitive market structure, or, to the extent that the structure is not competitive, effective mitigation rules and the proper application of such rules; (iii) market rules that promote competition and efficiency and that are transparent and non-discriminatory; and (iv) compliance with market rules and their purpose and proper implementation of such rules. The Board shall also consider whether the IMM has taken adequate steps to detect and call attention to actual or attempted market manipulation, the exercise of market

power, physical and economic withholding, and faulty operation of the markets.

3. IMM's prioritization and performance of its functions and responsibilities under PJM Tariff, Attachment M-of the PJM Tariff and PJM Tariff, Attachment M-Appendix. In order for the PJM Board to ensure the IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M-of the PJM Tariff and PJM Tariff, Attachment M-Appendix, the Board may review the IMM's prioritization of its activities. The IMM shall keep the Board informed of its activities through regular meetings, including apprising the PJM Board and PJM of any referrals of suspected market violations to the Commission. The PJM Board and PJM shall keep confidential such referrals. In advance of the Performance Meetings, IMM shall prepare for the PJM Board a description of its activities since the last Performance Meeting, identifying the potential impacts upon market outcomes of particular activities to the extent possible, the prioritization of its activities, and the bases for the prioritization. The PJM Board shall not direct the prioritization of IMM activities, which the IMM shall determine independently, but the PJM Board may comment on the prioritization and discuss with IMM the PJM Board's views of whether IMM's prioritization constitutes adequate performance of the IMM's functions.

4. IMM's timeliness and responsiveness. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M-of the PJM Tariff and PJM Tariff, Attachment M-Appendix, the PJM Board may review: IMM's timeliness in meeting Tariff-specified deadlines; IMM's timeliness and consistency in responding to the FERC, PJM and other stakeholders; IMM's timely performance of commitments it makes to the FERC, PJM and other stakeholders; the IMM's satisfaction of the needs of the FERC and its enforcement staff; and the timeliness and completeness of IMM's submissions of its annual itemized budget to the PJM Finance Committee and its annual audited financial statements. The PJM Board shall not direct the management of IMM activities, which the IMM shall determine independently.

5. State of the Market reports. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M-of the PJM Tariff and PJM Tariff, Attachment M-Appendix, the PJM Board may review the timeliness of IMM's annual and quarterly State of the Market reports. The IMM shall consider in good faith comments the PJM Board may offer regarding the clarity, completeness, materiality and priority of any recommendation.

6. Market Design. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M-of the PJM Tariff and PJM Tariff, Attachment M-Appendix, the PJM Board may review the quality of IMM's review and recommendations related to PJM market design and PJM's implementation of market operations. IMM's recommendations regarding market design and PJM operations shall include its rationale for its proposals, its analyses of the materiality of the issues addressed by the proposals, the risks PJM's market faces from inaction or action on IMM's recommendations, and its prioritization of the

recommendations. The PJM Board shall not direct the IMM's decisions about market design recommendations.

7. Stakeholder interaction. In order to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M ~~of the PJM Tariff and PJM Tariff, Attachment M-Appendix~~, the PJM Board may review IMM's interaction with PJM and stakeholders to encourage IMM to maintain an atmosphere of trust and respect consistent with IMM's duties to monitor PJM and stakeholders. The PJM Board shall not direct the IMM's interactions with PJM and stakeholders.

The PJM Board shall notify IMM at the Performance Meetings pursuant to this paragraph if it determines that IMM has acted in a manner that the PJM Board believes is adequate performance of the IMM's functions set forth in the Plan ("adequate performance"). The PJM Board shall notify IMM at the Performance Meetings pursuant to this paragraph if it determines that IMM has acted (or failed to act) in a manner that the PJM Board believes is not adequate performance of the IMM's functions set forth in the Plan ("inadequate performance"). The notice shall specify in detail the nature of the alleged inadequate performance and be documented in writing to IMM following the Performance Meeting. At the Performance Meeting and at the next following Performance Meeting, the PJM Board and IMM shall discuss and evaluate (i) whether, after review, the Board believes that performance was not adequate (ii) whether the alleged inadequate performance arose from causes beyond IMM's control or without fault or negligence on IMM's part; (iii) the efforts that IMM proposes (if any) to make to remedy the alleged inadequate performance; and (iv) the procedures which IMM should implement to avoid future inadequate performance of the type alleged in the notice.

| **29. Notice Procedures.**

Notice to any party hereto shall be in writing and shall be delivered by email. Receipt shall be deemed as of noon on the first business day after the email is received:

If to IMM: *joseph.bowring@monitoringanalytics.com*

| If to PJM: *~~ottboston~~@pjm.com*

30. Disputes.

Any controversy or claim arising out of or relating to this Agreement, or breach thereof, shall be presented to the Commission for resolution, subject to any applicable requirements of [this Agreement, s](#)Section 12. IMM shall provide all Services under this Agreement and PJM shall make all payments under this Agreement until the Commission orders otherwise.

31. Expression of Professional Opinion.

IMM's public expression of its professional opinion in the performance of its duties as set forth in the Plan, including any criticism or comment as to PJM market rules, market design, mitigation, or operations, shall not be grounds for termination, threatening termination, or holding back or impeding payment under ~~Section 5 of~~ this Agreement, section 5.

32. Entire Agreement.

This Agreement constitutes the entire agreement of the parties with regard to the subject matter hereof, and replaces and supersedes all other agreements or understandings, whether written or oral. Notwithstanding the foregoing, it is the express understanding of the Parties that nothing in this Agreement is intended, nor shall it be deemed, to change or amend any terms or conditions of the PJM Tariff. Furthermore, in the event of a conflict between any provision of this Agreement and the terms of the PJM Tariff, in particular PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Tariff shall in all events be controlling.

33. Assignment.

(a) This Agreement shall be binding upon and shall inure to the benefit of and be enforceable by each Party hereto and its respective successors and permitted assigns. Neither this Agreement, nor the duties to be performed hereunder, shall be assigned, delegated or otherwise disposed of by either Party without the prior written consent of the other Party. Any assignment of this Agreement without PJM's written consent is unlawful and shall be deemed to be void.

(b) The Parties expect that Joseph Bowring will be the Market Monitor during the term of this contract. IMM shall establish, maintain and share with the Board a succession plan describing an organization structure for IMM that would go into effect if Joseph Bowring no longer was the Market Monitor. If, for reasons beyond the control of either Joseph Bowring or IMM, Joseph Bowring will no longer be the Market Monitor, the IMM shall provide as much notice as is feasible in the circumstances. -Following such notice, the Board shall evaluate the performance of the IMM organization, including the successor Market Monitor, for a period of no less than 6 months. After this period, the Board shall have the option, conditioned on having identified deficiencies or failures in performing the terms of this Agreement, to implement the Term and Termination provisions of PJM Tariff, Attachment M. - If instead, the Board is satisfied that the IMM organization has performed satisfactorily the terms of this Agreement, then this Agreement will continue in full force and effect through its Term.

| **34. Governing Law.**

| This Agreement shall be governed and construed in accordance with applicable
| ~~f~~Federal law and the laws of the Commonwealth of Pennsylvania without regard to its
| principles of conflict of laws.

36. Modification.

Except as stated in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, no amendment, modification, termination or attempted waiver of this Agreement, or any provision thereof, shall be valid unless agreed to by the Parties in writing. Any such modification shall be provided to the OPSI Advisory Committee, MMU Advisory Committee, and PJM members.

40. Counterparts.

This Agreement may be executed in one or more counterparts with the same effect as if the signatures thereto and hereto were upon the same instrument.

IN WITNESS WHEREOF, this Agreement is effective as of the date first written above.

PJM INTERCONNECTION, L.L.C.
ANALYTICS, LLC

~~Monitoring Analytics~~ MONITORING

By: ~~/s/Terry Boston~~ Andrew Ott

By: ~~/s/Joseph Bowring~~

~~Terry Boston~~ Andrew Ott
President and CEO

Joseph Bowring
____ President

Date: ~~July 8, 2013~~ August 1, 2018
1, 2018 ~~July 8, 2013~~

____ Date: August

By: ~~/s/Howard Schneider~~ Ake Almgren

~~Howard Schneider~~ Ake Almgren
Chairman

Date: August 1, 2018 ~~July 8, 2013~~

Attachment B

Revisions to the Service Agreement
between
PJM Interconnection, L.L.C. and
Monitoring Analytics, LLC

(Clean Format)

Market Monitoring Services Agreement
By And Between
PJM Interconnection, L.L.C. And Monitoring Analytics, LLC
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Market Monitoring Services Agreement

This Market Monitoring Services Agreement (“Agreement”) is entered into as of this 8th day of July, 2013, by and between PJM Interconnection, L.L.C. (“PJM”), a Delaware limited liability company with an address at 2750 Monroe Boulevard, Audubon, PA 19403 and Monitoring Analytics, LLC (“IMM”), a Pennsylvania limited liability company with an address at P.O. Box 768, Southeastern, PA 19399-0768. PJM and IMM shall be referred to herein individually as a “Party” and collectively as “the Parties.”

RECITALS:

WHEREAS, PJM is a regional transmission organization (“RTO”) that provides grid operations and reliability functions and administers wholesale markets for energy, capacity and energy-related services in portions of the Mid-Atlantic, Southeastern and Midwest United States pursuant to the PJM Open Access Transmission Tariff (“PJM Tariff”), Amended and Restated Operating Agreement of PJM Interconnection L.L.C. (“Operating Agreement”) and other documents and rules;

WHEREAS, PJM is required to provide independent market monitoring of its markets and operations affecting market outcomes;

WHEREAS, independent market monitoring plays a critical role in ensuring PJM’s wholesale electricity markets operate competitively and fairly;

WHEREAS, IMM is a Pennsylvania limited liability company that provides market monitoring services to PJM and has informed PJM about its capabilities to provide such services to PJM as more fully detailed in this Agreement;

WHEREAS, PJM, through the PJM Board, having considered the information provided by IMM, the qualifications presented by IMM, and IMM’s history in providing market monitoring services to PJM, has concluded that IMM has demonstrated strong technical proficiency to provide the services sought, and accordingly, desires to engage IMM, pursuant to the terms and conditions of this Agreement, as an independent contractor to perform the market monitoring services set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix;

WHEREAS, IMM desires to undertake the performance of such Services, pursuant to the terms and conditions of this Agreement;

WHEREAS, the Parties acknowledge that PJM, its Members, and Authorized Government Agencies are entitled to strong, robust and independent market monitoring, including the functions and responsibilities set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and the following core functions included in the Commission’s regulations: (i) evaluating existing and proposed market rules, tariff provisions and market design elements and recommending proposed rule and tariff

changes, (ii) evaluating, reviewing and reporting on the performance of the wholesale markets, (iii) monitoring the conduct of PJM market participants to identify anomalous or suspect behavior that evidence a scheme to manipulate prices, distort market outcomes, or avoid the intended application of market rules and (iv) monitoring PJM's implementation of the PJM Market Rules and operation of the PJM Markets;

WHEREAS, the Parties further acknowledge and agree that their mutual obligations under this Agreement are to be performed in a dispassionate, fair and open manner;

WHEREAS, the Parties further acknowledge and agree that both PJM management and staff and IMM will undertake their respective functions and their mutual interactions with professionalism and appreciation by each group for the important functions of the other;

WHEREAS, the PJM Board of Managers is independent of PJM management and staff and has the responsibility of overseeing their activities;

WHEREAS, the PJM Board of Managers has the responsibility of overseeing the implementation of the contractual arrangements with the IMM; and

WHEREAS, the Parties are committed to acting in good faith and understand the importance of their acting in good faith to all stakeholders.

NOW, THEREFORE, in consideration of the premises, covenants and agreements contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned parties, intending to be legally bound, hereby agree as follows:

1. Definitions

Terms capitalized and not otherwise defined herein shall have the meanings set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix. For purposes of this Agreement, the following terms shall have the following meanings:

1.1 “Agreement” means this Market Monitoring Services Agreement between PJM and IMM.

1.2 “Commission” means the Federal Energy Regulatory Commission.

1.3 “Confidential Information” means (i) in the case of information provided by PJM to IMM, any documents, data or other information where confidentiality is protected under the Operating Agreement, PJM Tariff, Attachment M or PJM Tariff, Attachment M-Appendix as applied by PJM or other information that PJM advises is confidential; and (ii) in the case of information provided by IMM to PJM, any documents, data or other information that IMM advises is confidential.

1.4 “Commencement Date” means January 1, 2020.

1.5 “Interested Party” has the meaning set forth in PJM Tariff, Attachment M, section XI.

1.6 “IMM or Independent Market Monitor” has the meaning set forth in the first paragraph of this Agreement and shall have the same meaning as “Market Monitoring Unit” or “MMU” as set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and as those terms are used elsewhere in the PJM Tariff.

1.7 “Market Monitor” means the head of the IMM.

1.8 “Party” or “Parties” has the meaning set forth in the first paragraph of this Agreement.

1.9 “PJM Board” means the independent Board of Managers of PJM Interconnection, L.L.C. exclusive of any members of PJM Management.

1.10 “PJM Liaison” has the meaning set forth in PJM Tariff, Attachment M.

1.11 “PJM Member” means a member of PJM Interconnection, L.L.C.

1.12 “PJM Region” shall have the meaning set forth in PJM Tariff, Part I.

1.13 “PJM Tariff” means the PJM Open Access Transmission Tariff.

1.14 “Plan” means the PJM market monitoring plan set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix.

1.15 “Principals” means the Market Monitor, the IMM’s Chief Economist (or closest equivalent), the IMM’s Chief Information Officer (or closest equivalent), the IMM’s General Counsel (or closest equivalent) and such other IMM personnel as the Market Monitor designates as a Principal.

1.16 “Services” has the meaning set forth in section 6 hereof.

2. Responsibility For Administering Contract.

Any question or issue arising out of the performance of this Agreement, or the respective rights and obligations of the Parties ultimately shall be administered by the PJM Board or a subcommittee thereof, on behalf of PJM, and by the Market Monitor, on behalf of IMM. Notwithstanding the foregoing, any dispute arising out of the performance of this Agreement that the above-described counterparty representatives are unable to resolve shall be subject to resolution by the Commission in accordance with its applicable procedures, except as provided for in this Agreement, section 12.

3. Term.

The term of this Agreement shall be from the Commencement Date until December 31, 2025 and terminating as provided in this Agreement, section 4.

4. Termination.

Any termination of this Agreement shall be in accordance with the provisions regarding termination set forth in PJM Tariff, Attachment M.

5.1 Rate.

In payment for the Services to be performed by IMM under this Agreement, effective upon the Commencement Date, and subject to adjustment as set forth in PJM Tariff, Schedule 9-MMU, PJM shall collect from Market Participants and pay IMM the rate established pursuant to the budgeting process described in PJM Tariff, Attachment M.

5.2 Schedule 9-MMU.

PJM shall collect and pay to IMM the rate set forth in section 5.1 of this Agreement pursuant to PJM Tariff, Schedule 9-MMU.

5.3 Expenses and Capital Expenditures.

For the Services it is rendering to PJM, IMM shall pay for all of its expenses, including capital expenditures, office overhead, administrative support, rent, utilities and other support services, out of the rate referenced in section 5.1 of this Agreement.

6. General Statement of Services.

In accordance with FERC Order No. 719 and Commission rules and policies for market monitoring, IMM shall exclusively perform the market monitoring functions set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, and have only the responsibilities set forth in PJM Tariff, Attachment M, including PJM Tariff, Attachment M-Appendix (“Services”).

8.1 IMM Data Access.

IMM shall have access to data and information from PJM as set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, which access will be implemented in accordance with the separate service level agreement. Providing data access to the IMM under this section shall not be construed to provide IMM any ownership rights to data owned by PJM.

11.3 Budget Estimates.

In accordance with PJM Tariff, Attachment M, by no later than September 15 of each year, IMM shall provide a budget for the subsequent year, including total labor compensation, non-employee labor expense, current full-time employee and contractor head count, depreciation expense, interest expense, technology expense, other expense, and capital spending, including a level of supporting detail consistent with that provided by PJM in its annual budget review to the Finance Committee. In addition, not later than September 15 of each year, IMM shall inform the PJM Board of the key drivers of potential increases and decreases in the budget, and estimates of such increases and decreases, for the subsequent two years.

11.4 No Conflicts.

IMM represents that (a) it has made full disclosure in writing of any business relationships with PJM personnel or business relationships with any PJM members or their personnel, (b) no relationship between IMM and PJM or a PJM market participant or its affiliates exists that would contravene the Code of Ethics set forth in PJM Tariff, Attachment M, section XI, and (c) no relationship between IMM and PJM or a PJM market participant or its affiliates will be established that would contravene the Code of Ethics set forth in PJM Tariff, Attachment M, section XI during the term of this Agreement.

11.5 No Prohibited Engagements.

IMM has provided to PJM a complete list of its present engagements on behalf of or against any Interested Party. IMM represents that (a) it is not presently engaged in any prohibited activity described in PJM Tariff, Attachment M, section XI, (b) it will not engage in any prohibited activity as described in PJM Tariff, Attachment M, section XI, and (c) it has fully informed PJM of any engagement on behalf of or against an Interested Party, as required by PJM Tariff, Attachment M, section XI.

12.1 Applicability.

This Section 12 shall apply to any disputes between IMM and PJM under PJM Tariff, Attachment M, section V.A and PJM Tariff, Attachment M, section V.E and any provisions of this Agreement implementing these sections of PJM Tariff, Attachment M.

12.2 Procedures.

For any dispute between IMM and PJM for which section 12 of this Agreement is applicable, the Parties shall use the procedures set forth in this section 12.2.

(a) The Parties shall refer any continuing dispute between IMM and PJM to the PJM Liaison. The PJM Liaison shall attempt to facilitate resolution of such dispute by facilitating discussions among appropriate PJM employees and management and IMM.

(b) If the PJM Liaison is unable to facilitate the resolution of any continuing dispute to the satisfaction of either IMM or PJM within 7 business days, or such other time as the Parties may agree, then either Party may refer on a non-public, confidential basis any continuing dispute to the Commission's Dispute Resolution Service and request that the dispute resolution service attempt to mediate the dispute.

(c) If the Commission's Dispute Resolution Service is unable to resolve any continuing dispute to the satisfaction of either IMM or PJM within 15 business days, or such other time as the Parties may agree, then either Party may refer such dispute to the PJM Board or a designated committee of the PJM Board for assistance in resolving the dispute. The PJM Board or designated committee shall have the opportunity to attempt to resolve the dispute within 15 business days or such other time as the Parties may agree.

(d) No formal proceeding may be commenced with the Commission regarding any dispute for which section 12 of this Agreement is applicable without first exhausting the procedures set forth in the foregoing sections 12.2(a)-(c).

12.3 Data Preservation.

Upon the initiation of the procedures set forth in section 12.2 above, the Parties shall preserve any data or information that is the subject of such dispute pending resolution of such dispute.

13. Independent Contractor.

Nothing herein shall be construed to create an employer-employee relationship between PJM and IMM or any of IMM's employees. IMM is an independent contractor and not an employee of PJM or any of its subsidiaries or affiliates. The consideration set forth in section 5 of this Agreement shall be the sole consideration due to IMM for the Services rendered hereunder. IMM and IMM's employees will not represent to be or hold themselves out as employees of PJM. No workers' compensation insurance shall be obtained by PJM covering IMM or IMM's employees.

14. IMM Employee Benefit Plans.

PJM has converted its 401(k) to a multiple employer plan that makes coverage available to both PJM and IMM employees, and IMM has adopted such plan as a participating employer. PJM and IMM will each be responsible for the employer contribution costs for their respective employees, and PJM and IMM will arrange an equitable sharing of the administrative costs for such jointly-sponsored plan.

15. Budgeting and Auditing.

The procedures for the submission and approval of budgets and for independent financial auditing shall be as set forth in PJM Tariff, Attachment M.

The IMM will, on an annual basis, have an attest engagement conducted by a reputable and experienced accounting firm in accordance with attestation standards developed by the American Institute of Certified Public Accountants, and have such firm issue an Agreed-Upon Procedures Report that addresses whether the IMM follows procedures and controls in place relating to the IMM's determinations regarding Frequently Mitigated Unit status, Associated Unit status, affiliate mapping for the three pivotal supplier test, net Avoidable Cost Rates, Fuel Cost Policies, and all components of cost-based energy market offers.

18.1 Code of Ethics.

The IMM shall comply with the Code of Ethics provisions set forth in PJM Tariff, Attachment M, section XI, including informing the PJM Board of engagements on behalf of or against an Interested Party as defined in PJM Tariff, Attachment M.

20. Confidentiality.

IMM and its employees and contractors shall comply with the confidentiality provisions set forth in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix.

21. Intellectual Property.

PJM and IMM shall jointly own all intellectual property that the PJM Market Monitoring Unit developed prior to August 1, 2008. During the term of this Agreement, PJM and IMM shall have reciprocal licenses to use, without charge, each other's intellectual property in connection with, in the case of IMM, its rights and obligations under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and, in the case of PJM, its rights and obligations as an RTO. The Parties shall execute a reciprocal license agreement to implement this paragraph. After the term of this Agreement, at its election, PJM may continue to license the use of any IMM intellectual property developed predominantly in connection with the provision of the Services to PJM since August 1, 2008; such continuing license shall be provided by IMM to PJM at a mutually agreed fair and reasonable market price, or, in the absence of agreement, at a fair and reasonable market price determined by a mutually agreed third party qualified to make such determination.

24. Liability.

The provisions limiting liability to third parties set forth in PJM Tariff, Attachment M shall apply with respect to this Agreement, and shall include and apply to the IMM's officers, employees, representatives, advisors, contractors, and consultants. Any monetary liability as between PJM and IMM shall be limited in amount to the rate paid to IMM as set forth in Section 5 of this Agreement. This limitation on damages shall not affect either Party's rights to obtain equitable relief as otherwise provided in this Agreement. The provisions limiting liability shall continue in full force and effect notwithstanding the expiration or termination of this Agreement with respect to events that occurred prior to such termination.

25. Indemnification.

Each Party shall indemnify and hold harmless the other Party, and the other Party's employees, from and against any and all loss, liability, damage, cost or expense to third parties, including damage and liability for bodily injury to or death of persons, or damage to property or persons (including reasonable attorneys' fees and expenses, litigation costs, consultant fees, investigation fees, penalties or fines, and any such fees and expenses incurred in enforcing this indemnity or collecting any sums due hereunder) (collectively, "Loss") to the extent arising out of, in connection with, or resulting from the negligence or willful misconduct of the indemnifying Party or its contractors, including but not limited to any claims arising under any employment law; provided, however, that no Party shall have any indemnification obligations under this section 25 in respect of any Loss to the extent the Loss results from the negligence or willful misconduct of the Party seeking indemnity.

27. Adequate Performance Under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix.

It is critical that IMM independence be maintained and that the IMM be accountable to the PJM Board as stated in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix and delineated here.

Pursuant to its authority and responsibility in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board evaluates whether IMM is adequately performing its functions. The PJM Board has the authority and responsibility to determine the adequacy of the performance of the independent market monitoring function, but has no authority to manage or direct the activities of such independent function.

To enable this authority and responsibility, the PJM Board or a committee of the PJM Board and IMM shall meet periodically, not less than annually, to review the IMM's performance under this Agreement (Performance Meetings). The PJM Board or a committee of the PJM Board may increase such reviews to semi-annually. Upon request, IMM also shall meet with the PJM Board (and any outside advisors it may retain) to explain its methods, systems, analyses, findings, conclusions, and work product and shall cooperate and respond to questions regarding the same.

Review of the IMM's performance referenced in this section 27 may include, but not be limited to, the following:

1. Maintaining independence. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under the Agreement, the PJM Board will review and evaluate whether IMM is providing the Services in an independent manner, without improper influence from PJM management, PJM staff, market participants, state commissions, or other stakeholders. The PJM Board expects IMM to keep it, the Commission, stakeholders and the public fully informed and that IMM will express its professional opinions, consistent with its independence, even where such positions differ from the positions of PJM management, PJM staff, market participants, state commissions, or other stakeholders.

2. Promoting competitive and efficient PJM markets. The PJM Board expects that the IMM will be a vigorous and competent advocate for competitive and efficient PJM markets, and that it will protect the integrity of PJM markets. In evaluating whether the IMM performs adequately, the Board shall consider, among other things, the level and quality of the IMM's efforts to promote (i) efficient and accurate pricing; (ii) a competitive market structure, or, to the extent that the structure is not competitive, effective mitigation rules and the proper application of such rules; (iii) market rules that promote competition and efficiency and that are transparent and non-discriminatory; and (iv) compliance with market rules and their purpose and proper implementation of such rules. The Board shall also consider whether the IMM has taken adequate steps to detect and call attention to actual or attempted market manipulation, the exercise of market power, physical and economic withholding, and faulty operation of the markets.

3. IMM's prioritization and performance of its functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix. In order for the PJM Board to ensure the IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the Board may review the IMM's prioritization of its activities. The IMM shall keep the Board informed of its activities through regular meetings, including apprising the PJM Board and PJM of any referrals of suspected market violations to the Commission. The PJM Board and PJM shall keep confidential such referrals. In advance of the Performance Meetings, IMM shall prepare for the PJM Board a description of its activities since the last Performance Meeting, identifying the potential impacts upon market outcomes of particular activities to the extent possible, the prioritization of its activities, and the bases for the prioritization. The PJM Board shall not direct the prioritization of IMM activities, which the IMM shall determine independently, but the PJM Board may comment on the prioritization and discuss with IMM the PJM Board's views of whether IMM's prioritization constitutes adequate performance of the IMM's functions.

4. IMM's timeliness and responsiveness. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board may review: IMM's timeliness in meeting Tariff-specified deadlines; IMM's timeliness and consistency in responding to the FERC, PJM and other stakeholders; IMM's timely performance of commitments it makes to the FERC, PJM and other stakeholders; the IMM's satisfaction of the needs of the FERC and its enforcement staff; and the timeliness and completeness of IMM's submissions of its annual itemized budget to the PJM Finance Committee and its annual audited financial statements. The PJM Board shall not direct the management of IMM activities, which the IMM shall determine independently.

5. State of the Market reports. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board may review the timeliness of IMM's annual and quarterly State of the Market reports. The IMM shall consider in good faith comments the PJM Board may offer regarding the clarity, completeness, materiality and priority of any recommendation.

6. Market Design. In order for the PJM Board to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board may review the quality of IMM's review and recommendations related to PJM market design and PJM's implementation of market operations. IMM's recommendations regarding market design and PJM operations shall include its rationale for its proposals, its analyses of the materiality of the issues addressed by the proposals, the risks PJM's market faces from inaction or action on IMM's recommendations, and its prioritization of the recommendations. The PJM Board shall not direct the IMM's decisions about market design recommendations.

7. Stakeholder interaction. In order to ensure IMM is adequately performing the functions and responsibilities under PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Board may review IMM's interaction with PJM and stakeholders to encourage IMM to maintain an atmosphere of trust and respect consistent with IMM's duties to monitor PJM and stakeholders. The PJM Board shall not direct the IMM's interactions with PJM and stakeholders.

The PJM Board shall notify IMM at the Performance Meetings pursuant to this paragraph if it determines that IMM has acted in a manner that the PJM Board believes is adequate performance of the IMM's functions set forth in the Plan ("adequate performance"). The PJM Board shall notify IMM at the Performance Meetings pursuant to this paragraph if it determines that IMM has acted (or failed to act) in a manner that the PJM Board believes is not adequate performance of the IMM's functions set forth in the Plan ("inadequate performance"). The notice shall specify in detail the nature of the alleged inadequate performance and be documented in writing to IMM following the Performance Meeting. At the Performance Meeting and at the next following Performance Meeting, the PJM Board and IMM shall discuss and evaluate (i) whether, after review, the Board believes that performance was not adequate (ii) whether the alleged inadequate performance arose from causes beyond IMM's control or without fault or negligence on IMM's part; (iii) the efforts that IMM proposes (if any) to make to remedy the alleged inadequate performance; and (iv) the procedures which IMM should implement to avoid future inadequate performance of the type alleged in the notice.

29. Notice Procedures.

Notice to any party hereto shall be in writing and shall be delivered by email. Receipt shall be deemed as of noon on the first business day after the email is received:

If to IMM: *joseph.bowring@monitoringanalytics.com*

If to PJM: *ott@pjm.com*

30. Disputes.

Any controversy or claim arising out of or relating to this Agreement, or breach thereof, shall be presented to the Commission for resolution, subject to any applicable requirements of this Agreement, section 12. IMM shall provide all Services under this Agreement and PJM shall make all payments under this Agreement until the Commission orders otherwise.

31. Expression of Professional Opinion.

IMM's public expression of its professional opinion in the performance of its duties as set forth in the Plan, including any criticism or comment as to PJM market rules, market design, mitigation, or operations, shall not be grounds for termination, threatening termination, or holding back or impeding payment under this Agreement, section 5.

32. Entire Agreement.

This Agreement constitutes the entire agreement of the parties with regard to the subject matter hereof, and replaces and supersedes all other agreements or understandings, whether written or oral. Notwithstanding the foregoing, it is the express understanding of the Parties that nothing in this Agreement is intended, nor shall it be deemed, to change or amend any terms or conditions of the PJM Tariff. Furthermore, in the event of a conflict between any provision of this Agreement and the terms of the PJM Tariff, in particular PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, the PJM Tariff shall in all events be controlling.

33. Assignment.

(a) This Agreement shall be binding upon and shall inure to the benefit of and be enforceable by each Party hereto and its respective successors and permitted assigns. Neither this Agreement, nor the duties to be performed hereunder, shall be assigned, delegated or otherwise disposed of by either Party without the prior written consent of the other Party. Any assignment of this Agreement without PJM's written consent is unlawful and shall be deemed to be void.

(b) The Parties expect that Joseph Bowring will be the Market Monitor during the term of this contract. IMM shall establish, maintain and share with the Board a succession plan describing an organization structure for IMM that would go into effect if Joseph Bowring no longer was the Market Monitor. If, for reasons beyond the control of either Joseph Bowring or IMM, Joseph Bowring will no longer be the Market Monitor, the IMM shall provide as much notice as is feasible in the circumstances. Following such notice, the Board shall evaluate the performance of the IMM organization, including the successor Market Monitor, for a period of no less than 6 months. After this period, the Board shall have the option, conditioned on having identified deficiencies or failures in performing the terms of this Agreement, to implement the Term and Termination provisions of PJM Tariff, Attachment M. If instead, the Board is satisfied that the IMM organization has performed satisfactorily the terms of this Agreement, then this Agreement will continue in full force and effect through its Term.

34. Governing Law.

This Agreement shall be governed and construed in accordance with applicable federal law and the laws of the Commonwealth of Pennsylvania without regard to its principles of conflict of laws.

36. Modification.

Except as stated in PJM Tariff, Attachment M and PJM Tariff, Attachment M-Appendix, no amendment, modification, termination or attempted waiver of this Agreement, or any provision thereof, shall be valid unless agreed to by the Parties in writing. Any such modification shall be provided to the OPSI Advisory Committee, MMU Advisory Committee, and PJM members.

40. Counterparts.

This Agreement may be executed in one or more counterparts with the same effect as if the signatures thereto and hereto were upon the same instrument.

IN WITNESS WHEREOF, this Agreement is effective as of the date first written above.

PJM INTERCONNECTION, L.L.C.

MONITORING ANALYTICS, LLC

By: /s/Andrew Ott
Andrew Ott
President and CEO

By: /s/Joseph Bowring
Joseph Bowring
President

Date: August 1, 2018

Date: August 1, 2018

By: /s/Ake Almgren
Ake Almgren
Chairman

Date: August 1, 2018

Attachment C

Chart of Standard Reference/Formatting Revisions

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MMSA-46 Table of Contents
MMSA-46 Recitals
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MMSA-46 Sec 2 - Responsibility For Administering Contract
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