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

June 12, 2013

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., *Response to Request for Additional Information Concerning Proposed Tariff Revisions to Establish and Recognize a New Capacity Zone, Request for Shortened Notice Period and Request for Expedited Action*, Docket No. ER13-1380-000

Dear Ms. Bose:

The New York Independent System Operator, Inc. ("NYISO") respectfully submits this filing in response to the request for additional information included in the Commission's June 6, 2013 letter ("June 6 Letter") in this proceeding. The June 6 Letter's four questions all concern a single issue related to the NYISO's *Proposed Tariff Revisions to Establish and Recognize a New Capacity Zone and Request for Action on Pending Compliance Filing* ("April 30 Filing"). Specifically, they have to do with the NYISO's decision not to include "Load Zone K," in its proposed New Capacity Zone ("NCZ").[1] The NYISO respectfully reiterates that it determined the proposed NCZ boundary in a manner consistent with the Services Tariff[2] and that its proposed boundary is just and reasonable.[3] Section II of this filing includes the NYISO's written

[1] Capitalized terms that are not otherwise defined herein have the meaning set forth in the NYISO's Services Tariff, and if not defined therein, in the Open Access Transmission Tariff ("OATT").

[2] *See New York Independent System Operator, Inc.*, Docket No. ER13-1380-000 at Section II.C (filed June 5, 2013) ("NYISO Answer").

[3] As the NYISO has noted, the proposed NCZ boundary should be considered under the Federal Power Act's ("FPA") "just and reasonable" standard. *See* NYISO Answer at 19-20. The NYISO should not be required to demonstrate that an NCZ boundary encompassing Load Zones G, H, I, and J was the only possible or plausible result. It should be sufficient for the NYISO to show that its proposed new G-J Locality was reasonable without having to show that a "G-K" Locality would be unreasonable. The latter showing would be more than the FPA and Commission precedent requires. *See* 16 U.S.C. §824(d) (2012); *see also OXY USA, Inc. v. FERC,* 64 F.3d 679, 692 (D.C. Cir. 1995) ("For the rate design proposal to be acceptable, it need be neither perfect nor even the most 'desirable'; it need only be reasonable."); *see also* PJM Interconnection, LLC, 119 FERC ¶ 61,063 at P 41 (2007) (stating that "on the same set of facts there can be 'multiple just and reasonable rate designs'"); California Independent System Operator Corporation, 119 FERC ¶ 61,076 at P 14 (2007) (stating that "there can be more than one just and reasonable proposal, and the proposal under consideration will be selected unless it is found unjust and unreasonable"); Midwest Independent Transmission System Operator, Inc., 117 FERC ¶ 61,241 at P 62 (2006) (stating that "[u]nder the FPA, if we find that the Midwest ISO has successfully supported the justness and reasonableness of its proposal, we must approve it even if there are other just and reasonable ways…")." That said, as the NYISO has previously shown, and reiterates in its written

response to each of these questions. In support of its written responses, the NYISO submits a confirming affidavit by its expert witnesses on this issue, Henry Chao, Ph.D. and John M. Adams (Attachment I). Dr. Chao and Mr. Adams were the principal drafters of the written responses and were involved in, and support, all of the NYISO determinations that they describe.

The NYISO recognizes that this filing constitutes an amendment to the April 30 Filing and therefore triggers a new notice and comment period. Section I of this filing explains that there is good cause for the Commission to adopt a shortened period of **eight days** and to expeditiously issue an order accepting the April 30 Filing, including its proposed NCZ boundary. As explained below, it continues to be critically important that the Commission issue an order accepting the April 30 Filing by July 1, 2013, or as soon as possible thereafter but in no event after July 18, 2013, *i.e.,* the date of the Commission's July open meeting. The NYISO expedited its own response to the June 6 Letter, and is submitting this response well before its due date, in order to facilitate Commission action by July 1.

I. REQUEST FOR SHORTENED NOTICE AND COMMENT PERIOD AND FOR EXPEDITED COMMISSION ACTION

The NYISO has consistently emphasized that Commission action by July 1, 2013 is critical to timely implementation of the NCZ. For example, the April 30 Filing explained that:

> [A]cceptance of the NCZ within sixty days of filing is critical to the schedule of the ongoing ICAP Demand Curve reset process and the processes to implement the G-J Locality. Specifically, the ICAP Demand Curve reset consultant must know that a new Locality will be established, and its boundaries, with certainty. This information is needed so that the consultant may timely develop and propose an ICAP Demand Curve for the NCZ concurrent with the other ICAP Demand Curves. Commission acceptance is also necessary for development, testing, and deployment steps that are specific to the configuration of the G-J Locality.[4]

Earlier NYISO filings have also emphasized the integrated nature of the NYISO's implementation timetable which implicates numerous NCZ and ICAP Demand Curve related processes that are essential to the proper functioning of the capacity market.[5]

Establishing an NCZ requires, among other things, that the NYISO timely finalize the NCZ and other ICAP Demand Curves, which needs to be done concurrently.[6] The Demand

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responses below, there are many reasons why it is not reasonable to establish a G-K Locality and why a G-J Locality is the reasonable choice.

[4] April 30 Filing at 2; *see also* NYISO Answer at 2 (reiterating that "[i]t is very important that an order be issued no later than July 1, 2013").

[5] *See, e.g., New York Independent System Operator, Inc.'s Compliance Filing*, Docket No. ER12-360-000 at 3-4 (filed November 7, 2011) ("November 2011 Filing"), and *New York Independent System Operator, Inc.'s Further Compliance Filing*, Docket No. ER12-360-000 at 14 (filed June 29, 2012).

[6] *See* n.4 above; *see also* August 2012 Order at P 32 ("accept[ing]" NYISO's timeline and

Curves first must be vetted with stakeholders, reviewed by the NYISO Board of Directors, and filed with and accepted by the Commission.[7] Other necessary implementation steps include software testing and activation and establishing the Locational Minimum Installed Capacity Requirement ("LCR"). If a Commission order on the April 30 Filing is delayed beyond July 1, or at the very latest, beyond the Commission's July 18 open meeting date, it is very likely that the NYISO would not be able to complete the necessary implementation steps in time for the May 1, 2014 start of the 2014/2015 Capability Year.

The NYISO Answer emphasized, that the issues in this proceeding are relatively narrow.[8] They are even narrower now that the Commission has issued the NCZ Mitigation Order[9] accepting the June 2012 Compliance Filing. Arguments regarding: (i) the introduction of market power mitigation rules, including buyer-side mitigation rules, to the NCZ; or (ii) the use of the New York City buyer-side rules as the "conceptual framework" for NCZ rules are now clearly outside the scope of this proceeding and represent collateral attacks on the NCZ Mitigation Order.

The questions posed by the June 6 Letter are themselves relatively narrow. There have already been pleadings and affidavits addressing the question of whether Load Zone K should be included in the NCZ. Those pleadings include the NYISO Answer[10] and the Long Island Power Authority's Answer,[11] filed mere hours before the June 6 Letter was issued.[12] The parties in this case, like other NYISO stakeholders, have been discussing the inclusion of Load Zone K since the January 30 ICAP Working Group meeting at which the NYISO first presented a preliminary NCZ boundary. In addition, as noted above, the NYISO has done everything possible to facilitate Commission review and action by filing this response eight days before the deadline established by the June 6 Letter.

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sequence for its new capacity zone determination as reasonable.").

[7] *See* Services Tariff Section 5.14.1.2 (including 5.14.1.2.1-11).

[8] NYISO Answer at 2, 4-5.

[9] *New York Independent System Operator, Inc.*, 143 FERC ¶ 61,217 (2013) ("NCZ Mitigation Order").

[10] *See* NYISO Answer at Section II.C.

[11] *Motion for Leave to Answer and Answer of the Long Island Power Authority to Comments of Multiple Intervenors, Consolidated Edison Company of New York, Inc. and Central Hudson Gas & Electric Corporation*, Docket No. ER13-1380 (June 5, 2013).

[12] In addition, the question of whether Load Zone K should be included in the NCZ was addressed by the *Motion to Intervene and Protest of Multiple Intervenors*, Docket No. ER13-1380-000 (May 21, 2013) and the *Protest of Consolidated Edison Company of New York, Inc., Orange and Rockland Utilities, Inc., and Central Hudson Gas and Electric Corporation*, Docket No. ER13-1380-000 (May 21, 2013) ("CE/CH Protest").

Accordingly, there is good cause for the Commission to shorten the usual sixty day notice period[13] - and issue an order by July 1, 2013, or as soon as possible thereafter and no later than July 18, 2013.

The Commission should also establish a shortened period for comments and protests on this filing. The NYISO respectfully submits that interested parties be required to file by June 20, 2013. That is the date that any answers to the NYISO Answer would likely be filed. Setting a June 20 date would simplify these proceedings by enabling all parties, and the Commission, to review any submissions responding to the NYISO Answer's discussion of NCZ boundary issues and/or to this filing at the same time. Given the narrow scope of the issues addressed by this filing, and the familiarity that all interested parties have with them, providing eight days for comments and protests should not prejudice any party.

Alternatively, the Commission should require that comments and protests be filed by June 24, 2013. That deadline would give potentially interested parties twice as long to respond to this filing, *i.e.,* twelve days, as the NYISO took to prepare it, *i.e.,* six days. It would also leave a week for Commission review before July 1, 2013[14] and almost four weeks before the July 18 open meeting.

II. RESPONSES TO THE JUNE 6 LETTER

A. Question One

"Are the only direct connections between Zone K and other NYISO zones the SENY zones? If so, why is it reasonable for NYISO to rely on capacity located in Zone K to help satisfy the NYCA capacity requirement (as is the case under the current NYISO market rules) but not reasonable to rely on the same capacity located in Zone K to satisfy the Indicative Locational Minimum Installed Capacity Requirement of a new capacity zone that includes Zones G, H, I, J, and K, which together comprise SENY?"

RESPONSE

Diagram 1 of the Answering Affidavit of Henry Chao, Ph.D. and John M. Adams ("Chao/Adams Answering Affidavit")[15] depicts the direct connections between Load Zone K and the other "SENY zones" (*i.e.*, Load Zones G, H, I, J.) The only direct tie between Load

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[13] Section 35.11 of the Commission's regulations provides that "[u]pon application and for good cause shown, the Commission may, by order, provide that a rate schedule, tariff, or service agreement, or part thereof, shall be effective as of a date prior to the date of filing or prior to the date the rate schedule or tariff would become effective in accordance with these rules."

[14] As discussed above, July 1 is sixty days from the date of the April 30 Filing. An order by that date would enable the NYISO to meet its ICAP Demand Curve reset tariff filing deadline, *see* Services Tariff Section 5.14.1.2.11, and related software implementation timetables.

[15] *See* Chao/Adams Answering Affidavit at P 41. The Chao/Adams Answering Affidavit is Attachment 2 to the NYISO Answer.

Zone K and Load Zones GHI is between Load Zone K and Load Zone I. There is also a direct connection between Load Zone K and Load Zone J. Load Zone K has no other direct connections with any other NYISO Load Zone.

This response explains why it is reasonable for the NYISO to rely on Load Zone K capacity to meet the New York Control Area ("NYCA") capacity requirement but not to rely on it to satisfy the Indicative NCZ Locational Minimum Installed Capacity Requirement ("Indicative NCZ LCR") or a LCR for a hypothetical "SENY" NCZ. As explained in detail below, it is not reasonable to utilize Load Zone K capacity to satisfy a locational requirement for Load Zones GHI or any other locational requirement in the NYCA, except its own (Load Zone K) LCR because the transfer capability to and from Load Zone K is significantly limited.

LCRs are "[t]he portion of the NYCA Minimum Installed Capacity Requirement that must be electrically located within a Locality, or possess an approved Unforced Capacity Deliverability Right, in order to ensure that sufficient Energy and Capacity are available in that Locality and that appropriate reliability criteria are met."[16]

In establishing the LCRs each Capability Year, the NYISO is required to "take into account all relevant considerations, including the total NYCA Minimum Installed Capacity Requirement, **the NYS Power System transmission Interface Transfer Capability, …,** the Reliability Rules and any other FERC-approved Locational Minimum Installed Capacity Requirements."[17]

Because the NYCA Minimum Installed Capacity Requirement includes the requirements of Load Zone K, capacity located in Load Zone K does in fact contribute directly to meeting the NYCA requirements. Because capacity in Load Zone K (existing or capacity additions) has very little ability to be transferred to Load Zones GHI, it cannot adequately be relied on to satisfy the reliability needs of Load Zones GHI. Thus including Load Zone K in the NCZ would dilute the important price signal which the NCZ is designed to send for investment to maintain existing, and attract new, economic capacity to meet the LCR most notably of Load Zones GHI, because Load Zones J and K each have their own LCR.

Although the NYISO can and does rely on capacity located in Load Zone K to help satisfy the NYCA minimum requirement, it does so in accordance with the parameters established in the Services Tariff. The Services Tariff requires that the NYISO not only determine the amount of capacity that must be physically located within the NYCA, but also

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[16] Services Tariff Section 2.12 (at definition of "Locational Minimum Installed Capacity Requirement").

[17] *See* Services Tariff at Section 5.11.4 (emphasis added). An "Interface" is a "defined set of transmission facilities that separate Load Zones and that separate the NYCA from adjacent Control Areas" (Services Tariff at Section 2.9 at definition of "Interface"); "Transfer Capability" is "the measure of the ability of interconnected electrical systems to reliably move or transfer power from one area to another over all transmission facilities or paths) between those areas under specified system conditions" (Services Tariff at Section 2.20 at definition of Transfer "Capability").

determine the amount that must be located "within each Locality, and the amount of Unforced Capacity that may be procured from areas External to the NYCA, in a manner consistent with the Reliability Rules."[18]

The Services Tariff limits the use of the Indicative NCZ LCR to the NYISO's establishment of the ICAP Demand Curve for the NCZ before it becomes effective for the first time.[19] Once the NCZ is accepted, the NYISO will establish an LCR for it concurrent with establishing the LCRs for the existing Localities.[20] For the purpose of performing an analysis to determine the appropriate NCZ boundary, the electrical location of capacity needed to meet the Loss of Load Expectation ("LOLE") reliability criterion in the location, whether referred to as "Indicative" or the LCR, is a key factor in evaluating fungibility and transmission transfer capability.

The requirement to create an NCZ was triggered by the Highway deliverability constraint that exists between UPNY and SENY. Transmission constraints also exist between Load Zone K and Load Zone J, and Load Zone K and Load Zone I.

If Load Zone K were included in the NCZ (either with or without Load Zone J,) capacity located in Load Zone K could be used to satisfy the LCR for the NCZ. The mere fact that capacity is electrically located within a Load Zone that is on the same side of the constrained Highway interface does not mean that it can reasonably be considered to be available to the other Load Zones on the same side of the constraint if there is a loss of load event. Therefore, it is important to consider transmission constraints and transfer capability between Load Zones when determining the boundary for an NCZ.

If the transfer capability between Load Zones is limited, a higher LCR may be needed to meet the LOLE criterion, which is 0.1 day per year. The Affidavit of Dr. David B. Patton,[21] ("Patton Affidavit") discussed the effect of this correlation under the existing system:

> Because the binding UPNY-SENY interface limits supply resources from reaching Zones G-K, capacity retirement in Zones G and H has resulted in higher Locational Minimum Installed Capacity Requirements ("LCRs") for Zones J and K. From the 2010/11 Capability Period to the 2013/14 Capability Period, the LCR for Zone J has risen from 80 percent to 86 percent. A one percent increase in the

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[18] *See* Services Tariff at Section 5.10.

[19] "Indicative NCZ Locational Minimum Installed Capacity Requirement" is defined at Services Tariff Section 2.9. As prescribed in Services Tariff Section 5.16.3, the Indicative NCZ LCR is used solely for establishing the ICAP Demand Curve for an NCZ. *See* November 2011 Filing at 6. Because an LCR is needed to establish an ICAP Demand Curve, the concept of an Indicative NCZ LCR, was created solely to serve in the place of an LCR because there is not an existing LCR.

[20] *See* April 30 Filing at 5, and NYISO Answer at 12-13.

[21] *See* Patton Affidavit at P 11. The Patton Affidavit was Attachment XI to the April 30 Filing. Dr. Patton is the President of Potomac Economics, the independent Market Monitoring Unit for the NYISO.

> LCR translates to a $1.30/kW-month increase in capacity prices given the current capacity demand curve and supply in New York City.

Similarly, if an NCZ has a significant transfer capability constraint within its boundary which limits the ability of capacity within it to satisfy the LCR that applies throughout it, it would result in an LCR that was higher than it would be absent the internal constraint in order to satisfy the LOLE criterion.

The transfer limits between Load Zone K and the other SENY zones very well may result in the need to establish a higher LCR than would be necessary absent the transfer limitation if Load Zone K were included in the NCZ.

The Chao/Adams Answering Affidavit explained that, "[c]onsistent with [the LCR] requirement, the LOLE analysis for the fungibility test described in the Chao/Adams Affidavit is an evaluation of the impact of incremental capacity on the reliability of adjacent Load Zones on the constrained side of the Highway interface. It was correctly performed and the results presented in Chao/Adams Affidavit are accurate. Based on the LOLE analysis, the results demonstrate that incremental capacity equivalent to less than 7% of the existing capacity in Load Zones GHI … is fungible with capacity in Load Zone K." [22]

Because the NCZ is intended to incent incremental capacity additions where they provide the most reliability value without limitations in size and location within the NCZ, the capacity needs to be available throughout the NCZ.[23]

The importance of incremental capacity being fungible throughout the NCZ is most obvious when considering how LCRs will be met in the event of a capacity retirement in Load Zones GHI.

Capacity above the UPNY/SENY transmission constraint (*i.e.*, in Load Zones A through F) provides support to Load Zones GHI as does capacity external to the NYCA, as noted in the Affidavit of Gary Jordan ("Jordan Affidavit").[24] The NCZ is being created because capacity additions above the UPNY/SENY constraint provide much less reliability value to the constrained area than additions below the constraint. Likewise, Load Zone K, which is already a Locality, has limited export capability to the other "SENY" Load Zones; that is, it has transfer capability limitations. However, transfer capability between and among Load Zones G, H, I, and J for new capacity additions is not limited.

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[22] Chao/Adams Answering Affidavit at P 29.

[23] *See* Chao/Adams Answering Affidavit at P 32 (explaining that "Capacity additions in the NCZ should be equally fungible in all Load Zones in the NCZ. Developers should not be restricted to what size unit that they want to develop in the NCZ - *i.e.*, an incremental capacity addition no matter what size should be fully fungible everywhere in the NCZ").

[24] *See* Jordan Affidavit at P 12. The Jordan Affidavit is attached to the April 30 Filing as Attachment XV.

As described further in response to Question 4 below, the NYISO's analyses using GE Multi-Area Reliability Simulation ("MARS") runs demonstrated that up to 6,000 MW of capacity from Load Zone J is fungible with capacity in Load Zones GHI. Therefore, the result is that incremental capacity located within Load Zone J is fully fungible and provides the same level of reliability throughout Load Zones GHI and J. That is true regardless of the size of the capacity addition - 350 MW, 500 MW, 1,000 MW, *etc.*, and without limitation to its location within Load Zones GHI and J. The results of the analysis therefore show that if capacity were added in Load Zone J, it could in fact reach Load Zones GHI. Thus it is reasonable for the NCZ to send a price signal based on capacity located anywhere in Load Zones GHI or J.

That is not true for Load Zone K. Although capacity located in Load Zone K can provide some level of capacity support to Load Zones GHI, the transfer limit from Load Zone K to Load Zones GHI limits the amount of Load Zone K capacity that can be transferred to Load Zones GHI to support load within Load Zones GHI.

The importance of being able to meet the reliability criteria in Load Zones GHI demonstrates the usefulness of the NYISO's "fungibility test" to determine the NCZ boundary. That fungibility test demonstrates the extent to which capacity in a Load Zone can be replaced by capacity in another Load Zone (*e.g.*, in the event of a retirement,) one for one. The Chao/Adams Answering Affidavit explained that the test determined:

> [H]ow well incremental capacity in Load Zone J and Load Zone K, evaluated one at a time, would help maintain the NYCA LOLE criterion of 0.1 days per year or 1 day in ten years versus a same amount of capacity in Load Zones GHI. The key analytical threshold was whether capacity in a Load Zone could be substituted one-for-one with capacity in Load Zones GHI. The results of test of the fungibility of capacity as measured by LOLE demonstrated that this was the case for Load Zone J but not Load Zone K.
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> The NYISO's use of the fungibility test as its primary methodology to determine the NCZ boundary was reasonable. The [Jordan Affidavit and the Patton Affidavit] provided with the April 30 Filing both endorsed its use. It represented the most useful, valid, and comprehensive approach available to the NYISO to conduct the NCZ boundary analysis.[25]

B. Question Two

"If Zone K were to be added to the new capacity zone, capacity located in Zone K could be used to satisfy the Locational Minimum Installed Capacity Requirement for the new capacity zone. NYISO's experts, Chao and Adams (at P22 of their affidavit) argue that Zone K should not be included in the new capacity zone because, in their view, Zone K capacity would provide only limited value from a resource adequacy perspective to Zones GHI. Dr. Sasson (at P26 of his affidavit) disagrees, concluding that Zone K capacity would provide important reliability value

[25] Chao/Adams Answering Affidavit at PP 27-28.

to Zone GHI. In support of his conclusion, Dr. Sasson (relying on data from the Chao/Adams affidavit) states that adding 1,000 MW of capacity to Zone K would reduce the LOLE of Zone GHI from 0.087 to 0.012, a significant reliability benefit in Dr. Sasson's view. Please respond to Dr. Sasson's argument."

RESPONSE

As discussed in detail below, Dr. Sasson's argument is incorrect because it ignores the impact of transfer limits, inter-zonal interactions, and other complex factors. Although Dr. Sasson's statement that "adding 1000 MW of capacity to Zone K would reduce the LOLE of Zone GHI from 0.087 to 0.012" is factually accurate, it fails to recognize that when 300 MW or more is added to Load Zone K it becomes bottled due to the transmission transfer limits. Further, the fact that adding 1,000 MW to Load Zone K could reduce the Load Zone GHI LOLE to 0.012 needs to be compared to the to the fact that when 1,000 MW of capacity is added to Load Zone J, it rapidly reduces the LOLE of GHI essentially to zero. The transmission transfer limits need to be considered in light of the reason for establishing an NCZ: to send the price signal for capacity investment in the location where it is need to meet reliability.

The Installed Reserve Margin for the NYCA ("IRM") is determined using a probabilistic methodology that includes a LOLE criterion. A higher IRM usually yields a lower LOLE. As the Chao/Adams Affidavit explained:

> In general, adding incremental capacity to any location in the system, either NYCA Load Zones or neighboring systems, will show an improved LOLE to some extent. Even adding capacity to a location where the capacity is bottled (*i.e.*, constrained) can result in some improvement although when such improvements occur they will usually be smaller. The LOLE ordinarily declines rapidly towards zero in an asymptotic manner until the point of diminishing returns is reached or the LOLE has dropped to essentially zero. For the case where the capacity additions become bottled, the LOLE will stop improving at a certain point.[26]

The Sasson Affidavit's argument ignores the reality of capacity additions in Load Zone K becoming bottled and, therefore, not being able to provide even close to the same level of reliability benefit to Load Zones GHI as would a capacity addition within one or more of Load Zones GHI or J.

In general, the NYCA LOLE will improve if capacity is added in any Load Zone. It does so because the reserve margin increases. As capacity is added anywhere in the NYCA, the LOLE improves in that it declines rapidly towards zero or some asymptotic value close to zero. As result, most of the reduction in LOLE occurs with the initial capacity additions. The NYCA LOLE can be no better than its most unreliable Load Zone (*i.e.*, Load Zone I, which has no

[26] Chao/Adams Affidavit at P 23. The Chao/Adams Affidavit is attached to the April 30 Filing as Attachment XIV.

capacity), and is usually slightly higher than the Load Zone with the highest LOLE (*e.g.*, Load Zones J or K).

Adding 1,000 MW of capacity to Load Zone K alone increases the reserve margin and reduces the LOLE of Zone K and NYCA as a whole. That is the reason why it is factually accurate (albeit misleading) to state that adding 1,000 MW of capacity to Load Zone K would result in a lower NYCA LOLE. However, that effect of the 1,000 MW addition on the NYCA LOLE cannot be considered in isolation.

The Chao/Adams Affidavit and the Sasson Affidavit both utilize examples of the system starting at the LOLE criterion (*i.e.,* 0.1 day per year) and add capacity to it. However, the Sasson Affidavit stops at that threshold and does not recognize a number of important factors that the NYISO's analyses and NCZ boundary determination recognized. Specifically, the Sasson affidavit did not recognize transfer limits between Load Zones, the impact of simultaneous transfer limits, and the complex interactions between Load Zones when capacity is added to one or is utilized to support other Load Zones.[27]

The LOLE of an individual Load Zone is a function of the capacity within it and the amount of assistance that can be provided to it. Those two functions are: (a) as capacity is added to a Load Zone, the LOLE for it will improve and it is likely that it will need much less assistance from outside the zone; and (b) the assistance that the Load Zone was receiving from outside to meet criteria, plus additional assistance that is available from the added capacity, are now available to other Load Zones to meet reliability criteria. Therefore, the LOLE of each Load Zone will improve as capacity is added to a Load Zone and there will be an overall reduction in the NYCA LOLE.

In the case of a capacity addition to Load Zone K, the primary factor determining the degree to which it reduces the overall NYCA LOLE is that Load Zone K becomes much less dependent on capacity outside of it. A capacity addition within Load Zone K results in capacity that otherwise might have needed to be imported to meet the Load in Load Zone K, being available to Load Zones GHI or other NYCA Load Zones that are deficient.

The NYISO's filings in this proceeding, including both of the earlier Chao/Adams affidavits, acknowledged that assistance from Load Zone K to other NYCA Load Zones could be available. However, the NYISO's filings also indicated that, after properly recognizing the LOLE reliability requirement, the simulations demonstrated that such assistance would be limited to the 300 MW identified in the fungibility test.[28]

The Sasson Affidavit fails to mention the fact that the NYISO's analysis demonstrated that when 1,000 MW of capacity is added to Load Zone J, the Load Zones GHI LOLE declined

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[27] These factors are discussed in detail in the Chao/Adams Answering Affidavit. *See* Chao/Adams Answering Affidavit at PP 36-54.

[28] *See* NYISO Answer at 25, Chao/Adams Affidavit at P 21, and Chao/Adams Answering Affidavit at PP 36-42.

rapidly to a value that was essentially zero. The result of the same capacity addition in Zone K, however, could only drive the Load Zones GHI LOLE to .012, as stated by the Sasson Affidavit. The reason for these outcomes is that when additional capacity from Load Zone K becomes available, it becomes bottled due to transmission constraints between it and Load Zones GHI. However, capacity in Load Zone J is not bottled -- there is no transmission constraint from Load Zone J to Load Zones GHI.

The NYISO's analyses demonstrate these facts:

> The NYISO examined cases where large amounts of capacity (*e.g.*, 3,500 MW) were added to Load Zones J and K. When 3,500 MW was added to Load Zone J, the LOLE in Load Zones GHI dropped from 0.1 days per year to essentially zero (0.001 days per year) because this amount of capacity increased the IRM by more than 10%, to above 27% while the Load Zone J capacity margin increased by over 33%. These changes were so substantial because the 3,500 MW would not be bottled in Load Zone J.
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> By contrast, when 3,500 MW was added to Load Zone K it results in an even greater increase in the Load Zone K capacity margin, *i.e.*, 57%. The LOLE in Load Zones GHI LOLE fell to only 0.012 and stayed at this level without any further improvement. In fact, the NYISO increased the capacity additions in Zone K beyond 3,500 MW and there was no further improvement in the LOLE for Load Zones GHI or the NYCA LOLE. This is because the 3,500 MW of incremental capacity additions in Load Zone K become bottled there at some point while no such bottling occurred in Load Zone J. This result means that, unlike Load Zone J, adding more capacity to Load Zone K provides considerably less reliability benefit because the capacity additions become bottled.[29]

Because incremental capacity in Load Zone K is not fungible in Load Zones GHI, from the perspective of reliability requirements, it is reasonable to not include it in the NCZ.[30]

Thus, the fact that a Load Zone can provide some modicum of assistance to a neighboring Load Zone or neighboring group of Load Zones is not a basis for grouping them together as an NCZ.

Because the purpose of an NCZ is to send a price signal for incremental capacity to satisfy requirements, the "locations that provide the greatest reliability benefit and support for maintaining the system at least at criterion," capacity additions no matter what size should be fully fungible everywhere in the NCZ.[31] Therefore, Load Zones G, H, I, and/or J are far superior

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[29] Chao/Adams Affidavit at PP 25-26.

[30] Section 2.C of the NYISO Answer and the Patton Answering Affidavit, which is attached to the NYISO Answer as Attachment 1, discuss further the reasons why Load Zone K should not be included.

[31] Chao/Adams Affidavit at P 27.

locations for incremental capacity to satisfy the requirements of Load Zones GHI, than is Load Zone K.

Under the Services Tariff, capacity located in a Locality can be used to satisfy the Locality's LCR. It is not appropriate for purposes of setting the NCZ boundary to treat capacity in Load Zone K equal to other capacity in the NCZ in order to meet the NCZ's LCR. As explained above in the response to Question One, the reason is that it would lead to the LCR for an NCZ that included Load Zone K being higher than the LCR for an NCZ without Load Zone K.

C. Question Three

"What are the minimum quantitative criteria that are used across the multi-prong analysis to determine whether to include or exclude a Load Zone in a new capacity zone? How do the 300 MW from the LOLE study and the 344 MW from the transmission security analysis (N-1) apply in determining whether to exclude Load Zone K from the proposed new capacity zone (consisting of Load Zones GHIJ)? Please explain the basis for your answer. In addition, how do Dr. Sasson's assertions concerning NYISO's 2012 RNA report about Load Zone K's 530 MW transfer capability to the new capacity zone compare to the multi-prong analysis that NYISO used to evaluate Load Zone K's exclusion in the new capacity zone?"

RESPONSE

As discussed in this response, the NYISO's minimum quantitative criterion for determining whether to include a constrained zone in the NCZ was whether the incremental capacity was fully fungible in the NCZ. As also discussed in this response, Dr. Sasson's assertions concerning the 2012 RNA report are incomplete and therefore misleading and inaccurate, and should not be accepted. By contrast, the NYISO's analyses were based on reasonable methodologies, that were suitable for the purpose, and that produced reliable results.

Services Tariff Section 5.16.2 specifies that "[i]n determining the New Capacity Zone boundary, the ISO shall consider the extent to which incremental Capacity in individual constrained Load Zones could impact the reliability and security of constrained Load Zones, taking into account interface capability between constrained Load Zones." The primary quantitative criterion used in the NYISO's analyses was how incremental capacity impacts the security and reliability of individual constrained Load Zones while taking into account interface capability between Load Zones.

The fungibility test provided that information by evaluating the reliability value, by the LOLE, of incremental capacity in the constrained Load Zones taking in to account interface transfer capability. The interface transfer capability was determined based on a transmission security analysis conducted in accordance with the North American Electric Reliability Corporation's ("NERC") TPL-002 and -003 reliability standards ("TPL Standards").[32] These

[32] NERC TPL-002 and TPL-003 address system performance following the loss of single or multiple Bulk Electric System elements. They are available <http://www.nerc.com/files/TPL-002-0.pdf>

standards are commonly used in transmission planning and require the use of what is often referred to as an "N-1 analysis."

The minimum criterion that the NYISO used to determine whether to include a constrained zone in the NCZ was whether incremental capacity was fully fungible in the NCZ. The concept of being fully fungible was defined as whether the incremental capacity levels tested would provide equivalent reliability as measured by LOLE to the other Load Zones on the constrained side of the Highway interface.

It was important for the analysis to examine an extensive range of incremental capacity additions because capacity additions can be a variety of sizes and consist of multiple units.

The Load Zones on the constrained side of the UPNY/SENY Highway interface are Load Zones G, H, I, J, and K. Load Zones J and K are already Localities and, therefore, an LCR is already established for them. The question, therefore, was whether one or both of Load Zone J and/or Load Zone K should be included with Load Zones GHI in the NCZ.

That determination was based on the fungibility of incremental capacity additions in each of Load Zone J and Load Zone K, individually, and then jointly, with capacity in Load Zones GHI. Incremental capacity in Load Zone J was fully fungible while incremental capacity in Load Zone K was not. That determination was the same when Load Zone J and K were examined together and separately.

After examining a full range of MARS simulations of incremental capacity shifts from Load Zone K, the NYISO concluded that approximately 300 MW of incremental capacity in Load Zone K could provide assistance to the other NYCA Zones. The 300 MW figure is a probabilistic weighted average of several thousand scenarios.

That test is described in the Chao/Adams Affidavit and the Chao/Adams Answering Affidavit.[33]

The 344 MW figure from the N-1 transmission security analysis, which is a deterministic analysis, is the upper bound limit of the transfer capability from Load Zone K under emergency conditions, the lower bound is 144 MW. The normal transfer capability is 233 MW. Both the normal and emergency transfer limits are the result of the deterministic N-1 analysis. This analysis was performed under the TPL Standards. The transmission security analysis is described in the Chao/Adams Affidavit and the Chao/Adams Answering Affidavit.[34]

The NYISO's probabilistic fungibility analysis, and its deterministic transmission security analysis, complemented each other. The deterministic analysis demonstrated that the probabilistic analysis is the right order of magnitude. It demonstrated that Load Zone K has

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and <http://www.nerc.com/files/TPL-003-0.pdf>.

[33] *See* Chao/Adams Affidavit at PP 18-22, and Chao/Adams Answering Affidavit at PP 27-33.

[34] *See* Chao/Adams Affidavit at P 28, and Chao/Adams Answering Affidavit at PP 50-54.

limited export capability to the balance of the NYCA Load Zones. It thus confirmed the results of the fungibility test, *i.e.,* that the support that capacity additions located in Load Zone K could provide to Load Zone J and/or Load Zones GHI was very limited.

The Chao/Adams Answering Affidavit describes the complex interactions that occur between Load Zone K and Load Zone I, between Load Zone K and Load Zone J, and Load Zone K and (J+I).[35]

Dr Sasson's probabilistic analysis of the 530 MW transfer limit from Load Zone K to Load Zone J failed to recognize these factors.

The Sasson Affidavit's characterization of the NYISO's most recent Reliability Needs Assessment ("2012 RNA")[36] and its supposed support for the proposition that there is 530 MW of transfer capability between Load Zone K and the proposed NCZ is based on the Sasson Affidavit's inaccurate description of the impact of the transmission limitations that exist between Load Zone K and Load Zone I, between Load Zone K and Load Zone J, and between Load Zone K and (J+I).

The 2012 RNA reads as follows:

> Further examination of the results reveals that the constraining hours of **UPNY/SENY and the Zone K exports (from Zone K to Zones I and J)** are increasing over the study period. These constraints require that a minimum amount of compensatory MWs must be located in Zones G, H, or I in addition to the minimum MWs amount in Zone J.[37]

Contrary to the impression the Sasson Affidavit creates by using an isolated reference to the 2012 RNA, the 2012 RNA clearly demonstrates that there is an export constraint that limits the amount of compensatory MW that can be added to Load Zone K over the RNA's 10-year planning horizon. The RNA therefore is consistent with the NYISO's NCZ boundary analysis. It reinforces, rather than contradicts, the NYISO's determination that from an LOLE/reliability perspective:

- it makes sense to add compensatory MW in Load Zone K only to address load growth in Load Zone K because of its export constraint; and
- the better location for compensatory MW is in Load Zones GHI and J.

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[35] *See* Chao/Adams Answering Affidavit at P 37-48.

[36] 2012 Reliability Needs Assessment, September 18, 2012, available at <http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Reliability_Planning_Studies/Reliability_Assessment_Documents/2012_RNA_Final_Report_9-18-12_PDF.pdf>.

[37] 2012 RNA at pp. 39-40 (emphasis added).

These significant facts are absent from the CE/CH Protest and the Sasson Affidavit. Just as the Sasson Affidavit's probabilistic analysis of the 530 MW transfer analysis of Load Zone K to Load Zone J failed to fully recognize the complex interactions described above, its assertions based on an out-of-context reference to the 2012 RNA is not reliable.

The Chao/Adams Answering Affidavit identified that "[e]ven assuming that the transmission limit described in the Sasson Affidavit of the Load Zone K to Load Zone I of 530 MW was even close to realistic, increasing the amount incremental capacity available from 300 MW to 500 MW in order to maintain the 0.1 criterion would only result in approximately 11% of Load Zone GHI capacity being fungible in Load Zone K capacity."[38]

In addition, the Chao/Adams Answering Affidavit explained that "CE/CH's focus on the Load Zone K to Load Zone I interface limit, which is utilized or needed in very few hours, while ignoring the joint interface limit of K to (J+I) as the basis for its conclusions is misleading because it is based on incomplete facts, and results in CE/CH reaching an incorrect conclusion."[39] Contrary to the CE/CH Protest and Sasson Affidavit analysis, due to transfer constraints, the results of the several thousand MARS runs demonstrate that incremental capacity equivalent to approximately 7% (*i.e.*, approximately 300 MW) of the existing capacity in Load Zones GHI is fungible with capacity additions located in Load Zone K.[40] However, the Load Zone J transfer to Load Zones GHI of incremental capacity is up to 6,000 MW, which exceeds the existing capacity in Load Zone GHI.

This response, along with the Chao/Adams Affidavit, and the Chao/Adams Answering Affidavit describe the NYISO's multi-prong analysis which provided alternative evaluations of the fungibility of incremental capacity in Load Zones J and K. The different methodologies -- the fungibility test and the transmission security analysis -- performed to determine the NCZ boundary, and the 2012 RNA, all demonstrate quantitatively that incremental capacity in Load Zone K provides limited reliability value to Load Zones GHI. Even that limited reliability value would be offset by the likelihood that including Load Zone K in the NCZ would result in a higher NCZ LCR because of the intra-NCZ constraint attributable to Load Zone K's inclusion.[41]

D. Question Four

"What quantity of fungible transfer capacity (MW) would have been sufficient for Load Zone K to be included in the proposed new capacity zone? Please explain the basis for your answer?"

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[38] The Chao/Adams Answering Affidavit described that "[e]ven assuming that the transmission limit described in the Sasson Affidavit of the Load Zone K to Load Zone I of 530 MW was even close to realistic, increasing the amount incremental capacity available from 300 MW to 500 MW in order to maintain the 0.1 criterion would only result in approximately 11% of Load Zone GHI capacity being fungible in Load Zone K capacity." Chao/Adams Answering Affidavit at P 33.

[39] Chao/Adams Answering Affidavit at P 35.

[40] Chao/Adams Answering Affidavit at P 29.

[41] *See* Response to Question One, above, at 7.

RESPONSE

Generation capacity in Load Zones GHI has been shrinking for several years, and existing generation is at risk of retirement. If existing capacity is retired, and if it cannot be replaced by the addition of an equal amount of MW in Load Zone K, the reliability criteria would not be met. As discussed below, purely from the standpoint of fungibility (*i.e.*, setting aside momentarily the transmission transfer limitations,) the NYISO believes that it would not have been unreasonable to include Load Zone K in the proposed NCZ (independent of whether Load Zone J is included) if it were the case that adding capacity to Load Zone K could replace at least half of the total generation capacity in Load Zones GHI without violating reliability criteria. However, as also discussed below, the NYISO believes that capacity additions should be fully fungible throughout the NCZ in order send appropriate price signals to the location where the added capacity can be utilized to meet reliability requirements and not have a negative impact on transmission security (and not increase the LCR to a greater amount than if the Load Zone were not included.)

Based on analyses using the MARS model, which are described in the Chao/Adams Affidavit,[42] the NYISO demonstrated that all of the existing capacity in Load Zones GHI could be replaced by capacity in Load Zone J. Thus, it is fully fungible; *i.e.*, it can be substituted one-for-one.

The following graphic (Graph 1) illustrates the impact of shifting up to 6,000 MW of capacity. These results were presented to NYISO Stakeholders at the March 28, 2013 and April 18 Installed Capacity Working Group meetings.[43]

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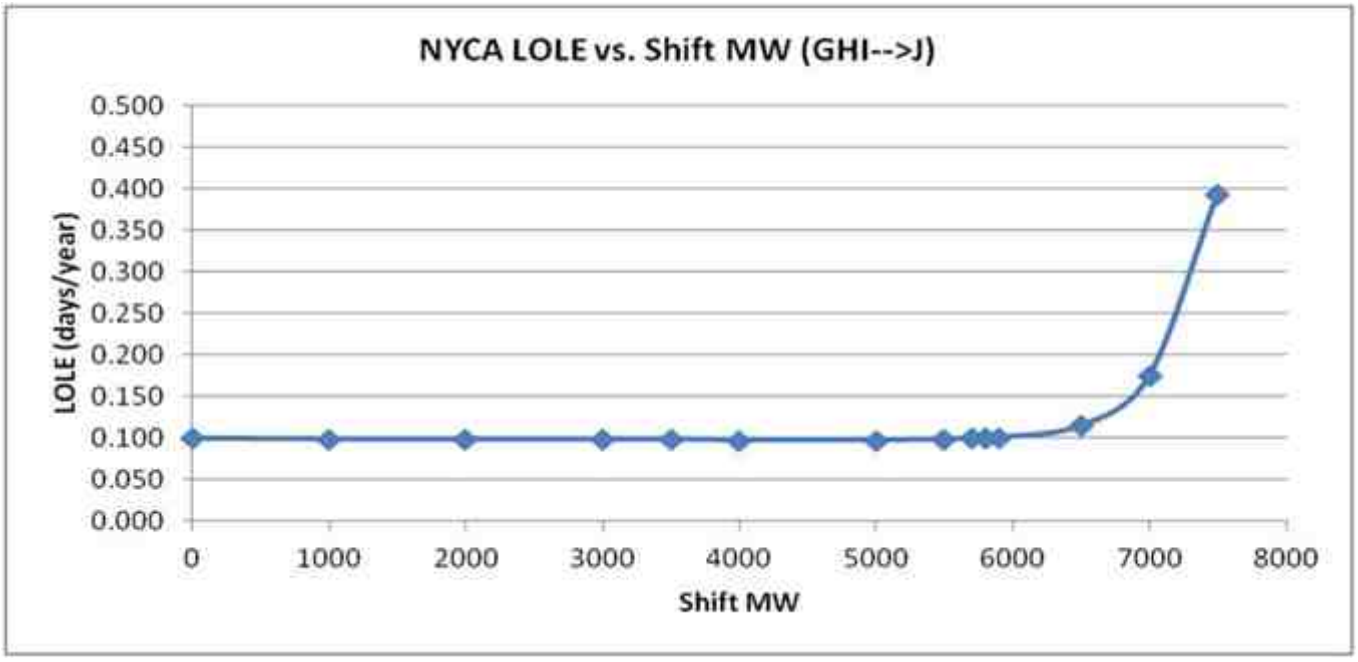
[42] Chao/Adams Affidavit at PP 18-19.

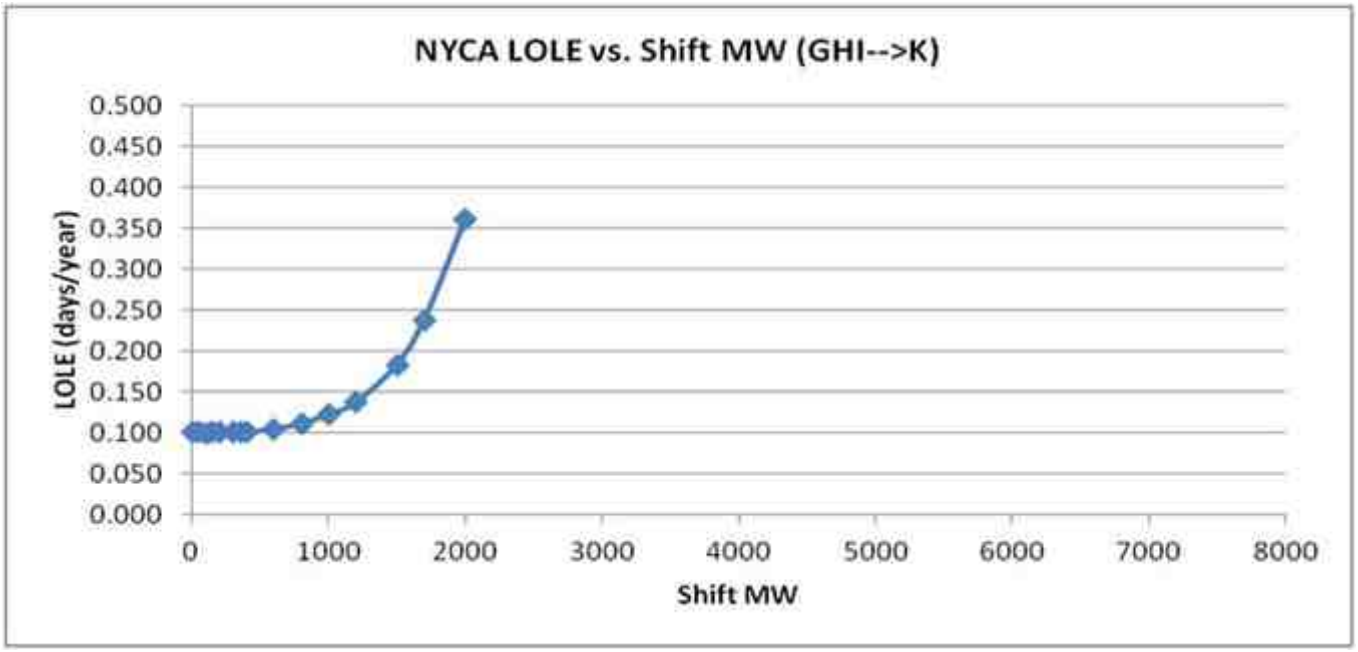
[43] *See* NYISO presentations available at <http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2013-03-28/NCZ%20Boundary%20Indicative%20LCR_3_21_13.pdf>, and <http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2013-04-18/NCZ_Boundary+Indicative_LCR_Slide_Requested_Updates_4-18-13%20ICAPWG%20Mtg%20(2).pdf>.

Graph 1



The next graphic (Graph 2), the results of which were presented at the same Installed Capacity Working Group meetings, presents the results of the analysis for Load Zone K. Graph 2 demonstrates that only approximately 300 MW of existing capacity in Load Zones GHI could be replaced by capacity in Load Zone K. Thus, a retirement in Load Zone GHI can only be offset by up to approximately 300 MW of capacity additions in Load Zone K.

Graph 2



In order to respond to Question 4, the NYISO considered the LOLE criterion. The NYISO's judgment is that it would not be unreasonable to include Load Zone K in the NCZ (comprised of Load Zones GHI, and with or without Load Zone J) if it were the case that half of the total generation capacity in Load Zones GHI retired, it could be replaced by adding an equivalent MW to Load Zone K while still meeting the reliability criteria for the NYCA.

The resulting 2,000 to 2,500 MW figure is based on the NYISO's consideration of potential retirements. If these potential retirements were to occur, the resulting reliability need could not be addressed by adding capacity to Load Zone K, only capacity in Load Zones GHI and J would suffice, as indicated by the statement from the 2012 RNA that is referenced above in the response to Question Three.[44]

However, the NYISO MARS analysis demonstrated that shifting that amount of capacity from Load Zone K to Load Zones GHI (with or without Load Zone K) is not possible without violating the LOLE criterion. An LOLE violation would also result if an attempt were made to use that amount of incremental Load Zone K capacity to replace an equivalent amount of Load Zone J capacity.

The NYISO estimated that result, and prepared Graph 2, based on MARS simulations. Those analyses account for the ability of the transmission system to transfer power, and the distribution of resources relative to the capability of the transmission system and load, in order to determine at what levels the LOLE criterion is satisfied and when it is violated.[45] Graphic 2 demonstrates that the NYCA LOLE criterion would be violated if approximately 300 MW were transferred from Load Zone K to Load Zones GHI, and significantly violated if 2,000 MW were transferred. Accordingly, Load Zone K was far from capable of providing the level of support that would be make it reasonable to include it among the locations that could be used to satisfy an LCR for the NCZ.

The findings and conclusions of Gary Jordan described in his affidavit filed in support of the April 30 Filing are consistent with this response. Mr. Jordan emphasized that the results of both reliability and transmission security analyses do not support the inclusion of Load Zone K.

> [T]he mere fact that capacity additions in Load Zone K might create some limited reliability benefits for Load Zones GHI is not a persuasive reason to include Load Zone K in the NCZ. Capacity additions in regions outside of (and quite distant from) the NYCA have the potential to create *de minimis* reliability benefits inside of it. The key question is the extent of the reliability benefits. The NYISO has reasonably concluded that the benefits to Load Zones GHI of Load Zone K capacity additions are not sufficient to justify including Load Zone K in the NCZ. By contrast, the benefits to Load Zones GHI from Load Zone J additions is substantially greater and justifies including Load Zone J in the NCZ.

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[44] *See* Response to Question Three, above, at 14.

[45] *See* Chao/Adams Affidavit at P 19.

The NYISO's transmission security analysis was reasonable and corroborates its conclusion that the NCZ should encompass Load Zones GHIJ but not K.[46]

III. COMPLIANCE WITH ELECTRONIC TARIFF REQUIREMENTS

The June Letter 6 directed the NYISO to include with this submittal at least one eTariff record, even if no tariff changes are otherwise required. The NYISO has determined that the proposed tariff revisions to Section 2.18 of the Services Tariff were presented on the incorrect version of the tariff. Accordingly, the NYISO encloses a revised version of Section 2.18. Attachment II to this response is a clean version of the Section 2.18 revisions, and Attachment III is a redline showing the same proposed changes presented in the April 30 Filing, and described there, on the correct e-tariff base document.[47]

IV. SERVICE

This filing will be posted on the NYISO's website at www.nyiso.com. In addition, the NYISO will e-mail 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.

V. CONCLUSION

For the reasons specified in the April 30 Filing, and above, the New York Independent System Operator, Inc. respectfully renews its request that the Commission issue an order by July 1, 2013, or as soon as possible thereafter but no later than July 18, 2013, the date of the Commission's July open meeting, accepting the tariff revisions proposed in the April 30 Filing, including its proposal not to include Load Zone K in the proposed New Capacity Zone. The NYISO also asks that the Commission establish a shortened notice and comment period, with comments and protests due by June 20, and act expeditiously to the extent necessary for it to issue an order by the requested date.

Respectfully submitted,

/s/ Gloria Kavanah
Gloria Kavanah
Senior Attorney
New York Independent System Operator, Inc.

Dated: June 12, 2013

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[46] Jordan Affidavit at PP 11-13.

[47] *See* April 30 Filing at 14, and Attachments I and II.

cc: Travis Allen
Michael A. Bardee
Gregory Berson
Anna Cochrane
Jignasa Gadani
Morris Margolis
David Morenoff
Michael McLaughlin
Daniel Nowak
Adria Woods

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 June, 2013.

/s/ Joy A. Zimberlin

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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 June, 2013.

/s/ Joy A. Zimberlin

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