Service Level Agreement between
PJM Interconnection, L.L.C.
-and-
Monitoring Analytics, LLC
Table of Contents

1. Purpose
2. Scope of Services
3. Service Period
4. SLA Review and Amendment
5. Responsibilities of PJM
6. Responsibilities of MMU
7. Technical and Maintenance Support
8. Support Hours
9. Availability
10. Scheduled Maintenance
11. Production System Access and Access Termination
12. Development and Test System Access and Access Termination
13. Incident Management
14. Problem Management
15. Change Management; Enhancements and Upgrades
16. Service Levels
17. Target Time to Respond, Repair, Resolve (“TTR”)
18. Resolution Escalation
19. Performance
20. Data Transfer and Access
21. Data Listing and System Access
22. Capacity Management
23. Contacts and Notice
24. Service Measurement Reporting
25. Configuration Management
26. Crisis Management
27. Service Continuity and Security
28. Confidentiality
29. Access Rights and Changes
30. Disaster Situations
31. Cost for Provision of Data
32. Access for Independent Auditors
33. Disputes
34. Historical Records
35. Entire Agreement

Appendix A: Data Flow Diagram. Current Architecture
Appendix B: End User Production Access
Appendix C: Detailed table catalogue
Appendix D: Change Management Process
Appendix E: PJM Access to MMU Data and Systems
Appendix F: PJM 2007 Internal Project Labor Rates
THIS SERVICE LEVEL AGREEMENT (the “SLA”) is made and entered into as of this 18th day of December, 2007 (the “Effective Date”), by and between PJM Interconnection, L.L.C., with offices at 955 Jefferson Avenue, Norristown, PA 19403 (“PJM”) and Monitoring Analytics, LLC, with offices at 2621 Van Buren Avenue, Valley Forge Corporate Center, Norristown, PA 19403 (“MMU”). Each of PJM and MMU may also be referred to individually hereinafter as a “Party”, and collectively as “the Parties.”
1. Purpose

The purpose of this SLA is to define and support the transfer, access to, exchange, retention and protection of data between PJM and the MMU, and the extent of the access by MMU to PJM’s production, development and test environments during the term of the Market Monitoring Services Agreement dated December 18, 2007 entered into by and between PJM and MMU, as it may be amended from time to time ("MMS Agreement").
2. Scope of Services

PJM will provide the following to MMU:

a. The data delineated in attached Appendix A and Appendix C from the sources referenced therein or from any additional or replacement sources.

b. Real-time access to PJM’s production systems for real-time data monitoring (read-only) via Virtual Private Network (“VPN”) over a dedicated fiber optic connection to MMU’s offices located at 2621 Van Buren Avenue, Valley Forge Corporate Center, Norristown, PA, as delineated in attached Appendix B.

c. Regular and emergency support as outlined herein.

d. Additional data, as and when requested by MMU, pursuant to the express terms, conditions and limitations of this SLA.

MMU will provide the following to PJM:

a. The data delineated in attached Appendix E from the sources referenced therein or from any additional or replacement sources.

b. Regular and emergency support as outlined herein.

c. Additional data, as and when requested by PJM, pursuant to the express terms, conditions and limitations of this SLA.
3. Service Period

This SLA shall commence as of the Commencement Date defined in the MMS Agreement, and shall continue and be coterminous with the MMS Agreement.
4. SLA Review and Amendment

This SLA will be reviewed on at least an annual basis, or more frequently at the request of either MMU or PJM, to determine if changes are required. PJM and the MMU will meet annually, consistent with the timing of PJM’s and MMU’s planning cycles, to review the levels of support provided and the associated hardware and software and to determine whether the levels of support need to be increased to meet agreed to levels of performance. Any requested changes to this SLA must be submitted in writing to each of the following individuals for review:

- Market Monitor
- PJM Sr. Vice President - Reliability Services
- PJM ITS Executive Director

No amendment, modification, termination or attempted waiver of any provision of this SLA shall be valid unless it is in writing and signed by an authorized representative of both PJM and MMU. Any disagreements between the Parties with regard to the amendment, modification, termination or waiver of a provision of this SLA shall be determined pursuant to the terms of the dispute resolution provisions of the MMS Agreement.
5. Responsibilities of PJM

PJM will ensure that MMU has access to PJM’s information, data and systems, as required by Attachment M of the PJM Open Access Transmission Tariff (“Attachment M”), that MMU needs in order to carry out its functions, duties and responsibilities under of the PJM Open Access Transmission Tariff (“Tariff”), and that the data is delivered according to the timeline and methods set forth in this SLA. PJM is not responsible for MMU’s use, calculations or applications of the information and data.

PJM will provide access to data and systems to MMU via VPN over a dedicated fiber optic connection and through appropriate security permissions to PJM’s production systems as such access is permitted or otherwise limited by the terms of this SLA.
6. Responsibilities of MMU

MMU will receive data in the format delineated in this SLA and will ensure the appropriate security and protection of any market sensitive and confidential data. MMU’s ability to provide such data or any compilation or summary of such data shall be subject to Attachment M. MMU is responsible for any applications and/or uses of the data that reside at MMU’s office location and that of its consultants, contractors and other agents. MMU shall ensure that its consultants, contractors or other agents abide by PJM’s confidentiality and security requirements.

If NERC or a Regional Entity determines that MMU or any of its systems is subject to one or more of the NERC Critical Infrastructure Protection Standards, subject to appeal to the Federal Energy Regulatory Commission, MMU must comply with said standards.
7. Technical and Maintenance Support

PJM will provide technical and maintenance support to MMU related to MMU’s use of the Data Exchange System set forth in Section 20 hereof (“Data Exchange System”) and access to PJM’s systems as set forth in this SLA. A manager level (or above) employee of PJM’s IT Department will be identified as the business owner of the Data Exchange System. All support inquiries should be directed to the PJM Support Center at 610-666-8886.

MMU will provide technical support to PJM related to MMU’s transfer of data in the event that MMU’s feed to the Data Exchange System does not function properly. All support inquiries should be directed to MMU Manager, IT.

PJM will provide break-fix technical support, pursuant to Sections 16 and 17 of this SLA, and maintenance support at a threshold level of two thousand (2,000) hours per year, not to exceed 500 hours per calendar quarter, at no cost to MMU.

The cost of providing ad hoc data will be borne by MMU up to 250 person hours after which MMU may charge PJM at the rates listed in Appendix F as updated and agreed to by the Parties.

PJM and MMU will meet at least annually, consistent with the timing of PJM’s and MMU’s planning cycles, to review whether the number of hours needs to be increased to support the existing services provided to MMU or PJM. To the extent necessary to meet their obligations to provide support for the existing services to MMU or PJM, PJM and MMU will increase the total number of hours of technical support that each provides under this SLA at no cost to ensure that each is able to perform its obligations. If MMU or PJM requires additional support within a planning year or requires new services not previously agreed to, PJM may charge the MMU or MMU may charge PJM at PJM’s current internal project labor rates used in its own project and support accounting as listed in Appendix F as updated and agreed to by the Parties.

Maintenance support shall be defined as processing MMU change requests, testing MMU code, modifying user access, or any other support required to keep the data exchange system functioning as a result of an MMU change. PJM will be responsible, and will not charge MMU, for maintaining the data exchange technical environment including software upgrades and patches. Any break-fix technical support provided to MMU by PJM that is driven by PJM’s changing business needs or that is the result of a failure of PJM’s systems shall not be billed to MMU.
8. Support Hours

PJM will provide technical support to MMU during PJM’s core business hours from 8:00 a.m. to 5:00 p.m., Monday through Friday. After PJM’s core business hours, on weekends and holidays, technical support shall be provided through PJM’s IT Operations Center only on an on-call basis. MMU will provide technical support to PJM during the working hours of the relevant MMU staff.

Should MMU know in advance that it will require technical support outside of PJM’s core business hours for more than one hour, MMU shall make a special request to PJM, giving at least 24 hours notice of thereof. In such case, PJM will extend the technical support hours to meet specific needs of MMU.
9. Availability

The Data Exchange System shall operate on a 24x7 schedule, except for a sixteen (16) hour period of time during which quarterly maintenance is expected to be performed on the system. The Data Exchange System will be available for 95% of the total hours in a year, minus the downtime for scheduled maintenance as described in Section 10 of this SLA.

(365 days per year x 24 hours per day = 8760 hours – 16 hours for quarterly maintenance = 8744 hours per year; 8744 hours per year x 0.05 = 437 hours of possible downtime per year.)
10. Scheduled Maintenance

PJM expects that the Data Exchange System will need four (4) hours of downtime per quarter for system upgrades and maintenance. Such downtime will typically be scheduled for Saturdays, and MMU will receive prior notification thereof. PJM shall use reasonable efforts to plan any such outages to minimize the impact on MMU.

If system maintenance is expected to take longer than the four hour window per quarter or takes the system below the 95% availability threshold, PJM shall contact MMU to so advise at least two (2) business days in advance for non-emergency maintenance. In such case, the Parties shall make an effort to come to mutual agreement as to the outage time, in advance, and in writing. The representatives of both parties for the purpose of resolving issues of the duration of system maintenance are:

   Contact List:
   MMU – Manager, IT
   PJM – Manager, ITS IT Operations Center
11. Production System Access and Access Termination

MMU will be granted production access (read only) via VPN over a dedicated fiber optic connection. PJM and MMU will cooperate not to cause negative performance impacts on PJM’s production systems resulting from MMU’s access to or use of these systems, and to prevent access to such systems by non-MMU employees. In the event that MMU’s access or use of these systems cause levels of performance degradation that are unacceptable to PJM, PJM will contact MMU to attempt to resolve the issue. For purposes of this SLA, negative performance impact is defined as a single Oracle call taking more than 5 minutes of CPU time. In such case, the MMU user will receive an Oracle error message stating that the query exceeds the allowed utilization. PJM reserves the right to terminate any session that results in a negative impact on the performance of a production system. When possible, PJM will communicate with MMU before terminating sessions and will work with MMU to schedule a time to re-establish sessions. Notwithstanding the foregoing, PJM reserves the right to terminate any session without notice to MMU in an emergency situation or for security reasons. In such a case, PJM will explain in writing to communicate with MMU why the session was terminated within one (1) business day from the date the session was terminated.
12. Development and Test System Access and Access Termination

PJM shall provide MMU with read only access to the same development and test systems that MMU has access to as of the Effective Date as specified in Appendix B of this SLA. Going forward, access to development and test systems shall be continued, granted or revoked on a need basis. Due to PJM's active use of development and test environments PJM reserves the right to create a specific MMU development or test environment if the need arises, in its sole discretion. If PJM determines that there is a need for such a MMU specific development and/or test environment, PJM will take reasonable efforts to create an environment that is the functional equivalent of PJM's development and test environment. MMU’s read and write access to these MMU specific development and test systems shall be via VPN over a dedicated fiber optic connection. In addition, PJM shall provide MMU with dedicated test and development environments as part of the Data Exchange System, for purposes of developing and testing code used to populate the Data Exchange System.

PJM and MMU will cooperate not to cause any negative performance impacts on PJM’s development and test systems resulting from MMU’s access to or use of these systems, and to prevent access to such systems by non-MMU employees. In the event that MMU’s access or use of these systems cause levels of performance degradation that are unacceptable to PJM, PJM will contact MMU to attempt to resolve the issue. For purposes of this SLA, negative performance impact is defined as a single Oracle call taking more than 5 minutes of CPU time. In such case, the MMU user will receive an Oracle error message stating that the query exceeds the allowed utilization. PJM reserves the right to terminate any session that results in a negative performance impact on the performance of a test or development system. When possible, PJM will communicate with MMU before terminating sessions and will work with MMU to schedule a time to re-establish sessions. Notwithstanding the foregoing, PJM reserves the right to terminate any session without notice to MMU in an emergency situation or for security reasons. In such a case, PJM will explain in writing to MMU why the session was terminated within one (1) business day from the date the session was terminated.
13. Incident Management

If an issue occurs MMU will contact PJM’s Support Center and a ticket will be opened. PJM’s Support Center will initiate problem resolution, and depending on the severity level (as described below), and if needed, contact a member of IT management. The Support Center will remain the point of contact and will take the appropriate action to escalate the ticket depending on severity level.
14. Problem Management

All tickets, regardless of severity, will be documented and tracked through resolution by PJM’s Support Center.
15. Change Management; Enhancements and Upgrades

If MMU determines that it has the need for additional data, additional access or a change to the systems from what is specifically delineated in this SLA, MMU will provide detailed requirements to the PJM Liaison defined in Attachment M or such other representative appointed by PJM (both to be referred to herein as “PJM Liaison”), for the new data or system information that is now needed as part of the data exchange. The MMU will be responsible for providing Statistical Analysis Software (“SAS”) code and Oracle Data Definition Language (“DDL”) that will extract the needed data and load it into the Data Exchange System. PJM will be responsible for implementing changes to the Data Exchange System and placing the MMU code into production pursuant to the change management process set forth in Appendix D hereof. PJM will act as the tester and release coordinator for any change.

PJM shall take all reasonable steps to continue providing full data access during the transition to PJM system changes such as MSET (Settlements System) redesign and AC\(^2\). PJM shall be responsible for providing full data access upon the implementation of PJM system changes such as MSET (Settlements System) redesign and AC\(^2\). PJM will be responsible for keeping MMU fully informed of the changes required in order to ensure full access after the implementation of such system changes. MMU shall be responsible for designing and implementing extract and load (ETL) processes.

In the event that the MMU is unable to provide the code to extract and load the data to the Data Exchange System PJM will be available to provide this service. Any such request for the extraction and loading of additional data must be approved by PJM and MMU in writing and be signed by a PJM and MMU representative having authority to approve the request, and must include MMU’s agreement to pay for the associated costs at PJM’s internal project labor rate used in its own project and support accounting as listed in Appendix F as updated and agreed to by the Parties.

For any such approved data ETLs, Table 1 provides the timelines for coordination.

<table>
<thead>
<tr>
<th>DATA EFFORT</th>
<th>PROVIDE ACKNOWLEDGEMENT TO MMU/PJM</th>
<th>STATUS UPDATES</th>
<th>COMPLETION TIMEFRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data easily retrieved or available in PJM’s or MMU’s systems</td>
<td>Within 7 business days</td>
<td>Status updates provided daily at close of business</td>
<td>Completion timeframes will be mutually agreed upon by PJM and MMU</td>
</tr>
<tr>
<td>Data has to be transformed or does not exist</td>
<td>Within 7 business days</td>
<td>Status updates provided weekly</td>
<td>Completion timeframes will be mutually agreed upon by PJM and MMU</td>
</tr>
</tbody>
</table>

If PJM requests additional data from what is specifically delineated in this SLA, PJM will provide a detailed description of the data requested. Any request for additional data must be approved by PJM and MMU in writing and be signed by a PJM and MMU representative having authority to approve the request, and must include PJM’s agreement to pay for any costs associated therewith.
If MMU requests an upgrade or enhancement to be made to the Data Exchange System, it shall submit any such request in writing to the PJM Liaison. Within 7 days of receipt of any such request, PJM shall provide MMU with an estimate of the cost to put the requested upgrade or enhancement into operation. After receipt of the estimate, MMU shall advise PJM in writing whether it wants to implement the enhancement or upgrade. Any such upgrades or enhancements shall be at MMU’s expense unless PJM otherwise agrees to bear the expense.

If PJM desires to implement an upgrade or enhancement to the Data Exchange System or to its computer systems that was not requested by MMU, or if PJM’s business drives the need for a change to the Data Exchange System, or if such enhancements or upgrades are required in order to provide the level of support required under this agreement, the making of the upgrades or enhancements shall be at PJM’s expense.

When revisions of PJM’s computer systems are necessary as part of PJM’s normal business (for example the addition of the loss component for LMP), PJM will use reasonable efforts to provide MMU notice of a planned system revision at least thirty (30) days prior to any revision to the data exchange format(s). There may be times when PJM determines, in its sole discretion, that a data exchange format needs to be modified in an emergency situation. In such case, PJM will provide notice immediately to MMU and will follow its change management process as set forth in Appendix D.

When revisions of MMU computer systems are necessary as part of the MMU’s normal business, MMU will use reasonable efforts to provide PJM notice of a planned system revision that affects the transfer of data to PJM at least (30) days prior to any revision to the data exchange format(s). There may be times when MMU determines, in its sole discretion, that a data exchange format needs to be modified in an emergency situation or on an expedited basis. In such case, MMU will follow its change management process as set forth in Appendix D.
16. Service Levels

All issues reported to PJM by MMU will be ticketed and assigned the appropriate severity level as described below. Such assignment will be as delineated in Section 17 of this SLA.

SEV1 - System or critical function down and not available and no work around.
- Multiple reports of a production system not available without a work around.

SEV2 - System available, non-critical function unavailable and no work around.
- Multiple reports of a non-critical function unavailable with no work around.
- A problem that is degrading the performance and reliability of the system but functions are still operational.
- If the problem is not addressed it could escalate to a SEV1.

SEV3 - System available, some functionality unavailable with a work around.
- A problem reported impacts one or more users but does not result in a stoppage of work.

SEV4 – Inquiry, access request, or other support request.

All issues regarding data transfers from MMU to PJM, reported by PJM to MMU, will be addressed by the MMU as soon as reasonably practical.
17. Target Time to Respond, Repair, Resolve ("TTR")

At the time MMU makes a repair request to PJM, PJM shall determine the severity level of any such repair as set forth in Section 16. If MMU disagrees with the assigned level of severity, MMU shall have the option to request that PJM elevate a repair request to a higher level of severity. MMU will develop reasonable protocols to address TTR definitions and will communicate them to PJM.

Table 2 - Target Time to Respond, Repair, Resolve by Severity Level

<table>
<thead>
<tr>
<th>SEVERITY LEVEL</th>
<th>PROVIDE ACKNOWLEDGEMENT TO MMU/PJM</th>
<th>STATUS UPDATES</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Within 30 minutes of reported issue to the PJM Support Center/MMU Manager, IT during normal support hours or by 9:00 a.m. the next day.</td>
<td>Every 2 hours while the problem exists, during all hours if reasonably practical. When it spans a day, no later than 9:00 a.m. each morning the problem exists.</td>
<td>Appropriate PJM, MMU and vendor resources committed to meet the critical deadline. Commitment is until problem resolution unless the Parties mutually agree to another timeframe.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Within 30 minutes of reported issue to the PJM Support Center/MMU Manager, IT during normal support hours or by 9:00 a.m. the next day.</td>
<td>Every 4 hours during normal business hours. When it spans a day, no later than 9:00 a.m. each morning the problem exists.</td>
<td>Appropriate PJM, MMU, and Vendor resources are committed until problem is resolved within defined support hours unless the Parties mutually agree to another timeframe. Target a 24 hour turnaround time.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Within 2 hours of the reported issue to the PJM Support Center/MMU Manager, IT during normal support hours or by 9:00 a.m. the next day.</td>
<td>Every 4 hours during normal business hours. When it spans a day, no later than 9:00 a.m. each morning the problem exists.</td>
<td>Appropriate PJM, MMU, and Vendor resources are committed until problem is resolved within defined support hours unless the Parties mutually agree to another timeframe. Target a 24 hour turnaround time.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Within 8 hours of the reported issue to the PJM Support Center/MMU Manager, IT during normal support hours or by 9:00 a.m. the next day.</td>
<td>First report will be delivered within 2 working days. Subsequent reports based on timeframe negotiated during first report, but no less than once a week.</td>
<td>Resources assigned as available with a goal of problem resolution within 5 working days.</td>
</tr>
</tbody>
</table>
18. Resolution Escalation

The TTR will be in accordance with the severity levels. If for some reason PJM can not meet the severity level turnaround time, then MMU will be notified and the escalation procedure in Table 3 will be utilized:

**Table 3 - Escalation Notification**

<table>
<thead>
<tr>
<th>Elapsed Time</th>
<th>Sev1</th>
<th>Sev2</th>
<th>Sev3</th>
<th>Sev4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Staff; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Staff; PJM Liaison; MMU Manager, IT</td>
</tr>
<tr>
<td>2 hours</td>
<td>PJM GM IT Integration; PJM Liaison; MMU Manager, IT</td>
<td>PJM GM IT Integration; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
</tr>
<tr>
<td>4 hours</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
<td>PJM GM IT Integration; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
<td>PJM IT Manager; PJM Liaison; MMU Manager, IT</td>
</tr>
<tr>
<td>8 hours</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
<td>PJM GM IT Integration; PJM Liaison; MMU Manager, IT</td>
<td>PJM GM IT Integration; PJM Liaison; MMU Manager, IT</td>
</tr>
<tr>
<td>24 hours</td>
<td>PJM Vice President; PJM Liaison; MMU Manager, IT</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
<td>PJM Executive Director of IT; PJM Liaison; MMU Manager, IT</td>
</tr>
</tbody>
</table>
19. Performance

The performance of the Data Exchange System is reliant on the speed of the link between PJM and MMU. A dedicated fiber optic connection and a dedicated back-up fiber optic connection will be provided to MMU, each having a speed of 1 Giga-bit per second. The performance of the dedicated fiber optic connection and dedicated back-up fiber optic connection will be reviewed on an annual basis to ensure that each is adequate for MMU to perform its obligations under Attachment M. PJM and MMU will meet at least annually, consistent with the timing of PJM’s planning cycle, to review whether additional bandwidth is necessary in order to continue MMU data access at the performance levels specified in this SLA. PJM will provide increases in bandwidth, consistent with this planning process, at no cost to MMU, to continue performance at the levels specified in this SLA. If MMU desires improved performance or additional transfer capability, MMU will pay all costs for increasing the bandwidth, unless PJM otherwise agrees to bear the cost.
20. Data Transfer and Access

The data exchange contemplated under this SLA will allow for the unattended transfer of any electronic data format between MMU and PJM. PJM maintains processes to exchange files and data with MMU over a dedicated fiber optic connection. These files and data are either transformed and delivered or simply delivered to MMU, depending on the type of data. A detailed list of the data that will be transferred to MMU is documented in Appendix B. MMU shall also maintain processes to exchange files and data with PJM over a dedicated fiber optic connection.

Communications connectivity and security are provided for in the data exchange process. PJM supports and maintains secured servers and a database for providing files and data to MMU. The Parties shall perform the transfer of files and data in accordance with specifications set forth herein and as otherwise agreed upon by the Parties and in writing signed by a PJM and MMU representative having authority to approve and agree to an amendment to this SLA.

MMU will provide SAS extraction, transform and load ("ETL") processes that will run in the PJM environment to transfer the data to the Data Exchange System. MMU will monitor and control the process execution through a control structure in the Data Exchange System.

Each Party must provide application and database servers required to complete the data exchange at their office locations. Each Party shall provide its own application support necessary to complete the data exchange. Each Party shall also be responsible for detecting delivery deficiencies that it encounters during the transfer of data from the other Party’s computer systems and for taking appropriate action, including notifying the other Party.

Upon notification of any problems with file or data transfer, each Party will take steps to resolve any problems with its systems as outlined in this SLA. The Parties are not responsible for the availability and reliability of the systems that will ultimately receive the files. However, each Party will work with the other Party and/or the other Party’s consultants, contractors and other agents to resolve file transfer problems. Each Party will maintain records of the file transfers, including the file name, size, date and time of the transfer, and status of the transfer.

The Data Exchange System is independent of the production system access which is described in the next section. The dedicated fiber optic connection between MMU and PJM is used for both types of access. A high level technical design is shown in Figure 1.

Figure 1 – PJM/MMU Architecture Design
21. Data Listing and System Access

The following is a description of the data that the MMU function currently retrieves from PJM and external sources. PJM shall continue to provide access to the same data to MMU for the duration of this SLA, as set forth herein. A detailed list of production, development and test system access is set forth in Appendix B. Each Party shall be responsible to obtain its own subscriptions for external data, each at its own expense.

Table 4 - MMU Data Retrieved from PJM Systems and External Sources

<table>
<thead>
<tr>
<th>PJM Data Source</th>
<th>Source System</th>
<th>Target System</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Settlements Information</td>
<td>MSETPRD</td>
<td>MSETARCP</td>
<td>Monthly</td>
<td>Billing quality financial data from selected tables that is older than the retention period defined by Market Settlements (12 to 18 months for most tables)</td>
</tr>
<tr>
<td>Table Title</td>
<td>PRD</td>
<td>Type</td>
<td>Details</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------</td>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Market Settlements Information</td>
<td>MSETPRD</td>
<td>MMDSRPRD</td>
<td>Daily for the last 45 days Billing quality financial data from selected tables</td>
<td></td>
</tr>
<tr>
<td>Market Settlements Information</td>
<td>MSETPRD</td>
<td>MMDSRPRD</td>
<td>Monthly Billing quality load response data</td>
<td></td>
</tr>
<tr>
<td>Market Settlements Information</td>
<td>PJM.COM</td>
<td>MMDSRPRD</td>
<td>Daily for the last 45 Days Operating Reserves Deviation Charges</td>
<td></td>
</tr>
<tr>
<td>Market Settlements Information</td>
<td>Market Settlements Department MMDSRPRD</td>
<td>Quarterly Station Service Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Markets Information</td>
<td>BIDPRD</td>
<td>MMDSRPRD</td>
<td>Daily Market Day Ahead Data</td>
<td></td>
</tr>
<tr>
<td>Markets Information</td>
<td>OPRPRD</td>
<td>MMDSRPRD</td>
<td>Daily Market Real-time and Dispatch data</td>
<td></td>
</tr>
<tr>
<td>Markets Information</td>
<td>BIDPRD</td>
<td>MMDSRPRD</td>
<td>Daily Market Unit and PNODE data with historical versioning</td>
<td></td>
</tr>
<tr>
<td>Markets Information</td>
<td>Markets Flat Files MMDSRPRD</td>
<td>Daily LMP Component (CLMP), Shadow Market Price (SMP), Unit Participation Factor (UFP) and DFAX information Constraint and SMP data every 10 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPA Data</td>
<td>LPAPRD</td>
<td>MMDSRPRD</td>
<td>Daily Real-time LMP data from LPAPRD and EMS flat files</td>
<td></td>
</tr>
<tr>
<td>FTR Data</td>
<td>EFTRPRD</td>
<td>MMDSRPRD</td>
<td>Daily FTR congestion data</td>
<td></td>
</tr>
<tr>
<td>RPM Data</td>
<td>EFTRPRD</td>
<td>MMDSRPRD</td>
<td>Daily RPM Capacity Data</td>
<td></td>
</tr>
<tr>
<td>Load Response</td>
<td>EFTRPRD</td>
<td>MSETARCP</td>
<td>Monthly Load Response data from eftrprd older than 1 month</td>
<td></td>
</tr>
<tr>
<td>EES Data</td>
<td>EESPRD</td>
<td>MMDSRPRD</td>
<td>Daily All transactions and audit table data</td>
<td></td>
</tr>
<tr>
<td>EES Data</td>
<td>EESPRD</td>
<td>MMDSRPRD</td>
<td>Daily Transaction and Settlement data with historical versioning to capture changes</td>
<td></td>
</tr>
<tr>
<td>Congestion Data</td>
<td>SRCM</td>
<td>MMDSRPRD</td>
<td>Daily Congestion Management (CM2) audit table data and flowgate hourly data</td>
<td></td>
</tr>
<tr>
<td>Outage Data</td>
<td>EDARTPRD</td>
<td>MMDSRPRD</td>
<td>Daily Outage data with historical versioning to capture changes</td>
<td></td>
</tr>
<tr>
<td>Outage Data</td>
<td>GADSPRD</td>
<td>MMDSRPRD</td>
<td>Daily Outage and Unit data with historical versioning to capture changes</td>
<td></td>
</tr>
<tr>
<td>Pool Tie Data</td>
<td>HISPRD</td>
<td>MMDSRPRD</td>
<td>Daily Pool Tie Data</td>
<td></td>
</tr>
<tr>
<td>Zonal Load</td>
<td>DWPRD</td>
<td>MMDSRPRD</td>
<td>Daily Zonal Loads</td>
<td></td>
</tr>
</tbody>
</table>
PJM may make ad hoc requests for data from MMU as defined in the MMS Agreement. MMU will use its best efforts to provide such requested data with one business day of the request. If, despite its best efforts, MMU is unable to provide the requested data within one business day, it shall provide within one business day an explanation of the reason it cannot provide the data and inform PJM when MMU, using its best efforts, will be able to provide the data. The cost of providing such data will be borne by MMU up to 250 person hours after which MMU may charge PJM at the rates listed in Appendix F as updated and agreed to by the Parties. The Data Exchange System will be utilized to enable the transfer of the requested data from MMU to PJM.

PJM may make requests to MMU that additional data tables be provided to PJM as defined in the MMS Agreement. MMU will use its best efforts to respond to such requests recognizing that such changes must follow PJM’s and MMU’s change management procedures. MMU may charge PJM for the cost of providing such additional tables at the rates listed in Appendix F as updated and agreed to by the Parties.

In addition to responding to the foregoing data requests, the following is a general description of the data that PJM currently receives from the MMU function. MMU shall continue to provide the same data to PJM for the duration of this SLA, as set forth in Appendix E of this SLA.

**Table 5 - MMU Data**

<table>
<thead>
<tr>
<th>MMU Data Source</th>
<th>Source System</th>
<th>Target System</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>eCart</td>
<td>MMU’s Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Congestion Data, hourly data provided on a daily basis</td>
</tr>
<tr>
<td>Data Transowner</td>
<td>MMU’s Data Store</td>
<td>Data Exchange</td>
<td>As updated in MMU</td>
<td>Generation Bids</td>
</tr>
<tr>
<td>System</td>
<td>database</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit Participation Factors Aggregation</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>LMP calculation components, hourly data provided on a daily basis</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------</td>
<td>---------------------</td>
<td>---------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fuel Adjusted LMP</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>LMP data on an hourly basis provided daily</td>
</tr>
<tr>
<td>Estimated Cost Offers</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Unit Cost information</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Revenue information</td>
</tr>
<tr>
<td>Unit Ownership – MMU</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Unit ownership information as updated or tracked by the MMU</td>
</tr>
<tr>
<td>State Information</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>State bus location information as tracked and updated by the MMU</td>
</tr>
<tr>
<td>RPM Avoidable Cost Rate Information</td>
<td>ACR database</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Avoidable cost information as calculated by MMU</td>
</tr>
<tr>
<td>Operating Reserves</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>Operating Reserve Costs</td>
</tr>
<tr>
<td>Frequently Mitigated Units</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>FMU</td>
</tr>
<tr>
<td>FTR Forfeiture</td>
<td>MMU's Data Store</td>
<td>Data Exchange System</td>
<td>As updated in MMU database</td>
<td>FTR candidates and forfeitures</td>
</tr>
</tbody>
</table>
22. Capacity Management

The Data Exchange System will be sized to maintain one year’s worth of PJM Markets data on a rolling daily basis. If MMU requests that PJM Markets data older than the one year be provided to MMU, PJM will review the request, the data requirements, determine if the data exists in PJM’s system, and within seven (7) days will advise MMU of the number of person hours required to provide the data to MMU and any cost associated with such requests. PJM will allocate 500 Gbs of space for ad hoc data requests in its Data Exchange System.
23. Contacts and Notice

Each Party will provide to the other Party with contact lists containing relevant personnel to whom inquiries or problems relating to this SLA should be addressed.

Notice to any Party hereto shall be in writing and shall be deemed to be delivered on the earlier of: (a) the date of personal delivery, (b) if deposited in a United States Postal Service depository, postage prepaid, registered or certified mail, return receipt requested, or sent by
express courier, in each case addressed to such party at the address indicated below (or at such other address as such party may have theretofore specified by written notice delivered in accordance herewith), upon delivery or refusal to accept delivery, or (c) if transmitted by facsimile or email, the date when sent and facsimile/email confirmation is received; provided that any facsimile or email communication shall be followed promptly by a hard copy original thereof by express courier or hand delivery:

If to MMU:
Monitoring Analytics, LLC
P.O. Box 768
Southeastern, PA 19399-0768
Attn: Market Monitor

If to PJM:
PJM Interconnection, L.L.C.
955 Jefferson Avenue
Valley Forge Corporate Center
Norristown, PA 19403-2497
Attn: President
Facsimile: (610) 666-4281

With a copy to:
PJM Interconnection, L.L.C.
955 Jefferson Avenue
Valley Forge Corporate Center
Norristown, PA 19403-2497
Attn: General Counsel
Facsimile: (610) 666-4281
24. Service Measurement Reporting

PJM will provide a monthly report to MMU of the open issues regarding the Data Exchange System, PJM’s data requests to MMU, reported problems on MMU’s system or MMU’s access to PJM’s production, test or development systems, the severity level and the TTR. This monthly report will also detail the performance of the dedicated fiber optic connection that provides MMU’s direct access to PJM’s systems. This report also will include the number of hours of technical and maintenance support set forth in Section 7 of this SLA provided by PJM to MMU.
25. Configuration Management

PJM will collaborate with MMU to develop a design document for the Data Exchange System that will provide technical implementation details. These details will provide necessary technical specifications and reference other technical documentation detailing how to connect to PJM’s system, software version, data definitions, directory structure, and any other necessary information required by MMU to successfully integrate with the Data Exchange System. This design document will be updated to capture on-going maintenance items and approved requests by MMU for additional data. PJM will provide notice as required herein when outages are required to change, modify or upgrade the Data Exchange System.

MMU will provide a design document that will provide technical implementation details required by PJM to receive data from Data Exchange System. This design document will be updated to capture approved requests by PJM for additional data.
26. Crisis Management

In the event of an emergency such as a computer system failure, a potential breach of system security, a computer virus outbreak or another event that might force the services to be shutdown, each Party will notify the other Party as soon as possible. Within 24 hours of the service becoming unavailable due to such an event, the Party having the computer system problem will provide to the other Party an estimated time for service restoration and additional information, if available, regarding the cause of the event. The Party having the computer system problem will, in consultation with the other Party, develop a plan to provide any data that was not provided due to the system failure.
27. Service Continuity and Security

In order to ensure the protection of PJM’s and its members’ and market participants’ market sensitive information, proprietary information, trade secrets and/or other confidential data, PJM requires that MMU implement and retain specific, detailed security controls. MMU must employ these security controls to ensure the physical security of such information and to restrict access to any such information only to individuals who have been specifically authorized by MMU and/or PJM to have access to such information. MMU shall be required to create and have in place, at a minimum, security policies and measures in place that address:

- Physical security access requirements, policies and procedures that are to be followed by all persons accessing MMU’s facilities, including a requirement that visitors be escorted by badged personnel at all times while on MMU’s premises.

- Requirement for physical security access control card key and video surveillance systems to control and produce data used to monitor access on MMU’s premises.

- Issuance of card key access badges to individuals based on their job responsibility, specifically restricting access to MMU’s computer room.

- Requirement that card key access badges must be displayed on all individuals, at all times, while on MMU’s premises.

- Badge access to MMU’s facilities only being made available on a time sensitive basis depending upon job responsibility.

- Deactivation of all MMU and PJM access badges immediately upon notification that the individual to whom the badge was issued no longer requires access to MMU’s and/or PJM’s facilities.

- Requirement that system “access denied” attempts, unauthorized access, and attempts to hack into or breach MMU’s installed security features, must be recorded by MMU, shall be reviewed by MMU and investigated if deemed suspicious, and if deemed suspicious shall be reported to PJM immediately upon their discovery.

In addition, MMU and its employees, vendors, consultants and agents will be required to comply with PJM's Vendor Review Policy, Vendor Review Process – Vendor Compliance Standard, the consultant screening process contained in PJM’s Employment Screening Policy and Employment Screening Procedure to receive physical or electronic access to PJM information, and the PJM Physical Security – Site Access Procedure when requiring access to the PJM campus. Such policy, procedure and standard may be
amended from time to time and PJM will provide notice and description of such changes, including electronic and paper copies of such initial documents and any modified documents. PJM shall give MMU prior notice of any proposed change to any of the above-referenced security policies, standards and procedures, and shall meet with MMU to discuss how the proposed change will affect MMU should MMU request such a meeting.

MMU will provide access to its offices for any security audits that PJM desires to perform, which security audits shall be conducted to ensure that PJM’s security requirements are met. MMU shall cooperate with PJM to assist PJM or its designee in obtaining access to the offices of any of MMU’s consultants, contractors or other agents for the purpose of conducting a security audit to ensure that PJM’s security requirements are being met. PJM shall provide at least twenty four (24) hours prior notice to MMU of any such security audit. MMU acknowledges and understands that PJM shall not give MMU access to any of its data or systems until such time as PJM has had an opportunity to conduct an initial security review at MMU’s site and of MMU’s personnel to ensure that the security requirements are adequately being met. During the transition, no additional background or security checks will be required for current MMU employees who are in compliance with PJM’s security policies. PJM may also require additional security audits to be conducted from time to time to ensure compliance with its minimum security requirements, including but not limited to a situation in which MMU relocates its offices.

PJM is responsible for maintaining data file security only while such files are under PJM’s direct control. PJM shall notify MMU of any security issues related to the Data Exchange System or are otherwise relevant to MMU/PJM security issues.
28. Confidentiality

The data provided to MMU by PJM as delineated in this SLA includes market sensitive and confidential information. MMU and its employees and contractors shall comply with the confidentiality provisions set forth in Attachment M and the Amended and Restated PJM Operating Agreement of PJM Interconnection, L.L.C. (“PJM Operating Agreement”).

The data provided to PJM by MMU as delineated in this SLA may be market sensitive and confidential. PJM employees obtaining such data will be required to sign both data confidentiality and non-disclosure agreements, provided by MMU to PJM, acknowledging the confidential nature of said information and agreeing to maintain the confidentiality of that information. PJM and its employees and contractors shall comply with the confidentiality provisions set forth in the PJM Operating Agreement.
29. Access Rights and Changes

MMU shall provide a list of valid users and their contact information to PJM. PJM will follow its internal access authorization process to create accounts for the employees of MMU. MMU is responsible for notifying PJM of any required account changes as outlined in the Technical Support section of this SLA. In the case of account terminations, PJM will act as quickly as possible to terminate user access to its systems after having received notice from MMU.

Changes in MMU employees shall not be considered to be a change in data access under this SLA.

MMU shall also provide to PJM a list of its employees, consultants and contractors who shall need to have access to PJM’s campus. PJM shall issue security badges to said employees, consultants and contractors, and shall provide physical access to PJM’s campus between 0600 and 1800 hours. If MMU employees need physical access to PJM’s campus during other hours, PJM will provide such access on a case by case basis.
30. Disaster Situations

In the event of a significant event affecting the operations of the PJM Control Center (“BCP event”), PJM’s primary focus is to maintain reliability of the electric power system. PJM will restore systems according to the priority assigned in PJM’s Business Continuity Plan(s) (“BCP”). Such BCP may be amended from time to time and PJM will provide notice and description of such changes, including electronic and paper copies of such initial documents and any modified documents. PJM will use reasonable efforts to restore the functionality of the Data Exchange System within sixty (60) days of the BCP event. Should this restoration process be expected to take longer than sixty (60) days, PJM shall give MMU notice thereof, which notice must include an expected timeframe for the completion of the restoration of the Data Exchange System. PJM shall provide MMU with VPN read only access to PJM’s production systems until such time as PJM has restored the Data Exchange System.
31. Cost for Provision of Data

To the extent that MMU is responsible for the payment of PJM’s costs and expenses associated with the provision of access to PJM’s data, information and systems to MMU, the costs and expenses shall be charged to MMU at PJM’s actual cost, which for consultants and contractors shall be as invoiced and for work performed by PJM employees shall be per PJM’s internal project labor rates.

MMU shall provide PJM the MMU data defined in Appendix E without charge. For any requested additional data, MMU shall have the option to bill PJM for its costs and expenses related to such request. MMU shall give PJM a written estimate of the cost to provide the data requested by PJM prior to MMU incurring any expenses associated therewith for which it will seek compensation from PJM. MMU may charge PJM for the cost of providing such additional tables at the rates listed in Appendix F as updated and agreed to by the Parties.
32. Access for Independent Auditors

MMU shall provide PJM’s independent auditor(s) with access to MMU’s employees, consultants, contractors and agents, as well as to MMU’s relevant data and information pertaining to any work product that MMU provides to PJM in connection with the settlement and billing of PJM Members, for the purpose of the auditor’s review and examination of PJM’s billing processes for PJM’s SAS 70 Type 2 audit, such as the revenue requirement calculation in the black start market and the development of Cost of New Entry (CONE) and the Energy & Ancillary Services Revenue Offset (E&AS) as it relates to the RPM market. MMU shall cooperate with PJM to provide any additional access to PJM’s independent auditors should there be a change in the name, number or type of billing processes for which MMU’s data and information is needed.
33. Disputes

Any and all disputes under this SLA shall be determined as set forth in the dispute resolution provisions of the MMS Agreement.
34. Historical Records

PJM shall effectuate a one time transfer to MMU of a copy of the following, all as of the day prior to the Commencement Date of this SLA: (a) all email of MMU employees; (b) the documents of current or former MMU employees and the documents of current or former MMU contractors located in the PowerDOCS system; (c) documents, data and files located on the hard drives of MMU employees’ computers; (d) documents, data and files on servers shared by PJM and MMU; (e) selected portions of personnel records of MMU employees; and, (f) all tables and schema in MMDSPRD. The transfer process shall be developed by PJM and MMU together to ensure that data is transferred to the appropriate location in MMU systems and that appropriate confidentiality is ensured. MMU will continue to have access to the PowerDOCS system, as defined by PJM.
35. Entire Agreement

This SLA 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 SLA is intended to change or amend any terms or conditions of the MMS Agreement. Notwithstanding the foregoing, in the event the Parties mutually agree, or there is a judicial or regulatory finding, that there is a conflict between any provision of this SLA and the terms of the MMS Agreement, the MMS Agreement shall be controlling.
IN WITNESS WHEREOF, the parties have caused this SLA to be executed by their respective authorized officials, as of the Effective Date, first set forth above.

PJM Interconnection, L.L.C.

By: /s/Karl V. Pfirrmann  Interim President & CEO  12/18/2007  
Name  Title  Date

Printed name of signer: Karl V. Pfirrmann

Monitoring Analytics, LLC

By: ____________________________  ____________________________  ____________________________
Name  Title  Date

Printed name of signer: ___________________________________________
35. Entire Agreement

This SLA 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 SLA is intended to change or amend any terms or conditions of the MMS Agreement. Notwithstanding the foregoing, in the event the Parties mutually agree, or there is a judicial or regulatory finding, that there is a conflict between any provision of this SLA and the terms of the MMS Agreement, the MMS Agreement shall be controlling.

IN WITNESS WHEREOF, the parties have caused this SLA to be executed by their respective authorized officials, as of the Effective Date, first set forth above.

PJM Interconnection, L.L.C.

By: ___________________________ ___________________________ ___________________________
    Name                  Title                  Date

Printed name of signer: ___________________________________________

Monitoring Analytics, LLC

By: /s/Joseph E. Bowring          Market Monitor          12/18/07
    Name                  Title                  Date

Printed name of signer: Joseph E. Bowring