

November 30, 2005

The Honorable Magalie R. Salas, Secretary Federal Energy Regulatory Commission 888 First Street, NE Washington, DC 20426

Re: New York Independent System Operator, Inc. Docket Nos. ER04-449-003, ER04-449-007, and ER04-449-008 Status Report on Deliverability Analysis

Dear Ms. Salas:

On February 28, 2005, the New York Independent System Operator, Inc. ("NYISO") and the New York Transmission Owners ("NYTOs") (collectively the "Joint Filing Parties") submitted a schedule for the continuation of stakeholder discussions in compliance with the Commission's August 6, 2004 Order Conditionally Accepting Large Generator Interconnection Procedures and Large Generator Interconnection Agreement ("August 6 Order").¹ Also in compliance with the August 6 Order, the NYISO submitted on April 29, 2005 a work plan ("Work Plan") for its proposed deliverability analysis and stakeholder discussions. Pursuant to the Work Plan, the NYISO submitted its first and second Status Report on July 1 and October 1, 2005, respectively. As contemplated in the Work Plan, the NYISO hereby submits its third Status Report to the Commission on the progress it is making with stakeholders. Accompanying this Status Report is the Motion of the New York Independent System Operator, Inc for Extension of Work Plan to Submit Final Report and Compliance Filing. The Market Participants ("MPs") in the Interconnection Issues Task Force have agreed with the NYISO Staff that an additional three months is needed to properly analyze the issue of deliverability on the New York transmission system under alternative methodologies, scenarios and sensitivity cases.

I. <u>Documents Submitted</u>

This filing consists of the following documents:

- 1. this filing letter/Status Report;
- 2. a revised proposed "Scope of Work" for the Assessment of a Deliverability Product in New York (Attachment I);

¹ New York Independent System Operator, Inc. and New York Transmission Owners, 108 FERC ¶ 61,159 (2004).

- 3. written comments received from the Market Participants on the deliverability study (Attachment II); and
- 4. a certificate of service of this filing on the parties to this proceeding.

II. <u>Copies of Correspondence</u>

Copies of correspondence concerning this filing should be served on:

Robert E. Fernandez, General Counsel and Secretary	Arnold H. Quint, Esq.
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III. <u>Service List</u>

The NYISO will serve the official service list compiled by the Secretary in this proceeding. As it has done with numerous other filings, the NYISO will also electronically serve a copy of this filing on the official representative of each of its customers, on each participant in its stakeholder committees, on the New York Public Service Commission ("PSC"), and will serve paper copies of this filing on the electric utility regulatory agencies of New Jersey and Pennsylvania. The NYISO respectfully requests a waiver of the requirements of Rule 2010 to the extent necessary for it to use electronic service methods. The NYISO's use of such methods has been convenient for both the NYISO and for the recipients of the service, and to date it has engendered no complaints.

IV. <u>Background</u>

In the August 6 Order, the Commission accepted the single level of interconnection service proposed by the Joint Filing Parties but noted that "requiring a level of interconnection service that incorporates a deliverability requirement remains a goal of the Commission." The Commission noted that the NYISO had already initiated a stakeholder process to examine how and to what extent the NYISO OATT should offer a second level of interconnection service incorporating a deliverability requirement, and granted the Joint Filing Parties' request for additional time to continue the stakeholder discussions.

On February 7, 2005, the NYISO and some of the NYTOs submitted a "Compliance Filing and Request for Extension of Time" in which the NYISO reported on its preliminary

deliverability analysis and requested additional time for further refinement of the models, assumptions, and methodology utilized in its initial study. A number of NYISO stakeholders submitted interventions, comments, and protests—but all parties endorsed the request for additional time. On February 28, 2005, the NYISO and all of the NYTOs submitted a "Joint Statement" in which they proposed a schedule for the continuation of stakeholder discussions. On April 29, 2005, the NYISO submitted the Work Plan. The Commission noticed these two filings on May 10, 2005. No comments were filed in response to this notice.

In an order issued on June 2, 2005, the Commission denied various requests for rehearing and noted that there were "two competing principles at work" with respect to the deliverability issue.² While stating that a second level of interconnection service addressing deliverability is a "crucial component of Order 2003," the Commission acknowledged that "the NYISO is a distinctive region and New York's stakeholders should have the flexibility to craft a system appropriate to its specific needs."³ The Commission declined to prejudge the outcome of the stakeholders' efforts and noted that each independent system operator faces unique challenges requiring unique solutions. Recognizing these facts, the Commission agreed to provide the stakeholders additional time, acknowledging the timetable reflected in the NYISO's Work Plan as reasonable. The NYISO held an initial stakeholder meeting on April 18, 2005 to review the Work Plan and to identify outstanding issues related to the study scope, models, assumptions, and methodology that were employed in the NYISO's preliminary deliverability analysis.

During meetings in May and June 2005, participants revised the Study Scope previously utilized for the preliminary deliverability analysis. The stakeholder discussions reaffirmed that both the zonal and intra-zonal analysis should be revised with updated assumptions to reflect the most recent base case information. The NYISO also met with the New York State Reliability Council ("NYSRC"), the entity responsible for determining the statewide installed reserve margin that is needed to meet resource adequacy criteria. Following those discussions, the NYISO and the stakeholders determined that the base case assumptions for the deliverability analysis should begin with the 2005 NYSRC Installed Reserve Margin ("IRM") base case, issued in December 2004. Specific updates to the 2005 IRM base case were agreed upon to reflect the best current understanding of expected system conditions.

Other considerations, such as the appropriate reliability criteria, transmission contingencies, monitored facilities, interface transfer limits, generator outage rates, and the use of Phase Angle Regulators for mitigation were thoroughly discussed and agreed upon for use in the base case. An issue which generated a significant amount of discussion related to the methodology to be used to recognize the probabilistic nature of generator forced outage rates. Various possible methods were discussed, including that used by PJM for its deliverability studies. PJM's Manager of Transmission Planning participated in the June 22 meeting to answer questions regarding PJM's procedures. Participants agreed that the NYISO would investigate four alternative methodologies in the initial analysis and bring the results back to the

² New York Independent System Operator, Inc. and New York Transmission Owners, 111 FERC ¶ 61,347 (2005) ("June 2 Order").

³ June 2 Order at 13.

stakeholders for further consideration. In order to address the concerns of some stakeholders, the NYISO agreed to perform an analysis of two scenarios, in addition to the Base Case.

In this filing, the NYISO submits its third Status Report to the Commission in accordance with the Work Plan. With input from the Market Participants, the NYISO completed an updated analysis employing updated power flow base cases and scenarios utilizing the agreed-upon assumptions and methodologies included in the revised Study Scope. The base cases are founded upon the 2004 power flow base case series coordinated with 2005 New York State Reliability Council IRM base case, and updated for load forecast, generation unit changes, generator forced outage rates, and appropriate interface transfer limits. The assumptions underlying the base case were: (i) the use of emergency criteria consistent with the IRM MARs analysis; (ii) monitoring of facilities to represent voltage limits; and (iii) using NPCC/NYSRC criteria for contingencies. Adjustments are continuing to be made to the base case to reflect changes in voltage and stability limits. To date, the NYISO has factored into the base case the characteristics of the Total East/Central East Interface, which is voltage-limited.

The NYISO has also completed the 2009 planning case building upon the 2005 base case analysis, but modifying the base case to include future resource additions to match load growth plus 20 percent in each super zone. Generating units were included based upon their interconnection queue position. Priority was given to units that were expected to participate in the "Catch-up Class" at the time the study commenced. Unit retirements were reflected using the Comprehensive Reliability Planning Process base case. An alternative scenario of the planning case modeled a new transmission cable (M-29) as in service between Sprain Brook and Sherman Creek in New York City.

The NYISO has further analyzed the base case and the planning case to assess potential generation deliverability problems under four alternative deliverability assessment methodologies. These four methodologies are:

- 1. resource accounting screen reflecting intra-zonal power flows;
- 2. power flow methodology with screening step;
- 3. IRM and locational capacity studies related to power flow analysis; and
- 4. a combined generation and load approach.

At the September 8, 2005 stakeholder meeting, the NYISO submitted to the market participants a report on New York deliverability assessment methodologies and presented the results of each of the four alternative methodologies using the base case and the planning case.

V. <u>Status Report</u>

In meetings of the Interconnection Issues Task Force and in written comments that have occurred since the filing of the October 1, 2005 Status Report, the MPs have stated that they do not want the NYISO Staff to narrow the scope of the deliverability study at this time. While the MPs have stated their individual preferences for each of the four different methodologies, they have indicated that the final analysis should be conducted under all four methodologies. Indeed,

the TOs have objected to the statement made by the NYISO in its last Status Report that "[t]he NYISO will test the application of one, or at most two, methodologies." Moreover, the NYTOs, while supporting analysis under Methods 1 and 4, seek to eliminate Methods 2 and 3. Other MPs, including NRG, have stated their continuing support for utilizing Methods 1 and 2. Finally, the TOs have stated that the NYISO should designate a variation on Method 4, which is a combination generation and load approach, as a Method 5, which would shift only enough generating capacity to meet forecasted loads.

The NYTOs have further asked for greater detail, in the form of examples for each of the methods, to allow them to determine their design objectives and identify their merits and pitfalls. The NYTOs stated that they expect both an interzonal and an intrazonal deliverability assessment; specifically, they seek preparation and an update of the inter-zonal "unforced capacity" accounting approach. Following completion of the Final Study Report, the NYTOs stated in their comments that they "believe that the IITF should begin to narrow down the definition of deliverability to focus on generation pockets. This would be consistent with the genesis of the deliverability study, which was to identify if it were necessary to create a form of a second product for resource interconnections, and, if so, what form that product may take."

Accordingly, the collective wisdom of the MPs supports conducting the final deliverability analysis under five separate methodologies:

- 1. Resource accounting screen with intra-zonal power flow;
- 2. Power flow methodology with screening step (similar to PJM deliverability test);
- 3. Installed reserve margin and locational capacity studies related to power flow analysis;
- 4. Combined generation and load approach;

5. Same as four, but only shifting capacity needed to meet load, known as the Needed Capacity Delivery Test.

In addition, the MPs have asked the NYISO complete analysis of three scenarios set forth in the Study Assumptions:

Scenario A: Utilize the same assumptions as the Base Case, except for the following: (1) monitor for stuck breaker and tower contingencies; and (2) use long-term emergency ("LTE") ratings;

Scenario B: Utilize the preliminary transfer limits developed for the 2006 installed reserve margin ("IRM") analysis and reflect the impact of the Con Ed series reactors at Sprainbrook;

Scenario C: Utilize the base case, except test for all contingencies on the electric system at voltages of 115 kv and above, and separately report any appropriate emergency condition criteria violations resulting from these additional contingencies.

All of the MPs have been asked for additional input into the manner in which Scenario C should be studied. The Long Island Power Authority ("LIPA") has requested additional review

and documentation on the study assumptions and methods. Specifically, LIPA has requested: (i) a complete narrative description of all assumptions and their practical consequences; (ii) review of load and transmission topology assumptions in the operating and planning base case models which includes providing model information to Market Participants in a form sufficient to permit independent validation of the study results; and (iii) refinement of the study methodologies to include all projects in the NYISO interconnection queue for the years being tested. NYISO is continuing to engage LIPA in a dialogue on these issues.

Finally, the MPs have asked the NYISO Staff to provide sensitivity analyses for Methods 3 and 4, as follows:

1. Evaluate the sensitivity of the results for Methods 3 and 4 to the lowering of the 15.9 percent Load Proxy used to represent outages and uncertainties; and

2. Evaluate the sensitivity of the results for Methods 3 and 4 to different shift factor development methods, namely:

(a) modify the shift factor calculation from generation to load, to generation to generation; and

(b) modify the shift factor calculation from shifting within a zone to shifting outside of the zone.

The Study Scope, originally filed as an attachment to the July 1, 2005 Status Report is attached to this filing for information as Attachment I. Attachment I(A) therein sets forth the revised Work Plan for the Deliverability Analysis. Attachment I(B) therein contains the revised Study Assumptions that were developed through the stakeholder process described above. The additional methodology and the sensitivity analyses for Methods 3 and 4 are modifications to the original Study Assumptions—and are reflected in the revised Study Assumptions.

VI. <u>Next Steps</u>

The NYISO is certainly willing accommodate all of the analyses desired by the MPs, some of which are new and some of which have yet to be completed. Completing these analyses, however, will require more time. Conducting deliverability analysis under five different methodologies, three scenarios, and sensitivity analyses of two of the methodologies can be done, but the NYISO Staff estimates that conducting and drafting the Final Study Report will take about another month to six weeks. Accordingly, the attached Revised Work Plan for Deliverability Analysis calls for the NYISO to finalize the study and draft the report for circulation to stakeholders in January.

The balance of January and February will be needed to review the draft report with the Market Participants through presentations and dialogue at IITF meetings, and in written comments. During these meetings, the NYISO will work to narrow the methodologies, scenarios and sensitivities that result from PowerGem's analysis, and draft the Final Study Report. The Revised Work Plan calls for the Final Study Report to be submitted to the Commission along

with another status report on March 3, 2005. During March and April 2006, the NYISO will prepare a compliance filing addressing a second level of deliverable interconnection service on the New York bulk power system. Stakeholder meetings will be held during March and April to gather MPs' input. Finally, the Revised Work Plan requires the NYISO to submit its compliance filing to the Commission on May 6, 2006.

The NYISO believes that the deliverability study is reaching a critical mass that will allow a cogent determination on how best to apply the deliverability principles enunciated in Order 2003 to the New York power system and markets. The Commission previously granted additional time for the NYISO and MPs to respond to this direction, and that time has been well used. As the Commission stated in its Order Denying Rehearing and Granting Request for Clarification in this proceeding:

[t]he NYISO is a distinctive region and New York's stakeholders should have the flexibility to craft a system appropriate to its specific needs. The Commission recognized this fact when it agreed to provide the stakeholders additional time to work on developing a second level of interconnection service.⁴

The Market Participants attending the November 15, 2005 meeting of the Interconnection Issues Task Force agreed to the three-month extension of the Work Plan schedule proposed in this Status Report and the accompanying motion. Allowing additional time to complete the multi-faceted study called for by the MPs will result in a better Final Study Report and a superior compliance filing than would otherwise be possible in the time provided.

VII. <u>Next Status Report</u>

Should the Commission grant the accompanying motion to extend time, the Revised Work Plan will require the NYISO to submit its next Status Report and Final Study Report to the Commission on March 3, 2006.

⁴ New York Independent System Operator, <u>Order Denying Rehearing and Granting Request for Clarification</u>, 111 F.E.R.C. ¶ 61,347 (June 2, 2005).

VIII. Conclusion

WHEREFORE, the New York Independent System Operator, Inc. respectfully requests that the Commission accept this Status Report and grant the accompanying Motion to Extend Time.

Respectfully submitted,

NEW YORK INDEPENDENT SYSTEM OPERATOR, INC

/s/ Carl F. Patka

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ATTACHMENT I

Assessment of a Deliverability Product in New York Scope of Work 6/22/05

Background

Given a transmission system topology, the primary objective of any deliverability analysis is to determine if the control area's capacity and demand resources in the aggregate meet or exceed the resource adequacy criteria – e.g., a loss-of-load expectation which on average is no more than once in ten years. A secondary issue is, given the geographical distribution or location of resources and their availability, whether transmission constraints increase the amount of resources needed to meet the resource adequacy criteria. For instance, resources that are sited in a location from which export capacity is limited will contribute positively to improving reliability but at a diminished level relative to resource in other locations. This can result, potentially at least, in an increase⁵ in the installed reserve margin or capacity margin required to meet the reliability criteria.

As new resources are connected to the transmission system, the full load carrying capability of the resource may or may not be realized. In its Large Generator Interconnection Rulemaking (LGIR), the Federal Energy Regulatory Commission (FERC) defined two interconnection products. They were the "Energy Only" and "Network Resource" interconnection products. The primary distinction between these two products is the network resource is considered fully deliverable⁶ as a capacity resource while the energy only is not. The two product interconnection model provides a basis for differentiating the value of new resources based on a predefined deliverability test and its contribution to resource adequacy. Also, the deliverability test provides a mechanism for new resources to determine the system upgrades facilities that would be required in order for the generator to fulfill its deliverability obligations.

Currently, New York offers a single interconnection product which is defined as the "minimum interconnection standard" – i.e., a resource can interconnect to the grid without having to procure point-to-point or network transmission service. This standard was adopted as the result of a FERC order regarding the startup of the New York wholesale electricity market in January 1999. Also, New York adopted the locational capacity requirements model to differentiate the value of new resources based on their location and their overall contribution to resource adequacy. In addition, the locational capacity model provides a basis for determining that sufficient resources are located in load zones/pockets to ensure that the aggregate of the resources are deliverable to the load in order to meet the resource adequacy criteria – i.e., ensure reliability. In its LGIR compliance filing, the NYISO, as allowed for under the independent entity variation, opted to maintain its single interconnection product in conjunction with locational capacity requirements. However, the stakeholder process did result in an agreement to study the issue of deliverability as it relates to the two product model.

In New York, the New York State Reliability Council (NYSRC) is the entity responsible for determining annually on a statewide basis the aggregate resources that are required to meet the resource adequacy criteria. The NYSRC utilizes General Electric's Multi-Area Reliability Simulation (MARS) modeling software to determine the requirements. This model accounts for the impact of inter-zonal transmission constraints (between the present eleven LBMP zones representing the New York Control Area) but assumes that all resources are fully deliverable within each of these zones. As part of the determination of the resource requirement for the 2005 – 2006 capability year, the NYSRC is reviewing how inter-zonal transmission constraints in conjunction with the quantity of resources located in load pockets impacts the statewide resource requirement. The NYSRC reviews and approves all modeling assumptions at its August meeting each year. This deliverability assessment should be based on the NYSRC modeling assumptions where appropriate.

Purpose

 ⁵ It should be noted that changes in resource availability/performance, transmission system performance, and geographical distribution of load also impact the requirements.
⁶ Deliverability ensures, only, that the aggregate of the resources can be utilized to deliver energy to the aggregate of

⁶ Deliverability ensures, only, that the aggregate of the resources can be utilized to deliver energy to the aggregate of the Control Area load to maintain reliability. The intent of deliverability is to certify a generator as a capacity resource. It is not intended to guarantee any rights to transmission service within the Control Area nor does it guarantee any rights to produce energy during any particular operational circumstances.

The purpose of this assessment of deliverability of electric generating resources is multifold:

- 1. Validate whether electric generating resources are currently fully deliverable within a locational capacity zone and/or super-zone i.e., zones A I can be defined as a single super-zone defined as Rest-Of-State;
- 2. Develop an annual study process for identifying and updating transmission "bottlenecks" that, potentially at least, could impact statewide and locality resource requirements;
- 3. Determine if new market rules and criteria would need to be developed to account for any deliverability issues identified in the assessment;
- 4. Because of the potential impact on resource adequacy requirements, coordinate this assessment with the 2005 2006 NYSRC installed reserve margin study.

Requirements

- 1. Develop a basis and/or criteria for evaluating intra-zonal deliverability.
- 2. Summarize present NYISO methodologies and procedures regarding load and generation deliverability.
- 3. Identify potential transmission constraints/"bottlenecks".
- 4. Develop sub-zone and super-zone area definitions and their associated transfer capability, based on the transmission constraints identified in step 3.
- 5. Recommend methods and procedures for recognizing, representing, and accounting for transmission constraints in Installed Reserve Margin (IRM) and Locational Capacity requirements.
- 6. Provide a report on the analysis results and conclusions that pertain to this assessment.

Analysis

- 1. Develop definition(-s) of deliverability for the purpose of this study.
- 2. Provide documentation on present NYISO and NYSRC procedures that addresses deliverability.
- Review completed and ongoing reliability assessments, as appropriate, (2004 IRM Study, 2005 IRM Study, 2005 Locational Capacity Study, 2005 Reliability Needs Analysis, 2002 NYSRC Deliverability Issues Study and Reactive Working Group Voltage Study) to identify potential "bottlenecks" e.g., proposed areas for study, potentially at least, could include: the three LI sub-areas ; the Astoria pocket; Staten Island; In-City 138kv; West 49th Street; the Oswego complex etc.
- 4. Starting with a consistent set of base cases, the MARS database (i.e., the NYSRC approved base case) and load flow database, conduct sufficient load flow analyses to evaluate the normal and post contingency performance of the NYSTS and identify potential intra-zonal constraints. The analysis will be conducted under peak load conditions. For example, an area would be considered to have no internal transmission constraints if all of the generation within that area can be coincidentally dispatched to their aggregate unforced capacity when subject to security constraints of monitored transmission facilities within that load area. Generation outside the study area would be dispatched to maintain the generation and load balance. This assessment should identify the maximum impact of dispatch on each monitored transmission facility. These analyses will be conducted for selected years over the planning horizon e.g., 2005, 2010 and 2013.
- 5. "Bottled" generation will be identified by the procedure in Item 4.
- 6. Modify MARS transmission and zonal model to represent the identified transmission constraints, if any.

- 7. Conduct sufficient MARS analysis to determine the impact of any additional transmission constraints, if any, on statewide and locational requirements.
- 8. From 7, determine the need to develop additional procedures for generation deliverability.
- 9. Prepare and include an update of the inter-zonal "unforced capacity" accounting approach included in the April 21, 2004 slide presentation (slides 7 and 8). This should include a more definitive description of the calculation along with an explanation of the results and incorporate the results of the NYSRC assessment.
- 10. If new requirements are proposed, provide a description of the potential impact of the new requirements on the reliability needs assessment done in the Planning Process including alternative ways the deliverability requirements can be met e.g., the adoption of two (2) generator interconnection products (Energy-Only Resource and Network Resource) as described in FERC's Order 2003.
- 11. Prepare a report of the results and determinations.
- 12. Present the study results for review and comment by the appropriate NYISO/NYSRC committees.

Attachments

- A Work Plan
- **B** Study Assumptions

ATTACHMENT I(A) (revised 12/1/05) REVISED WORK PLAN FOR DELIVERABILITY ANALYSIS

April 18, 2005	Stakeholder meeting to review Work Plan and to identify issues related to study scope, models, assumptions and methodology
May 1, 2005	NYISO filing of Work Plan with Commission
May/June 2005	NYISO revision of study scope, assumptions and methodologies based upon stakeholder comments. Revisions to include consideration of both Zonal Resource Adequacy Analysis as well as the Intra-zonal Load Flow Analysis. Studies to be coordinated with the NYISO's Comprehensive Reliability Planning Process as well as with the IRM analysis conducted by the New York State Reliability Council.
July 1, 2005	NYISO submits status report to Commission
July/September 2005	NYISO to present interim study results and conduct stakeholder briefings and discussions to review interim study results. NYISO may revise analysis as needed in response to stakeholder comments.
October 1, 2005	NYISO submits status report to Commission
October/Nov. 2005	NYISO to finalize study assumptions and prepare draft outline of methodology for circulation to stakeholders. NYISO to revise report based upon stakeholder comments. Base cases to be finalized and distributed to stakeholders.
December 1, 2005	NYISO submits status report to Commission which will include recent Stakeholder comments and proposed Revised Work Plan, Study Assumptions and Methodology Writeup.
December/Jan. 2006	NYISO to finalize study and prepare draft report for Circulation to stakeholders. NYISO to revise and finalize Study report based upon stakeholder comments.
March 3, 2006	NYISO to submit status report and Final Study Report to the Commission.
March/April 2006	NYISO to prepare draft compliance filing with NYTOs and other Stakeholders' input.
May 6, 2006	NYISO and TOs submit compliance filing to Commission.

ATTACHMENT I(B)(revised 12/1/2005)

REVISED STUDY ASSUMPTIONS

BASE CASE: 2005

- Based upon 2005 NYSRC IRM Base Case
- Update for:
 - Load forecast
 - Generation unit changes
 - EFORd outage rates
 - Reflect all interface transfer limits in load flow analysis model (See Below)

PLANNING CASE: 2009

- Based upon planning case from 2005 analysis
- Modify future resource additions to match load growth plus 20% in each super zone
- Select units based upon interconnection queue position
 - Use "Catch-up Class" units first
- Add retirements from CRPP Base Case
- M-29
 - Model in-service if SRIS is complete when study assumptions are finalized, OR
 - Model M-29 in-service as a scenario

BASE CASE ASSUMPTIONS

- Use emergency criteria, consistent with IRM MARS analysis
- Monitor Lower Voltage facilities
 - Monitor 69kv and above on LI
 - Monitor 115kv and above statewide
 - Monitor for contingencies on the 138kv and above on LI; and 230KV and above statewide
 - Identified violations on lower voltage facilities are the responsibility of the local TOs to address through their respective procedures
- Observe NPCC/NYSRC Criteria Contingencies
 - Single contingency used under emergency conditions
 - Do not model stuck breaker or tower contingencies
 - Refer to NYSRC Reliability Rules: Section B-R.1.b.2
- Use STE ratings
 - Consistent with emergency criteria
 - Refer to NYSRC Reliability Rules: Section B-R.1.b.2
- Consideration of voltage/stability limits
 - To be reflected in transfer limit proxies in load flow analysis
 - Voltage constraints will be translated to a MW interface transfer limit for monitoring precontingency flows in the analysis
 - Voltage based transfer limits identified from other studies will be reviewed and implemented.
 - The present limits in the MARS analysis that reflect voltage or stability limits will also be evaluated.
 - Transfer limits used in 2005 IRM analysis will be used for all interfaces
- Generator Outage Rates
 - o Utilize the same ICAP/UCAP outage rate translation used in the 2004 deliverability study

- Update EFORd outage rates
- Use of PARs
 - PAR adjustments should be allowed to mitigate potential constraints
 - Need to analyze the impact on other interfaces to ensure that there is no double accounting of transfer capability
- "Shift Factor" Methodology
 - Recognize the probabilistic nature of forced outage rates and the impact on capacity requirements
 - The following alternative methodologies (presented at the June 22, 2005 IITF meeting) will be investigated:
 - Alternate 1: Resource Accounting Screen with intra-zonal power flow
 - Alternate 2: Power Flow Methodology with screening step (similar to PJM deliverability test)
 - o Alternate 3: IRM and Locational Capacity Studies related to power flow analysis
 - Alternate 4: Combined Generation and Load Approach
 - Alternate 5: Shift only enough capacity to meet forecasted load

ADDITIONAL SCENARIOS

Scenario A:

- Utilize the same assumptions as the Base Case, except for the following:
 - Monitor for stuck breaker and tower contingencies
 - Use LTE ratings

Scenario B:

• Utilize the preliminary transfer limits developed for the 2006 IRM analysis and reflect the impact of the Con Ed series reactor at Sprainbrook

Scenario C:

• Utilize the base case, except test for all contingencies on the electric system at voltages of 115 kv and above and separately report any appropriate emergency condition criteria violations resulting from these additional contingencies. Utilize the list of generating units additions and retirements from (to be determined):

(a) List of additions and retirements in the 2005 CRPP for the Initial 2005 ATRA, Year 2010, or

(b) List of additions and retirements in the 2005 Facilities Study/Cost Allocation (Final Catch-up Class), or

(c) List of additions and retirements from the 2004 ATRA.

SENSITIVITIES

(1) Evaluate the sensitivity of the results for Methods 3 and 4 to the lowering of the 15.9% Load Proxy used to represent outages and uncertainties;

(2) Evaluate the sensitivity of the result for Methods 3 and 4 to different shift factor development methods, namely;

(a) Modify shift factor calculation from generation to load, to generation to generation;(b) Modify shift factor calculation from shifting within a zone to shifting outside the zone.

ATTACHMENT II

Deliverability Report Written Comments since last IITF

(through 11/09/05)

LIPA Comments

MEMORANDUM

To: Willian Lamanna (NYISO), John Adams (NYISO), Raymond Stalter (NYISO) From: Kenneth C. Lotterhos, Navigant Consulting for LIPA CC: Jim Parmelee (LIPA), Kevin Jones (LIPA), Laurie Oppel (Navigant Consulting) Subject: LIPA Comments on the NYISO Deliverability Study Date: 27 October 2005

On October 17, 2005 the NYISO presented its latest update on preliminary deliverability study results. The preliminary results presented in this update raise serious concerns about the viability of the NYISO's approach to meet the study objective of identifying the need for a second interconnection product in New York.1 If the shortcomings identified below go uncorrected, LIPA will be unable to support the final deliverability study that will be filed as part of the NYISO's December 1 Status Report. These concerns include:

• **Test Condition Details Need to Be Clearly Communicated** – A complete narrative description of all assumptions and their practical consequences should be provided for review to avoid market participant misunderstanding of the study assumptions. This is particularly important where the study tools being used are not widely available.

• Load and Transmission Topology Assumptions Must be Reviewed - Underlying basecase assumptions in the operating and planning basecase models have not received careful review by the Transmission and Generation Owners; this review should be conducted before study conclusions are drawn. The NYISO should provide model information to market participants in a form sufficient to permit independent validation of the study results.

• Study Methodologies Need to be Refined to Address Potential Flaws – The NYISO's present approach only tests a small fraction of the projects in the interconnection queue. The scope of testing should include all projects in the NYISO interconnection queue for the years being tested, not just a subset of these units. From our knowledge of the system key projects, such as the Neptune interconnection, are not being tested for deliverability. Load should not be increased as a proxy for generation unavailability; this could fail to identify or incorrectly identify deliverability problems.

1 Scope of Work, June 22, 2005.

I. Test Condition Details Need to Be Clearly Communicated.

Essential aspects of the NYISO's deliverability study procedure have not been clearly

communicated. On September 8th, PowerGem presented an update on its intra-zonal deliverability preliminary results. On page 6 of this presentation entitled "2009 Planning Case: Generators Removed from Consideration", a partial list projects from the NYISO interconnection queue was presented for each loacality. From the September 9th meeting discussions, LIPA understood that the NYISO was unsure how to model generator attrition in the queue. To address this, it was LIPA's belief that the NYISO was adopting a process that would eliminate the bottom few generators to represent a fair measure of anticipated project attrition; not limit the number of units to a fraction of what was represented in the interconnection queue. Alternatively, LIPA suggested that if representing attrition was the objective, the NYISO should look at generator projects in the queue from an "at-risk" approach. 2 While LIPA understands the dilemma faced by the NYISO in making at-risk decisions, under the NYISO's approach, projects that are more likely to proceed to interconnection, having met significant milestones, are likely to be displaced by other generators simply because they have a higher queue position. Moreover, the NYISO's approach inappropriately places the NYISO in the position of making economic decisions of whether particular projects will proceed to interconnection. Such decisions should be left to market forces, not the NYISO.

On October 17th, it became apparent to LIPA that the NYISO was not intending to use its dispatch selection as a measure of generator queue attrition but rather to limit the scope of the number of units tested for deliverability. In the September 9th presentation, the ANP (561 MW), Spagnoli Road (270 MW) and Neptune HVDC (660 MW) projects were correctly included in the deliverability analysis. The flaw in the NYISO's approach first became apparent in the October 17th presentation where both the Neptune and ANP projects were excluded from the deliverability test. This was also the first time explanatory phrases and a table showing the selection process was prominently included in the status report presentation; see pages 8, 9 and 10 of the October 17th presentation. Limiting selection of units tested for deliverability incorrectly allows the NYISO to dictate the study findings based on the units selected for testing and does not determine if the New York transmission system can deliver the aggregate of resources in its interconnection queue.

LIPA is not alone in its position that the methodology and study process being used has not been adequately communicated. On October 14th, the NYTOs sent an email to the NYISO listing a number of issues they have with the current study process, among these issues was a request for better explanation of the methodology results:

"Greater detail must be provided in the form of comprehensible examples for each of the methods (possibly an extension of the information provided in the past July 2005 PowerGem presentation) to permit a determination of the design objectives of each method as well as to identify their merits and pitfalls."₃

The NYISO should provide to the IITF a complete narrative description, with accompanying examples, of all assumptions and their practical consequences to avoid misunderstanding of the study assumptions.

² PJM is presently considering a generation "at-risk" approach as part of their long range planning process.

³ October 14th NYTO transmittal to the NYISO, point #4.

II. Load and Transmission Topology Assumptions Must be Reviewed.

In the September 8th and October 17th presentations the LIPA 2009 load is modeled as 5,824 MW and 5,256 MW, respectively. This load does not match the LIPA load assumed in the NYISO's Comprehensive Reliability Planning Process Reliability Needs Assessment, 5,578 MW,4 the Gold Book data, 5,580 MW₅, or the FERC Form No. 715 case, 5,339 MW. This incorrect load representation further exacerbates the problems introduced by the NYISO's project dispatch selection.

The NYISO has not made the basecase operating or planning models available for review by the Transmission Owners. Consequently these models have not received a rigorous review by the Transmission and Generation Owners. Transmission Topology should be reviewed to ensure that transmission upgrades associated with merchant generation and merchant transmission projects identified for deliverability are not included. Including such projects will incorrectly mask potential deliverability needs. Moreover, projects such as Neptune have been omitted in direct contradiction to assumptions made in the NYISO's Comprehensive Planning Process Reliability Needs Assessment. A complete review of the models should be conducted before study conclusions are drawn.

Modeling information should be provided in sufficient detail to permit independent replication and validation of the study results. In the case where proprietary tools are used, a full explanation of these tools and their use in the study should be disclosed. Consideration should be given to forming a technical sub-group to achieve tool and result validation. Until the tools and results are independently verified, LIPA will not be able to support the study findings.

III. Study Methodologies Need to be Refined to Address Potential Flaws. A. The Scope of Testing Should Include All Generation In the Queue for the Years being Tested

LIPA believes the deliverability study procedure is fundamentally flawed. Under the NYISO's approach of only including those units needed to meet a 2009 level plus 20% of the forecast load growth, removing all lower queued units, will fail to identify the very thing a second interconnection product is intended to test – whether a particular unit desiring to interconnect can qualify in part or whole as a capacity resource. In fact, under this methodology the October report eliminates two projects that create deliverability problems on Long Island: Neptune and ANP. Making matters worse, while the present test eliminates the Neptune project it retains the upgrades needed to support deliverability of that project's capacity as determined essential through LIPA's own deliverability test. Eliminating the project and retaining the upgrades associated with that project will further mask any deliverability problems that would otherwise exist on Long Island. It is clear that such a method will fail to identify potential deliverability problems to the detriment of interconnected bulk power system reliability.

B. Load Should Not Be increased as a Proxy for Generation Unavailability.

LIPA is concerned that the approach taken by the NYISO under several of its proposed study methodologies, introducing a 15.9% load increase as a proxy for load and generation uncertainty, will further mask the identification of deliverability problems. Moreover, increasing load in areas

⁴ Comprehensive Reliability Planning Process, Draft Reliability Needs Assessment, Version 3, September 7, 2005, Table 11.4.

⁵ 2005 Load and Capacity Data, ("Gold Book"). Value excludes approximately 74 MW of demand reduction.

that do not have generation may create overloads related to the methodology assumption rather than any actual generator deliverability problem, for example, the overload identified at the Riverhead substation.

C. The NYISO Can and Has Refined its Study Assumptions to Address Flaws.

The NYISO has acknowledged that the study methodology may be refined as the study progresses. The NYISO in an email to the market participants on September 13th, 2005 stated that it is appropriate that the study assumptions be refined as part of the study process. In fact, the NYISO has modified its study assumptions between its first and second status reports to address market participant concerns about the scope of contingencies being tested by adding Scenario C that will test the base case with all contingencies on the New York System at voltages of 115 kV and above. Time still remains before the December 1 Status Report date to address the flaws identified in this letter.

IV. Conclusion

LIPA respectfully urges the NYISO to reconsider its deliverability study procedure in light of the flaws identified above. A proper deliverability study should test all queued generation, not simply a select few projects. Moreover, deliverability is a measure of the ability of the system to accommodate the transfer of capacity, as such; it should be modeled as a generation to generation shift without injecting fictitious load increases. Finally, all underlying system modeling and topology assumptions should be confirmed with the Transmission and Generation Owners.

Transmission Owner Comments

October 14, 2005

TO: FROM:	Carl Patka Elias G. Farrah Rebecca J. Michael
RE:	Comments of the New York Transmission Owners

Shortly after the September 8, 2005 Interconnection Issues Task Force ("IITF") meeting the New York Transmission Owners ("NYTOs") met to discuss the various deliverability study methodologies. Particularly, the NYTOs discussed the topic of reducing the number of methodologies to study going forward in the deliverability analysis process. The methodologies under consideration are listed below.

Method 1: Derated Unit Outputs Method 2: PJM-Like Method Method 3: Load Adjustment Method 4: Upstream and Downstream Gen-load Matching Method 4: Extension/Needed Transfer

The following conclusions were reached. The NYTOs respectfully request that the NYISO give consideration to these consensus points.

- 1. The NYTOs recommend that for the purpose of clarity and easier identification of the several methodologies that the NYISO refer to Method 4 Upstream and Downstream Gen-load Matching as plainly Method 4 and redesignate the second Method 4 Extension/Needed Transfer as method 5.
- 2. The NYTOs support continuing study of methods 1 Derated Unit Outputs; 4 Upstream and Downstream Gen-load Matching and 5 Extension/Needed Transfer (newly renumbered). Methods 2 and 3 may be eliminated from the analysis going forward.
- 3. The NYTOs believe that there is value in considering the use of a MARS-type analysis on an intrazonal basis, in combination with Methods 4 and/or 5, when discussions proceed beyond the Deliverability Study completion phase and proceed to the actual requirement and final test development stage.
- 4. Greater detail must be provided in the form of comprehensible examples for each of the methods (possibly an extension of the information provided in the past July 2005 PowerGem presentation) to permit a determination of the design objectives of each method as well as to identify their merits and pitfalls.
- 5. The NYTOs expect both an interzonal deliverability assessment and an intrazonal deliverability assessment that is consistent with the schedule in the NYISO/TO-filed Work Plan. Item 9 under the caption "Analysis" in the IITF Scope of Work refers to updating the interzonal unforced capacity accounting approach. Pursuant to item 9, slides 7 & 8 in the April 21, 2004 presentation must be updated with full explanations of the calculations and results. The update should be done using the Reliability Needs Assessment results and coordinated with NYSRC assessment.
- 6. Following the completion of the filed work plan, the NYTOs believe that the IITF should begin to narrow down the definition of deliverability to focus on generation pockets. This would be consistent with the genes is of the

deliverability study, which was to identify if it were necessary to create a form of second product for resource interconnections, and, if so, what form that product might take.

Moreover, the NYTOs believe that a statement made by the NYISO in its October Status Report may have overstated the intention of the IITF. On page five of the status report, the NYISO states that going forward: "The NYISO will test the application of one, or at most two, methodologies" on the deliverability scenarios as part of its December 1 report. IITF discussions clearly did not support such a conclusion; in fact, the IITF requested that the NYISO seek committee approval before making such a change. As such, NYTOs request that the NYISO file an amendment to its status report correcting/clarifying this statement.

NRG Comments

NRG has reviewed the deliverability methods presented by Powergem on Sep 8. We believe method 1 or 2 should be pursued because 1) they are similar or the same as the existing method used in another ISO (PJM); 2) represent the approach that the working group has been focused on since the study began, and 3) avoids peculiar results in load pockets, such as the example for method 4 (extension) demonstrates, and 4) is the most explainable. NRG believes it is important to keep the chosen method comparable to the PJM method as this will enable FERC to understand the issues more readily. In addition, any associated interconnection or market rules that come out of this NYISO study will be facilitated if PJM can be used as a benchmark.

We should recognize that the chosen method will need to be integrated into the NYISO interconnection study process.

Method 1 and 2 are also consistent with the power flow analysis that developers undertake as part of the SRIS process. Application of either of these methods will make it relatively easy for a developer to analyze extent to which its new facility is causing an overload. Method 3 and 4 are not consistent with the existing studies undertaken in the SRIS process.

Method 1 properly takes into account the regional EFORd so that the total max gen is not overstated as may be the case in method 2. I suggest we discuss this at the next working group meeting.

In any of the chosen method, the ability to adjust PAR settings, consistent with emergency operating procedures, should be taken into account.

Finally, a de minimus impact threshold should be developed. Since there is uncertainty for all these analyses, a percentage or fixed volume threshold should be applied to the decision on whether or not a particular monitored element is determined to be deliverable or not. A suggestion would be any overload less than 10% above the monitored elements transfer capability would be considered de minimus.

Thanks. Tim Foxen Director of New York State Regulatory Affairs NRG Energy, Inc. 609-240-7962 (mobile)

212-247-8006 (office)

Deliverability Report Comments IITF

(through 10/12/05)

LIPA Comments

LIPA supports method 4, Upstream and Downstream Gen-load Matching. Nevertheless, we note that some further discussion is needed regarding the 15.9% load increase being used as proxy for generation unavailability and load uncertainty. As we have noted at past IITF meetings, this load shift can result in spurious results. Moreover, the NYISO should not move to eliminate any methods from its study plan unless directed to do so by an affirmative member vote at the appropriate NYISO voting committee (most likely the Operating Committee).

Sincerely,

Ken

Kenneth C. Lotterhos, Esq. | Assoc. Director Navigant Consulting 1400 Old Country Road, Suite 402 Westbury, NY 11590-5156 Tel: 516-876-6233 | Fax: 516-876-1068

NYSEG/RG&E Comments

Regarding future detail work on the alternate methods to look at deliverability, we believe that method alternatives 1 and 4a should be the primary methods used going forward to achieve more definitive results for deliverability.

In addition, while examining all these variations of the deliverability testing scenarios has been useful, we may be starting to miss the major point regarding deliverability. The genesis of deliverability testing was to identify if it were necessary to create a form of second product for resource interconnections, and, if so, what form that product might take. In other words, it was intended to help create a more efficient marketplace, and not intended to address concerns such as reliability or congestion. We have the CRPP and congestion calculations for these.

The definition of deliverability that we have been using, i.e. "the aggregate of generation to supply the aggregate of load without overloading network elements", may be too broad, because the preliminary results are uncovering things like load pockets. Under the assumptions for the test method, we have to simulate the growth of load to absorb the full generation output. Growing the load in a load pocket will put pressure on the system elements connecting the load pocket to the bulk system, and overload them at a certain point. This is not deliverability. Rather, it is a reliability concern if the actual load is forecast to get too high, and we have the CRPP to address such cases.

Similarly, the preliminary results are uncovering things like overloads of Leeds – Pleasant Valley. Again, it questionable whether we are uncovering deliverability problems when these types of lines pop up. It seems like we are uncovering facilities that are subject to congestion under certain conditions. We know this already.

However when the results uncover generator pockets, for example the Astoria results, we are potentially seeing deliverability concerns. These types of results go directly to the point of the interconnection second product debate that began this exercise.

Bob Reed NYSEG

Con Edison

Con Edison Comments Preliminary Deliverability Study Results September 28, 2005

Assumptions

- 1. The assumptions used in the deliverability study should be consistent with those used in other studies. Please provide a table comparing the assumptions used in the deliverability study with those used in other studies, including system and network loads, generator additions and retirements, generator capabilities, and transfer ratings. Where the assumptions used in the deliverability study differ from those used in other studies, an explanation should be provided.
- 2. The list of generator capacity assumptions provided to Con Edison indicated that some existing generators were modeled at a capacity of zero. Please provide a corrected list of assumptions.
- 3. Some of the generator capacities assumed in the 2009 planning scenario are incorrect. All generators should be included at their most recent summer capability levels, including:
 - a. SCS 500 MW (per phase of project), not 600 MW
 - b. Keyspan Ravenswood Expansion 222 MW, not 270 MW
 - c. PSEG Cross Hudson 550 MW, not 509 MW
 - d. Poletti Repowering 500 MW, not 638 MW
- 4. According to the table on page 20 of the PowerGem presentation from the last IITF meeting, the total zone J generation assumed in the 2009 planning scenario is 11,322 MW. However, page 5 of the presentation indicates that the planning scenario should assume 10,262 MW of generation. Please provide an explanation for this discrepancy.
- 5. The "Transtap" substation should not be included in either the operating or planning case. That substation is related to the Transgas generation project, which is not included in either case.
- 6. Generator additions assumptions are not consistent with the requirements outlined in the scope of work i.e., select catch-up class units first, then in queue order. In any case, it makes little sense to strictly follow the approach outlined in the scope of work since doing so would require projects that have not proceeded beyond preliminary stages of development to be included, while other projects that accepted cost allocations in earlier Class Years or have proceeded further with development are ignored. Additions should be the same as those included in the RNA.
- 7. In the planning scenario, the following revisions should resolve the overloads identified under methodology 5 related to the Astoria pocket:
 - a. Allow the Corona PARs to flow from Corona to Jamaica at around 80-90 MW each without overloading the lines from AE to Corona.
 - b. Switch and balance Astoria units between Astoria East and West buses.
 - c. Assume lower imports from Rainey 345, Tremont 345, and Dun Wood North and South 345.

Methodologies

- 1. All methodologies should recognize the contingency design of Con Edison's system. That design requires that sufficient generation is available within each area of the Con Edison system to meet load after the loss of the largest sources of supply (i.e., generation and/or feeders). No generator should be considered undeliverable, either in whole or in part, if it is needed to meet load under contingency situations. Recognizing contingencies in deliverability is consistent with the reliability needs for both installed and operating capacity reserves, i.e., generation in excess of load is also required.
- 2. Con Edison supports the request of the NYTOs to discontinue study of methodologies 2 and 3.

- 3. The results shown on pages 19 and 20 of the PowerGem presentation distributed on September 8, 2005 underscore a problem with methodology 5. While generation seems to be bottled in Astoria based on the study assumptions, it is clear that 2,491 MW (the amount of generation in Astoria East and West combined) is far in excess of the generation that can reasonably be described as bottled. Con Edison suggests that one or more of the following revisions would improve the methodology:
 - a. Limit the amount of an identified "overload" to the *lesser* of (i) the excess of upstream generation over upstream load, and (ii) the amount of generation "needed" downstream.
 - b. Adjust the methodology to account for imports over other ties.

Further Scenarios

- 1. The final study should contain several planning scenarios examining different combinations of generation additions and retirements.
- 2. Different combinations of generator outages and load scale-up approaches should also be modeled, as is done in IRM studies.
- 3. Load under extreme weather should also be considered, consistent with IRM studies. Bottled generation found under normal weather may not be bottled due to higher loads upstream where the generation is located and reduced capacity ratings due to higher temperatures if the generation is either simple cycle GTs and combined cycle GTs. For example, when the NYSRC sets the installed reserve margin (IRM) requirements, load forecast uncertainty (reflecting extreme weather) and GT derating due to higher temperatures are also considered and reflected in the IRM.

Presentation of Results

- 1. Con Edison believes that the NYISO should <u>not</u> submit the preliminary results for its planning scenario to the Commission as part of its October 1 compliance filing. It is clear that the preliminary results are confusing at best and that assumptions may need to be refined. Any status report to the Commission should state only that the study underway is part of the NYISO stakeholder process, and that several methodologies are being reviewed.
- 2. Con Edison is concerned that slides 19 and 20 of the presentation made by PowerGem at the IITF meeting of September 8 leave the impression that New York City has insufficient generation resources. If the NYISO opts not to revise methodology 5 as outlined above, the final report on the deliverability study should state clearly that the resource requirements of New York City can be fully met if imports are used, consistent with current resource adequacy testing standards. In addition, each "overload" identified should be clearly identified as either a reliability problem or simply an economic one.
- 3. PowerGem has indicated that it believes that revised PARS settings will resolve overloads identified in the operating scenarios for Gowanus-Greenwood and Goethals -Gowanus and that they may resolve overloads identified in the planning scenario in the Astoria area. Please disclose the results of revising PARS settings prior to the next IITF meeting.

Process

- 1. Based on the discussion at the last IITF meeting, it is clear that a definition or testing methodology should be developed to distinguish generation pockets from load pockets.
- 2. Prior to the next IITF meeting, the NYISO should circulate, for discussion, proposals for:
 - a. Determining which projects in the interconnection queue would be exempted from a deliverability requirement if one is adopted.
 - b. Handling transmission and distribution projects that could affect the deliverability of projects e.g., Mott Haven.
 - c. Addressing deterioration of deliverability that could resul gradually over time from load, system, and generation changes.

Con Edison believes that open discussion of these issues will advance discussion on adopting a potential testing methodology.

<u>National Grid</u>

Ray - I noticed one small typo on page 1 of the filing. In the first paragraph, it says "the Commission's Order issued August 6, 2005" it should read 2004. TPH

Terron P. Hill Analyst U.S. Transmission Regulation and Commercial

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Certificate of Service

I hereby certify that I have on this day caused this Status Report to be served upon each party on the official service list compiled by the Secretary. I have also caused to be served electronically a copy of this filing on the official representative of each of its customers, on each participant in its stakeholder committees, and caused paper copies of this filing to be served on the New York State Public Service Commission, and on the electric utility regulatory agencies of New Jersey and Pennsylvania.

Dated at Albany, New York this 30th day of November, 2005.

/s/ Carl F. Patka

Carl F. Patka Senior Attorney New York Independent System Operator 290 Washington Avenue Extension Albany, New York 12203