

# Appendix I

## Sweeney, James H.

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**From:** DeSocio, Michael  
**Sent:** Tuesday, February 25, 2014 6:11 AM  
**To:** Ronald Arness (rarness@misoenergy.org)  
**Cc:** Sweeney, James H.  
**Subject:** BRM Report for FERC  
**Attachments:** NYISO Outline of 2014 BRM Report 2\_10\_14 Drft1c.docx

Hi Ron,

I am the Manager of Energy Market Design at the NYISO. Stan Williams from PJM suggested that I reach out to you regarding a compliance item for the Broader Regional Markets program.

As part of the original order, the NYISO was told to place together a report on the initiatives progress in collaboration with its neighboring ISO/RTOs. I have attached an outline for report and we have begun draft language for those items directly connected to the NYISO. I was hoping you could review the outline, suggest edits to it from MISO's perspective and help with the review of the final report. We hope to have an initial draft out for review soon and the NYISO plans to submit the report on March 19, 2014.

If you are not the correct person to work with at the MISO on this matter, would you kindly recommend an alternative. Otherwise, I look forward to working with you. If you like to discuss the report, feel free to reach out to me (518-573-1536).

Thank you for your attention to this matter,

Mike DeSocio  
NYISO  
Manager, Energy Market Design  
o: 518-356-7518  
m: 518-573-1536  
[mdesocio@nyiso.com](mailto:mdesocio@nyiso.com)

# **Development Plan for Late March, 2014 Broader Regional Markets Report to FERC**

## Elements of Report

### **I. Improvements that the Lake Erie ISOs/RTOs (plus ISO-NE and HQ) have made since 2008**

#### **A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing**

A summary of the elements the ISOs/RTOs around Lake Erie (plus NYISO/ISO-NE and NYISO/HQ) have, or are, putting in place to improve coordination between markets. [Note that the order of the improvements could be re-arranged.]

##### **1. NYISO's Interface Pricing Improvements**

Explain what the improvements were, and how/why they are expected to reduce LE loop flow and/or to reduce the cost of managing LE loop flow.

Include quotes from FERC Order accepting that describe the expected benefits.

Include quotes from Potomac SOM report identifying benefits resulting from this initiative.

##### **2. PJM/NYISO M2M Implementation**

Explain what the improvements were, and how/why they are expected to reduce LE loop flow and/or to reduce the cost of managing LE loop flow.

Include quotes from FERC Order accepting that describe the expected benefits

Provide the "value of M2M" based on the NYISO Operations Dept. material that is put together and reported monthly

Include Potomac analysis (utilizing the latest quarterly report).

- NYISO and PJM would like to use Potomac's analysis because it provides an external perspective of what has worked, but using Potomac's analysis is dependent on being able to explain it

Include a discussion of the revisions made as part of the NYISO/PJM M2M waiver filing with the Ramapo 4500 PAR out-of-service to show that the ISOs/RTOs are proactively addressing interregional coordination concerns as they arise, rather than merely reacting to problems after they occur.

### **3. Implementation of More Frequent Scheduling**

Explain what the improvements were, and how/why they are expected to reduce LE loop flow and/or to reduce the cost of managing LE loop flow.

State that PJM and MISO have permitted transactions to be scheduled on a quarter-hour basis at their common borders since [DATE].

Address implementation of quarter hour scheduling at PJM/NYISO and HQ/NYISO borders. Again, include quotes from FERC Orders on expected benefits.

Highlight flexibility that it has added to the marketplace

Highlight MWs that are being schedule on a quarter hour basis.

State that HQ has expressed a desire to move to 5 minute scheduling at Chateauguay, and that the NYISO is prepared to work with HQ to achieve this in 2015 or 2016.

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 timeframe with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

Anything to say about future implementation of 15 minute scheduling at MISO/IESO or NYISO/IESO borders?

### **4. PJM/NYISO and ISO-NE/NYISO Coordinated Transaction Scheduling**

Explain what the improvements were, and how/why they are expected to reduce LE loop flow and/or to reduce the cost of managing LE loop flow.

NYISO/ISO-NE Tariff revisions accepted for filing (include quotes from FERC Order on expected benefits); implementation planned for 2015

NYISO/PJM tariff revisions filed/pending FERC action; implementation planned for Q4, 2014

[Add PJM/MISO Interchange Optimization plans here? If so, change the heading.]

### **5. [ADD PLANNED PJM/MISO IMPROVEMENTS HERE. ADD MORE TOPIC HEADINGS IF NEEDED.]**

[ADD IMPROVEMENTS THAT WERE IMPLEMENTED AFTER 2008 AND ARE CURRENTLY IN EFFECT, IMPROVEMENTS THAT ARE CURRENTLY IN DEVELOPMENT, OR PLANNED FUTURE IMPROVEMENTS HERE.]

## **B. Physical Improvements Implemented Since 2008**

Ontario/Michigan PARs entered service on date [X]. MISO and IESO state that they are operating the PARs to reduce Lake Erie loop flow.

State that MISO's attempt to allocate a portion of the cost of ITC's Bunce Creek PARs to customers in New York and PJM is a matter under litigation, with an ALJ's Initial Decision pending before the Commission. State that NYISO, PJM and ISO-NE have not been provided the necessary information or the opportunity to substantiate MISO's benefit claims; and that the other ISOs/RTOs do not join in this section of the Report.

## **II. The Lake Erie ISOs/RTOs Agree There is No Immediate Need to Implement Buy Through of Congestion**

Describe what the buy-through proposal is.

State that all of the Lake Erie ISOs/RTOs agree that it is not necessary to immediately commence developing the proposed Buy-Through of Congestion market improvement.

State that a decision on whether or not Buy-Through will be beneficial requires more information that can only be developed over time. In particular, the ISOs and RTOs need:

- [more] experience with the implemented M2M and Interchange Coordination processes
- [more] time to implement CTS and other Interchange Optimization processes
- [more] time to understand how the collective set of market solutions should account for the operation of controllable devices around Lake Erie to ensure maximum efficiency

Opportunities for Interchange Optimization PJM-MISO (with implementation end of 2015)

PJM initiatives to explore incorporating MI/ON PARs in MISO/PJM M2M (PJM is looking to move in a similar direction as their implementation with NY.)

PJM has not started discussion with MISO yet

Need to allow those enhancements to be implemented (stabilized) and the results observed to complete an evaluation of the incremental needs for BTC.

Not looking to propose to remove BTC from the list of potential solutions. Determining if/when BTC should be implemented will require some analysis that we are not necessarily able to do at this time.

### **III. Request for Waiver/Modification of Reporting Obligation**

State the current reporting obligation. Get agreement from all of the ISOs/RTOs to seek permission to push the reporting obligation to annually given the implementation timelines of the other features.

The ISOs and RTOs won't know much in six months that they don't know now.

Request a waiver of the Commission's reporting obligation to permit the next report to be submitted March 20, 2015, instead of in six months.

### **IV. Timeline for Developing/Submitting Report to FERC**

Outline distributed to PJM by 2/13 seeking PJM materials that can be used to draft the report

Outline distributed to MISO by [??] seeking MISO materials that can be used to draft the report

Joint discussion of first draft of the filing (including only NYISO/PJM improvements) on 2/20 and determination of additional work needed to complete the report.

Joint discussion of first draft of the filing (including all improvements) on [DATE] and determination of additional work needed to complete the report.

Presentation on informational filing to NYISO MIWG on 3/4 and request comments

Other ISOs/RTOs will need to make similar presentations/requests for comments to their stakeholders

File by 3/19

**Sweeney, James H.**

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**From:** DeSocio, Michael  
**Sent:** Wednesday, March 05, 2014 2:14 PM  
**To:** Stan Williams (Stan.Williams@pjm.com); Ronald Arness (rarness@misoenergy.org); Warren Hill (warren.hill@ieso.ca); Cheryl Mendrala (cmendrala@iso-ne.com)  
**Cc:** Sweeney, James H.  
**Subject:** Broader Regional Markets Informational Report for FERC  
**Attachments:** Outline of 2014 BRM Report 3\_4\_14b.docx

All,

I hope this email finds you all well. The deadline for this report is quickly approaching. I have touched base with all of you regarding this obligation for the FERC. We have yet to get any information from MISO or IESO, so you if you have any additional information that you would like included in the report please get that to us by the end of day March 10<sup>th</sup>, 2014. Also, ISO-NE is still considering whether or not they would like to participate in this report, again please let us know by the end of the day March 10<sup>th</sup>, 2014.

Attached is a draft version of the report. If you should have any comments on it, please provide those to myself and James Sweeney by end of day March 10<sup>th</sup>, 2014.

The NYISO appreciates any input that you may be able to provide.

Regards,

Mike DeSocio  
Manager, Energy Market Design  
NYISO

## March, 2014 Broader Regional Markets Report to FERC

In accordance with paragraph 33 and ordering paragraph “D” of the Federal Energy Regulatory Commission’s (“Commission’s” or “FERC’s”) December 30, 2010 *Order on Rehearing and Compliance* in Docket No. ER08-1281 (“December 2010 Order”),<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits this *Report on Broader Regional Markets* (“Report”). Ordering paragraph “D” of the December 2010 Order states that the “RTO/ISO parties are hereby directed to submit informational reports, as discussed in the body of this order.” Paragraph 33 of the December 2010 Order instructs the NYISO,

“in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the “Lake Erie ISOs and RTOs”), with input from the stakeholders of the foregoing ISOs and RTOs and NERC.

Comment [NYISO-MD1]: ISO-NE: Does ISO-NE want to participate?

### I. Improvements that the Lake Erie ISOs/RTOs (plus ISO-NE and HQ) have made since 2008

#### A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing

The RTO/ISOs around Lake Erie (plus NYISO/ISO-NE and NYISO/HQ) present the following summary of the market design features that have been, or will be, implemented to improve coordination between markets and reduce Lake Erie loop flow.

##### 1. NYISO’s Interface Pricing Improvements

In December 2010, the Commission instructed the NYISO to develop interface pricing reforms to address the price incentives that create loop flow concerns.<sup>2</sup> The NYISO’s interface

<sup>1</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 (2010).

<sup>2</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at PP 27 and 31 (2010).



pricing rules, as accepted by the Commission in 2013,<sup>3</sup> consists of four key aspects. First, the NYISO models the Michigan/Ontario interface in the same way PJM does. Second, the NYISO includes expected unscheduled power flows (“UPF”) in both its Day-Ahead Market (“DAM”) and Real-Time Market (“RTM”). Third, the NYISO uses its scheduling path validation process to ensure that External Transaction Bids are economically evaluated and scheduled consistent with their expected power flow impacts.<sup>4</sup> Finally, to calculate prices at its Keystone Proxy Generator Bus that represents a significant portion of the New York Control Area (“NYCA”)/PJM border, the NYISO (a) treats uncontrolled alternating current (“A/C”) transmission lines as free-flowing tie lines, (b) includes expected (Day Ahead) or actual (real-time) UPF over the interface facilities in its pricing, and (c) recognizes the demonstrated intermediate- and long-term effectiveness of the ABC, JK and Ramapo PARs in aligning actual power flows with scheduled power flows on PAR controlled transmission facilities at the PJM/NYCA border. The NYISO’s interface pricing rules also incorporate Commission-accepted tariff obligations and contractual obligations into the NYISO’s development of its Keystone Proxy Generator Bus prices.

The NYISO’s interface pricing policy relies on its scheduling path validation process.<sup>5</sup> NYISO Bid validation occurs as soon as a Bid is submitted to the NYISO’s Market Information System (“MIS”), and before Bids are made available to be economically evaluated for scheduling by the NYISO’s Day-Ahead or Real-Time Market software. The NYISO’s Bid validation only allows feasible transactions that contain valid NERC e-Tag data, to be economically evaluated for possible scheduling. The NYISO’s Bid validation software will not validate Bids submitted to schedule External Transactions over any of the eight circuitous Prohibited Transmission Paths identified in Section 16.3.3.8 of (Attachment J to) the NYISO Open Access Transmission Tariff (“OATT”). The Commission has instructed the NYISO to add additional prohibited paths if necessary to prevent new sources of Lake Erie loop flow from being introduced in the future.<sup>6</sup>

The Commission found that the NYISO’s interface pricing policy satisfies the requirements to align scheduled and real-time energy flows and to utilize NERC eTag validation to enhance the alignment of scheduled and actual power flows.<sup>7</sup> NYISO accounts for expected unscheduled power flows in its Day-Ahead Market based on recently observed Lake Erie circulation. “In the real-time market, NYISO accounts for the difference between scheduled and actual power flows measured at its interface with Ontario, *i.e.*, actual Lake Erie circulation.”<sup>8</sup>

<sup>3</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 (2013).

<sup>4</sup> In paragraph 16 of his attached affidavit, Dr. Patton, President of the NYISO MMU, explained why it is appropriate for the NYISO to continue to use its bid validation software: “The NYISO’s path validation process is designed to ensure that the actual power flows associated with the transactions are as consistent with the scheduled flows as possible. Precluding circuitous paths substantial reduces unscheduled loop flows and reduces market participants’ ability engage in patterns of transactions that may constitute manipulation of the RTO’s interface pricing.” See NYISO’s January 18, 2013 Interface Pricing Compliance Filing in Docket Nos. ER08-1281 and ER13-780, Attachment 1 at 6.

<sup>5</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 26 (2013).

<sup>6</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 27 (2013).

<sup>7</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 22 (2013).

<sup>8</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 22 (2013).

The NYISO's interface pricing rules produces prices that are consistent with the value of actual power deliveries to New York and are similar to the prices produced by PJM's pricing method. Greater consistency in regional pricing methods, combined with NYISO's rules that prohibit the use of circuitous scheduling paths have diminished both the ability and the incentives for Market Participants scheduling External Transactions to cause Lake Erie loop flow. Instead, more power is being scheduled consistent with the path over which it will actually flow.

## **2. PJM/NYISO M2M Implementation**

The Commission authorized the NYISO and PJM to begin coordinated congestion management/market-to-market coordination ("M2M") in January 2013.<sup>9</sup> The M2M coordinated congestion management process allows transmission constraints that are significantly impacted by generation dispatch changes in both the NYISO and PJM markets or by the operation of the Ramapo Phase Angle Regulators ("PARs") to be jointly managed in the real-time security-constrained economic dispatch models of both RTOs.<sup>10</sup> This joint real-time management of transmission constraints near the market borders provides a more efficient and lower cost transmission congestion management solution, and facilitates price convergence at the market boundaries. Real-time coordination results in a more efficient economic dispatch solution to manage the real-time transmission constraints that impact both markets.

In its Orders accepting the rules NYISO and PJM developed to implement M2M the Commission explained "the Market-to-Market Coordination Process was developed specifically in response to problems associated with Lake Erie loop flows."<sup>11</sup> The Commission Order accepting the M2M revisions to the parties' Joint Operating Agreement concluded "that coordinating the redispatch of resources and PAR operations in both NYISO and PJM as compared to each market operating independently, and thereby limiting the set of resources available for redispatch to resources located within the control area where the constraint is located, is a preferred method for addressing interregional transmission constraints and the Lake Erie loop flows."<sup>12</sup>

The Lake Erie ISOs and RTOs have learned to proactively address possible new causes of Lake Erie loop flow. In February 2013, one of the two Ramapo PARs at the PJM/New York border experienced an unplanned forced outage. To address the expected impact of the PAR outage on their transmission systems, interchange scheduling practices, and implementation of M2M coordination, the NYISO and PJM requested a temporary waiver from their Commission

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<sup>9</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 (2012).

<sup>10</sup> NYISO/PJM M2M includes two types of coordination: (1) re-dispatch coordination; and (2) Ramapo PAR coordination. For re-dispatch coordination, the non-monitoring RTO re-dispatches its generation to help manage congestion in the monitoring RTO, when economic, if one of the pre-defined flowgates becomes congested in the monitoring RTO. For Ramapo PAR coordination, the Ramapo PARs are operated to reduce overall congestion if certain pre-defined flowgates become congested in one or both RTOs.

<sup>11</sup> *New York Independent System Operator, Inc.*, 140 FERC ¶ 61,205 at P 22 (2012).

<sup>12</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 at P 20 (2012).

accepted JOA provisions to permit them to operate their systems in a way that better reflected expected power flows during the Ramapo PAR outage.<sup>13</sup> The waiver request allowed NYISO and PJM to maximize the total interchange capability between the RTOs while one PAR was out of service and to continue to achieve the target interchange flow over the Branchburg – Ramapo (5018) A/C transmission line (the “5018 line”).<sup>14</sup> Specifically, NYISO and PJM requested permission to temporarily reduce the net scheduled interchange that is expected to flow over the 5018 line, from 61 percent to 46 percent, while the PAR was being replaced. The waiver applied to the finite period of May 15, 2013 until the Ramapo PARs were returned to normal operation. NYISO and PJM are dedicated to proactively addressing interregional coordination issues as they arise, and involving the Commission when necessary, to more efficiently manage interregional transmission constraints and the Lake Erie loop flow.

Potomac Economics, the NYISO’s external market monitoring unit, (“MMU”) has been reviewing M2M operations between NYISO and PJM.<sup>15</sup> The MMU regularly analyzes both the efficacy of re-dispatch coordination and the efficacy of Ramapo PAR coordination. In its most recent quarterly report, the MMU “finds that the Ramapo Line was reasonably efficient in 72 percent of the hours with congestion in NY and/or PJM”. During this period, M2M re-dispatch coordination was not utilized often enough to allow reporting of that components efficacy. The MMU presents this quarterly review to New York Market Participants at stakeholder meetings. The most recent presentation is available at the following link:  
[http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

### 3. Implementation of More Frequent Scheduling

Enhanced Interregional Transaction Coordination (“EITC”) permits the scheduling of inter-Balancing Authority transactions on a more frequent basis than hourly schedules.<sup>16</sup> PJM, MISO and NYISO are all capable of scheduling interregional interchange on a 15 minute basis. On July 27, 2011, NYISO activated 15-minute scheduling at its Chateauguay D/C interface with Hydro-Quebec. In 2012 NYISO activated 15-minute scheduling at all of its interfaces with PJM, including all Scheduled Lines.<sup>17</sup> When Transmission Customers offer interregional energy on a 15-minute basis, the RTO/ISO dispatchers have the ability to alter schedules within an hour to address changing system conditions, including changes in unscheduled power flows like Lake

**Comment [NYISO-MD2]:** PJM/MISO – Could you add a statement here about when PJM and MISO first starting allowing 15 minute interchange schedules?

<sup>13</sup> *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,153 at P 5 (2013).

<sup>14</sup> The Ramapo PARs are utilized to control flows, and achieve target flow, over the 5018 line between NYISO and PJM.

<sup>15</sup> See Quarterly Report on the New York ISO Electricity Markets Third Quarter 2013, slides 61-68, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

<sup>16</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 (2011).

<sup>17</sup> The NYISO activated 15-minute scheduling on the primary interface between New York and Hydro-Quebec on July 27, 2011. The NYISO and PJM activated 15-minute scheduling on their primary interface on June 27, 2012. 15-minute scheduling was implemented on the Neptune and Linden VFT scheduled line interfaces on October 30, 2012 and November 28, 2012, respectively.

Erie loop flow. This dispatching flexibility allows the RTO/ISOs to respond to the price impacts that Lake Erie loop flow has on their transmission systems by altering intra-hour external transaction schedules. The RTO/ISO dispatchers are no longer locked into achieving hourly external transaction schedules.

In its order accepting the NYISO's EITC proposal, the Commission recounted that enhanced scheduling options at the NYISO's borders promote more efficient inter-regional transmission, reduce uplift costs associated with real-time event management and congestion management, support system balancing efforts by expanding the pool of resources available to system operators, and lower total system operating costs by improving price signals.<sup>18</sup> Potomac Economics' analysis identified a potential annual production cost savings for all NYISO interfaces of \$175 million.<sup>19</sup>

The NYISO has made use of the additional flexibility that 15 minute scheduling provides. The NYISO varied external transaction schedules at its PJM Keystone Proxy Generator Bus in over 33% of all quarter hours in 2013.<sup>20</sup> Since implementation, the NYISO has consistently received 15-minute transaction offers at four of the five interfaces that allowed 15-minute scheduling in real-time.<sup>21</sup>

#### **4. PJM/NYISO and ISO-NE/NYISO Coordinated Transaction Scheduling**

The Coordinated Transaction Scheduling ("CTS") Real-Time Market rules, recently accepted by the Commission,<sup>22</sup> allow Imports and Exports to be scheduled based on a bidder's willingness to purchase energy at a source in one Control Area and sell it at a sink in another Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the bid dollar value.<sup>23</sup> The NYISO intends to implement CTS with PJM in November of 2014 and CTS with ISO-NE in the fourth quarter of 2015. CTS between NYISO and PJM will be implemented at all four of the Proxy Generator Buses over which interchange between the two areas can be scheduled.

As the Commission recognized in its order accepting the NYISO's CTS with PJM filing, "CTS will enhance market efficiency of interregional transactions and provide substantial

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<sup>18</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>19</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>20</sup> 33% is a measure of schedule changes across the xx:15, xx:30 and xx:45 quarter hours. The xx:00 time was excluded because changes across xx:00 can occur due to changes in offer sets and would not provide evidence of improved inter-regional scheduling.

<sup>21</sup> The fifth interface is a Scheduled Line where the capability has been pre-sold to anchor tenants that choose to schedule on an hourly basis.

<sup>22</sup> See *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 (2012) and *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 (2014).

<sup>23</sup> Transmission Customers using CTS will submit a single CTS Interface Bid to indicate their desire to simultaneously buy Energy in one Control Area and sell Energy into the other Control Area based on the forecasted price difference between the NYISO and PJM markets at the relevant location.

benefits to consumers in both PJM and NYISO.”<sup>24</sup> “CTS should also minimize counter intuitive flows, such as flows going from a high priced control area to a low priced control area, by incorporating projected price differences between the NYISO and PJM markets into scheduling decisions.”<sup>25</sup> In addition, “CTS should improve scheduling efficiency for both regions by introducing a new scheduling option... that will allow bidding of different MW quantities at different prices for each 15 minute interval within an hour.”<sup>26</sup> CTS will further improve scheduling efficiency for transactions between NYISO and PJM by establishing intra-hour schedules 15 minutes closer to actual, real-time operations. Establishing intra-hour schedules closer to the actual 15 minute scheduling interval will improve the accuracy of cross-border scheduling decisions because those decisions will reflect updated system conditions, including any price impact of unscheduled Lake Erie loop flow.<sup>27</sup>

The Commission found that both CTS with PJM and CTS with ISO-NE will provide substantial benefits to customers in the three affected regions. In its CTS with PJM order, the Commission finds “that CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO ... joint studies performed by PJM and NYISO estimate potential production cost savings ranging from \$9 million/year to \$26 million/year.”<sup>28</sup> The order accepting the NYISO’s CTS with ISO-NE filing similarly states, “CTS will provide substantial benefits to consumers in both ISO-NE and NYISO by addressing inefficiencies present in the current external transaction scheduling process ..., for the combined ISO-NE and NYISO region, Potomac Economics estimates that CTS will result in \$129 million to \$139 million in annual consumer savings, and \$9 million to \$11 million in annual production cost savings.”<sup>29</sup>

**5. [ADD PLANNED PJM/MISO IMPROVEMENTS HERE. ADD MORE TOPIC HEADINGS IF NEEDED.]**

*[ADD IMPROVEMENTS THAT WERE IMPLEMENTED AFTER 2008 AND ARE CURRENTLY IN EFFECT, IMPROVEMENTS THAT ARE CURRENTLY IN DEVELOPMENT, OR PLANNED FUTURE IMPROVEMENTS HERE.]*

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 timeframe, with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

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<sup>24</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>25</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>26</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>27</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 13 (2014).

<sup>28</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>29</sup> *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 at P 29 (2012).

## **B. Physical Improvements Implemented Since 2008**

MISO and IESO began actively operating the PARs at the Michigan/Ontario border to better conform actual power flows to scheduled power flows on April 5, 2012. MISO and IESO state that, with these PARs operational, Lake Erie loop flow has been better managed.

This section of the Report was prepared by MISO [and IESO]. The other RTO/ISOs do not join in this section of the Report.<sup>30</sup>

## **II. The Lake Erie ISOs and RTOs Agree That Implementing Buy-Through of Congestion is Premature at This Time**

The objective of the proposed Buy-Through of Congestion Broader Regional Market solution is to (a) identify the sources of loop flow caused by interregional transaction scheduling, (b) determine the costs incurred in supporting the loop flows by each impacted region, and (c) allocate the costs incurred by the off-contract path Balancing Authorities to the scheduling entity, or remove the associated schedules if the scheduling entity is not willing to pay the full cost of flowing its transaction(s). Implementing Buy-Through of Congestion will result in a more complete identification, and accurate assignment, of the costs to move power between regions, and will provide an economic alternative to the administrative/physical curtailment processes. Buy-Through of Congestion will allow the scheduling entity to decide whether or not it is willing to pay the congestion charges caused by its transaction's off-contract path flow impacts. If a scheduling party indicates it is not willing to pay congestion charges, its transaction will be removed if the off-contract path flow impacts add to congestion costs in an off-contract path ISO or RTO.

The ISOs and RTOs need time to understand how the collective set of market solutions discussed herein will affect Lake Erie loop flow and how the market solutions should account for the operation of all of the controllable devices around Lake Erie. The only way to understand the impact of these market solutions is to gain operational experience with the recently, and soon to be, implemented Broader Regional Market improvements and to study the resulting operational data. NYISO, PJM, MISO and IESO all agree that it is not necessary to begin to develop the proposed Buy-Through of Congestion Broader Regional Market solution at this time. The ISOs and RTOs need more time to analyze the other recently, and soon to be, implemented programs before determining whether or not the Buy-Through of Congestion Broader Regional Market solution will provide sufficient additional benefits to merit its development and implementation.

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<sup>30</sup> The other Lake Erie ISOs and RTOs do not possess the necessary information and have not been given the opportunity to analyze and substantiate MISO's and IESO's claims. All of the Lake Erie ISOs and RTOs agree that it would be counter-productive for NYISO and PJM to address the operation of the Michigan/Ontario PARs in this report. On October 20, 2010, MISO and International Transmission Company d/b/a *ITC Transmission* ("ITC") submitted a Federal Power Act Section 205 filing to the Commission, in Docket No. ER11-1844, to allocate a portion of the cost of ITC's Bunce Creek PARs (two of the five Michigan/Ontario PARs) to customers in New York and PJM. On December 20, 2011, the FERC Chief Administrative Law Judge set Docket No. ER11-1844 for hearing before an Administrative Law Judge. The presiding Administrative Law Judge issued a post hearing initial decision on December 18, 2012, *Midwest Indep. Transmission Sys. Operator, Inc.*, 141 FERC ¶ 63,021 (2012), which remains pending before the Commission. All of the hearing parties (including MISO, NYISO and PJM) are waiting for a Commission order on the Administrative Law Judge's initial decision.

### III. Request for Waiver/Modification of Reporting Obligation

The December 2010 Order imposed semiannual reporting obligations on the NYISO, in collaboration with its neighboring ISOs and RTOs, NERC and other market participants, commencing one year after the implementation of interface pricing reform and congestion management/market-to-market coordination.

“[O]ne year after the implementation of interface pricing reform and congestion management/market-to-market coordination, and every six months thereafter until the market initiatives are fully implemented, we require the NYISO, in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing: (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>31</sup>

The ISOs and RTOs respectfully request that the Commission amend this informational filing obligation to require annual reports to the Commission. Postponing the next informational filing to March 20, 2015 will provide necessary time for the ISOs and RTOs to develop a more substantive update for the Commission than could be provided in September 2014. Certain initiatives described above (CTS, for example) will require the majority of 2014 to complete and, therefore, the status will not change significantly in the next six months. Also, an additional year of operating experience with the features that entered service in 2012-2013, and the features being implemented in 2014, will allow the ISOs and RTOs to better understand their impact before providing an update to the Commission.

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<sup>31</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at P 33 (2010) (original footnotes omitted).

**Sweeney, James H.**

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**From:** DeSocio, Michael  
**Sent:** Thursday, March 13, 2014 10:06 AM  
**To:** Ronald Arness (rarness@misoenergy.org); Warren Hill (warren.hill@ieso.ca)  
**Cc:** Sweeney, James H.  
**Subject:** FW: Broader Regional Markets Informational Report for FERC

Ron/Warren,

We have yet to hear back from you regarding any comments or edits that you would like to see made to the report. At this point, we are assuming that you have no additions or comments to provide.

If you do plan on providing additions or comments, we request them by mid-day tomorrow March 14<sup>th</sup>, 2014. If you do not plan on providing additions or comments, please let us know whether you have any concerns with being named as joining the filing to FERC. This will guide us with how to word the opening paragraph of the report. If we do not hear back on this item we will assume that you are will want to remain a party joining the filing.

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC ("PJM"), the Midcontinent Independent System Operator, Inc. ("MISO"), the Ontario Independent Electricity System Operator ("IESO") and the NYISO (collectively the "Lake Erie ISOs and RTOs"), with input from the stakeholders of the foregoing ISOs and RTOs and NERC.

I look forward to hearing from you both soon.

Mike DeSocio

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**From:** DeSocio, Michael  
**Sent:** Wednesday, March 05, 2014 2:14 PM  
**To:** Stan Williams ([Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com)); Ronald Arness ([rarness@misoenergy.org](mailto:rarness@misoenergy.org)); Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca)); Cheryl Mendrala ([cmendrala@iso-ne.com](mailto:cmendrala@iso-ne.com))  
**Cc:** Sweeney, James H. ([JSweeney@nyiso.com](mailto:JSweeney@nyiso.com))  
**Subject:** Broader Regional Markets Informational Report for FERC

All,

I hope this email finds you all well. The deadline for this report is quickly approaching. I have touched base with all of you regarding this obligation for the FERC. We have yet to get any information from MISO or IESO, so you if you have any additional information that you would like included in the report please get that to us by the end of day March 10<sup>th</sup>, 2014. Also, ISO-NE is still considering whether or not they would like to participate in this report, again please let us know by the end of the day March 10<sup>th</sup>, 2014.

Attached is a draft version of the report. If you should have any comments on it, please provide those to myself and James Sweeney by end of day March 10<sup>th</sup>, 2014.

The NYISO appreciates any input that you may be able to provide.

Regards,



Mike DeSocio  
Manager, Energy Market Design  
NYISO

**Sweeney, James H.**

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**From:** Ronald Arness [rarness@misoenergy.org]  
**Sent:** Thursday, March 13, 2014 4:37 PM  
**To:** DeSocio, Michael; Warren Hill (warren.hill@ieso.ca)  
**Cc:** Sweeney, James H.  
**Subject:** RE: Broader Regional Markets Informational Report for FERC

Michael, I am working to get a response by tomorrow, pending input from others at MISO

Ron Arness

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**From:** DeSocio, Michael [<mailto:MDeSocio@nyiso.com>]  
**Sent:** Thursday, March 13, 2014 10:06 AM  
**To:** Ronald Arness; Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca))  
**Cc:** Sweeney, James H.  
**Subject:** FW: Broader Regional Markets Informational Report for FERC

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I look forward to hearing from you both soon.

Mike DeSocio

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2014. Also, ISO-NE is still considering whether or not they would like to participate in this report, again please let us know by the end of the day March 10<sup>th</sup>, 2014.

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The NYISO appreciates any input that you may be able to provide.

Regards,

Mike DeSocio  
Manager, Energy Market Design  
NYISO

The information in this email is confidential and may be legally privileged against disclosure other than to the intended recipient. It is intended solely for the addressee. Access to this email by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. Please immediately delete this message and inform the sender of this error.

**Sweeney, James H.**

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**From:** Zakaria Joundi [ZJoundi@misoenergy.org]  
**Sent:** Friday, March 14, 2014 10:15 AM  
**To:** DeSocio, Michael; warren.hill@ieso.ca; Sweeney, James H.  
**Cc:** Kevin Sherd; Ronald Arness; Tom Mallinger; Kevin Frankeny  
**Subject:** RE: Broader Regional Markets Informational Report for FERC  
**Attachments:** Outline of 2014 BRM Report 3\_4\_14b\_MISO redlines.docx

Mike

Sorry for the delay in providing comments. Please find attached MISO's redlines mainly reflected in Page 7 (Section 5B) . The first couple paragraphs that were inserted reflect language that has already been reviewed and approved from PJM and IESO as part of the announcement which we plan to send out to stakeholders. The later portion of the suggested edits is similar to language from the report and is intended to provide clarity to the nature of the study.

Thanks again for the opportunity to comment

Thanks, Zak  
317-249-5190

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**From:** DeSocio, Michael [<mailto:MDeSocio@nyiso.com>]  
**Sent:** Thursday, March 13, 2014 10:06 AM  
**To:** Ronald Arness; Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca))  
**Cc:** Sweeney, James H.  
**Subject:** FW: Broader Regional Markets Informational Report for FERC

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Mike DeSocio

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**Sent:** Wednesday, March 05, 2014 2:14 PM

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**Subject:** Broader Regional Markets Informational Report for FERC

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The NYISO appreciates any input that you may be able to provide.

Regards,

Mike DeSocio  
Manager, Energy Market Design  
NYISO

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## March, 2014 Broader Regional Markets Report to FERC

In accordance with paragraph 33 and ordering paragraph “D” of the Federal Energy Regulatory Commission’s (“Commission’s” or “FERC’s”) December 30, 2010 *Order on Rehearing and Compliance* in Docket No. ER08-1281 (“December 2010 Order”),<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits this *Report on Broader Regional Markets* (“Report”). Ordering paragraph “D” of the December 2010 Order states that the “RTO/ISO parties are hereby directed to submit informational reports, as discussed in the body of this order.” Paragraph 33 of the December 2010 Order instructs the NYISO,

“in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the “Lake Erie ISOs and RTOs”), with input from the stakeholders of the foregoing ISOs and RTOs and NERC.

**Comment [NYISO-MD1]:** ISO-NE: Does ISO-NE want to participate?

**Comment [RA2]:** MISO not reviewed with stakeholders

### **I. Improvements that the Lake Erie ISOs/RTOs (plus ISO-NE and HQ) have made since 2008**

#### **A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing**

The RTO/ISOs around Lake Erie (plus NYISO/ISO-NE and NYISO/HQ) present the following summary of the market design features that have been, or will be, implemented to improve coordination between markets and reduce Lake Erie loop flow.

##### **1. NYISO’s Interface Pricing Improvements**

In December 2010, the Commission instructed the NYISO to develop interface pricing reforms to address the price incentives that create loop flow concerns.<sup>2</sup> The NYISO’s interface

<sup>1</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 (2010).

<sup>2</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at PP 27 and 31 (2010).

pricing rules, as accepted by the Commission in 2013,<sup>3</sup> consists of four key aspects. First, the NYISO models the Michigan/Ontario interface in the same way PJM does. Second, the NYISO includes expected unscheduled power flows (“UPF”) in both its Day-Ahead Market (“DAM”) and Real-Time Market (“RTM”). Third, the NYISO uses its scheduling path validation process to ensure that External Transaction Bids are economically evaluated and scheduled consistent with their expected power flow impacts.<sup>4</sup> Finally, to calculate prices at its Keystone Proxy Generator Bus that represents a significant portion of the New York Control Area (“NYCA”)/PJM border, the NYISO (a) treats uncontrolled alternating current (“A/C”) transmission lines as free-flowing tie lines, (b) includes expected (Day Ahead) or actual (real-time) UPF over the interface facilities in its pricing, and (c) recognizes the demonstrated intermediate- and long-term effectiveness of the ABC, JK and Ramapo PARs in aligning actual power flows with scheduled power flows on PAR controlled transmission facilities at the PJM/NYCA border. The NYISO’s interface pricing rules also incorporate Commission-accepted tariff obligations and contractual obligations into the NYISO’s development of its Keystone Proxy Generator Bus prices.

The NYISO’s interface pricing policy relies on its scheduling path validation process.<sup>5</sup> NYISO Bid validation occurs as soon as a Bid is submitted to the NYISO’s Market Information System (“MIS”), and before Bids are made available to be economically evaluated for scheduling by the NYISO’s Day-Ahead or Real-Time Market software. The NYISO’s Bid validation only allows feasible transactions that contain valid NERC e-Tag data, to be economically evaluated for possible scheduling. The NYISO’s Bid validation software will not validate Bids submitted to schedule External Transactions over any of the eight circuitous Prohibited Transmission Paths identified in Section 16.3.3.8 of (Attachment J to) the NYISO Open Access Transmission Tariff (“OATT”). The Commission has instructed the NYISO to add additional prohibited paths if necessary to prevent new sources of Lake Erie loop flow from being introduced in the future.<sup>6</sup>

The Commission found that the NYISO’s interface pricing policy satisfies the requirements to align scheduled and real-time energy flows and to utilize NERC eTag validation to enhance the alignment of scheduled and actual power flows.<sup>7</sup> NYISO accounts for expected unscheduled power flows in its Day-Ahead Market based on recently observed Lake Erie circulation. “In the real-time market, NYISO accounts for the difference between scheduled and actual power flows measured at its interface with Ontario, *i.e.*, actual Lake Erie circulation.”<sup>8</sup>

<sup>3</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 (2013).

<sup>4</sup> In paragraph 16 of his attached affidavit, Dr. Patton, President of the NYISO MMU, explained why it is appropriate for the NYISO to continue to use its bid validation software: “The NYISO’s path validation process is designed to ensure that the actual power flows associated with the transactions are as consistent with the scheduled flows as possible. Precluding circuitous paths substantial reduces unscheduled loop flows and reduces market participants’ ability engage in patterns of transactions that may constitute manipulation of the RTO’s interface pricing.” See NYISO’s January 18, 2013 Interface Pricing Compliance Filing in Docket Nos. ER08-1281 and ER13-780, Attachment 1 at 6.

<sup>5</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 26 (2013).

<sup>6</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 27 (2013).

<sup>7</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 22 (2013).

<sup>8</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 22 (2013).

The NYISO's interface pricing rules produces prices that are consistent with the value of actual power deliveries to New York and are similar to the prices produced by PJM's pricing method. Greater consistency in regional pricing methods, combined with NYISO's rules that prohibit the use of circuitous scheduling paths have diminished both the ability and the incentives for Market Participants scheduling External Transactions to cause Lake Erie loop flow. Instead, more power is being scheduled consistent with the path over which it will actually flow.

## **2. PJM/NYISO M2M Implementation**

The Commission authorized the NYISO and PJM to begin coordinated congestion management/market-to-market coordination ("M2M") in January 2013.<sup>9</sup> The M2M coordinated congestion management process allows transmission constraints that are significantly impacted by generation dispatch changes in both the NYISO and PJM markets or by the operation of the Ramapo Phase Angle Regulators ("PARs") to be jointly managed in the real-time security-constrained economic dispatch models of both RTOs.<sup>10</sup> This joint real-time management of transmission constraints near the market borders provides a more efficient and lower cost transmission congestion management solution, and facilitates price convergence at the market boundaries. Real-time coordination results in a more efficient economic dispatch solution to manage the real-time transmission constraints that impact both markets.

In its Orders accepting the rules NYISO and PJM developed to implement M2M the Commission explained "the Market-to-Market Coordination Process was developed specifically in response to problems associated with Lake Erie loop flows."<sup>11</sup> The Commission Order accepting the M2M revisions to the parties' Joint Operating Agreement concluded "that coordinating the redispatch of resources and PAR operations in both NYISO and PJM as compared to each market operating independently, and thereby limiting the set of resources available for redispatch to resources located within the control area where the constraint is located, is a preferred method for addressing interregional transmission constraints and the Lake Erie loop flows."<sup>12</sup>

The Lake Erie ISOs and RTOs have learned to proactively address possible new causes of Lake Erie loop flow. In February 2013, one of the two Ramapo PARs at the PJM/New York border experienced an unplanned forced outage. To address the expected impact of the PAR outage on their transmission systems, interchange scheduling practices, and implementation of M2M coordination, the NYISO and PJM requested a temporary waiver from their Commission

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<sup>9</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 (2012).

<sup>10</sup> NYISO/PJM M2M includes two types of coordination: (1) re-dispatch coordination; and (2) Ramapo PAR coordination. For re-dispatch coordination, the non-monitoring RTO re-dispatches its generation to help manage congestion in the monitoring RTO, when economic, if one of the pre-defined flowgates becomes congested in the monitoring RTO. For Ramapo PAR coordination, the Ramapo PARs are operated to reduce overall congestion if certain pre-defined flowgates become congested in one or both RTOs.

<sup>11</sup> *New York Independent System Operator, Inc.*, 140 FERC ¶ 61,205 at P 22 (2012).

<sup>12</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 at P 20 (2012).



accepted JOA provisions to permit them to operate their systems in a way that better reflected expected power flows during the Ramapo PAR outage.<sup>13</sup> The waiver request allowed NYISO and PJM to maximize the total interchange capability between the RTOs while one PAR was out of service and to continue to achieve the target interchange flow over the Branchburg – Ramapo (5018) A/C transmission line (the “5018 line”).<sup>14</sup> Specifically, NYISO and PJM requested permission to temporarily reduce the net scheduled interchange that is expected to flow over the 5018 line, from 61 percent to 46 percent, while the PAR was being replaced. The waiver applied to the finite period of May 15, 2013 until the Ramapo PARs were returned to normal operation. NYISO and PJM are dedicated to proactively addressing interregional coordination issues as they arise, and involving the Commission when necessary, to more efficiently manage interregional transmission constraints and the Lake Erie loop flow.

Potomac Economics, the NYISO’s external market monitoring unit, (“MMU”) has been reviewing M2M operations between NYISO and PJM.<sup>15</sup> The MMU regularly analyzes both the efficacy of re-dispatch coordination and the efficacy of Ramapo PAR coordination. In its most recent quarterly report, the MMU “finds that the Ramapo Line was reasonably efficient in 72 percent of the hours with congestion in NY and/or PJM”. During this period, M2M re-dispatch coordination was not utilized often enough to allow reporting of that components efficacy. The MMU presents this quarterly review to New York Market Participants at stakeholder meetings. The most recent presentation is available at the following link:  
[http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

### 3. Implementation of More Frequent Scheduling

Enhanced Interregional Transaction Coordination (“EITC”) permits the scheduling of inter-Balancing Authority transactions on a more frequent basis than hourly schedules.<sup>16</sup> PJM, MISO and NYISO are all capable of scheduling interregional interchange on a 15 minute basis. On July 27, 2011, NYISO activated 15-minute scheduling at its Chateauguay D/C interface with Hydro-Quebec. In 2012 NYISO activated 15-minute scheduling at all of its interfaces with PJM, including all Scheduled Lines.<sup>17</sup> When Transmission Customers offer interregional energy on a 15-minute basis, the RTO/ISO dispatchers have the ability to alter schedules within an hour to address changing system conditions, including changes in unscheduled power flows like Lake

**Comment [NYISO-MD3]:** PJM/MISO – Could you add a statement here about when PJM and MISO first starting allowing 15 minute interchange schedules?

<sup>13</sup> *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,153 at P 5 (2013).

<sup>14</sup> The Ramapo PARs are utilized to control flows, and achieve target flow, over the 5018 line between NYISO and PJM.

<sup>15</sup> See Quarterly Report on the New York ISO Electricity Markets Third Quarter 2013, slides 61-68, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

<sup>16</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 (2011).

<sup>17</sup> The NYISO activated 15-minute scheduling on the primary interface between New York and Hydro-Quebec on July 27, 2011. The NYISO and PJM activated 15-minute scheduling on their primary interface on June 27, 2012. 15-minute scheduling was implemented on the Neptune and Linden VFT scheduled line interfaces on October 30, 2012 and November 28, 2012, respectively.

Erie loop flow. This dispatching flexibility allows the RTO/ISOs to respond to the price impacts that Lake Erie loop flow has on their transmission systems by altering intra-hour external transaction schedules. The RTO/ISO dispatchers are no longer locked into achieving hourly external transaction schedules.

In its order accepting the NYISO's EITC proposal, the Commission recounted that enhanced scheduling options at the NYISO's borders promote more efficient inter-regional transmission, reduce uplift costs associated with real-time event management and congestion management, support system balancing efforts by expanding the pool of resources available to system operators, and lower total system operating costs by improving price signals.<sup>18</sup> Potomac Economics' analysis identified a potential annual production cost savings for all NYISO interfaces of \$175 million.<sup>19</sup>

The NYISO has made use of the additional flexibility that 15 minute scheduling provides. The NYISO varied external transaction schedules at its PJM Keystone Proxy Generator Bus in over 33% of all quarter hours in 2013.<sup>20</sup> Since implementation, the NYISO has consistently received 15-minute transaction offers at four of the five interfaces that allowed 15-minute scheduling in real-time.<sup>21</sup>

#### **4. PJM/NYISO and ISO-NE/NYISO Coordinated Transaction Scheduling**

The Coordinated Transaction Scheduling ("CTS") Real-Time Market rules, recently accepted by the Commission,<sup>22</sup> allow Imports and Exports to be scheduled based on a bidder's willingness to purchase energy at a source in one Control Area and sell it at a sink in another Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the bid dollar value.<sup>23</sup> The NYISO intends to implement CTS with PJM in November of 2014 and CTS with ISO-NE in the fourth quarter of 2015. CTS between NYISO and PJM will be implemented at all four of the Proxy Generator Buses over which interchange between the two areas can be scheduled.

As the Commission recognized in its order accepting the NYISO's CTS with PJM filing, "CTS will enhance market efficiency of interregional transactions and provide substantial

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<sup>18</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>19</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>20</sup> 33% is a measure of schedule changes across the xx:15, xx:30 and xx:45 quarter hours. The xx:00 time was excluded because changes across xx:00 can occur due to changes in offer sets and would not provide evidence of improved inter-regional scheduling.

<sup>21</sup> The fifth interface is a Scheduled Line where the capability has been pre-sold to anchor tenants that choose to schedule on an hourly basis.

<sup>22</sup> See *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 (2012) and *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 (2014).

<sup>23</sup> Transmission Customers using CTS will submit a single CTS Interface Bid to indicate their desire to simultaneously buy Energy in one Control Area and sell Energy into the other Control Area based on the forecasted price difference between the NYISO and PJM markets at the relevant location.

benefits to consumers in both PJM and NYISO.”<sup>24</sup> “CTS should also minimize counter intuitive flows, such as flows going from a high priced control area to a low priced control area, by incorporating projected price differences between the NYISO and PJM markets into scheduling decisions.”<sup>25</sup> In addition, “CTS should improve scheduling efficiency for both regions by introducing a new scheduling option... that will allow bidding of different MW quantities at different prices for each 15 minute interval within an hour.”<sup>26</sup> CTS will further improve scheduling efficiency for transactions between NYISO and PJM by establishing intra-hour schedules 15 minutes closer to actual, real-time operations. Establishing intra-hour schedules closer to the actual 15 minute scheduling interval will improve the accuracy of cross-border scheduling decisions because those decisions will reflect updated system conditions, including any price impact of unscheduled Lake Erie loop flow.<sup>27</sup>

The Commission found that both CTS with PJM and CTS with ISO-NE will provide substantial benefits to customers in the three affected regions. In its CTS with PJM order, the Commission finds “that CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO ... joint studies performed by PJM and NYISO estimate potential production cost savings ranging from \$9 million/year to \$26 million/year.”<sup>28</sup> The order accepting the NYISO’s CTS with ISO-NE filing similarly states, “CTS will provide substantial benefits to consumers in both ISO-NE and NYISO by addressing inefficiencies present in the current external transaction scheduling process ..., for the combined ISO-NE and NYISO region, Potomac Economics estimates that CTS will result in \$129 million to \$139 million in annual consumer savings, and \$9 million to \$11 million in annual production cost savings.”<sup>29</sup>

5. ~~[ADD PLANNED PJM/MISO IMPROVEMENTS HERE. ADD MORE TOPIC HEADINGS IF NEEDED.]~~

~~[ADD IMPROVEMENTS THAT WERE IMPLEMENTED AFTER 2008 AND ARE CURRENTLY IN EFFECT, IMPROVEMENTS THAT ARE CURRENTLY IN DEVELOPMENT, OR PLANNED FUTURE IMPROVEMENTS HERE.]~~

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 timeframe, with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

<sup>24</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>25</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>26</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>27</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 13 (2014).

<sup>28</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>29</sup> *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 at P 29 (2012).

## **B. Physical Improvements Implemented Since 2008**

As of April 5, 2012 all four circuits comprising the Michigan/Ontario interconnection had in-service phase angle regulators. Starting on that date MISO and the IESO began actively operating the PARs to better conform actual power flows to scheduled power flows. The expectation was that such operations, in conjunction with controls already operational elsewhere on the system, would help reduce the unscheduled flows which cause Lake Erie Circulation (LEC).

In January 2014, MISO, PJM and IESO completed an evaluation of the Phase Angle Regulator transformers (PARs) on the Ontario-Michigan interface and their ability to maintain actual flow within a 200 MW bandwidth of scheduled flow. Based on an analysis using one year of actual operating data when all PARs on the interface were operational, the evaluation found the PARs are able to keep Lake Erie loop flow within a  $\pm 200$  MW control band during 73.1% of the 15-minute periods during the one-year study period. The simulated loop flow calculated without PAR control would only have been within the control band for 43.4% of the year. During most of the periods that the loop flow strayed outside the 200 MW bandwidth, the flow was over by a small margin and the flow was expected to return within the 200 MW bandwidth within the next few 15-minute periods. Overall, the PARs were able to control LEC 95.5% of the time during the study period. The Ontario-Michigan PAR Performance Evaluation Report is posted at <http://www.miso-pjm.com/http://www.miso-pjm.com/documents.aspx>.

The intent of this evaluation report was to recount the actual performance of the Ontario-Michigan (ONT-MI) interface PARs over a one-year period during which the PARs were operational, and to provide insight into the effectiveness of the PARs in controlling LEC flow. This report follows from the Regional Power Control Device Coordination (RPCDC) Study report published in 2011 as a joint effort between IESO, MISO, NYISO, and PJM.

Although the RPCDC Study recommended a follow-up study (Second Study) be performed after the Ontario-Michigan PARs enter service and operational data had been collected for a year, this report should not be considered as meeting that recommendation for three reasons:

- First, one of the Ramapo PARs was out-of-service from February 2013 until late-December 2013. Since the one-year of operating data used in this analysis (8/1/12-7/31/13) contains seven months during which there was not a fully functioning set of PARs on the PJM-NYISO interface, the data does not support an analysis on how the various power control devices around Lake Erie influence LEC or could have their operations coordinated to minimize loop flows.
- Second, rather than defer the study until one year of operating data with a fully functioning set of PARs on the PJM-NYISO interface is available, this study was performed in 2013 to address a Joint and Common Market (JCM) initiative that MISO/PJM evaluate the ability of the Ontario-Michigan PARs to manage LEC by having actual flow equal scheduled flow. If the Ontario-Michigan PARs are effective in managing LEC, the JCM initiative will recommend they be included in the MISO/PJM market flow calculations and in the historic allocation process.
- Third, NYISO elected not to participate in this study but did participate in the first RPCDC Study. NYISO has indicated they are willing to participate in a Second Study at some point in the future, provided that actual operating data includes the impacts of all Ramapo PARs. Therefore, this

study should be considered a limited scope study that addressed a specific JCM initiative. A Second Study is still planned for the future and is anticipated to include the involvement of all four RTOs/ISOs around Lake Erie.

MISO and IESO began actively operating the PARs at the Michigan/Ontario border to better conform actual power flows to scheduled power flows on April 5, 2012. MISO and IESO state that, with these PARs operational, Lake Erie loop flow has been better managed.

This section of the Report was prepared by MISO [and IESO]. The other RTO/ISOs do not join in this section of the Report.<sup>30</sup>

## **II. The Lake Erie ISOs and RTOs Agree That Implementing Buy-Through of Congestion is Premature at This Time**

The objective of the proposed Buy-Through of Congestion Broader Regional Market solution is to (a) identify the sources of loop flow caused by interregional transaction scheduling, (b) determine the costs incurred in supporting the loop flows by each impacted region, and (c) allocate the costs incurred by the off-contract path Balancing Authorities to the scheduling entity, or remove the associated schedules if the scheduling entity is not willing to pay the full cost of flowing its transaction(s). Implementing Buy-Through of Congestion will result in a more complete identification, and accurate assignment, of the costs to move power between regions, and will provide an economic alternative to the administrative/physical curtailment processes. Buy-Through of Congestion will allow the scheduling entity to decide whether or not it is willing to pay the congestion charges caused by its transaction's off-contract path flow impacts. If a scheduling party indicates it is not willing to pay congestion charges, its transaction will be removed if the off-contract path flow impacts add to congestion costs in an off-contract path ISO or RTO.

The ISOs and RTOs need time to understand how the collective set of market solutions discussed herein will affect Lake Erie loop flow and how the market solutions should account for the operation of all of the controllable devices around Lake Erie. The only way to understand the impact of these market solutions is to gain operational experience with the recently, and soon to be, implemented Broader Regional Market improvements and to study the resulting operational data. NYISO, PJM, MISO and IESO all agree that it is not necessary to begin to develop the proposed Buy-Through of Congestion Broader Regional Market solution at this time. The ISOs and RTOs need more time to analyze the other recently, and soon to be, implemented programs

<sup>30</sup> The other Lake Erie ISOs and RTOs do not possess the necessary information and have not been given the opportunity to analyze and substantiate MISO's and IESO's claims. All of the Lake Erie ISOs and RTOs agree that it would be counter-productive for NYISO and PJM to address the operation of the Michigan/Ontario PARs in this report. On October 20, 2010, MISO and International Transmission Company d/b/a ITC Transmission ("ITC") submitted a Federal Power Act Section 205 filing to the Commission, in Docket No. ER11-1844, to allocate a portion of the cost of ITC's Bunce Creek PARs (two of the five Michigan/Ontario PARs) to customers in New York and PJM. On December 20, 2011, the FERC Chief Administrative Law Judge set Docket No. ER11-1844 for hearing before an Administrative Law Judge. The presiding Administrative Law Judge issued a post hearing initial decision on December 18, 2012, *Midwest Indep. Transmission Sys. Operator, Inc.*, 141 FERC ¶ 63,021 (2012), which remains pending before the Commission. All of the hearing parties (including MISO, NYISO and PJM) are waiting for a Commission order on the Administrative Law Judge's initial decision.

before determining whether or not the Buy-Through of Congestion Broader Regional Market solution will provide sufficient additional benefits to merit its development and implementation.

### **III. Request for Waiver/Modification of Reporting Obligation**

The December 2010 Order imposed semiannual reporting obligations on the NYISO, in collaboration with its neighboring ISOs and RTOs, NERC and other market participants, commencing one year after the implementation of interface pricing reform and congestion management/market-to-market coordination.

“[O]ne year after the implementation of interface pricing reform and congestion management/market-to-market coordination, and every six months thereafter until the market initiatives are fully implemented, we require the NYISO, in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing: (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>31</sup>

The ISOs and RTOs respectfully request that the Commission amend this informational filing obligation to require annual reports to the Commission. Postponing the next informational filing to March 20, 2015 will provide necessary time for the ISOs and RTOs to develop a more substantive update for the Commission than could be provided in September 2014. Certain initiatives described above (CTS, for example) will require the majority of 2014 to complete and, therefore, the status will not change significantly in the next six months. Also, an additional year of operating experience with the features that entered service in 2012-2013, and the features being implemented in 2014, will allow the ISOs and RTOs to better understand their impact before providing an update to the Commission.

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<sup>31</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at P 33 (2010) (original footnotes omitted).

## Sweeney, James H.

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**From:** DeSocio, Michael  
**Sent:** Friday, March 14, 2014 11:39 AM  
**To:** Zakaria Joundi; warren.hill@ieso.ca; Sweeney, James H.  
**Cc:** Kevin Sherd; Ronald Arness; Tom Mallinger; Kevin Frankeny  
**Subject:** RE: Broader Regional Markets Informational Report for FERC

Zak,

Thank you for your comments. We will be circulating this report one more time to all parties that have opted to join the filing and let you know if there is any additional feedback on your edits.

Mike  
518-356-7518

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**From:** Zakaria Joundi [<mailto:ZJoundi@misoenergy.org>]  
**Sent:** Friday, March 14, 2014 10:15 AM  
**To:** DeSocio, Michael; [warren.hill@ieso.ca](mailto:warren.hill@ieso.ca); Sweeney, James H.  
**Cc:** Kevin Sherd; Ronald Arness; Tom Mallinger; Kevin Frankeny  
**Subject:** RE: Broader Regional Markets Informational Report for FERC

Mike

Sorry for the delay in providing comments. Please find attached MISO's redlines mainly reflected in Page 7 (Section 5B) . The first couple paragraphs that were inserted reflect language that has already been reviewed and approved from PJM and IESO as part of the announcement which we plan to send out to stakeholders. The later portion of the suggested edits is similar to language from the report and is intended to provide clarity to the nature of the study.

Thanks again for the opportunity to comment

Thanks, Zak  
317-249-5190

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**From:** DeSocio, Michael [<mailto:MDeSocio@nyiso.com>]  
**Sent:** Thursday, March 13, 2014 10:06 AM  
**To:** Ronald Arness; Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca))  
**Cc:** Sweeney, James H.  
**Subject:** FW: Broader Regional Markets Informational Report for FERC

Ron/Warren,

We have yet to hear back from you regarding any comments or edits that you would like to see made to the report. At this point, we are assuming that you have no additions or comments to provide.

If you do plan on providing additions or comments, we request them by mid-day tomorrow March 14<sup>th</sup>, 2014. If you do not plan on providing additions or comments, please let us know whether you have any concerns with being named as joining the filing to FERC. This will guide us with how to word the opening paragraph of the report. If we do not hear back on this item we will assume that you are will want to remain a party joining the filing.

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the “Lake Erie ISOs and RTOs”), with input from the stakeholders of the foregoing ISOs and RTOs and NERC.

I look forward to hearing from you both soon.

Mike DeSocio

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**From:** DeSocio, Michael  
**Sent:** Wednesday, March 05, 2014 2:14 PM  
**To:** Stan Williams ([Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com)); Ronald Arness ([rarness@misoenergy.org](mailto:rarness@misoenergy.org)); Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca)); Cheryl Mendrala ([cmendrala@iso-ne.com](mailto:cmendrala@iso-ne.com))  
**Cc:** Sweeney, James H. ([JSweeney@nyiso.com](mailto:JSweeney@nyiso.com))  
**Subject:** Broader Regional Markets Informational Report for FERC

All,

I hope this email finds you all well. The deadline for this report is quickly approaching. I have touched base with all of you regarding this obligation for the FERC. We have yet to get any information from MISO or IESO, so you if you have any additional information that you would like included in the report please get that to us by the end of day March 10<sup>th</sup>, 2014. Also, ISO-NE is still considering whether or not they would like to participate in this report, again please let us know by the end of the day March 10<sup>th</sup>, 2014.

Attached is a draft version of the report. If you should have any comments on it, please provide those to myself and James Sweeney by end of day March 10<sup>th</sup>, 2014.

The NYISO appreciates any input that you may be able to provide.

Regards,

Mike DeSocio  
Manager, Energy Market Design  
NYISO

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**Sweeney, James H.**

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**From:** DeSocio, Michael  
**Sent:** Monday, March 17, 2014 5:42 PM  
**To:** Stan Williams (Stan.Williams@pjm.com); Zakaria Joundi; Ronald Arness (rarness@misoenergy.org); Warren Hill (warren.hill@ieso.ca)  
**Cc:** Sweeney, James H.  
**Subject:** Final BRM Report  
**Attachments:** 2014 BRM Report Draft 3\_17\_14 r1.docx

All,

Attached is the report we propose to file with FERC. It contains redline language from the NYISO to address the additions and comments received from MISO.

We plan to file this report by Wednesday, March 19<sup>th</sup>. Many thanks for all of your assistance and feedback with this report.

Best,  
Mike



10 Krey Boulevard ♦ Rensselaer, NY 12144

March 19, 2014

**By Electronic Delivery**

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re:   *New York Independent System Operator, Inc.*, Docket ER08-1281-\_\_\_\_;  
      *Broader Regional Markets Report to the Commission***

Dear Ms. Bose:

In accordance with paragraph 33 and ordering paragraph “D” of the Federal Energy Regulatory Commission’s (“Commission’s” or “FERC’s”) December 30, 2010 *Order on Rehearing and Compliance* in Docket No. ER08-1281 (“December 2010 Order”),<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits this *Report on Broader Regional Markets* (“Report”). Ordering paragraph “D” of the December 2010 Order states that the “RTO/ISO parties are hereby directed to submit informational reports, as discussed in the body of this order.” Paragraph 33 of the December 2010 Order instructs the NYISO,

“in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the

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<sup>1</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 (2010).

“Lake Erie ISOs and RTOs”), with input from the NYISO’s stakeholders ~~of the foregoing ISOs and RTOs~~ and the North American Electric Reliability Corporation (“NERC”).

## **I. Improvements that the Lake Erie ISOs/RTOs have made since 2008**

### **A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing**

The RTO/ISOs around Lake Erie present the following summary of the market design features that have been, or will be, implemented to improve coordination between markets and reduce Lake Erie loop flow.

#### **1. NYISO’s Interface Pricing Improvements**

In December 2010, the Commission instructed the NYISO to develop interface pricing reforms to address the price incentives that create loop flow concerns.<sup>2</sup> The NYISO’s interface pricing rules, as accepted by the Commission in 2013,<sup>3</sup> consists of four key aspects. First, the NYISO models the Michigan/Ontario interface in the same way PJM does. Second, the NYISO includes expected unscheduled power flows (“UPF”) in both its Day-Ahead Market (“DAM”) and Real-Time Market (“RTM”). Third, the NYISO uses its scheduling path validation process to ensure that External Transaction Bids are economically evaluated and scheduled consistent with their expected power flow impacts.<sup>4</sup> Finally, to calculate prices at its Keystone Proxy Generator Bus that represents a significant portion of the New York Control Area (“NYCA”)/PJM border, the NYISO (a) treats uncontrolled alternating current (“A/C”) transmission lines as free-flowing tie lines, (b) includes expected (Day Ahead) or actual (real-time) UPF over the interface facilities in its pricing, and (c) recognizes the demonstrated intermediate- and long-term effectiveness of the ABC, JK and Ramapo Phase Angle Regulators (“PARs”) in aligning actual power flows with scheduled power flows on PAR controlled transmission facilities at the PJM/NYCA border. The NYISO’s interface pricing rules also incorporate Commission-accepted tariff obligations and contractual obligations into the NYISO’s development of its Keystone Proxy Generator Bus prices.

The NYISO’s interface pricing policy relies on its scheduling path validation process.<sup>5</sup> NYISO Bid validation occurs as soon as a Bid is submitted to the NYISO’s Market

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<sup>2</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at PP 27 and 31 (2010).

<sup>3</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 (2013).

<sup>4</sup> Dr. Patton, President of the NYISO’s Market Monitoring Unit, explained why it is appropriate for the NYISO to continue to use its bid validation software: “The NYISO’s path validation process is designed to ensure that the actual power flows associated with the transactions are as consistent with the scheduled flows as possible. Precluding circuitous paths substantial reduces unscheduled loop flows and reduces market participants’ ability engage in patterns of transactions that may constitute manipulation of the RTO’s interface pricing.” See NYISO’s January 18, 2013 Interface Pricing Compliance Filing in Docket Nos. ER08-1281 and ER13-780, Attachment I at P 16.

<sup>5</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 26 (2013).

Information System (“MIS”), and before Bids are made available to be economically evaluated for scheduling by the NYISO’s Day-Ahead or Real-Time Market software. The NYISO’s Bid validation only allows feasible transactions that contain valid NERC e-Tag data, to be economically evaluated for possible scheduling. The NYISO’s Bid validation software will not validate Bids submitted to schedule External Transactions over any of the eight circuitous Prohibited Transmission Paths identified in Section 16.3.3.8 of (Attachment J to) the NYISO Open Access Transmission Tariff (“OATT”). The Commission has instructed the NYISO to add additional prohibited paths if necessary to prevent new sources of Lake Erie loop flow from being introduced in the future.<sup>6</sup>

The Commission found that the NYISO’s interface pricing policy satisfies the requirements to align scheduled and real-time energy flows and to utilize NERC eTag validation to enhance the alignment of scheduled and actual power flows. NYISO accounts for expected unscheduled power flows in its Day-Ahead Market based on recently observed Lake Erie circulation. “In the real-time market, NYISO accounts for the difference between scheduled and actual power flows measured at its interface with Ontario, *i.e.*, actual Lake Erie circulation.”<sup>7</sup>

The NYISO’s interface pricing rules produces prices that are consistent with the value of actual power deliveries to New York and are similar to the prices produced by PJM’s pricing method. Greater consistency in regional pricing methods, combined with NYISO’s rules that prohibit the use of circuitous scheduling paths have diminished both the ability and the incentives for Market Participants scheduling External Transactions to cause Lake Erie loop flow. Instead, more power is being scheduled consistent with the path over which it will actually flow.

## **2. PJM/NYISO M2M Implementation**

The Commission authorized the NYISO and PJM to begin coordinated congestion management/market-to-market coordination (“M2M”) in January 2013.<sup>8</sup> The M2M coordinated congestion management process allows transmission constraints that are significantly impacted by generation dispatch changes in both the NYISO and PJM markets or by the operation of the Ramapo PARs to be jointly managed in the real-time security-constrained economic dispatch models of both RTOs.<sup>9</sup> This joint real-time management of transmission constraints near the market borders provides a more efficient and lower cost transmission congestion management solution, and facilitates price convergence at the market boundaries. Real-time coordination

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<sup>6</sup> *Id.* at P 27.

<sup>7</sup> *Id.* at P 22.

<sup>8</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 (2012).

<sup>9</sup> NYISO/PJM M2M includes two types of coordination: (1) re-dispatch coordination; and (2) Ramapo PAR coordination. For re-dispatch coordination, the non-monitoring RTO re-dispatches its generation to help manage congestion in the monitoring RTO, when economic, if one of the pre-defined flowgates becomes congested in the monitoring RTO. For Ramapo PAR coordination, the Ramapo PARs are operated to reduce overall congestion if certain pre-defined flowgates become congested in one or both RTOs.

Ms. Kimberly D. Bose, Secretary  
March 19, 2014  
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results in a more efficient economic dispatch solution to manage the real-time transmission constraints that impact both markets.

In its Orders accepting the rules NYISO and PJM developed to implement M2M the Commission explained “the Market-to-Market Coordination Process was developed specifically in response to problems associated with Lake Erie loop flows.”<sup>10</sup> The Commission Order accepting the M2M revisions to the parties’ Joint Operating Agreement concluded “that coordinating the redispatch of resources and PAR operations in both NYISO and PJM as compared to each market operating independently, and thereby limiting the set of resources available for redispatch to resources located within the control area where the constraint is located, is a preferred method for addressing interregional transmission constraints and the Lake Erie loop flows.”<sup>11</sup>

The Lake Erie ISOs and RTOs have learned to proactively address possible new causes of Lake Erie loop flow. In February 2013, one of the two Ramapo PARs at the PJM/New York border experienced an unplanned forced outage. To address the expected impact of the PAR outage on their transmission systems, interchange scheduling practices, and implementation of M2M coordination, the NYISO and PJM requested a temporary waiver from their Commission accepted JOA provisions to permit them to operate their systems in a way that better reflected expected power flows during the Ramapo PAR outage.<sup>12</sup> The waiver request allowed NYISO and PJM to maximize the total interchange capability between the RTOs while one PAR was out of service and to continue to achieve the target interchange flow over the Branchburg – Ramapo (5018) A/C transmission line (the “5018 line”).<sup>13</sup> Specifically, NYISO and PJM requested permission to temporarily reduce the net scheduled interchange that is expected to flow over the 5018 line, from 61 percent to 46 percent, while the PAR was being replaced. The waiver applied to the finite period of May 15, 2013 until the Ramapo PARs were returned to normal operation. NYISO and PJM are dedicated to proactively addressing interregional coordination issues as they arise, and involving the Commission when necessary, to more efficiently manage interregional transmission constraints and the Lake Erie loop flow.

Potomac Economics, the NYISO’s external market monitoring unit, (“MMU”) has been reviewing M2M operations between NYISO and PJM.<sup>14</sup> The MMU regularly analyzes both the efficacy of re-dispatch coordination and the efficacy of Ramapo PAR coordination. In its most recent quarterly report, the MMU “finds that the Ramapo Line was reasonably efficient in 72 percent of the hours with congestion in NY and/or PJM”. During this period, M2M re-dispatch

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<sup>10</sup> *New York Independent System Operator, Inc.*, 140 FERC ¶ 61,205 at P 22 (2012).

<sup>11</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 at P 20 (2012).

<sup>12</sup> *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,153 at P 5 (2013).

<sup>13</sup> The Ramapo PARs are utilized to control flows, and achieve target flow, over the 5018 line between NYISO and PJM.

<sup>14</sup> See Quarterly Report on the New York ISO Electricity Markets Third Quarter 2013, slides 61-68, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

Ms. Kimberly D. Bose, Secretary  
March 19, 2014  
Page 5

coordination was not utilized often enough to allow reporting of that components efficacy. The MMU presents this quarterly review to New York Market Participants at stakeholder meetings.<sup>15</sup>

The M2M coordination process has provided NYISO and PJM a set of very effective tools to assist their management of congestion caused by unscheduled power flows including Lake Erie loop flow. During the first year of implementation, 2013, the NYISO estimated that the value of NYISO/PJM M2M was \$4.7M.<sup>16</sup> The estimate represents the value NY realizes from Ramapo PAR coordination. This includes (1) the estimated savings to NY for additional deliveries into NY, and (2) PJM compensation to NY for additional deliveries into PJM (as compared to the Ramapo Target Value,<sup>17</sup> excluding service to RECO load). The identified value is net of any settlements to PJM when PJM's transmission system is congested.

### **3. Implementation of More Frequent Scheduling**

Enhanced Interregional Transaction Coordination ("EITC") permits the scheduling of inter-Balancing Authority transactions on a more frequent basis than hourly schedules.<sup>18</sup>

PJM, MISO and NYISO are all capable of scheduling interregional interchange on a 15 minute basis. MISO and PJM implemented the ability to schedule interregional interchange on a 15 minute basis on May 1, 2004. On July 27, 2011, NYISO activated 15-minute scheduling at its Chateauguay D/C interface with Hydro-Quebec. In 2012 NYISO activated 15-minute scheduling at all of its interfaces with PJM, including all Scheduled Lines.<sup>19</sup> When Transmission Customers offer interregional energy on a 15-minute basis, the RTO/ISO dispatchers have the ability to alter schedules within an hour to address changing system conditions, including changes in unscheduled power flows like Lake Erie loop flow. This dispatching flexibility allows the RTO/ISOs to respond to the price impacts that Lake Erie loop flow has on their transmission systems by altering intra-hour external transaction schedules. The RTO/ISO dispatchers are no longer locked into achieving hourly external transaction schedules.

In its order accepting the NYISO's EITC proposal, the Commission recounted that enhanced scheduling options at the NYISO's borders promote more efficient inter-regional transmission, reduce uplift costs associated with real-time event management and congestion

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<sup>15</sup> The most recent presentation is available at the following link:

[http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

<sup>16</sup> [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/mc/meeting\\_materials/2014-01-29/Operations\\_Report\\_201312.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2014-01-29/Operations_Report_201312.pdf)

<sup>17</sup> The Ramapo Target Value is defined in the NYISO/PJM JOA, Schedule D, Section 7.2.1. The Ramapo Target Value is based on the net interchange schedule between the NYISO and PJM plus the deviation of actual flows and desired flows across the ABC and JK interfaces.

<sup>18</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 (2011).

<sup>19</sup> The NYISO and PJM activated 15-minute scheduling on their primary interface on June 27, 2012. 15-minute scheduling was implemented on the Neptune and Linden VFT scheduled line interfaces on October 30, 2012 and November 28, 2012, respectively.

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management, support system balancing efforts by expanding the pool of resources available to system operators, and lower total system operating costs by improving price signals.<sup>20</sup> Potomac Economics' analysis identified a potential annual production cost savings for all NYISO interfaces of \$175 million.<sup>21</sup>

The NYISO has made use of the additional flexibility that 15 minute scheduling provides. The NYISO varied external transaction schedules at its PJM Keystone Proxy Generator Bus in over 33% of all quarter hours in 2013.<sup>22</sup> Since implementation, the NYISO has consistently received 15-minute transaction offers at four of the five interfaces that allowed 15-minute scheduling in real-time.<sup>23</sup>

Moving forward, the NYISO will focus on improving the 15-minute scheduling protocol by implementing Coordinated Transaction Scheduling ("CTS") with both PJM and ISO-NE as well as evaluating the feasibility of 5-minute scheduling with Hydro-Quebec.

#### **4. PJM/NYISO and ISO-NE/NYISO Coordinated Transaction Scheduling**

The Coordinated Transaction Scheduling ("CTS") Real-Time Market rules, recently accepted by the Commission,<sup>24</sup> allow Imports and Exports to be scheduled based on a bidder's willingness to purchase energy at a source in one Control Area and sell it at a sink in another Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the bid dollar value.<sup>25</sup> The NYISO intends to implement CTS with PJM in November of 2014 and CTS with ISO-NE in the fourth quarter of 2015. CTS between NYISO and PJM will be implemented at all four of the Proxy Generator Buses over which interchange between the two areas can be scheduled.

As the Commission recognized in its order accepting the NYISO's CTS with PJM filing, "CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO." "CTS should also minimize counter intuitive flows, such as flows going from a high priced control area to a low priced control area, by

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<sup>20</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>21</sup> *Id.*

<sup>22</sup> 33% is a measure of schedule changes across the xx:15, xx:30 and xx:45 quarter hours. The xx:00 time was excluded because changes across xx:00 can occur due to changes in offer sets and would not provide evidence of improved inter-regional scheduling.

<sup>23</sup> The fifth interface is a Scheduled Line where the capability has been pre-sold to anchor tenants that choose to schedule on an hourly basis.

<sup>24</sup> See *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 (2012) and *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 (2014).

<sup>25</sup> Transmission Customers using CTS will submit a single CTS Interface Bid to indicate their desire to simultaneously buy Energy in one Control Area and sell Energy into the other Control Area based on the forecasted price difference between the NYISO and PJM markets at the relevant location.

incorporating projected price differences between the NYISO and PJM markets into scheduling decisions.” In addition, “CTS should improve scheduling efficiency for both regions by introducing a new scheduling option... that will allow bidding of different MW quantities at different prices for each 15 minute interval within an hour.”<sup>26</sup> CTS will further improve scheduling efficiency for transactions between NYISO and PJM by establishing intra-hour schedules 15 minutes closer to actual, real-time operations. Establishing intra-hour schedules closer to the actual 15 minute scheduling interval will improve the accuracy of cross-border scheduling decisions because those decisions will reflect updated system conditions, including any price impact of unscheduled Lake Erie loop flow.<sup>27</sup>

The Commission found that both CTS with PJM and CTS with ISO-NE will provide substantial benefits to customers in the three affected regions. In its CTS with PJM order, the Commission finds “that CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO ... joint studies performed by PJM and NYISO estimate potential production cost savings ranging from \$9 million/year to \$26 million/year.”<sup>28</sup> The order accepting the NYISO’s CTS with ISO-NE filing similarly states, “CTS will provide substantial benefits to consumers in both ISO-NE and NYISO by addressing inefficiencies present in the current external transaction scheduling process ..., for the combined ISO-NE and NYISO region, Potomac Economics estimates that CTS will result in \$129 million to \$139 million in annual consumer savings, and \$9 million to \$11 million in annual production cost savings.”<sup>29</sup>

## **5. PJM/MISO Interchange Optimization**

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 timeframe, with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

### **B. Physical Improvements Implemented Since 2008**

As of April 5, 2012 all four circuits comprising the Michigan/Ontario interconnection had in-service ~~PARs~~~~phase angle regulators~~. Starting on that date MISO and the IESO began actively operating the PARs to better conform actual power flows to scheduled power flows. The expectation was that such operations, in conjunction with controls already operational elsewhere on the system, would help reduce the unscheduled flows which cause Lake Erie Circulation (“LEC”).

<sup>26</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>27</sup> *Id.* at P 13.

<sup>28</sup> *Id.* at P 33.

<sup>29</sup> *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 at P 29 (2012).



In January 2014, MISO, PJM and IESO completed an evaluation of the ~~Phase-Angle Regulator transformers (PARs)~~ on the Ontario-Michigan interface and their ability to maintain actual flow within a 200 MW bandwidth of scheduled flow. Based on an analysis using one year of actual operating data when all PARs on the Ontario-Michigan interface were operational, the evaluation found the PARs are able to keep Lake Erie loop flow within a  $\pm 200$  MW control band during 73.1% of the 15-minute periods during the one-year study period. The simulated loop flow calculated without PAR control would only have been within the control band for 43.4% of the year. During most of the periods that the loop flow strayed outside the 200 MW bandwidth, the flow was over by a small margin and the flow was expected to return within the 200 MW bandwidth within the next few 15-minute periods. Overall, MISO and IESO set the Ontario-Michigan interface status to "Regulated" the PARs were able to control LEC 95.5% of the time during the study period.<sup>30</sup> ~~The Ontario-Michigan PAR Performance Evaluation Report is posted at <http://www.miso-pjm.com/http://www.miso-pjm.com/documents.aspx>.~~

Comment [s1]: This sentence was moved to FN 30 below.

The intent of this ~~e~~Evaluation ~~r~~Report was to recount the actual performance of the Ontario-Michigan (ONT-MI) interface PARs over a one-year period during which the PARs were operational, and to provide insight into the effectiveness of the PARs in controlling LEC flow. ~~The~~this ~~Evaluation~~ ~~r~~Report follows from the Regional Power Control Device Coordination (RPCDC) Study report published in 2011 as a joint effort ~~amongbetween~~ IESO, MISO, NYISO, and PJM.

Although the RPCDC Study recommended a follow-up study (Second Study) be performed after the Ontario-Michigan PARs enter service and operational data had been collected for a year, this ~~Evaluation~~ ~~r~~Report should not be considered as meeting that recommendation for three reasons:

- First, one of the Ramapo PARs was out-of-service from February 2013 until late-December 2013. Since the one-year of operating data used in this analysis (8/1/12-7/31/13) contains seven months during which there was not a fully functioning set of PARs on the PJM-NYISO interface, the data does not support an analysis on how the various power control devices around Lake Erie influence LEC or could have their operations coordinated to minimize loop flows.
- Second, rather than defer the study until one year of operating data with a fully functioning set of PARs on the PJM-NYISO interface is available, ~~the~~this study to support the Evaluation Report was performed in 2013 to address a Joint and Common Market (JCM) initiative that MISO/PJM evaluate the ability of the Ontario-Michigan PARs to manage LEC by having actual flow equal scheduled flow. If the Ontario-Michigan PARs are effective in managing LEC, the JCM initiative will recommend they be included in the MISO/PJM market flow calculations and in the historic allocation process.

<sup>30</sup> The Ontario-Michigan PAR Performance Evaluation Report ("Evaluation Report") is posted at <http://www.miso-pjm.com/documents.aspx>.

- Third, NYISO elected not to participate in this study and Evaluation Report but did participate in the first RPCDC Study. NYISO has indicated ~~that they are~~ it is willing to participate in a ~~second~~ study at some point in the future, provided that actual operating data includes the impacts of all Ramapo PARs. Therefore, this study should be considered a limited scope study that addressed a specific JCM initiative. A ~~second~~ study is still planned for the future and is anticipated to include the involvement of all four RTOs/ISOs around Lake Erie.

This section of the Report was prepared by MISO ~~and IESO~~. The ~~other RTO/ISOs~~ deNYISO does not join in this section of the Report.<sup>31</sup>

## II. The Lake Erie ISOs and RTOs Agree That Implementing Buy-Through of Congestion is Premature at This Time

The objective of the proposed Buy-Through of Congestion Broader Regional Market solution is to (a) identify the sources of loop flow caused by interregional transaction scheduling, (b) determine the costs incurred in supporting the loop flows by each impacted region, and (c) allocate the costs incurred by the off-contract path Balancing Authorities to the scheduling entity, or remove the associated schedules if the scheduling entity is not willing to pay the full cost of flowing its transaction(s). Implementing Buy-Through of Congestion will result in a more complete identification, and accurate assignment, of the costs to move power between regions, and will provide an economic alternative to the administrative/physical curtailment processes. Buy-Through of Congestion will allow the scheduling entity to decide whether or not it is willing to pay the congestion charges caused by its transaction's off-contract path flow impacts. If a scheduling party indicates it is not willing to pay congestion charges, its transaction will be removed if the off-contract path flow impacts add to congestion costs in an off-contract path ISO or RTO.

The ISOs and RTOs need time to understand how the collective set of market solutions discussed herein will affect Lake Erie loop flow and how the market solutions should account for the operation of all of the controllable devices around Lake Erie. The only way to understand the impact of these market solutions is to gain operational experience with the recently, and soon to be, implemented Broader Regional Market improvements and to study the resulting operational

<sup>31</sup> The ~~other Lake Erie ISOs and RTOs~~ deNYISO does not possess the necessary information and ~~has~~ not been given the opportunity to analyze and substantiate MISO's and IESO's claims. All of the Lake Erie ISOs and RTOs agree that it would be counter-productive for NYISO and PJM to address the operation of the Michigan/Ontario PARs in this report. On October 20, 2010, MISO and International Transmission Company d/b/a ITC *Transmission* ("ITC") submitted a Federal Power Act Section 205 filing to the Commission, in Docket No. ER11-1844, to allocate a portion of the cost of ITC's Bunce Creek PARs (two of the five Michigan/Ontario PARs) to customers in New York and PJM. On December 20, 2011, the FERC Chief Administrative Law Judge set Docket No. ER11-1844 for hearing before an Administrative Law Judge. The presiding Administrative Law Judge issued a post hearing initial decision on December 18, 2012, *Midwest Indep. Transmission Sys. Operator, Inc.*, 141 FERC ¶ 63,021 (2012), which remains pending before the Commission. All of the hearing parties (including MISO, NYISO and PJM) are waiting for a Commission order on the Administrative Law Judge's initial decision.

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data. NYISO, PJM, MISO and IESO all agree that it is not necessary to begin to develop the proposed Buy-Through of Congestion Broader Regional Market solution at this time. The ISOs and RTOs need more time to analyze the other recently, and soon to be, implemented programs before determining whether or not the Buy-Through of Congestion Broader Regional Market solution will provide sufficient additional benefits to merit its development and implementation.

### **III. Request for Waiver/Modification of Reporting Obligation**

The December 2010 Order imposed semiannual reporting obligations on the NYISO, in collaboration with its neighboring ISOs and RTOs, NERC and other market participants, commencing one year after the implementation of interface pricing reform and congestion management/market-to-market coordination.

“[O]ne year after the implementation of interface pricing reform and congestion management/market-to-market coordination, and every six months thereafter until the market initiatives are fully implemented, we require the NYISO, in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing: (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>32</sup>

The ISOs and RTOs respectfully request that the Commission amend this informational filing obligation to require annual reports to the Commission. Postponing the next informational filing to March 20, 2015 will provide necessary time for the ISOs and RTOs to develop a more substantive update for the Commission than could be provided in September 2014. Certain initiatives described above (CTS, for example) will require the majority of 2014 to complete and, therefore, the status will not change significantly in the next six months. Also, an additional year of operating experience with the features that entered service in 2012-2013, and the features being implemented in 2014, will allow the ISOs and RTOs to better understand their impact before providing an update to the Commission.

### **IV. Communications and Correspondence**

All communications and service in this proceeding should be directed to:

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<sup>32</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at P 33 (2010) (original footnotes omitted).

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Robert E. Fernandez, General Counsel  
Raymond Stalter, Director, Regulatory Affairs  
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10 Krey Boulevard  
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\* Designated to receive service.

#### **V. Service**

The NYISO will send an electronic link to this filing to the official representative of each of its customers, to each participant on its stakeholder committees, to the New York Public Service Commission, and to the New Jersey Board of Public Utilities. In addition, the complete filing will be posted on the NYISO's website at [www.nyiso.com](http://www.nyiso.com).

#### **VI. Conclusion**

The NYISO respectfully requests that the Commission accept this Report as satisfying the requirements set forth in the Commission's December 2010 Order and accept the proposed annual reporting requirement that is proposed in Section III of this Report.

Respectfully submitted,

/s/ Alex M. Schnell  
Alex M. Schnell, Registered Corporate Counsel  
James H. Sweeney, Attorney  
New York Independent System Operator, Inc.

cc: Michael A. Bardee  
Gregory Berson  
Anna Cochrane  
Jignasa Gadani  
Morris Margolis  
Michael McLaughlin

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David Morenoff  
Daniel Nowak

**Sweeney, James H.**

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**From:** Ronald Arness [rarness@misoenergy.org]  
**Sent:** Tuesday, March 18, 2014 3:09 PM  
**To:** DeSocio, Michael; Stan.Williams@pjm.com  
**Cc:** DeSalle, David M. (DMDaSalle@Venable.com); Dhiman Chatterjee; Tom Mallinger; Zakaria Joundi; Gregory A. Troxell; Kevin Sherd; warren.hill@ieso.ca; Sweeney, James H.  
**Subject:** RE: Final BRM Report  
**Attachments:** 2014 BRM Report Draft 3\_17\_14 r1 (2).docx

Mike and Stan, we have one suggestion, included as red line on the attached. Noting that PJM was also party in addition to MISO and IESO in preparation of the Evaluation Report.

Second paragraph from top of page 9, last sentence in I.B

“This section of the Report was prepared by MISO, PJM, and IESO. The NYISO does not join in this section of the Report...”

Please let me know if you have any questions

Thank you

Ron Arness

**From:** "DeSocio, Michael" <MDeSocio@nyiso.com>  
**Date:** March 17, 2014, 9:41:46 PM GMT  
**To:** "Stan Williams (Stan.Williams@pjm.com)" <Stan.Williams@pjm.com>, "Zakaria Joundi" <ZJoundi@misoenergy.org>, "Ronald Arness (rarness@misoenergy.org)" <rarness@misoenergy.org>, "Warren Hill (warren.hill@ieso.ca)" <warren.hill@ieso.ca>  
**Cc:** "Sweeney, James H." <JSweeney@nyiso.com>  
**Subject:** Final BRM Report

All,

Attached is the report we propose to file with FERC. It contains redline language from the NYISO to address the additions and comments received from MISO.

We plan to file this report by Wednesday, March 19<sup>th</sup>. Many thanks for all of your assistance and feedback with this report.

Best,  
Mike

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10 Krey Boulevard ♦ Rensselaer, NY 12144

March 19, 2014

**By Electronic Delivery**

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re:   *New York Independent System Operator, Inc.*, Docket ER08-1281-\_\_\_\_;  
      *Broader Regional Markets Report to the Commission***

Dear Ms. Bose:

In accordance with paragraph 33 and ordering paragraph “D” of the Federal Energy Regulatory Commission’s (“Commission’s” or “FERC’s”) December 30, 2010 *Order on Rehearing and Compliance* in Docket No. ER08-1281 (“December 2010 Order”),<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits this *Report on Broader Regional Markets* (“Report”). Ordering paragraph “D” of the December 2010 Order states that the “RTO/ISO parties are hereby directed to submit informational reports, as discussed in the body of this order.” Paragraph 33 of the December 2010 Order instructs the NYISO,

“in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”

While the NYISO is responsible for submitting this Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the

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<sup>1</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 (2010).

“Lake Erie ISOs and RTOs”), with input from the NYISO’s stakeholders ~~of the foregoing ISOs and RTOs~~ and the North American Electric Reliability Corporation (“NERC”).

## **I. Improvements that the Lake Erie ISOs/RTOs have made since 2008**

### **A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing**

The RTO/ISOs around Lake Erie present the following summary of the market design features that have been, or will be, implemented to improve coordination between markets and reduce Lake Erie loop flow.

#### **1. NYISO’s Interface Pricing Improvements**

In December 2010, the Commission instructed the NYISO to develop interface pricing reforms to address the price incentives that create loop flow concerns.<sup>2</sup> The NYISO’s interface pricing rules, as accepted by the Commission in 2013,<sup>3</sup> consists of four key aspects. First, the NYISO models the Michigan/Ontario interface in the same way PJM does. Second, the NYISO includes expected unscheduled power flows (“UPF”) in both its Day-Ahead Market (“DAM”) and Real-Time Market (“RTM”). Third, the NYISO uses its scheduling path validation process to ensure that External Transaction Bids are economically evaluated and scheduled consistent with their expected power flow impacts.<sup>4</sup> Finally, to calculate prices at its Keystone Proxy Generator Bus that represents a significant portion of the New York Control Area (“NYCA”)/PJM border, the NYISO (a) treats uncontrolled alternating current (“A/C”) transmission lines as free-flowing tie lines, (b) includes expected (Day Ahead) or actual (real-time) UPF over the interface facilities in its pricing, and (c) recognizes the demonstrated intermediate- and long-term effectiveness of the ABC, JK and Ramapo Phase Angle Regulators (“PARs”) in aligning actual power flows with scheduled power flows on PAR controlled transmission facilities at the PJM/NYCA border. The NYISO’s interface pricing rules also incorporate Commission-accepted tariff obligations and contractual obligations into the NYISO’s development of its Keystone Proxy Generator Bus prices.

The NYISO’s interface pricing policy relies on its scheduling path validation process.<sup>5</sup> NYISO Bid validation occurs as soon as a Bid is submitted to the NYISO’s Market

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<sup>2</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at PP 27 and 31 (2010).

<sup>3</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 (2013).

<sup>4</sup> Dr. Patton, President of the NYISO’s Market Monitoring Unit, explained why it is appropriate for the NYISO to continue to use its bid validation software: “The NYISO’s path validation process is designed to ensure that the actual power flows associated with the transactions are as consistent with the scheduled flows as possible. Precluding circuitous paths substantial reduces unscheduled loop flows and reduces market participants’ ability engage in patterns of transactions that may constitute manipulation of the RTO’s interface pricing.” See NYISO’s January 18, 2013 Interface Pricing Compliance Filing in Docket Nos. ER08-1281 and ER13-780, Attachment I at P 16.

<sup>5</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 26 (2013).



Information System (“MIS”), and before Bids are made available to be economically evaluated for scheduling by the NYISO’s Day-Ahead or Real-Time Market software. The NYISO’s Bid validation only allows feasible transactions that contain valid NERC e-Tag data, to be economically evaluated for possible scheduling. The NYISO’s Bid validation software will not validate Bids submitted to schedule External Transactions over any of the eight circuitous Prohibited Transmission Paths identified in Section 16.3.3.8 of (Attachment J to) the NYISO Open Access Transmission Tariff (“OATT”). The Commission has instructed the NYISO to add additional prohibited paths if necessary to prevent new sources of Lake Erie loop flow from being introduced in the future.<sup>6</sup>

The Commission found that the NYISO’s interface pricing policy satisfies the requirements to align scheduled and real-time energy flows and to utilize NERC eTag validation to enhance the alignment of scheduled and actual power flows. NYISO accounts for expected unscheduled power flows in its Day-Ahead Market based on recently observed Lake Erie circulation. “In the real-time market, NYISO accounts for the difference between scheduled and actual power flows measured at its interface with Ontario, *i.e.*, actual Lake Erie circulation.”<sup>7</sup>

The NYISO’s interface pricing rules produces prices that are consistent with the value of actual power deliveries to New York and are similar to the prices produced by PJM’s pricing method. Greater consistency in regional pricing methods, combined with NYISO’s rules that prohibit the use of circuitous scheduling paths have diminished both the ability and the incentives for Market Participants scheduling External Transactions to cause Lake Erie loop flow. Instead, more power is being scheduled consistent with the path over which it will actually flow.

## **2. PJM/NYISO M2M Implementation**

The Commission authorized the NYISO and PJM to begin coordinated congestion management/market-to-market coordination (“M2M”) in January 2013.<sup>8</sup> The M2M coordinated congestion management process allows transmission constraints that are significantly impacted by generation dispatch changes in both the NYISO and PJM markets or by the operation of the Ramapo PARs to be jointly managed in the real-time security-constrained economic dispatch models of both RTOs.<sup>9</sup> This joint real-time management of transmission constraints near the market borders provides a more efficient and lower cost transmission congestion management solution, and facilitates price convergence at the market boundaries. Real-time coordination

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<sup>6</sup> *Id.* at P 27.

<sup>7</sup> *Id.* at P 22.

<sup>8</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 (2012).

<sup>9</sup> NYISO/PJM M2M includes two types of coordination: (1) re-dispatch coordination; and (2) Ramapo PAR coordination. For re-dispatch coordination, the non-monitoring RTO re-dispatches its generation to help manage congestion in the monitoring RTO, when economic, if one of the pre-defined flowgates becomes congested in the monitoring RTO. For Ramapo PAR coordination, the Ramapo PARs are operated to reduce overall congestion if certain pre-defined flowgates become congested in one or both RTOs.

Ms. Kimberly D. Bose, Secretary  
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results in a more efficient economic dispatch solution to manage the real-time transmission constraints that impact both markets.

In its Orders accepting the rules NYISO and PJM developed to implement M2M the Commission explained “the Market-to-Market Coordination Process was developed specifically in response to problems associated with Lake Erie loop flows.”<sup>10</sup> The Commission Order accepting the M2M revisions to the parties’ Joint Operating Agreement concluded “that coordinating the redispatch of resources and PAR operations in both NYISO and PJM as compared to each market operating independently, and thereby limiting the set of resources available for redispatch to resources located within the control area where the constraint is located, is a preferred method for addressing interregional transmission constraints and the Lake Erie loop flows.”<sup>11</sup>

The Lake Erie ISOs and RTOs have learned to proactively address possible new causes of Lake Erie loop flow. In February 2013, one of the two Ramapo PARs at the PJM/New York border experienced an unplanned forced outage. To address the expected impact of the PAR outage on their transmission systems, interchange scheduling practices, and implementation of M2M coordination, the NYISO and PJM requested a temporary waiver from their Commission accepted JOA provisions to permit them to operate their systems in a way that better reflected expected power flows during the Ramapo PAR outage.<sup>12</sup> The waiver request allowed NYISO and PJM to maximize the total interchange capability between the RTOs while one PAR was out of service and to continue to achieve the target interchange flow over the Branchburg – Ramapo (5018) A/C transmission line (the “5018 line”).<sup>13</sup> Specifically, NYISO and PJM requested permission to temporarily reduce the net scheduled interchange that is expected to flow over the 5018 line, from 61 percent to 46 percent, while the PAR was being replaced. The waiver applied to the finite period of May 15, 2013 until the Ramapo PARs were returned to normal operation. NYISO and PJM are dedicated to proactively addressing interregional coordination issues as they arise, and involving the Commission when necessary, to more efficiently manage interregional transmission constraints and the Lake Erie loop flow.

Potomac Economics, the NYISO’s external market monitoring unit, (“MMU”) has been reviewing M2M operations between NYISO and PJM.<sup>14</sup> The MMU regularly analyzes both the efficacy of re-dispatch coordination and the efficacy of Ramapo PAR coordination. In its most recent quarterly report, the MMU “finds that the Ramapo Line was reasonably efficient in 72 percent of the hours with congestion in NY and/or PJM”. During this period, M2M re-dispatch

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<sup>10</sup> *New York Independent System Operator, Inc.*, 140 FERC ¶ 61,205 at P 22 (2012).

<sup>11</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 at P 20 (2012).

<sup>12</sup> *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,153 at P 5 (2013).

<sup>13</sup> The Ramapo PARs are utilized to control flows, and achieve target flow, over the 5018 line between NYISO and PJM.

<sup>14</sup> See Quarterly Report on the New York ISO Electricity Markets Third Quarter 2013, slides 61-68, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

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coordination was not utilized often enough to allow reporting of that components efficacy. The MMU presents this quarterly review to New York Market Participants at stakeholder meetings.<sup>15</sup>

The M2M coordination process has provided NYISO and PJM a set of very effective tools to assist their management of congestion caused by unscheduled power flows including Lake Erie loop flow. During the first year of implementation, 2013, the NYISO estimated that the value of NYISO/PJM M2M was \$4.7M.<sup>16</sup> The estimate represents the value NY realizes from Ramapo PAR coordination. This includes (1) the estimated savings to NY for additional deliveries into NY, and (2) PJM compensation to NY for additional deliveries into PJM (as compared to the Ramapo Target Value,<sup>17</sup> excluding service to RECO load). The identified value is net of any settlements to PJM when PJM's transmission system is congested.

### **3. Implementation of More Frequent Scheduling**

Enhanced Interregional Transaction Coordination ("EITC") permits the scheduling of inter-Balancing Authority transactions on a more frequent basis than hourly schedules.<sup>18</sup>

PJM, MISO and NYISO are all capable of scheduling interregional interchange on a 15 minute basis. MISO and PJM implemented the ability to schedule interregional interchange on a 15 minute basis on May 1, 2004. On July 27, 2011, NYISO activated 15-minute scheduling at its Chateauguay D/C interface with Hydro-Quebec. In 2012 NYISO activated 15-minute scheduling at all of its interfaces with PJM, including all Scheduled Lines.<sup>19</sup> When Transmission Customers offer interregional energy on a 15-minute basis, the RTO/ISO dispatchers have the ability to alter schedules within an hour to address changing system conditions, including changes in unscheduled power flows like Lake Erie loop flow. This dispatching flexibility allows the RTO/ISOs to respond to the price impacts that Lake Erie loop flow has on their transmission systems by altering intra-hour external transaction schedules. The RTO/ISO dispatchers are no longer locked into achieving hourly external transaction schedules.

In its order accepting the NYISO's EITC proposal, the Commission recounted that enhanced scheduling options at the NYISO's borders promote more efficient inter-regional transmission, reduce uplift costs associated with real-time event management and congestion

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<sup>15</sup> The most recent presentation is available at the following link:

[http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

<sup>16</sup> [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/mc/meeting\\_materials/2014-01-29/Operations\\_Report\\_201312.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2014-01-29/Operations_Report_201312.pdf)

<sup>17</sup> The Ramapo Target Value is defined in the NYISO/PJM JOA, Schedule D, Section 7.2.1. The Ramapo Target Value is based on the net interchange schedule between the NYISO and PJM plus the deviation of actual flows and desired flows across the ABC and JK interfaces.

<sup>18</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 (2011).

<sup>19</sup> The NYISO and PJM activated 15-minute scheduling on their primary interface on June 27, 2012. 15-minute scheduling was implemented on the Neptune and Linden VFT scheduled line interfaces on October 30, 2012 and November 28, 2012, respectively.

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management, support system balancing efforts by expanding the pool of resources available to system operators, and lower total system operating costs by improving price signals.<sup>20</sup> Potomac Economics' analysis identified a potential annual production cost savings for all NYISO interfaces of \$175 million.<sup>21</sup>

The NYISO has made use of the additional flexibility that 15 minute scheduling provides. The NYISO varied external transaction schedules at its PJM Keystone Proxy Generator Bus in over 33% of all quarter hours in 2013.<sup>22</sup> Since implementation, the NYISO has consistently received 15-minute transaction offers at four of the five interfaces that allowed 15-minute scheduling in real-time.<sup>23</sup>

Moving forward, the NYISO will focus on improving the 15-minute scheduling protocol by implementing Coordinated Transaction Scheduling ("CTS") with both PJM and ISO-NE as well as evaluating the feasibility of 5-minute scheduling with Hydro-Quebec.

#### **4. PJM/NYISO and ISO-NE/NYISO Coordinated Transaction Scheduling**

The Coordinated Transaction Scheduling ("CTS") Real-Time Market rules, recently accepted by the Commission,<sup>24</sup> allow Imports and Exports to be scheduled based on a bidder's willingness to purchase energy at a source in one Control Area and sell it at a sink in another Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the bid dollar value.<sup>25</sup> The NYISO intends to implement CTS with PJM in November of 2014 and CTS with ISO-NE in the fourth quarter of 2015. CTS between NYISO and PJM will be implemented at all four of the Proxy Generator Buses over which interchange between the two areas can be scheduled.

As the Commission recognized in its order accepting the NYISO's CTS with PJM filing, "CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO." "CTS should also minimize counter intuitive flows, such as flows going from a high priced control area to a low priced control area, by

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<sup>20</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>21</sup> *Id.*

<sup>22</sup> 33% is a measure of schedule changes across the xx:15, xx:30 and xx:45 quarter hours. The xx:00 time was excluded because changes across xx:00 can occur due to changes in offer sets and would not provide evidence of improved inter-regional scheduling.

<sup>23</sup> The fifth interface is a Scheduled Line where the capability has been pre-sold to anchor tenants that choose to schedule on an hourly basis.

<sup>24</sup> See *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 (2012) and *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 (2014).

<sup>25</sup> Transmission Customers using CTS will submit a single CTS Interface Bid to indicate their desire to simultaneously buy Energy in one Control Area and sell Energy into the other Control Area based on the forecasted price difference between the NYISO and PJM markets at the relevant location.

incorporating projected price differences between the NYISO and PJM markets into scheduling decisions.” In addition, “CTS should improve scheduling efficiency for both regions by introducing a new scheduling option... that will allow bidding of different MW quantities at different prices for each 15 minute interval within an hour.”<sup>26</sup> CTS will further improve scheduling efficiency for transactions between NYISO and PJM by establishing intra-hour schedules 15 minutes closer to actual, real-time operations. Establishing intra-hour schedules closer to the actual 15 minute scheduling interval will improve the accuracy of cross-border scheduling decisions because those decisions will reflect updated system conditions, including any price impact of unscheduled Lake Erie loop flow.<sup>27</sup>

The Commission found that both CTS with PJM and CTS with ISO-NE will provide substantial benefits to customers in the three affected regions. In its CTS with PJM order, the Commission finds “that CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO ... joint studies performed by PJM and NYISO estimate potential production cost savings ranging from \$9 million/year to \$26 million/year.”<sup>28</sup> The order accepting the NYISO’s CTS with ISO-NE filing similarly states, “CTS will provide substantial benefits to consumers in both ISO-NE and NYISO by addressing inefficiencies present in the current external transaction scheduling process ..., for the combined ISO-NE and NYISO region, Potomac Economics estimates that CTS will result in \$129 million to \$139 million in annual consumer savings, and \$9 million to \$11 million in annual production cost savings.”<sup>29</sup>

## **5. PJM/MISO Interchange Optimization**

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 timeframe, with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

### **B. Physical Improvements Implemented Since 2008**

As of April 5, 2012 all four circuits comprising the Michigan/Ontario interconnection had in-service ~~PARs~~~~phase angle regulators~~. Starting on that date MISO and the IESO began actively operating the PARs to better conform actual power flows to scheduled power flows. The expectation was that such operations, in conjunction with controls already operational elsewhere on the system, would help reduce the unscheduled flows which cause Lake Erie Circulation (“LEC”).

<sup>26</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>27</sup> *Id.* at P 13.

<sup>28</sup> *Id.* at P 33.

<sup>29</sup> *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 at P 29 (2012).

In January 2014, MISO, PJM and IESO completed an evaluation of the ~~Phase-Angle Regulator transformers (PARs)~~ on the Ontario-Michigan interface and their ability to maintain actual flow within a 200 MW bandwidth of scheduled flow. Based on an analysis using one year of actual operating data when all PARs on the Ontario-Michigan interface were operational, the evaluation found the PARs are able to keep Lake Erie loop flow within a  $\pm 200$  MW control band during 73.1% of the 15-minute periods during the one-year study period. The simulated loop flow calculated without PAR control would only have been within the control band for 43.4% of the year. During most of the periods that the loop flow strayed outside the 200 MW bandwidth, the flow was over by a small margin and the flow was expected to return within the 200 MW bandwidth within the next few 15-minute periods. Overall, MISO and IESO set the Ontario-Michigan interface status to "Regulated" the PARs were able to control LEC 95.5% of the time during the study period.<sup>30</sup> ~~The Ontario-Michigan PAR Performance Evaluation Report is posted at <http://www.miso-pjm.com/http://www.miso-pjm.com/documents.aspx>.~~

Comment [s1]: This sentence was moved to FN 30 below.

The intent of this ~~e~~Evaluation ~~r~~Report was to recount the actual performance of the Ontario-Michigan (ONT-MI) interface PARs over a one-year period during which the PARs were operational, and to provide insight into the effectiveness of the PARs in controlling LEC flow. ~~The~~is ~~Evaluation r~~Evaluation ~~R~~Report follows from the Regional Power Control Device Coordination (RPCDC) Study report published in 2011 as a joint effort ~~amongbetween~~ IESO, MISO, NYISO, and PJM.

Although the RPCDC Study recommended a follow-up study (Second Study) be performed after the Ontario-Michigan PARs enter service and operational data had been collected for a year, this ~~Evaluation r~~Evaluation ~~R~~Report should not be considered as meeting that recommendation for three reasons:

- First, one of the Ramapo PARs was out-of-service from February 2013 until late-December 2013. Since the one-year of operating data used in this analysis (8/1/12-7/31/13) contains seven months during which there was not a fully functioning set of PARs on the PJM-NYISO interface, the data does not support an analysis on how the various power control devices around Lake Erie influence LEC or could have their operations coordinated to minimize loop flows.
- Second, rather than defer the study until one year of operating data with a fully functioning set of PARs on the PJM-NYISO interface is available, ~~the~~is study to support the Evaluation Report was performed in 2013 to address a Joint and Common Market (JCM) initiative that MISO/PJM evaluate the ability of the Ontario-Michigan PARs to manage LEC by having actual flow equal scheduled flow. If the Ontario-Michigan PARs are effective in managing LEC, the JCM initiative will recommend they be included in the MISO/PJM market flow calculations and in the historic allocation process.

<sup>30</sup> The Ontario-Michigan PAR Performance Evaluation Report ("Evaluation Report") is posted at <http://www.miso-pjm.com/documents.aspx>.

- Third, NYISO elected not to participate in this study and Evaluation Report but did participate in the first RPCDC Study. NYISO has indicated ~~that they are it is~~ willing to participate in a ~~S~~second ~~S~~study at some point in the future, provided that actual operating data includes the impacts of all Ramapo PARs. Therefore, this study should be considered a limited scope study that addressed a specific JCM initiative. A ~~S~~second ~~S~~study is still planned for the future and is anticipated to include the involvement of all four RTOs/ISOs around Lake Erie.

This section of the Report was prepared by MISO, ~~PJM, I and IESO~~. The ~~other RTO/ISOs do~~NYISO does not join in this section of the Report.<sup>31</sup>

## II. The Lake Erie ISOs and RTOs Agree That Implementing Buy-Through of Congestion is Premature at This Time

The objective of the proposed Buy-Through of Congestion Broader Regional Market solution is to (a) identify the sources of loop flow caused by interregional transaction scheduling, (b) determine the costs incurred in supporting the loop flows by each impacted region, and (c) allocate the costs incurred by the off-contract path Balancing Authorities to the scheduling entity, or remove the associated schedules if the scheduling entity is not willing to pay the full cost of flowing its transaction(s). Implementing Buy-Through of Congestion will result in a more complete identification, and accurate assignment, of the costs to move power between regions, and will provide an economic alternative to the administrative/physical curtailment processes. Buy-Through of Congestion will allow the scheduling entity to decide whether or not it is willing to pay the congestion charges caused by its transaction's off-contract path flow impacts. If a scheduling party indicates it is not willing to pay congestion charges, its transaction will be removed if the off-contract path flow impacts add to congestion costs in an off-contract path ISO or RTO.

The ISOs and RTOs need time to understand how the collective set of market solutions discussed herein will affect Lake Erie loop flow and how the market solutions should account for the operation of all of the controllable devices around Lake Erie. The only way to understand the impact of these market solutions is to gain operational experience with the recently, and soon to be, implemented Broader Regional Market improvements and to study the resulting operational

<sup>31</sup> The ~~other Lake Erie ISOs and RTOs do~~NYISO does not possess the necessary information and ~~has~~ve not been given the opportunity to analyze and substantiate MISO's and IESO's claims. All of the Lake Erie ISOs and RTOs agree that it would be counter-productive for NYISO and PJM to address the operation of the Michigan/Ontario PARs in this report. On October 20, 2010, MISO and International Transmission Company d/b/a ITC *Transmission* ("ITC") submitted a Federal Power Act Section 205 filing to the Commission, in Docket No. ER11-1844, to allocate a portion of the cost of ITC's Bunce Creek PARs (two of the five Michigan/Ontario PARs) to customers in New York and PJM. On December 20, 2011, the FERC Chief Administrative Law Judge set Docket No. ER11-1844 for hearing before an Administrative Law Judge. The presiding Administrative Law Judge issued a post hearing initial decision on December 18, 2012, *Midwest Indep. Transmission Sys. Operator, Inc.*, 141 FERC ¶ 63,021 (2012), which remains pending before the Commission. All of the hearing parties (including MISO, NYISO and PJM) are waiting for a Commission order on the Administrative Law Judge's initial decision.

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data. NYISO, PJM, MISO and IESO all agree that it is not necessary to begin to develop the proposed Buy-Through of Congestion Broader Regional Market solution at this time. The ISOs and RTOs need more time to analyze the other recently, and soon to be, implemented programs before determining whether or not the Buy-Through of Congestion Broader Regional Market solution will provide sufficient additional benefits to merit its development and implementation.

### **III. Request for Waiver/Modification of Reporting Obligation**

The December 2010 Order imposed semiannual reporting obligations on the NYISO, in collaboration with its neighboring ISOs and RTOs, NERC and other market participants, commencing one year after the implementation of interface pricing reform and congestion management/market-to-market coordination.

“[O]ne year after the implementation of interface pricing reform and congestion management/market-to-market coordination, and every six months thereafter until the market initiatives are fully implemented, we require the NYISO, in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing: (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>32</sup>

The ISOs and RTOs respectfully request that the Commission amend this informational filing obligation to require annual reports to the Commission. Postponing the next informational filing to March 20, 2015 will provide necessary time for the ISOs and RTOs to develop a more substantive update for the Commission than could be provided in September 2014. Certain initiatives described above (CTS, for example) will require the majority of 2014 to complete and, therefore, the status will not change significantly in the next six months. Also, an additional year of operating experience with the features that entered service in 2012-2013, and the features being implemented in 2014, will allow the ISOs and RTOs to better understand their impact before providing an update to the Commission.

### **IV. Communications and Correspondence**

All communications and service in this proceeding should be directed to:

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<sup>32</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at P 33 (2010) (original footnotes omitted).



Ms. Kimberly D. Bose, Secretary  
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Robert E. Fernandez, General Counsel  
Raymond Stalter, Director, Regulatory Affairs  
\*Alex M. Schnell, Registered Corporate Counsel  
\*James H. Sweeney, Attorney  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, NY 12144  
Tel: (518) 356-6000  
Fax: (518) 356-8825  
[aschnell@nyiso.com](mailto:aschnell@nyiso.com)  
[jsweeney@nyiso.com](mailto:jsweeney@nyiso.com)

\* Designated to receive service.

#### **V. Service**

The NYISO will send an electronic link to this filing to the official representative of each of its customers, to each participant on its stakeholder committees, to the New York Public Service Commission, and to the New Jersey Board of Public Utilities. In addition, the complete filing will be posted on the NYISO's website at [www.nyiso.com](http://www.nyiso.com).

#### **VI. Conclusion**

The NYISO respectfully requests that the Commission accept this Report as satisfying the requirements set forth in the Commission's December 2010 Order and accept the proposed annual reporting requirement that is proposed in Section III of this Report.

Respectfully submitted,

/s/ Alex M. Schnell  
Alex M. Schnell, Registered Corporate Counsel  
James H. Sweeney, Attorney  
New York Independent System Operator, Inc.

cc: Michael A. Bardee  
Gregory Berson  
Anna Cochrane  
Jignasa Gadani  
Morris Margolis  
Michael McLaughlin

Ms. Kimberly D. Bose, Secretary  
March 19, 2014  
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David Morenoff  
Daniel Nowak

**Sweeney, James H.**

---

**From:** DeSocio, Michael  
**Sent:** Tuesday, March 18, 2014 4:20 PM  
**To:** Ronald Arness; Stan.Williams@pjm.com  
**Cc:** DeSalle, David M. (DMDDeSalle@Venable.com); Dhiman Chatterjee; Tom Mallinger; Zakaria Joundi; Gregory A. Troxell; Kevin Sherd; warren.hill@ieso.ca; Sweeney, James H.  
**Subject:** RE: Final BRM Report

Ron,

Thank you for the suggestion and the assistance with the report. I'll follow up with Stan to make sure PJM is ok with the change. We expect to file it with FERC tomorrow and will send out that version for your records.

Mike

---

**From:** Ronald Arness [<mailto:rarness@misoenergy.org>]  
**Sent:** Tuesday, March 18, 2014 3:09 PM  
**To:** DeSocio, Michael; [Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com)  
**Cc:** DeSalle, David M. ([DMDDeSalle@Venable.com](mailto:DMDDeSalle@Venable.com)); Dhiman Chatterjee; Tom Mallinger; Zakaria Joundi; Gregory A. Troxell; Kevin Sherd; [warren.hill@ieso.ca](mailto:warren.hill@ieso.ca); Sweeney, James H.  
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Mike and Stan, we have one suggestion, included as red line on the attached. Noting that PJM was also party in addition to MISO and IESO in preparation of the Evaluation Report.

Second paragraph from top of page 9, last sentence in I.B

“This section of the Report was prepared by MISO, PJM, and IESO. The NYISO does not join in this section of the Report...”

Please let me know if you have any questions

Thank you

Ron Arness

**From:** "DeSocio, Michael" <[MDeSocio@nyiso.com](mailto:MDeSocio@nyiso.com)>  
**Date:** March 17, 2014, 9:41:46 PM GMT  
**To:** "Stan Williams ([Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com))" <[Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com)>, "Zakaria Joundi" <[ZJoundi@misoenergy.org](mailto:ZJoundi@misoenergy.org)>, "Ronald Arness ([rarness@misoenergy.org](mailto:rarness@misoenergy.org))" <[rarness@misoenergy.org](mailto:rarness@misoenergy.org)>, "Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca))" <[warren.hill@ieso.ca](mailto:warren.hill@ieso.ca)>  
**Cc:** "Sweeney, James H." <[JSweeney@nyiso.com](mailto:JSweeney@nyiso.com)>  
**Subject:** Final BRM Report

All,

Attached is the report we propose to file with FERC. It contains redline language from the NYISO to address the additions and comments received from MISO.

We plan to file this report by Wednesday, March 19<sup>th</sup>. Many thanks for all of your assistance and feedback with this report.

Best,  
Mike

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**Sweeney, James H.**

---

**From:** Stan.Williams@pjm.com  
**Sent:** Wednesday, March 19, 2014 9:50 AM  
**To:** DeSocio, Michael  
**Cc:** rarness@misoenergy.org; DMDeSalle@Venable.com; dchatterjee@misoenergy.org; TMallinger@misoenergy.org; ZJoundi@misoenergy.org; GTroxell@misoenergy.org; KSherd@misoenergy.org; warren.hill@ieso.ca; Sweeney, James H.; James.Burlew@pjm.com  
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Thanks Mike and Ron. PJM is fine with this change.

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## Sweeney, James H.

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**Sent:** Wednesday, March 19, 2014 11:56 AM  
**To:** 'Stan.Williams@pjm.com'; DeSocio, Michael; 'rarness@misoenergy.org'; 'DMDeSalle@Venable.com'; 'dchatterjee@misoenergy.org'; 'TMallinger@misoenergy.org'; 'ZJoundi@misoenergy.org'; 'GTroxell@misoenergy.org'; 'KSherd@misoenergy.org'; 'warren.hill@ieso.ca'; 'James.Burlew@pjm.com'  
**Subject:** RE: Final BRM Report  
**Attachments:** 2014 BRM Report Draft 3\_19\_14.docx

Attached please find the BRM report that the NYISO plans to file with FERC this afternoon. This version contains cleanup revisions made during the NYISO's final review. The revisions to section I.B. are still shown in redline for your convenience.

Thank you again for your assistance.

Regards,  
James

James H. Sweeney  
Attorney  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, NY 12144  
Tel: 518-356-7659  
Cell: 518-925-0982  
Email: [JSweeney@nyiso.com](mailto:JSweeney@nyiso.com)

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**Cc:** DeSalle, David M. ([DMDDeSalle@Venable.com](mailto:DMDDeSalle@Venable.com)); Dhiman Chatterjee; Tom Mallinger; Zakaria Joundi; Gregory A. Troxell; Kevin Sherd; [warren.hill@ieso.ca](mailto:warren.hill@ieso.ca); Sweeney, James H.  
**Subject:** RE: Final BRM Report

Mike and Stan, we have one suggestion, included as red line on the attached. Noting that PJM was also party in addition to MISO and IESO in preparation of the Evaluation Report.

Second paragraph from top of page 9, last sentence in I.B

“This section of the Report was prepared by MISO, PJM, and IESO. The NYISO does not join in this section of the Report...”

Please let me know if you have any questions

Thank you

Ron Arness

**From:** "DeSocio, Michael" <[MDeSocio@nyiso.com](mailto:MDeSocio@nyiso.com)>  
**Date:** March 17, 2014, 9:41:46 PM GMT  
**To:** "Stan Williams ([Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com))" <[Stan.Williams@pjm.com](mailto:Stan.Williams@pjm.com)>, "Zakaria Joundi" <[ZJoundi@misoenergy.org](mailto:ZJoundi@misoenergy.org)>, "Ronald Arness ([rarness@misoenergy.org](mailto:rarness@misoenergy.org))" <[rarness@misoenergy.org](mailto:rarness@misoenergy.org)>, "Warren Hill ([warren.hill@ieso.ca](mailto:warren.hill@ieso.ca))" <[warren.hill@ieso.ca](mailto:warren.hill@ieso.ca)>  
**Cc:** "Sweeney, James H." <[JSweeney@nyiso.com](mailto:JSweeney@nyiso.com)>  
**Subject:** Final BRM Report

All,

Attached is the report we propose to file with FERC. It contains redline language from the NYISO to address the additions and comments received from MISO.

We plan to file this report by Wednesday, March 19<sup>th</sup>. Many thanks for all of your assistance and feedback with this report.

Best,  
Mike

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March 19, 2014

**By Electronic Delivery**

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re:   *New York Independent System Operator, Inc.*, Docket ER08-1281-\_\_\_\_;  
      **Broader Regional Markets Informational Report and Request to Modify the  
      Reporting Obligation****

Dear Ms. Bose:

In accordance with paragraph 33 and ordering paragraph “D” of the Federal Energy Regulatory Commission’s (“Commission’s” or “FERC’s”) December 30, 2010 *Order on Rehearing and Compliance* in Docket No. ER08-1281 (“December 2010 Order”),<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits this *Report on Broader Regional Markets* (“Report”). Ordering paragraph “D” of the December 2010 Order states that the “RTO/ISO parties are hereby directed to submit informational reports, as discussed in the body of this order.” **In footnote 35 of its December 2010 Order the Commission stated that it does not intend to issue public notice or issue an order on this Informational Report.**

Paragraph 33 of the December 2010 Order instructs the NYISO:

“in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>35</sup>

<sup>35</sup> These reports will be for informational purposes only. They will not be noticed and the Commission does not intend to act on them.

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<sup>1</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 (2010).

While the NYISO is responsible for submitting this informational Report to the Commission, the contents of the Report were developed through collaboration between and among PJM Interconnection, LLC (“PJM”), the Midcontinent Independent System Operator, Inc. (“MISO”), the Ontario Independent Electricity System Operator (“IESO”) and the NYISO (collectively the “Lake Erie ISOs and RTOs”), with input from the NYISO’s stakeholders and the North American Electric Reliability Corporation (“NERC”).

## **I. Improvements that the Lake Erie ISOs and RTOs have made since 2008**

### **A. Market Design Improvements the ISOs/RTOs Have Completed or Are Presently Developing**

The Lake Erie ISOs and RTOs present the following summary of the market design features that have been, or will be, implemented to improve coordination between markets and reduce Lake Erie loop flow.

#### **1. NYISO’s Interface Pricing Improvements**

In December 2010, the Commission instructed the NYISO to develop interface pricing reforms to address the price incentives that create loop flow concerns.<sup>2</sup> The NYISO’s interface pricing rules, as accepted by the Commission in 2013,<sup>3</sup> incorporate four key aspects. First, the NYISO models the Michigan/Ontario interface in the same way PJM does. Second, the NYISO includes expected unscheduled power flows (“UPF”) in both its Day-Ahead Market (“DAM”) and Real-Time Market (“RTM”). Third, the NYISO uses its scheduling path validation process to ensure that External Transaction Bids are economically evaluated and scheduled consistent with their expected power flow impacts.<sup>4</sup> Finally, to calculate prices at its Keystone Proxy Generator Bus that represents a significant portion of the facilities that interconnect the New York Control Area (“NYCA”) to PJM, the NYISO (a) treats uncontrolled alternating current (“A/C”) transmission lines as free-flowing tie lines, (b) includes expected (Day Ahead) or actual (real-time) UPF over the interface facilities in its pricing, and (c) recognizes the demonstrated intermediate- and long-term effectiveness of the ABC, JK and Ramapo Phase Angle Regulators (“PARs”) in aligning actual power flows with scheduled power flows on PAR controlled transmission facilities at the PJM/NYCA border. The NYISO’s interface pricing rules also incorporate Commission-accepted tariff obligations and contractual obligations into the NYISO’s development of its Keystone Proxy Generator Bus prices.

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<sup>2</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at PP 27 and 31 (2010).

<sup>3</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 (2013).

<sup>4</sup> Dr. Patton, President of the NYISO’s Market Monitoring Unit, explained why it is appropriate for the NYISO to continue to use its bid validation software: “The NYISO’s path validation process is designed to ensure that the actual power flows associated with the transactions are as consistent with the scheduled flows as possible. Precluding circuitous paths substantially reduces unscheduled loop flows and reduces market participants’ ability engage in patterns of transactions that may constitute manipulation of the RTO’s interface pricing.” See NYISO’s January 18, 2013 Interface Pricing Compliance Filing in Docket Nos. ER08-1281 and ER13-780, Attachment I at P 16.

The NYISO's interface pricing policy relies on its scheduling path validation process.<sup>5</sup> NYISO Bid validation occurs as soon as a Bid is submitted to the NYISO's Market Information System ("MIS"), and before Bids are made available to be economically evaluated for scheduling by the NYISO's Day-Ahead or Real-Time Market software. The NYISO's Bid validation only allows feasible transactions that contain valid NERC e-Tag data, to be economically evaluated for possible scheduling. The NYISO's Bid validation software will not validate Bids submitted to schedule External Transactions over any of the eight circuitous Prohibited Transmission Paths identified in Section 16.3.3.8 of (Attachment J to) the NYISO Open Access Transmission Tariff ("OATT"). The Commission has instructed the NYISO to add additional prohibited paths if necessary to prevent new sources of Lake Erie loop flow from being introduced in the future.<sup>6</sup>

The Commission found that the NYISO's interface pricing policy satisfies the requirements to align scheduled and real-time energy flows and to utilize NERC eTag validation to enhance the alignment of scheduled and actual power flows. NYISO accounts for expected unscheduled power flows in its Day-Ahead Market based on recently observed Lake Erie circulation. "In the real-time market, NYISO accounts for the difference between scheduled and actual power flows measured at its interface with Ontario, *i.e.*, actual Lake Erie circulation."<sup>7</sup>

The NYISO's interface pricing rules produce prices that are consistent with the value of actual power deliveries to New York and are similar to the prices produced by PJM's pricing method. Greater consistency in regional pricing methods, combined with NYISO's rules that prohibit the use of circuitous scheduling paths have diminished both the ability and the incentives for Market Participants scheduling External Transactions to cause Lake Erie loop flow. Instead, more power is being scheduled consistent with the path over which it will actually flow.

## **2. PJM/NYISO Market-to-Market Implementation**

The Commission authorized the NYISO and PJM to begin coordinated congestion management/market-to-market coordination ("M2M") in January 2013.<sup>8</sup> The M2M coordinated congestion management process allows transmission constraints that are significantly impacted by generation dispatch changes in both the NYISO and PJM markets or by the operation of the Ramapo PARs to be jointly managed in the real-time security-constrained economic dispatch models of both RTOs.<sup>9</sup> This joint real-time management of transmission constraints near the

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<sup>5</sup> *New York Independent System Operator, Inc.*, 142 FERC ¶ 61,202 at P 26 (2013).

<sup>6</sup> *Id.* at P 27.

<sup>7</sup> *Id.* at P 22.

<sup>8</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 (2012).

<sup>9</sup> NYISO/PJM M2M includes two types of coordination: (1) re-dispatch coordination; and (2) Ramapo PAR coordination. For re-dispatch coordination, the non-monitoring RTO re-dispatches its generation to help manage congestion in the monitoring RTO, when economic, if one of the pre-defined flowgates becomes congested in the monitoring RTO. For Ramapo PAR coordination, the Ramapo PARs are operated to reduce overall congestion if certain pre-defined flowgates become congested in one or both RTOs.

market borders provides a more efficient and lower cost transmission congestion management solution, and facilitates price convergence at the market boundaries. Real-time coordination results in a more efficient economic dispatch solution to manage the real-time transmission constraints that impact both markets.

In its Orders accepting the rules NYISO and PJM developed to implement M2M, the Commission explained “the Market-to-Market Coordination Process was developed specifically in response to problems associated with Lake Erie loop flows.”<sup>10</sup> The Commission Order accepting the M2M revisions to the parties’ Joint Operating Agreement concluded “that coordinating the redispatch of resources and PAR operations in both NYISO and PJM as compared to each market operating independently, and thereby limiting the set of resources available for redispatch to resources located within the control area where the constraint is located, is a preferred method for addressing interregional transmission constraints and the Lake Erie loop flows.”<sup>11</sup>

The Lake Erie ISOs and RTOs have learned to proactively address possible new causes of Lake Erie loop flow. In February 2013, one of the two Ramapo PARs at the PJM/New York border experienced an unplanned forced outage. To address the expected impact of the PAR outage on their transmission systems, interchange scheduling practices, and implementation of M2M coordination, the NYISO and PJM requested a temporary waiver from their Commission accepted JOA provisions to permit them to operate their systems in a way that better reflected expected power flows during the Ramapo PAR outage.<sup>12</sup> The waiver request allowed NYISO and PJM to maximize the total interchange capability between the RTOs while one PAR was out of service and to continue to achieve the target interchange flow over the Branchburg – Ramapo (5018) A/C transmission line (the “5018 line”).<sup>13</sup> Specifically, NYISO and PJM requested permission to temporarily reduce the net scheduled interchange that is expected to flow over the 5018 line, from 61 percent to 46 percent, while the PAR was being replaced. The waiver applied to the finite period of May 15, 2013 until the Ramapo PARs were returned to normal operation. NYISO and PJM are dedicated to proactively addressing interregional coordination issues as they arise, and involving the Commission when necessary, to more efficiently manage interregional transmission constraints and the Lake Erie loop flow.

Potomac Economics, the NYISO’s external market monitoring unit, (“MMU”) has been reviewing M2M operations between NYISO and PJM.<sup>14</sup> The MMU regularly analyzes both the efficacy of re-dispatch coordination and the efficacy of Ramapo PAR coordination. In its most recent quarterly report, the MMU “finds that the Ramapo Line was reasonably efficient in 72

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<sup>10</sup> *New York Independent System Operator, Inc.*, 140 FERC ¶ 61,205 at P 22 (2012).

<sup>11</sup> *New York Independent System Operator, Inc.*, 138 FERC ¶ 61,192 at P 20 (2012).

<sup>12</sup> *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,153 at P 5 (2013).

<sup>13</sup> The Ramapo PARs are utilized to control flows, and achieve target flow, over the 5018 line between NYISO and PJM.

<sup>14</sup> See Quarterly Report on the New York ISO Electricity Markets Third Quarter 2013, slides 61-68, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

percent of the hours with congestion in NY and/or PJM.” During this period, M2M re-dispatch coordination was not utilized often enough to allow reporting of that components efficacy. The MMU presents this quarterly review to New York Market Participants at stakeholder meetings.<sup>15</sup>

The M2M coordination process has provided NYISO and PJM a set of very effective tools to assist their management of congestion caused by unscheduled power flows including Lake Erie loop flow. During the first year of implementation, 2013, the NYISO estimated that the value of NYISO/PJM M2M was \$4.7M.<sup>16</sup> The estimate represents the value New York realizes from Ramapo PAR coordination. This includes (1) the estimated savings to NYISO for additional deliveries into New York, and (2) PJM compensation to NYISO for additional deliveries into PJM (as compared to the Ramapo Target Value,<sup>17</sup> excluding service to RECO load). The identified value is net of any settlements to PJM when PJM’s transmission system is congested.

### **3. Implementation of More Frequent Scheduling**

Enhanced Interregional Transaction Coordination (“EITC”) permits the scheduling of inter-Balancing Authority transactions on a more frequent basis than hourly schedules.<sup>18</sup>

PJM, MISO and NYISO are all capable of scheduling interregional interchange on a 15-minute basis. MISO and PJM implemented the ability to schedule interregional interchange on a 15-minute basis on May 1, 2004. On July 27, 2011, NYISO activated 15-minute scheduling at its Chateaugay D/C interface with Hydro-Quebec. In 2012 NYISO activated 15-minute scheduling at all of its interfaces with PJM, including all Scheduled Lines.<sup>19</sup> When Transmission Customers offer interregional energy on a 15-minute basis, the RTO/ISO dispatchers have the ability to alter schedules within an hour to address changing system conditions, including changes in unscheduled power flows like Lake Erie loop flow. This dispatching flexibility allows the RTO/ISOs to respond to the price impacts that Lake Erie loop flow has on their transmission systems by altering intra-hour external transaction schedules. The RTO/ISO dispatchers are no longer locked into achieving hourly external transaction schedules.

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<sup>15</sup> The most recent presentation is available at the following link:  
[http://www.nyiso.com/public/webdocs/markets\\_operations/documents/Studies\\_and\\_Reports/Reports/MMU\\_Quarterly\\_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/MMU_Quarterly_Reports/2013/NYISO%20Quarterly%20Report%20-%20Quarter%203.pdf).

<sup>16</sup> [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/mc/meeting\\_materials/2014-01-29/Operations\\_Report\\_201312.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2014-01-29/Operations_Report_201312.pdf)

<sup>17</sup> The Ramapo Target Value is defined in the NYISO/PJM JOA, Schedule D, Section 7.2.1. The Ramapo Target Value is based on the net interchange schedule between the NYISO and PJM plus the deviation of actual flows and desired flows across the ABC and JK interfaces.

<sup>18</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 (2011).

<sup>19</sup> The NYISO and PJM activated 15-minute scheduling on their primary interface on June 27, 2012. Fifteen minute scheduling was implemented on the Neptune and Linden VFT scheduled line interfaces on October 30, 2012 and November 28, 2012, respectively.

In its order accepting the NYISO's EITC proposal, the Commission recounted that enhanced scheduling options at the NYISO's borders promote more efficient interregional transmission, reduce uplift costs associated with real-time event management and congestion management, support system balancing efforts by expanding the pool of resources available to system operators, and lower total system operating costs by improving price signals.<sup>20</sup> Potomac Economics' analysis identified a potential annual production cost savings for all NYISO interfaces of \$175 million.<sup>21</sup>

The NYISO has made use of the additional flexibility that 15-minute scheduling provides. The NYISO varied external transaction schedules at its PJM Keystone Proxy Generator Bus in over 33% of all quarter hours in 2013.<sup>22</sup> Since implementation, the NYISO has consistently received 15-minute transaction offers at four of the five interfaces that allowed 15-minute scheduling in real-time.<sup>23</sup>

Moving forward, the NYISO will focus on improving the 15-minute scheduling protocol by implementing Coordinated Transaction Scheduling ("CTS") with both PJM and ISO-New England ("ISO-NE") as well as evaluating the feasibility of 5-minute scheduling with Hydro-Quebec.

#### **4. PJM/NYISO and ISO New England/NYISO Coordinated Transaction Scheduling**

The CTS Real-Time Market rules, recently accepted by the Commission,<sup>24</sup> allow Imports and Exports to be scheduled based on a bidder's willingness to purchase energy at a source in one Control Area and sell it at a sink in another Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the bid dollar value.<sup>25</sup> The NYISO intends to implement CTS with PJM in November of 2014 and CTS with ISO-NE in the fourth quarter of 2015. CTS between NYISO and PJM will be implemented at all four of the Proxy Generator Buses over which interchange between the two areas can be scheduled.

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<sup>20</sup> *New York Independent System Operator, Inc.*, 134 FERC ¶ 61,186 at P 8 (2011).

<sup>21</sup> *Id.*

<sup>22</sup> 33% is a measure of schedule changes across the xx:15, xx:30 and xx:45 quarter hours. The xx:00 time was excluded because changes across xx:00 can occur due to changes in offer sets and would not provide evidence of improved inter-regional scheduling.

<sup>23</sup> The fifth interface is a Scheduled Line where the capability has been pre-sold to anchor tenants that choose to schedule on an hourly basis.

<sup>24</sup> See *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 (2012) and *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 (2014).

<sup>25</sup> Transmission Customers using CTS will submit a single CTS Interface Bid to indicate their desire to simultaneously buy Energy in one Control Area and sell Energy into the other Control Area based on the forecasted price difference between the NYISO and PJM markets at the relevant location.

As the Commission recognized in its order accepting the NYISO's CTS with PJM filing, "CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO." "CTS should also minimize counter intuitive flows, such as flows going from a high priced control area to a low priced control area, by incorporating projected price differences between the NYISO and PJM markets into scheduling decisions." In addition, "CTS should improve scheduling efficiency for both regions by introducing a new scheduling option... that will allow bidding of different MW quantities at different prices for each 15 minute interval within an hour."<sup>26</sup> CTS will further improve scheduling efficiency for transactions between NYISO and PJM by establishing intra-hour schedules 15 minutes closer to actual, real-time operations. Establishing intra-hour schedules closer to the actual 15 minute scheduling interval will improve the accuracy of cross-border scheduling decisions because those decisions will reflect updated system conditions, including any price impact of unscheduled Lake Erie loop flow.<sup>27</sup>

The Commission found that both CTS with PJM and CTS with ISO-NE will provide substantial benefits to customers in the three affected regions. In its CTS with PJM order, the Commission finds "that CTS will enhance market efficiency of interregional transactions and provide substantial benefits to consumers in both PJM and NYISO ... joint studies performed by PJM and NYISO estimate potential production cost savings ranging from \$9 million/year to \$26 million/year."<sup>28</sup> The order accepting the NYISO's CTS with ISO-NE filing similarly states, "CTS will provide substantial benefits to consumers in both ISO-NE and NYISO by addressing inefficiencies present in the current external transaction scheduling process ..., for the combined ISO-NE and NYISO region, Potomac Economics estimates that CTS will result in \$129 million to \$139 million in annual consumer savings, and \$9 million to \$11 million in annual production cost savings."<sup>29</sup>

## **5. PJM/MISO Interchange Optimization**

PJM and MISO began discussions on the development of an Interchange Optimization solution for stakeholder consideration as part of the MISO-PJM Joint and Common Market effort to address seams issues on the MISO-PJM interface. Current plans call for the development of a proposal to be presented to stakeholders for their endorsement in the Summer 2014 time frame, with their approval being sought in the Fall 2014 followed by a FERC filing in early 2015.

### **B. Physical Improvements Implemented Since 2008**

As of April 5, 2012, all four circuits comprising the Michigan/Ontario interconnection had in-service PARs. Starting on that date, the MISO and IESO began actively operating the PARs to better conform actual power flows to scheduled power flows. The expectation was that

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<sup>26</sup> *New York Independent System Operator, Inc.*, 146 FERC ¶ 61,097 at P 33 (2014).

<sup>27</sup> *Id.* at P 13.

<sup>28</sup> *Id.* at P 33.

<sup>29</sup> *New York Independent System Operator, Inc.*, 139 FERC ¶ 61,048 at P 29 (2012).



such operations, in conjunction with controls already operational elsewhere on the system, would help reduce the unscheduled flows which cause Lake Erie Circulation (“LEC”).

In January 2014, MISO, PJM and IESO completed an evaluation of the PARs on the Ontario-Michigan interface and their ability to maintain actual flow within a 200 MW bandwidth of scheduled flow and produced an Evaluation Report.<sup>30</sup> Based on an analysis using one year of actual operating data when all PARs on the Ontario-Michigan interface were operational, the evaluation found the PARs are able to keep Lake Erie loop flow within a  $\pm 200$  MW control band during 73.1% of the 15-minute periods during the one-year study period. The simulated loop flow calculated without PAR control would only have been within the control band for 43.4% of the year. During most of the periods that the loop flow strayed outside the 200 MW bandwidth, the flow was over by a small margin and the flow was expected to return within the 200 MW bandwidth within the next few 15-minute periods. MISO and IESO set the Ontario-Michigan interface status to “Regulated” 95.5% of the time during the study period.

The intent of this purpose of the Evaluation Report was to recount the actual performance of the Ontario-Michigan (ONT-MI) interface PARs over a one-year period during which the PARs were operational, and to provide insight into the effectiveness of the PARs in controlling LEC flow. The Evaluation Report follows from the Regional Power Control Device Coordination (“RPCDC”) Study report published in 2011 as a joint effort among IESO, MISO, NYISO, and PJM.

Although the RPCDC Study recommended a follow-up study (Second Study) be performed after the Ontario-Michigan PARs enter service and operational data had been collected for a year, this-the Evaluation Report should not be considered as meeting that recommendation for three reasons:

- First, one of the Ramapo PARs was out-of-service from February 2013 until late-December 2013. Since the one-year of operating data used in this analysis (8/1/12-7/31/13) contains seven months during which there was not a fully functioning set of PARs on the PJM-NYISO interface, the data does not support an analysis on how the various power control devices around Lake Erie influence LEC or could have their operations coordinated to minimize loop flows.
- Second, rather than defer the study until one year of operating data with a fully functioning set of PARs on the PJM-NYISO interface is available, the study to support the Evaluation Report was performed in 2013 to address a Joint and Common Market (JCM) initiative that MISO/PJM evaluate the ability of the Ontario-Michigan PARs to manage LEC by having actual flow equal scheduled flow. If the Ontario-Michigan PARs are effective in managing LEC, the JCM initiative will recommend they be included in the MISO/PJM market flow calculations and in the historic allocation process.

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<sup>30</sup> The Ontario-Michigan PAR Performance Evaluation Report (“Evaluation Report”) is posted at <http://www.miso-pjm.com/documents.aspx>.

- Third, NYISO elected not to participate in this study and Evaluation Report but did participate in the first RPCDC Study. NYISO has indicated that it is willing to participate in a second study at some point in the future, provided that actual operating data includes the impacts of all Ramapo PARs. Therefore, this study should be considered a limited scope study that addressed a specific JCM initiative. A second study is still planned for the future and is anticipated to include the involvement of all four RTOs/ISOs around Lake Erie.

~~This s~~Section I.B. of ~~this~~e Report was prepared by MISO, PJM and IESO. The NYISO does not join in this section of the Report.<sup>31</sup>

## **II. The Lake Erie ISOs and RTOs Agree That Implementing Buy-Through of Congestion is Premature at This Time**

The objective of the proposed Buy-Through of Congestion Broader Regional Market solution is to (a) identify the sources of loop flow caused by interregional transaction scheduling, (b) determine the costs incurred in supporting the loop flows by each impacted region, and (c) allocate the costs incurred by the off-contract path Balancing Authorities to the scheduling entity, or remove the associated schedules if the scheduling entity is not willing to pay the full cost of flowing its transaction(s). Implementing Buy-Through of Congestion will result in a more complete identification, and accurate assignment, of the costs to move power between regions, and will provide an economic alternative to the administrative/physical curtailment processes. Buy-Through of Congestion will allow the scheduling entity to decide whether or not it is willing to pay the congestion charges caused by its transaction's off-contract path flow impacts. If a scheduling party indicates it is not willing to pay congestion charges, its transaction will be removed if the off-contract path flow impacts add to congestion costs in an off-contract path ISO or RTO.

The Lake Erie ISOs and RTOs need time to understand how the collective set of market solutions discussed herein will affect Lake Erie loop flow and how the market solutions should account for the operation of all of the controllable devices around Lake Erie. The only way to understand the impact of these market solutions is to gain operational experience with the recently, and soon to be, implemented Broader Regional Market improvements and to study the resulting operational data. NYISO, PJM, MISO and IESO all agree that it is not necessary to begin to develop the proposed Buy-Through of Congestion Broader Regional Market solution at

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<sup>31</sup> The NYISO does not possess the necessary information and has not been given the opportunity to analyze and substantiate MISO's and IESO's claims. All of the Lake Erie ISOs and RTOs agree that it would be counter-productive for NYISO and PJM to address the operation of the Michigan/Ontario PARs in this [informational Report](#). On October 20, 2010, MISO and International Transmission Company d/b/a ITC~~Transmission~~ ("ITC") submitted a Federal Power Act Section 205 filing to the Commission, in Docket No. ER11-1844, to allocate a portion of the cost of ITC's Bunce Creek PARs (two of the five Michigan/Ontario PARs) to customers in New York and PJM. On December 20, 2011, the FERC Chief Administrative Law Judge set Docket No. ER11-1844 for hearing before an Administrative Law Judge. The presiding Administrative Law Judge issued a post hearing initial decision on December 18, 2012, *Midwest Indep. Transmission Sys. Operator, Inc.*, 141 FERC ¶ 63,021 (2012), which remains pending before the Commission. All of the hearing parties (including MISO, NYISO and PJM) are waiting for a Commission order on the Administrative Law Judge's initial decision.

this time. The Lake Erie ISOs and RTOs need more time to analyze the other recently, and soon to be, implemented programs before determining whether or not the Buy-Through of Congestion Broader Regional Market solution will provide sufficient additional benefits to merit its development and implementation.

### **III. Request for Waiver or Modification of Reporting Obligation**

The December 2010 Order imposed semiannual reporting obligations on the NYISO, in collaboration with its neighboring ISOs and RTOs, NERC and other market participants, commencing one year after the implementation of interface pricing reform and congestion management/market-to-market coordination.

“[O]ne year after the implementation of interface pricing reform and congestion management/market-to-market coordination, and every six months thereafter until the market initiatives are fully implemented, we require the NYISO, in collaboration with its neighboring RTO/ISOs, NERC and other market participants, to submit a report, as an information filing, addressing: (i) the effects of the reforms on reducing congestion that results from loop flows and the costs associated with mitigating congestion; (ii) the effects of the implementation of the enhanced interregional transaction coordination initiative; and (iii) recommendations and analyses as to whether the buy-through congestion proposal is required, and if so, when it should be implemented.”<sup>32</sup>

The ISOs and RTOs respectfully request that the Commission amend this informational filing obligation to require annual reports to the Commission. Postponing the next informational filing to March 20, 2015 will provide necessary time for the ISOs and RTOs to develop a more substantive update for the Commission than could be provided in September 2014. Certain initiatives described above (CTS, for example) will require the majority of 2014 to complete and, therefore, the status will not change significantly in the next six months. Also, an additional year of operating experience with the features that entered service in 2012-2013, and the features being implemented in 2014, will allow the ISOs and RTOs to better understand their impact before providing an update to the Commission.

### **IV. Communications and Correspondence**

All communications and service in this proceeding should be directed to:

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<sup>32</sup> *New York Independent System Operator, Inc.*, 133 FERC ¶ 61,276 at P 33 (2010) (original footnotes omitted).

Robert E. Fernandez, General Counsel  
Raymond Stalter, Director, Regulatory Affairs  
\*Alex M. Schnell, Registered Corporate Counsel  
\*James H. Sweeney, Attorney  
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## **V. Service**

The NYISO will send an electronic link to this filing to the official representative of each party to this proceeding, to the official representative of each of its customers, to each participant on its stakeholder committees, to the New York Public Service Commission, and to the New Jersey Board of Public Utilities. In addition, the complete filing will be posted on the NYISO's website at [www.nyiso.com](http://www.nyiso.com).

## **VI. Conclusion**

The NYISO respectfully requests that the Commission accept this Report as satisfying the requirements set forth in the Commission's December 2010 Order and accept the proposed annual reporting requirement that is proposed in Section III of this Report.

Respectfully submitted,

/s/ Alex M. Schnell

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