February 7, 2005

BY HAND

The Honorable Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Docket No. ER04-449-____
Compliance Filing and Request for Further Extension of Time

Dear Ms. Salas:

Pursuant to the Commission's August 6, 2004 Order in Docket No. ER04-449-000, *et al.*,[1] the New York Independent System Operator, Inc. ("NYISO"), Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange & Rockland Utilities, Inc., and Rochester Gas & Electric Corporation (collectively, the "Joint Rehearing Parties") hereby submit their Compliance Filing. The Compliance Filing responds to the Commission's concerns about the need for a form of interconnection service for New York that incorporates a deliverability requirement, and reports on the activities undertaken by the NYISO on this issue since issuance of the order.

While the NYISO's preliminary analyses so far do not suggest a deliverability problem in New York, the studies do not permit any definitive conclusions about overall deliverability, the necessity for a deliverability product, the type of deliverability product that might be appropriate in the New York markets, or when such a market change should be introduced. For these reasons, the Joint Rehearing Parties request additional time to permit further refinement of the NYISO's recently-developed tools, assumptions, and methodology for the analysis of deliverability in the New York control area, and to allow the NYISO to put into place an ongoing process to evaluate the complex questions that remain unresolved.[2]

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[1] *New York Independent System Operator, Inc., et al.*, 108 FERC ¶ 61,159 at P 28 (2004) ("Interconnection Order"), *reh'g pending*. The Commission extended the deadline for a compliance filing to February 7, 2005.

[2] The studies undertaken here examine, and the NYISO proposes to continue to examine, among other things, the question of whether New York's circumstances justify an exception from a deliverability requirement in the form of an independent entity variation. As the Commission has previously recognized, an ISO has different regional operational characteristics than non-independent Transmission Providers. Interconnection Order at ¶ 24. The Commission has also recognized that the New York control area presents unique circumstances. *Id.* In Order No. 2003, the Commission stated "[t]he RTO or ISO shall therefore have greater flexibility to customize its interconnection procedures and agreements to fit regional needs." Order No. 2003 at ¶827.

I. List of Documents Submitted

1. This filing letter;
2. Final scope of initial study ("Attachment 1");
3. Summaries of deliverability analyses ("Attachment 2"); and
4. *Federal Register* Notice ("Attachment 3").

II. Communications

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[3] The NYISO respectfully requests waiver of 18 C.F.R. § 385.203(b)(3) (2003) to permit service on counsel for the NYISO in both Washington, D.C. and Richmond, Virginia.

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III. Service and *Federal Register* Notice

The NYISO will serve a copy of this filing on all parties on the official service list compiled by the Secretary in this proceeding.

A form of Notice suitable for publication in the *Federal Register* is included as Attachment 3 hereto, and is also included on the attached diskette.

IV. Report to the Commission

In this Compliance Filing, the Joint Rehearing Parties provide a report on two preliminary deliverability studies and recommendations to the Commission on how the NYISO should be permitted to proceed.[4] Following the submission of the Joint Compliance filings in response to Order Nos. 2003 and 2003-A, the NYISO initiated extensive stakeholder discussions to develop the scope for an initial analysis of deliverability for the New York bulk power system. Recognizing the lack of a standard definition of "deliverability," the initial task was to devise a methodology, including the base case assumptions and the appropriate tools, for a screening analysis which could be used to analyze inter-zonal and intra-zonal deliverability in New York for both the existing system and under future system conditions. The stakeholders recognized that the definition of deliverability[5] would be highly dependent upon the precise models and

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[4] On September 7, 2004, the Joint Rehearing Parties filed a "Request for Clarification or, in the Alternative, Rehearing" that requested the Commission to clarify that the Interconnection Order did not intend to foreclose a Commission conclusion that a deliverability component, as currently envisioned by the Commission, is not necessary in New York or, in the alternative, grant rehearing and conclude that it would await the results of the NYISO's deliverability study and consideration through its stakeholder process before determining whether a deliverability component is necessary. The Independent Power Producers of New York sought similar relief. Those requests are pending before the Commission. The Joint Rehearing Parties do not intend to retract the points or arguments raised in their earlier request with this filing.

[5] In general, "deliverability" can be defined as the electrical ability of the transmission system to deliver the aggregate of the generation to the aggregate of the load, as determined under some predefined set of rules tied to reliability criteria.

methodology to be utilized for the final analysis. Market Participants further agreed that the study would recognize the locational capacity requirements that currently exist in New York: *i.e.*, for New York City and Long Island. The final scope for the initial study is included in this filing in Attachment 1. The NYISO employed the assistance of two expert consulting firms, General Electric Energy and PowerGEM, to assist in developing the appropriate tools to perform the analysis.[6]

The NYISO notes that a limitation on the "deliverability" of the transmission system does not necessarily imply that reliability is jeopardized. The bulk power system can be operated within reliability criteria even if some generation cannot be "delivered" to some segment of load. Thus, the degree to which a transmission system is "deliverable" may have economic consequences for Market Participants but does not suggest any measure of its reliability. In any event, the studies reported here demonstrate that the reliability of the New York system is not a concern at least through the study period.

Even looking at deliverability solely as an economic issue, the deliverability studies undertaken by the NYISO demonstrate that it would be premature to incorporate a deliverability component into the NYISO's interconnection procedures at this time. Based on the assumptions described below, the initial studies found no inter-zonal or intra-zonal deliverability issues for either the existing system or under assumed system conditions five years in the future that are not already accounted for by the existing locational capacity requirements. Thus, it does not appear, based on this preliminary analysis, that there is any market inefficiency that requires implementation of a deliverability requirement at this time.

Deliverability was analyzed from two perspectives designed to complement each other. The first analysis utilized the data base and modeling that supports the annual studies conducted by the NYISO on behalf of the New York State Reliability Council and focused on inter-zonal deliverability. These "Loss-Of-Load-Expectation" ("LOLE") studies are conducted to determine New York Control Area ("NYCA") annual installed capacity requirements and whether the NYCA meets resource adequacy criteria. This analysis models transmission limits between zones but is a transportation type model as opposed to a "load flow" model. Deliverability was defined for this analysis as the ability of the model to deliver excess expected available capacity (*i.e.*, installed capacity times the equivalent forced outage rate) or excess required capacity (*i.e.*, load times installed reserve requirement) between zones such that there was no "bottled capacity" or capacity that could not be utilized. The purpose of this analysis was to determine if

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[6] As Market Participants developed the scope for the studies, the complexity of the deliverability issue became better understood, leading to the general conclusion that the study results must be considered preliminary and not definitive.

any bottled capacity as defined existed in the LOLE or installed reserves requirement analysis for current system or the assumed system five years in the future. A summary of the results of that preliminary analysis is included in Attachment 2 hereto.

The second analysis was conducted as a complement to the above to examine deliverability from an intra-zonal perspective. While the first analysis looked at the aggregate of the generation to supply the aggregate of the load for a given definition of deliverability from an inter zonal and resource adequacy point of view, it did not evaluate either the ability of the transmission system to be secured electrically for various dispatch scenarios or the intra zonal transmission constraints. The second analysis allows for the impact of each generator on monitored transmission elements and contingency pairs to be evaluated: in total over 300,00 such contingency pairs were analyzed. The study process utilized a DC load flow based methodology. For the purpose of this analysis, deliverability was defined as the ability of all generators assumed to be available to operate being able to operate simultaneously without overloading the transmission system. A summary of this analysis is also included in Attachment 2 hereto.

The results of these preliminary studies prompted a number of Market Participant questions concerning their assumptions and aspects of the methodology. Market Participants also generally agreed that, while the studies do not indicate deliverability problems, they should not be used to support definitive conclusions.

V. Request for Extension of Time

The stakeholder discussions disclosed that several of the assumptions utilized in the initial analysis may need further refinement. There is also a need for additional development of the models and methodology, and for further deliberations with Market Participants, in order to achieve consensus on an appropriate definition of deliverability for application to the New York electric system and what actions should be taken if deliverability is found to be a problem in the future. Additional time is also needed for discussions with the New York State Reliability Council to ensure coordination between these preliminary analyses of deliverability with the methodology utilized for the determination of statewide and locational capacity requirements for the New York Control Area. Consequently, the Joint Rehearing Parties recommend that the Commission allow the NYISO and its stakeholders to utilize the next year to refine these initial deliverability studies.

The Joint Rehearing Parties also submit that the additional time is necessary to allow the NYISO and its stakeholders to use the results of the refined studies to determine whether a deliverability product is necessary for New York, what type of product that should be, and when

it should be introduced. The Joint Rehearing Parties are strong believers in the power of markets and strives to achieve market-based solutions whenever possible. Regulatory intervention should be used with extreme caution[7] and should not result in a lack of confidence for investors considering putting their capital at risk in the New York markets. Any major changes in New York's market structure should be undertaken with serious consideration and concern for maintaining confidence in the market rules. Any proposed modifications to those market rules should be done with full understanding of the market implications and of their interaction with the rules of other market products the NYISO has and is currently developing. Further study that takes into account the relationships of all the relevant market structures is the prudent approach. Because of the significant implications the addition of a deliverability product would have for the NYISO's existing market rules, allowing the time for further refinement of the NYISO's analytical techniques and assumptions, and continued monitoring of deliverability under consensus-based criteria, is a reasonable and appropriate course of action at present.

The Joint Rehearing Parties propose to submit a further report and recommendations to the Commission by February 1, 2006.

If this approach is not acceptable to the Commission, the Joint Rehearing Parties nevertheless request a further extension of time until February 1, 2006 within which to file a specific proposal to incorporate a deliverability requirement. Development of a deliverability interconnection product and the associated changes to the NYISO's locational capacity markets is an enormously complex undertaking, as discussed above, involving both market design and equity issues. As noted in the Joint Compliance Filing letter filed in response to Order No. 2003, such a requirement would reflect a substantial change in current practice and would need to address the impact on existing resource adequacy procedures, such as the NYISO's existing locational installed capacity requirements, cost and cost allocation issues and the need for grandfathering provisions to address who pays which costs.

In this context, the Joint Rehearing Parties note that the Commission initially granted ISO New England until September 1, 2005 to implement a mechanism that will ensure generators meet an intra-zonal deliverability test in order to qualify as ICAP resources.[8] Subsequently, the

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[7] Indeed, in approving the NYISO's proposal for a comprehensive planning process to address reliability needs, the Commission highlighted a feature of that process that properly balances market-based solutions and regulatory solutions as "a substantial improvement over planning processes that traditionally have depended largely or even solely upon transmission owner developed, regulatory solutions." *New York Independent System Operator, Inc.*, 109 FERC ¶ 61,372 at P 33 (2004).

[8] *New England Power Pool, et al.*, 109 FERC ¶ 61,155 at P 43 (2004).

Commission granted ISO New England until July 1, 2006 to comply with these requirements.[9] The Commission has thus recognized the complexity of these issues for ISO New England and should recognize that the same complexities face the NYISO and its Market Participants.

VI. Summary and Conclusions

The submission of a specific proposal to incorporate a deliverability product for New York is premature. The results of the preliminary analyses conducted by the NYISO do not indicate that there is a deliverability problem with respect to either the existing system or the planned 2009 system. However, the stakeholder discussions to date have illuminated the complex nature of studying deliverability, and more work is necessary to develop support for conclusive findings and recommendations.

The NYISO should be given additional time, as described above, to further develop and refine the models, assumptions, and methodology developed for the preliminary deliverability analyses. The refined methodology will permit the NYISO to put into place an ongoing process by which it will continue to monitor future system conditions so as to be able to detect any impending deliverability issues well before they might occur.

Even if that approach is not acceptable to the Commission, the NYISO will need substantial time to develop a deliverability requirement and associated market rules. The work done to date has provided a substantially better understanding of the issue in New York. Nevertheless, the issue raises a myriad of complex issues that need to be addressed and cannot be resolved quickly.

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[9] *See New England Power Pool, et al.*, Docket Nos. ER04-433-000, et al., *Notice of Extension of Time* (January 5, 2005).

Respectfully submitted,

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Attachment 1

9/3/04 DRAFT FOR DISCUSSION
Assessment of a Deliverability Product in New York
Scope of Work

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 increase[1] 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 deliverable[2] 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

[1] It should be noted that changes in resource availability/performance, transmission system performance, and geographical distribution of load also impact the requirements.

[2] 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.

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.

Purpose

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

1. Validate ~~the assumption that~~whether electric generating resources are currently fully deliverable within ~~each~~ a zone and/or super-zone – e.g., 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 ~~intra-zonal~~transmission constraints/"bottlenecks".

4. Develop sub-zone and super-zone area definitions and their associated transfer capability, ~~if~~ based on the transmission constraints identified in step 3.

5. Develop methods and procedures for recognizing, representing, and accounting for ~~intra-zonal~~ 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. Provide the definition of deliverability for the purpose of this study.

2. Provide documentation on present NYISO and NYSRC procedures that addresses deliverability.

3. Review completed reliability assessments (SRISs, Seasonal Operating Studies, IRM, ATRs, TO studies, etc) 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; ~~I~~In-City 138kv; West 49th Street; the Oswego ~~area~~ 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. For example, ~~a load zone~~an area would be considered to have no ~~intra-zonal~~internal transmission constraints if all of the generation within that ~~zone~~ area can be coincidentally dispatched to their aggregate unforced capacity when subject to security constraints of monitored transmission facilities within that load ~~zone~~area. Generation outside the study ~~zone~~ 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 ~~intra-zonal~~transmission constraints, if any.

7. Conduct sufficient MARS analysis to determine the impact of ~~intra-zonal~~any additional transmission constraints, if any, on statewide and locational requirements.

8. From 7, determine the need to develop additional procedures for ~~intra-zonal~~ generation deliverability.

9. Prepare and include a write-up of the "unforced capacity" accounting approach included in the April 21, 2004 slide presentation (slides 7 and 8) that enough transfer capacity exists to deliver the excess unforced capacity above UPNY load to the cable interface. The conclusion based on this analysis is that from an inter-zonal perspective a deliverability issue does not exists in New York (i.e., no existing electric generating capacity is "bottled" and/or restricted inter-zonally). 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.

Schedule:

1. Develop study process by mid-October

~~1.~~Develop the ~~within zone~~ deliverability basis/criteria by the end of ~~September~~November

2.

~~3. Develop study process by mid-October~~

3. Complete analysis by December

4. Coordinate with NYSRC 2005 – 2006 IRM study through yearend

5. Prepare report in January 2005

Attachment 2

Attachment 2

Examination of the Deliverability of Generating Capacity within the New York Control Area

Summary of Study Results

Introduction:

In Order 2003, regarding rules governing the interconnection of large generating facilities, the Federal Energy Regulatory Commission (FERC) defined two interconnection products: network service interconnection ("NRIS") and energy only product ("ERIS"). Although neither of these products ensures any rights to transmission service, they do differentiate among rights in determining what generating facilities are committed and dispatched, with the network service having a higher priority of being delivered. The New York markets administered by the NYISO offer a single interconnection service defined as network access interconnection service ("NAIS"). This interconnection product was developed at the start up of the NYISO as an element of the overall market design that incorporated both locational marginal energy prices and locational capacity requirements/prices. It does not prioritize among generating facilities according to their deliverability. In its response to the FERC order, the NYISO, with the support of its stakeholders, opted to retain its single interconnection product but proposed to study the need for and the desirability of implementing an interconnection process that addresses deliverability.

The NYISO initiated stakeholder discussions to develop the scope for an initial analysis of deliverability for the New York bulk power system. However, the NYISO and its stakeholders recognized that there is no standard definition of "deliverability." In general, for purposes of the initial analysis, the participants agreed that "deliverability" refers to the electrical ability of the transmission system to deliver the aggregate of the generation to the aggregate of the load under some predefined set of rules tied to reliability criteria. The initial task was to devise a methodology, including the base case assumptions and the appropriate tools, for a screening analysis which could be used to analyze both inter-zonal as well as intra-zonal deliverability in New York for the existing system and future system conditions. The final scope for the initial study is included in this filing in Attachment 1. The NYISO employed the assistance of two expert consulting firms, General Electric Energy and PowerGEM, to assist in developing the appropriate methodologies and performing the analysis.

The purpose of this report is to summarize the study and the preliminary results of the analyses.

Study Overview

It was recognized that capacity deliverability is a separate and distinct concern from energy deliverability. Energy deliverability is maintained through security constrained commitment and dispatch procedures that will schedule available resources to serve the given load. Capacity is procured to meet a load plus reserve requirement and must be deliverable to not only serve a given load, but to serve a certain level of outages. Given the large number of capacity resources and the uncertainties associated with the load forecast and transmission system, it is impossible to do a full probabilistic analysis to assess deliverability constraints associated with each and every transmission system element for each and every possible state of the system. Therefore, deliverability of capacity resources in New York was studied from two perspectives designed to complement each other in regard to their tradeoffs between probabilistic detail versus transmission system detail. Both analyses were done in a manner to account for the probabilistic nature of generator outages, load uncertainties, and other parameters in the LOLE calculations. As part of both analyses, various methods of accounting for these factors were explored.

The first analysis takes a zonal resource accounting perspective. Capacity resources were aggregated on a zonal basis and measured against that zone's load and reserve requirement and export capability. This was done to determine if there were any inter-zonal constraints that would lead to capacity resources not being deliverable on an aggregate basis. If sufficient export capability exists relative to the net of capacity resources and load plus reserve requirement, then the generation in that zone is considered "deliverable", at least to the next zone.

The zonal resource accounting method utilized two databases, one being a near term and the other, a long term database. Specifically, the near term database and modeling assumptions that support the annual studies conducted by the NYISO on behalf of the New York State Reliability Council and the long term database used for future resource adequacy assessments in the present NYISO studies such as the Initial Planning Process and Annual Transmission Reliability Assessment were used for this analysis method. These "Loss-Of-Load-Expectation" (LOLE) studies are conducted to determine the New York Control Area ("NYCA") annual installed capacity requirements and whether the NYCA meets resource adequacy criteria in the future. This provides for a full probabilistic treatment of the LOLE parameters, however, this analysis only models transmission interface limits between zones and utilizes a transportation type model rather than a detailed "load flow" model that would account for individual transmission facilities. The interface limits provide a good representation of any inter-zonal constraints to capacity deliverability.

The second analysis, utilizing a load flow based model, was conducted as a complement and further refinement to the zonal resource accounting analysis. Its purpose was to evaluate the ability of the entire transmission system to deliver capacity resources under many availability scenarios. The level of transmission detail in the load flow allows for the evaluation of transmission facilities internal to a zone to identify

intra-zonal transmission constraints. These two analyses in concert constitute an initial attempt to provide a complete assessment of the deliverability of the New York Power System (as defined for the purposes of each study), under a given set of assumptions defined in the Study Scope, that is compliant with and grounded in reliability criteria.

Summary of Major Findings:

1. Under the assumptions and parameters of the study, the New York Power System was initially found to be deliverable as measured from both the zonal resource adequacy accounting (inter-zonal) and load flow (intra-zonal) perspective for the current system and for the system assumed to exist five years in the future through 2009.

2. While the results of the analysis done under both perspectives of inter and intra zonal deliverability indicate that deliverability is not presently a reliability issue, the two perspectives need more fine tuning of the process, assumptions and models used.

Zonal Resource Accounting Analysis

This study compares the export capability and net "excess capacity" of the New York Control Area zones. Net "excess capacity" is defined as the net of a zone's resource capacity and its load plus reserve requirement, plus the adjacent zone's net export. If sufficient export capability exists relative to this net "excess capacity", then the generation in that zone is considered "deliverable", at least to the next zone. Present NYISO resource adequacy assessments examine whether sufficient capacity is available to meet the loss of load expectation (LOLE) criteria considering the transmission limits between New York Control Area zones. There are presently eleven zones comprising the NYCA and the transmission limits between these zones are represented by interface transfer limits. The databases and methodologies used for the resource adequacy study entitled: "New York Control Area Installed Capacity Requirements for the period May 2005 Through April 2006", and the most recent future year resource adequacy assessments done for the NYISO's Initial Planning Process that focused on the year 2008 and 2013 were used for this analysis. The capacity resources in these databases were aggregated for each of the eleven zones. This aggregate of capacity in each zone, net of the zonal load, was compared against the export capability from that zone, both with and without accounting for outages. Excess is accumulated from zone to zone to assess and identify potential constraints through out the system. The results of these comparisons are summarized below.

Analysis for Year 2005

Tables 1 and 2 summarize the results of the inter-zonal deliverability analysis for the system as projected for 2005:

The following tables summarize the examination of the aggregation of generation by zone based on full generator summer ratings as well as their effective, or unforced, capacity determined by multiplying the summer rating by one minus the unit EFORd. These values are summarized by NYISO zone in the "Base Case" Table 1, along with the zonal peak load. The next two columns show the "Excess Capacity" and "Excess Effective Capacity" for each zone, which is simply the difference between the appropriate capacity value and the zonal peak load. The next two columns give the cumulative excess capacity progressing east and south from Area A. Although each zone was evaluated individually, the results are summarized for three superzones: Rest of State, New York City and Long Island. The values are shaded yellow if they exceed the net export capabilities to the rest of the system shown in the next to last column. The final column describes the source of the export capability.

Table 1

Base Case

Area	Summer Rating	Eff Sum Cap	Orig Ld	Excess Cap	Excess Eff Cap	Cumulative Excess Cap	Cumulative Excess Eff Cap	Export Capability East/South
Area A-I	24,341	22,583	17,326	7,015	5,257	7,015	5,257	5970 I to J+K + PJM
AREA-J	9,491	8,855	11,365	-1,874	-2,510	5,141	2,748	4700 I to J + PJM + I to K
AREA-K	5,196	4,906	5,155	41	-249	5,182	2,498	1520 K fr I+J
NYISO	39,028	36,344	33,846	5,182	2,498			

The "effective" capacity is the better measurement to use for this type of deliverability testing to begin accounting for the probabilistic nature of generator outages. This reduces the cumulative capacity as one moves across the zones. The final Cumulative Excess Effective Capacity shown highlighted indicates that there is excess capacity in the system, but it is deliverable throughout the system, or to the aggregate of load. Another way to look at this is the Cumulative Excess Effective Capacity of 5,257 MW is deliverable to the borders of NYC and Long Island, while there is Export Capability of 5,970 MW. Since NYC and Long Island Effective Summer Capacity is less than their total load, some capacity is needed, just not the full 5,257 MW.

The above Effective Capacity treatment still falls short of accounting for the full probabilistic treatment of outages and uncertainties employed in the resource adequacy assessments. A more appropriate assessment provides that the capacity must supply not only the zonal load, but an 18% reserve margin as well. Table 2 , below, shows the same analysis as Table 1 , but with the zonal loads increased by 18% to approximate meeting the load plus the required installed reserve margin ("IRM").

Table 2

Case A - 18%

Area	Summer Rating	Eff Sum Cap	118% Orig Ld	Excess Cap	Excess Eff Cap	Cumulative Excess Cap	Cumulative Excess Eff Cap	Export Capability East/South
Area A-I	24,341	22,583	20,445	3,896	2,139	3,896	2,139	5970 I to J+K + PJM
AREA-J	9,491	8,855	13,411	-3,919	-4,555	-23	-2,417	4700 I to J + PJM
AREA-K	5,196	4,906	6,083	-887	-1,177	-910	-3,594	1520 K fr I+J
NYISO	39,028	36,344	39,938	-910	-3,594			

Since the 18% margin is taken into account, the actual capacity rather than effective capacity should be used to avoid double counting unit forced outages. This table shows that there are no deliverability concerns in any of the zones

Analysis for Future Year

The above analysis was repeated for the future year of 2008. All of the data is drawn from the existing MARS database for the year 2008, which is the most recent future year database presently available. Tables 3 and 4 summarize these results. Table 3 summarizes the results of the 2008 analysis utilizing the "effective capability" methodology also applied in Table 1. The values are shaded yellow if they exceed the net export capabilities to the rest of the system shown in the next to last column

Table 3

Base Case

Area	Summer Rating	Eff Sum Cap	Orig Ld	Excess Cap	Excess Eff Cap	Cumulative Excess Cap	Cumulative Excess Eff Cap	Export Capability East/South
Area A-I	25,851	23,676	17,442	8,409	6,235	8,409	6,235	5970 I to J+K
AREA-J	13,584	12,474	11,988	1,596	486	10,005	6,721	4700 J to I + PJM + J to K
AREA-K	6,407	6,122	5,275	1,132	847	11,137	7,568	1520 K to I+J
NYISO	45,841	42,272	34,704	11,137	7,568			

The cumulative effective capacity excess through Area A-I of 6,235 exceeds the export capability south of 5970 MW which would appear to say that there is 265 MW of effective capacity in Areas A through I, which cannot be delivered to the remaining zones. However, the above Effective Capacity method again falls short of accounting for the full probabilistic treatment of outages and uncertainties employed in the resource adequacy assessments, as demonstrated for the Year 2005 analysis above. Table 4 below, shows the same analysis as above, but with the loads increased by the 18% to approximate meeting the load plus the reserve requirement equal to the IRM.

Table 4

Case A - 18%

Area	Summer Rating	Eff Sum Cap	118% Orig Ld	Excess Cap	Excess Eff Cap	Cumulative Excess Cap	Cumulative Excess Eff Cap	Export Capability East/South
Area A-I	25,851	23,676	20,581	5,270	3,095	5,270	3,095	5970 I to J+K
AREA-J	13,584	12,474	14,145	-562	-1,671	4,708	1,424	4700 J to I + PJI
AREA-K	6,407	6,122	6,225	182	-103	4,890	1,321	1520 K to I+J
NYISO	45,841	42,272	40,951	4,890	1,321			

The Cumulative Excess Effective Capacity shown highlighted indicates that there is excess capacity in the system, but it is deliverable throughout the system, or to the aggregate of load. Another way to look at this is the Cumulative Excess Effective Capacity of 5,270 MW is deliverable to the borders of NYC and Long Island, while there is Export Capability of 5,970 MW. Since NYC and Long Island Effective Summer Capacity has grown significantly from 2005, it appears that there is cumulative excess capacity in zones J and K. However, another way to look at this is to view zones J and K as becoming capacity surplus and that there is surplus capacity in New York, but it is still deliverable throughout New York.

Comparing the Load and Capacity Summary from the 2004 Annual Transmission Review, the capacity change from 2008 to 2009 is a decrease of approximately 300 MW while the load increase is approximately 400 MW. Based on this, the results from the analysis done for 2008 would be valid for 2009 as well.

Load Flow Analysis (Intra-Zonal) :

This load flow based analysis was conducted to complement the zonal resource accounting analysis that did not evaluate the ability of the transmission system to deliver capacity to serve load under all availability scenarios recognizing intra-zonal as well as detailed inter-zonal constraints. For the purpose of this analysis, deliverability was defined as the ability of all installed capacity resources to operate simultaneously without overloading the transmission system, with respect to delivery to the appropriate load aggregate. Also, this second approach allows for the evaluation of the impact of each generator on each monitored transmission element, under both pre and post contingency conditions. The study process utilized a DC load flow based methodology and was developed with the assistance of PowerGEM which also performed the initial analysis utilizing modeling tools that were developed for this purpose. From a technical viewpoint this process is:

1. A reasonable, transparent, and reproducible means to determine whether an individual generator's capacity is deliverable to load.

2. A refinement to the network model representation used in NYISO resource adequacy assessments.

NYISO resource adequacy assessments examine whether sufficient capacity is available to meet loss of load expectation (LOLE) criteria considering the limits of the New York Transmission System. These assessments include consideration of generating unit derate factors and availability, as well as other probabilistic factors. While essential from the perspective of maintaining reliability, such studies do not evaluate whether an individual generator, or group of generators, can simultaneously operate at their expected maximum output due to local or intra-zonal transmission limits. The NYISO and its market participants agree that there is a need to further study the relationship between deliverability and other areas such as resource adequacy assessments.

From the perspective of an interconnecting generator seeking interconnection service, the ability to analyze its impact on individual transmission facilities can provide useful information, such as, whether all the new expected capacity can be operated simultaneously with all other nearby units. Such a test differs from a traditional LOLE assessment because the premise is to have "all capacity" available, not just "enough capacity". Such a deliverability test is, in effect, a much more detailed examination of the granularity of the electric grid.

This new process was developed to examine whether groups of generators are able to simultaneously operate to their maximum expected capacity at peak load without violating bulk power system transmission thermal limits. In this analysis all possible combinations of bulk facilities under all standard emergency condition contingencies were tested. Such a test requires assessment of more than 300,000 combinations of transmission facility outages, contingency conditions, and generation outages to find potentially bottled scenarios. Essentially, all generators with a significant impact

(assumed to be greater than 4%) on a monitored element / contingency combination (either positive or negative) were identified and their expected impact determined. If all generators expected to be available for operation can not simultaneously operate for any of the more than 300,000 scenarios, a deliverability question arises for some or all of the pertinent generators.

In the New York transmission grid several regional specific factors come into play when performing such a deliverability assessment:

1. Due to the concentrated load and limited geographical accessibility in New York City and Long Island zones, a deliverability assessment must consider the transfer of power from capacity resources to these load pockets.

2. More than anywhere else in the United States, the New York City and Long Island zones utilize interchange control, local generation requirements, and phase angle regulators (PARs) to balance transmission flows and maintain adequate supply.

The deliverability assessment process developed for the NYISO takes these regional factors into consideration.

As a test of the process and models, an initial screening analysis was conducted on the New York State bulk transmission system utilizing network models representing:

- Peak load conditions for 2004 ("Existing System")
- Peak load conditions for 2009, which included all generators from "class years" 2001 through 2004 and associated system upgrade facilities ("Planning Case")

The deliverability analysis is not a probabilistic model, so to reflect this realism and the assumptions commonly used in the NYISO reliability assessments, the initial screening analysis assumed:

1. Generators are tested for their aggregate deliverability under an equivalent forced outage derated capacity.

2. Emergency criteria contingency conditions and transmission ratings were honored for contingencies, and normal transmission ratings for base case conditions.

3. The most positively and negatively influential generators affecting any transmission limit were considered to be unavailable.

4. PARs were assumed fixed at base case settings initially, and then adjusted if necessary to relieve overloads without causing other overloads.

5. Only peak load conditions were evaluated.

Intra-Zonal Screening Study Results

It appeared that current generators in New York State (2004 Existing System Case), and those generators in the current class years 2001 through 2004 with planned transmission reinforcements (2009 Planning Case) are deliverable through the New York zones over the bulk power system for the conditions tested. Attaining this deliverability required the reasonable adjustment of tie assistance and available flow control equipment for one potential overload as shown in Table 5 below.

The deliverability analysis process was found to be capable of undertaking this assessment without undue complexity and data collection. The process requires experience and expertise in its application, but tests can be reasonably, transparently, and consistently undertaken. Though the analysis could be undertaken with linear load flow software, for this study special software was applied to commercial software to help streamline the analysis. If the NYISO is to utilize this process on an ongoing basis, further refinement of the process, models and assumptions is desirable. As is the case with the inter-zonal study, a critical review of the process and assumptions is necessary as well as a period of time for the fine-tuning of the analysis.

Table 5

New York Intra-Zonal Deliverability Test Results
Facilities Requiring Grid Adjustment to Assure Deliverability

Potential Thermal Limit	Zonal Location	2004 Operating Case Relieved By		2009 Planning Case Relieved By	
		PAR or Tie Adjustment	Scenario Judged as an Unrealistic Capacity Transfer Condition*	PAR or Tie Adjustment	Scenario Judged as an Unrealistic Capacity Transfer Condition*
Leeds - Pleasant Valley 345 kV	Capital - Zone F		✓		
Farragut - Transtap 345 kV	NYC - Zone J			✓	

Shaded cells indicate the facility was not a potential problem for that case
* Unrealistic amount of transfer or transfer direction was the potential problem condition

Attachment 3

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc.) Docket No. ER04-449-____

NOTICE OF FILING

Take notice that on February 7, 2005, the New York Independent System Operator, Inc. ("NYISO"), Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange & Rockland Utilities, Inc., and Rochester Gas & Electric Corporation (collectively, "Joint Rehearing Parties") submitted a compliance filing in the above-captioned proceeding.

The NYISO has served a copy of this filing on all parties on the official service list compiled by the Secretary in this proceeding.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. Anyone filing a motion to intervene or protest must serve a copy of that document on the Applicant. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at http://www.ferc.gov. Persons unable to file electronically should submit an original and 14 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426.

This filing is accessible on-line at http://www.ferc.gov, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, D.C. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email FERCOnlineSupport@ferc.gov, or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

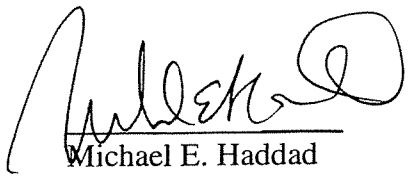
Comment Date:

Magalie R. Salas
Secretary

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 7th day of February, 2005.



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