Attachment II

35.2 Abbreviations, Acronyms, Definitions and Rules of Construction

In this Agreement, the following words and terms shall have the meanings (such meanings to be equally applicable to both the singular and plural forms) ascribed to them in this Section 35.2. Any undefined, capitalized terms used in this Agreement shall have the meaning given under industry custom and, where applicable, in accordance with Good Utility Practices or the meaning given to those terms in the tariffs of PJM and NYISO on file at FERC.

Schedule C to this Agreement contains the Operating Protocol for the Implementation of Con Ed – PJM Transmission Service Agreements. Schedule C was accepted by FERC as a multi-party settlement to a long-running dispute. To the extent Schedule C contains definitions that differ from those set forth below (see, e.g., Appendix 8 to Schedule C), the definitions contained in Schedule C shall supersede the definitions set forth below, for purposes of interpreting Schedule C (including all of the appendices thereto), but shall not be used to interpret any other part of this Agreement.

35.2.1 Abbreviations, Acronyms and Definitions

"AC" shall mean alternating current.

"Affected Party" shall mean the electric system of the Party other than the Party to which a request for interconnection or long-term firm delivery service is made and that may be affected by the proposed service.

"Agreement" shall mean this document, as amended from time to time, including all attachments, appendices, and schedules.

"Area Control Error" or **"ACE" shall** mean the instantaneous difference between a Balancing Authority's net actual and scheduled interchange, taking into account the effects of Frequency Bias and correction for meter error.

"Available Flowgate Capability" or **"AFC"** shall mean the rating of the applicable Flowgate less the projected loading across the applicable Flowgate less TRM and CBM. The firm AFC is calculated with only the appropriate Firm Transmission Service reservations (or interchange

schedules) in the model, including recognition of all roll-over Transmission Service rights. Non-firm AFC is determined with appropriate firm and non-firm reservations (or interchange schedules) modeled.

"Available ABC PAR," **"Available Ramapo PAR"** or **"Available Waldwick PAR"** shall mean, for purposes of Section 8.3.1 of Schedule D to this Agreement, an ABC, Waldwick or Ramapo PAR, respectively, that is not subject to any of the following circumstances:

(1) a PAR that is not operational and is unable to be moved;

(2) a PAR that is technically "in-service" but is being operated in an outage configuration and is only capable of feeding radial load;

(3) a PAR that is tapped-out in a particular direction is not available in the tapped-out direction;

(4) if the maximum of 400 taps/PAR/month is exceeded at an ABC or a Waldwick PAR, and the relevant asset owner restricts the RTOs from taking further taps on the affected PAR, then the affected PAR shall not be available until NYISO and PJM agree to and implement an increased bandwidth in accordance with Appendix 5 of Schedule C to this Agreement;

(5) PJM is permitted to reserve up to three taps at each end of the PAR tap range of each Waldwick PAR to secure the facilities on a post contingency basis, a Waldwick PAR shall not be considered available if a tap move would require the use of a reserved PAR tap; or

(6) NYISO is permitted to reserve up to two taps at each end of the tap range of each ABC and Ramapo PAR to secure the facilities on a post contingency basis, an ABC or Ramapo PAR shall not be considered available if a tap move would require the use of a reserved PAR tap.

PJM or NYISO may choose to use PAR taps they are permitted to reserve to perform M2M coordination, but they are not required to do so.

"Available Transfer Capability" or **"ATC"** shall mean a measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses.

"Balancing Authority" or **"BA"** shall mean the responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports interconnection frequency in real-time.

"Balancing Authority Area" or **"BAA"** shall mean the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area..

"Bulk Electric System" shall have the meaning provided for in the NERC Glossary of Terms used in Reliability Standards, as it may be amended, supplemented, or restated from time to time.

"Capacity Benefit Margin" or **"CBM"** shall mean the amount of firm transmission transfer capability preserved by the transmission provider for Load-Serving Entities ("LSEs"), whose loads are located on that Transmission Service Provider's system, to enable access by the LSEs to generation from interconnected systems to meet generation reliability requirements. Preservation of CBM for an LSE allows that entity to reduce its installed generating capacity below that which may otherwise have been necessary without interconnections to meet its generation reliability requirements. The transmission transfer capability preserved as CBM is intended to be used by the LSE only in times of emergency generation deficiencies.

"CIM" shall mean Common Infrastructure Model.

"Confidential Information" shall have the meaning stated in Section 35.8.1.

"Control Area(s)" shall mean an electric power system or combination of electric power systems to which a common automatic generation control scheme is applied.

"Control Performance Standard" or **"CPS"** shall mean the reliability standard that sets the limits of a Balancing Authority's Area Control Error over a specified time period.

"Coordinated Transaction Scheduling" or **"CTS"** shall mean the market rules that allow transactions to be scheduled based on a bidder's willingness to purchase energy from a source in either the NYISO or PJM Control Area and sell it at a sink in the other Control Area if the forecasted price at the sink minus the forecasted price at the corresponding source is greater than or equal to the dollar value specified in the bid.

"Coordination Committee" shall mean the jointly constituted PJM and NYISO committee established to administer the terms and provisions of this Agreement pursuant to Section 35.3.2.

"CTS Interface Bid" shall mean: (1) in PJM, a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Section 1.13 of Schedule 1 of the Amended and Restated Operating Agreement of PJM, L.L.C.; and (2) in NYISO, a real-time bid provided by an entity engaged in an external transaction at a CTS Enabled Interface, as more fully described in NYISO Services Tariff Section 2.3.

"Delivery Point" shall mean each of the points of direct Interconnection between PJM and the NYISO Balancing Authority Areas. Such Delivery Point(s) shall include the Interconnection Facilities between the PJM and the New York Balancing Authority Areas.

"DC" shall mean direct current.

"Disclosing Party" shall have the meaning stated in Section 35.8.7.

"Dispute" shall have the meaning stated in Section 35.15.

"Disturbance Control Standard" or **"DCS"** shall mean the reliability standard that sets the time limit following a disturbance within which a balancing authority must return its Area Control Error to within a specified range.

"Economic Dispatch" shall mean the sending of dispatch instructions to generation units to minimize the cost of reliably meeting load demands.

"Effective Date" shall have the meaning stated in Section 35.19.1.

"Emergency" shall mean any abnormal system condition that requires remedial action to prevent or limit loss of transmission or generation facilities that could adversely affect the reliability of the electricity system.

"Emergency Energy" shall mean energy supplied from Operating Reserve or electrical generation available for sale in New York or PJM or available from another Balancing Authority Area. Emergency Energy may be provided in cases of sudden and unforeseen outages of generating units, transmission lines or other equipment, or to meet other sudden and unforeseen circumstances such as forecast errors, or to provide sufficient Operating Reserve. Emergency Energy is provided pursuant to this Agreement and the Inter Control Area Transactions Agreement dated May 1, 2000 and priced according to Section 35.6.4 of this agreement and said Inter Control Area Transactions Agreement.

"EMS" shall mean the respective Energy Management Systems utilized by the Parties to manage the flow of energy within their Regions.

"External Capacity Resource" shall mean: (1) for NYISO, (a) an entity (e.g., Supplier, Transmission Customer) or facility (e.g., Generator, Interface) located outside the NYCA with the capability to generate or transmit electrical power, or the ability to control demand at the direction of the NYISO, measured in megawatts or (b) a set of Resources owned or controlled by an entity within a Control Area, not the NYCA, that also is the operator of such Control Area; and (2) for PJM, a generation resource located outside the metered boundaries of the PJM Region (as defined in the PJM Tariff) that meets the definition of Capacity Resource in the PJM Tariff or PJM's governing agreements filed with the Commission.

"FERC" or **"Commission"** shall mean the Federal Energy Regulatory Commission or any successor agency thereto.

"Flowgate" shall mean a representative modeling of facilities or groups of facilities that may act as potential constraint points.

"*Force Majeure*" shall mean an event of *force majeure* as described in Section 35. 20.1.

“Generator to Load Distribution Factor” or **“GLDF”** shall mean a generator’s impact on a Flowgate while serving load in that generator’s Balancing Authority Area.

“Good Utility Practice” shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the North American electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted by NERC.

“Governmental Authority” shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power.

“ICCP”, **“ISN”** and **“ICCP/ISN”** shall mean those common communication protocols adopted to standardize information exchange.

“IDC” shall mean the NERC Interchange Distribution Calculator used for identifying and requesting congestion management relief.

“Indemnifying Party” shall have the meaning stated in Section 35.20.3.

“Indemnitee” shall have the meaning stated in Section 35.20.3

“Intellectual Property” shall mean (i) ideas, designs, concepts, techniques, inventions, discoveries, or improvements, regardless of patentability, but including without limitation patents, patent applications, mask works, trade secrets, and know-how; (ii) works of authorship, regardless of copyright ability, including copyrights and any moral rights recognized by law; and (iii) any other similar rights, in each case on a worldwide basis.

“Intentional Wrongdoing” shall mean an act or omission taken or omitted by a Party with knowledge or intent that injury or damage could reasonably be expected to result.

“Interconnected Reliability Operating Limit” or **“IROL”** shall mean the value (such as MW, MVAR, Amperes, Frequency, or Volts) derived from, or a subset of, the System Operating Limits, which if exceeded, could expose a widespread area of the bulk electrical system to instability, uncontrolled separation(s) or cascading outages.

“Interconnection” shall mean a connection between two or more individual Transmission Systems that normally operate in synchronism and have interconnecting intertie(s).

“Interconnection Facilities” shall mean the Interconnection facilities described in Schedule A.

“Intermediate Term Security Constrained Economic Dispatch” shall mean PJM’s algorithm that performs various functions, including but not limited to forecasting dispatch and LMP solutions based on current and projected system conditions for up to several hours into the future.

“ISO” shall mean Independent System Operator.

“kV” shall mean kilovolt of electric potential.

“LEC Adjusted Market Flow” shall mean the real-time Market Flow incorporating the observed operation of the PARs at the Michigan-Ontario border.

“Locational Marginal Price” or **“LMP”** shall mean the market clearing price for energy at a given location in a Party’s RC Area, and “Locational Marginal Pricing” shall mean the processes related to the determination of the LMP.

“Losses” shall have the meaning stated in Section 35.20.3.

“M2M” shall mean the market-to-market coordination process set forth in Schedule D to this Agreement.

“**M2M Entitlement**” shall mean a Non-Monitoring RTO’s share of a M2M Flowgate’s total capability to be used for settlement purposes that is calculated pursuant to Section 6 of Schedule D to this Agreement.

“M2M Event” shall mean the period when both Parties are operating under M2M as defined and set forth in Schedule D to this Agreement.

“M2M Flowgate” shall mean Flowgates where constraints are jointly monitored and coordinated as defined and set forth in Schedule D to this Agreement.

“Market Flows” shall mean the calculated energy flows on a specified Flowgate as a result of dispatch of generating resources serving load within an RTO’s market.

“Market Participant” shall mean an entity that, for its own account, produces, transmits, sells, and/or purchases for its own consumption or resale capacity, energy, energy derivatives and ancillary services in the wholesale power markets. Market Participants include transmission service customers, power exchanges, Transmission Owners, load serving entities, loads, holders of energy derivatives, generators and other power suppliers and their designated agents.

"Metered Quantity" shall mean apparent power, reactive power, active power, with associated time tagging and any other quantity that may be measured by a Party's Metering Equipment and that is reasonably required by either Party for Security reasons or revenue requirements.

"Metering Equipment" shall mean the potential transformers, current transformers, meters, interconnecting wiring and recorders used to meter any Metered Quantity.

"Monitoring RTO" shall mean the Party that has operational control of a M2M Flowgate.

"Multiregional Modeling Working Group" or **"MMWG"** shall mean the NERC working group that is charged with multi-regional modeling.

"Mutual Benefits" shall mean the transient and steady-state support that the integrated generation and Transmission Systems in PJM and New York provide to each other inherently by virtue of being interconnected as described in Section 35.4 of this Agreement.

"MVAR" shall mean megavolt ampere of reactive power.

"MW" shall mean megawatt of capacity.

"NAESB" shall mean North American Energy Standards Board or its successor organization.

"NERC" shall mean the North American Electricity Reliability Corporation or its successor organization.

"Network Resource" shall have the meaning as provided in the NYISO OATT, for such resources located in New York, and the meaning as provided in the PJM OATT, for such resources located in PJM.

"New Year Market Flow" shall mean the Market Flow incorporating the transmission topology that includes all pre-existing Transmission Facilities and all new or upgraded Transmission Facilities whose impact on M2M Entitlements has been previously evaluated and incorporated, *and* all new or upgraded Transmission Facilities whose impact on M2M Entitlements is being evaluated in the current evaluation step.

"Non-Monitoring RTO" shall mean the Party that does not have operational control of a M2M Flowgate.

"Notice" shall have the meaning stated in Section 35. 20.22.

"NPCC" shall mean the Northeast Power Coordinating Council, Inc., including the NPCC Cross Border Regional Entity ("CBRE"), or their successor organizations.

"NYISO" shall have the meaning stated in the preamble of this Agreement.

"NYISO Code of Conduct" shall mean the rules, procedures and restrictions concerning the conduct of the ISO directors and employees, contained in Attachment F to the NYISO OATT.

"NYISO Market Monitoring Plan" shall refer to Attachment O to the NYISO Services Tariff.

"NYISO Tariffs" shall mean the NYISO OATT and the NYISO Market Administration and Control Area Services Tariff ("Services Tariff"), collectively.

"NYSRC" shall mean the New York State Reliability Council.

"NYSRC Reliability Rules" shall mean the rules applicable to the operation of the New York Transmission System. These rules are based on Reliability Standards adopted by NERC and NPCC, but also include more specific and more stringent rules to reflect the particular requirements of the New York Transmission System.

"OASIS" shall mean the Open Access Same-Time Information System required by FERC for the posting of market and transmission data on the Internet websites of PJM and NYISO.

"OATT" shall mean the applicable Open Access Transmission Tariffs on file with FERC for PJM and NYISO.

"Operating Entity" shall mean an entity that operates and controls a portion of the bulk transmission system with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

"Operating Instructions" shall mean the operating procedures, steps, and instructions for the operation of the Interconnection Facilities established from time to time by the Coordination Committee or the PJM and NYISO individual procedures and processes and includes changes from time to time by the Coordination Committee to such established procedures, steps and instructions exclusive of the individual procedures.

"Operating Reserve" shall mean generation capacity or load reduction capacity which can be called upon on short notice by either Party to replace scheduled energy supply which is unavailable as a result of an unexpected outage or to augment scheduled energy as a result of unexpected demand or other contingencies.

"Operational Control" shall mean Security monitoring, adjustment of generation and transmission resources, coordinating and approval of changes in transmission status for maintenance, determination of changes in transmission status for reliability, coordination with other Balancing Authority Areas and Reliability Coordinators, voltage reductions and load shedding, except that each legal owner of generation and transmission resources continues to physically operate and maintain its own facilities.

"**OTDF**" shall mean the electric PTDF with one or more system facilities removed from service (*i.e.*, outaged) in the post-contingency configuration of a system under study.

"Outages" shall mean the planned unavailability of transmission and/or generation facilities dispatched by PJM or the NYISO, as described in Section 35.9 of this Agreement.

"PAR" shall mean phase angle regulator.

"PAR Shift Factor" or **"PSF"**, shall mean the PAR's impact on a Flowgate measured as the ratio of Flowgate flow change in MW to PAR schedule change in MW.

"Party" or **"Parties"** refers to each party to this Agreement or both, as applicable.

"PJM" has the meaning stated in the preamble of this Agreement.

"PJM Code of Conduct" shall mean the code of ethical standards, guidelines and expectations for PJM's employees, officers and Board Members in their transactions and business dealings on behalf of PJM as posted on the PJM website and as may be amended from time to time.

"PJM Tariffs" shall mean the PJM OATT and the PJM Amended and Restated Operating Agreement, collectively.

"**Power Transfer Distribution Factor**" or "**PTDF**" shall mean a measure of the responsiveness or change in electrical loadings on Transmission Facilities due to a change in electric power transfer from one area to another, expressed in percent (up to 100%) of the change in power transfer in the pre-contingency configuration of a system under study.

"Real-Time Commitment" shall mean NYISO's multi-period security constrained unit commitment and dispatch model, as defined in the NYISO Tariffs.

"Reference Year Market Flow" shall mean the Market Flow based on a transmission topology that includes all pre-existing Transmission Facilities and all new or upgraded Transmission Facilities whose impact on M2M Entitlements has been previously evaluated and incorporated.

"Region" shall mean the Control Areas and Transmission Facilities with respect to which a Party serves as RTO or Reliability Coordinator under NERC policies and procedures.

"Regulatory Body" shall have the meaning stated in Section 35.20.21.

"Reliability Coordinator" or **"RC"** shall mean the entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the wide area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next day analysis and real-time operations. The Reliability Coordinator has the purview that is broad enough to enable

the calculation of Interconnection Reliability Operating Limits, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision.

"Reliability Coordinator Area" shall mean that portion of the Bulk Electric System under the purview of the Reliability Coordinator.

"Reliability Standards" shall mean the criteria, standards, rules and requirements relating to reliability established by a Standards Authority.

"RFC" shall mean ReliabilityFirst Corporation.

"RTO" shall mean Regional Transmission Organization. For ease of reference, the New York Independent System Operator, Inc., may be referred to as an RTO in this Agreement and the NYISO and PJM may be referred to collectively as the "RTOs" or the "participating RTOs."

"Schedule" shall mean a schedule attached to this Agreement and all amendments, supplements, replacements and additions hereto.

"SDX System" shall mean the system used by NERC to exchange system data.

"Security" shall mean the ability of the electric system to withstand sudden disturbances including, without limitation, electric short circuits or unanticipated loss of system elements.

"Security Limits" shall mean operating electricity system voltage limits, stability limits and thermal ratings.

"SERC" shall mean SERC Reliability Corporation or its successor organization.

"Shadow Price" shall mean the marginal value of relieving a particular constraint which is determined by the reduction in system cost that would result from an incremental relaxation of that constraint.

"Standards Authority" shall mean NERC, and the NERC regional entities with governance over PJM and NYISO, any successor thereof, or any other agency with authority over the Parties regarding standards or criteria to either Party relating to the reliability of Transmission Systems.

"Standards Authority Standards" shall have the meaning stated in Section 35.5.2.

"State Estimator" shall mean a computer model that computes the state (voltage magnitudes and angles) of the Transmission System using the network model and real-time measurements. Line flows, transformer flows, and injections at the busses are calculated from the known state and the transmission line parameters. The State Estimator has the capability to detect and identify bad measurements.

"Storm Watch" shall mean actual or anticipated severe weather conditions under which region-specific portions of the New York State Transmission System are operated in a more conservative manner by reducing transmission transfer limits.

"Supplying Party" shall have the meaning stated in Section 35.8.2.

"System Operating Limit" or **"SOL"** shall mean the value (such as MW, MVAR, Amperes, Frequency, or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.

"**Target Value**" shall have the meaning stated in Section 7.2 of Schedule D to this Agreement.

"Third Party" refers to any entity other than a Party to this Agreement.

"TLR" shall mean the NERC Transmission Loading Relief Procedures used in the Eastern Interconnection as specified in NERC Operating Policies.

"Transmission Adjusted Market Flow" shall mean the result of applying the M2M Entitlement Transmission Adjusted Market Flow Calculation to the New Year Market Flow. The resulting Transmission Adjusted Market Flow is then used as the Reference Year Market Flow in all subsequent, iterative, evaluations.

"Transmission Operator" shall mean the entity responsible for the reliability of its "local" Transmission System, and that operates or directs the operations of the Transmission Facilities.

"Transmission Owner" shall mean an entity that owns Transmission Facilities.

"Transmission System" shall mean the facilities controlled or operated by PJM or NYISO as designated by each in their respective OATTs.

"Transmission Facility" shall mean a facility for transmitting electricity, and includes any structures, equipment or other facilities used for that purpose as defined in the Parties respective OATTs.

"Transmission Reliability Margin" or **"TRM"** shall mean the amount of transmission transfer capability necessary to provide reasonable assurance that the interconnected transmission network will be secure. TRM accounts for the inherent uncertainty in system conditions and the need for operating flexibility to ensure reliable system operation as system conditions change.

"Total Transfer Capability" or **"TTC"** shall mean the amount of electric power that can be moved or transferred reliably from one area to another area of the interconnected Transmission Systems by way of all transmission lines (or paths) between those areas under specified system conditions.

“Voltage and Reactive Power Coordination Procedures” are the procedures under Section 35.11 for coordination of voltage control and reactive power requirements.

35.2. 2 Rules of Construction.

35.2. 2.1 No Interpretation Against Drafter.

In addition to their roles as RTOs/ISOs and Reliability Coordinators, and the functions and responsibilities associated therewith, the Parties agree that each Party participated in the drafting of this Agreement and was represented therein by competent legal counsel. No rule of construction or interpretation against the drafter shall be applied to the construction or in the interpretation of this Agreement.

35.2. 2.2 Incorporation of Preamble and Recitals.

The Preamble and Recitals of this Agreement are incorporated into the terms and conditions of this Agreement and made a part thereof.

35.2. 2.3 Meanings of Certain Common Words.

The word “including” shall be understood to mean “including, but not limited to.” The word “Section” refers to the applicable section of this Agreement and, unless otherwise stated, includes all subsections thereof. The word “Article” refers to articles of this Agreement.

35.2. 2.4 Standards Authority Standards, Policies, and Procedures.

All activities under this Agreement will meet or exceed the applicable Standards Authority standards, policies, or procedures as revised from time to time.

35.2. 2.5 Scope of Application.

Each Party will perform this Agreement in accordance with its terms and conditions with respect to each Control Area for which it serves as ISO or RTO and, in addition, each Control Area for which it serves as Reliability Coordinator.

35.23 Schedule D – Market-to-Market Coordination Process – Version 1.0

NYISO & PJM
Market-to-Market Coordination Schedule
Table of Contents

1 Overview of the Market-to-Market Coordination Process

The purpose of the M2M coordination process is to set forth the rules that apply to M2M coordination between PJM and NYISO and the associated settlements processes.

The fundamental philosophy of the PJM/NYISO M2M coordination process is to set up procedures to allow any transmission constraints that are significantly impacted by generation dispatch changes and/or Phase Angle Regulator ("PAR") control actions in both markets to be jointly managed in the security-constrained economic dispatch models of both RTOs. This joint management of transmission constraints near the market borders will provide the more efficient and lower cost transmission congestion management solution, while providing coordinated pricing at the market boundaries.

The M2M coordination process focuses on real-time market coordination to manage transmission limitations that occur on the M2M Flowgates in a more cost effective manner. Coordination between NYISO and PJM will include not only joint redispatch, but will also incorporate coordinated operation of the Ramapo PARs that are located at the NYISO – PJM interface. This real-time coordination will result in a more efficient economic dispatch solution across both markets to manage the real-time transmission constraints that impact both markets, focusing on the actual flows in real-time to manage constraints. Under this approach, the flow entitlements on the M2M Flowgates do not impact the physical dispatch; the flow entitlements are used in market settlements to ensure appropriate compensation based on comparison of the actual Market Flows to the flow entitlements.

2 M2M Flowgates

Only a subset of all transmission constraints that exist in either market will require coordinated congestion management. This subset of transmission constraints will be identified as M2M Flowgates. Flowgates eligible for the M2M coordination process are called M2M Flowgates. For the purposes of the M2M coordination process (in addition to the studies described in section 3 below) the following will be used in determining M2M Flowgates.

2.1 NYISO and PJM will only be performing the M2M coordination process on M2M Flowgates that are under the operational control of NYISO or PJM. NYISO and PJM will not be performing the M2M coordination process on Flowgates that are owned and controlled by third party entities.

2.2 The Parties will make reasonable efforts to lower their generator binding threshold to match the lower generator binding threshold utilized by the other Party. The generator and Ramapo PAR binding thresholds (the shift factor thresholds used to identify the resource(s) available to relieve a transmission constraint), will not be set below 3%, except by mutual consent. This requirement applies to M2M Flowgates. It is not an additional criterion for determination of M2M Flowgates.

2.3 For the purpose of determining whether a monitored element Flowgate is eligible for the M2M coordination process, a threshold for determining a significant GLDF or Ramapo PSF will take into account the number of monitored elements. Implementation of M2M Flowgates will ordinarily occur through mutual agreement.

2.4 All Flowgates eligible for M2M coordination will be included in the coordinated operations of the Ramapo PARs. Flowgates with significant GLDF will also be included in joint redispatch.

2.5 M2M Flowgates that are eligible for redispatch coordination are also eligible for coordinated operation of the Ramapo PARs. M2M Flowgates that are eligible for coordinated operation of the Ramapo PARs are not necessarily also eligible for redispatch coordination.

2.6 The NYISO shall post a list of all of the M2M Flowgates located in the NYCA on its web site. PJM shall post a list of all of the M2M Flowgates located in its Control Area on its web site.

3 M2M Flowgate Studies

To identify M2M Flowgates the Parties will perform an off-line study to determine if the significant GLDF for at least one generator within the Non-Monitoring RTO, or significant PSF for at least one Ramapo PAR, on a potential M2M Flowgate within the Monitoring RTO is greater than or equal to the thresholds as described below. The study shall be based on an up-to-date power flow model representation of the Eastern Interconnection, with all normally closed Transmission Facilities in-service. The transmission modeling assumptions used in the M2M Flowgate studies will be based on the same assumptions used for determining M2M Entitlements in Section 6 below.

3.1 Either Party may propose that a new M2M Flowgate be added at any time. The Parties will work together to perform the necessary studies within a reasonable timeframe.

3.2 The GLDF or Ramapo PSF thresholds for M2M Flowgates with one or more monitored elements are defined as:

i. Single monitored element, 5% GLDF/Ramapo PSF;

ii. Two monitored elements, 7.5% GLDF/Ramapo PSF; and

iii. Three or more monitored elements, 10% GLDF/Ramapo PSF.

3.3 For potential M2M Flowgates that pass the above Ramapo PSF criteria, the Parties must still mutually agree to add each Flowgate as an M2M Flowgate for coordinated operation of the Ramapo PARs.

3.4 For potential M2M Flowgates that pass the above GLDF criteria, the Parties must still mutually agree to add each Flowgate as an M2M Flowgate for redispatch coordination.

3.5 The Parties can also mutually agree to add a M2M Flowgate that does not satisfy the above criteria.

4 Removal of M2M Flowgates

Removal of M2M Flowgates from the systems may be necessary under certain conditions including the following:

4.1 A M2M Flowgate is no longer valid when (a) a change is implemented that effects either Party's generation impacts causing the Flowgate to no longer pass the M2M Flowgate Studies, or (b) a change is implemented that affects the impacts from coordinated operation of the Ramapo PARs causing the Flowgate to no longer pass the M2M Flowgate Studies. The Parties must still mutually agree to remove a M2M Flowgate, such agreement not to be unreasonably withheld. Once a M2M Flowgate has been removed, it will no longer be eligible for M2M settlement.

4.2 A M2M Flowgate that does not satisfy the criteria set forth in Section 3.2 above, but that is created based on the mutual agreement of the Parties pursuant to Section 3.5 above, shall be removed two weeks after either Party provides a formal notice to the other Party that it withdraws its agreement to the M2M Flowgate, or at a later or earlier date that the Parties mutually agree upon. The formal notice must include an explanation of the reason(s) why the agreement to the M2M Flowgate was withdrawn.

4.3 The Parties can mutually agree to remove a M2M Flowgate from the M2M coordination process whether or not it passes the coordination tests. A M2M Flowgate should be removed when the Parties agree that the M2M coordination process is not, or will not be, an effective mechanism to manage congestion on that Flowgate.

5 Market Flow Determination

Each RTO will independently calculate its Market Flow for all M2M Flowgates using the equations set forth in this section. The Market Flow calculation is broken down into the following steps:

- Determine Shift Factors for M2M Flowgates

- Compute RTO Load and Losses (less imports)
- Compute RTO Generation (less exports)
- Compute RTO Generation to Load impacts on the Market Flow
- Compute RTO interchange scheduling impacts on the Market Flow
- Compute PAR impacts on the Market Flow
- Compute Market Flow

5.1 Determine Shift Factors for M2M Flowgates

The first step to determining the Market Flow on a M2M Flowgate is to calculate generator, load and PAR shift factors for the each of the M2M Flowgates. For real-time M2M coordination, the shift factors will be based on the real-time transmission system topology.

5.2 Compute RTO Load Served by RTO Generation

Using area load and losses for each load zone, compute the RTO Load, in MWs, by summing the load and losses for each load zone to determine the total zonal load for each RTO load zone. Twenty percent of RECo load shall be included in the Market Flow calculation as PJM load. *See* Section 6.2, below.

$Zonal\_Total\_Load_{zone} = Load_{zone} + Losses_{zone}$, for each RTO load zone

Where:

zone =	the relevant RTO load zone;
$Zonal\_Total\_Load_{zone}$ =	the sum of the RTO's load and transmission losses for the zone;
$Load_{zone}$ =	the load within the zone; and
$Losses_{zone}$ =	the transmission losses for transfers through the zone.

Next, reduce the Zonal Loads by the scheduled line real-time import transaction schedules that sink in that particular load zone:

$$Zonal\_Reduced\_Load_{zone} = Zonal\_Total\_Load_{zone} - \sum_{scheduled\_lines=1}^{all} Import\_Schedules_{scheduled\_line,zone}$$

Where:

zone =	the relevant RTO load zone;
scheduled_line =	each of the Transmission Facilities identified in Table 1 below;
$Zonal\_Reduced\_Load_{zone}$ =	the sum of the RTO's load and transmission losses in a zone reduced by the sum of import schedules over scheduled lines to the zone;
$Zonal\_Total\_Load_{zone}$ =	the sum of the RTO's load and transmission losses for the zone; and
$Import\_Schedules_{scheduled\_line,zone}$ =	import schedules over a scheduled line to a zone.

The real-time import schedules over scheduled lines will only reduce the load in the sink load zones identified in Table 1 below:

Table 1. List of Scheduled Lines

Scheduled Line	NYISO Load Zone	PJM Load Zone
Dennison Scheduled Line	North	Not Applicable
Cross-Sound Scheduled Line	Long Island	Not Applicable
HTP Scheduled Line	New York City	Mid-Atlantic Control Zone
Linden VFT Scheduled Line	New York City	Mid-Atlantic Control Zone
Neptune Scheduled Line	Long Island	Mid-Atlantic Control Zone
Northport – Norwalk Scheduled Line	Long Island	Not Applicable

Once import schedules over scheduled lines have been accounted for, it is then appropriate to reduce the net RTO Load by the remaining real-time import schedules at the proxies identified in Table 2 below:

Table 2. List of Proxies*

Proxy	Balancing Authorities Responsible
PJM shall post and maintain a list of its proxies on its OASIS website. PJM shall	PJM

provide to NYISO notice of any new or deleted proxies prior to implementing such changes in its M2M software.	
NYISO proxies are the Proxy Generator Buses that are not identified as Scheduled Lines in the table that is set forth in Section 4.4.4 of the NYISO's Market Services Tariff. The NYISO shall provide to PJM notice of any new of deleted proxies prior to implementing such changes in its M2M software.	NYISO

*Scheduled lines and proxies are mutually exclusive. Transmission Facilities that are components of a scheduled line are not also components of a proxy (and vice-versa).

$$RTO\_Net\_Load = \sum_{zone=1}^{all} Zonal\_Reduced\_Load_{zone}$$

Where:

zone = the relevant RTO load zone;

RTO_Net_Load = the sum of load and transmission losses for the entire RTO footprint reduced by the sum of import schedules over all scheduled lines; and

$Zonal\_Reduced\_Load_{zone}$ = the sum of the RTO's load and transmission losses in a zone reduced by the sum of import schedules over scheduled lines to the zone.

$$RTO\_Final\_Load = RTO\_Net\_Load - \sum_{proxy=1}^{all} Import\_Schedules_{proxy}$$

Where:

proxy = representations of defined sets of Transmission Facilities that (i) interconnect neighboring Balancing Authorities, (ii) are collectively scheduled, and (iii) are identified in Table 2 above;

RTO_Final_Load = the sum of the RTO's load and transmission losses for the entire RTO footprint, sequentially reduced by (i) the sum of import schedules over all scheduled lines, and (ii) the sum of all proxy import schedules;

RTO_Net_Load = the sum of load and transmission losses for the entire RTO footprint reduced by the sum of import schedules over all scheduled lines; and

$Import\_Schedules_{proxy}$ = the sum of import schedules at a given proxy.

Next, calculate the Zonal Load weighting factor for each RTO load zone:

$$Zonal\_Weighting_{zone} = \left(\frac{Zonal\_Reduced\_Load_{zone}}{RTO\_Net\_Load}\right)$$

Where:

zone = the relevant RTO load zone;

$Zonal\_Weighting_{zone}$ = the percentage of the RTO's load contained within the zone;

RTO_Net_Load = the sum of load and transmission losses for the entire RTO footprint reduced by the sum of import schedules over all scheduled lines; and

$Zonal\_Reduced\_Load_{zone}$ = the sum of the RTO's load and transmission losses in a zone reduced by the sum of import schedules over scheduled lines to the zone.

Using the Zonal Weighting Factor compute the zonal load reduced by RTO imports for each load zone:

$$Zonal\_Final\_Load_{zone} = Zonal\_Weighting_{zone} \times RTO\_Final\_Load$$

Where:

zone = the relevant RTO load zone;

$Zonal\_Final\_Load_{zone}$ = the final RTO load served by internal RTO generation in the zone;

$Zonal\_Weighting_{zone}$ = the percentage of the RTO's load contained within the zone; and

RTO_Final_Load = the sum of the RTO's load and transmission losses for the entire RTO footprint, sequentially reduced by (i) the sum of

import schedules over all scheduled lines, and (ii) the sum of all proxy import schedules.

Using the Load Shift Factors ("LSFs") calculated above, compute the weighted RTOLSF for each M2M Flowgate as:

$$RTO\_LSF_{M2M\_Flowgate-m} = \sum_{zone=1}^{all} \left(LSF_{(zone,M2M\_Flowgate-m)} \times \left(\frac{Zonal\_Final\_Load_{zone}}{RTO\_Final\_Load} \right) \right)$$

Where:

M2M_Flowgate-m = the relevant flowgate;

zone = the relevant RTO load zone;

$RTO\_LSF_{M2M\_Flowgate-m}$ = the load shift factor for the entire RTO footprint on M2M Flowgate m;

$LSF_{(zone,M2M\_Flowgate-m)}$ = the load shift factor for the RTO zone on M2M Flowgate m;

$Zonal\_Final\_Load_{zone}$ = the final RTO load served by internal RTO generation in the zone; and

RTO_Final_Load = the sum of the RTO's load and transmission losses for the entire RTO footprint, sequentially reduced by (i) the sum of import schedules over all scheduled lines, and (ii) the sum of all proxy import schedules.

5.3 Compute RTO Generation Serving RTO Load

Using the real-time generation output in MWs, compute the Generation serving RTO Load. Sum the output of RTO generation within each load zone:

$RTO\_Gen_{zone} = \sum_{unit=1}^{all} Gen_{unit,zone}$, for each RTO load zone

Where:

zone = the relevant RTO load zone;

unit = the relevant generator;

RTO_Gen_{zone} = the sum of the RTO's generation in a zone; and

$Gen_{unit,zone}$ = the real-time output of the unit in a given zone.

Next, reduce the RTO generation located within a load zone by the scheduled line real-time export transaction schedules that source from that particular load zone:

$$RTO\_Reduced\_Gen_{zone} = RTO\_Gen_{zone} - \sum_{scheduled\_line=1}^{all} Export\_Schedules_{scheduled\_line,zone}$$

Where:

zone = the relevant RTO load zone;

scheduled_line = each of the Transmission Facilities identified in Table 1 above;

$RTO\_Reduced\_Gen_{zone}$ = the sum of the RTO's generation in a zone reduced by the sum of export schedules over scheduled lines from the zone;

RTO_Gen_{zone} = the sum of the RTO's generation in a zone; and

$Export\_Schedules_{scheduled\_line,zone}$ = export schedules from a zone over a scheduled line.

The real-time export schedules over scheduled lines will only reduce the generation in the source zones identified in Table 1 above. The resulting generator output based on this reduction is defined below.

$$Reduced\ Gen_{unit} = \ Gen_{unit,zone}\left(\frac{RTO\_Reduced\_Gen_{zone}}{RTO\_Gen_{zone}}\right)$$

Where:

unit = the relevant generator;

zone = the relevant RTO load zone;

$Gen_{unit,zone}$ = the real-time output of the unit in a given zone;

Reduced Gen_{unit} = each unit's real-time output after reducing the RTO_Net_Gen by the real-time export schedules over scheduled lines;

$RTO\_Reduced\_Gen_{zone}$ = the sum of the RTO's generation in a zone reduced by the sum of export schedules over scheduled lines from the zone; and

RTO_Gen_{zone} = the sum of the RTO's generation in a zone.

Once export schedules over scheduled lines are accounted for, it is then appropriate to reduce the net RTO generation by the remaining real-time export schedules at the proxies identified in Table 2 above.

$$RTO\_Net\_Gen = \sum_{zone=1}^{all} RTO\_Reduced\_Gen_{zone}$$

Where:

zone =	the relevant RTO load zone;
RTO_Net_Gen =	the sum of the RTO's generation reduced by the sum of export schedules over all scheduled lines; and
$RTO\_Reduced\_Gen_{zone}$ =	the sum of the RTO's generation in a zone reduced by the sum of export schedules over scheduled lines from the zone.

$$RTO\_Final\_Gen = RTO\_Net\_Gen - \sum_{proxy=1}^{all} Export\_Schedules_{proxy}$$

Where:

proxy =	representation of defined sets of Transmission Facilities that (i) interconnect neighboring Balancing Authorities, (ii) are collectively scheduled, and (iii) are identified in Table 2 above;
RTO_Final_Gen =	the sum of the RTO's generation output for the entire RTO footprint, sequentially reduced by (i) the sum of export schedules over all scheduled lines, and (ii) the sum of all proxy export schedules;
RTO_Net_Gen =	the sum of the RTO's generation reduced by the sum of export schedules over all scheduled lines; and
$Export\_Schedules_{proxy}$ =	the sum of export schedules at a given proxy.

Finally, weight each generator's output by the reduced RTO generation:

$$Gen\_Final_{unit} = Reduced\ Gen_{unit} \times \frac{RTO\_Final\_Gen}{RTO\_Net\_Gen}$$

Where:

unit = the relevant generator;

Gen_Final_{unit} = the portion of each unit's output that is serving the RTO Net Load;

Reduced Gen_{unit} = each unit's real-time output after reducing the RTO_Net_Gen by the real-time export schedules over scheduled lines;

RTO_Final_Gen = the sum of the RTO's generation output for the entire RTO footprint, sequentially reduced by (i) the sum of export schedules over all scheduled lines, and (ii) the sum of all proxy export schedules; and

RTO_Net_Gen = the sum of the RTO's generation reduced by the sum of export schedules over all scheduled lines.

5.4 Compute the RTO GTL for all M2M Flowgates

The generation-to-load flow for a particular M2M Flowgate, in MWs, will be determined as:

$$RTO\_GTL_{M2M\_Flowgate-m} = \sum_{unit=1}^{all} Gen\_Final_{unit} \times \left(GSF_{(unit,M2M\_Flowgate-m)} - RTO\_LSF_{M2M\_Flowgate-m}\right)$$

Where:

M2M_Flowgate-m = the relevant flowgate;

unit = the relevant generator;

$RTO\_GTL_{M2M\_Flowgate-m}$ = the generation to load flow for the entire RTO footprint on M2M Flowgate m;

Gen_Final_{unit} = the portion of each unit's output that is serving RTO Net Load;

$GSF_{(unit,M2M\_Flowgate-m)}$ = the generator shift factor for each unit on M2M Flowgate m; and

$RTO\_LSF_{M2M\_Flowgate\text{-}m}$ = the load shift factor for the entire RTO footprint on M2M Flowgate m.

5.5 Compute the RTO Interchange Scheduling Impacts for all M2M Flowgates

For each scheduling point that the participating RTO is responsible for, determine the net interchange schedule in MWs. Table 3 below identifies both the participating RTO that is responsible for each listed scheduling point, and the "type" assigned to each listed scheduling point.

Table 3. List of Scheduling Points

Scheduling Point	Scheduling Point Type	Participating RTO(s) Responsible
NYISO-PJM	common	NYISO and PJM
HTP Scheduled Line	common	NYISO and PJM
Linden VFT Scheduled Line	common	NYISO and PJM
Neptune Scheduled Line	common	NYISO and PJM
PJM shall post and maintain a list of its non-common scheduling points on its OASIS website. PJM shall provide to NYISO notice of any new or deleted non-common scheduling points prior to implementing such changes in its M2M software.	non-common	PJM
NYISO non-common scheduling points include all Proxy Generator Buses and Scheduled Lines listed in the table that is set forth in Section 4.4.4 of the NYISO's Market Services Tariff that are not identified in this Table 3 as common scheduling points. The NYISO shall provide to PJM notice of any new or deleted non-common scheduling points prior to implementing such changes in its M2M software.	non-common	NYISO

$$RTO\_Transfers_{sched\_pt} = Imports_{sched\_pt} + WheelsIn_{sched\_pt} - Exports_{sched\_pt} - WheelsOut_{sched\_pt}$$

Where:

sched_pt =	the relevant scheduling point. A scheduling point can be either a proxy or a scheduled line;
$\text{RTO\_Transfers}_{\text{sched\_pt}}$ =	the net interchange schedule at a scheduling point;
$\text{Imports}_{\text{sched\_pt}}$ =	the import component of the interchange schedule at a scheduling point;
$\text{WheelsIn}_{\text{sched\_pt}}$ =	the injection of wheels-through component of the interchange schedule at a scheduling point;
$\text{Exports}_{\text{sched\_pt}}$ =	the export component of the interchange schedule at a scheduling point; and
$\text{WheelsOut}_{\text{sched\_pt}}$ =	the withdrawal of wheels-through component of the interchange schedule at a scheduling point.

The equation below applies to all non-common scheduling points that only one of the participating RTOs is responsible for. *Parallel_Transfers* are applied to the Market Flow of the responsible participating RTO. For example, the *Parallel_Transfers* computed for the IESO-NYISO non-common scheduling point are applied to the NYISO Market Flow.

$$Parallel\_Transfers_{\text{M2M\_Flowgate-m}} = \sum_{\text{nc\_sched\_pt}=1}^{all} RTO\_Transfers_{\text{nc\_sched\_pt}} \times PTDF_{(\text{nc\_sched\_pt,M2M\_Flowgate}-\text{m})}$$

Where:

M2M_Flowgate-m =	the relevant flowgate;
nc_sched_pt =	the relevant non-common scheduling point. A non-common scheduling point can be either a proxy or a scheduled line. Non-common scheduling points are identified in Table 3, above;
$\text{Parallel\_Transfers}_{\text{M2M\_Flowgate-m}}$ =	the flow on M2M Flowgate m due to the net interchange schedule at the non-common scheduling point;
$\text{RTO\_Transfers}_{\text{nc\_sched\_pt}}$ =	the net interchange schedule at the non-common scheduling point, where a positive number indicates the import direction; and
$\text{PTDF}_{(\text{nc\_sched\_pt, M2M\_Flowgate-m})}$ =	the power transfer distribution factor of the non-common scheduling point on M2M Flowgate m. For NYISO, the

PTDF will equal the generator shift factor of the non-common scheduling point.

The equation below applies to common scheduling points that directly interconnect the participating RTOs. *Shared_Transfers* are applied to the Monitoring RTO's Market Flow only. NYISO to PJM transfers would be considered part of NYISO's Market Flow for NYISO-monitored Flowgates and part of PJM's Market Flow for PJM-monitored Flowgates.

$$Shared\_Transfers_{\text{M2M\_Flowgate-m}} = \sum_{\text{cmn\_sched\_pt}=1}^{all} RTO\_Transfers_{\text{cmn\_sched\_pt}} \times PTDF_{(\text{cmn\_sched\_pt,M2M\_Flowgate}-\text{m})}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

cmn_sched_pt = the relevant common scheduling point. A common scheduling point can be either a proxy or a scheduled line. Common scheduling points are identified in Table 3, above;

$Shared\_Transfers_{M2M\_Flowgate-m}$ = the flow on M2M Flowgate m due to interchange schedules on the common scheduling point;

$RTO\_Transfers_{cmn\_sched\_pt}$ = the net interchange schedule at a common scheduling point, where a positive number indicates the import direction; and

$PTDF_{(cmn\_sched\_pt,\ M2M\_Flowgate-m)}$ = the generation shift factor of the common scheduling point on M2M Flowgate m. For NYISO, the PTDF will equal the generator shift factor of the common scheduling point.

5.6 Compute the PAR Effects for all M2M Flowgates

For the PARs listed in Table 4 below, the RTOs will determine the generation-to-load flows and interchange schedules, in MWs, that each PAR is impacting.

Table 4. List of Phase Angle Regulators

PAR	Description	PAR Type	Actual Schedule	Target Schedule	Responsible Participating RTO(s)
1	RAMAPO PAR3500	common	From telemetry	From telemetry*	NYISO and PJM
2	RAMAPO PAR4500	common	From telemetry	From telemetry*	NYISO and PJM

3	FARRAGUT TR11	common	From telemetry	From telemetry†	NYISO and PJM
4	FARRAGUT TR12	common	From telemetry	From telemetry†	NYISO and PJM
5	GOETHSLN BK_1N	common	From telemetry	From telemetry†	NYISO and PJM
6	WALDWICK O2267	common	From telemetry	From telemetry†	NYISO and PJM
7	WALDWICK F2258	common	From telemetry	From telemetry†	NYISO and PJM
8	WALDWICK E2257	common	From telemetry	From telemetry†	NYISO and PJM
9	STLAWRNC PS_33	non-common	From telemetry	0	NYISO
10	STLAWRNC PS_34	non-common	From telemetry	0	NYISO

*****Pursuant to the rules for implementing the M2M coordination process over the Ramapo PARs that are set forth in this M2M Schedule.

†Consistent with Schedule C to the Joint Operating Agreement between the Parties.

Compute the PAR control as the actual flow less the target flow across each PAR:

$$PAR\_Control_{par} = Actual\_MW_{par} - Target\_MW_{par}$$

Where:

par = each of the phase angle regulators listed in Table 4, above;

$PAR\_Control_{par}$ = the flow deviation on each of the PARs;

$Actual\_MW_{par}$ = the actual flow on each of the PARs, determined consistent with Table 4 above; and

$Target\_MW_{par}$ = the target flow that each of the PARs should be achieving, determined in accordance with Table 4 above.

When the Actual_MW and Target_MW are both set to "From telemetry" in Table 4 above, the *PAR_Control* will equal zero.

Common PARs

In the equations below, the Non-Monitoring RTO is credited for or responsible for *PAR_Impact* resulting from the common PAR effect on the Monitoring RTO's M2M Flowgates. The common PAR impact calculation only applies to the common PARs identified in Table 4 above.

Compute control deviation for all common PARs on M2M Flowgate m based on the $PAR\_Control_{par}$ MWs calculated above:

$$Cmn\_PAR\_Control_{M2M\_Flowgate-m} = \sum_{cmn\_par=1}^{all} \left(PSF_{(cmn\_par,M2M\_Flowgate-m)} \times PAR\_Control_{cmn\_par} \right)$$

Where:

M2M_Flowgate-m = the relevant flowgate;

cmn_par = each of the common phase angle regulators, modeled as Flowgates, identified in Table 4, above;

$Cmn\_PAR\_Control_{M2M\_Flowgate-m}$ = the sum of flow on M2M Flowgate m after accounting for the operation of common PARs;

$PSF_{(cmn\_par,M2M\_Flowgate-m)}$ = the PSF of each of the common PARs on M2M Flowgate m; and

$PAR\_Control_{cmn\_par}$ = the flow deviation on each of the common PARs.

Compute the impact of generation-to-load and interchange schedules across all common PARs on M2M Flowgate m as the Market Flow across each common PAR multiplied by that PAR's shift factor on M2M Flowgate m:

$$Cmn\_PAR\_MF_{M2M\_Flowgate-m} = \sum_{cmn\_par=1}^{all} \left(\begin{array}{c} (PSF_{(cmn\_par,M2M\_Flowgate-m)}) \times \\ \left(RTO\_GTL_{cmn\_par} + Parallel\_Transfers_{cmn\_par} \right) \end{array} \right)$$

Where:

M2M_Flowgate-m = the relevant flowgate;

cmn_par = the set of common phase angle regulators, modeled as Flowgates, identified in Table 4 above;

$Cmn\_PAR\_MF_{M2M\_Flowgate-m}$ = the sum of flow on M2M Flowgate m due to the generation to load flows and interchange schedules on the common PARs;

$PSF_{(cmn\_par,M2M\_Flowgate-m)}$ = the PSF of each of the common PARs on M2M Flowgate m;

$RTO\_GTL_{cmn\_par}$ = the generation to load flow for each common par, computed in the same manner as the generation to load flow is computed for M2M Flowgates in Section 5.4 above; and

$Parallel\_Transfers_{cmn\_par}$ = the flow on each of the common PARs caused by interchange schedules at non-common scheduling points.

Next, compute the impact of the common PAR effect for M2M Flowgate m as:

$$Cmn\_PAR\_Impact_{M2M\_Flowgate-m} = Cmn\_PAR\_MF_{M2M\_Flowgate-m} - Cmn\_PAR\_Control_{M2M\_Flowgate-m}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

$Cmn\_PAR\_Impact_{M2M\_Flowgate-m}$ = potential flow on M2M Flowgate m that is affected by the operation of the common PARs;

$Cmn\_PAR\_MF_{M2M\_Flowgate-m}$ = the sum of flow on M2M Flowgate m due to the generation to load and interchange schedules on the common PARs; and

$Cmn\_PAR\_Control_{M2M\_Flowgate-m}$ = the flow deviation on each of the common PARs.

Non-Common PARs

For the equations below, the NYISO will be credited or responsible for *PAR_Impact* on all M2M Flowgates because the NYISO is the participating RTO that has input into the operation of these devices. The non-common PAR impact calculation only applies to the non-common PARs identified in Table 4 above.

Compute control deviation for all non-common PARs on M2M Flowgate m based on the PAR control MW above:

$$NC\_PAR\_Control_{M2M\_Flowgate-m} = \sum_{nc\_par=1}^{all} PSF_{(nc\_par,M2M\_Flowgate-m)} \times PAR\_Control_{nc\_par}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

nc_par = each of the non-common phase angle regulators, modeled as Flowgates, identified in Table 4 above;

$NC\_PAR\_Control_{M2M\_Flowgate\text{-}m}$ = the sum of flow on M2M Flowgate m after accounting for the operation of non-common PARs;

$PSF_{(nc\_par,M2M\_Flowgate\text{-}m)}$ = the PSF of each of the non-common PARs on M2M Flowgate m; and

$PAR\_Control_{nc\_par}$ = the flow deviation on each of the non-common PARs.

Compute the impact of generation-to-load and interchange schedules across all non-common PARs on M2M Flowgate m as the Market Flow across each PAR multiplied by that PAR's shift factor on M2M Flowgate m:

$$NC\_PAR\_MF_{M2M\_Flowgate-m} = \sum_{nc\_par=1}^{all} \left(\begin{matrix} (PSF_{nc\_par,M2M\_Flowgate-m}) \times \\ \left(RTO\_GTL_{nc\_par} + Parallel\_Transfers_{nc\_par}\right) \end{matrix} \right)$$

Where:

M2M_Flowgate-m = the relevant flowgate;

nc_par = the set of non-common phase angle regulators, modeled as Flowgates, identified in Table 4 above;

$NC\_PAR\_MF_{M2M\_Flowgate\text{-}m}$ = the sum of flow on M2M Flowgate m due to the generation to load flows and interchange schedules on the non-common PARs;

$PSF_{(nc\_par,M2M\_Flowgate\text{-}m)}$ = the outage transfer distribution factor of each of the non-common PARs on M2M Flowgate m;

$RTO\_GTL_{nc\_par}$ = the generation to load flow for each non-common par, computed in the same manner as the generation to load flow is computed for M2M Flowgates in Section 5.4 above; and

$Parallel\_Transfers_{nc\_par}$ = the flow, as computed above where the M2M Flowgate m is one of the non-common PARs, on each of the non-common PARs caused by interchange schedules at non-common scheduling points.

Next, compute the non-common PAR impact for M2M Flowgate m as:

$$NC\_PAR\_Impact_{M2M\_Flowgate-m} = NC\_PAR\_MF_{M2M\_Flowgate-m} - NC\_PAR\_Control_{M2M\_Flowgate-m}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

$NC\_PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the potential flow on M2M Flowgate m that is affected by the operation of non-common PARs;

$NC\_PAR\_MF_{M2M\_Flowgate\text{-}m}$ = the sum of flow on M2M Flowgate m due to the generation to load and interchange schedules on the non-common PARs; and

$NC\_PAR\_Control_{M2M\_Flowgate\text{-}m}$ = the sum of flow on M2M Flowgate m after accounting for the operation of non-common PARs.

Aggregate all PAR Effects for Each M2M Flowgate

The total impacts from the PAR effects for M2M Flowgate m is:

$$PAR\_Impact_{M2M\_Flowgate-m} = Cmn\_PAR\_Impact_{M2M\_Flowgate-m} + NC\_PAR\_Impact_{M2M\_Flowgate-m}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

$PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the flow on M2M Flowgate m that is affected after accounting for the operation of both common and non-common PARs;

$Cmn\_PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = potential flow on M2M Flowgate m that is affected by the operation of the common PARs; and

$NC\_PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the potential flow on M2M Flowgate m that is affected by the operation of non-common PARs.

5.7 Compute the RTO Aggregate Market Flow for all M2M Flowgates

With the *RTO_GTL* and *PAR_IMPACT* known, we can now compute the *RTO_MF* for all M2M Flowgates as:

$$RTO\_MF_{M2M\_Flowgate-m} = RTO\_GTL_{M2M\_Flowgate-m} + Parallel\_Transfers_{M2M\_Flowgate-m} + Shared\_Transfers_{M2M\_Flowgate-m} - PAR\_Impact_{M2M\_Flowgate-m}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

$RTO\_MF_{M2M\_Flowgate\text{-}m}$ = the Market Flow caused by RTO generation dispatch and transaction scheduling on M2M Flowgate m after accounting for the operation of both the common and non-common PARs;

$RTO\_GTL_{M2M\_Flowgate\text{-}m}$ = the generation to load flow for the entire RTO footprint on M2M Flowgate m;

$Parallel\_Transfers_{M2M\_Flowgate\text{-}m}$ = the flow on M2M Flowgate m caused by interchange schedules that are not jointly scheduled by the participating RTOs;

$Shared\_Transfers_{M2M\_Flowgate\text{-}m}$ = the flow on M2M Flowgate m caused by interchange schedules that are jointly scheduled by the participating RTOs; and

$PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the flow on M2M Flowgate m that is affected after accounting for the operation of both the common and non-common PARs.

6 M2M Entitlement Determination Method

M2M Entitlements are the equivalent of financial rights for the Non-Monitoring RTO to use the Monitoring RTO's transmission system within the confines of the M2M redispatch process. The Parties worked together to develop the M2M Entitlement determination method set forth below.

Each Party shall calculate a M2M Entitlement on each M2M Flowgate and compare the results on a mutually agreed upon schedule.

6.1 M2M Entitlement Topology Model and Impact Calculation

The M2M Entitlement calculation shall use both RTOs' static topological models to determine the Non-Monitoring RTO's mutually agreed upon share of a M2M Flowgate's total capacity based on historic dispatch patterns. Both RTOs' models must include the following items:

1. a static transmission and generation model;
2. generator, load, and PAR shift factors;
3. generator output, load, and interchange schedules from 2009 through 2011 or any subsequent three year period mutually agreed to by the Parties;

4. a PAR impact assumption that the PAR control is perfect for all PARs within the transmission models except the PARs at the Michigan-Ontario border;
5. new or upgraded Transmission Facilities; and
6. Transmission Facility retirements.

Each Party shall calculate the GLDFs using a transmission model that contains a mutually agreed upon set of: (1) transmission lines that are modeled as in-service; (2) generators; and (3) loads. Using these GLDFs, generator output data from the three year period agreed to by the Parties, and load data from the three year period agreed to by the Parties, the Parties shall calculate each Party's MW impact on each M2M Flowgate for each hour in the three year period agreed to by the Parties.

Using these impacts, the Parties shall create a reference year consisting of four periods ("M2M Entitlement Periods") for each M2M Flowgate. The M2M Entitlement Periods are as follows:

1. M2M Entitlement Period 1: December, January, and February;
2. M2M Entitlement Period 2: March, April, and May;
3. M2M Entitlement Period 3: June, July, and August; and
4. M2M Entitlement Period 4: September, October, and November.

For each of the M2M Entitlement Periods listed above the Non-Monitoring RTO will calculate its M2M Entitlement on each M2M Flowgate for each hour of each day of a week that will serve as the representative week for that M2M Entitlement Period. The M2M Entitlement for each day/hour, for each M2M Flowgate will be calculated by averaging the Non-Monitoring RTO's Market Flow on an M2M Flowgate for each particular day/hour of the week. The Non-Monitoring RTO shall use the Market Flow data for all of the like day/hours, that occurred in that day of the week and hour in the M2M Entitlement Period, in each year contained within the three year period agreed to by the Parties to calculate the Non-Monitoring RTO's average Market Flow on each M2M Flowgate. When determining M2M settlements each Party will use the M2M Entitlement that corresponds to the hour of the week and to the M2M Entitlement Period for which the real-time Market Flow is being calculated.

The Parties will use the M2M Entitlements that are calculated based on data from the 2009 through 2011 three year period for at least their first year of implementing the M2M coordination process.

6.2 M2M Entitlement Calculation

Each Party shall independently calculate the Non-Monitoring RTO's M2M Entitlement for all M2M Flowgates using the equations set forth in this section. The Parties shall mutually agree upon M2M Entitlement calculations. Any disputes that arise in the M2M Entitlement calculations will be resolved in accordance with the dispute resolution procedures set forth in section 35.15 of the Agreement.

Eighty percent of the RECo load shall be excluded from the calculation of Market Flows and M2M Entitlements, and shall instead be reflected as a PJM obligation over the Ramapo PARs in accordance with Sections 7.2.1 and 8.3 of this M2M Schedule D. The remaining twenty percent of RECo load shall be included in the M2M Entitlement and Market Flow calculations as PJM load.

The following assumptions apply to the M2M Entitlement calculation:

1. the Parties shall calculate the values in this section using the M2M Entitlement Topology Model discussed in Section 6.1 above, unless otherwise stated;
2. the impacts from the *Parallel_Transfers* and *Shared_Transfers* terms of the Market Flow calculation (*see* Section 5.5) are excluded from the Market Flow that is used to calculate M2M Entitlements;
3. perfect PAR Control exists for all PARs within the transmission models except the PARs at the Ontario/Michigan border; and
4. External Capacity Resources may be included in the calculation of M2M Entitlements consistent with Section 6.2.1.1 below.

Once the Reference Year Market Flows have been calculated for each interval to determine the integrated hourly Market Flow for each hour of the relevant three year period agreed to by the Parties, the new M2M Entitlement will be determined for a representative week in each M2M Entitlement Period using the method established in Section 6.1 above. In the event of new or upgraded Transmission Facilities, Section 6.3 below sets forth the rules that will be used to adjust M2M Entitlements.

6.2.1 Treatment of Out-of-Area Capacity Resources and Representation of Ontario/Michigan PARs in the M2M Entitlement Calculation Process

6.2.1.1 Modeling of External Capacity Resources

External Capacity Resources may be included in the M2M Entitlement calculation to the extent the Parties mutually agree to their inclusion.

For the initial implementation of this M2M coordination process that will use 2009 through 2011 data to develop M2M Entitlements, PJM will be permitted to include its External Capacity Resources in the M2M Entitlement calculation. NYISO has not requested inclusion of any External Capacity Resources in the M2M Entitlement calculation for the initial implementation of M2M. When the Parties decide to update the data used to determine M2M Entitlements:

a. PJM will be permitted to include External Capacity Resources that have an equivalent net M2M Entitlement impact to the net M2M Entitlement impact of the PJM External Capacity Resources that were used for the initial implementation of the M2M

coordination process. Inclusion of PJM External Capacity Resources that exceed the net M2M Entitlement impact of the PJM External Capacity Resources that were used for the initial implementation of the M2M coordination process must be mutually agreed to by the Parties.

b. The Parties may mutually agree to permit the NYISO to include External Capacity Resources in the M2M Entitlement calculation.

6.2.1.2 Modeling of the Ontario/Michigan PARs

The Ontario/Michigan PARs will be modeled as not controlling power flows in the M2M Entitlement calculation process. The Parties agree that this modeling treatment is only appropriate when it is paired with the rules for calculating Market Flows and M2M settlements that are set forth in Sections 5 and 8 of this Agreement. Section 7.1 specifies how the RTOs will adjust Market Flows to account for the impact of the operation of the Ontario/Michigan PARs when the PARs are in service. The referenced Market Flow and M2M settlement rules are necessary because they are designed to ensure that M2M settlement obligations based on M2M Entitlements and Market Flows will not result in compensation for M2M redispatch when no actual M2M redispatch occurs.

6.3 M2M Entitlement Adjustment for New Transmission Facilities, Upgraded Transmission Facilities or Retired Transmission Facilities

This section sets forth the rules for incorporating new or upgraded Transmission Facilities, and Transmission Facility retirements, into the M2M Entitlement calculation. For all M2M Entitlement adjustments, the non-building RTO is the non-funding market, and the building RTO is the funding market.

If the cost of a new or upgraded Transmission Facility is borne solely by the Market Participants of the building RTO for the new or upgraded Transmission Facility, the Market Participants of the building RTO will exclusively benefit from the increase in transfer capability on the building RTO's Transmission Facilities. Therefore, the non-building RTO's M2M Entitlements shall not increase as result of such new or upgraded Transmission Facilities. Reciprocally, a building RTO's M2M Entitlements on the non-building RTO's M2M Flowgates shall not increase as a result of such new or upgraded Transmission Facilities.

To the extent a building RTO's new or upgraded Transmission Facility, or Transmission Facility retirement, reduces the non-building RTO's impacts on one or more of the building RTO's M2M Flowgates by redistributing the non-building RTO's modeled flows, the non-building RTO's M2M Entitlement will be redistributed to ensure that the non-building RTO's aggregate M2M Entitlements on the building RTOs transmission system, including both existing M2M Flowgates and upgraded or new Transmission Facilities that are not yet M2M Flowgates, is not decreased.

In assessing the impact of new or upgraded Transmission Facilities, or Transmission Facility retirements, the non-building RTO's revised total circulation through the building RTO shall not result in a net increase in M2M Entitlements for the non-building RTO on the building RTO's transmission system. The formulas below shall be used to determine the *pro-rata* adjustment that will be applied to determine the redistributed interval level and hourly integrated Market Flow (*i.e.*, the Transmission Adjusted Market Flow). Once a Transmission Adjusted Market Flow that incorporates the topology adjustment and reallocation of flows has been calculated for each hour of the three year period agreed to by the Parties, the new M2M Entitlement will be determined for each hour and day of the week in each M2M Entitlement Period using the method established in Section 6.1 above.

The Parties will mutually perform an analysis to determine if new or upgraded Transmission Facilities, or Transmission Facility retirements, will have an impact on any of the non-building RTO's M2M Flowgates. If the new or upgraded Transmission Facilities, or Transmission Facility retirements, are determined to have a 5% or less impact on each of the non-building RTO's M2M Flowgates, calculated individually for each M2M Flowgate, then the non-building RTO is not required to update its operational models to incorporate the new, upgraded or retired Transmission Facilities. If the new or upgraded Transmission Facilities, or Transmission Facility retirements, are determined to have greater than a 5% impact, but less than a 10% impact on each of the non-building RTO's M2M Flowgates, calculating the impact individually for each M2M Flowgate, then the Parties may mutually agree not to require the non-building RTO to update its operational models.

If Transmission Facilities outside the Balancing Authority Areas of the Parties are added or upgraded and the new or upgraded Transmission Facilities would, individually or in aggregate, cause a change in either Party's aggregate M2M Entitlements of at least 10%, then the Parties may mutually agree to incorporate those Transmission Facilities into the static transmission models used to perform the M2M Entitlement calculations.

M2M Entitlement Transmission Adjusted Market Flow Calculation:

This process determines the Transmission Adjusted Market Flow for existing and new or retired Transmission Facilities when new Transmission Facilities are built or existing Transmission Facilities are upgraded or retired. This process does not apply to the addition of new M2M Flowgates that are associated with existing Transmission Facilities.

First, determine the reference set of Market Flows, called Reference Year Market Flows, for all M2M Flowgates using a static transmission model before adding any new or upgraded Transmission Facilities, or removing retired Transmission Facilities.

Second, account for new or upgraded Transmission Facilities or Transmission Facility retirements in order from the first completed new/upgraded/retired facility to the last (most recently completed) new/upgraded/retired facility. Reflect the new/upgraded/retired facilities, grouped by building RTO, in the reference year model to determine the new set of Market Flows called New Year Market Flows.

Third, compare the New Year Market Flows to the Reference Year Market Flows, in net across all M2M Flowgates (after adding new or upgraded Transmission Facilities and/or removing retired Transmission Facilities), to determine whether the New Year Market Flows have increased or decreased relative to the Reference Year Market Flows. If the comparison indicates that New Year Market Flows have increased or decreased relative to the Reference Year Market Flows, apply the formulas below to determine new Transmission Adjusted Market Flows.

The comparison process is performed on a step-by-step basis. In some cases it will be appropriate to aggregate the impacts of more than one new or upgraded Transmission Facility into a single "step" of the evaluation.

Transmission Adjusted Market Flow Formula:

$$TotPost = \sum_{f \in F} Post_f$$

$$TotPre = \sum_{f \in E} Pre_f$$

$$NewPost = \sum_{f \in N} Post_f$$

$$ExistPost = \sum_{f \in E} Post_f$$

$$ExistPre = \sum_{f \in E} Pre_f$$

The non-building RTO's Transmission Adjusted Market Flow (Ent_f) is calculated as follows for each Transmission Facility in the building RTO's set of monitored M2M Flowgates $f \in F$:

$$Ent_f = \begin{cases} Post_f \cdot \dfrac{TotPre}{TotPost}, & \text{if } ExistPost > ExistPre \\ Post_f, & \text{if } ExistPost \leq ExistPre \text{ and } f \in E \\ \Big(Max\big((ExistPre - ExistPost), 0\big)\Big) \cdot \dfrac{Post_f}{NewPost}, & \text{if } ExistPost \leq ExistPre \text{ and } f \in N. \end{cases}$$

The building RTO's Transmission Adjusted Market Flow (Ent_f) is calculated as follows for each Transmission Facility in the non-building RTO's set of monitored M2M Flowgates $f \in F$:

$$Ent_f = \begin{cases} Post_f \cdot \dfrac{TotPre}{TotPost}, & \text{if } ExistPost > ExistPre \text{ and } f \in E \\ Post_f, & \text{if } ExistPost \leq ExistPre \text{ and } f \in E \\ 0, & \text{otherwise.} \end{cases}$$

Where:

f represents the relevant Transmission Facility within the building or non-building RTO.

E represents the existing facilities: the set of M2M Flowgates and previously accounted for new, upgraded or retired Transmission Facilities (which may not be M2M Flowgates) in the relevant (building or non-building) RTO.

N represents the new, upgraded or retired facilities: the set of Transmission Facilities in the relevant (building or non-building) RTO whose impact on M2M Entitlements is being evaluated.

F represents the set of all Transmission Facilities in the relevant (building or non-building) RTO, including all elements of sets *E* and *N*.

Pre_f is pre-upgrade/retirement market flow on *f*: the market flow on facility *f* calculated using the M2M Entitlement assumptions and based on a transmission topology that includes all pre-existing Transmission Facilities and all new, upgraded or retired Transmission Facilities whose impact on M2M Entitlements has been previously evaluated and incorporated.

$Post_f$ is the post-upgrade/retirement market flow on *f*: the market flow on facility *f* calculated using the M2M Entitlement assumptions and based on a transmission topology that includes all pre-existing Transmission Facilities and all new, upgraded or retired Transmission Facilities whose impact on M2M Entitlements has been previously evaluated and incorporated, *and* all new, upgraded or retired Transmission Facilities whose impact on M2M Entitlements is being evaluated in the current evaluation step. For Transmission Facility retirements, $Post_f$ shall equal zero.

6.4 M2M Entitlement Adjustment for a New Set of Generation, Load and Interchange Data

Section 6.3 above addresses how new or upgraded Transmission Facilities and Transmission Facility retirements will be reflected in the determination of M2M Entitlements. This section explains how the Parties will update the model used to determine M2M Entitlements to reflect new/updated generation, load and interchange information.

When moving the initial 2009-2011 period generation, interchange and load data forward, the RTOs will need to gather the data specified in Sections 6.1, 6.2 and (where appropriate) 6.3, above for the agreed upon three year period. External Capacity Resources will be included consistent with Section 6.2.1.1, above.

In accordance with the rules specified in Sections 6.1, 6.2 and (where appropriate) 6.3, above, the new set of data will be used to establish a new Reference Year Market Flow. When new or upgraded Transmission Facility or Transmission Facility retirement adjustments are necessary, the new Reference Year Market Flows will be used to determine the New Year and Transmission Adjusted Market Flows based on the rules set forth above. When no new or upgraded Transmission Facility or Transmission Facility retirement adjustments need to be applied, the new Reference Year Market Flows are the basis for the new M2M Entitlements.

7 Real-Time Energy Market Coordination

Operation of the Ramapo PARs and redispatch are used by the Parties in real-time operations to effectuate this M2M coordination process. Operation of the Ramapo PARs will permit the Parties to redirect energy to reduce the overall cost of managing transmission

congestion and to converge the participating RTOs' cost of managing transmission congestion. Operation of the Ramapo PARs to manage transmission congestion requires cooperation between the NYISO and PJM. Operation of the Ramapo PARs shall be coordinated with the operation of other PARs at the NYISO – PJM interface.

When a M2M Flowgate that is under the operational control of either NYISO or PJM and that is eligible for redispatch coordination, becomes binding in the Monitoring RTOs real-time security constrained economic dispatch, the Monitoring RTO will notify the Non-Monitoring RTO of the transmission constraint and will identify the appropriate M2M Flowgate that requires redispatch assistance. The Monitoring and Non-Monitoring RTOs will provide the economic value of the M2M Flowgate constraint (i.e., the Shadow Price) as calculated by their respective dispatch models. Using this information, the security-constrained economic dispatch of the Non-Monitoring RTO will include the M2M Flowgate constraint; the Monitoring RTO will evaluate the actual loading of the M2M Flowgate constraint and request that the Non-Monitoring RTO modify its Market Flow via redispatch if it can do so more efficiently than the Monitoring RTO (i.e., if the Non-Monitoring RTO has a lower Shadow Price for that M2M Flowgate than the Monitoring RTO).

An iterative coordination process will be supported by automated data exchanges in order to ensure the process is manageable in a real-time environment. The process of evaluating the Shadow Prices between the RTOs will continue until the Shadow Prices converge and an efficient redispatch solution is achieved. The continual interactive process over the following dispatch cycles will allow the transmission congestion to be managed in a coordinated, cost-effective manner by the RTOs. A more detailed description of this iterative procedure is discussed in Section 7.1 and the appropriate use of this iterative procedure is described in Section 10.

7.1 Real-Time Redispatch Coordination Procedures

The following procedure will apply for managing redispatch for M2M Flowgates in the real-time Energy market:

7.1.1 M2M Flowgates shall be monitored per each RTO's internal procedures.

a. When (i) an M2M Flowgate is constrained to a defined limit (actual or contingency flow) by a non-transient constraint, and (ii) Market Flows are such that the Non-Monitoring RTO may be able to provide an appreciable amount of redispatch relief to the Monitoring RTO, then the Monitoring RTO shall reflect the monitored M2M Flowgate as constrained.

b. M2M Flowgate limits shall be periodically verified and updated.

7.1.2 Testing for an Appreciable Amount of Redispatch Relief and Determining the Settlement Market Flow:

When the PARs at the Michigan-Ontario border are not in-service, the ability of the Non-Monitoring RTO to provide an appreciable amount of redispatch relief will be determined by comparing the Non-Monitoring RTO's Market Flow to the Non-Monitoring RTO M2M Entitlement for the constrained M2M Flowgate. When the Non-Monitoring RTO Market Flow (also the Market Flow used for settlement) is greater than the Non-Monitoring RTO M2M Entitlement for the constrained M2M Flowgate, the Monitoring RTO will assume that an appreciable amount of redispatch relief is available from the Non-Monitoring RTO and will engage the M2M coordination process for the constrained M2M Flowgate.

When any of the PARs at the Michigan-Ontario border are in-service, the ability of the Non-Monitoring RTO to provide an appreciable amount of redispatch relief will be determined by comparing either (i) the Non-Monitoring RTO's unadjusted Market Flow, or (ii) the Non-Monitoring RTO Market Flow adjusted to reflect the expected impact of the PARs at the Michigan-Ontario border ("LEC Adjusted Market Flow"), to the Non-Monitoring RTO M2M Entitlement for the constrained M2M Flowgate. The rules for determining which Market Flow (unadjusted or adjusted) to compare to the Non-Monitoring RTO M2M Entitlement when any of the PARs at the Michigan-Ontario border are in-service are set forth below.

a. Calculating the Expected Impact of the PARs at the Michigan-Ontario Border on Market Flows

The Non-Monitoring RTO's unadjusted Market Flow is determined as *RTO_MF* in accordance with the calculation set forth in Section 5 above. The expected impact of the PARs at the Michigan-Ontario border is determined as follows:

$$MICH-OH\_PAR\_Impact_{M2M\_Flowgate-m} = \sum_{MICH-OH\ Path=1}^{4} \begin{pmatrix} (PSF_{(MICH-OH\ Path,M2M\_Flowgate-m)}) \times \\ (RTO\_MF_{MICH-OH\ Path} - LEC/4) \end{pmatrix}$$

Where:

M2M_Flowgate-m = the relevant M2M Flowgate;

MICH-OH Path = each of the four PAR paths connecting Michigan to Ontario, Canada;

$MICH\text{-}OH\_PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the expected impact of the operation of the PARs at the Michigan-Ontario

border on the flow on M2M Flowgate m;

$PSF_{(MICH\text{-}OH\ Path,M2M\_Flowgate\text{-}m)}$ = the PSF of each of the four Michigan-Ontario PAR paths on M2M Flowgate m;

$RTO\_MF_{MICH\text{-}OH\ Path}$ = the Market Flow for each of the four Michigan-Ontario PAR paths, computed in the same manner as the Market Flow is computed for M2M Flowgates in Section 5 above; and

LEC = Actual circulation around Lake Erie as measured by each RTO.

The Non-Monitoring RTO's LEC Adjusted Market Flow, reflecting the expected impact of the PARs on the Michigan-Ontario border, can be determined by adjusting the *RTO_MF* from Section 5 to incorporate the *MICH-OH_PAR_Impact* calculated above.

$$LEC\ Adjusted\ Market\ Flow_{M2M\_Flowgate-m} = RTO\_MF_{M2M\_Flowgate-m} - MICH-OH\_PAR\_Impact_{M2M\_Flowgate-m}$$

Where:

M2M_Flowgate-m = the relevant flowgate;

MICH-OH Path = each of the four PAR paths connecting Michigan to Ontario, Canada;

$MICH\text{-}OH\_PAR\_Impact_{M2M\_Flowgate\text{-}m}$ = the expected impact of the operation of the PARs at the Michigan-Ontario border on the flow on M2M Flowgate m;

$RTO\_MF_{M2M\_Flowgate\text{-}m}$ = the Market Flow caused by RTO generation dispatch and transaction scheduling on M2M Flowgate m after accounting for the operation of both the common and non-common PARs; and

$LEC\ Adjusted\ Market\ Flow_{M2M\_Flowgate\text{-}m}$ = the Market Flow caused by RTO generation dispatch and transaction scheduling on M2M Flowgate m after accounting for the operation of the common

PARs, the non-common PARs, and the PARs at the Michigan-Ontario border.

b. Determining Whether to Use Unadjusted Market Flow or LEC Adjusted Market Flow; Determining if Appreciable Redispatch Relief is Available

1) When the Non-Monitoring RTO's LEC Adjusted Market Flow equals the Non-Monitoring RTO's unadjusted Market Flow and the Non-Monitoring RTO's Market Flow (also the Market Flow used for settlement) is greater than the Non-Monitoring RTO M2M Entitlement for the constrained M2M Flowgate, the Monitoring RTO will assume that an appreciable amount of redispatch relief is available from the Non-Monitoring RTO and will engage the M2M coordination process for the constrained M2M Flowgate.

2) When the Non-Monitoring RTO's unadjusted Market Flow is greater than the Non-Monitoring RTO's LEC Adjusted Market Flow, then the following calculation shall be performed to determine if an appreciable amount of redispatch relief is expected to be available:

   A. Determine the minimum of (a) the Non-Monitoring RTO's unadjusted Market Flow, and (b) the Non-Monitoring RTO's M2M Entitlement, for the constrained M2M Flowgate; and

   B. Determine the maximum of (x) the value from step A above, and (y) the Non-Monitoring RTO's LEC Adjusted Market Flow

   When the value from B above (the Market Flow used for settlement), is greater than the Non-Monitoring RTO's M2M Entitlement for the constrained M2M Flowgate, the Monitoring RTO will assume that an appreciable amount of redispatch relief is available from the Non-Monitoring RTO and will engage the M2M coordination process for the constrained M2M Flowgate.

3) When the Non-Monitoring RTO's unadjusted Market Flow is less than the Non-Monitoring RTO LEC Adjusted Market Flow, the following calculation shall be performed to determine if an appreciable amount of redispatch relief is expected to be available:

   A. Determine the maximum of (a) the Non-Monitoring RTO's unadjusted Market Flow, and (b) the Non-Monitoring RTO M2M Entitlement, for the constrained M2M Flowgate; and

B. Determine the minimum of (x) the value from A above, and (y) the Non-Monitoring RTO's LEC Adjusted Market Flow

When the value from B above (the Market Flow used for settlement), is greater than the Non-Monitoring RTO's M2M Entitlement for the constrained M2M Flowgate, the Monitoring RTO will assume that an appreciable amount of redispatch relief is available from the Non-Monitoring RTO and will engage the M2M coordination process for the constrained M2M Flowgate.

7.1.3 The Monitoring RTO initiates M2M, notifies the Non-Monitoring RTO of the M2M Flowgate that is subject to coordination and updates required information.

7.1.4 The Non-Monitoring RTO shall acknowledge receipt of the notification and one of the following shall occur:

a. The Non-Monitoring RTO refuses to activate M2M:
    i. The Non-Monitoring RTO notifies the Monitoring RTO of the reason for refusal; and
    ii. The M2M State is set to "Refused"; or
b. The Non-Monitoring RTO agrees to activate M2M:
    i. Such an agreement shall be considered an initiation of the M2M redispatch process for operational and settlement purposes; and
    ii. The M2M State is set to "Activated".

7.1.5 The Parties have agreed to transmit information required for the administration of this procedure, as per section 35.7.1 of the Agreement.

7.1.6 As Shadow Prices converge and approach zero or the Non-Monitoring RTO's Market Flows and Shadow Prices are such that an appreciable amount of redispatch relief can no longer be provided to the Monitoring RTO, the Monitoring RTO shall be responsible for the continuation or termination of the M2M redispatch process. Current and forecasted future system conditions shall be considered.[1]

When the Monitoring RTO's Shadow Price is not approaching zero the Monitoring RTO can (1) use the procedure called *Testing for an Appreciable Amount of Relief and Determining the Settlement Market Flow* from step 2b above, and (2) compare the Non-Monitoring RTO's Shadow Price to the

[1] Termination of M2M redispatch may be requested by either RTO in the event of a system emergency.

Monitoring RTO's Shadow Price, to determine whether there is an appreciable amount of market flow relief being provided.

When the *Testing for an Appreciable Amount of Relief and Determining the Settlement Market Flow* procedure indicates there is not an appreciable amount of relief being provided, and the Non-Monitoring RTO Shadow Price is not less than the Monitoring RTO Shadow Price, then the Monitoring RTO may terminate the M2M coordination process.

7.1.7 Upon termination of M2M, the Monitoring RTO shall

a. Notify the Non-Monitoring RTO; and

b. Transmit M2M data to the Non-Monitoring RTO with the M2M State set to "Closed". The timestamp with this transmission shall be considered termination of the M2M redispatch process for operational and settlement purposes.

7.2 Real-Time Ramapo PAR Coordination

The Ramapo PARs will be operated to facilitate interchange schedules while minimizing regional congestion costs. When congestion is not present, the Ramapo PARs will be operated to achieve the target flow as established below in Section 7.2.1.

If one (but not both) of the Ramapo PARs is out-of-service, the amount of total interchange scheduled between PJM and NYISO over the AC tie lines shall remain below any value that results in the percentage of total scheduled interchange assigned to the 5018 line (excluding interchange that may be shifted to the ABC and JK lines) exceeding the rating of the in-service Ramapo PAR facilities.

In order to preserve the long-term availability of the Ramapo PARs, a maximum of 20 taps per PAR per day, and a maximum of 400 taps per calendar month will normally be observed.

7.2.1 Ramapo Target Value

A Target Value for flow between the NYISO and PJM shall be determined for each Ramapo PAR (the 3500 PAR and the 4500 PAR) ("$Target_{Ramapo}$"). These Target Values shall be determined by a formula based on the net interchange schedule between the Parties plus the deviation of actual flows and desired flows across the ABC and JK interfaces and shall be used for settlement purposes as:

$$Target_{Ramapo} = (RamapoInterchangeFactor) + (Actual_{JK} + RECo\_Load - Actual_{ABC}) - (Auto\ Correction\ Factor_{JK} - Auto\ Correction\ Factor_{ABC})$$

Where:

$Target_{Ramapo} =$ Calculated Target Value for the flow on each Ramapo PAR (PAR3500 and PAR4500);

$RamapoInterchangeFactor =$ 61% of the net interchange schedule between PJM and NYISO over the AC tie lines distributed evenly across the in-service Ramapo PARs; A positive value indicates flows from PJM to NYISO and a negative value indicates flows from NYISO to PJM.

If one (but not both) of the Ramapo PARs is out-of-service, the RTOs shall instead use 46% of the net interchange scheduled between PJM and NYISO over the AC tie lines to determine the *Ramapo Interchange Factor* for the expected or actual duration of the Ramapo PAR outage. While the modified *Ramapo Interchange Factor* is in effect, 100% of the expected flows shall be distributed to the in-service Ramapo PAR. The RTOs shall undertake best efforts to issue or post a notice that the change is being made at least two days before the change is implemented and to provide at least one day's notice before returning to the expectation that 61% of net scheduled interchange will flow over the 5018 transmission line.

$Actual_{JK} =$ Telemetered real-time flow over the JK interface. A positive value indicates flows from NYISO to PJM and a negative value indicates flows from PJM to NYISO;

$Actual_{ABC} =$ Telemetered real-time flow over the ABC interface. A positive value indicates flows from PJM to NYISO and a negative value indicates flows from NYISO to PJM.;

$RECo\_Load =$ 80% of the telemetered real-time Rockland Electric Company Load;

$Auto\ Correction\ Factor_{JK} =$ The JK interface Auto Correction component of the JK interface real-time desired flow as described in Schedule C to the Agreement. A positive value indicates flows from NYISO to PJM and a negative value indicates flows from PJM to NYISO; and

$Auto\ Correction\ Factor_{ABC} =$ The ABC interface Auto Correction component of the ABC interface real-time desired flow as described in Schedule C to the Agreement. A positive value indicates flows from PJM to NYISO and a negative value indicates flows from NYISO to PJM.

In accordance with Appendix 3 of Schedule C to the Agreement, the participating RTOs will mutually agree on the circumstances under which they will allow up to thirteen percent of PJM to New York interchange schedules to flow over the ABC and JK interfaces. When a portion of PJM to New York interchange schedules are allowed to flow over the ABC and JK interfaces, the allowed scheduled interchange will be captured as a change to the $Actual_{JK}$ and $Actual_{ABC}$ terms above.

7.2.2 Determination of the Cost of Congestion at Ramapo

The incremental cost of congestion relief provided by each Ramapo PAR shall be determined by each of the Parties. These costs shall be determined by multiplying each Party's Shadow Price on each of its M2M Flowgates by the PSF for each Ramapo PAR for the relevant M2M Flowgates.

The incremental cost of congestion relief provided by each Ramapo PAR shall be determined by the following formula:

$$Congestion\$_{(Ramapo,RTO)} =$$

$$\sum_{M2M\ Flowgates-m \in M2M\ Flowgates_{RTO}} (PSF_{(M2M\ Flowgate-m,Ramapo)} \times Shadow\$_{M2M\ Flowgate-m})$$

Where:

$Congestion\$_{(Ramapo,RTO)} =$	Cost of congestion at each Ramapo PAR for the relevant participating RTO, where a negative cost of congestion indicates taps in the direction of the relevant participating RTO would alleviate that RTO's congestion;
$M2M\ Flowgates_{RTO} =$	Set of M2M Flowgates for the relevant participating RTO;
$PSF_{(M2M\ Flowgate-m,Ramapo)} =$	The PSF for each Ramapo PARs on M2M Flowgate–m; and
$Shadow\$_{M2M\ Flowgate-m} =$	The Shadow Price on the relevant participating RTO's M2M Flowgate m.

7.2.3 Desired PAR Changes

Consistent with the congestion cost calculation established in Section 7.2.2 above, if the NYISO congestion costs associated with the Ramapo PAR are less than the PJM congestion costs associated with the Ramapo PAR, then hold or take taps into NYISO.

Similarly, if the PJM congestion costs associated with the Ramapo PAR are less than NYISO congestion costs associated with the Ramapo PAR, then hold or take taps into PJM.

Any action on the Ramapo PARs will be coordinated between the Parties and taken into consideration other PAR actions.

8 Real-Time Energy Market Settlements

8.1 Information Used to Calculate M2M Settlements

For each M2M Flowgate there are two components of the M2M settlement, a redispatch component and a Ramapo PARs coordination component. Both M2M settlement components are defined below.

For the redispatch component, market settlements under this M2M Schedule will be calculated based on the following:

1. the Non-Monitoring RTO's real-time Market Flow, determined in accordance with Section 7.1 above, on each M2M Flowgate compared to its M2M Entitlement for M2M Flowgates eligible for redispatch on each M2M Flowgate; and
2. the *ex-ante* Shadow Price at each M2M Flowgate.

For the Ramapo PARs coordination component, Market settlements under this M2M Schedule will be calculated based on the following:

1. actual real-time flow on each of the Ramapo PARs compared to its target flow ($Target_{Ramapo}$);
2. Ramapo PSF for each M2M Flowgate; and
3. the *ex-ante* Shadow Price at each M2M Flowgate.

Either or both of the Parties shall be excused from paying a *PJMRamapoPayment* or a *NYRamapoPayment* (described in section 8.3 below) to the other Party at times when a Storm Watch is in effect in New York and the operating requirements and other criteria set forth in Section 8.3.1 below are satisfied.

8.2 Real-Time Redispatch Settlement

If the M2M Flowgate is eligible for redispatch, then compute the real-time redispatch settlement for each interval as specified below.

When $RT\_MktFlow_{M2M\ Flowgate-m_i} > M2M\_Ent_{M2M\ Flowgate-m_i}$,

$$MonRTO\_Payment_{M2M\ Flowgate-m_i} = Mon\_Shadow\$_{M2M\ Flowgate-m_i} \times \left(RT\_MktFlow_{M2M\ Flowgate-m_i} - M2M\_Ent_{M2M\ Flowgate-m_i}\right) \times {}^{s_i}/_{3600sec}$$

When $RT\_MktFlow_{M2M\ Flowgate-m_i} < M2M\_Ent_{M2M\ Flowgate-m_i}$,

$$Non\_MonRTO\_Payment_{M2M\ Flowgate-m_i} = Non\_Mon\_Shadow\$_{M2M\ Flowgate-m_i} \times \left(M2M\_Ent_{M2M\ Flowgate-m_i} - RT\_MktFlow_{M2M\ Flowgate-m_i}\right) \times {}^{s_i}/_{3600sec}$$

Where:

$Non\_MonRTO\_Payment_{M2M\ Flowgate-m_i}$ = M2M redispatch settlement, in the form of a payment to the Non-Monitoring RTO from the Monitoring RTO, for M2M Flowgate m and interval *i*;

$MonRTO\_Payment_{M2M\ Flowgate-m_i}$ = M2M redispatch settlement, in the form of a payment to the Monitoring RTO from the Non-Monitoring RTO, for M2M Flowgate m and interval *i*;

$RT\_MktFlow_{M2M\ Flowgate-m_i}$ = real-time RTO_MF, determined for settlement in accordance with Section 7.1 above, for M2M Flowgate m and interval *i*;

$M2M\_Ent_{M2M\ Flowgate-m_i}$ = Non-Monitoring RTO M2M Entitlement for M2M Flowgate m and interval *i*;

$Mon\_Shadow\$_{M2M\ Flowgate-m_i}$ = Monitoring RTO's Shadow Price for M2M Flowgate m and interval *i*;

$Non\_Mon\_Shadow\$_{M2M\ Flowgate-m_i}$ = Non-Monitoring RTO's Shadow Price for M2M Flowgate m and interval *i*; and

s_i = number of seconds in interval *i*.

8.3 Ramapo PARs Settlement

Compute the real-time Ramapo PAR settlement for each interval as specified below.

When

$$Actual_{Ramapo_i} > Target_{Ramapo_i}, PJMRamapo\ Payment_i = \left(Congestion\$_{(Ramapo,PJM)_i} \times \left(Target_{Ramapo_i} - Actual_{Ramapo_i} \right) \right) \times {}^{s_i}/_{3600sec}$$

When $Actual_{Ramapo_i} < Target_{Ramapo_i}$,

$$NYRamapo\ Payment_i = \left(Congestion\$_{(Ramapo,NY)_i} \times \left(Target_{Ramapo_i} - Actual_{Ramapo_i} \right) \right) \times {}^{s_i}/_{3600sec}$$

Where:

$Actual_{Ramapo_i} =$ Measured real-time actual flow on each of the Ramapo PARs for interval *i*. For purposes of this equation, a positive value indicates a flow from PJM to the NYISO;

$Target_{Ramapo_i} =$ Calculated Target Value for the flow on each Ramapo PAR (PAR3500 and PAR4500) as described in Section 7.2.1 above for interval *i*. For purposes of this equation, a positive value indicates a flow from PJM to the NYISO;

$PJMRamapoPayment_i =$ PJM Ramapo PARs settlement, defined as a payment from the NYISO to PJM when the value is positive, and a payment from PJM to the NYISO when the value is negative for interval *i*;

$NYRamapoPayment_i =$ NYISO Ramapo PARs settlement, defined as a payment from PJM to the NYISO when the value is negative, and a payment from the NYISO to PJM when the value is positive for interval *i*;

$Congestion\$_{(Ramapo,PJM)_i} =$ Cost of congestion at each Ramapo PAR for PJM, calculated in accordance with Section 7.2.2 above for interval *i*;

$Congestion\$_{(Ramapo,NY)_i} =$ Cost of congestion at each Ramapo PAR for NY, calculated in accordance with Section 7.2.2 above for interval *i*, and

$s_i =$ number of seconds in interval *i*.

8.3.1 Ramapo PAR Settlements During Storm Watch Events

PJM shall not be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* (calculated in accordance with section 8.3 above) to NYISO when a Storm Watch is in effect and PJM has taken the actions required below to assist the NYISO, or when NYISO has not taken the actions required below to address power flows resulting from the redispatch of generation to address the Storm Watch.

NYISO shall not be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to PJM when a Storm Watch is in effect and NYISO has taken the actions required of it below to address power flows resulting from the redispatch of generation to address the Storm Watch.

When a Storm Watch is in effect, the RTOs will determine whether PJM and/or NYISO are required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to the other RTO based on three Storm Watch compliance requirements that address the operation of (a) the JK transmission lines and associated Waldwick PARs, (b) the ABC transmission lines and associated PARs, and (c) the 5018 transmission line and associated Ramapo PARs. Compliance shall be determined as follows:

a. *JK Storm Watch compliance*: Subject to the exceptions that follow, PJM will be "Compliant" at the JK interface when either of the following two conditions are satisfied, otherwise it will be "Non-compliant":

   i. Flow on the JK interface was at or below RTMDFJK[2] plus the applicable bandwidth[3] at any point in the trailing (rolling) 15-minutes[4]; or

   ii. PJM took at least two taps on each Available Waldwick PAR in the direction to reduce flow into PJM at any point in the trailing (rolling) 15-minutes.

   If NYISO denies PJM's request to take one or more taps at a Waldwick PAR to reduce flow into PJM and achieve compliance at the JK interface, then PJM shall be considered "Compliant" at the JK interface.

[2] RTMDFJK is defined in Appendix 3 to Schedule C of this Agreement.

[3] The bandwidth is described in Appendix 5 to Schedule C of this Agreement.

[4] For example, if the RTMDFJK is 1000 MW and the applicable bandwidth is +/-100 MW, then PJM will be "Compliant" if flow into PJM on JK was at or below 1100 MW during any six second measurement interval over the trailing (rolling) 15 minutes.

If PJM cannot take a required tap at a Waldwick PAR because the change will result in an overload on PJM's system unless NYISO first takes a tap at an ABC PAR increasing flow into New York, and flow on the ABC interface is not at or above RTMDFABC[5] minus the applicable bandwidth, then PJM may request that NYISO take a tap at an ABC PAR increasing flow into New York. PJM will be "Compliant" at the JK interface if NYISO does not take the requested tap within five minutes of receiving PJM's request. "Compliant" status achieved pursuant to this paragraph shall continue until NYISO takes the requested PAR tap, or the Parties agree that NYISO not taking the requested PAR tap is no longer preventing PJM from taking the PAR tap(s) (if any) PJM needs to achieve compliance at the JK interface.

If PJM cannot take a required tap at a Waldwick PAR because the change will result in an overload on PJM's system unless NYISO first takes a tap at a Ramapo PAR increasing flow into New York, and flow on the 5018 interface is not at or above the Ramapo Target value, then PJM may request that NYISO take a tap at a Ramapo PAR increasing flow into New York. PJM will be "Compliant" at the JK interface if NYISO does not either (i) take the requested tap within five minutes of receiving PJM's request, or (ii) inform PJM that NYISO is unable to take the requested tap at Ramapo because the change would result in an actual or post-contingency overload on the 5018 lines, or on either of the Ramapo PARs (NYISO will be responsible for demonstrating both the occurrence and duration of the condition). "Compliant" status achieved pursuant to this paragraph shall continue until NYISO takes the requested PAR tap, or the Parties agree that NYISO not taking the requested PAR tap is no longer preventing PJM from taking the PAR tap(s) (if any) PJM needs to achieve compliance at the JK interface.

If PJM cannot take a required tap at a Waldwick PAR because the change would result in an actual or post-contingency overload on either or both of the JK lines, or on any of the Waldwick PARs, and the overload cannot be addressed through NYISO taking taps at ABC or Ramapo, then PJM will be considered "Compliant" at the JK interface until the condition is resolved. PJM will be responsible for demonstrating both the occurrence and duration of the condition.

b. *ABC Storm Watch compliance*: Subject to the exceptions that follow, NYISO will be "Compliant" at the ABC interface when either of the following two conditions are satisfied, otherwise it will be "Non-compliant":

i. Flow on the ABC interface was at or above RTMDFABC minus the applicable bandwidth at any point in the trailing (rolling) 15-minutes[6]; or

[5] RTMDFABC is defined in Appendix 3 to Schedule C of this Agreement.

[6] For example, if the RTMDFABC is 1000 MW and the applicable bandwidth is +/-100 MW, then NYISO will be "Compliant" if flow into New York on ABC was at or above 900 MW during any six second measurement interval over the trailing (rolling) 15 minutes.

ii. NYISO took at least two taps on each Available ABC PAR in the direction to increase flow into New York at any point in the trailing (rolling) 15-minutes.

If PJM denies NYISO's request to take one or more taps at an ABC PAR to increase flow into New York and achieve compliance at the ABC interface, then NYISO shall be considered "Compliant" at the ABC interface.

If NYISO cannot take a required tap at an ABC PAR because the change will result in an overload on NYISO's system unless PJM first takes a tap at a Waldwick PAR reducing flow into PJM, and flow on the JK interface is not at or below RTMDFJK plus the applicable bandwidth, then NYISO may request that PJM take a tap at a Waldwick PAR reducing flow into PJM. NYISO will be "Compliant" at the ABC interface if PJM does not take the requested tap within five minutes of receiving NYISO's request. "Compliant" status achieved pursuant to this paragraph shall continue until PJM takes the requested PAR tap, or the Parties agree that PJM not taking the requested PAR tap is no longer preventing NYISO from taking the PAR tap(s) (if any) NYISO needs to achieve compliance at the ABC interface.

If NYISO cannot take a required tap at an ABC PAR because the change would result in an actual or post-contingency overload on one or more of the ABC lines, or on any of the ABC PARs, and the overload cannot be addressed through NYISO taking taps at Ramapo or PJM taking taps at Waldwick, then NYISO will be considered "Compliant" at the ABC interface until the condition is resolved. NYISO will be responsible for demonstrating both the occurrence and duration of the condition.

c. *5018 Storm Watch compliance*: Subject to the exceptions that follow, NYISO will be "Compliant" at the 5018 interface when either of the following two conditions are satisfied, otherwise it will be "Non-compliant":

i. Flow on the 5018 interface was at or above the Ramapo Target Value described in section 7.2.1 above at any point in the trailing (rolling) 15-minutes; or

ii. NYISO took at least two taps on each Available Ramapo PAR in the direction to increase flow into New York at any point in the trailing (rolling) 15-minutes.

If PJM denies NYISO's request to take one or more taps at a Ramapo PAR to increase flow into New York and achieve compliance at the 5018 interface, then NYISO shall be considered "Compliant" at the 5018 interface.

If NYISO cannot take a required tap at a Ramapo PAR because it will result in an overload on NYISO's system unless PJM first takes a tap at a Waldwick PAR reducing flow into PJM, and flow on the JK interface is not at or below RTMDFJK plus the applicable bandwidth, then NYISO may request that PJM take a tap at a Waldwick PAR reducing flow into PJM. NYISO will be "Compliant" at the 5018 interface if PJM does not take the requested tap within five minutes of receiving NYISO's request. "Compliant" status achieved pursuant to this paragraph shall continue until PJM takes the requested PAR tap, or the Parties agree that PJM not taking the requested PAR tap is no longer preventing NYISO from taking the PAR tap(s) (if any) NYISO needs to achieve compliance at the Ramapo interface.

If NYISO cannot take a required tap at a Ramapo PAR because the change would result in an actual or post-contingency overload on the 5018 line, or on either of the Ramapo PARs, and the overload cannot be addressed through NYISO taking taps at ABC or PJM taking taps at Waldwick, then NYISO will be considered "Compliant" at the 5018 interface until the condition is resolved. NYISO will be responsible for demonstrating both the occurrence and duration of the condition.

When a Storm Watch is in effect in New York, PJM shall only be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to NYISO when PJM is "Non-Compliant" at the JK interface, while NYISO is "Compliant" at both the ABC and 5018 interfaces. Otherwise, PJM shall not be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to NYISO at times when a Storm Watch is in effect in New York.

When a Storm Watch is in effect in New York, NYISO shall only be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to PJM when NYISO is "Non-Compliant" at the ABC interface or the 5018 interface, or both of those interfaces. When NYISO is "Compliant" at both the ABC and 5018 interfaces, NYISO shall not be required to pay a *PJMRamapoPayment* or a *NYRamapoPayment* to PJM at times when a Storm Watch is in effect in New York.

When all three interfaces (JK, ABC, 5018) are "Compliant," this section 8.3.1 excuses the Parties from paying *PJMRamapoPayments* and *NYRamapoPayments* to each other at times when a Storm Watch is in effect in New York.

Compliance and Non-compliance shall be determined for each interval of the NYISO settlement cycle (normally, every 5-minutes) that a Storm Watch is in effect.

8.4 Calculating a Combined M2M Settlement

The M2M settlement shall be the sum of the real-time redispatch settlement for each M2M Flowgate and the Ramapo PARs settlement for each interval

$$Redispatch\ NY\ Settlement_i = \left(\sum_{M2M\ Flowgate\ m}^{all\ NY\ M2M\ Flowgates} \left(MonRTO\ Payment_{M2M\ Flowgate\ m_i} - Non\ MonRTO\ Payment_{M2M\ Flowgate\ m_i}\right)\right)$$

$$Redispatch\ PJM\ Settlement = \left(\sum_{M2M\ Flowgate\ m}^{all\ PJM\ M2M\ Flowgates} \left(MonRTO\ Payment_{M2M\ Flowgate\ m_i} - Non\ MonRTO\ Payment_{M2M\ Flowgate\ m_i}\right)\right)$$

Where:

$Redispatch\ NY\ Settlement_i =$ M2M NYISO settlement, defined as a payment from PJM to NYISO when the value is positive, and a payment from the NYISO to PJM when the value is negative for interval *i*;

$Redispatch\ PJM\ Settlement_i =$ M2M PJM settlement, defined as a payment from NYISO to PJM when the value is positive, and a payment from the PJM to NYISO when the value is negative for interval *i*;

$Non\ MonRTO\ Payment_{M2M\ Flowgate\ m_i} =$ Monitoring RTO payment to Non-Monitoring RTO for congestion on M2M Flowgate m for interval *i*; and

$MonRTO\ Payment_{M2M\ Flowgate\ m_i} =$ Non-Monitoring RTO payment to Monitoring RTO for congestion on M2M Flowgate m for interval *i*.

$$M2M\ Settlement_i = Redispatch\ PJM\ Settlement_i - Redispatch\ NY\ Settlement_i + NYRamapoPayment_i + PJMRamapoPayment_i$$

Where:

$M2M\ Settlement_i =$ M2M settlement, defined as a payment from the NYISO to PJM when the value is positive, and a payment from PJM to the NYISO when the value is negative for interval *i*;

$Redispatch\ NY\ Settlement_i =$ M2M NYISO settlement, defined as a payment from PJM to NYISO when the value is positive, and

a payment from the NYISO to PJM when the value is negative for interval *i*;

$Redispatch\ PJM\ Settlement_i =$ M2M PJM settlement, defined as a payment from NYISO to PJM when the value is positive, and a payment from the PJM to NYISO when the value is negative for interval *i*;

$PJMRamapoPayment_i =$ PJM Ramapo PARs settlement, defined as a payment from the NYISO to PJM when the value is positive, and a payment from PJM to the NYISO when the value is negative for interval *i*; and

$NYRamapoPayment_i =$ NYISO Ramapo PARs settlement, defined as a payment from PJM to the NYISO when the value is negative and a payment from the NYISO to PJM when the value is positive for interval *i*.

For the purpose of settlements calculations, each interval will be calculated separately and then integrated to an hourly value:

$$M2M\_Settlement_h = \sum_{i=1}^{n} M2M\_Settlement_i$$

Where:

$M2M\_Settlement_h =$ M2M settlement for hour *h*; and

n = Number of intervals in hour *h*.

Section 10.1 of this M2M Schedule sets forth circumstances under which the M2M coordination process and M2M settlements may be temporarily suspended.

9 When One of the RTOs Does Not Have Sufficient Redispatch

Under the normal M2M coordination process, sufficient redispatch for a M2M Flowgate may be available in one RTO but not the other. When this condition occurs, in order to ensure an operationally efficient dispatch solution is achieved, the RTO without sufficient redispatch will redispatch all effective generation to control the M2M Flowgate to a "relaxed" Shadow Price limit. Then this RTO calculates the Shadow Price for the M2M Flowgate using the available redispatch which is limited by the maximum physical control action inside the RTO. Because the magnitude of the Shadow Price in this RTO cannot reach that of the other RTO with

sufficient redispatch, unless further action is taken, there will be a divergence in Shadow Prices and the LMPs at the RTO border.

Subject to Section 10.1.2 below, a special process is designed to enhance the price convergence under this condition. If the Non-Monitoring RTO cannot provide sufficient relief to reach the Shadow Price of the Monitoring RTO, the constraint relaxation logic will be deactivated. The Non-Monitoring RTO will then be able to use the Monitoring RTO's Shadow Price without limiting the Shadow Price to the maximum Shadow Price associated with a physical control action inside the Non-Monitoring RTO. With the M2M Flowgate Shadow Prices being the same in both RTOs, their resulting bus LMPs will converge in a consistent price profile.

10 Appropriate Use of the M2M Coordination Process

Under normal operating conditions, the Parties will model all M2M Flowgates in their respective real-time EMSs. M2M Flowgates will be controlled using M2M tools for coordinated redispatch and coordinated operation of the Ramapo PARs, and will be eligible for M2M settlements.

10.1 Qualifying Conditions for M2M Settlement

10.1.1 **Purpose of M2M**. M2M was established to address regional, not local issues. The intent is to implement the M2M coordination process and settle on such coordination where both Parties have significant impact.

10.1.2 **Minimizing Less than Optimal Dispatch**. The Parties agree that, as a general matter, they should minimize financial harm to one RTO that results from the M2M coordination process initiated by the other RTO that produces less than optimal dispatch.

10.1.3 **Use M2M Whenever Binding a M2M Flowgate**. During normal operating conditions, the M2M redispatch process will be initiated by the Monitoring RTO whenever an M2M Flowgate that is eligible for redispatch is constrained and therefore binding in its dispatch. Coordinated operation of the Ramapo PARs is the default condition and does not require initiation by either Party to occur.

10.1.4 **Most Limiting Flowgate**. Generally, controlling to the most limiting Flowgate provides the preferable operational and financial outcome. In principle and as much as practicable, the M2M coordination process will take place on the most limiting Flowgate, and to that Flowgate's actual limit (thermal, reactive, stability).

10.1.5 **Abnormal Operating Conditions**.

a. A Party that is experiencing system conditions that require the system operators' immediate attention may temporarily delay implementation of the M2M

redispatch process or cease an active M2M redispatch event until a reasonable time after the system condition that required the system operators' immediate attention is resolved.

b. Either Party may temporarily suspend an active M2M coordination process or delay implementation of the M2M coordination process if a Party is experiencing, or acting in good faith suspects it may be experiencing, (1) a failure or outage of the data link between the Parties prevents the exchange of accurate or timely real-time data necessary to implement the M2M coordination process; or (2) a failure or outage of any computational or data systems preventing the actual or accurate calculation of data necessary to implement the M2M coordination process. The Parties shall resolve the issue causing the failure or outage of the data link, computational systems, or data systems as soon as possible in accordance with Good Utility Practice. The Parties shall resume implementation of the M2M coordination process following the successful testing of the data link or relevant system(s) after the failure or outage condition is resolved.

10.1.6 Transient System Conditions. A Party that is experiencing intermittent congestion due to transient system conditions including, but not limited to, interchange ramping or transmission switching, is not required to implement the M2M redispatch process unless the congestion continues after the transient condition(s) have concluded.

10.1.7 Temporary Cessation of M2M Coordination Process Pending Review. If the net charges to a Party resulting from implementation of the M2M coordination process for a market-day exceed five hundred thousand dollars, then the Party that is responsible for paying the charges may (but is not required to) suspend implementation of this M2M coordination process (for a particular M2M Flowgate, or of the entire M2M coordination process) until the Parties are able to complete a review to ensure that both the process and the calculation of settlements resulting from the M2M coordination process are occurring in a manner that is both (a) consistent with this M2M Coordination Schedule, and (b) producing a just and reasonable result. The Party requesting suspension must identify specific concerns that require investigation within one business day of requesting suspension of the M2M coordination process. If, following their investigation, the Parties mutually agree that the M2M coordination process is (i) being implemented in a manner that is consistent with this M2M Coordination Schedule and (ii) producing a just and reasonable result, then the M2M coordination process shall be re-initiated as quickly as practicable. If the Parties are unable to mutually agree that the M2M coordination process was being implemented appropriately, or of the Parties are unable to mutually agree that the M2M coordination process was producing a just and reasonable result, the suspension (for a particular M2M Flowgate, or of the entire M2M coordination

process) shall continue while the Parties engage in dispute resolution in accordance with section 35.15 of the Agreement.

10.1.8 Suspension of M2M Settlement when a Request for Taps on Common PARs to Prevent Overuse is Refused. If a Party requests that taps be taken on any Common PAR to reduce the requesting Party's overuse of the other Party's transmission system, refusal by the other Party or its Transmission Owner(s) to permit taps to be taken to reduce overuse shall result in the Ramapo PAR settlement component of M2M (*see* Section 8.3 above) being suspended for the requesting Party until the tap request is granted. The refusing Party shall not be relieved of any of its M2M settlement obligations.

10.1.9 Suspension of Ramapo PAR Settlement due to Transmission Facility Outage(s). The Parties shall suspend Ramapo PAR settlements when: (a) the Branchburg – Ramapo 500kV 5018 transmission line is out of service; or (b) there is a simultaneous outage of Ramapo PAR3500 and Ramapo PAR4500; or (c) the occurrence of both 10.1.9(a) and 10.1.9(b).

No other Transmission Facility outage(s) will trigger suspension of Ramapo PAR settlements under this section 10.1.9.

10.2 After-the-Fact Review to Determine M2M Settlement

Based on the communication and data exchange that has occurred in real-time between the Parties, there will be an opportunity to review the use of the M2M coordination process to verify it was an appropriate use of the M2M coordination process and subject to M2M settlement. The Parties will initiate the review as necessary to apply these conditions and settlements adjustments. The Parties will cooperate to review the data exchanged and used to determine M2M settlements and will mutually identify and resolve errors and anomalies in the calculations that determine the M2M settlements.

If the data exchanged for the M2M redispatch process was relied on by the Non-Monitoring RTO's dispatch to determine the shadow cost the Non-Monitoring RTO was dispatching to when providing relief at an M2M Flowgate, the data transmitted by the Monitoring RTO that was used to determine the Non-Monitoring RTO's shadow cost shall not be modified except by mutual agreement prior to calculating M2M settlements. Any necessary corrections to the data exchange shall be made for future M2M coordination.

10.3 Access to Data to Verify Market Flow Calculations

Each Party shall provide the other Party with data to enable the other Party independently to verify the results of the calculations that determine the M2M settlements under this M2M Coordination Schedule. A Party supplying data shall retain that data for two years from the date of the settlement invoice to which the data relates, unless there is a legal or regulatory requirement for a longer retention period. The method of exchange and the type of information to be exchanged pursuant to section 35.7.1 of the Agreement shall be specified in writing. The

Parties will cooperate to review the data and mutually identify or resolve errors and anomalies in the calculations that determine the M2M settlements. If one Party determines that it is required to self report a potential violation to the Commission's Office of Enforcement regarding its compliance with this M2M Coordination Schedule, the reporting Party shall inform, and provide a copy of the self report to, the other Party. Any such report provided by one Party to the other shall be Confidential Information.

11 M2M Change Management Process

11.1 Notice

Prior to changing any process that implements this M2M Schedule, the Party desiring the change shall notify the other Party in writing or via email of the proposed change. The notice shall include a complete and detailed description of the proposed change, the reason for the proposed change, and the impacts the proposed change is expected to have on the implementation of the M2M coordination process, including M2M settlements under this M2M Schedule.

11.2 Opportunity to Request Additional Information

Following receipt of the Notice described in Section 11.1, the receiving Party may make reasonable requests for additional information/documentation from the other Party. Absent mutual agreement of the Parties, the submission of a request for additional information under this Section shall not delay the obligation to timely note any objection pursuant to Section 11.3, below.

11.3 Objection to Change

Within ten business days after receipt of the Notice described in Section 11.1 (or within such longer period of time as the Parties mutually agree), the receiving Party may notify in writing or via email the other Party of its disagreement with the proposed change. Any such notice must specifically identify and describe the concern(s) that required the receiving Party to object to the described change.

11.4 Implementation of Change

The Party proposing a change to its implementation of the M2M coordination process shall not implement such change until (a) it receives written or email notification from the other Party that the other Party concurs with the change, or (b) the ten business day notice period specified in Section 11.3 expires, or (c) completion of any dispute resolution process initiated pursuant to this Agreement.