NEW YORK INDEPENDENT SYSTEM OPERATOR

10 Krey Boulevard ♦ Rensselaer, NY 12144

November 30, 2015

By Electronic Delivery

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

Re: *New York Independent System Operator, Inc.*, Docket No. ER16-___-000; Proposed Revisions to Services Tariff and OATT to Implement Improved Scarcity Pricing

Dear Secretary Bose:

In accordance with Section 205 of the Federal Power Act[1] and Part 35 of the regulations of the Federal Energy Regulatory Commission ("Commission"), the New York Independent System Operator, Inc. ("NYISO") respectfully submits proposed amendments to its Market Administration and Control Area Services Tariff ("Services Tariff") and Open Access Transmission Tariff ("OATT") to implement improved scarcity pricing logic in the Real-Time Market ("Comprehensive Scarcity Pricing").[2] Scarcity pricing refers to the pricing rules utilized for Energy and certain Ancillary Services in real-time during periods when the NYISO has called upon Special Case Resources ("SCRs") and/or the Emergency Demand Response Program ("EDRP") to provide load reduction to assist in maintaining system reliability. The purpose of scarcity pricing is to ensure that real-time prices appropriately reflect the costs associated with deploying these demand response resources.

The NYISO Management Committee approved the proposed tariff revisions by a show of hands vote, with one vote in opposition, on October 28, 2015. The NYISO requests an Order accepting these tariff revisions by January 29, 2016 (*i.e.*, sixty days from the date of this filing letter). This would allow the NYISO to confidently proceed with developing and deploying the software changes necessary to implement Comprehensive Scarcity Pricing before the proposed effective date of the tariff amendments. The NYISO currently anticipates the proposed revisions will become effective on or before June 30, 2016.

[1] 16 U.S.C. § 824d.

[2] Capitalized terms not otherwise defined herein shall have the meaning specified in Section 2 of the Services Tariff and Section 1 of the OATT.

I. Documents Submitted

1. This filing letter;

2. A clean version of the proposed revisions to the NYISO's Services Tariff ("Attachment I");

3. A clean version of the proposed revisions to the NYISO's OATT ("Attachment II");

4. A blacklined version of the proposed revisions to the NYISO's Services Tariff ("Attachment III"); and

5. A blacklined version of the proposed revisions to the NYISO's OATT ("Attachment IV").

II. Background

Scarcity pricing refers to the manner in which the NYISO seeks to ensure that real-time prices reflect the value of demand response resources when such resources are called upon to maintain system reliability. The NYISO implemented its current, *ex-post* scarcity pricing logic on July 8, 2013.[3]

Under the current, *ex post* logic, the NYISO may adjust real-time energy prices, after resource schedules have already been established, in the Load Zone(s) in which EDRP resources and/or SCRs are activated. The NYISO adjusts real-time prices if it determines that the amount of EDRP resources and SCRs called upon to provide load reduction is greater than the amount of unscheduled (or latent) 30-Minute Reserve capability available from eligible resources (*i.e.*, the "but-for test"). The "but-for test" provides an indication of whether the NYISO would have likely experienced a shortage of Operating Reserves absent the activation of the EDRP and/or SCR program.[4] This *ex post* methodology, however, has the potential to cause inconsistencies between resource schedules and pricing outcomes. Such inconsistencies could result in the potential for uplift costs.[5]

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[3] *New York Independent System Operator, Inc.*, 144 FERC ¶ 61,013 (2013).

[4] The NYISO may also revise real-time Operating Reserves and Regulation Services prices, after-the-fact, to the extent that the "but-for test" indicates that the NYISO would have been short Operating Reserves in the reserve region(s) to which the activated Load Zone(s) belong.

[5] The New York Transmission Owners raised these concerns with the Commission in response to the NYISO's proposal to implement its current, *ex post* scarcity pricing logic. *See*, *e.g.*, Docket No. ER13-909-000, *New York Independent System Operator, Inc.*, Motion to Intervene and Protest of the New York Transmission Owners at 3-10 (March 1, 2013); Docket No. ER13-909-000, *supra*, Motion for Leave to Answer and Answer of the New York Transmission Owners at 5-8 (March 20, 2013); and Docket No. ER13-909-001, *supra*, Comments of the New York Transmission Owners in Response to the

The current scarcity pricing methodology also does not apply to the NYISO's Proxy Generator Buses. This may result in inefficient scheduling of imports and exports during the periods when the NYISO is likely to activate the EDRP and/or the SCR program. The NYISO's Market Monitoring Unit, Potomac Economics, has previously recommended that the NYISO extend scarcity pricing to its external interfaces.[6]

In approving the NYISO's current, *ex post* scarcity pricing methodology, the Commission encouraged the NYISO to discuss with its stakeholders whether incorporation of scarcity pricing into the real-time commitment and dispatch software was feasible and warranted.[7] Comprehensive Scarcity Pricing is the result of that effort. The project will replace the current, *ex post* methodology by including scarcity pricing in the real-time optimization.

III. Overview of Comprehensive Scarcity Pricing and Justification

Comprehensive Scarcity Pricing will improve on the NYISO's current scarcity pricing logic by incorporating scarcity pricing into the real-time optimization. This will: (i) ensure consistency between resource schedules and pricing outcomes in real-time during EDRP and SCR program activations, thereby reducing the potential for uplift costs; and (ii) reflect the impacts of scarcity pricing at Proxy Generator Buses, thereby facilitating more efficient interchange transactions when EDRP and SCR program activations occur in real-time.

A. Incorporation of Scarcity Pricing in the Real-Time Optimization

Scarcity pricing will be incorporated into the optimization by establishing a supplemental 30-Minute Reserve requirement in real-time during the periods when the NYISO has called upon EDRP resources and/or SCRs to provide load reduction. The NYISO will seek to procure this additional 30-Minute Reserve requirement from eligible Suppliers located within the Load Zone(s) in which EDRP resources and/or SCRs have been activated. Any resulting shortage in meeting the additional 30-Minute Reserve requirement will be priced at $500 per MW.[8]

New York Independent System Operator's Response to the Commission's Request for Further Information at 15-18 (May 30, 2013).

[6] *See* Potomac Economics, *2013 State of the Market Report for the New York ISO Markets* at 68 and 100 (May 2014), available at: http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/Market_Monitoring_Unit_Reports/2013/2013%20State%20of%20the%20Market%20Report.pdf.

[7] *New York Independent System Operator, Inc.*, 144 FERC ¶ 61,013 at P 27 (2013).

[8] This represents the same value assigned to EDRP resources and SCRs under the current, *ex post* scarcity pricing logic. This price is based on the curtailment strike price value submitted by nearly all SCRs. Nearly 98 percent of all SCRs submit a strike price at or near $500 per MW. *See* Docket No. ER01-3001-000, *New York Independent System Operator*, *Inc.*, Annual Report at Attachment I, pp. 13-14 (January 15, 2015).

The amount of the additional 30-Minute Reserve requirement is based, in part, on the expected load reduction to be provided by the EDRP resources and/or SCRs that the NYISO has activated (*i.e.*, the "expected EDRP/SCR MW" value). The expected EDRP/SCR MW value will be based on historical performance of EDRP resources and SCRs. Separate values will be established for voluntary activations and mandatory activations.[9] The expected EDRP/SCR MW value is the sum of the applicable value (*i.e.*, voluntary or mandatory) for the Load Zone(s) activated by the NYISO for the same activation reason (*i.e.*, the "scarcity reserve region").[10]

Certain stakeholders raised concerns regarding the use of a 30-Minute Reserve product to incorporate scarcity pricing into the real-time optimization. These stakeholders contended that this methodology could result in either: (i) inefficient dispatch of resources; or (ii) triggering of scarcity pricing during periods when the system may actually have sufficient resources available to meet all energy and reserve requirements absent the 30-minute ramp constraint imposed by use of a 30-Minute Reserve product. In response to such concerns, the NYISO proposed to offset the expected EDRP/SCR MW value by the amount of energy production capability that could be provided by available resources in greater than 30 minutes, but less than or equal to 60 minutes within the same Load Zone(s) as the activated demand response resources (*i.e.*, the "available operating capacity" value).

This offset accounts for the fact that absent the availability of EDRP resources and SCRs, the real-time market software would seek to procure capability from Suppliers with longer ramping requirements. The use of a 60-minute limitation appropriately aligns the value of the offset with the look-ahead functionality of the Real-Time Dispatch ("RTD") software.

The NYISO also conducted an assessment of available capability during the most recent mandatory activations of the SCR program in July 2013 (*i.e.*, July 15, 2013 through July 19, 2013). As depicted in the following figures, the NYISO's assessment demonstrates that during periods in which the EDRP and/or SCR program were activated very little, if any, additional capability is available that cannot be provided within 60 minutes.[11]

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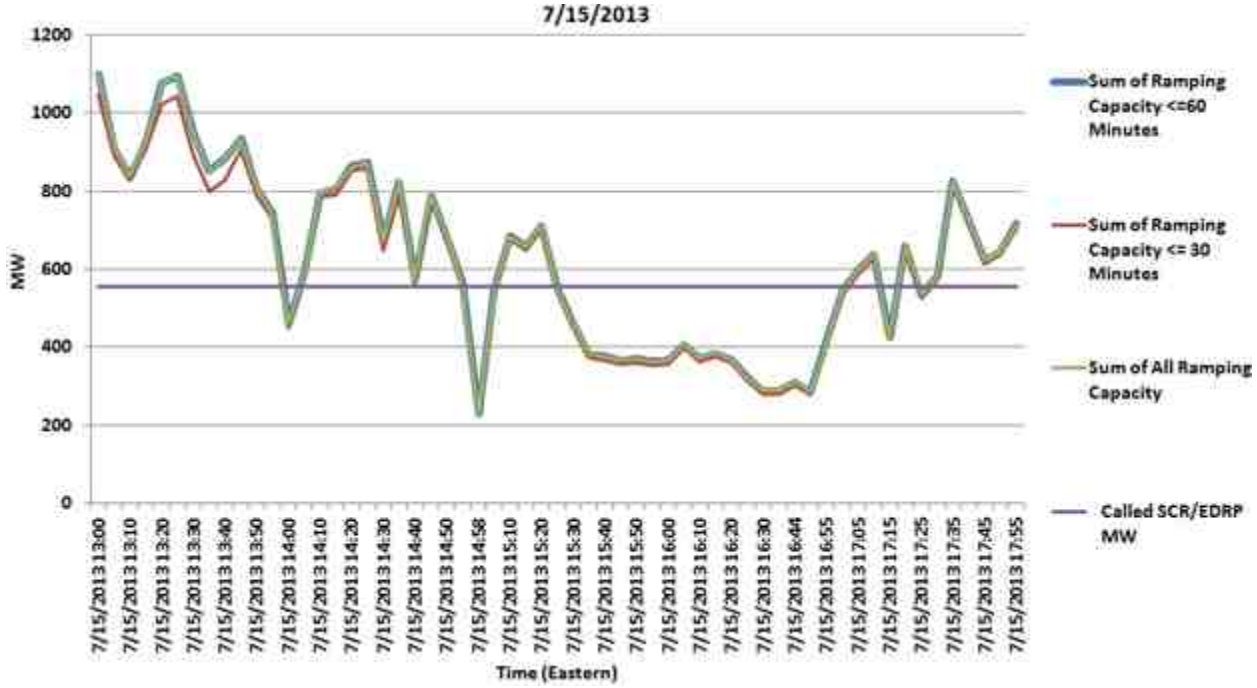
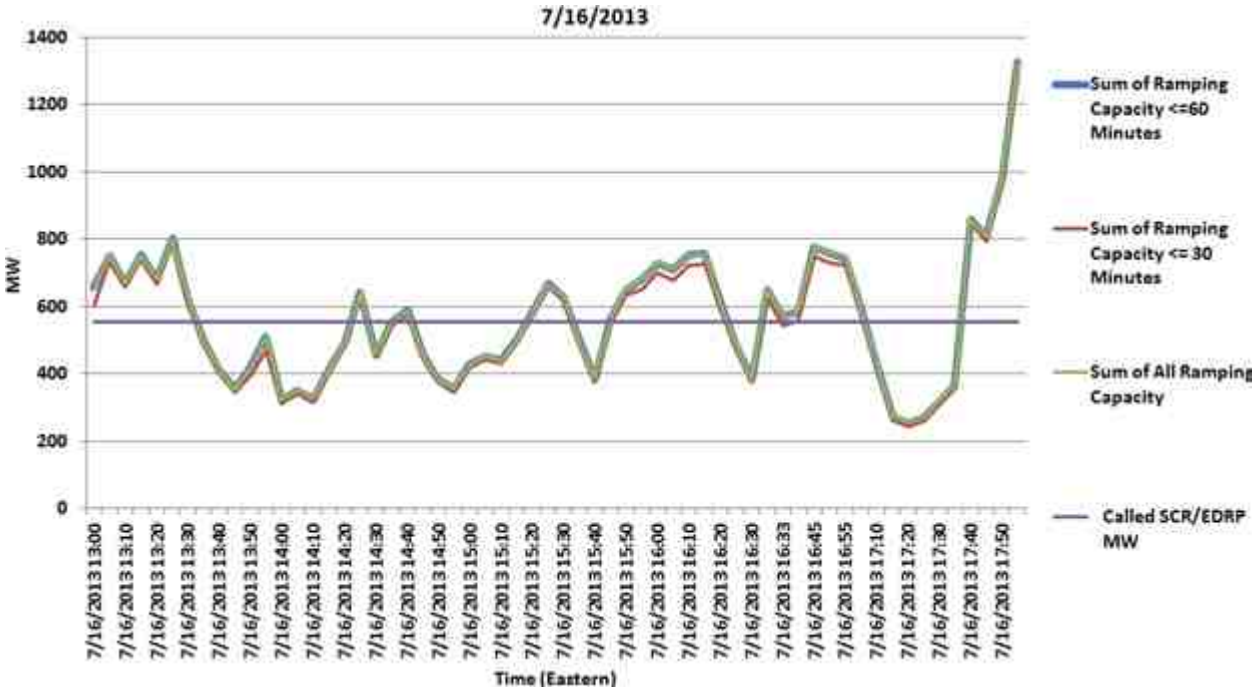
[9] Mandatory activations refer to circumstances in which the NYISO has satisfied the notification requirements set forth in Section 5.12.11.1 of the Services Tariff for SCRs. Voluntary activations encompass all activations of EDRP resources and SCR activations for which the NYISO has not satisfied the notification requirements of Section 5.12.11.1 of the Services Tariff.

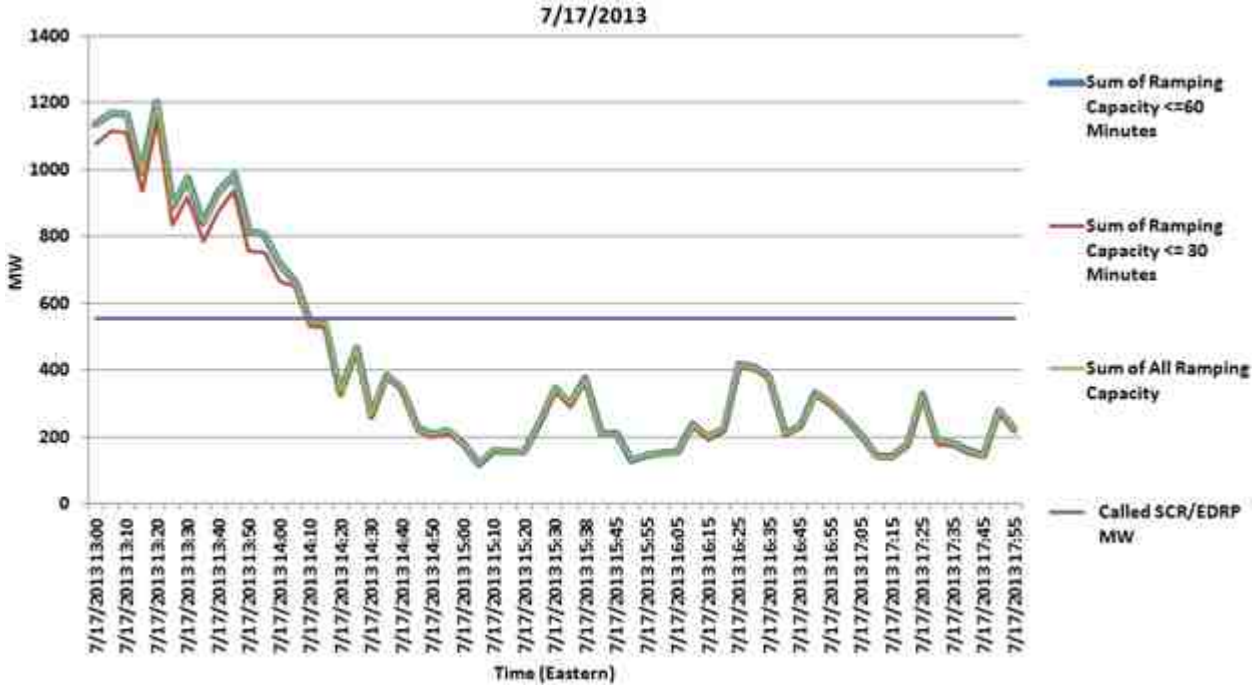
[10] For purposes of determining this value only, the "mandatory" value for SCRs will be utilized for all Load Zones as long as the NYISO has satisfied the notification requirements for any hour in any Load Zone for the day at issue. In all other circumstances, the "voluntary" value for SCRs will be utilized. The value assigned to EDRP resources will reflect the voluntary nature of the program.

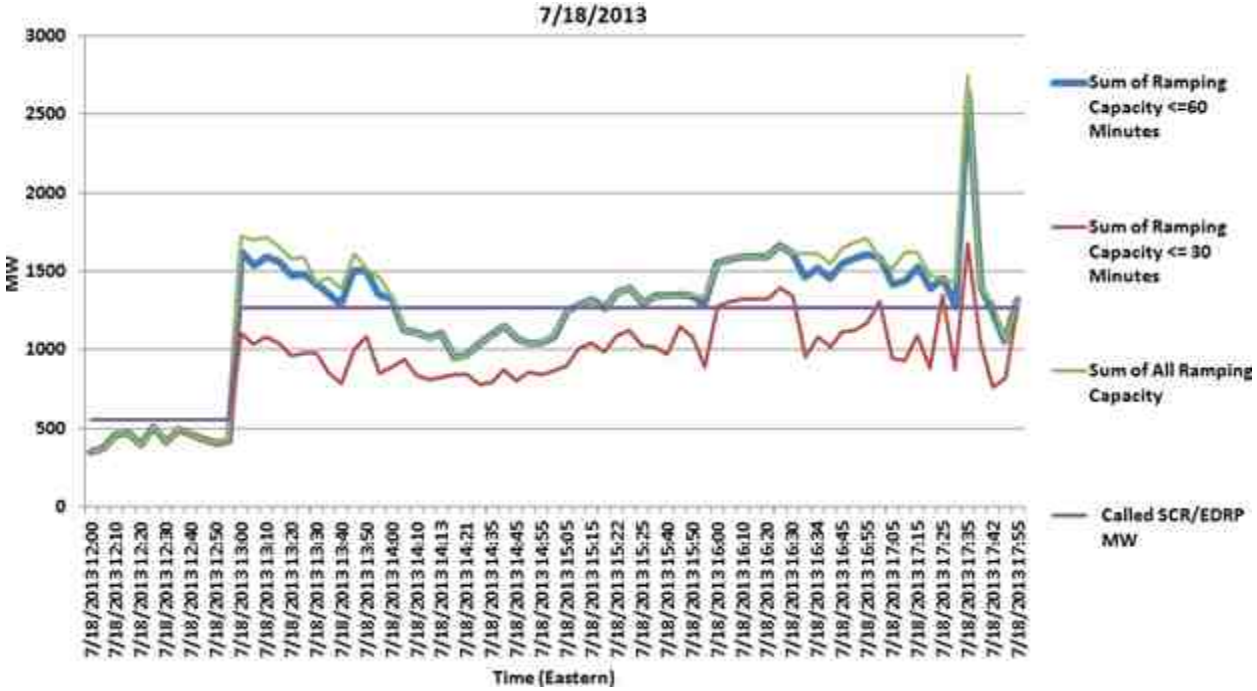
[11] On July 15, 2013 through July 17, 2013, the NYISO activated EDRP resources and SCRs in Southeastern New York ("SENY") only. On July 18, 2013 and July 19, 2013, the NYISO activated EDRP resources and SCRs in SENY only for the first hour of each event. For the remaining duration of the events on these dates, the NYISO activated EDRP resources and SCRs in all Load Zones. The figures demonstrate that during SENY activations, there was essentially no additional capability available beyond the amount that could be provided within 60 minutes. During certain intervals of the statewide

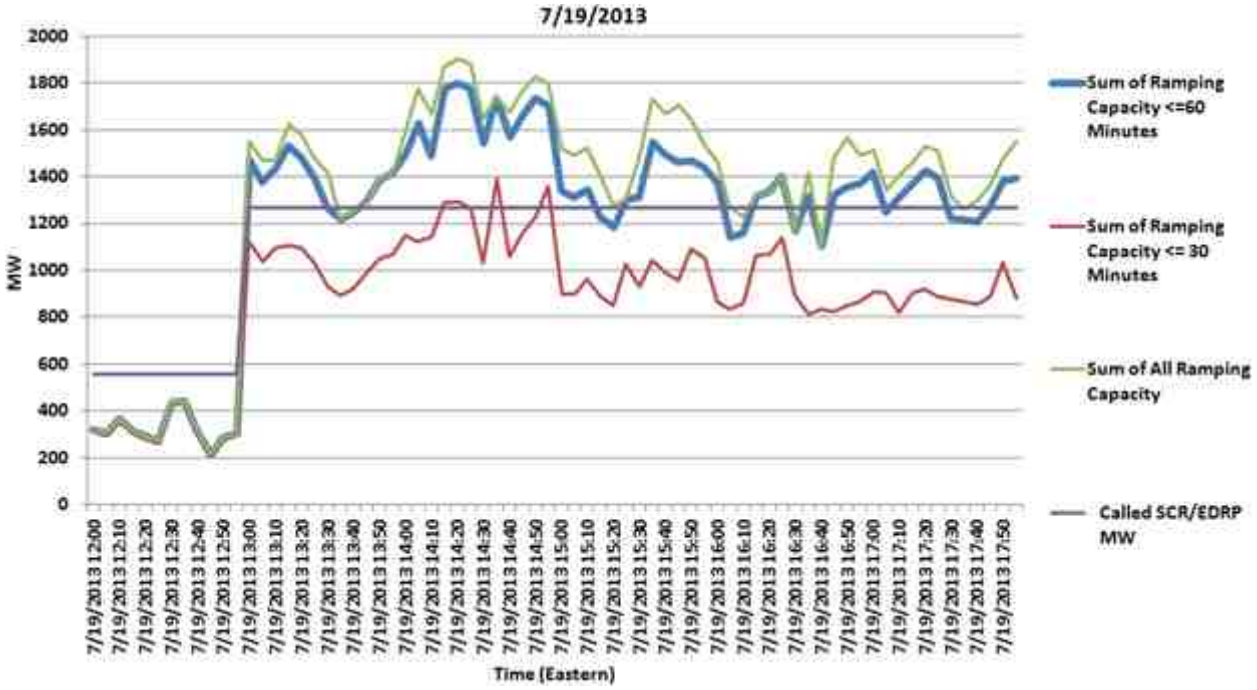




activations on July 18, 2013 and July 19, 2013, there was a very limited quantity of additional capability that could potentially be provided in greater than 60 minutes.


7/17/2013
MW
Time (Eastern)
Sum of Ramping Capacity <=60 Minutes
Sum of Ramping Capacity <= 30 Minutes
Sum of All Ramping Capacity
Called SCR/EDRP MW


7/18/2013
MW
Time (Eastern)
Sum of Ramping Capacity <=60 Minutes
Sum of Ramping Capacity <= 30 Minutes
Sum of All Ramping Capacity
Called SCR/EDRP MW



Assuming availability of production capability that cannot be provided in an hour or less may not be reasonable, especially during times of system constraints and high loads when the NYISO is most likely to call upon EDRP resources and/or SCRs. The applicable expected EDRP/SCR MW value as offset by the applicable available operating capacity value will establish the additional 30-Minute Reserve requirement that the real-time software will seek to procure (*i.e.*, the "scarcity reserve requirement").

When the Load Zone(s) in which the NYISO has activated EDRP resources and/or SCRs are equivalent to the Load Zone(s) encompassed by an existing reserve region, the NYISO will revise the target level of reserves and the applicable 30-Minute Reserve demand curve for such region to include the applicable scarcity reserve requirement. Any shortages of this additional requirement will be priced at $500 per MW.[12] In circumstances where the activated Load Zone(s) are not equivalent to the Load Zone(s) encompassed by an existing reserve region, the NYISO will establish a separate 30-Minute Reserve requirement within the activated Load Zone(s) and apply a separate reserve demand curve for such area with any shortages in meeting the scarcity reserve requirement priced at $500 per MW (*i.e.*, the "scarcity reserve demand curve").

[12] The NYISO currently establishes Operating Reserves requirements for four reserve regions: (i) the New York Control Area ("NYCA") (*i.e.*, all Load Zones); (ii) East of Central-East (*i.e.*, Load Zones F-K); (iii) Southeastern New York (*i.e.*, Load Zones G-K); and (iv) Long Island (*i.e.*, Load Zone K). The reserve regions are nested such that Operating Reserves held within a more constrained area simultaneously meet the needs of the larger area(s) within which it is nested. For example, SENY is nested within both East of Central-East and NYCA. Thus, Operating Reserves procured in SENY simultaneously serve to fulfill any applicable reserve requirements in East of Central-East and NYCA.

Due to the nested nature of the NYISO's reserve regions, it is also necessary to reflect the scarcity reserve requirement in "upstream" reserve regions to ensure appropriate pricing outcomes. Accordingly, the NYISO will adjust the otherwise applicable 30-Minute Reserve requirement for the reserve region(s) to which all the Load Zone(s) of a scarcity reserve region belong to account for the scarcity reserve requirement relating thereto. For example, if the NYISO activated EDRP resources and/or SCRs in Load Zones G-K (*i.e.*, SENY), the otherwise applicable 30-Minute Reserve requirement for both the East of Central-East and NYCA regions would also be increased by an amount equal to the SENY scarcity reserve requirement. If, however, the NYISO called upon EDRP resources and/or SCRs in Load Zones A-C and G-J to address the same reliability need, the scarcity reserve requirement for such activation would also be reflected in the NYCA region (*i.e.*, the only reserve region to which all Load Zones that are part of the activation belong).

B. Related Adjustments to Shortage Pricing and Operating Reserve Requirements

Incorporation of scarcity pricing into the real-time optimization requires certain corresponding revisions to ensure efficient market outcomes. The NYISO proposes to increase the value of SENY 30-Minute Reserves from $25 per MW to $500 per MW, effective at all times. This increase appropriately recognizes that EDRP resources and SCRs have historically been called upon to protect reserves in SENY. This proposed change aligns the value of reserves with the cost of such resources. During an activation of the EDRP and/or SCR program in SENY, this revised value also prevents the market software from electing to go short of lower-priced reserves in order to fulfill the scarcity reserve requirement at a lesser cost. Such an outcome would undermine the historically demonstrated purpose of activating EDRP resources and/or SCRs (*i.e.*, to ensure the continued ability to hold sufficient reserves in SENY).

The proposed increase to the value of SENY 30-Minute Reserves necessitates a corresponding adjustment to the value of the middle pricing point of the Regulation Service Demand Curve (*i.e.*, relating to shortages of Regulation Service greater than 25 MW, but less than 80 MW). The NYISO proposes to increase this value from $400 per MW to $525 per MW, effective at all times. This adjustment maintains proper economic trade-offs between scheduling resources to provide Regulation Service or Operating Reserves. Increasing this value prevents the market software from electing to go short of Regulation Service in order to provide SENY 30-Minute Reserves.

Increasing the value of the SENY 30-Minute reserve demand curve to $500 per MW also requires adjustments to the target level for SENY 30-Minute Reserves during Storm Watch events. Storm Watch events occur during actual or anticipated severe weather conditions. During these events, specific portions of the transmission system are operated in a more conservative manner by reducing transmission transfer limits. Maintaining 1,300 MW of reserves in SENY during Storm Watch operations would result in the NYISO operating the system to N-1-1-1 criterion. Valuing any shortage of the 1,300 MW SENY reserve requirement at $500 per MW during Storm Watch events would not accurately reflect system conditions due to the operating requirements during such events. To ensure proper pricing outcomes, the NYISO will reduce the SENY 30-Minute Reserve requirement to zero during Storm Watch

events. This adjustment reflects the effective conversion of reserves held on facilities in SENY to reliance on reserves from other areas within NYCA by increasing available transfer capability through reduced flows into SENY.

The NYISO is also proposing to increase the NYCA 30-Minute Reserve demand curve values priced at less than $500 per MW to $500 per MW, effective in real-time during any EDRP and/or SCR program activation. This adjustment provides that, if activating a subset of all Load Zones assists in avoiding a shortage of statewide reserves, the NYCA Operating Reserves prices will appropriately reflect the value of the EDRP resources and/or SCRs.

The shortage pricing enhancements recently implemented by the NYISO included the application of a limitation on the contribution of reserves held on Long Island toward meeting the reserve requirements outside Long Island.[13] This limitation appropriately recognizes certain transmission constraints that limit the flow of energy off Long Island. NYISO operators conduct certain assessments of the transmission system capability prior to calling on EDRP resources and/or SCRs on Long Island to provide assistance outside Long Island. These assessments determine whether the expected load reduction of demand response resources on Long Island will be deliverable off Long Island. Operators only activate demand response resources on Long Island to provide assistance to other areas of the State if such deliverability is confirmed. If EDRP resources and/or SCRs on Long Island are activated, the NYISO will increase the limitation on the contribution of Long Island reserves to the rest of the State by an amount equal to the applicable expected EDRP/SCR MW value of the demand response resources located on Long Island. This increase to the limitation will apply for the duration of the EDRP and/or SCR program activation in real-time.

IV. Description of Tariff Amendments

A. Definitions

The NYISO proposes to add the following definitions to Section 2 of the Services Tariff and Section 1 of the OATT: (i) "Available Operating Capacity;" (ii) "Expected EDRP/SCR MW;" (iii) "Scarcity Reserve Demand Curve;" (iv) "Scarcity Reserve Region;" and (v) "Scarcity Reserve Requirement."

The NYISO proposes to define Available Operating Capacity as follows:

> **Available Operating Capacity:** For purposes of determining a Scarcity Reserve Requirement, the capability of all Suppliers that are eligible to provide Operating Reserves and have submitted Energy Bids in the Real-Time Market to provide Energy in greater than 30 minutes but less than or equal to 60 minutes; provided,

[13] *See* Docket No. ER15-1061-000, *New York Independent System Operator, Inc.*, Proposed Tariff Revisions to Ancillary Service Demand Curves and the Transmission Shortage Cost at 4-5 (February 18, 2015); and Docket No. ER15-1061-000, *supra*, Letter Order (November 18, 2015).

> however, that this value shall not include any quantity of Energy and Operating Reserves scheduled to be provided by all such Suppliers. The Available Operating Capacity value (in MW) shall be calculated by the RTD software for each normal RTD run. For purposes of calculating a Scarcity Reserve Requirement in accordance with Section 15.4.6.2 of Rate Schedule 4 of this ISO Services Tariff, each RTD run shall utilize the value of Available Operating Capacity calculated during the immediately preceding normal RTD run and each RTC run shall utilize the value of Available Operating Capacity calculated during the most recently-completed normal RTD run prior to the RTC run.

Available Operating Capacity represents the quantity of available production capability of greater than 30 minutes but less than or equal to 60 minutes from Suppliers that have submitted bids in the Real-Time Market. This value will be calculated during each normal RTD run. This value will be subtracted from the expected load reduction from EDRP resources and/or SCRs to determine the quantity of additional 30-Minute Reserves that the NYISO will seek to procure in real-time for the duration of a given EDRP and/or SCR program activation.

The NYISO proposes to add the following new definition for Expected EDRP/SCR MW:

> **Expected EDRP/SCR MW:** The aggregate Load reduction (in MW) expected to be realized from EDRP and/or SCRs during the real-time intervals that the ISO has called upon EDRP and/or SCRs to provide Load reduction in a Scarcity Reserve Region, as determined based on the ISO's calculation of the historical performance of EDRP and SCRs. There will be separate values for voluntary and mandatory Load reductions. When determining the historical performance of SCRs, provision of Load reduction shall be deemed mandatory if the ISO has satisfied the notification requirements set forth in Section 5.12.11.1 of this ISO Services Tariff as it relates to the SCRs in the applicable Load Zone, otherwise provision of such Load reduction shall be deemed voluntary. When determining the historical performance of the EDRP, provision of Load reduction by EDRP shall be deemed voluntary.

The Expected EDRP/SCR MW value represents the quantity of load reduction that the NYISO anticipates to receive in real-time from the activated EDRP resources and/or SCRs. The NYISO will determine separate values for this quantity based on whether a given demand response activation is deemed mandatory or voluntary. This value is utilized in determining the quantity of additional 30-Minute Reserves that the NYISO will seek to procure in real-time for the duration of an EDRP and/or SCR program activation.

The following definition of Scarcity Reserve Demand Curve is proposed for addition to the Services Tariff and the OATT:

> **Scarcity Reserve Demand Curve:** A series of quantity/price points that defines the maximum Shadow Price for Operating Reserves to meet a Scarcity Reserve Requirement for which the pricing rules established in Section 15.4.6.1.1(b) of Rate Schedule 4 of this ISO Services Tariff apply corresponding to each possible quantity of Resources that the ISO's software may schedule to satisfy that requirement. A single Scarcity Reserve Demand Curve will apply to the Real-Time Market for each such Scarcity Reserve Requirement.

In circumstances where the Load Zone(s) in which demand response resources activated by the NYISO do not match the Load Zone(s) encompassed by an existing reserve region, the NYISO will create a separate Scarcity Reserve Demand Curve to apply to the additional 30-Minute Reserve requirement in the activated Load Zone(s).

The NYISO proposes to define Scarcity Reserve Region as follows:

> **Scarcity Reserve Region:** A Load Zone or group of Load Zones containing EDRP and/or SCRs that have been called by the ISO to address the same reliability need, as such reliability need is determined by the ISO.

A Scarcity Reserve Region is established for the Load Zone(s) in which the NYISO activates EDRP resources and/or SCRs for the same reliability reason. The Scarcity Reserve Region defines the geographic area within which resources must be located in order to provide the additional 30-Minute Reserve requirement that will be utilized to incorporate scarcity pricing into the real-time optimization. If the NYISO activates EDRP resources and/or SCRs in different geographic areas in response to different reliability needs, the NYISO may establish more than one Scarcity Reserve Region in real-time. For example, if the NYISO simultaneously activated Load Zones A-C to meet one reliability need and Load Zones G-K to meet a different reliability need, the NYISO would establish two separate Scarcity Reserve Regions for the duration of the respective activations (*i.e.*, one region encompassing Load Zones A-C and a second region encompassing Load Zones G-K).

The NYISO proposes to add the following new definition for Scarcity Reserve Requirement:

> **Scarcity Reserve Requirement:** A 30-Minute Reserve requirement established by the ISO for a Scarcity Reserve Region in accordance with Rate Schedule 4 of this ISO Services Tariff.

A Scarcity Reserve Requirement represents the amount of additional 30-Minute Reserves required to be procured within a Scarcity Reserve Region. Section 15.4.6.2 of Rate Schedule 4 of the Services Tariff establishes the methodology for calculating the value of each Scarcity Reserve Requirement.

B. Services Tariff Rate Schedule 3

The NYISO proposes to delete references to the current, *ex post* scarcity pricing implementation in Section 15.3.5.1 of Rate Schedule 3 of the Services Tariff. The NYISO also proposes to delete Section 15.3.5.2 of Rate Schedule 3 of the Services Tariff in its entirety because it describes the current, *ex post* scarcity pricing methodology that is being replaced by Comprehensive Scarcity Pricing. Deletion of Section 15.3.5.2 requires renumbering of the subsequent subsections within Section 15.3.5, as well revisions to subsection cross-references therein and within Section 15.3.3(b).

The NYISO also proposes to revise Section 15.3.7 of Rate Schedule 3 of the Services Tariff to increase the value of the middle pricing point of the Regulation Service Demand Curve from $400 per MW to $525 per MW. As described in Section III.B above, this revision is required to maintain proper trade-offs within the market software related to the scheduling of Regulation Service and 30-Minute Reserves.

C. Services Tariff Rate Schedule 4

The proposed revisions to Rate Schedule 4 of the Services Tariff provide for: (i) establishing a requirement to procure additional 30-Minute Reserves in real-time during activations of the EDRP and/or SCR program (*i.e.*, Scarcity Reserve Requirement); (ii) the calculation of the applicable Scarcity Reserve Requirement for each EDRP and/or SCR program activation; (iii) inclusion of costs related to procuring Operating Reserves to meet each Scarcity Reserve Requirement in Real-Time Market prices; (iv) establishment of revised 30-Minute Reserves demand curves to apply in real-time during certain EDRP and/or SCR program activations; (v) adjustments to the statewide 30-Minute Reserves demand curve values in realtime during all EDRP and/or SCR program activations; (vi) revising the value of the SENY 30-Minute Reserves demand curve; and (vii) establishment of a Scarcity Reserve Demand Curve to apply in real-time during certain EDRP and/or SCR program activations.

Proposed revisions to Section 15.4.1.1 of Rate Schedule 4 of the Services Tariff provide for the establishment of Scarcity Reserve Requirements in real-time during EDRP and/or SCR program activations. These revisions also establish the obligation for the NYISO to procure Operating Reserves to meet such requirements. Section 15.4.1.1 also establishes the eligibility criteria for resources to supply Operating Reserves to meet Scarcity Reserve Requirements. Suppliers eligible to provide 30-Minute Reserves and located within the Scarcity Reserve Region associated with a Scarcity Reserve Requirement will be eligible to provide reserves to meet such requirements.

The NYISO proposes to revise Section 15.4.3.1 of Rate Schedule 4 of the Services Tariff to provide that procurement of Operating Reserves necessary to meet Scarcity Reserve Requirements will be part of the co-optimized real-time commitment and dispatch processes. The NYISO also proposes to revise Section 15.4.4.1 of Rate Schedule 4 of the Services Tariff to clarify that the real-time prices calculated by the NYISO will, as appropriate, reflect costs related to meeting Scarcity Reserve Requirements.

Section 15.4.4.2 of Rate Schedule 4 of the Services Tariff establishes special settlement rules for Suppliers of Operating Reserves located on Long Island. The NYISO proposes to revise these rules to address payments to Long Island Operating Reserves providers during EDRP and/or SCR program activations. If an activation of the EDRP and/or SCR program includes Long Island in addition to at least one other Load Zone, the NYISO will pay Suppliers of Operating Reserves located on Long Island based on the applicable SENY Operating Reserves prices, as adjusted to account for any costs related to meeting the applicable Scarcity Reserve Requirement.

Section 15.4.4.3 of Rate Schedule 4 of the Services Tariff provides that the NYISO may substitute higher quality reserves to meet the requirements related to lower quality reserve products if such substitution results in a lower total, as-bid cost of fulfilling the applicable reserve requirements.[14] The proposed revisions clarify that this same substitution authority applies equally to meeting any Scarcity Reserve Requirements in real-time.

The NYISO proposes revisions to Section 15.4.6 of Rate Schedule 4 of the Services Tariff to appropriately reflect the costs related to meeting Scarcity Reserve Requirements in realtime prices. The NYISO proposes to add a new subsection 15.4.6.1.1 to address the procedures for incorporating Scarcity Reserve Requirement costs in real-time prices.

Subsection 15.4.6.1.1(a) addresses circumstances where the Load Zone(s) included as part of an activation of the EDRP and/or SCR program match the Load Zone(s) encompassed by an existing reserve region. In these circumstances, the NYISO will adjust the otherwise applicable 30-Minute Reserve requirement for the applicable reserve region to reflect the Scarcity Reserve Requirement. The Shadow Price associated with meeting this revised 30-Minute Reserve requirement constraint will be reflected in the applicable 30-Minute Reserve requirement constraint Shadow Price for the affected reserve region and utilized in the same manner as described in the formulae set forth in Section 15.4.6.1.

Subsection 15.4.6.1.1(b) relates to situations where the Load Zone(s) included as part of an activation of the EDRP and/or SCR program do not match the Load Zone(s) encompassed by an existing reserve region. In these circumstances, the NYISO will reflect the Shadow Price associated with meeting the Scarcity Reserve Requirement constraint as an addition to the otherwise applicable Shadow Price of the 30-Minute Reserve requirement constraint for the reserve region to which all the Load Zone(s) of a Scarcity Reserve Region belong. In such cases,

[14] The ordering of Operating Reserves from highest to lowest quality is as follows: (i) Spinning Reserves; (ii) 10-Minute Non-Synchronized Reserves; and (iii) 30-Minute Reserves.

the additional cost component related to meeting the Scarcity Reserve Requirement constraint is limited to being included in the calculation of prices for only the Load Zone(s) included as part of the Scarcity Reserve Region.

The NYISO proposes to delete the language in Section 15.4.6.2 of Rate Schedule 4 of the Services Tariff that describes the current, *ex post* scarcity pricing methodology. This includes deletion of subsections 15.4.6.2.1, 15.4.6.2.2 and 15.4.6.2.3 in their entirety. In place of the existing language, the NYISO proposes to revise Section 15.4.6.2 to describe the methodology for calculating the value of each Scarcity Reserve Requirement. A Scarcity Reserve Requirement is calculated as the sum of the applicable Expected EDRP/SCR MW values for the Load Zone(s) encompassed by an activation of the EDRP and/or SCR program, less the Available Operating Capacity value for the same Load Zone(s); provided, however, that the resulting value cannot be less than zero. For example, if the aggregate Expected EDRP/SCR MW value for a hypothetical activation was 500 MW and the applicable Available Operating Capacity value for a particular interval was 100 MW, the NYISO would establish a Scarcity Reserve Requirement of 400 MW.

Section 15.4.6.3 of Rate Schedule 4 of the Services Tariff provides the methodology for calculating balancing payments/charges resulting from deviations between a Supplier's Day-Ahead Operating Reserves schedule and its real-time Operating Reserves schedule. The NYISO proposes revisions to Section 15.4.6.3 to clarify that the calculation of any balancing charges/payments will, as appropriate, account for real-time prices that reflect any applicable Scarcity Reserve Requirements.

The NYISO proposes several revisions within Section 15.4.7 of Rate Schedule 4 of the Services Tariff to address the implications of Scarcity Reserve Requirements on the applicable 30-Minute Reserve demand curves in real-time during activations of the EDRP and/or SCR program. The proposed revisions provide that in circumstances where the Load Zone(s) included as part of an activation of the EDRP and/or SCR program match the Load Zone(s) encompassed by an existing reserve region, the NYISO will utilize a revised 30-Minute Reserve demand curve for the affected reserve region.[15] The revised demand curves reflect the addition of the Scarcity Reserve Requirement to the otherwise applicable 30-Minute Reserve requirement for the affected reserve region, with any shortage in meeting the Scarcity Reserve Requirement priced at $500 per MW.

When the Load Zone(s) included as part of an activation of the EDRP and/or SCR program do not match the Load Zone(s) encompassed by an existing reserve region, the NYISO will implement a separate Scarcity Reserve Demand Curve for the affected Load Zone(s) in real-

[15] The revised 30-Minute Reserve demand curves that will apply in these circumstances are set forth in the following provisions of Section 15.4.7: (i) Section 15.4.7(i) for statewide activations (*i.e.*, all Load Zones); (ii) Section 15.4.7(j) for East of Central-East activations (*i.e.*, Load Zones F-K); (iii) Section 15.4.7(k) for Southeastern New York activations (*i.e.*, Load Zones G-K); and (iv) Section 15.4.7(l) for Long Island activations (*i.e.*, Load Zone K).

time for the duration of the activation. The Scarcity Reserve Demand Curve will price any shortage in meeting the applicable Scarcity Reserve Requirement at $500 per MW.

Due to the nested nature of the NYISO's existing reserve regions, the NYISO also proposes revisions to Section 15.4.7 to reflect any Scarcity Reserve Requirements in "upstream" reserve regions in addition to the inclusion of this additional 30-Minute Reserve requirement in the Scarcity Reserve Region. As described in Section III.A above, accounting for the Scarcity Reserve Requirement in "upstream" reserve regions is necessary to provide proper pricing outcomes. The proposed revisions establish that, in addition to reflecting the Scarcity Reserve Requirement in the Scarcity Reserve Region, this requirement will also be accounted for in the existing reserve region(s) to which all of the Load Zone(s) included in the Scarcity Reserve Region belong.

The NYISO proposes to increase the value of the SENY 30-Minute Reserve demand curve from $25 per MW to $500 per MW. As described in Section III.B above, this proposal: (i) appropriately recognizes that EDRP resources and SCRs have historically been called upon to protect SENY reserves; and (ii) aligns the value of SENY reserves with the cost of such resources.

The NYISO also proposes to increase the statewide 30-Minute Reserve demand curve prices valued at less than $500 per MW to $500 per MW in real-time for the duration of all EDRP and/or SCR program activations. As further detailed in Section III.B above, this revision seeks to properly reflect the cost of EDRP resources and/or SCRs in real-time prices to the extent that such resources assist in avoiding a statewide shortage of 30-Minute Reserves.

The NYISO proposes to modify the requirements for periodic reviews of the Operating Reserve Demand Curves in Section 15.4.7. The proposed revisions provide that Comprehensive Scarcity Pricing will be included as part of these periodic reviews.

The NYISO also proposes a ministerial revision to Section 15.4.7 to clarify that the Operating Reserve Demand Curves and Scarcity Reserve Demand Curves are utilized by both of NYISO's real-time co-optimization software systems - Real-Time Commitment ("RTC") and RTD. Reference to RTC was inadvertently omitted from the current language.

D. Additional Tariff Revisions

The NYISO proposes certain other revisions to the following tariff provisions in connection with Comprehensive Scarcity Pricing: (i) Section 4.4 of the Services Tariff; (ii) Attachment B of the Services Tariff; (iii) Attachment O of the Services Tariff; and (iv) Rate Schedule 3 of the OATT.

The NYISO proposes to delete Section 4.4.2.7 of the Services Tariff in its entirety because it describes the current, *ex post* scarcity pricing methodology that is being replaced by Comprehensive Scarcity Pricing. Deletion of this section requires renumbering of the subsequent subsection within Section 4.4.2. The NYISO also proposes to revise language in

Sections 4.4.2.5 and 4.4.2.6 of the Services Tariff to replace references to the current, *ex post* logic with references to the new scarcity pricing methodology. The NYISO proposes to include a reference to Scarcity Reserve Requirements within Sections 4.4.3.1.1 and 4.4.3.1.2 of the Services Tariff. These additions clarify that during use of either the reserve pickup or maximum generation pickup modes of the Real-Time Dispatch-Corrective Action Mode ("RTD-CAM") software, the NYISO will continue to recognize and satisfy any Scarcity Reserve Requirements that may be effective during such periods.

The NYISO proposes to delete Section 17.1.2.2 of Attachment B of the Services Tariff in its entirety. This provision describes the current, *ex post* scarcity pricing logic that is being replaced by Comprehensive Scarcity Pricing. The NYISO also proposes to delete language in Sections 17.1.1 and 17.1.2 that refers to the current, *ex post* scarcity pricing methodology. The NYISO proposes to revise Section 17.1 to include a reference to the potential for establishing a Scarcity Reserve Demand Curve for certain Scarcity Reserve Requirements.

The NYISO proposes to revise Section 30.4.6.4.2 of Attachment O of the Services Tariff to include reference to the potential establishment of a Scarcity Reserve Demand Curve for certain Scarcity Reserve Requirements. These revisions provide that the Scarcity Reserve Demand Curves are subject to the same periodic reviews as all other Operating Reserve Demand Curves.

The proposed renumbering of subsections within Section 15.3.5 of Rate Schedule 3 of the Services Tariff requires updates to certain cross-references to the Services Tariff within Rate Schedule 3 of the OATT. The NYISO proposes to update certain cross-references in Section 6.3.2.2 of Rate Schedule 3 of the OATT to reflect such renumbering.

V. Effective Date

The NYISO respectfully requests Commission action within sixty days from the date of this filing (*i.e.*, January 29, 2016) in order to provide the NYISO and Market Participants with timely notice that the changes proposed herein have been accepted. Such timely action by the Commission will: (a) allow the NYISO to confidently proceed with developing and deploying the software changes necessary to implement Comprehensive Scarcity Pricing; and (b) enable the NYISO to achieve the desired effective date for this proposal.

The NYISO requests a flexible effective date for the tariff revisions proposed in this filing. The NYISO proposes to submit a compliance filing at least two weeks prior to the proposed effective date that will specify the date on which these revisions will take effect. The NYISO currently anticipates the proposed revisions becoming effective on or before June 30, 2016. The NYISO, however, will be unable to propose a precise effective date until the software changes necessary to implement Comprehensive Scarcity Pricing are ready for deployment and testing thereof is completed. Consistent with Commission precedent, the compliance filing will

provide adequate notice to the Commission and Market Participants of the implementation date for Comprehensive Scarcity Pricing.[16]

To the extent necessary, the NYISO requests a waiver of the Commission's regulations to allow the NYISO to make this filing more than 120 days prior to the date on which the proposed service is to become operational.[17] No Market Participant will be prejudiced by this request because the proposed implementation timeframe was developed in consultation with Market Participants. As such, Market Participants have known for some time that Comprehensive Scarcity Pricing is not likely to become effective until on or before June 30, 2016. Furthermore, as noted above, the NYISO will provide at least two weeks prior notice before implementation of Comprehensive Scarcity Pricing.

VI. Requisite Stakeholder Approval

The proposed amendments were approved by the NYISO Management Committee on October 28, 2015 by a show of hands vote with one vote in opposition. The NYISO's Board of Directors approved the proposed revisions on November 17, 2015.

VII. Communications and Correspondence

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

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VIII. Service

The NYISO will send an electronic link to this filing to the official representative of each of its customers, to each participant on its stakeholder committees, to the New York State 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.

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[16] *See*, *e.g.*, *New York Independent System Operator, Inc.*, 106 FERC ¶ 61,111 at P 10 (2004); Docket No. ER11-2544-000, *New York Independent System Operator, Inc.*, Letter Order at 1 (February 10, 2011); Docket No. ER15-485-000, *New York Independent System Operator, Inc.*, Letter Order at 2 (January 15, 2015); and *New York Independent System Operator, Inc.*, 151 FERC ¶ 61,057 at P 20 (2015).

[17] *See* 18 C.F.R. § 35.3(a)(1).

IX. Conclusion

For the foregoing reasons, the NYISO respectfully requests that the Commission accept for filing the proposed revisions to the Services Tariff and the OATT that are attached hereto within sixty days of the date of this filing (*i.e.*, by January 29, 2016) with a flexible effective date to be provided with two weeks' notice.

Respectfully submitted,

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