NEW YORK INDEPENDENT SYSTEM OPERATOR
10 Krey Boulevard ♦ Rensselaer, NY 12144

November 12, 2013

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

Re: *New York Independent System Operator, Inc.*,
Integration of Variable Energy Resources, Order No. 764, Compliance Filing;
Docket Nos. RM10-11-000, ER14-____-___

Dear Ms. Bose:

Pursuant to the Federal Energy Regulatory Commission's ("Commission") June 22, 2012 *Order on Integration of Variable Energy Resources* ("Order No. 764" or "the Order"), and the Commission's December 20, 2012 *Order on Rehearing and Clarification and Granting Motion for Extension of Time* ("Rehearing Order")[1] the New York Independent System Operator, Inc. ("NYISO") respectfully submits this compliance filing, including the attached, proposed revisions to its Market Administration and Control Area Services Tariff ("Services Tariff") and Open Access Transmission Tariff ("OATT").

[1] *Integration of Variable Energy Resources*, Order No. 764, 139 FERC ¶ 61,246 (2012), *order on reh'g*, Order No. 764-A, 141 FERC ¶ 61,232 (2012).

I. NYISO Compliance Obligations

A. Interchange Scheduling

Order No. 764 requires the NYISO to implement 15 minute transaction scheduling at interties with its neighbors.[2] The Order also instructs that, consistent with the (unchanged[3]) terms of the *pro forma* OATT, transmission customers should be permitted to change their transmission schedules "up to 20 minutes (or a reasonable time that is generally accepted in the region and is consistent and adhered to by the transmission provider) before the start of the next schedule change."[4]

The Order explicitly allows for regional differences to be reflected in compliance filings.[5] Paragraph 374 of the Order states:

> Public utility transmission providers with provisions in their existing OATTs that the Commission has deemed to be consistent with or superior to the *pro forma* OATT being modified by the Final Rule can seek to demonstrate in their compliance filings that those previously-approved variations continue to be consistent with or superior to the *pro forma* OATT as modified by the Final Rule. In addition, public utility transmission providers may submit alternative proposals that are consistent with or superior to the intra-hour scheduling requirements of this Final Rule and are otherwise just and reasonable and not unduly discriminatory or preferential. [Footnote omitted.]

The NYISO operates a financial market that relies on a unique, *ex ante*, co-optimized,[6] multi-period, commitment, scheduling and dispatch process that simultaneously evaluates economic bids and offers submitted by External Transactions and internal resources to produce a

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[2] Order No. 764 at P 113.

[3] *Id*. at P 118.

[4] *Id*.

[5] *Id*. at PP 53, 107 ("The public utility transmission provider also must address how its proposed scheduling interval is consistent with other scheduling practices within its region.").

[6] The NYISO's multi-period co-optimized economic solution produces a least-cost solution for simultaneously procuring Energy, Regulation Service and Operating Reserves.

least production cost solution (hereafter, NYISO's Real-Time Scheduling or "RTS" process[7]). RTS enables the NYISO to select, schedule and dispatch a portfolio of External Transactions[8] and internal resources to serve real-time load on a least production cost basis. "Physical" reservations of interface transfer capability and ramp are not offered in New York.

The NYISO's OATT provisions and corresponding market rules are fundamentally different from the terms and conditions of the *pro forma* OATT that the Commission modified in Order No. 764. The Commission first accepted revisions to the *pro forma* OATT that were necessary to permit the NYISO to implement a co-optimized, multi-period, commitment, scheduling and dispatch process when the NYISO was formed in 1999. The Commission has re-affirmed its determination that the NYISO's co-optimized, multi-period, commitment, scheduling and dispatch process is consistent with or superior to the requirements of the *pro forma* OATT numerous times since the NYISO's Tariff rules were originally accepted for filing in 1999.[9]

The NYISO's compliance with the Order No. 764 interchange scheduling requirements is complicated by the manner in which the Commission's changes interact with the NYISO's RTS process and the Tariff rules that are designed to implement RTS. In this compliance filing the

[7] The NYISO's RTS is comprised of a Real-Time Commitment ("RTC") and a Real-Time Dispatch ("RTD"). RTC schedules Imports, Exports and internal (NYCA) resources every 15 minutes over a forward-looking 2.5 hour commitment window. Each RTC run requires 15 minutes to execute. Following implementation of the market improvements proposed in this filing, the RTC that runs from 00:00 (top of the hour) to 00:15 will (for example) commit and schedule resources, including Imports and Exports, for the period from 00:30 to 00:45. RTD dispatches New York Control Area ("NYCA") Generators that were committed/scheduled by RTC. RTD optimizes the NYISO's dispatch every 5 minutes over a forward-looking one hour dispatch window. RTD can identify the need to start 10 minute resources and NYISO Operators can use RTD to commit these resources. RTD is not able to schedule Imports or Exports, or to change Import or Export schedules. Together, RTC and RTD optimize the NYISO's resource commitment as frequently as every five minutes, looking ahead up to two and a half hours.

[8] Capitalized terms that are not expressly defined in this filing have the meaning ascribed to them in the NYISO's Market Administration and Control Area Services Tariff ("Market Services Tariff").

[9] *See, e.g., Central Hudson Gas & Electric, et al.,* 88 FERC ¶ 61,138 (1999); *New York Independent System Operator, Inc*., 123 FERC ¶ 61,134 at PP 10, 12, 13 (2008); *New York Independent System Operator, Inc*., 125 FERC ¶ 61,274 at PP 8-10, 12-13 (2008); *New York Independent System Operator, Inc*., 133 FERC ¶ 61,246 at PP 5-8, 25 (2010); *New York Independent System Operator, Inc*., 140 FERC ¶ 61,140 at P 22 (2012).

NYISO demonstrates that its existing market and Tariff rules, supplemented by a Tariff revision that the NYISO presents in this filing, but proposes to formally submit in a Federal Power Act ("FPA") Section 205 filing in early December 2013, produce a solution that is equivalent or superior to the requirements of the final rule for the New York region.

B. Data Submission by Variable Energy Resources

Order No. 764 requires each ISO to incorporate two new provisions into the *pro forma* Large Generator Interconnection Agreement ("LGIA") - (1) a new definition for "Variable Energy Resource" ("VER")[10] and (2) a new provision requiring the submission of meteorological and forced outage data by new interconnection customers whose generating facilities are VERs to the public utility transmission provider with which the customer is interconnected if the public utility transmission provider is doing power production forecasting.[11]

The intention of the new *pro forma* LGIA provisions is to give transmission providers the authority to collect data from VERs that is necessary for power production forecasting, however, "[t]he Commission appreciates that public utility transmission providers in some regions, including RTOs and ISOs, have already implemented meteorological or forced outage reporting under relevant tariffs, business practices and/or markets rules."[12] Therefore, in the alternative, Order No. 764 requires that each ISO demonstrate either (A) "how continued use of these existing tariffs, business practices and/or market rules is adequate to satisfy the requirements of this Final Rule using the independent entity variation standard set forth in Order No. 2003, if relevant"; or (B) "by demonstrating variations from the *pro forma* OATT are consistent with or

[10] Order No. 764 at PP 210 and 375.

[11] *Id*. at PP 175 and 375.

[12] *Id*. at P 375.

superior to the requirements of this Final Rule."[13] The new provisions are designed to require interconnection customers whose generating facilities are VERs to provide meteorological and forced outage data to the public utility transmission provider for the purpose of power production forecasting.[14] The NYISO addresses each *pro forma* LGIA provision for VERs below.

II. Interchange Scheduling Compliance Proposal

A. NYISO's Interchange Scheduling Compliance Proposal

The NYISO has implemented, or is in the process of implementing, 15 minute interchange scheduling with all of its neighbors that are able to support 15 minute interchange scheduling. In early December of this year the NYISO will submit a Federal Power Act ("FPA") Section 205 filing that will propose to significantly enhance the scheduling flexibility the NYISO makes available at its Proxy Generator Buses that are scheduled on a 15 minute basis.[15]

In its early December 2013 Coordinated Transaction Scheduling ("CTS") with PJM Section 205 filing, the NYISO will propose tariff revisions for the Commission's consideration that are designed to permit Import offers and Export bids at Variably Scheduled Proxy Generator Buses to contain different MW quantities and different prices, for each quarter of an upcoming

[13] *Id*.

[14] *See Id*. at PP 171, 173, 174, and 176.

[15] The NYISO recognizes that P 107 of the Order instructed the NYISO to include all Tariff revisions that are necessary to comply with Order No. 764 in its compliance filing. However, because RTS performs its resource selection, scheduling, dispatch, and develops *ex ante* prices in a single step, the compliance tariff revision that the NYISO is proposing affects NYISO's sub-hourly resource selection, scheduling, dispatch, and pricing/settlement. The NYISO read P 105 of Order No. 764 as indicating that a FPA Section 205 filing is required for Tariff revisions that affect sub-hourly dispatch and/or sub-hourly settlements. The NYISO has already obtained stakeholder approval of the Tariff revisions it describes in this compliance filing, which is a necessary prerequisite to the NYISO's submission of an FPA Section 205 filing. The NYISO intends to file the proposed tariff revisions for the Commission's consideration in early December of 2013 as part of the NYISO's CTS with PJM Section 205 filing. If the Commission determines that the NYISO has misinterpreted the filing instructions of Order No. 764, the NYISO is prepared to submit its proposed revisions to Section 4.4.1.2.2 of its Market Services Tariff for the Commission's consideration in this Docket.

hour.[16] In that filing the NYISO will propose to add the following language to Section 4.4.1.2.2 of its Market Services Tariff:

> At Variably Scheduled Proxy Generator Buses the ISO shall permit the submission of Bids to import or export Energy that vary the amount of Energy, and vary the price, for each quarter hour evaluation period.

"Variably Scheduled Proxy Generator Buses" are external Proxy Generator Buses that are scheduled on a 15 minute basis. Section 4.4.4 of the NYISO's Market Administration and Control Area Services Tariff sets forth the scheduling frequency that applies at each NYISO Proxy Generator Bus.[17]

In addition to permitting importers and exporters to vary both the dollars and MWs in their offers/bids every quarter hour, the market improvements the NYISO will propose in its CTS with PJM filing will move the NYISO's evaluation of Import offers and Export bids at Variably Scheduled Proxy Generator Buses 15 minutes closer to real-time operations. Today, the NYISO begins its economic evaluation of Import offers and Export bids 45 minutes prior to each quarter hour and establishes the binding schedules 30 minutes prior to real-time operations. When the CTS with PJM improvements are permitted to take effect, the NYISO proposes to begin its evaluation of Import offers and Export bids 30 minutes before each quarter-hour and

[16] Wheels Through the NYCA are scheduled on an hourly basis. The NYISO is not proposing to implement 15 minute scheduling of Wheels Through the NYCA in this compliance filing. Some of the NYISO's neighbors are not able to support Wheels Through on a 15 minute basis, and the NYISO does not know when they will develop this capability. In addition, there are complications associated with inter-Balancing Authority check out of Wheels Through on a 15 minute basis. Implementing a schedule change for a Wheel Through requires check-out with two neighboring Balancing Authorities to be completed in a very tight scheduling window. If a schedule change is identified late, it may not be possible to complete the check-out process with both neighboring Balancing Authorities. The result could be a mismatch between the Wheel Through schedules at the NYCA borders.

[17] The NYISO is authorized to propose changes to the scheduling frequency that applies at a particular Proxy Generator Bus with two weeks prior notice to the Commission and to NYISO stakeholders. This flexibility enables the NYISO to implement enhanced/improved scheduling frequency at an external Proxy Generator Buses promptly following the completion of any necessary technical or tariff improvements, and required testing. *See* NYISO's April 13, 2011 compliance filing in Docket No. ER11-2547-001 and the Commission's July 21, 2011 Letter Order accepting the NYISO's compliance filing in that Docket.

establish the binding schedules 15 minutes prior to real-time operations; a 15 minute improvement that will improve the accuracy of scheduling decisions.

The enhanced scheduling flexibility NYISO proposes to add will permit transmission customers to vary both the dollars and MW quantities included in their Import offers and Export bids to address "situations where the transmission customer knows or believes that generation output will change within the hour."[18] The NYISO's proposal will permit transmission customers scheduling Imports or Exports "to both modify existing schedules as well as create new [intra-hour] schedules, provided that the transmission customer has a transmission reservation in place."[19] The NYISO's proposed improvements, in conjunction with its existing market design, will enable the NYISO to achieve the goals of Order No. 764.

The NYISO is not proposing to change the sections of its OATT that correspond to the pro forma OATT provisions that the Commission modified in Order No. 764. The sections of the NYISO's OATT that correspond to the pro forma OATT provisions that the Commission modified are all non-standard provisions. Modifications to the relevant NYISO OATT provisions to accommodate the NYISO's "financial" scheduling rules were accepted for filing by the Commission as far back as 1999.[20] Today, the modified OATT sections accommodate RTS's *ex ante*, co-optimized, multi-period, commitment, scheduling and dispatch process that simultaneously evaluates bids and offers from External Transactions and internal resources to produce a least production cost solution.[21]

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[18] Order No. 764 at P 93.

[19] Order No. 764 at P 97.

[20] *See Central Hudson Gas & Electric Co. et al.*, 86 FERC ¶ 61,062 (1999), *order on reh'g*, 88 FERC ¶ 61,138 (1999); *Central Hudson Gas & Electric, et al.,* 90 FERC ¶ 61,045 (2000).

[21] The NYISO's proposed CTS with PJM Tariff improvements apply to so-called "firm" transmission service in New York. Unlike markets that schedule transmission service on a "physical" basis, non-firm transmission service is rarely requested, and even more rarely scheduled, in New York. This is primarily true because an equivalent

In order to enhance interchange scheduling flexibility in a manner that is consistent with the market rules in the New York region and maintains the economic efficiency of the NYISO's RTS, importers and exporters must continue to submit their Import offers and Export bids at least 75 minutes before each Real-Time Market operating hour. The same timing requirement applies to offers and bids submitted on behalf of NYCA resources.[22] In addition, entities that submit Import offers or Export bids must remain responsible for effectuating the offers or bids they submitted to the NYISO.[23] Permitting importers or exporters to unilaterally modify the Import or Export schedule that the NYISO's RTS produced (based on a review of ***all*** of the bids and offers the NYISO received) would decrease the efficiency of the NYISO's RTS solution to the detriment of NYCA loads and other scheduled Imports and Exports. Permitting Market-Participant directed Import or Export schedule changes would also present market manipulation concerns in NYISO's markets. The NYISO's economic efficiency and market manipulation concerns are illustrated with examples below.

Proposed effective dates for implementing NYISO's proposed enhanced bid/offer submission process and scheduling timeline will be the fourth quarter of 2014 for all PJM Proxy

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result can ordinarily be achieved by submitting a "firm" transmission service request with a low economic (dollar) offer parameter. From January 1 to November 5, 2013, 415 MWh of non-firm offers were submitted to the NYISO and only 24 MWh of non-firm service were scheduled over that period. For purposes of comparison, RTS received 79 million MWh of "firm" External Transaction offers and 37 million MWh of "firm" External Transaction schedules have been implemented in the NYISO's Real-Time Market over the same period.

[22] Because the NYISO's RTS develops a co-optimized least cost commitment based on its economic evaluation of all bids and offers submitted on behalf of internal NYCA resources, Imports and Exports, RTS must necessarily review all of the bids/offers at the same time to select a least-cost portfolio to serve NYCA load, plus scheduled Exports. Decisions by RTS to commit additional Generators as part of this resource selection process requires the NYISO to honor physical operating limitations, such as minimum run time. Maintaining the 75 minute bid submittal window ensures that commitment decisions are made by RTS in recognition of expected Imports and Exports, and will be as efficient as possible over the duration of a RTS-committed Generator's minimum run time.

[23] RTS compares each Import offer and Export bid to all other resources it has available, including internal generators, other Import offers, other Export bids, Imports offered at other Proxy Generator Buses, Exports bid at other Proxy Generator Buses, *etc*. Based on this comparison, RTS produces an *ex ante* (before the fact) least-cost resource commitment, scheduling and dispatch solution. RTS's *ex ante* least-cost solution is necessarily based on the expectation that the resources (including Imports and Exports) that comprise its least-cost solution will operate consistent with their bids and offers.

Generator Buses, including Scheduled Lines, and for the NYISO's Chateauguay interface with Hydro Quebec TransEnergie ("HQ").

The NYISO and HQ are discussing a plan to implement the 190 MW Dennison Scheduled Line as a Variably Scheduled Proxy Generator Bus. The NYISO is not prepared to propose an exact date for implementation of 15 minute scheduling at Dennison in this compliance filing because the NYISO and HQ are still discussing the physical ability of the Dennison interconnection to support 15 minute scheduling. The NYISO expects that, with HQ's assistance, it should be able to implement the Dennison Scheduled Line as a Variably Scheduled Proxy Generator Bus.[24]

The NYISO and ISO-New England ("ISO-NE") propose to implement CTS (which includes 15 minute scheduling among its many scheduling improvements) at their primary A/C interface[25] when the ISOs' Commission-accepted CTS tariff revisions are implemented in the fourth quarter of 2015. Following implementation of CTS with ISO-NE, the NYISO will work with its stakeholders and ISO-NE to implement 15 minute scheduling on the Cross-Sound Cable Scheduled Line and the Northport-Norwalk Scheduled Line.

NYISO has discussed implementation of 15 minute scheduling with representatives of the Ontario Independent Electricity System Operator ("IESO") several times over the past year. IESO indicated that it is not yet prepared to commit to implementation of 15 minute scheduling at the New York/Ontario border, or to a proposed implementation date for 15 minute scheduling.

[24] It may prove advantageous for NYISO and HQ to implement the enhanced Import/Export scheduling flexibility the NYISO is developing at Chateauguay first, and then to implement the Dennison Scheduled Line as a Variably Scheduled Proxy Generator Bus after NYISO and HQ have gained experience implementing the enhanced scheduling flexibility at Chateauguay.

[25] The primary A/C interface between New York and ISO-NE is represented as the "Sandy Pond Proxy Generator Bus" in New York, and the "Roseton External Node" in New England.

The NYISO is prepared to work with IESO to develop 15 minute scheduling capability at the New York/Ontario border in a timeframe that IESO can support.

In order to preserve the efficiency of the NYISO's RTS solution, protect NYCA loads from paying for costs caused by importers or exporters unilateral scheduling decisions, and to prevent the possible manipulation of the markets the NYISO administers, the NYISO respectfully requests that the Commission: (1) determine that the NYISO's compliance proposal (including the proposed Tariff revisions that the NYISO will submit in its CTS with PJM FPA Section 205 filing) provides scheduling flexibility to Imports and Exports that is equivalent to the scheduling flexibility that implementing the Order No. 764 changes to the *pro forma* OATT would provide, and (2) determine that the NYISO's proposal is a superior solution for the NYCA region and the markets that the NYISO administers because it preserves and protects the efficacy of the NYISO's co-optimized, multi-period, least cost market solution.

B. Explanation of the NYISO's Economic Evaluation Process

1. Introduction

The NYISO's RTS performs a unique *ex ante*, co-optimized, multi-period commitment, scheduling and dispatch process that simultaneously evaluates bids and offers submitted by External Transactions and internal resources to produce a least production cost solution to meet demand requirements, given current and projected transmission system capabilities.[26] RTS

[26] The NYISO's RTS is comprised of a Real-Time Commitment ("RTC") and a Real-Time Dispatch ("RTD"). RTC schedules Imports, Exports and internal (NYCA) resources every 15 minutes over a forward-looking 2.5 hour commitment window. Each RTC run requires 15 minutes to execute. Following implementation of the market improvements proposed in this filing, the RTC that runs from 00:00 (top of the hour) to 00:15 will (for example) commit and schedule resources, including Imports and Exports, for the period from 00:30 to 00:45. RTD dispatches NYCA Generators that were committed/scheduled by RTC. RTD optimizes the NYISO's dispatch every 5 minutes over a forward-looking one hour dispatch window. RTD can identify the need to start 10 minute resources and NYISO Operators can use RTD to commit these resources. RTD is not able to schedule Imports or Exports, or to change Import or Export schedules. Together, RTC and RTD optimize the NYISO's resource commitment as frequently as every five minutes, looking ahead up to two and a half hours.

enables the NYISO to select, schedule and dispatch a portfolio of External Transactions and internal resources to serve real-time load on a least production cost basis.

A key component of RTS is the NYISO's forward-looking multi-period optimization, which optimizes commitment, scheduling and dispatch in quarter hour increments over a forward-looking two-and-a-half hour window. Optimizing resource commitment, scheduling and dispatch over two-and-a-half hours permits the NYISO to position its system to address upcoming, anticipated system events on a least-cost basis.

The forward-looking, multi-period optimization RTS performs is the cornerstone of the NYISO's co-optimized Energy market. The NYISO's RTS simultaneously co-optimizes Energy, Regulation Service, and Operating Reserves to produce a least cost schedule of internal NYCA resources and External Transactions. The forward looking solution ensures the most efficient set of resources are scheduled, recognizing both the current system conditions and expected future system demands.

In order to develop a least cost solution, the NYISO's RTS needs certainty about the bids and offers available to it, and the schedules that it establishes. The requirement of Order No. 764, that transmission customers be permitted to modify (reduce, cancel or supplement) their Import or Export transaction schedules after providing 20 minutes notice to the NYISO could prevent the NYISO from effectuating the economically efficient least production cost solution produced by its RTS. If importers and exporters are given a tariff right to modify their Import and Export transactions, all NYCA loads and other scheduled Imports and Exports will pay the additional costs that the NYISO incurs responding to the Market Participant directed Import and Export schedule changes.

In addition to reducing the economic efficiency of the market solution RTS produces, the NYISO has identified new market manipulation opportunities that arise in the NYISO markets if transmission customers are permitted to unilaterally modify their Import and Export schedules. The NYISO's market efficiency and market manipulation concerns are illustrated with examples below.

In this filing the NYISO presents its proposal to achieve compliance with the interchange scheduling requirements of Order No. 764. The NYISO's proposal is equivalent or superior to the modifications that the Commission instructed because it will significantly increase scheduling flexibility for Import and Export transactions without defeating the benefits provided by the NYISO's RTS, and without raising new market manipulation concerns. The NYISO's compliance proposal presents a tailored solution for the New York region that addresses the Commission's Order No. 764 goals while preserving the long-recognized market efficiency benefits of the NYISO's RTS process.

2. RTS Evaluation and Scheduling of Imports and Export

In New York transmission reservations are an automatically awarded as part of RTS's integrated economic commitment, scheduling and dispatch. The Commission has continuously supported the NYISO's use of an economic evaluation to schedule External Transactions since the NYISO's inception in 1999.[27]

Unlike markets that rely on "physical" (MW) reservations of ramp and transfer capability, the NYISO does not permit Market Participants to pre-reserve (and potentially hoard) ramp or transfer capability. Instead, the NYISO awards all necessary transmission service to

[27] *See Central Hudson Gas & Electric, et al.,* 88 FERC ¶ 61,138 (1999); *New York Independent System Operator, Inc*., 123 FERC ¶ 61,134 at PP 10, 12, 13 (2008); *New York Independent System Operator, Inc*., 125 FERC ¶ 61,274 at PP 8-10, 12-13 (2008); *New York Independent System Operator, Inc*., 133 FERC ¶ 61,246 (2010); *New York Independent System Operator, Inc*., 140 FERC ¶ 61,140 at P 22 (2012).

economically committed resources, including External Transactions. In RTS, External Transaction offers and bids (Imports, Exports and Wheels-Through) compete with internal New York resources, and with other External Transactions, including External Transactions offered at different interfaces, to be economically awarded an energy, transmission and ramp schedule. RTS incorporates expected transmission congestion and permits the NYISO to meet its demand obligations at the lowest production cost.

The NYISO permits External Transactions to be "sourced" from internal NYCA resources. This establishes a financial relationship between the internal NYCA resource and the External Transaction. It does not guarantee that RTS will commit or dispatch the internal NYCA resource to serve the associated External Transaction.

Having RTS evaluate and schedule Import offers and Export bids at the same time it is committing internal NYCA resources ensures the least cost solution for New York loads and for scheduled Imports and Exports. Requiring the NYISO to permit individual Market Participants' Import and Export scheduling decisions to override the economic bids or offers that those Market Participant submitted to RTS for evaluation, and to "trump" RTS's co-optimized, least-cost procurement of Energy, Regulation Service and Operating Reserves, would reduce market efficiency in New York, increase costs to New York consumers, and could result in settlements for scheduled Import or Export transactions that are not consistent with the offers or bids that were submitted to RTS. It could also provide a new avenue for importers and exporters to manipulate or "game" the NYISO's markets.

C. Examples Illustrating the NYISO's Economic Efficiency Concerns

The following examples assume that the NYISO's proposed CTS with PJM Real-Time Market Import and Export scheduling improvements are in effect. That means RTS commences

its evaluation of real-time Import offers and Export bids 30 minutes before each quarter hour, and establishes binding schedules 15 minutes in advance of each quarter hour. Perhaps more important, it means Market Participants have the flexibility to submit Import offers and Export bids that present different prices, and different MW amounts, for each quarter hour of an upcoming hour.[28]

The First Example illustrates the impact that permitting a Market Participant to cancel a scheduled Export with 20 minutes prior notice to the NYISO would have on the NYISO's markets. The Second Example illustrates the impact that permitting a Market Participant to cancel a scheduled Import with 20 minutes prior notice to the NYISO would have on the NYISO's markets. The Third Example illustrates how the NYISO's Order No. 764 compliance proposal addresses the economic efficiency concerns that the NYISO presents in its first two examples.

First Example—Cancellation of a Real-Time Export

At the Real-Time Market close (75 minutes before the operating hour) "Market Participant A" submits a bid for evaluation by RTS indicating it is willing to pay $80/MWh to export up to 200 MW to PJM for each of the four quarters of an upcoming Real-Time Market hour. RTS determines that New York can provide the requested 200 MW of Energy at a price of $70/MWh (which is less than the $80/MWh that Market Participant A's bid indicates Market Participant A is willing to pay for the Energy). Half an hour after it receives the 200 MW Export bid, RTS issues an advisory schedule to Market Participant A, indicating that the Export bid will likely be fully scheduled for the entire hour.

[28] As explained above, Import offers and Export bids must be submitted 75 minutes before the beginning of the relevant Real-Time Market hour.

To support the 200 MW Export from New York to PJM, RTS commits a 30 minute combustion turbine that (in this simplified example) would not have been committed but for the need to serve the 200 MW Export. RTS instructs the 30 minute combustion turbine to begin its start-up sequence 35 minutes before the Export schedule begins and issues corresponding basepoints to the Generator.

Then, 20 minutes before the Export schedule begins, Market Participant A notifies the NYISO that it no longer wants to effectuate its scheduled Export, and removes its Export schedule. RTS has already committed the 30 minute combustion turbine to serve the Export schedule and the NYISO has assumed a corresponding obligation to pay the Generator's accepted Start-Up Bid and Energy Bid in order to cover the costs the 30 minute combustion turbine incurs during its start-up sequence and one hour minimum run time.

If the NYISO is required to implement the scheduling rules that the Commission developed to improve *pro forma* OATT transmission service in its financially scheduled markets, then Market Participant A, which submitted a Real-Time Market bid of $80/MWh to export Energy from New York to PJM, would be able to escape responsibility for its bid by later cancelling its Export schedule. The NYISO would have no Tariff authority to recover the costs it incurred to support the Export from Market Participant A. Instead, the costs NYISO incurred to effectuate the cancelled Export would be paid by NYCA loads and scheduled Imports and Exports.

In this example, the now uneconomic[29] 30 minute combustion turbine would likely be paid a Bid Production Cost Guarantee ("BPCG") to cover costs in excess of the real-time LBMP

[29] RTC's *ex ante* commitment of the 30 minute combustion turbine to serve the expected Export **was** an economic least production cost commitment. RTC's commitment only became "uneconomic" when the Export that the 30 minute combustion turbine was started-up to serve was withdrawn from the market by Market Participant A.

revenues the Generator received.[30] The BPCG the NYISO pays to the 30 minute combustion turbine is recovered from all NYCA loads and scheduled Exports, based on their actual real-time withdrawals during the relevant market hour.[31] This result would not allocate costs based on principles of cost causation. The NYISO's Order No. 764 compliance proposal resolves this cost allocation concern.

Important differences between the NYISO's financial scheduling rules and the *pro forma* OATT "physical" transmission reservation rules that the Commission modified in Order No. 764 make the NYISO's compliance proposal, as demonstrated in the Third Example, a superior solution for the NYCA region, and for the markets that the NYISO administers. The NYISO respectfully requests that the Commission consider the differences between markets where interchange is scheduled on a "physical" basis, and the NYISO's financial scheduling regime when evaluating the NYISO's Order No. 764 compliance proposal.

Second Example—Cancellation of a Real-Time Import

Seventy-five minutes before the start of the relevant Real-Time Market operating hour, "Market Participant B" submits an offer to import 200 MW of Energy into the NYCA at a financially attractive price for each of the four quarters of the upcoming hour. By the beginning of the operating hour RTS has accepted Market Participant B's Import offers for the first half of the hour, and provided Market Participant B an advisory schedule showing that it expects to take the full 200 MW Import for the remainder of the operating hour.

[30] The First Example assumes the commitment of a 30 minute combustion turbine to serve Market Participant A's Export. The NYISO could just as easily have presented an example where RTS kept a large generator on-line following the conclusion of its Day-Ahead commitment to serve the Export. The ultimate financial consequence would not change. Giving Importers and Exporters a unique Tariff right to avoid being financially obligated by the bids and offers they submit to RTS means NYCA loads will pay when Imports or Exports that RTS counted on when it developed its least cost solution cancel their transactions.

[31] *See* NYISO OATT Rate Schedule 1, Section 6.1.12.6.

Market Participant B takes all of the actions necessary to flow the Import into the NYCA for the first two quarters of the hour. Then, seven minutes into the operating hour, Market Participant B notifies the NYISO that it is cancelling its import for the remainder of the hour, commencing at the half-hour mark.

The NYISO must quickly replace the de-scheduled 200 MW import with other resources. The NYISO's RTS **would not** have the opportunity to immediately increase other Import schedules, or to reduce a scheduled Export to address Market Participant B's removed Import schedule at the half-hour mark. Resources that are immediately available for dispatch by the NYISO's RTD in response to Market Participant B's directed schedule change are limited to (a) increasing the output of an already operating NYCA generator to replace the "de-scheduled" MWs, and/or (b) starting one or more 10 minute quick start resources to replace the "de-scheduled" MWs.

Until RTS has the opportunity to select from its full panoply of available resources to replace the de-scheduled MWs, the NYISO's "least cost" solution will not be selecting from the truly least-cost portfolio of available resources. New York consumers, along with scheduled Imports and Exports, will pay for this inefficiency through higher LMBPs, higher reserve prices, or as uplift.

RTS's immediate response to the 200 MW Import cancellation would be to schedule Energy from NYCA generators that are more expensive than the cancelled Import was. RTS would replace the missing MWs by converting Operating Reserves and Regulation Service to Energy (thereby impacting all service prices). This action could increase the prices paid by Loads and scheduled Imports and Exports in the LBMP, Regulation and Operating Reserves markets.

If RTS determined it was necessary or appropriate to start a 10 minute combustion turbine (to commit a non-synchronous reserve) to replace a portion of the de-scheduled Import's Energy, the combustion turbine would also be eligible to recover its bid Start-Up and Energy costs, and to run up to one hour to meet its minimum run time.

As NYISO explained in its First Example, NYCA loads and scheduled Exports are responsible for guaranteeing the replacement generator's recovery of its cost of starting-up and operating to complete its minimum run time. All New York loads that were withdrawing power in real-time would be charged for the uplift that the NYISO incurred due to the actions of Market Participant B.[32] NYCA loads are not able to insulate themselves from this category of uplift by procuring their power in the NYISO's Day-Ahead Market.

Market Participant B would not be charged for the additional, incremental LBMP, Regulation, Operating Reserve or uplift costs its actions caused in New York. NYCA loads, along with scheduled Imports and Exports, would pay instead. Such a result would be inconsistent with principles of cost causation.

As illustrated in the first two examples, requiring the NYISO to permit Market Participants to cancel their Imports and Exports on 20 minutes notice will significantly reduce the efficiency (and accompanying benefits) of the NYISO's RTS. As illustrated in the following example, the Tariff improvements that the NYISO is proposing to achieve compliance with Order No. 764 will increase the scheduling flexibility afforded to Market Participants that are offering Imports or Exports without impairing the efficiency of RTS's co-optimized, multi-period, least production cost solution.

[32] *See* NYISO OATT Rate Schedule 1, Section 6.1.12.6.

Third Example—Cancellation of an Import Under NYISO's Proposed Compliance Rules

The facts are basically the same as the Second Example; "Market Participant C" wants to schedule a 200 MW Import in the NYISO's Real-Time Market for the first two quarters of an upcoming hour, but is not prepared to supply Energy for the remainder of the hour. The key difference in this example is that, unlike Market Participant B in the Second Example, Market Participant C uses the market improvements NYISO is proposing in its CTS with PJM filing to submit an accurate quarter-hourly Import offer schedule for evaluation by RTS instead of over-scheduling, and then cancelling a portion of its Import schedule.

Under the NYISO's Tariff rules, Market Participant C is required to submit all of its bids and offers 75 minutes before the hour. So, 75 minutes before the relevant Real-Time Market operating hour, Market Participant C submits a financially attractive offer to import 200 MW of Energy into the NYCA for each of the first two quarters of the upcoming operating hour. Using the newly added scheduling flexibility, Market Participant C **does not** offer to supply any energy in either of the second two quarters of the upcoming operating hour.

Because it has sufficient advance notice to develop a co-optimized, multi-period economic solution, RTS recognizes that Market Participant C's offer is only available for the first two quarters of the operating hour and schedules Market Participant C's Import only to the extent it is economically efficient to do so. In this example, RTS schedules 200 MW of Market Participant C's economically desirable Import offer for the first quarter of the operating hour and 150 MW of Market Participant C's Import offer for the second quarter of the operating hour. For the remainder of the hour, RTC schedules Imports and NYCA generation offered by other Market Participants, or schedules fewer Exports. If RTS was unable to find resources to counter-

balance Market Participant C's offer for the second half the hour, it would have rejected the offer as uneconomic.

No market disruptions occur, no uplift is charged to NYCA loads. LBMPs in New York might be slightly higher after Market Participant C's low-cost Import ends, but Market Participant C's Import produces a net benefit for NYCA loads over the course of the operating hour.

The NYISO's RTS co-optimized, multi-period, commitment, scheduling and dispatch process turns Market Participant C's short-term Import offer into a short-term benefit for New York that temporarily decreases the prices paid by NYCA loads. The end result is a seamless, efficient commitment schedule for the real-time operating hour that is a substantial improvement over the market impact of Market Participant B's cancellation of its Import in the Second Example.

The key to achieving efficient intra-hour Import and Export schedules is that **RTS needs to know in advance about a Market Participant's desire to vary its intra-hour schedule**. This is why the NYISO's Order No. 764 compliance proposal retains the longstanding requirement that all bids and offers be submitted 75 minutes before the Real-Time Market hour. It is also why the NYISO's compliance proposal does not permit Market Participants to modify the Import or Export schedules that RTS produced based on the bids and offers that the Market Participant submitted.[33] In order for the NYISO's financial scheduling rules to produce a least production cost solution, all Market Participants must be held to the offers and bids they submit.

[33] Again, RTS compares each Import offer and Export bid to all other resources it has available including internal generators, other Import offers, other Export bids, Imports offered at other Proxy Generator Buses, Exports bid at other Proxy Generator Buses, *etc*. Based on this comparison, RTS produces an *ex ante* (before the fact) least-cost resource commitment, scheduling and dispatch solution. RTS's *ex ante* least-cost solution is necessarily based on the expectation that the resources (including Imports and Exports) that comprise its least-cost solution will operate consistent with their bids and offers.

D. NYISO's Market Manipulation Concern

The NYISO's Tariffs contain a Commission-accepted Financial Impact Charge ("FIC") and a set of special pricing rules that apply at Non-Competitive Proxy Generator Buses[34] that are designed to protect NYCA loads from paying for costs caused by External Transactions that fail due to the actions, or inaction, of the Market Participant that submitted the External Transaction to RTS. When an Import, Export or Wheel-Through that is scheduled in RTS fails at operator checkout with a neighboring Balancing Authority for a reason that was within the scheduling Market Participant's control (such as the Market Participant's failure to reserve ramp in the neighboring market), the Market Participant that scheduled the failed External Transaction is required to pay a FIC that is designed to recover a portion of the cost that the NYCA incurs due to the Market Participant's unexcused failure to deliver or receive the scheduled MWs.[35] The FIC was developed to address actual Market Participant behavior that caused significant, unwarranted, costs to be paid by New York loads. The behavior that the FIC is designed to deter was believed to be intentional at the time it was prohibited.[36] The NYISO's Non-Competitive Proxy Generator Bus pricing rules were also developed to address the pricing impacts of failed External Transactions.[37]

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[34] *See* Attachment B to the NYISO Market Services Tariff, Section 17.1.6.3.

[35] *See* NYISO Market Services Tariff Sections 4.5.3.2 and 4.5.4.2.

[36] *See New York Independent System Operator, Inc*., 97 FERC ¶ 61, 206 at pp. 3-4, 7-8 (2001) ("NYISO states that its staff determined that transactions were failing to check out with neighboring control areas with great frequency and that the pattern of failures suggested that some market participants were deliberately attempting to manipulate prices in the Northeastern markets by cancelling external transactions with one affected control area and not the other." … "These proposals address problems in the NYISO-administered markets, increase efficiency in the NYISO's markets, and have widespread stakeholder support."); *see also*, *New York Independent System Operator, Inc.'s Filing of Tariff Revisions to Make Permanent Certain Temporary Market Rules Pertaining to External Transactions*, submitted in Docket No. ER01-3112-000 on September 25, 2001.

[37] *See New York Independent Transmission System Operator, Inc.,* 104 FERC ¶ 61,220 (2003), *on reh'g* 105 FERC ¶ 61,347 (2003); *New York Independent System Operator, Inc.'s Filing of Tariff Revisions to Implement New Pricing Rules at Non-Competitive External Proxy Generator Bus*, Docket No. ER03-690-000, at pp. 2-3 and attached Patton Affidavit (April 1, 20003) ("wheel-through transactions … through New York to destinations outside New York may be supported by counter-flow transactions…. If the receiving control area for the underlying

There is not a great deal of difference between a Market Participant's unilateral decision to cancel an Import or Export that RTS schedules based on the bid or offer that the Market Participant submitted, and a Market Participant's failure to take the actions necessary to ensure that an External Transaction that is scheduled in New York is also scheduled in the relevant neighboring market. Cancellation of an Import or Export that RTS selects reduces the efficiency of the solution RTS produces in the same way a failed transaction does. For the same reasons the Commission accepted the FIC in 2001 and the Non-Competitive Proxy Generator Bus pricing rules in 2003, the Commission should accept the NYISO's Order No. 764 compliance proposal without modification. The NYISO's compliance proposal achieves the goals of Order No. 764, and avoids possible adverse impacts to the markets that the NYISO administers.

Below the NYISO presents an example of how a Market Participant might attempt to engage in market manipulation if the NYISO is required to permit Market Participants that schedule Imports or Exports to later modify (reduce, cancel, or supplement) the Import or Export schedule that RTS produces based on the bid or offer that the Market Participant submitted.

Market Manipulation Example—Cancellation of an Import Schedule to Force Commitment of Quick-Start Resources or to Increase Real-Time Prices

In this example, NYISO shows how a Market Participant could attempt to manipulate Real-Time Market LBMPs and reserve prices if NYISO added a Tariff right for transmission customers scheduling Imports and Exports to change their schedules on 20 minutes notice to the NYISO. Then, the NYISO explains how its existing Tariff rules and Order No. 764 compliance proposal prevents the posited attempt to manipulate the markets that it administers.

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transaction curtails its receipt of the transaction, the NYISO can be forced to purchase the supporting counter-flow transactions at prices well above competitive levels.").

"Bad Actor" owns generation in New York, or purchased virtual load in the NYISO's Day-Ahead Market, or took a position on an exchange that settles based on NYISO's real-time prices.

Seventy-five minutes before the relevant Real-Time Market hour, Bad Actor submits an offer to import 700 MW of energy into the NYISO's Real-Time Market at an extremely inexpensive $10/MWh price for each of the four quarters of the upcoming hour.[38] RTS accepts the offer for the first two quarters of the upcoming hour and provides Bad Actor an advisory schedule showing that it expects to take the full 700 MW Import for the remainder of the hour.

Bad Actor takes all of the actions necessary to flow Energy to the NYISO for the first two quarters of the hour. Then, nine minutes into the operating hour, Bad Actor sends the NYISO notice that it is cancelling its Import for the remainder of the hour, commencing at the half-hour mark.

Upon seeing this schedule change, the NYISO's operators, through the execution of RTS, immediately begin activating non-synchronous reserves, bringing on expensive 10 minute and 30 minute generation, while reducing output from synchronous reserve providers to prepare the system for the upcoming loss of the 700 MW Import.

Five minutes before the half-hour mark, Bad Actor's Import to New York begins to ramp down. RTS ramps back up the synchronous reserve providers that it previously ramped down to accommodate the start-up of 10 and 30 minute generators. Load in New York is served reliably, but at a significant additional cost.

The NYISO's markets could incur hundreds of thousands of dollars in increased costs over a single hour responding to the cancellation of Bad Actor's Import schedule. If the NYISO

[38] This strategy could potentially be employed at any NYCA Proxy Generator Bus with sufficient transfer capability.

is required to incorporate a right for Market Participants to change their Import and Export schedules on 20 minutes prior notice into its Tariffs, Bad Actor would have the right to reduce its Import schedule under the NYISO's Tariffs and the NYISO would have no basis to seek recovery of the additional costs it incurred from Bad Actor. Instead, the costs NYISO incurred to respond to Bad Actor's cancellation of a 700 MW import schedule would be paid in RealTime LBMPs, increased reserve prices, or as uplift by NYCA loads.

Bad Actor's New York Generators may profit from the increased LBMPs or reserve prices the cancellation of its Import causes. Bad Actor could also benefit from its cancellation of the 700 MW Import by taking a virtual load position in the NYISO's Day-Ahead Market, or from a financial position it holds outside the NYISO's markets.

NYISO's Compliance Proposal Addresses the Market Manipulation Concern

The NYISO's proposed Order No. 764 compliance rules and existing market design prevent Bad Actor from engaging in market manipulation under the hypothetical circumstances described above.

The NYISO's Tariffs require Bad Actor to submit all of its real-time bids and offers 75 minutes before the start of the hour.[39] So, 75 minutes before the relevant Real-Time Market hour, Bad Actor submits an offer to Import 700 MW of Energy into the NYCA at a financially attractive $10/MWh price for the first two quarters of the upcoming market hour. However, (using the scheduling flexibility NYISO proposes to add in its CTS with PJM tariff revisions) Bad Actor does not offer to Import any Energy in the second two quarters of the upcoming hour.

Given sufficient advance notice to develop a co-optimized, multi-period economic solution, RTS schedules 700 MW of Bad Actor's extremely attractive Import offer for the first

[39] See the definition of the term "Real-Time Scheduling Window" in the Market Services Tariff.

quarter of the hour and RTS schedules 500 MW of Bad Actor's extremely attractive Import offer for the second quarter of the hour. RTS's ability to take full advantage of Bad Actor's low price, short-duration Import offer is limited by various factors, including a NYCA system ramp constraint of 300 MW per quarter hour that RTS respects. For the remainder of the hour, RTS uses the available ramp to dispatch up 300 MW of additional NYCA generation and replaces the remaining 200 MWs[40] by scheduling 100 MW of other, less economic, Imports and reducing Export schedules by 100 MW.

The NYISO's RTS co-optimized, multi-period, commitment, scheduling and dispatch process turns Bad Actor's attempt to manipulate the markets that the NYISO administers into a short-term benefit for New York that temporarily decreases the prices paid by NYCA loads. No out-of-market commitments occur and no uplift is charged to NYCA loads due to Bad Actor's offer. LBMPs in New York might be higher after Bad Actor's low-cost Import ends, but Bad Actor's Import schedule has no adverse effect on LBMPs, reserve prices, or uplift that Bad Actor could inappropriately benefit from. No market manipulation occurs in this example.

For the reasons illustrated in the NYISO's example, the NYISO respectfully requests that the Commission determine that the NYISO's Order No. 764 compliance proposal appropriately addresses New York-specific regional differences and will produce an equivalent or superior solution for the markets that the NYISO administers.

E. NYISO's Existing Market Design, Supplemented by the Proposed CTS Tariff Revisions, Provides Transmission Customers the Opportunity to Avoid Incurring "Imbalance" Charges

Paragraph 107 of the Order states that, in order to show that its alternative compliance proposal is consistent with or superior to the intra-hour scheduling requirements of Order No.

[40] 500 MW Import schedule that needs to be replaced - 300 MW ramp-up of NYCA generation = 200 MW remaining requirement.

764, the NYISO must demonstrate how its proposal provides equivalent or greater opportunities for transmission customers to mitigate "imbalance" charges, and for the NYISO to lower the cost it incurs to procure reserves.

There is no such thing as an "imbalance" charge in the context of scheduling between Balancing Authorities. If the owner of a VER schedules an Export of 10 MW from the NYCA for a quarter-hour that is financially tied to its VER, but the VER only produces 8 MWs, the NYISO provides the additional two MWs from its available portfolio of on-line resources. The NYISO charges the VER's owner the LBMP at the relevant Proxy Generator Bus for the additional Energy. There is no "penalty" imposed due to the VER's under-delivery of its Export.

In Section II.A of this compliance filing the NYISO explained the additional intra-hour scheduling flexibility that the Tariff revisions it will submit in its CTS with PJM FPA Section 205 filing will provide to entities scheduling Imports or Exports at Variably Scheduled Proxy Generator Buses. In Section II.C of this compliance filing[41] the NYISO explained how its compliance proposal will reduce the NYISO's reserve-related costs (and its Energy and uplift costs), compared to the scheduling requirements of the final rule.

The enhanced scheduling flexibility NYISO proposes in this filing will permit Import offers and Export bids that are associated with VERs to more accurately track a VER's forecast output on a quarter-hourly basis over the course of each Real-Time Market hour. The NYISO's financial scheduling rules also permit VERs to include risks associated with VER forecast error in their economic offers.

In addition to permitting Imports or Exports that are tied to VERs to more accurately track a VER's forecasted output, the CTS "spread bid" improvements that the NYISO is

[41] See NYISO's Second Example in particular.

implementing with PJM in the fourth quarter of 2014, and with ISO-NE in the fourth quarter of 2015, will provide a more precise method of arbitraging price differences between markets. Instead of submitting a strike price, CTS Interface Bids specify a minimum predicted[42] price spread between two markets for the ISOs/RTOs to use in deciding whether or not to schedule a CTS Interface Bid.

A CTS Interface Bid seeking to Export Energy from New York for consumption in New England could indicate that, for each quarter hour evaluation period of the upcoming Real-Time Market hour, the Export should only be scheduled if NYISO and ISO-NE expect that the price the Export will be paid for Energy in New England is at least $10/MWh more than the price that the Export will pay for Energy in New York. The Export will only be scheduled at times when NYISO and ISO-NE predict that the scheduling Market Participant will make at least $10/MWh on its Export.

CTS Interface Bids can be used to protect Exports scheduled from VERs from risks related to uneconomic arbitrage of market prices (scheduling contrary to market price signals). Like other exporters, a VERs can identify a minimum price spread that is within the VER's risk comfort level in its CTS Interface Bid. If the predicted price spread between the two markets does not meet the criteria that the VER specified, then the VER's Export will not be scheduled, and the VER will not be at risk to lose money by scheduling an Export in a direction that is contrary to the price signals that the interconnected (New York and New England or New York and PJM) markets are providing.

[42] CTS transactions will be scheduled on an *ex ante* basis using the predicted price difference between the NYISO and its neighboring ISOs/RTOs.

F. The NYISO's External Transaction Scheduling Compliance Proposal Addresses Requirements of Order No. 764 in a Manner that is Consistent with the NYISO's Market Design

In order to produce a multi-period, least-cost commitment the NYISO requires all entities offering Energy and/or Ancillary Services into its Real-Time Market, including Imports and Exports, to submit their real-time bids/offers within the NYISO's Real-Time Scheduling Window (bid submission window) that closes 75 minutes before each hour. NYISO's software systems were all developed around this bid-lockdown window, which allows for the consolidated evaluation of all relevant bid/offer information, thereby permitting the NYISO to produce a least-bid cost solution across a multi-time-step horizon that considers all offered resources (internal and external), produces consistent schedules and prices, minimizes uplift, and protects against the exercise of market power.

When the NYISO implements its proposed CTS with PJM scheduling improvements, Export bids or Import offers that are submitted 75 minutes before each Real-Time Market hour will be able to incorporate different prices and different MW schedules for each quarter hour of an upcoming market hour. Imports and Exports will have the flexibility to submit an offer or bid that does not start at the top of the hour. Market Participants will even have the flexibility to submit an Import offer or Export bid that is only available to be scheduled by RTS in one specific quarter of the upcoming Real-Time Market hour.

The changes the Commission made to the *pro forma* OATT in Order No. 764 are designed and intended for implementation by Public Utilities that provide transmission service using "physical" reservations of ATC, consistent with the terms and conditions of transmission service in the *pro forma* OATT. The provisions of the NYISO's OATT that Order No. 764 amends were modified by the NYISO, and accepted for filing by the Commission, in 1999. For

more than a decade, the NYISO has offered transmission service using a non-standard "financial" scheduling system that requires Import offers and Export bids to indicate their desired scheduling priority by submitting an economic offer (using a bid curve), in addition to indicating the maximum quantity of MWs available for scheduling.

The NYISO's RTS decides whether to schedule an Import or an Export based on its comparison of (a) the Import offer or Export bid, to (b) all of the other bids and offers that were submitted for simultaneous evaluation by RTS. Import offers compete against other Import offers, and against NYCA generators and demand-side resources to be scheduled to serve Load.[43] Imports can displace NYCA Generators in the NYISO's RTS solution. However, if Imports and Exports are given a Tariff right to modify (reduce, cancel, or supplement) their schedules outside the RTS process, then relying on Import offers and Export bids when developing a least-cost RTS solution will introduce significant new risks to the markets that the NYISO administers.

In this compliance filing the NYISO has explained and illustrated with examples the financial and reliability implications to its markets of permitting importers and exporters to modify their quarter-hour Import and Export schedules after providing 20 minutes prior notice to the NYISO. Implementing this change in New York would effectively give Imports and Exports the unique ability (not shared by NYCA generators or demand response providers) to be scheduled outside the NYISO's RTS, or to escape from an economic commitment that the importer or exporter voluntarily assumed when it submitted an offer or bid to RTS, and ultimately would increase costs for all New York consumers.

[43] "Load," in this context, includes scheduled Exports.

In order to preserve the efficiency of the NYISO's RTS solution, protect NYCA loads from paying for costs caused by importers or exporters unilateral scheduling decisions, and to prevent the possible manipulation of the markets the NYISO administers, the NYISO respectfully requests that the Commission: (1) determine that the NYISO's compliance proposal (including the proposed Tariff revisions that the NYISO will submit in its CTS with PJM FPA Section 205 filing) provides scheduling flexibility to Imports and Exports that is equivalent to the scheduling flexibility that implementing the Order No. 764 changes to the *pro forma* OATT would provide, and (2) determine that the NYISO's proposal is a superior solution for the NYCA region and the markets that the NYISO administers because it preserves and protects the efficacy of the NYISO's co-optimized, multi-period, least cost market solution.

III. Proposed VER Data Submission Requirements

A. VER Definition

The first new *pro forma* LGIA provision discussed in the Order is a definition of "Variable Energy Resource."[44] The NYISO already has a similar term, Intermittent Power Resource, defined in the Definitions sections of its Services Tariff and OATT. The term "Intermittent Power Resource" is used throughout the NYISO's Tariffs to identify resources that rely on wind, solar energy or landfill gas as their fuel source.[45] The NYISO's existing definition of Intermittent Power Resource is similar to the Commission's definition of VER. The NYISO proposes in this Compliance Filing to modify the definition of Intermittent Power Resource to more closely align with the Commission's definition of VER.

> Intermittent Power Resource: A device for the production of electricity that is characterized by an energy source that: (1) is

[44] Order No. 764 at P 210.

[45] NYISO's Services Tariff has a separate definition for "Limited Control Run-of-River Hydro Resource" and specific Tariff provisions for these resources. *See* Services Tariff Section 2.12.

> renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator. In New York, resources that depend upon wind, solar energy or landfill gas for their fuel have been classified as Intermittent Power Resources. Each Intermittent Power Resource that depends on wind as its fuel shall include all turbines metered at a single scheduling point identifier (PTID).
> [Proposed addition in red text.]

The proposed definition incorporates the elements outlined in the Commission's VER definition, while maintaining certain elements of the NYISO's definition. The proposed definition specifies that resources that depend upon wind, solar energy or landfill gas have been classified as Intermittent Power Resources in New York.[46]

The NYISO relies on the "independent entity variation" standard to use the proposed definition of Intermittent Power Resource to satisfy the requirements of Order No. 764.[47] The Commission has granted ISOs and RTOs the flexibility to seek "independent entity variations" from its *pro forma* LGIA and/or *pro forma* OATT to demonstrate how existing tariffs or business practices are adequate to satisfy the requirements of the Order.[48] As the Commission stated in connection with the same requirement under Order No. 2003, "this is a balanced approach that recognizes that an RTO or ISO has different operating characteristics depending on its size and location and is less likely to act in an unduly discriminatory manner than a Transmission Provider that is a market participant."[49] The NYISO's revised definition of Intermittent Power Resource incorporates the VER definition from the Order and the existing elements of NYISO's

[46] The NYISO remains open, on a category by category basis, to identifying additional Intermittent Power Resources as new technologies are developed or introduced into the NYCA.

[47] Order No. 764 at P 210.

[48] Order No. 764 at PP 215, and 375.

[49] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103 (2003) at P 827.

definition that are necessary to ensure continued consistency with other sections of NYISO's Tariffs and business practices, including the term itself, "Intermittent Power Resource."

B. Meteorological and Force Outage Data

The second new *pro forma* LGIA provision discussed in the Order "relates to the submission of meteorological and forced outage data, by new interconnection customers whose generating facilities are VERs, to the public utility transmission provider with which the customer is interconnected if the public utility transmission provider is doing power production forecasting."[50] The data reporting requirements specified in the Order are intended to support the development and deployment of power production forecasting by public utility transmission providers, including ISOs.[51] The Order does not create an obligation for all public utility transmission providers to engage in power production forecasting, nor does it create an obligation for an interconnection customer to provide meteorological data in a case where the public utility transmission provider is not engaging in power production forecasting.[52] The data reporting approach contemplated in the Order is designed to ensure that all reporting of meteorological and forced outage data corresponds with the power production forecasting being employed by the public utility transmission providers.[53] The Order also specifically "appreciates that public utility transmission providers in some regions, including RTOs and ISOs, have already implemented meteorological or forced outage reporting under business practices and market rules."[54] An ISO that has already implemented meteorological or forced outage reporting requirements may demonstrate in its compliance filing that existing business practices and

[50] Order No. 764 at P 154 (*footnote omitted)*.

[51] *See* Order No. 764 at P 174.

[52] *See* Order No. 764 at P 174.

[53] Order No. 764 at P 176.

[54] Order No. 764 at P 194.

market rules adequately satisfy the requirements of the Order.[55]

Meteorological Data for VERs that Depend on Wind

The NYISO has already implemented tariff rules - discussed in detail below - that require Wind Generators[56] to report meteorological data to support the NYISO's centralized Wind Energy Forecast (*i.e.*, a power production forecast for Wind Generators). The NYISO's Wind Energy Forecast is the forecast of Energy that is expected to be supplied over a specified interval of time by an Intermittent Power Resource that depends on wind as its fuel and which is used in NYISO's Energy market commitment and dispatch.[57]

Since June of 2008, the centralized Wind Energy Forecast has been utilized in the NYISO's real-time Energy market commitment and dispatch software. NYISO's Wind Energy Forecast is updated every 5 minutes within its real-time economic dispatch and directly used by the scheduling software. The scheduling software uses the Wind Energy Forecast to predict the output of Wind Generators in the next 10 minutes and over a 1 hour time horizon within its realtime economic dispatch (RTD). The forecast also is used by the scheduling software to predict the output of Wind Generators in the next 15 minutes and over a 2.5 hour time horizon within its economic commitment evaluation (RTC).

In 2008 the NYISO also implemented data reporting requirements for Wind Generators to facilitate its wind energy forecasting program. The NYISO's Services Tariff specifies that Wind Generators "shall maintain in good working order equipment to collect wind speed and wind direction data at their site and shall provide the ISO, or its agent, with wind speed and wind

[55] Order No. 764 at P 192.

[56] In the NYISO, Wind Generators are Intermittent Power Resources that depend on wind as fuel, are interconnected in the New York Control Area in order to provide Energy to the LBMP Market or bilaterally to a Load internal or external to the NYCA and have entered commercial operation.

[57] Services Tariff §2.23.

direction data in the manner identified by the ISO."[58] The NYISO's existing Services Tariff requires Wind Generators to provide wind speed and wind direction data in the manner identified by the NYISO in its Wind Plant Operator Data Guide ("Wind Guide").[59] The Wind Guide describes the real-time data transfer process for Wind Generators to deliver data to the NYISO. In addition, the Wind Guide requires Wind Generators to provide "maximum available megawatts" to the NYISO along with the wind speed and wind direction data.[60]

In this Compliance Filing, the NYISO proposes to add the requirement that Wind Generators provide maximum available megawatts to the NYISO to Section 5.8.1 of its Services Tariff. This proposed modification to Services Tariff Section 5.8.1 will result in all data production requirements for the Wind Energy Forecast being included in this section of the NYISO's Tariff.

The Order emphasizes that its intent is to require generating facilities that are VERs to provide data "where necessary for" and "commensurate with" the power production forecasting employed by the public utility transmission provider or ISO.[61] When the NYISO implemented its Wind Energy Forecasting system in 2008, it determined, in consultation with its wind forecasting consultant, the only *necessary* data elements from every Wind Generator were wind speed, wind direction and the technical capabilities (maximum available MWs) of each Wind Generator. The NYISO's April 2008 filing with FERC specified that its wind forecasting consultant will use the data provided by wind resources regarding wind speed and wind direction, together with national and regional meteorological reports, information about the

[58] Market Services Tariff Section 5.8.1.

[59] http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Guides/User_Guides/Wind_Plant_Operator_Forecast_Data_Guide.pdf

[60] Wind Guide Section 3.3.1.

[61] *See* Order No. 764 at PP 171, 173, 174 and 176.

technical capabilities of each wind resource, including outage schedules, and data on the wind farm's real-time output to produce an energy output forecast (in MWhs) for each wind farm.[62]

The NYISO Wind Guide goes on to state that Wind Generators may provide, at their option, additional data elements for the NYISO's use in its Wind Energy Forecast. The optional data elements are: (1) ambient air temperature; (2) ambient air dewpoint; (3) ambient air relative humidity; and (4) barometric pressure.[63] The NYISO is not proposing to require submission of this additional data.

The NYISO believes that requiring only the data that it needs to produce its wind forecast satisfies Order No. 764 'provision of data' requirement for wind data, given the flexibility allowed for Transmission Providers to require meteorological data only "to the extent necessary for the Transmission Provider's development and deployment of power production forecasts."[64]

The Order specifies that a "VER having wind as the energy source should provide, at a minimum, site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure."[65] However, the NYISO's Wind Energy Forecast relies on wind speed and wind direction data from Wind Generators. The NYISO does not need to receive temperature and atmospheric pressure data from Wind Generators in order to produce its Wind Energy Forecast. Therefore, a requirement for production of such data to the NYISO is not necessary in its *pro forma* LGIA or Tariffs.

The Commission indicated in Order No. 764 an appreciation that some ISOs have already implemented meteorological data reporting under business practices or market rules. The Order,

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[62] *New York Independent System Operator, Inc.*, Section 205 Filing, Docket No. ER08-850 (April 18, 2008).

[63] *See* Wind Guide Section 3.3.1.

[64] *See* Order No. 764 at P 174.

[65] Order No. 764 at P 177.

therefore, provides that ISOs may seek to demonstrate how continued use of the existing business practices and market rules is adequate to satisfy the requirements of the Order using the "independent entity variation" standard.[66] The Commission has permitted ISOs/RTOs with the flexibility to seek "independent entity variations" from its *pro forma* LGIA to utilize existing wind energy forecasting systems and the associated meteorological data reporting requirements.[67] As the Commission stated in connection with the same requirement under Order No. 2003, "this is a balanced approach that recognizes that an RTO or ISO has different operating characteristics depending on its size and location and is less likely to act in an unduly discriminatory manner than a Transmission Provider that is a market participant."[68]

Application of the Commission's "independent entity variation" standard is appropriate here because the NYISO's existing Tariff provisions have been approved by the NYISO's stakeholders, have been endorsed by the NYISO's independent Board of Directors and have been previously approved by the Commission. The Commission indicated that it would review such ISO/RTO revisions to "ensure that they do not provide an unwarranted opportunity for undue discrimination or result in an interconnection process that is unjust and unreasonable."[69] The NYISO respectfully requests that the Commission accept its current Wind Energy Forecast and associated meteorological data reporting requirements for Wind Generators, as amended in this filing, as compliant with the meteorological data reporting requirements specified in Order No. 764.

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[66] Order No. 764 at P 194.

[67] Order No. 764 at PP 194, and 375.

[68] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103 (2003) at P 827.

[69] *Midwest Independent Transmission System Operator, Inc.*, 139 FERC ¶ 61,219 (2012) at P 9.

Meteorological Data for VERs that Depend on Solar

The Order also acknowledges that "VER potential and penetration varies across public utility transmission provider systems and that, at this time, not all public utility transmission providers have sufficient levels of VERs to warrant engaging in power production forecasting."[70] The NYISO does not currently engage in solar power production forecasting or have a need to utilize a solar power production forecast in its commitment and dispatch process. The NYISO does not have sufficient levels of VERs that rely on solar as the energy source to justify the effort and expense to engage in solar power production forecasting. At this time, there is only one 31.5 MW solar generating plant participating in the NYISO's markets (it went into service in late 2011) and there are no solar generating plants in the NYISO's interconnection queue. Given the minimal impact that solar power production currently has on the NYCA, the NYISO does not need to rely on a solar power production forecast to ensure the accuracy of its commitment and dispatch software nor does the NYISO anticipate a need to develop such a forecasting system in the foreseeable future.

Since the NYISO does not engage in solar power production forecasting, it relies on paragraph 174 of the Order to not impose any data production requirements on solar generators within the NYCA at this time. Order No. 764 specifies that "nothing in this Final Rule should be construed as creating an obligation for interconnection customers whose generating facilities are VERs to provide meteorological … data in cases where the public utility transmission provider is not engaging in power production forecasting."[71] The NYISO will not be engaging in solar power production forecasting and, therefore, does not propose to include an obligation for solar generators to provide meteorological data to the NYISO in its Tariffs or its *pro forma* LGIA.

[70] Order No. 764 at P 174.

[71] Order No. 764 at P 174.

However, if solar energy forecasting becomes necessary in the future, the NYISO will present proposed tariff revisions to the Commission, similar to its April 2008 filing regarding Wind Energy Forecasting,[72] to implement solar power production forecasting and to require provision of meteorological data from solar generators. The NYISO anticipates commencing the Federal Power Act Section 205 filing process with its stakeholders once there is enough solar generation, either constructed or in the NYISO's interconnection queue, to warrant real-time solar power production forecasting. The NYISO will consider the total number of MWs from solar generators, the number of MWs from solar generators in a specific load zone within the NYCA, and the performance of solar generating units to determine when to start its stakeholder process. The future tariff revisions would likely be a close parallel of Services Tariff Section 5.8.1 and would require all solar generators to provide, at a minimum, temperature, pressure and irradiance data to the NYISO. This obligation would be consistent with the Order No. 764 statement that a VER having solar as the energy source should provide, at a minimum, site-specific meteorological data including: temperature, atmospheric pressure, and irradiance.[73]

The Commission indicated in Order No. 764 an understanding that not all ISOs have a need to engage in power production forecasting for all types of VERs. The Commission has permitted ISOs/RTOs with the flexibility to seek "independent entity variations" from its *pro forma* LGIA to utilize existing business practices.[74] As the Commission stated in connection with the same requirement under Order No. 2003, "this is a balanced approach that recognizes that an RTO or ISO has different operating characteristics depending on its size and location and is less likely to act in an unduly discriminatory manner than a Transmission Provider that is a

[72] *New York Independent System Operator, Inc.*, Section 205 Filing, Docket No. ER08-850 (April 18, 2008).

[73] Order No. 764 at P 177.

[74] Order No. 764 at PP 194, and 375.

market participant."[75] The Commission indicated that it would review such ISO/RTO revisions to "ensure that they do not provide an unwarranted opportunity for undue discrimination or result in an interconnection process that is unjust and unreasonable."[76] The NYISO requests that the Commission accept its current practice of not utilizing a solar power production forecast or associated meteorological data reporting requirements for Intermittent Power Resources that rely on solar energy as compliant with Order No. 764 pursuant to the "independent entity variation" standard.

C. Forced Outage Data

Order No. 764 allows ISOs that have already implemented forced outage reporting requirements to demonstrate that the existing business practices and market rules adequately satisfy the requirements of the Order.[77] The NYISO Services Tariff requires all Suppliers[78] within the NYCA, not just Wind Generators or Intermittent Power Resources, to submit data on Generator status and output including forced outages or partial unit outages that resulted in a significant reduction in a generating unit's ability to produce Energy in any hour, in accordance with the ISO Procedures. The NYISO's Services Tariff Section 3.5.2 also requires Customers[79] to "inform the ISO, in accordance with the ISO Procedures, of the Availability of Generators within the NYCA subject to a Customer's control by Energy contract, ownership or otherwise."

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[75] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103 (2003) at P 827.

[76] *Midwest Independent Transmission System Operator, Inc.*, 139 FERC ¶ 61,219 (2012) at P 9.

[77] Order No. 764 at P 192.

[78] *See* Services Tariff Section 2.19 (a Supplier is a Party that is supplying the Capacity, Demand Reduction, Energy and/or associated Ancillary Services to be made available under the ISO OATT or the ISO Services Tariff, including Generators and Demand Side Resources that satisfy all applicable ISO requirements).

[79] *See* Services Tariff Section 2.3 (a Customer is an entity which has complied with the requirements contained in the ISO Services Tariff, including having signed a Service Agreement, and is qualified to utilize the Market Services and the Control Area Services provided by the ISO under the ISO Services Tariff; provided, however, that a party taking services under the Tariff pursuant to an unsigned Service Agreement filed with the Commission by the ISO shall be deemed a Customer).

Suppliers will provide data on Generator status and output including maintenance schedules, Generator scheduled return dates (inclusive of return to service from maintenance, forced outages or partial unit outages that resulted in a significant reduction in a generating unit's ability to produce Energy in any hour), and Generator machine data, in accordance with the ISO Procedures.

The NYISO's Wind Energy Forecast specifically depends on the availability of Wind Generators; therefore, the Wind Guide provides, "it is critical that Wind Plant Operators provide the NYISO with available capacity ratings for their plants in advance of reductions in plant output capacity."[80] The Wind Guide also specifies that unplanned outages should be reported as soon as practicable.[81] The instructions specified by the NYISO[82] apply to any reduction in plant output capacity which is for 1 MW or more, and lasting for 1 hour or more. Any reduction in plant output capacity which is less than 1 MW, or which lasts less than 1 hour, does not need to be reported to the NYISO.

The Commission indicated in Order No. 764 that some ISOs have already implemented forced outage reporting requirements in tariffs, business practices or market rules. The Order, therefore, provides that ISOs may seek to demonstrate how continued use of the existing business practices and market rules is adequate to satisfy the requirements of the Order by demonstrating variations from the pro forma OATT are consistent with or superior to the requirements of this Final Rule.[83] In this instance, the NYISO's existing Services Tariff is precisely consistent with the Order No. 764 requirement that interconnection customers whose

[80] *See* Wind Guide Section 4.

[81] *See Id*.

[82] *See* Wind Guide Section 4 and the NYISO Outage Scheduling Manual Section 3.

[83] Order No. 764 at P 215.

Generating Facility is a VER submit all forced outage data to a Transmission Provider or ISO. The NYISO requests that the Commission accept its current Tariff required forced outage reporting requirements for all Suppliers, including Wind Generators and any other Intermittent Power Resources as compliant with the forced outage reporting requirements specified in Order No. 764.

IV. Description of Proposed Tariff Revisions

The NYISO proposes to modify its definition of Intermittent Power Resource in Services Tariff Section 2.9 and OATT Section 1.9 in this filing. The NYISO's revised definition of Intermittent Power Resource incorporates the Variable Energy Resource definition from Order No. 764 and the existing elements of NYISO's definition that are necessary to ensure continued consistency with other sections of NYISO's Tariffs and business practices. The proposed definition of Intermittent Power Resource included with this Compliance Filing is:

> A device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator. In New York, resources that depend upon wind, solar energy or landfill gas for their fuel have been classified as Intermittent Power Resources. Each Intermittent Power Resource that depends on wind as its fuel shall include all turbines metered at a single scheduling point identifier (PTID). [Proposed addition in red text.]

The NYISO also proposes to amend Services Tariff Section 5.8.1 to include the requirement that Wind Generators provide the NYISO with maximum available megawatts in the same manner that Wind Generators currently provide wind speed and wind direction data to the NYISO. This proposed revision incorporates a data production requirement into the NYISO's Services Tariff that exists today in the Wind Guide. The modified Services Tariff Section 5.8.1

will contain all of the data production requirements associated with the NYISO's Wind Energy Forecast.

IV. Effective Date

The NYISO respectfully requests that the tariff revisions submitted in the attachments to this filing be permitted to become effective on January 15, 2014; more than 60 days after the date of this Compliance Filing.

V. Correspondence

Copies of correspondence concerning this filing should be served on:

Robert E. Fernandez, General Counsel
Raymond Stalter, Director of Regulatory Affairs
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VI. Documents Enclosed

The NYISO submits the following documents:

1. This filing letter;
2. A clean version of the proposed revisions to the NYISO's Services Tariff (Attachment I);
3. A blacklined version of the proposed revisions to the NYISO's Services Tariff (Attachment II);
4. A clean version of the proposed revisions to the NYISO's OATT (Attachment III); and
5. A blacklined version of the proposed revisions to the NYISO's OATT (Attachment IV).

VII. Service

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

VIII. Conclusion

Wherefore, for the foregoing reasons, the NYISO requests that the Commission accept the NYISO's proposed tariff revisions for filing with the effective date proposed above and determine that the NYISO has satisfied its Order No. 764 compliance obligation.

Respectfully submitted,

/s/ Alex M. Schnell
Robert E. Fernandez, General Counsel
Alex M. Schnell
James Sweeney, Attorney
New York Independent System Operator, Inc.

CERTIFICATE OF SERVICE

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

Dated at Rensselaer, NY this 12th day of November, 2013.

/s/ Mohsana Akter

Mohsana Akter
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