

MISO-PJM Joint and Common Market:

Day-ahead and Real-time Market Coordination

Problem / Opportunity Statement

MISO, PJM and our stakeholders identified symptoms resulting from insufficient transparency or the differences between MISO and PJM controlling documents, operating practices and market practices associated with MISO-PJM day-ahead and real-time coordination.

- The problem to be solved is multifaceted and generally encompasses RTO-to-RTO coordination for Day-ahead and Real-time Markets, revenue adequacy, RTO-to-RTO transparency, RTO-to-stakeholder transparency and opportunities for stakeholder education.
 - **Forward Looking (including Day-ahead) Coordination** impacts real-time operations and revenue adequacy. MISO and PJM coordinate to plan for operations; however not to the degree that exists in real time operations. Costs are magnified when less than optimal planning for operations exists between the RTOs. Prime examples of less than optimal coordination are: Inconsistent Outage Scheduling Rules and Inconsistent Modeling (Outages, Generator Status, Facility Ratings and External Constraints) in Day Ahead Processes.
 - **Firm Flow Entitlement (FFE) and Market Flow inconsistencies** can potentially result in inefficient market-to-market settlement results. In instances where the assumptions that underlie the two calculations are significantly different, the calculation results can cause market-to-market settlements that are not representative of actual flowgate impacts.
 - **The Freeze Date data used for Firm Flow Entitlement (FFE) calculations** need to be reviewed. PJM and MISO calculate firm flow entitlement and market flow based on an April 2004 snapshot. Retirements, system expansion, fuel price and a myriad of other factors imply that the freeze date may no longer be the most appropriate benchmark for entitlement or market flow calculations.
 - **Additional transparency between RTOs** has proven value.
 - MISO and PJM already share significant amounts of real-time operations and market data. This allows for near-real-time adjustment to conditions across the seam. Reliability Coordinators are in frequent contact throughout the day. The amount of interaction and cooperation in place is commendable. MISO and PJM added to the existing M2M data exchange in 2011. Significant enhancements to real-time M2M data exchange are planned for 2012 and 2013.
 - MISO and PJM could also improve transparency of real-time data including ratings. There is a need of consistent and well established procedure for ratings which provides optimal transparency and forward visibility such that each RTO operates with an accurate model of the others' system.
 - **Transparency for stakeholders.**

- It is indisputable fact that market participants need access to data for efficient operations and markets to take place, however due to market sensitivity concerns the line between advisable and inadvisable transparency is not always clear. While there are legitimate barriers that prevent RTOs from making certain data transparent, additional transparency in some areas, such as clarified business practices, can add value.
 - Forward information regarding M2M coordination, like Firm Flow Entitlement and coordinated M2M flowgates will add value.
 - Education regarding how M2M coordination takes place and the implications of participating in intra-RTO transactions coincident with M2M can inform stakeholder decisions and affect the markets as a whole.
 - Participants have voiced a desire to better understand how to participate in inter-RTO transactions, like split generation resources, as well as the options available and implications.
- Improvement can be expected in the following areas: consistent modeling and data coordination in planning for operations, revenue adequacy, operations and market efficiency, transparency and efficient and beneficial stakeholder actions.
 - Opportunities to seize include:
 - revisit firm flow entitlement and market flow calculations,
 - improve and align MISO and PJM outage coordination,
 - improve coordination and align modeling for Day-ahead Market
 - continue to enhance RTO to RTO data exchange,
 - improve RTO to RTO transparency for items, and
 - Provide additional education and transparency to stakeholders.
 - Potential consequences if no action is taken include
 - continued and unmitigated revenue inadequacy,
 - inequitable and inefficient operations and settlement and
 - insufficient information and education of stakeholders resulting in inefficient markets and overall higher cost to serve load.

Issue Source

[MISO-PJM Joint and Common Stakeholders Group](#). The MISO, PJM and following stakeholders provided input to this problem statement. Stakeholders whose written comments influenced this problem statement include: Ameren, DP&L, DTE Energy, Dynegy, EMMT, Exelon, MidAmerican, and We-Energies. There was a variety of positions and opinions among written

comments. No indication of support is implied and no indication of support for statements in this document should be attributed to MISO, PJM or the listed stakeholders.

Stakeholder Group Assignment

MISO and PJM will likely be able to take action on many initiatives independent of the stakeholder process. The [MISO-PJM Joint and Common Stakeholders Group](#) will initially work with the RTOs on this problem statement. As items reach maturity and are ready for endorsement, those items will be taken through the individual MISO and PJM stakeholder processes.

Key Work Activities

1. *Perform education for all stakeholders on the capacity product definitions and market rules in each RTO, and existing RTO-to-RTO coordination.*
2. *Review current practices of both RTOs and evaluate opportunities for process improvement, additional RTO-to-RTO data exchange, and additional stakeholder transparency.*
3. *Identify required business manual and agreement changes required to implement the identified enhancements.*

Expected Deliverables

MISO and PJM have identified following specific deliverables related to this problem statement.

- Provide additional education and transparency to stakeholders (time frame: up to 6 months)
 - Educate stakeholders on existing practices and coordination – 2 months
 - Post Firm Flow Entitlements daily (for previous day) – 2 months
 - Post market-to-market settlements by flowgate by hour – 2 months
 - Post Flowgate list with effective and termination dates – 3 months
- Improve coordination and align modeling for Day-ahead Market (time frame: up to 12 months)
 - Continuous improvement with respect to day-ahead data exchange including outages, constraint information and screening criteria used in Day-ahead Market on a daily basis – 3 months
 - Align modeling assumptions in Day-ahead Market – 6 months
 - Ensure consistent communication of model information – 6 months
 - Define content and criteria for automated Day-ahead Market data exchange – 12 months
- Revisit firm flow entitlement and market flow calculations (time frame: up to 18 months)
 - Review and Improve market flow calculations (6 months)
 - Review alternatives to 2004 Freeze date (12 months)

- Firm Flow Entitlement Re-design (18 months)
- Improve and align MISO and PJM outage coordination (time frame: up to 12 months)
 - Identify business practice and potential tariff changes to align outage scheduling practice – 6 months
 - Align outage scheduling rules and Implement outage data exchange – 12 months
- Continue to enhance RTO to RTO data exchange (time frame: up to 12 months)
 - Implement enhanced Real-time and market flow data exchange – 6 months
 - Additional data exchange and shadow calculations – 12 months
- Improve RTO to RTO transparency (time frame: up to 6 months)
 - Insure consistent communication of model information between models used by two RTOs - 6 months

It is expected that business process, manual, operating agreement and tariff revisions will be generated as appropriate for each RTO as well as revisions to the Joint Operating Agreement. It is understood that these documents will necessarily require endorsement through each RTO's stakeholder processes.

Expected Overall Duration of Work

MISO and PJM staffs expect that these activities and deliverables could be completed in a time frame beginning immediately and up to 18 months.