



## Memorandum

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**TO:** OMS/SPP RSC

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**DATE:** March 19, 2019

**RE:** Identification of Seams Issues

This memo is provided to the Organization of MISO States (OMS) and the SPP Regional State Committee (RSC) to help identify and prioritize the seams issues Potomac Economics (PE) believes are significant impediments to more efficient and equitable regional wholesale markets.

Many of the issues have been identified by PE through the normal course work in our role as Independent Market Monitor for the MISO. For most of these issues, PE has estimated the significance of the issue in our State of The Market (SOM) Reports. A number of these issues on the MISO-SPP seam were first identified based on analysis of the MISO-PJM seam. Although some steps have been taken or are planned, significant issues remain that will require further effort and cooperation between the RTOs and market participants to resolve.

Some of the issues listed in this memo are difficult to quantify without a joint effort and a sharing of information on SPP and MISO operations. Further cooperation and discussion of these issues will likely be needed to identify and prioritize potential solutions.

The issues are divided into Operating and Planning Horizons. To date, PE's primary focus has been on operational inefficiencies where we have been able to quantify impacts of issues and identify potential solutions. However, we agree with that the Planning issues identified in the White Paper<sup>1</sup> are likely significant, and worthy of further evaluation.

We are very encouraged by the OMS and RSC interest and work on these issues. Resolution to a number of these issues will require joint-cooperation between MISO, SPP, and their respective stakeholders.

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<sup>1</sup> See Seams White Paper for Organization of MISO States (OMS) and SPP Regional State Committee (RSC) Liaison Committee.

## Operation and M2M/TLR Coordination Design and Implementation Issues

1. **Issue: RCF Testing Procedures and Processes (SOM 2016-2)<sup>2</sup>.** Mistakes, gaps, and delays in the RCF Testing Procedures which result in significant efficiency and equity concerns. In 2017 over \$240 Million in Congestion (\$130 Million on SPP seam) was impacted.
  - a. **Resolution:** Partial resolution through improved testing procedures and tools (only based on Operating Horizon). Tool implemented in late 2017.
  - b. **Next Steps:** Confirm similar evaluation of SPP and PJM operational tools. Improvements in RCF tests would better identify RCFs that would benefit from coordination.
  
2. **Issue: Effectiveness/optimization of M2M Constraint Management Relief Requests (SOM 2005).**
  - a. **Resolution:** MISO/PJM (and later SPP) implemented the Dynamic Relief Request Software which has helped but issues remain when the RCF was dominated by fast ramping resources in either the MRTO or NMRTO.
  - b. **Next Steps:** Evaluating potential improvements, including optimizing the relief requested in the M2M coordination process. Potential sharing of RTO data needed to do more comprehensive evaluation.
  
3. **Issue: Inefficiency and Reliability Issues based on Default MRTO Definition based on Limiting Element (SOM 2016-2).**
  - a. **Resolution:** MISO and PJM have process to evaluate and transfer flowgate control. MISO/SPP have developed software to effectively transfer control (Flow Control Software). However, neither of these processes have been fully utilized.
  - b. **Next Steps:** Support PJM adoption of Flow Control Software in PJM. However, use of the Flow Control Software appears to be cumbersome and delayed. We support evaluating better metrics and processes to more quickly and effectively transfer monitoring authority to the RTO with most effective relief. This would likely require sharing RTO data to do a more comprehensive evaluation.
  
4. **Issue: Constraint Relaxation use on M2M (PJM/MISO/SPP) (SOM 2005).** Algorithm can produce volatile shadow prices that do not reflect the full value of constraints when they are in violation.

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<sup>2</sup> The SOM reference indicates the State of The Market (SOM) report where the issue and corresponding Recommendation is introduced and discussed in detail. The numbering indicates report year and a unique reference number of the recommendation for that year (if numbered).

- a. **Resolution:** PJM and MISO have now agreed to facilitate turning off constraint relaxation on a constraint-by-constraint basis. SPP and MISO have not discussed this issue, but should seek an agreement to turn it off.
  - b. **Next Steps:** PJM/MISO making necessary tariff/software changes. Given significant areas of lower voltage constraints impacted by MISO/SPP, this flaw may be more significant on SPP/MISO seam. Potential sharing of RTO data to do a comprehensive evaluation.
  
5. **Issue: Lack of DA Coordination and FFE Exchange between MISO and SPP and PJM (SOM 2011-10).** JOA requires all parties to limit flows on RCFs to FFEs in DA. Frequently this results in significant day-ahead inefficiency and congestion on coordinated flowgates that do not approach real-time limits.
  - a. **Resolution:** PJM and MISO have agreed to and implemented FFE Exchange, but it is rarely utilized. SPP opposed this option in JOA pending more evaluation. Although use with MISO/PJM has been limited, it serves as a backstop to extremely inefficient outcomes.
  - b. **Next Steps:** Evaluate benefits of fuller utilization of FFE exchange. Sharing of RTO data needed to do a more comprehensive evaluation.
  
6. **Issue: Double counting of congestion impacts on M2M constraints in Interface Pricing (SOM 2012-3).** This issue was identified by PE in the 2012 SOM.
  - a. **Resolution:** In 2016 PJM and MISO implemented a solution that removed double counting via a common interface however PE believes this is only a partial and inefficient solution that is producing unintended consequences.
  - b. **Next Steps:** Double counting of congestion (and losses) is currently occurring in Interface Pricing on M2M Constraints between MISO and SPP. Allowing each RTO to be solely responsible to price the interface congestion for its own constraint is efficient. A comprehensive evaluation of this issue between MISO and SPP is warranted.
  
7. **Issue: External TLR Pricing (2012-3).** Similar to Double Counting on M2M, the Interface Prices erroneously include impact of MISO's TLR activations which are (or should be) already reflected in the external area settlements.
  - a. **Resolution:** None of the RTOs have addressed this flaw in interface pricing.
  - b. **Next Steps:** MISO has indicated agreement this is an issue but is still evaluating recommendation. Potential sharing of RTO data to do more comprehensive evaluation.
  
8. **Issue: Optimizing Interchange.** Large benefits can be achieved by optimizing the imports and exports between MISO and the neighboring RTO markets. MISO

implemented Coordinated Transaction Scheduling (CTS) to optimize interchange with PJM. However, this CTS has not been effective partly because of transmission charges that eliminate the incentive to submit CTS transactions.

- a. **Resolution:** Remove transmission charges assessed to CTS transactions with PJM. Work with SPP to implement CTS.
- b. **Next Steps:** Evaluate other factors that reduce CTS benefits with PJM, including forecast errors. Quantify the potential benefits of implementing CTS with SPP.

**9. Issue: CMP Non-Comparable Treatment between Market and Non-Market Entities.**

Non-comparable treatment in Firm Flow Limits (FFL) between CMP market and non-market entities lead to inefficient costs for RTO customers. Market entities limit firm market flows to CMP firm flowgate allocations and non-market have no requirement to do so (e.g. Southern Company or TVA can classify all Generation to Load flows as Firm).

- a. **Resolution:** Allow all Market Entities to designate DA Schedules as Firm Priority.
- b. **Next Steps:** Estimate the costs incurred by each RTO because they do not receive firm priority for its own generation to load flows. Joint Market Entity Discussion/Agreement and proposal to CMP.

**10. Issue: Market to Non-Market Coordination as Alternative to TLR (2014-3).** TLRs from non-markets are often based on non-transparent operating issues and local proxies and markets incurred costly and inefficient TLRs (e.g. Volunteer-Phipps Bend).

- a. **Resolution:** Develop Redispatch/Reconfiguration Agreements and Market Compensation Agreements.
- b. **Next Steps:** Estimate benefits of developing coordination agreements with non-market entities. Discuss and develop such agreements.

**11. Issue: Regional Directional Transfer Limit (RDT) Operation and Reserve Product.**

The RDT will soon be under renegotiation. To date the RDT has been the cause of significant inefficiency in MISO and implicated in reliability concerns in Joint Parties. MISO has developed an “IDC”-like tool estimate the flows caused by the transfers to mitigate to resolve reliability concerns.

- a. **Resolution:** we have recommended MISO consider proposing a reserve and deployment product on the RDT. The product would only be used as a reserve on a post-contingent basis and MISO would provide market payments to the Joint Parties.
- b. **Next Steps:** MISO is considering recommendation. Sharing of RTO data will allow a more comprehensive evaluation.

**12. Issue: Pseudo-tied Generation Requirements (2015-5).** PJM requirement that external capacity resources be pseudo-tied to PJM has caused significant inefficiencies and degradation of reliability in MISO. Issues include transmission modeling limitations,

visibility issues on outage and commitment, and dispatch control needed for congestion management. There are no benefits to pseudo-tying generation since external capacity can be delivered by other much more efficient means.

- a. **Resolution:** Eliminate the pseudo-tie requirement.
- b. **Next Steps:** PE has filed a complaint at FERC which is pending to eliminate pseudo-tie requirement. We also support working with MISO and PJM the better evaluate the costs of pseudo-tied resources.

### Planning Horizon and Structural Issues

1. **Issue: CMP Governance.** Unanimous consent is required with market and non-market entities. Market and non-market can and have diverged so unanimous consent is often unachievable and a form of dispute resolution may be necessary. CMP Governance issue is inhibiting updates to the CMP Freeze Date and other CMP changes.
2. **Issue: Contract Path Sharing, Capacity Sharing.** Disagreements over capacity sharing (and fixed/embedded costs) have negatively impacted both capacity planning and inefficiency.
  - a. **Next Steps:** More discussion and evaluation needed on issues and barriers to efficient use of transmission system.
3. **Issue: Rate Pancaking, Unreserved Use Penalties**
  - a. **Next Steps:** More discussion and evaluation is needed on barriers to efficient use of transmission system.
4. **Issue: Interregional Project Identification and Funding Market Visibility on Limiting Elements.**
  - a. **Next Steps:** Evaluate the Target Market Efficiency Project (TMEP). Consider allowing NMRTO to pay for upgrades on lower voltage system (below 300 KV coordination).