

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Midwest Independent Transmission System Operator, Inc. v. PJM Interconnection, L.L.C.)	Docket No. EL10-45-000
Midwest Independent Transmission System Operator, Inc. v. PJM Interconnection, L.L.C.)	Docket No. EL10-46-000
PJM Interconnection, L.L.C. v. Midwest Independent Transmission System Operator, Inc.)	Docket No. EL10-60-000

**COMMENTS OF THE MIDWEST ISO INDEPENDENT MARKET MONITOR
ON SETTLEMENT AGREEMENT AND OFFER OF SETTLEMENT**

To: The Honorable Carmen A. Cintron, Settlement Judge

Pursuant to Rule 602 of the Commission's Rules of Procedure and Practice, 18 C.F.R. § 385.602, Potomac Economics, Ltd. (“Potomac Economics”) submits the following comments on the Settlement Agreement and Offer of Settlement (“Settlement”) submitted by Midwest Independent Transmission System Operator, Inc. (“Midwest ISO”) and PJM Interconnection, L.L.C. (“PJM”) on January 4, 2011 in the above dockets.

I. INTEREST OF POTOMAC ECONOMICS IN THE SETTLEMENT

Potomac Economics is the Independent Market Monitor (“IMM”) for Midwest ISO, and is an intervener in the above dockets. In its role as the Midwest ISO's IMM, Potomac Economics is required under the provisions of the Midwest ISO's tariff to monitor and evaluate market outcomes and market rules to promote the efficiency and competitiveness of the markets, , administered by Midwest ISO. Potomac Economics has no financial interest in the outcome of

the Settlement. Accordingly, as an IMM, Potomac Economics has a unique and unbiased perspective on the Settlement and its potential to affect the Midwest ISO markets and system.

II. SUMMARY OF POTOMAC ECONOMICS COMMENTS

With the exception of two aspects that may have a significant adverse effects on the efficiency and competitiveness of the Midwest ISO markets and the reliability of its system, Potomac Economics generally supports the Settlement. Although we offer no views on the resolution in the Settlement of the monetary disputes between Midwest ISO and PJM, Potomac Economics believes that many of the proposed changes to the Joint Operating Agreement (“JOA”) between Midwest ISO and PJM should help address and resolve the issues that gave rise to the complaints in these dockets.

However, Potomac Economics has significant concerns about the effects of the Settlement on the relationship between the non-monitoring RTO and the monitoring RTO. In evaluating these concerns, it is critical to recognize the distinction between the role and interests of the *monitoring RTO* and the *non-monitoring RTO*:

- The monitoring RTO is the RTO responsible for securing a given transmission constraint (ensuring that its flows are less than its limit) and maintaining the reliability of the portion of the network on which the constraint is located.
- The non-monitoring RTO is essentially a customer of the monitoring RTO’s transmission system with rights to create market flow over the monitoring RTO’s constraints equal to the specified entitlements. The non-monitor also accepts certain obligations to redispatch its resources to assist in managing the flows on the constraints. However, like any other transmission customer, the non-monitoring RTO is not responsible for the reliability of the monitoring RTO’s system.

Hence, the monitoring RTO is solely responsibility under its Tariff and other requirements to make decisions that promote the competitiveness, efficiency and reliability of its markets and system for all users. The Commission should reject any proposals that would grant

the non-monitoring RTO, any other transmission customer, or other interested party inappropriate authority over these decisions.

It is undoubtedly appropriate for a market-to-market process to be worked out by agreement between RTOs and specified in a JOA between them, but each RTO must remain free to operate its own system to maintain reliability as efficiently as possible. Likewise, it must be free to make improvements to its operating procedures or market rules that would improve the efficiency or competitiveness of the market. This remains true even if such actions have the secondary or collateral consequence of affecting the market-to-market settlements (as well as the costs and revenues realized by all market participants). On interconnected electric systems, most operating actions or changes in market rules and operating procedures can have such an effect.

In order for the monitoring RTO to meet its obligations to its markets and system, its actions cannot be subject to control or veto by a single interested entity, even if that entity is another RTO. For example, it would be ridiculous for a load serving entity be allowed to avoid paying for congestion if it did not agree with a line rating change made by the RTO. It is no more appropriate or reasonable for a non-monitoring RTO be granted such rights or authority.

Potomac Economics is accordingly concerned that certain of the proposed revisions to the JOA would grant to the non-monitoring RTO a measure of control or authority over the internal decisions or actions of the monitoring RTO that would be plainly inappropriate for any other customer of the monitoring RTO's system. The Settlement does not establish that it is appropriate to grant such extraordinary powers to the non-monitoring RTO, which may undermine the efficiency, competitiveness and reliability of the monitoring RTO's system, as well as superseding its governance process and procedures. If the monitoring RTO takes excessively conservative or inefficient actions for its system, it will increase costs for all of its customers and is subject to correction through its governance process or Commission review.

Under Rule 602, the Commission is obligated to resolve contested issues raised with respect to an offer of settlement, acting either on the basis of substantial evidence already in the record, or further evidentiary proceedings. 18 C.F.R. § 385.602(h)(1). Here, as discussed in these comments, analysis of the revisions to the JOA proposed in the Settlement shows that (i) the revisions may (i) adversely affect the efficiency of the RTOs' markets and reliability of the RTOs' systems, and (ii) contravene the RTOs' governance requirements. In addition, the Commission's Rules require that a tariff or rate schedule, such as the JOA, that is part of a settlement should be served on parties that would be affected by it. 18 C.F.R. §385.602(d)(1)(ii). The concerns identified in these comments would potentially affect all participants in both RTO markets, only some of which are intervenors in these dockets. Moreover, those market participants would not have been aware of the adverse consequences identified in these comments at the time interventions were due, since the revisions to the JOA have just now been proposed by the parties. The changes we recommend in these comments on the proposed JOA revisions in the settlement would, however, address these concerns and assure that the Settlement is in the public interest.

Based on Potomac Economics' review of the Settlement, we have substantial concerns regarding the provisions in (i) the Change Management Process set forth in Article XX of the revised JOA, and (ii) the after-the-fact review process set forth in Section 8, Appropriate Use of Market-to-Market Process, in the Interregional Coordination Process ("ICP"). These concerns, as well as proposed revisions to the Settlement to remedy them, are discussed further below.

Apart from these two sets of concerns, Potomac Economics supports the intent of the Baseline Review, Change Management Process, Data Exchange, the Biennial Reviews, and other aspects of the Settlement. Potomac Economics commends PJM and Midwest ISO, along with the other parties to these dockets, on their good faith and extensive efforts to resolve the disputes giving rise to the complaints that initiated these proceedings. Potomac Economics believes that,

with the incorporation of the changes set forth below, it would be appropriate and in the public interest for the Commission to approve the Settlement.

III. CHANGE MANAGEMENT PROCESS

To avoid future errors in market-to-market processes and settlements, the RTOs are proposing enhanced procedures. These include a one-time only Baseline Review of current market-to-market processes, an ongoing Change Management procedure, enhanced data exchange, and biennial reviews.

In light of the errors made in market-to-market processes and the current lack of visibility by the non-monitoring RTOs into the monitoring RTOs market-to-market processes, it is understandable and appropriate to revise the JOA to enhance the non-monitoring RTO's ability to audit and validate the market-to-market process. Changes by one RTO that would significantly affect the implementation of its market-to-market process should be transparent to the other RTO. The other RTO should be able to satisfy itself that the changes are consistent with the JOA, and be able to provide whatever input it deems appropriate to achieve that result. Advance notice and information exchange requirements would help achieve these objectives. Additionally, neither RTO would be able to implement such changes without the written approval of the other RTO, which is reasonable to the extent that the changes could undermine the market-to-market processes.

The proposed language for the Change Management Process as written, however, goes far beyond the market-to-market processes and implementation. The Change Management Process is set forth in Article XX of the JOA. Under § 20.1, the Change Management Process would apply to “any processes that would affect the implementation of the market-to-market process under this Agreement, **including the determination of market-to-market settlements** . . .” (emphasis added).

The reference to the “determination of market-to-market settlements” necessarily expands the applicability of this provision to all changes in market rules or procedures that would affect the value of congestion on market-to-market constraints, because this will affect the market-to-market settlements. The problem is that many, if not most market rules, modeling parameters, and operating procedures can significantly affect the value of the congestion on the monitoring RTO’ interfaces. Although these rules, parameters, and procedures have nothing to do with the implementation of the market-to-market processes under the JOA, they would be implicated by the Change Management provisions because they indirectly affect the market-to-market settlements.

These indirect effects occur because these rules, parameters, and procedures ultimately affect the economic value of each constraint in each 5-minute real-time market interval. This economic value is reflected in each constraint’s “shadow price”. The congestion component of every locational marginal price posted by each RTO is calculated based on these shadow prices. Similarly, the market-to-market settlements are based on these shadow prices. This is confirmed by the currently effective provisions in Sections 3 and 4 of the ICP, which contain the formulas for market-to-market settlements. The shadow prices produced in the markets of both the monitoring and non-monitoring RTOs are used in the market-to-market settlement formulae.

In summary, then, the Change Management Process in § 20.1 encompasses anything that impacts market-to-market settlement, which in turn depends on the most fundamental results of the market clearing process. Hence, there is no other interpretation of the proposed provisions in § 20.1, other than that the monitoring RTO would be restricted from changing any market rules, modeling parameters, or operating procedures without written approval by the non-monitoring RTO, even when such changes have been approved by its stakeholders through its governance process. The array of changes and operating practices that would be implicated by this provision is extremely broad. Examples of such changes and operating practices include:

- Defining new local operating reserve zones and requirements;
- Altering the real-time pricing algorithms (as the Midwest ISO is currently contemplating);
- Changing market power mitigation measures;
- Changing the transmission rates charged to imports, exports, or wheel-through transactions;
- Changing the processes for committing gas turbines and other resources after the day-ahead market to help manage congestion;
- Changing the maximum redispatch cost the real-time market will incur to resolve a constraints (i.e., changing the “marginal value limit” for the constraint in the market software);
- Altering what the real-time market software will do when a constraint is violated (when the flow exceeds the limit);
- Changing how operating guides are implemented by the operators (that are used to assist in managing certain constraints);
- Changing transmission planning processes and criteria;
- Altering capacity market zones or deliverability rules;
- Etc.

This is only a partial list of the myriad of changes to market rules and operations that can change congestion patterns, all of which could have significant indirect effects on the congestion costs that are the basis for the market-to-market settlements.

In addition to the substantive problem of granting any transmission customer the rights and authority that would be conveyed to the non-monitoring RTO under the proposed Change Management provisions, it would also create significant legal issues. The Tariff prescribes relatively specific governance procedures that the monitoring RTO is to follow to change its market rules and procedures. The proposed Change Management provision in § 20.3 would supercede the governance process by granting the non-monitoring RTO approval rights over all changes that would potentially affect congestion levels on market-to-market constraints.

It is our understanding that the RTOs did not intend for the Change Management Process to apply as broadly as we describe. However, the literal language of the proposed provision in § 20.1 supports only the relatively broad interpretation described above. Fortunately, relatively limited changes to the proposed provision would clarify that these provisions should only apply to the market-to-market processes and settlement provisions.

Accordingly, in order to resolve these concerns regarding the proposed Change Management provisions, Potomac Economics recommends that § 20.1 as shown below:

20.1 Notice. Prior to making a change to any processes that would affect the implementation of the market-to-market process under this Agreement, or inputs used to calculate the market-to-market settlements, the Party desiring the change shall notify the other Party in writing or via email of the proposed change. Such changes shall not include changes that may indirectly affect market-to-market settlements by potentially affecting the value of congestion (i.e., shadow prices) on market-to-market constraints. The notice shall include a complete and detailed description of the proposed change, the reason for the proposed change, and the impacts the proposed change will have on the implementation of the market-to-market process, including market-to-market settlements under this Agreement.

This relatively limited change in § 20.1 would completely address the concerns we have described in these comments. Additionally, we believe that this is consistent with the RTOs' intent for these provisions. If one of the RTOs indicates that this is inconsistent with their intent for this provision, then they may not in fact have a meeting of the minds on these provisions.

IV. AFTER-THE-FACT REVIEW

Similar concerns are raised by the proposed revisions to Section 8 of the ICP that would provide for after-the-fact review of operator decisions, and potential *ex post* changes in market-to-market settlements. In Potomac Economics' experience as the IMM for the Midwest ISO, New York ISO, and ISO New England, it is very common for operators to manage a constraint to a limit that is lower than 95 percent of its rating for a period of time to address a reliability concern. When this choice is made, it can increase the value of the congestion on the constraint

by requiring more, higher-cost redispatch to manage the constraint (which would increase the shadow price of the constraint).

Identifying specific reasons for such deratings that would be inappropriate is acceptable. For example, the proposed settlement provisions indicate that a market-to-market constraint should not be bound at a lower limit as a substitute for (to manage the flows on) a constraint that is not a market-to-market constraint unless the non-monitoring RTO agrees. This is a very specific understanding and is reasonable because these are cases where the constraint being managed does not satisfy the market-to-market tests.

In addition, the desire of the RTOs to review and discuss decisions by the monitoring RTO to manage a constraint to a lower limit raises no material concerns for us. However, the ability of the non-monitoring RTO to potentially avoid the market-to-market settlement when the monitoring RTO has made an operating determination that is not prohibited (i.e., is not implementing a substitute flowgate) raises serious concerns. No other customer of the monitoring RTO's transmission system has a comparable right to refuse to pay for congestion that it is contributing to by its use of the system on the basis that it does not agree with limit the operator has chosen to employ for a constraint. Beyond the discriminatory nature of this provision, there are a number of other reasons why the market-to-market settlements should not be avoidable by the non-monitoring RTO.

First, the non-monitoring RTO's right to use the monitoring RTO's system has not be reduced or otherwise encumbered by the operator's decision to employ a lower limit. The non-monitoring RTO's firm flow entitlement is fixed and the monitoring RTO itself bears the full quantity reduction of the derating. The primary manner in which the non-monitoring RTO is affected by this decision is that the shadow price of the constraint may be higher, which could potentially cause the non-monitoring RTO to make a larger payment if it is using more than its entitlement on the constraint. However, this increase in cost is shared by all users of the

monitoring RTO's system and no reasonable basis has been put forward to in the settlement filing to forgive the non-monitoring RTO the costs of transmission usage in excess of its entitlement.

Second, apart from lowering the limit on a market-to-market constraint to use it as a substitute Flowgate, there is no *a priori* reason to question other limit changes by the monitoring RTO. As discussed above, the monitoring RTO and its customers bear most of the costs of such deratings. In fact, because the monitoring RTO's entitlement is effectively reduced when such deratings are implemented, they increase the likelihood that the monitoring RTO will have to make market-to-market payments to the non-monitoring RTO. Therefore, the monitoring RTO clearly has no incentive to employ unjustifiably low limits on any of its constraints. One can presume, therefore, that such limits will only be employed when they are deemed justifiable to protect the reliability of the system. If that is true, introducing the possibility that the market-to-market settlements may be at risk in such cases could create adverse incentives that may cause the monitoring RTO's operators to avoid actions that they would otherwise have deemed justified for reliability. Such incentives may also increase the likelihood that the monitoring RTO would take other more costly and less efficient actions, such as declaring a safe operating mode.

Third, if the non-monitoring RTO is able to avoid the market-to-market settlements in cases where it is using more of the monitoring RTO's transmission capability than its entitlement, these congestion costs will be borne by the monitoring RTO's other customers. The first problem with this is that it cannot reasonably be argued that these customers are causing the congestion costs since the costs are caused by the non-monitoring RTO's dispatch. The second problem is that some of these customers are not parties to this case and would not reasonably have expected that this Settlement would result in future costs associated with foregone market-to-market settlements by the non-monitoring RTO.

Finally, outside of cases where the reduction in a limit was associated with the use of a substitute flowgate, we are unaware of *any* instances where either RTO was shown to have inappropriately reduced a limit on a market-to-market flowgate below 95 percent of its rating. Hence, there is no basis for this after-the-fact review to nullify the market-to-market settlements – it is a solution to a problem that has not been shown to exist.

Like the Change Management concerns raised above, however, relatively modest changes to new proposed Section 8 of the ICP would resolve all of our concerns. Such changes, which are shown in redline below, primarily remove references to market-to-market settlements that allow the non-monitoring RTO to escape its market-to-market settlement obligations.

Accordingly, Potomac Economics recommends the following changes to Section 8 to delete most references to after-the-fact changes in settlements. Only the subsections in which Potomac Economics recommends changes are set forth below; Potomac Economics is not recommending changes in the omitted provisions of Section 8.

8. Appropriate Use of the Market-to-Market Process

Under normal operating conditions, the Midwest ISO and PJM operators will model all Reciprocal Coordinated Flowgates (RCFs) in their respective EMSs. A subset of these Flowgates, impacted by market flows from the two RTOs' energy markets, will be subject to the market-to-market process and called M2M Flowgates. This subset will be controlled using market-to-market tools for coordinated redispatch and additionally will be eligible for market-to-market settlements.

In principle and as much as practicable, Parties agree that the goal is to control to the most limiting Flowgate using the actual Flowgate limit. The RTOs will record and exchange actual M2M Flowgate limits, the limit used to bind, and a reason for significant deviation.

There are times when either Party, acting as the Monitoring RTO, will bind a M2M Flowgate different from its actual limit. The Parties have agreed in subsections 8.1 through 8.4 of this Section 8 to the conditions under which ~~market-to-market settlement~~ certain reviews will occur ~~even though~~ a limit to which the Monitoring RTO is binding (limit control) is less than its actual limit.

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8.1.4 Most Limiting Flowgate. Generally, controlling to the most limiting Flowgate provides the preferable operational and financial outcome. In principle and as much as practicable, market-to-market coordination will take place on the most limiting Flowgate, and to that Flowgate's actual limit (thermal, reactive, stability).

- a. Market-to-market events that involve the use of a limit control that is below 95% of the actual limit will be subject to an after-the-fact review, unless the lower limit was agreed to by the RTOs prior to the market-to-market binding event. The review will determine if the lower limit was used to implement a substitute Flowgate. normal market to market settlements are appropriate. If market to market settlements are determined by the Parties not to be have been appropriate, then the Parties will discuss possible changes in the market to market process for similar future events settlements will not occur on the M2M Flowgate. Sufficient real-time and after-the-fact data will be exchanged to enable these reviews. The Parties may agree to change the trigger for review to a lower number for specific Flowgates, however, either Party may request review of specific instances that are bound above the established binding percentage.

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8.2.2 Market-to-Market Events Requiring an After-the-Fact Review

All M2M events that involve the use of a limit control that is below 95% of the actual limit will be subject to an after-the-fact review to determine whether this was an inappropriate use of a substitute Flowgate as described in subsection 8.1.5, the market to market process and is subject to market-to-market settlement. The following criteria will be used in making such a determination:

8.2.2.1. — Reducing the UDS Binding Percentage to Provide Necessary Constraint Control:

- a. A reduced UDS binding percentage below 95% of the actual facility rating can be applied to an M2M Flowgate by the Monitoring RTO provided the monitored element (for the defined contingency condition) of the M2M Flowgate meets the following conditions:
 - i. The monitored element is, or is expected to be, over its applicable rating (post-contingency if applicable) and the UDSs are not providing the desired relief.
 - ii. Transient system behavior necessitates controlling the M2M Flowgate to a target between 95% and 100% and providing some margin. To achieve this, in some instances, the UDS percentage may need to be below 95%.
 - iii. The limit for the monitored element changes due to equipment switching out of service. For instance the rating of a line is reduced when one of the breakers in a breaker and half configuration is out of service, or only one parallel transformer remains in service at one of the line end terminals.
 - iv. A constraint with a very high loading volatility such that loading is expected to exceed 100% of the rating, even when the UDS binding percentage is significantly below that value.

- ~~b. The reduced UDS binding percentage should only be applied for the time duration necessary to manage the initiating condition and shall be returned to normal as soon as possible.~~
- ~~c. Each time the Monitoring RTO reduces the binding limit of an M2M Flowgate below 95% for an actual or relevant post contingency overload, the Monitoring RTO operator will make a best effort to notify the Non Monitoring RTO operator of the new limit, the reason for the change, and when the limit is expected to be returned to normal (if known). Both RTO operators will log the event. This notification only applies to an operating condition causing a limit change; it does not apply to the use of temperature adjusted ratings, voltage limits or stability limits implemented as flow limits.
 - ~~i. A limit reported by a Transmission Owner on the operating day shall require an accompanying reason. If the limit is set to control for underlying facilities, this shall be called out specifically. Any reason other than those specifically called out herein shall be reported.~~~~
- ~~d. The Monitoring RTO will operate to the most conservative limit when there are conflicting results between two different EMSs (either another RTO EMS or a Transmission Owner EMS) unless the reason for the difference is known.~~

~~8.2.2.2. Reducing the UDS Binding Percentage of a M2M Flowgate for Prepositioning~~

- ~~a. In some conditions system flows are expected to change quickly due to load pick-up, planned, and emergency outages, and the UDS may not be accurately predicting a resulting overload on the M2M Flowgate in the near future. When a reduction in binding percentage is initiated by the operator to mitigate expected impacts on an M2M Flowgate from a planned outage, that action shall be taken to prepare the system consistent with the time submitted on the outage ticket or as revised by the equipment operator. This reduction should be for as short a time as practicable but may be extended if the outage is delayed. If possible, initiating the reduction in binding percentage shall be delayed until the outage begins.~~
- ~~b. M2M Flowgates may be de-rated for a short period of time to pre position the system for an expected change. These expected changes can include:
 - ~~i. Change in unit status (anticipated as part of an upcoming outage, reacting to an imminent emergency outage, or change in commitment if the unit for which the commitment was changed cannot be adequately ramped to allow normal redispatch to manage any resulting constraints).~~
 - ~~ii. Transmission system topology change (either anticipated event or as part of an upcoming planned outage). In this case, every effort shall be made to add the expected constraint to the systems and bind on the expected constraint instead of using a substitute Flowgate.~~
 - ~~iii. Increase or decrease in wind generation output.~~~~

e. ~~Reducing the limit to pre-position the system will be considered an appropriate use of market-to-market tools but subject to settlement adjustment for substitute M2M Flowgates applying a hold harmless approach discussed in the After the Fact Review process set forth in Section 8.4 below. The time duration of such events shall be limited to that necessary to pre-position to avoid excessive impacts on market prices.~~

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8.4.1 Based on the communication and data exchange that has occurred in real-time between the Monitoring RTO operator and the Non-Monitoring RTO operator, there will be an opportunity to review the limit change and the use of the market-to-market process to verify it was an appropriate use of the market-to-market process and subject to market-to-market settlement. The Monitoring RTO will initiate the review as necessary to apply these conditions and settlement adjustments.

- a. A review will verify that ~~the limit used in the market-to-market coordination~~ was to manage flows over represented the actual limit of the monitored element of the original Flowgate that has passed one of the M2M Flowgate Studies, rather than the inappropriate use of a substitute Flowgate. The Monitoring RTO will archive and make available data (including all UDS solutions) that supports the decision to change the M2M Flowgate limit. The Parties will mutually agree upon, and document in writing and post on the Parties' websites, the data that should be exchanged and/or archived to meet this requirement, and shall retain the data for the period applicable to other data used to audit settlements inputs and market flow calculations under this agreement.

V. CONCLUSION

For the reasons set forth above, Potomac Economics recommends that the Settlement be approved with the revisions to Article XX of the Joint Operating Agreement and to Section 8 of the Interregional Cooperation Process set forth above.

Respectfully submitted,

/s/ David B. Patton

David Patton
President

January 24, 2011

CERTIFICATE OF SERVICE

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 24th day of January, 2011 in Fairfax, VA.

/s/ David B. Patton
