NEW YORK INDEPENDENT SYSTEM OPERATOR
Building the Energy Markets of Tomorrow ... Today℠

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August 16, 2010

ELECTRONICALLY SUBMITTED

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: New York Independent System Operator, Inc.'s Response to Questions and Supplemental Report on Broader Regional Markets; Long-Term Solutions to Lake Erie Loop Flow; Docket No. ER08-1281-___.

Dear Secretary Bose:

In accordance with ordering paragraph "B" of the Federal Energy Regulatory Commission's ("Commission's") July 15, 2010 *Order on Compliance Filing* in Docket No. ER08-1281-004 ("July Order"),[1] the New York Independent System Operator, Inc. ("NYISO"), hereby submits this *Response to Questions and Supplemental Report on Broader Regional Markets; Long-Term Solutions to Lake Erie Loop Flow* ("Response"). Ordering paragraph "B" of the July Order instructs the NYISO to respond to a series of seventeen questions posed by the Commission.

The text answers to the Commission's specific questions are set forth in Section III of this Response. The NYISO submits as electronic "attachments" to this filing letter the documents it is producing in response to the Commission's questions. In addition to responding to the Commission's questions, in Section II of this Response the NYISO provides a brief overview of the progress that has been made in developing the Broader Regional Market solutions since it filed its last formal report with the Commission on July 12, 2010.

The NYISO would like to take this opportunity to thank the participating ISOs and RTOs, their Boards of Directors[2] and their stakeholders for complying with both the letter and spirit of the Commission's encouragement that "all interested parties … pursue a constructive, workable consensus addressing these matters as expeditiously as possible."[3] The progress that has been achieved in the ongoing effort to develop a comprehensive set of market solutions would not be possible if entities like PJM Interconnection ("PJM"), the Midwest Independent Transmission System Operator, Inc. ("Midwest ISO") and Ontario Independent Electricity System Operator ("IESO") did not continue to shoulder a

[1] *New York Independent System Operator, Inc*., 132 FERC ¶ 61,031.

[2] The Boards of Directors of the various ISOs and RTOs have taken an active interest in ensuring the timely development of effective solutions to Lake Erie loop flow.

[3] July Order at P. 6.

significant share of the burden. The NYISO hopes and expects that the cooperative effort that has permitted the ISOs and RTOs to expeditiously develop the Broader Regional Market solutions that are described in this Report and detailed in the white papers that are attached hereto, will continue until all of the solutions described in this report have been fully implemented.

I. Documents Submitted

1. This Response;

2. *Preliminary Results of Analysis of the Broader Regional Markets Initiatives*, prepared by Dr. David Patton of Potomac Economics and dated April 21, 2010, a component of the NYISO's response to Question No. 2 ("Attachment A");

3. *Analysis of the Broader Regional Market Initiatives*, prepared by Dr. David Patton of Potomac Economics and dated June 2010, a component of the NYISO's response to Question No. 2 ("Attachment B");

4. *Long Term Solutions to Loop-Flow Concerns—Issue Background*, prepared by Robert Pike (NYISO) and dated December 16, 2008, a component of the NYISO's response to Question No. 10 ("Attachment C");

5. *Long Term Solutions to Loop-Flow Concerns—Contract Sink Pricing*, prepared by Robert Pike (NYISO) and dated February 6, 2009, a component of the NYISO's response to Question No. 10 ("Attachment D");

6. *Buy-Through of Congestion*, prepared by Robert Pike (NYISO) and dated July 8, 2009, a component of the NYISO's response to Question No. 10 ("Attachment E");

7. *Broader Regional Market—Interface Pricing Revisions*, prepared by Robert Pike (NYISO) and dated January 5, 2010, a component of the NYISO's response to Question No. 11 ("Attachment F");

8. *Broader Regional Market—Interface Pricing Revisions*, prepared by Robert Pike (NYISO) and dated April 12, 2010, a component of the NYISO's response to Question No. 11 ("Attachment G");

9. *Broader Regional Market—Interface Pricing Revisions*, prepared by Robert Pike (NYISO) and dated May 24, 2010, a component of the NYISO's response to Question No. 11 ("Attachment H"); and

10. *Broader Regional Market—Interface Pricing Revisions*, prepared by Robert Pike (NYISO) and dated June 2, 2010, a component of the NYISO's response to Question No. 11 ("Attachment I").

II. Summary of Proposed Broader Regional Market Solutions

A. Introduction

The NYISO, IESO, PJM and Midwest ISO have continued to work collaboratively to jointly develop the concepts proposed in the NYISO's January 12, 2010 report, including (i) Buy-Through Congestion, (ii) Market-to-Market Coordination, (iii) Interface Pricing Revisions, and (iv) Enhanced Interregional Transaction Coordination. The members of the inter-ISO/RTO design groups have expanded to capture the necessary expertise to address the complexity of the initiatives and produce the necessary additional design details. The groups have hosted weekly conference calls and two multi-day site visits dedicated to further refining the initiatives and addressing the complexities of their implementations. Each organization continues to provide regular status updates to their respective stakeholders on the progress being made.[4]

In addition, the NYISO engaged its Market Monitoring Unit, Potomac Economics, to prepare an analysis of the potential benefits to the collective markets that may be achieved through the implementation of these initiatives. Preliminary estimates were presented to the NYISO's Management Committee on April 21, 2010. The preliminary estimate is submitted as Attachment A to this Response. Potomac Economics subsequently completed its final estimate, which is submitted as Attachment B to this Response. The final analysis indicates a total potential regional annual benefit of over $362 million in fuel-adjusted production cost savings. Dr. Patton of Potomac Economics will present the findings at the upcoming Broader Regional Markets technical conference that PJM is hosting on September 27, 2010 in Philadelphia, Pennsylvania.

B. Interface Pricing Revisions

The NYISO has worked with its Market Participants to develop and receive approval for revisions to the LBMP calculation method. The new method will recognize the physical distribution of flow around Lake Erie (including parallel flows) when determining the impact that all resources, including internal generation and external interchange, have on transmission constraints. As explained in greater detail in response to the Commission's questions, the NYISO and its stakeholders propose to maintain the existing Commission approved path validation process preventing circuitous path scheduling until such time as the effectiveness of the physical and market solutions to loop flow have been demonstrated. The revised LBMP calculation method is designed to apply to the existing network configuration—without the availability of PARs to match actual power flows to schedules at the Ontario - Michigan border. The design was approved, in concept, by the NYISO Business Issues Committee on June 6, 2010[5] and is being

[4] PJM provides updates to its Markets and Reliability Committee, Midwest ISO provides updates to its Market Subcommittee, IESO provides updates to its Stakeholder Advisory Subcommittee, and the NYISO provides updates to its Business Issues Committee and/or to its Market Issues Working Group.

[5] *See* http://www.nyiso.com/public/webdocs/committees/bic/meeting_materials/2010-06-02/Agenda_09_BIC_Interface_Price_Revisions.pdf

incorporated into the NYISO's project implementation schedule. The NYISO currently estimates a Q3 2011 implementation timeframe.

The broader inter-ISO/RTO design group has discussed several possible methods of adjusting LBMP calculation methods if the PAR controls on the Ontario - Michigan border are implemented and determined to be effective at conforming actual power flows to schedules.

C. Regional PAR Coordination

As the NYISO explained in the January 12, 2010 Report, coordinated operation of the PARs in the four markets around Lake Erie can enhance the degree to which circulation flows are managed and avert instances where regional PARs could work at cross-purposes. To this end, a regional study was recently initiated to identify PARs and other controllable devices that are capable of influencing Lake Erie loop flows and to study the potential reliability and market impacts of better coordinated operation. This study will also identify significant regional paths or flowgates impacted by Lake Erie loop flows.

The four markets have agreed that the Midwest ISO will lead this regional effort. Each market has a representative participating in the study. A kick off meeting was held in August, 2010. A draft scoping document, to be refined by the regional team, includes the following steps:

- Identify the set of PARs, variable frequency transformers, series capacitors and other such devices that have the ability to alter flows around Lake Erie and should be included in the coordination process
- Identify the operating characteristics of each of device
- Identify how operations of the devices impact Lake Erie loop flow including:
    - the flowgates around Lake Erie that are impacted by each device
    - the appropriate method(s) of incorporating the operation of controllable devices into the Interchange Distribution Calculator
    - the appropriate method(s) of representing the operation of controllable devices in the markets around Lake Erie
- Develop a comprehensive operating guide among the four parties that coordinates the operation of the power control devices around Lake Erie.

D. Parallel Flow Visualization Tool

The Parallel Flow Visualization Tool is intended to provide improved visibility to the origins of transmission system power flows. The North American Electric Reliability Company ("NERC") Interchange Distribution Calculator Working Group ("IDCWG") has led the efforts to develop an improved Parallel Flow Visualization Tool to enhance the existing Interchange Distribution Calculator and has been coordinating with the industry and Open Access Technologies, Inc. ("OATi") to produce the necessary system requirement documentation and desired functionality.

All of the ISOs and RTOs are engaged in internal development efforts to meet the enhanced data reporting requirements needed to provide the Parallel Flow Visualization Tool with the necessary input data. The NYISO continues to support a schedule that will allow the Parallel Flow Visualization Tool to achieve its milestone and enter a parallel operations mode by the fourth Quarter of 2010. In addition to satisfying multiple NERC expectations, the results of the effort will be the fundamental determinant in the establishment of a broader Market-to-Market coordination effort among the ISOs and RTOs. The importance of the Parallel Flow Visualization Tool to the Broader Regional Market effort is addressed in the NYISO's responses to the Commissions questions.

To support the Parallel Flow Visualization Tool development effort, the ISOs and RTOs continue to work with the North American Electric Standards Board's ("NAESB") Business Practices Subcommittee to develop a standard for the reporting of the transmission service priorities for the elements of system flows. These priorities will be used in the NERC TLR process to determine curtailment priority. The Business Practices Subcommittee is currently working on an interim solution to facilitate a November 1, 2010 deadline for placing the Parallel Flow Visualization Tool into a parallel operations mode.

E. Buy-Through of Congestion

Buy-Through of Congestion recognizes the financial impacts created by parallel flows. The joint ISO/RTO design team has continued to work through the details of implementing the provisions of a BuyThrough of Congestion protocol and the impacts the protocol will have on NERC standards and Market Participant scheduling and settlement interactions. The ISOs and RTOs have scheduled a technical conference for September 27, 2010 in Philadelphia, Pennsylvania to review the proposal, as it currently stands, with stakeholders. The ISOs and RTOs anticipate that each ISO and RTO will then discuss the Buy-Through of Congestion proposal within their individual stakeholder processes.

Consistent with comments received from stakeholders, the ISOs and RTOs have determined that the Buy-Through of Congestion solution must be coordinated with the NERC Transmission Loading Relief ("TLR") protocol in order to be able to fully implement the needed rules and achieve desired efficiencies. In order to coordinate Buy-Through of Congestion with TLR, some changes to the existing TLR protocol may be necessary, including the ability to purchase an improved quality of transmission service—Buy-Through of Congestion service—for the parallel flow impact. The ISOs and RTOs reviewed the Buy-Through of Congestion concepts with the NERC Operating Reliability Subcommittee

("ORS") at their May 5-6, 2010 meeting[6] and were instructed by the group to work with the NERC IDCWG to "review the BTC concepts and estimate the IDC enhancements needed." The ISOs and RTOs anticipate engaging the IDCWG in these discussions after Market Participants have had an opportunity to review and weigh-in on the proposed design. Implementation of Buy-Through of Congestion will require tariff changes within each ISO or RTO, and potentially new joint operating agreements between the ISOs and RTOs.

F. Market-to-Market Coordination

Market-to-Market Coordination is intended to more cost effectively utilize the region's collective assets to address constraints across multiple systems, resulting in lower congestion costs to consumers, and provide a more consistent pricing profile across markets. The scope of this effort is to extend the benefits achieved through the existing PJM-Midwest ISO agreement to additional borders. This effort is dependent on the implementation of NERC's Parallel Flow Visualization Tool. Once the Parallel Flow Visualization Tool begins generating meaningful data it will become possible to perform an informed review of the relative impacts of parallel flows on neighboring ISO and RTOs systems. At that time, the ISOs and RTOs will resume discussions on the implementation and establishment of flowgate entitlements. Market-to-Market Coordination is discussed in greater detail in the NYISO's responses to the Commission's questions.

G. Ontario-Michigan PAR Instillation

A forty six day transmission line outage to allow for the installation of a communication link to support relaying and communication requirements associated with the PARs was recently completed. Installation of this communication link will support subsequent relay and operational testing required prior to energizing the PARs.

In addition to the testing tasks, the Midwest ISO is coordinating regulatory, modeling, pricing, and software tasks with ITC, IESO, NYISO and PJM. Completion of these tasks include gaining an understanding of how the PARs will be operated under several expected operational scenarios, and is required prior to placing the PARs in service.

It is anticipated that completion of the tasks necessary to permit ITC's PARs to enter service will occur during the fourth quarter of 2010.

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[6] *See* http://www.nerc.com/docs/oc/ors/ORS_Agenda_5-6May-10.pdf

H. Enhanced Interregional Transaction Coordination

The NYISO continues to work with its Market Participants to complete the Enhanced Interregional Transaction Coordination design details. Numerous discussions have occurred within the NYISO Stakeholder process to review the necessary market rule changes. Additionally, the NYISO has begun its process of preparing proposed updates to its Tariffs to accommodate the changes that will be necessary to implement Enhanced Interregional Transaction Coordination. The NYISO anticipates filing the proposed Tariff revisions in the fourth quarter of 2010.

The NYISO is working with both Hydro Quebec TransEnergie and PJM to develop appropriate operating procedures and address any reliability concerns. The NYISO and ISO-NE have also initiated discussions, with the objective of improving the efficiency of transaction scheduling at their shared border.

III. NYISO's Responses to the Commission's Broader Regional Market Questions

A. Buy-Through of Congestion

1. The NYISO Report provides a chart, at Attachment C, p. 52, showing how the different RTOs and ISOs will manage congestion cost exposure in the day-ahead market. Please provide a comparison of the NYISO's transaction modeling methodologies for intra-NYISO transactions and for transactions between the NYISO and its neighboring RTOs and ISOs.

Internal Bilateral Transactions: Transactions that source and sink in the New York Control Area ("NYCA") are called internal Bilateral Transactions. They are financial transactions that assign financial responsibility for the cost of congestion and losses between two locations to a particular Market Participant. These transactions do not create/modify any scheduling decisions or affect any modeled scheduled or actual power flows within the NYISO's Day Ahead or Real-Time Markets. Internal Bilateral Transactions are not considered in the economic scheduling evaluation, and are implemented without consideration of the cost of congestion and losses between the end-points.

External Transactions: External Transactions requested by Market Participants seek to flow power between the NYISO and one of its neighboring Control Areas. External transactions requests are used by the Day Ahead and Hour-Ahead Market tools to determine the scheduled flow between the NYISO and its neighbors based upon the economic bid or offer associated with the request and the prevailing system prices. Like Internal Bilateral Transactions, the cost of congestion and losses components of an Import Bilateral Transactions are financially binding, regardless of the economic scheduling outcome of the associated Energy transaction.

The only Real-Time scheduling decisions made regarding Transactions applies to non-firm transmission service, which indicates that the Market Party is not willing to pay congestion within the NYISO market

design. If congestion is encountered along the path of a non-firm transaction, real-time actions will be taken to remove (curtail) the transaction schedule.

One of the proposed Broader Regional Market enhancements that the NYISO and its neighboring Control Areas are working on is the evaluation and scheduling of interchange transactions as frequently as every five or fifteen minutes, instead of only once an hour. This enhancement will give Market Participants the ability to more effectively manage risk through the ability to self-curtail transactions on a more frequent basis, thereby reducing exposure to parallel path congestion charges. In addition, Market Participants will have the ability to schedule counter-flow on a more frequent basis in order to reap the financial benefits of relieving congestion.

Products are available within the NYISO marketplace to hedge potential congestion cost exposures associated with NYISO secured facilities. Transmission Congestion Contracts ("TCCs"),[7] provides the right to collect, or the obligation to pay, Congestion Rents in the Day-Ahead Market for Energy associated with transmission between a specified Point of Injection ("POI") and Point of Withdrawal ("POW"). TCCs are financial instruments that enable Energy buyers and sellers to hedge fluctuations in the price of transmission congestion. Virtual Transactions (Virtual Load and Virtual Supply) allow users to purchase Day-Ahead congestion hedges against real-time cost exposures at pre-defined NYISO LBMP locations. The NYISO intends to expand the locations and granularity at which Virtual Transactions will be offered in the future.

In addition to the currently available products to manage congestion cost exposure, the NYISO is evaluating the potential to offer a real-time congestion hedging product. This product is under consideration within the NYISO stakeholder budget development process to consider the desirability and feasibility of offering this new capability. A real-time congestion hedge would allow Market Participants to submit virtual Bids into the Day-Ahead Market based on the difference in congestion costs between any two points that are eligible for virtual trading. The difference in congestion costs between the two points would be purchased (or sold) in the Day-Ahead Market and then sold (or purchased) in the real-time market. This would improve the hedging options available to Market Participants once Buy-Through of Congestion has been implemented.

2. Please provide copies of all studies performed by, or for, the NYISO regarding the impact of the buy-through of congestion proposal within the NYISO and in its neighboring RTOs and ISOs.

Submitted with the NYISO's filing as Attachments A and B are a pair of analyses summarizing the potential market efficiency benefits to be achieved through the implementation of the Broader Regional Market initiatives, prepared by David Patton, Ph. D., of Potomac Economics. The first analysis dated

[7] Capitalized terms that are not defined in these responses have the meaning ascribed to them in the NYISO's Market Administration and Control Area Services Tariff.

April 21, 2010 contains the preliminary results determined by Dr. Patton. It was presented to the NYISO's Management Committee. The second analysis, dated June 2010, incorporates Dr. Patton's final updated results. It will be presented at the joint stakeholder technical conference that PJM Interconnection ("PJM") is hosting at the Loews Hotel in Philadelphia on September 27, 2010.

The NYISO is also working with Potomac Economics to assess the impact to the economic viability and risk exposure of historic IESO-MISO-PJM transactions with the application of a NYISO Buy-Through of Congestion charge. The proposed charge will provide a greater level of security for External Transactions that have parallel flow impacts than is currently afforded External Transactions under the existing Transmission Loading Relief methodology.[8] The NYISO intends to have the analysis complete and available for discussion at the joint stakeholder technical conference on September 27, 2010, and will provide a copy of that analysis to the Commission at that time.

3. The NYISO Report states, at Attachment A, p. 18, that "[a]ctual experience has not shown the need for an up-to congestion product to be necessary if there is adequate real-time price transparency around price differences." With respect to this statement, please explain: (i) the experience the NYISO has had, to date, with buy-through of congestion; (ii) why an "up-to" component is undesirable; and (iii) whether the NYISO would support the adoption of an "up to" approach for the buy through of congestion (and if not, why not), assuming the majority of stakeholders in the NYISO's neighboring RTOs and ISOs favor such an approach.

(i) NYISO's experience with buy-through of congestion to-date;

For Import, Export and Wheel-Through transactions, NYISO Market Participants may chose to request Firm Transmission Service or Non-Firm Transmission Service from or to the NYCA border(s). The designation of "Firm" indicates that the Market Participant is willing to pay for some quantity of congestion within the NYCA, while a "Non-Firm" designation indicates that a Market Participant is not willing to pay any congestion-related costs in order to get its External Transaction scheduled. If scheduled, a Non-Firm transaction will be curtailed in-hour should (any) congestion occur. A Non-Firm transaction is the only type of transaction that the NYISO curtails in-hour based on economics. Market Participants rarely submit Non-Firm transaction bids and offers because congestion is common on the NYISO system, so Non-Firm transactions are rarely scheduled.

In the Day-Ahead and Real-Time Markets, Market Participants can specify maximum and minimum source and sink prices in their External Transaction bids and offers. In the Day-Ahead Market, transactions are selected and settled based on these bids and offers. In the Real-Time Market, bids and offers are selected based on the hour-ahead evaluation, but are settled at real-time prices that may differ from the results of the evaluation that scheduled an External Transaction.

[8] *See* North American Energy Standards Board ("NAESB") WEQ-008-2.3.

The only form of "up-to" bidding available in the NYISO is for Wheels-Through transactions, which may specify in their bid the level of congestion charges they are willing to be exposed to. An evaluation of Wheel-Through bids based on expected system conditions occurs in the NYISO's Day-Ahead and hourahead markets. Wheels-Through are scheduled based on these evaluations. Once a Wheel-Through has been scheduled, the scheduling party is financially responsible for any change in real-time system conditions that affect the congestion costs assessed to the Wheel-Through transaction.

(ii) why an "up-to" component is undesirable;

The NYISO agrees with the comments that Potomac Economics submitted on February 2, 2010**.** Forecasting congestion for a subsequent hour is subject to considerable uncertainty. Such forecasts are likely not sufficiently accurate to support "up-to" bidding at this time because the ISOs and RTOs will not be able to instantaneously remove these transactions when an up-to congestion bid is exceeded in a parallel path control area. If the ISOs and RTOs hold some scheduling Market Participants harmless to their up-to bids, then unexpected events that create market volatility could lead to substantial uplift costs when actual congestion costs exceeded the "up-to" bids of transactions, since it is not possible to immediately evaluate and remove the uneconomic transactions.[9] Effectively, using an "up-to" component would move the risk from the entity that scheduled an External Transaction to the entities that are responsible for covering uplift in each market (which are primarily load serving entities in New York). Entities that did not participate in the decision to schedule an External Transaction would be made financially responsible for insulating the scheduling Market Participant from the market risk associated with its External Transaction. The NYISO believes that the better choice is to place the risk on the entity that is scheduling an external transaction that has potential parallel path impacts.

Currently, none of the ISOs or RTOs around Lake Erie offer an "up to" product for real-time interchange transactions. A Market participant may make a real-time decision as to its willingness to pay, or not to pay, for congestion within a market area for a transaction in the NYISO and PJM markets. In the NYISO, transactions that are not willing to pay real-time congestion must be designated as Non-Firm. It is not possible to specify an "up to" bid outside the transaction scheduling horizon.

The NYISO is developing the ability to schedule External Transactions on a more frequent basis than the current hourly schedules. This will give Market Participants the ability to more effectively manage risk through the ability to self-curtail transactions on a more frequent basis, thereby reducing exposure to parallel path congestion charges. In addition, Market Participants will have the ability to schedule counter-flow on a more frequent basis in order to reap the financial benefits of relieving congestion.

[9] Under ideal circumstances, it can take from 15 to 30 minutes to remove a transaction using current NERC TLR procedures. Substantial congestion and resulting uplift can occur during this period of time.

(iii) whether the NYISO would support the adoption of an "up to" approach for the buy through of congestion (and if not, why not), assuming the majority of stakeholders in the NYISO's neighboring RTOs and ISOs favor such an approach.

The NYISO does not support the adoption of an "up to" approach for Buy-Through of Congestion because, as explained above, adopting "up to" will transfer market risk from the entities scheduling External Transactions to the entities in the markets around Lake Erie that are responsible for covering uplift, including load serving entities in New York State.

B. Congestion Management/Market-to-Market Coordination

4. The NYISO Report states, at Attachment A, pp. 34-45, that firm flow entitlements will be based on expected usage and the location of flowgate capacity. With respect to this statement, please describe: (i) how the initial flow entitlements will be determined; (ii) whether the initial determination will be used in the settlement process; and (iii) what, if any, alternative methods the NYISO has considered for establishing the initial flow entitlements.

The initial focus of the Market-to-Market Coordination expansion was to develop a protocol between the NYISO and PJM, based upon the existing PJM and Midwest Independent Transmission System Operator, Inc. ("Midwest ISO") joint operating agreement. As such, the previous conversations on this topic have been between NYISO and PJM, and focused on a new two party arrangement. More recently, discussions regarding the potential to expand the protocol to include Midwest ISO have occurred; including whether to develop a pair of bilateral agreements, or to draft a three-party arrangement. For purposes of responding to this question from the Commission, the NYISO recaps the discussions that have previously occurred with PJM.

The NYISO and PJM are in the process of determining how the initial flow entitlements for the reciprocal coordinated flowgates will be established. In order to evaluate the appropriateness of the methods that are under consideration, a representative sample of historical flow impacts must be assembled to test each method and consider the impacts of choosing a particular method. The NYISO and PJM have spent considerable time discussing and understanding the method that is employed to perform the flow impact calculations utilized in the PJM and Midwest ISO market-to-market coordination protocol. Because similar tools to perform the necessary calculations did not exist within the NYISO infrastructure, both PJM and the NYISO agreed to leverage the North American Electric Reliability Company ("NERC") Parallel Flow Visualization initiative, rather than incur the cost of developing new, potentially redundant, NYISO or PJM-specific applications. The Parallel Flow Visualization Tool, which is being developed under NERC's oversight, is expected to provide not only the necessary flow impact data, but also to offer a single, common, transparent, auditable and archived method of supporting the implementation of Market-to-Market Coordination. Past experience has demonstrated the complexities associated with the

market-to-market solution implementation, and both parties agreed this open architecture solution provided a beneficial outcome.

At this time, the NYISO anticipates that the settlement protocol employed within the PJM/Midwest ISO market-to-market coordination protocol would be largely maintained. Under this protocol, an ISO or RTO's actual real-time flow impacts on a neighboring system, relative to that ISO or RTO's entitlement to that system, will prescribe the amount and direction of the financial settlement between the parties. The NYISO prefers the determinants of the settlements to be driven by the Parallel Flow Visualization calculation for the reasons noted above (reciprocal, transparent, auditable, etc.). Validation and verification of the applicability of the Parallel Flow Visualization Tool calculations and processes to the purpose that NYISO and PJM propose are necessary prerequisites to implementing Market-to-Market Coordination.

In addition to historical flow driven entitlements, the NYISO and PJM have also discussed (i) day-ahead schedule defined flow impacts, (ii) real-time actual flow defined flow impacts, and (iii) pre-defined bandwidths of allowable flow impacts. It is the NYISO's and PJM's intention to evaluate the potential methods using a representative data sample, and to move forward with the joint agreement including defining flow entitlements.

5. The NYISO Report states, at p. 10 and Attachment A, p. 28, that the proposed congestion management/market-to-market coordination solution is similar to the initiative developed by PJM and the Midwest ISO. With respect to this statement, please explain the differences between the NYISO's proposal and the market-to-market coordination program used by PJM and Midwest ISO. Include a discussion of how each program does (or will) affect the need, frequency and/or magnitude of transmission loading relief (TLR) events.

The NYISO has identified three areas in which a NYISO/PJM implementation may deviate from the existing solution between PJM and the Midwest ISO. These include: (i) establishment of firm flow entitlements, (ii) source data for settlement determinants, and (iii) congestion cost price intervals. The efforts to develop entitlements and selection of a data source for settlements are described more fully in our response to question 4 above. With respect to congestion cost pricing intervals, all congestion cost settlements within the NYISO marketplace are performed on an interval level basis (nominally five-minutes), based upon the MWh and LBMP for the interval; whereas, within PJM and MISO the settlements are performed on an hourly basis based upon the total MWh and the average LBMP for the hour.

The NYISO has not completed internal software requirement and design documentation to achieve implementation of a market-to-market coordination solution. As the NYISO does so in the course of implementing the anticipated operating protocol, additional areas of difference may be identified and may need to be addressed.

The proposed congestion management/Market-to-Market Coordination programs may reduce the need, frequency and/or magnitude of transmission loading relief ("TLR") events to the extent that the reliability concerns are exacerbated by parallel flows from generation-to-load dispatches, and additional resources are available in the neighboring control area that can be utilized to effectively mitigate the reliability concern. Market-to-Market Coordination provides access to a larger pool of resources to effectuate redispatch to respond to reliability concerns. To the extent re-dispatch alleviates the need to request a TLR event to address the identified reliability concern, an economic solution to the reliability concern will replace a less efficient administrative solution.

6. Please explain to what extent the market-to-market coordination program used by PJM and the Midwest ISO is enhanced by: (i) the buy through of congestion programs (indicating whether these programs allow "up-to" bidding); and (ii) PARs coordination.

The market-to-market coordination program utilized by PJM and Midwest ISO is designed to address parallel flow impacts associated with internal generation dispatch necessary to meet a Control Area's own load. It explicitly excludes parallel flow impacts caused by External Transactions from the associated settlement rules. Buy-Through of Congestion compliments Market-to-Market Coordination by focusing on the parallel flow impacts associated directly with External Transactions. The net effect of the two solutions is to address multiple sources of parallel flow impacts by either providing the necessary cost recovery associated with supporting the parallel flows, or the ability to adjust the sources of such flows to reduce their impacts.

Under the current PJM and Midwest ISO scheduling protocols, the effect of market-to-market coordination on PJM and Midwest ISO proxy bus prices must be included in the forecast of expected price outcomes performed as part of a trader's decision to request an External Transaction schedule. If the pricing outcomes observed in real-time differ from the expected prices in a detrimental way, the traders must manually remove the transaction request pursuant to the ISO or RTO's scheduling protocols. The Buy-Through of Congestion service without an "up-to" bidding option will, similarly, require traders to forecast parallel path cost exposure as part of a traders decision to request a schedule and, similarly, can be manually removed pursuant to the same ISO or RTO scheduling practices if the observed real-time conditions differ from forecast conditions.

Traders that do not elect to purchase service that covers their parallel flow impacts can continue to operate as they do today. These traders will remain subject to same TLR obligations they are subject to today. Neither PJM nor Midwest ISO currently support any "up-to" congestion scheduling services for their realtime contract path transaction scheduling decisions. Economic viability of transaction schedules and/or congestion cost hedging opportunities must be considered by traders when entering into a transmission service arrangement. This scheduling practice appropriately places the risk of economic viability on the trader that schedules an External Transaction, rather than transferring the exposure to parties that had no involvement in the decision to schedule the transaction.

The ability of phase angle regulators to reduce and, in some hours, eliminate parallel flows will reduce the need for the activation of the Market-to-Market Coordination program. To the extent that PAR coordination enhances the ability to control parallel flows, it will further alleviate the need for protocols to address the impacts from those parallel flows. Alternatively, to the extent that phase angle regulators cannot be adjusted to align actual flow conditions with schedule criteria, regardless of the cause of the limitation, Market-to-Market Coordination and Buy-Through of Congestion can be effectively utilized to manage the resulting parallel flows and to permit appropriate cost recovery.

7. The NYISO Report projects, at p. 19, that the implementation of a market-to-market coordination program by the NYISO, PJM, and the Midwest ISO will take place by the third quarter of 2011 and will be implemented in additional regions by 2012. With respect to this projection, please identify and discuss any potential impediments faced by the NYISO in meeting these projected target dates.

The largest impediment the NYISO faces in meeting the third quarter 2011 date for implementation of Market-to-Market Coordination with PJM is the finalization and acceptance of the Parallel Flow Visualization Tool. The adaptation of this tool is needed for two key aspects of Market-to-Market Coordination. First, real-time conditions that drive the results of this tool will be utilized in assessing PJM and the NYISO's relative impacts on each other's systems. This information is necessary to establish appropriate firm flow entitlements. The NYISO has no convenient ability to analyze historic or current system usage from which to derive an appropriate level of entitlements. The NYISO supports the development of a common, standardized Parallel Flow Visualization Tool over the alternative of developing and implementing a NYISO-specific stand alone tool to assess potential levels of firm flow entitlements. Perhaps more important, the Parallel Flow Visualization Tool will become the common, "single-source" application used by PJM and NYISO to monitor market flow impacts and relief for the Market-to-Market Coordination program. The NYISO sees significant value in having all participating Control Areas use the same tool to measure parallel path flow impacts. Using a single, common tool should avoid the potential for participating Control Areas to calculate different results.

The current schedule for the Parallel Flow Visualization Tool indicates that it may not complete the testing phase by Q3 2011. The establishment of entitlements, and the NYISO's and PJM's ability to implement Market-to-Market Coordination, is firmly tied to the successful development of the Parallel Flow Visualization Tool.

8. Please provide copies of all studies performed by, or for, the NYISO regarding the impact of the congestion management/market-to-market coordination proposal within the NYISO and in its neighboring RTOs and ISOs.

Please see the analyses prepared by Dr. David Patton of Potomac Economics that are included with the NYISO's submission, and that are described in the NYISO's response to Question 2.

C. Interface Pricing Revisions

9. Please describe whether and how the interface pricing revisions will address the economic incentives that lead to the scheduling of the now prohibited Paths 1 and 5, or any other paths that might result in increased loop flow.

Interface pricing revisions are being pursued to provide regional consistency in the recognition of power flows around Lake Erie based upon the network characteristics. The proposed interface pricing revisions may reduce, but will not eliminate the economic incentives that lead to the scheduling of transactions over the now prohibited Paths 1 and 5 (or any other circuitous scheduling path). When power flows and schedules are not aligned, the interface pricing methods employed by the ISOs and RTOs around Lake Erie can provide inappropriate incentives to schedule circuitous transactions.

It is not appropriate to permit the scheduling of External Transactions via circuitous paths unless and until it is possible to conform schedules to actual power flows. Absent the expectation that actual power flows will be reasonably closely aligned with schedules, the scheduling of External Transactions via circuitous scheduling paths will result in significant levels of Lake Erie loop flow, regardless of the interface pricing scheme that is employed.

Path prohibitions provide a more rigorous limitation on inappropriate scheduling action than economic incentives. The NYISO evaluated alternative settlement methods[10] and concluded that maintaining the existing path validations is the more robust solution.

Significant unscheduled Lake Erie loop power flows are undesirable to all of the Control Areas that surround Lake Erie because unscheduled Lake Erie power flows can aggravate transmission constraints, result in inappropriate costs to consumers, or raise reliability concerns in any/all of the Control Areas that surround Lake Erie.

10. Please provide copies of all studies performed by, or for, the NYISO regarding the impact of the interface pricing revisions proposed by the NYISO and in its neighboring RTOs and ISOs.

In addition to the analyses provided by Dr. David Patton of Potomac Economics, which are described in the NYISO's response to Question 2, above, the following three presentations, are included with the NYISO's submission:

[10] *See* February 6, 2009 presentation titled "*Long Term Solutions to Loop Flow Concerns—Contract Sink Pricing*" and December 16, 2008 presentation titled "*Long Term Solutions to Loop Flow Concerns—Issue Background*." Both studies are provided in response to Question 10.

a. December 16, 2008 presentation by Robert Pike to the Market Issues Working Group titled *Long Term Solutions to Loop-Flow Concerns—Issue Background*. Submitted as Attachment C to this Response;

b. February 6, 2009 presentation by Robert Pike to the Market Issues Working Group titled *Long Term Solutions to Loop-Flow Concerns—Contract Sink Pricing*. Submitted as Attachment D to this Response; and

c. July 8, 2009 presentation by Robert Pike to the Market Issues Working Group titled *Buy-Through of Congestion*. Submitted as Attachment E to this Response.

In addition, please see the documents provided in the NYISO's response to Question 11.

11. Please provide copies of all studies performed by, or for, the NYISO that: (i) describe the current interface proxy price determination methodology and any adjustments; (ii) explain how the interface proxy price methodology will reflect the state of control of PARs (including how PAR controllability affects proxy price assumptions for day-ahead and hour-ahead markets); (iii) list the additional locations evaluated and selected for proxy price determination; and (iv) explain why the NYISO's proposed interface proxy price determination methodology changes based on scheduled and unscheduled flows.

In addition to the documents provided in support of the NYISO's responses to Questions 2 and 10, the following four presentations are provided in response to this request.

a. January 5, 2010 presentation by Robert Pike to the Business Issues Committee titled *Broader Regional Market—Interface Pricing Revisions*. Submitted as Attachment F to this Response;

b. April 12, 2010 presentation by Robert Pike to the Market Issues Working Group titled *Broader Regional Market—Interface Pricing Revisions*. Submitted as Attachment G to this Response;

c. May 24, 2010 presentation by Robert Pike to the Market Issues Working Group titled *Broader Regional Market—Interface Pricing Revisions*. Submitted as Attachment H to this Response; and

d. June 2, 2010 presentation by Robert Pike to the Business Issues Committee titled *Broader Regional Market—Interface Pricing Revisions*. Submitted as Attachment I to this Response.

D. Implementation and Operation of PARs

12. Please provide all studies performed by, or for, the NYISO which show how the operation of the Michigan-Ontario PARs: (i) will affect scheduling on transmission systems of the NYISO and its neighboring RTOs and ISOs; (ii) impact settlements administered by the NYISO; and (iii) will financially impact NYISO members.

The NYISO has not performed studies on the actual operation of the Michigan-Ontario PARs. However, the NYISO expects that the Michigan-Ontario PARs would be operated in order to conform the actual IESO-MISO interchange with the scheduled IESO-MISO interchange. If the Michigan-Ontario PARs are not operated to conform actual flows to scheduled flows, the NYISO will continue to be subject to unscheduled flow impacts and would expect minimal, if any, changes to the scheduling or settlement of the NY transmission system. NYISO would expect to continue to rely on the TLR protocol to address the unscheduled flow impacts on the NYISO transmission system if no other cost recovery mechanisms are available, such as Buy-Through of Congestion. In the absence of these alternatives, New York load serving entities would be primarily responsible for the costs associated with managing the unscheduled power flows on the New York transmission system.

If the Michigan-Ontario PARs are operated to conform actual flows to scheduled flows at the Ontario-Michigan border, the NYISO expects that Generation-to-Load and Interchange impacts from its western neighbors on the New York transmission system would be greatly diminished, thereby leaving more of the New York transmission system available for scheduling by the NYISO. If more of the New York transmission system is available for scheduling on a real-time basis, it is expected that real-time re-dispatch costs would be reduced. The other Control Areas around Lake Erie would be expected to benefit in a similar manner.

13. Please specify the PAR settings for all existing PARs that can affect circuitous flows around Lake Erie (e.g., Ramapo) for both before and after the Michigan-Ontario PARs are placed into service. Provide all studies which examine the effects of the existing and proposed PARs on circuitous flows around Lake Erie.

Only six of the twenty-six AC interconnection facilities between the PJM and NYISO are controlled by phase angle regulators ("PARs"). Five of the six PAR controlled interconnections are used to effectuate the Operating Protocol for the Implementation of Commission Order No. 476. This Operating Protocol, set forth in Attachment M-1 of the NYISO Market Services tariff, establishes procedures for the planning, operation, control, and scheduling of energy by the NYISO, PJM, Consolidated Edison Company of New York ("ConEd") and Public Service Electric and Gas Company ("PSE&G") pursuant to contracts dated May 22, 1975 (as amended May 9, 1978) and May 8, 1978 between ConEd and PSE&G.

The sixth and remaining PAR controlled interconnection is the Branchburg-Ramapo facility. This facility is primarily used to facilitate the delivery of energy over the AC interconnections between PJM and the

NYISO as determined by the level of economic interchange schedules of Market Participant External Transactions.

The settings for the six AC interconnection facilities between the PJM and NYISO that are controlled by PARs are not dependent on whether the Michigan-Ontario PARs are placed into service.

The NYISO is not aware of any studies that demonstrate that the settings of the PJM-NYISO PARs are a source of loop flows around Lake Erie. A Regional PAR Coordination Study is underway to investigate the impacts of all inter-regional PAR operations, including the PJM-NYISO PAR controlled interconnections. This study was described on page 14 of the January 12, 2010 *Report on Broader Regional Markets; Long-Term Solutions to Lake Erie Loop Flow*.

E. Scheduling Issues

14. The Commission's August 21, 2008 and November 17, 2008 Orders accepted tariff sheets which preclude the scheduling of flows over eight transmission paths. Please explain whether the adoption of the initiatives present in the NYISO Report negates the need for the restriction on scheduling over those eight transmission paths.

The NYISO does not believe it is appropriate to permit the scheduling of External Transactions via circuitous paths unless and until it is possible to conform schedules to actual power flows. Absent the expectation that actual power flows will be reasonably closely aligned with schedules, the scheduling of External Transactions via circuitous scheduling paths is not appropriate under any pricing regime. The best and most obvious opportunity to implement operational controls to better align actual power flows with contract path energy transaction scheduling is the commissioning and operation of the Ontario-Michigan PARs to align power flows with interchange schedules between Michigan and Ontario. This opportunity is clearly identified in the NERC 2007 Long Term Reliability Assessment and in the PJM and MISO Investigation of Loop Flows Across Combined Midwest ISO and PJM Footprints.[11]

15. Explain how the combined proposals identified in your filing contribute to the management of unscheduled flows in the NYISO and neighboring RTOs and ISOs.

A long-term solutions to unscheduled flow can best be achieved by the collective implementation of all of the proposed initiatives. Individually, each initiative only addresses a component of the unscheduled loop flow problem, and provides only a subset of the available benefits in terms of improved market efficiency. Implemented as a group, the proposed solutions are expected to produce far greater benefits by providing economic alternatives to address regional impacts resulting from unscheduled flows.

[11] *See* page 27 of the NYISO's July 21, 2008 *Exigent Circumstances Filing Requesting Authority to Amend its Tariffs to Preclude the Scheduling of Certain External Transactions*.

Buy-Through of Congestion addresses the scheduling of external transactions, but does not address the impact that scheduling a particular mix of generation to serve Balancing Authority load may have on a neighboring market. Market-to-Market Coordination addresses the impact from unscheduled flows caused by neighboring areas generation dispatch. Enhanced Interregional Transaction Coordination allows for more frequent region-to-region interchange adjustments which will improve the efficacy and responsiveness of the markets to react to changes in system conditions of the effects of either the Buy-Through of Congestion charges or the Market-to-Market Coordination price impacts. Together, the package of proposed solutions offer economic alternatives that will permit the ISOs and RTOs around Lake Erie to identify and utilize the lowest overall cost solution to resolve system constraints. The combined capabilities of the proposed solutions compliment each other and offer the potential to reduce uplift costs associated with real-time event management and congestion management, to improve the capability to incorporate intermittent resources, and to lower total system operating costs.

To illustrate the benefits of the collective Broader Regional Market solutions to loop flow, please consider the following hypothetical example:

> A New York flowgate is congested, with 300MW of unscheduled loop flow contributing to the congestion on the flowgate. 150MW of the unscheduled loop flow can be attributed to interchange scheduling between IESO and the Midwest ISO (IESO-MISO interchange impacts). The remaining 150MW of unscheduled flow can be attributed to the central dispatch of PJM generators (PJM generation-to-load impacts).
>
> Using Market-to-Market Coordination, the NYISO could request that PJM re-dispatch to eliminate the 150MW of PJM generation-to-load impacts on the New York flowgate. However, this would only address half of the identified loop flow related congestion. Market to Market Coordination does not affect interchange scheduling between ISO/RTOs, so the 150MW of IESO-MISO interchange impacts would not be addressed by PJM's redispatch.
>
> With Buy-Through of Congestion, IESO-MISO interchange transactions would have the ability to elect to buy-through New York congestion. If the transactions elected to buy-through the NYISO would recover the redispatch costs it incurred to support the IESO-MISO interchange transactions. The NYISO would use the NERC TLR protocol to remove any IESO-MISO interchange transactions that had the requisite impact, but did not opt to buy-through the New York congestion.
>
> Finally, Enhanced Interregional Transaction Coordination offers the ability for transactions to be economically scheduled more frequently than once per hour. With Enhanced Interregional Transaction Coordination, the NYISO would be able to rely on a broader resource base to manage the constrained New York flowgate congestion. It might prove more economically efficient to modify External Transaction schedules intra-hour than to re-dispatch New York generation to solve the constraint.

As can be seen in the example above, the collective market solutions offer significant additional flexibility for dealing with loop flow impacts on a congested flowgate. The proposed Broader Regional Market solutions also provide the proper economic incentives for market participants to make informed trade decisions and may reduce the overall system production cost by increasing the set of resources available for managing flowgate congestion.

F. Loop Flows Created Outside the NYISO

16. Describe the tariff mechanisms or other procedures that address loop flows caused by transactions between entities located outside of the NYISO.

The NYISO currently employs the NERC TLR procedure to mitigate the reliability impact of loop flows caused by External Transactions that are scheduled using non-firm transmission service. The parallel path flow impacts of these transactions can cause additional congestion costs in the NYISO's Day-Ahead and Real-Time Markets.

In addition, NYISO procedures require that estimates of Lake Erie loop flow be included in its Day-Ahead and Real-Time markets to account for expected levels of unscheduled flow impacts on New York State transmission constraints. This is appropriate both from a reliability perspective, and to ensure that the NYISO's economic dispatch accounts for a known system impact.

17. In a report issued by PJM and made available on its website (at *www.pjm.com/~/media/committees-groups/committees/mic/20090910/20090910-item-07-m2m-calculation-error.ashx*), PJM states that it implemented corrections for daily production calculations in its congestion management models on June 18, 2009. PJM states that it did so because several generation units were not updated through time in the model. Please describe how this updated model has affected loop flows in the NYISO.

The NYISO has not observed any change to loop flows through New York based on PJM's updating of its congestion management models on June 18, 2009.

IV. Communications

Communications and correspondence regarding this Report should be directed to:

Rana Mukerji, Senior Vice President of Market Structures
Robert E. Fernandez, General Counsel
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V. Service

The NYISO will send an electronic link to this Response to every party included on the Secretary's official service list in Docket Nos. ER08-1281, 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 electric utility regulatory agency of New Jersey. In addition, the complete filing will be posted on the NYISO's website at www.nyiso.com.

VI. Conclusion

The NYISO respectfully requests that the Commission accept this Response as satisfying the requirements of the Commission's July Order.

Respectfully submitted,

/s/ *Alex M. Schnell*

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Robert Pike, Director of Market Design
Alex M. Schnell
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August 16, 2010

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service lists compiled by the Secretary in this proceeding in accordance with the requirements of Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. § 385.2010.

Dated at Rensselaer, New York this 16th day of August, 2010.

/s/ Alex M. Schnell

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Attachment A

Preliminary Results of Analysis of the Broader Regional Markets Initiatives

Prepared by: Dr. David Patton, Potomac Economics

Dated: April 21, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment B

Analysis of the Broader Regional Market Initiatives

Prepared by: Dr. David Patton, Potomac Economics

Dated: June, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment C

Long Term Solutions to Loop-Flow Concerns—Issue Background

Prepared by: Robert Pike, NYISO

Dated: December 16, 2008

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment D

Long Term Solutions to Loop Flow Concerns—Contract Sink Pricing

Prepared by: Robert Pike, NYISO

Dated: February 6, 2009

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment E

Buy-Through of Congestion

Prepared by: Robert Pike, NYISO

Dated: July 8, 2009

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment F

Broader Regional Market—Interface Pricing Revisions

Prepared by: Robert Pike, NYISO

Dated: January 5, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment G

Broader Regional Market—Interface Pricing Revisions

Prepared by: Robert Pike, NYISO

Dated: April 12, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment H

Broader Regional Market—Interface Pricing Revisions

Prepared by: Robert Pike, NYISO

Dated: May 24, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]

Attachment I

Broader Regional Market—Interface Pricing Revisions

Prepared by: Robert Pike, NYISO

Dated: June 2, 2010

[Due to the size of the files associated with some of the Attachments, each Attachment is being individually submitted to the Commission.]