

Attachment A

September 8, 2000

BYHAND

The Honorable David B. Boergers
Secretary
Federal Energy Regulatory Commission
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Combined Compliance Filing and Report

The New York Independent System Operator, Inc. (“NYISO”), hereby respectfully submits this combined compliance filing and report (“Report”) pursuant to: (i) Ordering paragraph “C” of the Commission’s May 31, 2000 order in Docket Nos. ER00-1969-000, EL00-57-000, EL00-60-000, EL00-63-000 and EL00-64-000, directing the NYISO to revise a number of features of its 10-minute operating reserves markets (“Reserves Order”);¹ (ii) Ordering paragraph “B” of the Commission’s June 30, 2000 order in Docket No. EL00-67-000, rejecting allegations made by Strategic Power Management, Inc., but directing the NYISO to enhance its presentation of cost information to market participants (“SPM Order”);² (iii) Ordering paragraph “B” of the Commission’s July 25, 2000 order in Docket No. ER00-2624-000, instructing the NYISO to report on its use of its Temporary Extraordinary Procedure (“TEP”) authority (“TEP Order”);³ (iv) Ordering paragraph “D” of the

¹ *New York Independent System Operator, Inc.*, 91 FERC ¶61,218 (2000); *reh’g pending*.

² *Strategic Power Management, Inc. v. New York Independent System Operator, Inc.*, 91 FERC ¶61,338 (2000).

³ *New York Independent System Operator, Inc.*, 92 FERC ¶61,051 (2000).

Commission's July 26, 2000 order in Docket Nos. ER00-3038-000, EL00-70-000 and EL00-70-001 imposing bid caps on several of the NYISO-administered markets and directing the NYISO to report on its efforts to correct certain market flaws ("Bid Cap Order");⁴ and (v) Ordering paragraph "B" of the Commission's July 26, 2000 Order in Docket No. EL00-82-000, rejecting a complaint by Niagara Mohawk Energy Marketing, Inc. ("NMEM") and ordering the NYISO to report on its progress addressing a software flaw affecting export transactions ("NMEM Order").⁵

The NYISO has made considerable progress towards eliminating the market design and software flaws that led to a number of problems in its first months of operations. Corrective actions undertaken by the NYISO have generally worked well and, in most cases, have not had unexpected adverse consequences. The NYISO has also successfully passed through most of the peak demand summer months without encountering major market or reliability problems, although the NYISO recognizes that it has benefited greatly from unusually temperate summer weather.⁶ In addition, as NYISO staff has gained experience, and grown in size, its ability to address known problems effectively and to anticipate new ones has increased greatly. On the whole, the performance of the NYISO-administered markets has improved substantially in recent months. For example, the frequency of price corrections continues to drop, the NYISO's software has been modified to rationalize its treatment of export transactions, and the number and size of multi-unit bidding blocks has been greatly reduced.

However, the NYISO also understands that its efforts to improve its markets are by no means complete, and that participants in the NYISO-administered markets are still adversely affected by

⁴ *New York Independent System Operator, Inc.*, 92 FERC ¶61,073 (2000).

⁵ *Niagara Mohawk Energy Marketing, Inc. v. New York Independent System Operator, Inc.*, 92 FERC ¶ 61,060 (2000).

⁶ On the other hand, the NYISO-administered markets were also under unusual pressure on account of the unavailability of a major nuclear generating unit.

market flaws. The NYISO is working hard to correct all remaining market flaws as quickly as possible. For example, it is aggressively pursuing the development of robust demand-side response mechanisms which it has committed to implement prior to next summer. In conjunction with this effort, the NYISO has created a task force comprised of NYISO staff and market participants to address this issue on an expedited basis. The NYISO is addressing the problems that have caused the hour-ahead price forecasts developed by its Balancing Marketing Evaluation (“BME”) software to deviate from real-time prices, and is considering short-term proposals that would mitigate the economic problems BME’s inaccurate price predictions have been causing in the interim.⁷ Moreover, the NYISO staff has identified certain, previously undetected market flaws that it believes have resulted in substantial increases in Bid Production Cost Guarantee (“BPCG”) charges over the past few months, and is in the process of determining the best means of eliminating them. At the same time, the NYISO is pursuing additional improvements, *e.g.*, encouraging the development of trading hubs and multi-settlement reserves markets, that will enhance the efficiency of the markets it administers beyond what was contemplated by its original market design.⁸

In short, the NYISO remains confident that its market design is fundamentally sound and will be the foundation for a fully successful competitive marketplace. More remains to be done, but substantial progress has already been made, and more can be expected in the near future. The NYISO looks forward to continuing to work with its market participants, the Commission and the New York State

⁷ See *infra* Part VI.B.11(a).

⁸ The relative priority of developing market improvements vis-a-vis correcting market flaws is determined by the NYISO staff and the committees. The priority that has been assigned to all current NYISO projects is indicated on the “NYISO Issues/Concept Management List” appended to this Report as Attachment X.

Public Service Commission to find ways to ensure that all stakeholders enjoy the benefits of wholesale electric competition.

I. Documents Submitted

1. This filing letter, describing the NYISO's compliance efforts and setting forth its compliance report;
2. A letter from the Northeast Power Coordinating Council ("NPCC") to the North American Electric Reliability Council regarding the acceptability of counting capacity which can be made available by curtailing pumped hydro units as spinning reserves ("Attachment I");
3. Clean tariff sheets setting forth the NYISO's proposed tariff modifications pertaining to the self-supply of operating reserves, the implementation of locational reserve clearing prices, lost opportunity cost payments and proposed transitional mitigation measures applicable to suppliers of 10-Minute Non-Synchronized Reserves located east of the Central-East interface ("Attachment II");⁹
4. Revised tariff sheets setting forth the NYISO's proposed tariff modifications pertaining to the self-supply of operating reserves, the implementation of locational reserve clearing prices, lost opportunity cost payments and proposed transitional mitigation measures applicable to suppliers of 10-Minute Non-Synchronized Reserves located east of the Central-East interface ("Attachment III");¹⁰
5. Technical paper describing the calculation of locational reserve clearing prices ("Attachment IV");

⁹ To gain additional time to resolve certain tariff issues with affected market participants the NYISO opted to omit these tariff sheets from the September 1 filing and to include them instead in the September 8, 2000 corrected version of the Report. The NYISO believes that this delay was beneficial inasmuch as it was able to build support for its proposed tariff changes. The NYISO has separately sought leave to submit these tariff sheets out of time.

¹⁰ See *supra* n. 9.

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6. Affidavit of James H. Savitt (“Attachment V”);
7. Affidavit of Ricardo T. Gonzales (“Attachment VI”);
8. The NYISO’s proposed enhanced Information Presentation (“Attachment VII”);
- 9A. The NYISO’s report on June 2000 price corrections. (“Attachment VIII-A”);
- 9B. The NYISO’s report on July 2000 price corrections (“Attachment VIII-B”);
- 9C. The NYISO’s report on August 2000 price corrections (“Attachment VIII-C”);
- 9D. Graph depicting real-time market LBMP price reservations and corrections (“Attachment VIII-D”);
- 9E. Graph depicting percentage of the NYISO-administered markets conducted in real-time from November 23, 1999 to August 26, 2000 (“Attachment VIII-E”);
10. The NYISO’s Interim Report on Hydro Quebec Import Evaluation (“Attachment IX”);
11. The August 30 version of the NYISO Issues/Concepts Management List (“Attachment X”);.
12. NYISO Press Release announcing the correction of software problem responsible for erroneous export curtailments (“Attachment XI”); and.
13. Form of *Federal Register* Notice (“Attachment XII”).

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II. Copies of Correspondence

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III. The NYISO's Compliance with the Reserves Order

A. Background

In the Reserves Order, the Commission accepted some aspects and rejected other aspects of the NYISO's proposal to temporarily mitigate competitive problems in its 10-Minute Reserves markets. In particular, the Commission authorized the NYISO to implement a mandatory bidding requirement for suppliers of 10-Minute Non-Synchronized Reserves ("NSR") located east of the often constrained Central-East interface. It also permitted the NYISO to impose a \$2.52 (plus lost opportunity costs) bid cap on such suppliers. The Commission also directed the NYISO to develop a solution to its reserve market problems no later than September 1. Specifically, the NYISO was instructed to address:

- (1) procuring reserves located west of the Central-East constraint when the transmission system is not constrained;
- (2) setting aside transmission capacity for reserves located west of the Central-East constraint when it leads to lower overall costs;
- (3) adding the Blenheim-Gilboa pumped storage facility to its software for spinning and non-spinning reserves;
- (4) devising a plan to allow customers to self supply; and
- (5) a review of the

costs incurred to meet local reliability rules being paid by customers in those local areas compared to all customers state-wide.¹¹

In its June 30 *Preliminary Compliance Filing and Limited Request for Clarification* (“Preliminary Compliance Report”) the NYISO sought clarification of “(5),” explaining that it interpreted the Reserves Order to require a review of existing cost recovery arrangements for state-wide reliability rules with locational effects. The Reserves Order also directed the NYISO to address allegations that certain generating units on Long Island were essentially operating as must-run units, unchecked by mitigation, and were allowed to set state-wide clearing prices. In addition, the Reserves Order invited the NYISO to address other issues.

Since the issuance of the Reserves Order, the NYISO has worked closely with a volunteer working group of market participants to develop a compliance plan, determine which solutions would be feasible and to develop the market improvements described in this Report. Although various market participants disagree with particular aspects of the NYISO’s approach, the NYISO’s proposed solutions have received the requisite committee approvals.

B. Compliance Report

The NYISO will implement a number of market improvements by November 1 which it believes will permit the removal of the interim bid cap on eastern suppliers of 10-Minute NSR. However, because ownership of 10-Minute NSR will remain substantially concentrated even after the NYISO’s improvements are in place, the NYISO has not been able to conclusively determine that its reserves markets will be workably competitive under all of the conditions they will encounter. The NYISO therefore recommends that the removal of the interim cap on 10-Minute NSR bids be made expressly contingent upon: (i) the successful implementation of all of the NYISO’s proposed short-term

¹¹ Reserves Order, *slip op.* at 32.

market improvements; (ii) the retention of the existing mandatory bidding requirement for eastern 10-Minute NSR suppliers during a transitional market evaluation period; (iii) the Commission permitting the NYISO to gradually remove the existing \$2.52/MWh (plus lost opportunity costs) interim bid cap, by increasing it to \$15/MWh (plus lost opportunity costs) effective November 1, 2000, to \$30/MWh (plus lost opportunity costs) on January 1, 2001, and to eliminate it completely on May 1, 2001;¹² and (iv) the NYISO's ability to make vigorous use of its market monitoring authority to mitigate the exercise of residual market power in the NSR portion of its reserves markets, even at price levels below the maximums that will be allowed as the interim bid cap is gradually lifted.

1. Procuring Reserves Located West of Central-East When the New York State Transmission System Is Not Constrained

The Reserves Order directed the NYISO to “develop procedures to maximize access to western suppliers of 10 minute reserves.”¹³ More specifically, the NYISO was instructed to address “procuring reserves located west of the Central-East constraint when the transmission system is not constrained.”¹⁴

In compliance with the Commission's directive, the NYISO has reviewed the frequency and extent of constraints at Central-East that it has observed in real-time operations during June, 2000.¹⁵

¹² The request that the interim bid cap be lifted gradually originated with the Management Committee and was not part of NYISO staff's original proposal. Nevertheless, NYISO staff willingly defers to the wishes of the participants in the NYISO-administered markets and supports the request.

¹³ May 31 Order, *slip op.* at 14.

¹⁴ May 31 Order, *slip op.* at 31.

¹⁵ June was chosen because it is a transitional month, with highly varied weather in which the New York Control Area experiences a variety of transmission system conditions. NYISO staff therefore believes that June is reasonably representative of conditions during the rest of the year. This approach was accepted by the NYISO's volunteer reserves working group.

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This review indicates that Central-East was constrained approximately 80% of the time and established that the need to procure additional 10-Minute Reserves for the Central-East transmission constraint could not be predicted in the day-ahead or hour-ahead market in advance of real-time. It is therefore impractical, in the short-term, to develop automated or manual procedures that would permit the NYISO to rely on western supplies when there is no anticipated congestion at Central-East, because congestion is so frequent and intervals without congestion are difficult to anticipate. NYISO staff is, however, separately studying the possibility of developing transmission optimization procedures in conjunction with its effort to find a way to set-aside transmission capacity for use by reserves suppliers. These studies may make it possible to overcome the difficulty of anticipating when transmission capacity will be available for reserves suppliers in real-time, in which case the NYISO staff will attempt to introduce a mechanism that would allow it to make use of western suppliers during intervals that Central-East is uncongested.

Moreover, the NYISO is actively considering relaxing its locational operating reserve criteria.¹⁶ A study of the NYISO's current locational operating reserve requirement criteria is nearing completion, and the NYISO staff expects it will be possible to reduce the eastern New York and Long Island locational reserve requirements. No tariff changes will be necessary to implement these reductions, but they must be reviewed by the System Operations Advisory Subcommittee ("SOAS") and Operating Committee ("OC"). The NYISO staff will work with these committees to ensure that uniform criteria are applied in establishing locational requirements and that local reliability rules are not being allowed to define standards for the reliable operation of New York's bulk transmission system. As soon as this review process is complete, and prior to November 1, 2000, the NYISO will file a status report

¹⁶ NERC rules preclude the NYISO from altering the total 1200 MW New York Control Area reserves requirement.

informing the Commission of the final reductions. Lowering the requirements will reduce barriers to participation by western suppliers in the NYISO reserves markets, and will help to make the 10-Minute NSR portion of the market less concentrated.

Finally, as was discussed in the Preliminary Compliance Report, the NYISO has evaluated the use of a “latent reserve” mechanism intended to ensure that reliability east of Central-East was not threatened during times that Central-East is constrained. “Latent reserve” represents the unpaid operating reserve available on New York Control Area generating units at any given time. Unfortunately, because the NYISO has no tariff rights or expectation with respect to “latent reserves,” it concluded that it would be inappropriate to count on them for reliability purposes.

2. Setting Aside Transmission Capacity for Reserves Located West of Central-East When It Leads to Lower Overall Costs

The Reserves Order directed the NYISO to address “setting aside transmission capacity for reserves located west of the Central-East constraint when it leads to lower overall costs.”¹⁷ The NYISO has studied this issue and determined that it is possible, in principle, to design a system that would substitute transmission capacity for locational operating reserves. It is also possible that there will be circumstances where setting aside transmission capacity for reserves would minimize overall bid production cost. Implementing scheduling systems that would enable the NYISO to successfully optimize the use of transmission capacity for energy and reserves would, however, require substantial software modifications that cannot be implemented in the near term.¹⁸

¹⁷ Reserves Order, *slip op.* at 28.

¹⁸ The NYISO has considered a number of shorter-term options for instituting a transmission capacity optimization system but has concluded that they would result in additional transmission congestion which would adversely affect the energy market.

The NYISO staff and a number of market participants believe that the benefits of adopting a transmission optimization system may, as a practical matter, be relatively modest, especially in comparison to the benefits of restoring the bidding flexibility of the Blenheim-Gilboa Pumped Storage Facility and implementing locational reserve clearing prices (see below.)¹⁹ On the other hand, a number of market participants believe that optimizing the use of the NYISO's transmission system for both energy and reserves would bring important benefits. Such an optimization procedure could help to dampen price spikes in the event that the reserves markets were to cease temporarily to be workably competitive. More generally, the NYISO staff agrees that market participants should have the flexibility to set aside transmission capacity rights for reserves if they see fit to do so, and are willing to pay the associated costs. Finally, the NYISO will need to have some sort of transmission optimization capability in order to implement the more advanced self-supply options described *infra* in Section 4.

Accordingly, the NYISO staff has committed to study three different proposals that would permit market participants to obtain transmission capacity at the Central-East interface for reserves. They are: (i) allowing a market participant to reserve transmission capacity at Central-East for the delivery of reserves, which would reduce the total available capacity at the interface, provided that it pays the applicable transmission usage charge ("TUC"); (ii) providing for the simultaneous optimization of transmission for energy and reserves (in which case TUC charges for the use of the capacity would become part of the cost of reserves paid by all Load-Serving Entities); and (iii) simultaneously contracting for redundant reserves on both sides of Central-East, paying the western supplier when the

¹⁹ Assuming that the reserve markets are workably competitive in the future, reserve clearing prices should generally be lower than energy clearing prices and it would thus often be economically irrational to set aside scarce transmission capacity for reserves when it could be used to support energy transfers. However, it could be economically rational to use transmission capacity for reserves when the difference between reserves prices on both sides of Central-East was greater than the difference between eastern and western energy prices.

interface is not congested and paying the eastern supplier when it is congested. The NYISO staff has pledged to complete scoping studies of these three proposals by December 1. It will work with the market participant committees to determine which of the three should be pursued, determine the relative priority of the effort vis-a-vis other projects, create an implementation timetable, and develop software and procedures, as appropriate. The NYISO Staff has not yet determined whether tariff changes would be required to institute any of these transmission optimization procedures,²⁰ although extensive software modifications will clearly be required. The NYISO proposes to file a report informing the Commission of its progress in this area no later than May 1, 2001.

3. Modifying the NYISO's Software to Add the Blenheim-Gilboa Pumped Storage Facility as a Supplier of Spinning and Non-Synchronized Reserves

The Blenheim-Gilboa Pumped Storage Project ("Blenheim-Gilboa"), which is located east of the Central-East constraint, consists of four 250 MW units that can be used either to operate Blenheim-Gilboa's pumps ("pumping mode"), or to generate energy for external sales ("generating mode."). Each unit can start-up from standstill mode in approximately 90 seconds and can switch between pumping and generating mode in 30 minutes. However, a pump can be tripped and an idle unit can be started as a generator in 90 seconds. Blenheim-Gilboa cannot pump and generate at the same time, but the New York Power Authority ("NYPA") has always tripped pumps and run Blenheim-Gilboa units as generators to assist the NYISO with system control.

Prior to NYISO start-up, the New York Power Pool ("NYPP") treated the Blenheim-Gilboa units as a source of reserves and called upon each of them independently. However, as was discussed in detail in Docket Nos. EL00-63-000 and EL00-64-000, the NYISO's original software modeled the

²⁰ However, certain market participants believe that tariff changes would be necessary. The NYISO staff has not completed its review of this question.

entire Blenheim-Gilboa complex as a single unit and scheduled it either for generation or pumping, but not both. The NYISO was thus prevented from taking full advantage of Blenheim-Gilboa's capabilities as a reserves supplier.

The Reserves Order directed the NYISO to modify its software as quickly as possible to permit Blenheim-Gilboa to submit 10-Minute Spinning and 10-Minute NSR bids in accordance with its actual operating parameters.²¹ In its Preliminary Compliance Report the NYISO indicated that it had already completed the software changes required for Blenheim-Gilboa to be modeled as four individual units and to allow the units to bid separately submit both 10-Minute Spinning and NSR bids when they are in generating or standstill mode. The NYISO is pleased to report that it recently finished the programming work on software modifications that will enable the Blenheim-Gilboa units to bid into all three reserves markets when in pumping mode. Testing and final implementation will be completed no later than November 1. When this final change is implemented, each of the four Blenheim-Gilboa units will be able bid to supply 10-Minute Spinning Reserves, 10-Minute NSR and 30-Minute Reserves regardless of whether they are in standstill, pumping or generating mode. However, as a practical operational matter, the NYISO expects that Blenheim-Gilboa will bid approximately 250 MW of 10-Minute reserves at all times and may supply as much as 500 MW.

At the August 9th meeting of the Reserve Working Group, one market participant suggested that counting pumped storage units in pumping mode as spinning reserves might be inconsistent with NERC's definition of "synchronized reserves" and thus might contravene NERC policy. The NYISO understands this concern but does not believe that NERC policy will impede its implementation of necessary software modifications. The Northeast Power Coordinating Council considers "capacity which can be made available by curtailing pumping hydro units" to be "synchronized reserve" and is

²¹ Reserves Order, *slip op.* at 14, 31.

currently working with NERC to resolve their differences on this issue.²² The NYISO is participating in these discussions and is confident that they will be resolved in a manner that will allow it to take full advantage of Blenheim-Gilboa's capabilities.

The NYISO expects that the restoration of Blenheim-Gilboa as a potential supplier of 10-Minute NSR will substantially reduce concentration levels among NSR suppliers. Expressed in Herfindahl-Hirshman Index terms the reintroduction of Blenheim-Gilboa's scheduling flexibility effect will reduce the concentration of ownership of units capable of providing 10-Minute NSR, which is currently 4,031, by more than 1,000 HHI points. Thus, although Blenheim-Gilboa's presence alone is likely insufficient to ensure that the 10-Minute NSR suppliers cannot exercise market power, its participation will increase competition among 10-Minute NSR suppliers.²³

4. Providing for Self-Supply Outside of the NYISO Market Structure

The Reserves Order directed the NYISO to work with the market participants to devise a plan that will "permit its customers to self-supply outside of the NYISO market."²⁴ In the short term, the NYISO proposes to begin to comply with this requirement by clarifying its tariff to affirm that transmission customers may enter into day-ahead financial transactions, *e.g.*, contracts for differences, to hedge against wholesale price volatility. In addition, the NYISO staff is working with market participants to investigate the feasibility and benefit of retaining a third-party to create a forward market that would expand market participants' hedging options.

²² See Attachment I.

²³ The NYISO staff understands that some market participants object to the use of HHIs as a market power standard in this context. However, NYISO staff believes that HHIs are a helpful indicator of the level of concentration of ownership of resources capable of supplying 10-Minute NSR.

²⁴ Reserves Order, *slip op.* at 26, 31.

As part of its obligation to devise a self-supply plan, the NYISO is also examining the feasibility of developing more advanced self-supply mechanisms that could be available after November 1. Both options would permit a Load-Serving Entity (“LSE”) located east of Central-East to procure reserves from a western supplier. The first option involves many of the same elements as, and could be implemented in conjunction with, transmission optimization proposal “(i).” Under this proposal, LSEs would arrange day-ahead bilateral transactions for reserve energy with reserved transmission capacity from a “remote” supplier, located on the other side of Central-East, delivered at a virtual load bus in the required reserve location. Transmission limits would ordinarily be reduced in real-time to reserve capacity for delivery of the reserve energy. During reserve pickups the transmission limit would be increased back to its original value, and the remote supplier providing the reserve energy would be ramped up. The second option closely corresponds to transmission optimization proposal “(iii).” Under this proposal, LSEs would arrange bilateral transactions from both a remote supplier and a “local” supplier, *i.e.*, a supplier located on the same-side of Central-East as the LSE, for Day-Ahead “reserve energy.” LSEs would be required to pay TUCs in connection with both transactions. Each reserve supplier would deliver at a “virtual load” bus in the required reserve location. The NYISO’s²⁵ software would then, with the help of a number of as-yet undeveloped upgrades, dynamically reduce the real-time operating limit on either the remote or local supplier to ensure that reserves can be delivered, and to allow the use of western reserves when sufficient transmission capacity exists to make it possible to do so.

²⁵ SCD is a computerized algorithm that performs the NYISO’s real time dispatch by evaluating the New York Control Area contingency set against the system conditions expected for the next 5 minutes, or a shorter period under certain circumstances. SCD’s results are a key input in the calculation of real-time market-clearing prices.

Implementing either of these proposals would necessitate substantial software modifications and will consequently take time to implement. The NYISO staff will work closely with the Business Issues Committee (“BIC”) to determine which of the two proposals should be adopted, to determine the relative priority of the self-supply mechanisms, and to develop an implementation timetable. The NYISO proposes to submit a report to the Commission describing its progress in this area no later than May 1, 2001. In addition, implementing either of the self-supply proposals would require tariff changes which would have to be approved by the committees.

The NYISO believes that these efforts, taken together, satisfy its obligation to “devise a plan” to facilitate self-supply. The NYISO would prefer to be in a position to implement the more advanced self-supply mechanisms immediately.²⁶ However, as a technical matter, it must develop virtual load bidding and transmission optimization mechanisms, in at least some rudimentary form, before it will be able to introduce one of the advanced self-supply options.

Ultimately, the NYISO staff believes that the introduction of advanced self-supply mechanisms will bring benefits, but that these benefits will be less significant than those associated with the restoration of Blenheim-Gilboa and the implementation of locational reserve prices. The NYISO staff believes that a number of market participants share this view. Nevertheless, the NYISO staff will fully comply with the Commission’s self-supply directive and will work diligently to realize the greatest possible benefits from self-supply.

²⁶ The NYISO is aware that the Commission has also directed ISO New England to develop reserve self-supply mechanisms in a market context that will eventually include a multi-settlement system. *See ISO New England, Inc., et. al.*, 91 FERC ¶ 61,311 (2000). The NYISO will be watching developments in New England closely to see if other approaches to introducing self-supply mechanisms are possible.

5. Reviewing Existing Cost Recovery Arrangements for State-Wide Reliability Rules with Locational Effects

The Reserves Order instructed the NYISO to review whether the cost-recovery arrangements for state-wide reliability rules that have locational effects should be revised.²⁷ The NYISO has examined this issue and concluded that it is appropriate to revise its tariff to provide for the payment of “locational reserve prices” to suppliers when the Central-East or Long Island interfaces are constrained. This system will prevent eastern and Long Island suppliers from setting the state-wide market-clearing price for operating reserves during periods when constraints effectively divide the state into separate markets. However, when these constraints are not “binding” all suppliers will be paid the same state-wide market-clearing price. Attachment IV is a technical paper, prepared by the NYISO’s economic consultants, which describes how locational reserve payments will be calculated in more detail.

Instituting a locational reserve pricing system will avoid artificial increases in the total cost of reserves and will limit the impact of any gaming or exercise of local market power that may occur. Locational reserve pricing will also send the proper economic signals to potential reserve suppliers, indicating where reserves are most valued, and will increase the competitiveness of the NYISO-administered reserves market. In addition, the establishment of locational reserves pricing procedures is a necessary pre-requisite to the creation of systems that will optimize the use of Central-East transmission capacity for energy and reserves. The NYISO will complete and test all necessary software changes in the next few months and, assuming Commission approval, will implement locational reserves pricing on November 1.

For the time being, the NYISO does not propose to modify the way in which the total cost of reserves is allocated among transmission customers, *i.e.*, it does not intend to implement a locational

²⁷ Reserves Order, *slip op.* at 31.

system of payments by reserves customers. Such a change would require extensive negotiations among market participants before any software changes could be undertaken. However, the NYISO staff and the committees will study the feasibility and desirability of developing such a system and may make a future filing on this subject.

At its August 25, 2000 meeting, the Management Committee approved the NYISO's proposal to institute the use of locational reserves clearing prices by a 94% affirmative vote.

6. Ensuring that Reserve Shortages On Long Island Do Not Set Prices State-Wide

The Reserves Order directed the NYISO to address concerns that its current rules inappropriately permitted certain Long Island generating units that were essentially "must-run" units, but were not subject to any form of mitigation, to establish state-wide market-clearing prices.²⁸ Analysis of the supply situation on Long Island indicates that there is potential for local market power to set the price of reserves. The NYISO has included a special mitigation measure in its proposed locational reserves pricing system to ensure that whenever a Long Island reserve requirement is binding, the market-clearing price paid to Long Island suppliers will be no higher than the market-clearing price paid to non-Long Island suppliers located east of Central-East. NYISO staff believes that restricting Long Island reserves prices in this way will help to dampen any incentive that Long Island reserve suppliers may have to pursue gaming strategies or to exercise local market power. As part of this proposal, BPCG payments resulting from the commitment of Long Island resources to meet Long Island-specific problems would be borne by Long Island consumers. The NYISO views the Long Island specific mitigation measures as a transitional device which will ultimately be removed when the Long Island portion of the market ceases to be subject to local market power.

²⁸ Reserves Order, *slip op.* at 27.

At its August 25, 2000 meeting, the Management Committee approved this aspect of the NYISO's locational reserves pricing proposal by a 94% affirmative vote.

7. Additional Short-Term Measures

In the Reserves Order, the Commission encouraged the NYISO to "consider any other measures that would help alleviate the market problems discussed in this order . . .," in addition to those that NYISO was explicitly required to address. Accordingly, in this Section 7, the NYISO describes two additional short-term market improvements that it will implement in the near future. The NYISO discusses three longer-term improvements *infra* in Section 9.

A. Recognizing Additional 10-Minute Spinning Reserves Resources

There are a number of non-synchronized generating resources located east of Central-East that are capable of providing a substantial portion, but not all, of their total capability on ten minutes notice. Currently, software limitations require such resources to choose between supplying a small amount of potentially very valuable 10-Minute Reserves or a larger amount of potentially less valuable 30-Minute Reserves. The NYISO believes that this limitation artificially depresses the amount of available 10-Minute NSR and exacerbates the concentration problems that exist east of Central-East in the NSR portion of the NYISO-administered reserves markets. Accordingly, the NYISO intends to develop a methodology to permit resources to supply that portion of their total capability which is capable of loading on ten minutes notice as 10-Minute NSR. For example, a 40 MW combustion turbine that can produce 25 MW within 10 minutes and the full 40 MW within 30 minutes would be allowed to provide 25 MW of 10-Minute NSR and 15 MW of 30-Minute Reserves. The NYISO expects that the software change will make at least an additional 200 MW of 10-Minute NSR available east of Central-East. To the extent that this new change attracts new suppliers it will reduce concentration levels in the 10-Minute NSR portion of the reserves market. Moreover, to the extent that incumbent suppliers are

able to provide more reserves the addition of new supply east of Central-East will be beneficial, at least for so long as a mandatory bidding requirement remains in effect.

The NYISO staff will work with the committees to flesh out the details of the software changes. No tariff revisions will be required to implement this modification. The NYISO hopes to complete its review of the necessary changes by November 1, 2000 and anticipates that they will be implemented before the start of the 2001 Summer Capability Period (*i.e.*, May 1, 2001).

In addition, the NYISO staff expects that certain suppliers will soon refit existing generating units, that are not currently providing reserves, to enable them to supply 10-Minute NSR. These changes could introduce several hundred additional MWs of 10-Minute NSR, regardless of whether the NYISO implements the software changes described above. The NYISO suspects that at least some of these new resources may be available before the beginning of the 2001 Summer Capability Period, and that at least some of these resources may be owned by entities that have not previously provided 10-Minute NSR in the NYISO-administered markets.²⁹

B. Paying Lost Opportunity Costs to Suppliers of 10-Minute Non-Synchronized Reserves

The current version of the NYISO's Services Tariff does not provide for lost opportunity cost payments to 10-Minute NSR suppliers on a permanent basis, *i.e.*, its lost opportunity cost provision was adopted as a temporary measure in response to the requirements of the Reserves Order pursuant to the NYISO's June 15 compliance filing in Docket No. ER00-1969-001. Given that 10-Minute Spinning Reserves suppliers receive such payments the NYISO believes that it is unfair not to pay lost

²⁹ The NYISO staff does not believe that either the gradual removal of the interim bid cap, or the possibility that it will use market mitigation measures against 10-Minute NSR suppliers will deter entry by non-incumbent suppliers.

opportunity costs to 10-Minute NSR suppliers insofar as doing so artificially penalizes entities that choose to provide 10-Minute NSR.

Accordingly, Attachment II to this filing includes proposed tariff changes that would add a lost-opportunity cost component to the compensation paid to 10-Minute NSR suppliers. The new lost opportunity cost formula is identical to the NYISO's revised lost opportunity cost formula for 10-Minute Spinning reserves suppliers.³⁰ Attachment II proposes that this formula be made retroactive to May 31, 2000, in order to conform to the effective date that the NYISO proposed in its June 15 filing.

The NYISO believes that the changes it has made to the June 15 version of its lost opportunity cost formula address the concerns raised by the Long Island Power Authority and its subsidiary, LIPA, in their prior "limited protest" of the June 15 filing.³¹ Similarly, the revised formula clarifies that lost opportunity cost payments for unscheduled gas turbine capacity will be tied to the total capacity of each unit, once the NYISO implements a software change that will permit it to choose between 10-Minute NSR suppliers that submit equal bids on a non *pro rata* basis. Until this change is in place, lost opportunity costs payments will be tied to the size of the NYISO's 10-Minute NSR largest gas turbine.³² The NYISO believes that this change will address the concerns raised by Keyspan-Ravenswood, Inc. in its July 6th protest of the June 15th filing.³³

³⁰ The NYISO has also proposed a tariff change to correct an error in the lost-opportunity cost formula for 10-Minute Spinning reserves suppliers.

³¹ See *Limited Protest of the Long Island Power Authority and LIPA To Compliance Filing ("Limited Protest")*, Docket No. ER00-1969-001 (July 6, 2000).

³² The largest gas turbines in the New York Control Area are located at the Wading River facility. Each of these turbines has a maximum generating capacity of approximately 76 MW.

³³ See *Protest of KeySpan-Ravenswood, Inc.*, Docket No. ER00-1969-001 (July 6, 2000).

At its August 25th Meeting, the NYISO's Management Committee approved this proposal with a 100% affirmative vote.

8. Proposal for Lifting the Interim Cap on 10-Minute NSR Bids

The NYISO believes that the short-term market improvements to be implemented by November 1 will enhance the competitiveness of its reserves markets. The NYISO also expects that the longer-term measures it expects to implement after November 1, 2000 will further strengthen those markets. Nevertheless, the NYISO respectfully submits that prudence dictates a cautious approach to lifting the interim cap on 10-Minute NSR bids. Although the NYISO staff believes that the NSR portion of the reserves market should be workably competitive under many different conditions, it cannot be certain that the 10-Minute NSR portion of the market will be workably competitive under all conditions. Even when the NYISO's short-term improvements are in effect, ownership of 10-Minute NSR will remain substantially concentrated.³⁴ Recent experience, from New York and elsewhere, demonstrates that market design flaws in already concentrated markets can lead to severe economic disruptions. Such market design flaws can be difficult or impossible to detect until a market has actually been up and running for some time. There is even greater cause for concern with respect to the 10-Minute NSR portion of the market, where high ownership concentration levels have led to problems in the past.

Nevertheless, the NYISO believes that it would be acceptable to eliminate the interim \$2.52/MWh (plus lost opportunity costs) bid cap on November 1, provided that: (i) the various short-term market improvements described above are successfully implemented; (ii) the Commission allows the mandatory bidding requirement for eastern suppliers to remain in place during a transition period; (iii)

³⁴ The NYISO staff's assessment of the competitiveness 10-Minute NSR, 10-Minute Spinning and 30-Minute reserves markets, is set forth in the Affidavit of James H. Savitt. *See* Attachment V.

the Commission permits the interim bid cap to be lifted gradually, in order to guard against the possibility of sudden price spikes; and (iv) the Commission permits the NYISO to use its market power monitoring and mitigation authority even when prices are below the maximum levels allowed under the gradually increasing bid cap.

The NYISO has carefully evaluated the competing considerations associated with the re-opening of the 10-Minute NSR portion of its reserves markets and concluded that it is appropriate to ask the Commission to allow the gradual removal of the interim bid cap, provided that the safeguards listed above, and described in greater detail below, are in place. Until recently, the NYISO staff believed that it might be necessary to petition the Commission to retain the interim bid caps and a mandatory bidding requirement for at least six more months. Indeed, NYISO staff took that position as recently as the August 9th meeting of the Reserve Working Group. Three factors have subsequently led the NYISO to move away from this view. First, the NYISO staff recognized that it would be impossible to know whether its market improvements are succeeding until the interim cap is lifted and its improvements are put to the test. The request for a gradual lifting of the interim bid cap adopted by Management Committee should not conflict with this objective because it would rely on much higher transitional caps. Second, the NYISO staff was concerned about the potentially adverse long-term effects of bid caps and was concerned that simply leaving the interim bid caps in place might call its ultimate willingness to eliminate them into question. By contrast, the NYISO does not believe that removing the interim bid cap in stages, as recommended by the Management Committee, or the possibility that targeted mitigation measures may be imposed by the NYISO's market monitoring unit, will create the same kind of uncertainty. Third, the NYISO's market monitoring unit, which has grown substantially and gained valuable experience since March, is prepared to vigilantly monitor the 10-Minute NSR market, like any other NYISO-administered market, for evidence of market power

abuses.³⁵ The market monitoring unit has much clearer market power mitigation authority today than it did last winter, when it was awaiting Commission approval of its market power mitigation plan. Moreover, the market-monitoring unit now has a larger staff, and much more experience at using its mitigation tools to prevent market power abuses.

However, because ownership of the 10-Minute NSR remains concentrated, the NYISO believes that it would be inappropriate to lift the interim bid cap if an unexpected problem arises that would prevent the short-term improvements described above from going into effect as scheduled. An example of such a problem would be an unforeseen last-minute complication interfering with Blenheim-Gilboa's timely restoration as a 10-Minute reserves supplier in the pumping mode. In the unlikely event that such a problem were to occur the NYISO would make an immediate filing with the Commission to revise its proposal to reflect the changed facts.

Similarly, continuing the mandatory bidding requirement will ensure that 10-Minute NSR suppliers cannot engage in physical withholding. This will be especially important during the "shoulder" months of late winter and early spring when many generating units will be out on maintenance, raising market concentration levels. The NYISO proposes that this requirement be retained at least until April 30, 2001. The NYISO will review the market's post-November 1, 2000 performance and will report back to the Commission as to whether it believes the requirement should be continued beyond that date. The NYISO proposes to submit this report no later than March 1, 2000 in order to allow the Commission's usual sixty day notice period to run its course.

³⁵ The market monitoring unit will also carefully monitor the BPCG component of supplier payments to ensure that BPCGs do not provide a vehicle to circumvent the transitional bid caps on eastern 10-Minute NSR suppliers for so long as the caps remain in effect.

In addition, the NYISO supports the gradual lifting of the interim cap on 10-Minute NSR bids, as approved by the Management Committee.³⁶ Pursuant to this proposal, the 10-Minute NSR bid cap would be increased six-fold to \$15/MWh on November 1, 2000 and doubled again to \$30/MWh on January 1, 2001. The cap would be eliminated completely after April 30, 2001. Reserves prices would most likely only reach these levels if the NYISO's reserves markets were not functioning in a workably competitive manner. Thus, provided that they were not determined to be legitimate products of the interplay of market forces, such prices would be subject to mitigation by the NYISO's market-monitoring unit. The NYISO also anticipates that having the caps in place for a few months after November 1 will guard against the possibility that a heretofore unknown market flaw will cause a sudden, unexpected reserves price spike before the NYISO's market monitoring unit can react.

Finally, with respect to market power monitoring and mitigation, the NYISO intends to closely monitor the reserves market and 10-Minute NSR prices. Unlike last winter, the NYISO now has unilateral authority, pursuant to Section 3.2(c) of its Market Mitigation Measures, to make a Section 205 filing seeking authorization to apply an "appropriate mitigation measure" for conduct that causes prices to increase 100% or more.³⁷ The NYISO thus can make a filing requesting authority to immediately mitigate 10-Minute NSR bids that have caused the price of 10-Minute NSR to increase by 100% or more over the October 31, 2000 level, *i.e.*, to \$5.04/MWh or higher, if the increase is not attributable to legitimate market forces. In any such filing, the NYISO would be likely to request permission to mitigate bids to a reference level equal to the average price of its bids between June 1 and

³⁶ This aspect of the NYISO's proposal was endorsed by a 62.58% vote of the Management Committee. A 58% vote is required for approval.

³⁷ The NYISO's revised market mitigation measures were approved by the Commission on March 29, 2000 in *New York Independent System Operator, Inc., et. al.*, 90 FERC ¶ 61,317 (2000).

August 31, when bids were capped at \$2.52/MWh (plus lost opportunity costs.) Ideally, the authority to impose such a mitigation measure would dissuade 10-Minute NSR suppliers from gradually bidding prices up to artificially high levels in the hope of avoiding detection by the market monitoring unit for as long as possible, and in the hope of establishing a higher mitigation price if mitigation were imposed.

9. Additional Long-Term Measures

A. Permitting Dispatchable Loads to Provide Reserves

The NYISO hopes eventually to institute software changes and develop market rules that will enable dispatchable loads with real-time metering and time of use pricing to bid into the day-ahead market and supply 10-Minute or 30-Minute Reserves, depending on how quickly they can be dispatched. This improvement would increase the number of reserves suppliers, strengthening competition and helping to avoid price spikes. Its implementation will be coordinated with the NYISO's broader effort to introduce dispatchable load and other demand-responsive mechanisms into the NYISO-administered markets³⁸

B. Establishing Multi-Settlement Reserves Markets

Because the NYISO does not currently administer an imbalance market for reserves it suspects that load serving entities may sometimes be required essentially to pay twice for reserves. The NYISO staff has not completed a review of the magnitude of this potential double-payment problem, which may prove to be relatively limited.

In principle, the double payment problem could arise in two ways. First, it could happen because the selection of reserves suppliers is currently determined on the basis of the sum of suppliers' availability bids and opportunity costs. Reserves are scheduled day-ahead in order to minimize these costs. At the same time, reserves suppliers are currently paid both the market clearing availability bid

³⁸ See *infra* Section V1.B.1.

-New Jersey-Maryland Interconnection, L.L.C. (“PJM”) is conducting a

preliminary analysis of the possibility of creating a combined Northeastern reserves market.³⁹ This project is still in the earliest stages of development but could lead to the creation of a larger northeastern reserves market, which ideally would benefit the NYISO-administered markets by, among other things, increasing supply options east of Central-East. In the nearer term, the NYISO anticipates that this effort would likely lead to the establishment of a broader regional reserves sharing arrangement than is currently in place, which would itself bring substantial benefits.⁴⁰ The NYISO is committed to exploring this possibility with ISO-New England and the Ontario IMO, and will work closely with market participants to find ways to better integrate the northeastern markets.⁴¹

IV. The NYISO's Compliance with the SPM Order

A. Background:

In the SPM Order, the Commission rejected a number of allegations relating to the NYISO's administration of its reserves markets and its rates. However, the Commission also stated that:

[T]he amount of information which the New York ISO provides to market participants regarding Schedule 1 and the other ancillary service charges are limited at this point. We find it reasonable that [market participants] should be able to verify their costs and explain how such costs will translate to their monthly bills. We note that the New York ISO has committed to create a suitable presentation of this information for market participants and we will require the New York ISO to submit this presentation in a filing with the Commission. We expect that the

³⁹ This effort is distinct from the one initiated by a request-for-proposal concerning a preliminary assessment of the feasibility of creating a combined Northeastern day-ahead energy market which was recently jointly issued by the NYISO, ISO New England and the Ontario IMO.

⁴⁰ For example, the NYISO understands that ECAR has a reserve sharing arrangement which permits it to carry only 3500 MW of reserves. By contrast, the four Northeastern ISOs, which have a combined load comparable to ECAR but which lack a reserve sharing arrangement, currently carry approximately 7500 MW of reserves.

⁴¹ The NYISO has also made substantial progress towards increasing the amount of 30-Minute Reserves that can be supplied to the New York Control Area from Hydro Quebec.

New York ISO's presentation will include a method or procedure through which market participants may accurately project their future charges, based on their current consumption of ancillary services.

In compliance with the Commission's directive, the NYISO has worked with market participants active in its Billing and Accounting Working Group ("BAWG") to develop a revised information presentation that satisfies the Commission's criteria. Attachment VII sets forth the NYISO's proposed information specifications and format for the NYISO's daily and month to date cash and MWh reconciliations and its hourly ancillary services charges postings. Although the final format must be approved by the BAWG and BIC, and it is therefore possible that some minor changes will be made to the attached documents, the NYISO does not expect major changes and will use the attached documents to begin its coding of necessary software modifications. The NYISO expects to complete the software changes, and begin posting daily cash flow and MWh reconciliations, on October 1. Month-to-date and hourly ancillary services charges will be posted starting on November 1.

The NYISO clarifies that its revised information presentations will not include predictions of bid production guarantee costs, residual adjustment costs and certain other charges that are impossible for it to forecast. Nevertheless, the NYISO believes that its revised information presentations represent a substantial improvement over prior models and will enable market participants to project their end-of-the-month bills from daily information provided by the NYISO.

V. **The NYISO's Compliance with the TEP Order**

A. **Background:**

The TEP Order extended the NYISO's TEP ("TEP") authority and right to undertake "Extraordinary Corrective Actions" ("ECAs") from May 26 until October 31, 2000.⁴² However, the TEP Order also required the NYISO to "file a detailed report concerning each price correction it⁴³ for the period from June 1 to September 1, 2000. In addition, the Commission specified that this report must "provide details regarding the corrective measures it has taken or is taking, and the status of those corrections, to resolve the specific situations in which it has been exercising its TEP authority."⁴⁴

B. Compliance Report:

The NYISO has attached reports describing all of its price corrections in June, July and August as Attachments VIII-A, VIII-B and VIII-C. These reports describe the problems that have necessitated price corrections this summer, explain some of the corrective actions undertaken by the NYISO to address underlying problems and describe every price correction executed by the NYISO. All three monthly reports are posted on the "market monitoring" section of the NYISO's web site.⁴⁵ Explanations of price corrections from November, 1999 through May, 2000 are also posted on the web-site but have not been included in this filing because they are outside the scope of the TEP Order.

The NYISO has made substantial progress in addressing the underlying problems that have necessitated price corrections. Indeed, comparing the NYISO's earlier price correction reports with

⁴² The Commission first granted the NYISO's request for TEP authority for a 90 day period starting with the commencement of NYISO operations, *i.e.*, from November 18, 1999 to February 16, 2000. *New York Independent System Operator, Inc.*, 88 FERC ¶ 61,228 (1999). Subsequently, the Commission extended the NYISO's TEP authority for an additional 90 days, expiring on May 16, 2000. *New York Independent System Operator, Inc.*, 90 FERC ¶ 61,320 (2000).

⁴³ TEP Order, *slip op.* at 10.

⁴⁴ *Id.*

those for June through August, demonstrates that the number of problems that have caused pricing errors and thus required correction has fallen off considerably. One such problem, which had caused SCD to assign incorrect upper operating limits to steam units, was eliminated by software changes introduced on July 25th. The NYISO has also implemented measures,⁴⁶ to prevent pricing errors from arising as a result of bids submitted by large multi-unit bidding blocks, and the running of large amounts of uneconomic energy associated with “block loading.” These were previously the most frequent cause of price miscalculations. Looking ahead, the NYISO anticipates that measures it has taken to reduce the discrepancy between prices predicted by BME, and actual real-time prices will help to further reduce the number of price miscalculations, and thus the number of price corrections.

The Commission should bear in mind that price corrections have affected a relatively small portion of the NYISO-administered markets. Approximately 95% of NYISO-administered transactions take place in the day-ahead market.⁴⁷ The NYISO has had to correct day-ahead prices only once since it commenced operations.

Moreover, the frequency of real-time price corrections steadily decreased this summer as the NYISO staff continued to address software problems and other market flaws. In June, the NYISO corrected prices in 3.92% of all (five minute) real-time intervals. In July, the NYISO had to correct prices in only 1.87% of real-time intervals and in August price corrections were only required in 0.53%

⁴⁵ See [<http://www.nyiso.com/markets/mktmon.html>].

⁴⁶ These include software enhancements and other measures, notably negotiating with generation owners to reduce the number and size of multi-block bidding units.

⁴⁷ See Attachment VIII-E.

of real-time intervals. The NYISO expects these numbers to decrease further in coming months as its markets mature and as additional improvements take effect.⁴⁸

At the same time, the NYISO staff believes that software and operator errors are unlikely to ever be eliminated completely. Occasional computational errors, and subsequent price corrections, are inevitable. Nevertheless, consistent with the Commission's guidance applicable to price corrections by Regional Transmission Organizations, the NYISO recognizes that reducing the frequency of errors to the lowest possible level, and minimizing price uncertainty, is a critical objective.⁴⁹

Some market participants have expressed concern that the NYISO has reserved too many potentially suspect prices for review and possible correction. NYISO staff appreciates this concern and understands that price reservations, like price corrections, create uncertainty for market participants. The NYISO is pleased to note that the frequency with which it has reserved prices has declined in recent months as the number of corrections has fallen, although for some periods the number of reservations has not fallen quite as much as the number of corrections.⁵⁰ The NYISO expects that the frequency of reservations will continue to decline along with the frequency of corrections, although they will likely never quite disappear completely.

⁴⁸ The NYISO does not review the advisory hour-ahead prices calculated by BME because they are not used in settlements.

⁴⁹ See *Order No. 2000* at 31,218 (“While an RTO must ensure that the final market-clearing prices are correct, market clearing procedures should minimize price recalculations. Also, any price recalculation should be done quickly. Otherwise, market participants could incur large transaction costs in attempts to hedge against such risk.”)

⁵⁰ The relationship between the frequency of real-time reservations and real-time corrections is depicted in Attachment VIII-D.

VI. The NYISO's Compliance with the Bid Cap Order

A. Background

The Bid Cap Order was issued in response to (i) a complaint alleging that a variety of flaws in the NYISO-administered markets necessitated remedial action by the Commission;⁵¹ (ii) the NYISO's answer to that complaint ("Answer");⁵² and (iii) a unilateral request by the NYISO's independent Board of Directors for permission to impose temporary \$1,000/MWh energy bid caps this summer.⁵³ The Bid Cap Order directed the NYISO to file a comprehensive "statement of the status of its efforts to increase the ability of its customers to respond to price and of the changes the NYISO has made to correct the identified market flaws, and a report on the effects of the changes to NYISO's markets." The NYISO was also instructed to explain whether it believed that any other changes to its markets were necessary.

⁵¹ *Complaint of New York State Electric & Gas Corp. to Suspend Market-Based Rates for Energy Markets and Request for Emergency Technical Conference*, Docket No. EL00-70-000 (April 24, 2000), as amended, May 10, 2000.

⁵² *New York Independent System Operator Inc.'s Answer to Complaint of New York State Electric & Gas Corporation to Suspend Market-Based Rates for Energy Markets and Request for Emergency Technical Conference, As Amended, and Answer to Strategic Power Management's Supplement to Complaint Requesting Fast-Track Processing and Motion to Consolidate*, Docket Nos. EL00-70-000, EL00-67-000 (not consolidated) (May 25, 2000, as corrected May 31, 2000).

⁵³ *Exigent Circumstances Filing of the New York Independent System Operator, Inc., at the Direction of its Board of Directors Requesting Permission to Unilaterally Implement Temporary Bid Caps*, Docket No. ER00-3038-000 (June 30, 2000).

B. Compliance Report:

1. The NYISO's Efforts to Promote Demand-Side Responsiveness

In response to directives from the Commission, the NYISO's independent Board of Directors and the Management Committee, the NYISO staff has initiated a work plan that will lead to the implementation of effective demand response mechanisms no later than June 1, 2001.⁵⁴ Because of the key role that demand-responsiveness will play in preventing artificial price spikes, the NYISO has made the implementation of demand response mechanisms a top priority.

In the short-term the NYISO concluded that it would be impractical to institute a last-minute pilot load response program for this summer. Instead, it will monitor the pilot programs launched by ISO-New England, PJM and the California ISO and draw what lessons it can from them. However, the NYISO is currently participating in a nationwide Edison Electric Institute ("EEI") study of the price elasticity of demand in electricity markets and the development of effective demand-response mechanisms. The NYISO anticipates that this study will inform the design of its own demand-responsiveness systems.

In addition, the NYISO has retained a consulting firm, Neenan Associates, to assess the feasibility of various demand-response mechanisms and to advise the NYISO as it builds towards the implementation of such mechanisms. The NYISO expects that it will conduct load response pilot programs in the near future. in order to help it determine which of several possible approaches is likely to work best. All of these initiatives will be discussed with the newly formed dispatchable load task force, comprised of NYISO staff and interested market participants, which will assist the NYISO's efforts. The NYISO has also met with individual market participants that are interested in launching

⁵⁴ Establishing demand response mechanisms will require tariff changes. Accordingly, the NYISO intends to submit proposed tariff revisions by April 1, 2001.

demand response initiatives of their own and will support their efforts to do so. Discussions are also under way with the New York State Public Service Commission concerning its role in the process, particularly regarding participation by retail loads.

Finally, the NYISO is working to correct the software problems that have previously prevented most market participants from using price-sensitive load bids to signal their willingness to pay for energy in the NYISO's day-ahead market.⁵⁵ The NYISO-administered markets were designed to accommodate participation by load resources using such bids. When these changes are implemented, the NYISO expects that they will complement the real-time measures described above to create sufficient demand responsiveness to substantially improve the markets, and help eliminate the need for future price caps. The NYISO will work with its committees to develop a timetable for the implementation of enhanced price sensitive load bidding in the near future.

2. Energy Imports

The interim corrective actions implemented by the NYISO this Spring have, on the whole, worked well and imports into the NYCA have been curtailed much less often than they were previously. Neighboring control areas have not discontinued transactions with the NYISO, reliability in the NYCA has not been threatened, and, in the NYISO staff's view, market concentration concerns have not been exacerbated on account of import-related problems. Indeed, from January 1 through July 31, the NYCA has imported energy much more frequently, and in much greater quantities than it did in 1998 and 1999.⁵⁶ That said, transaction curtailments for reasons other than reliability continue to occur with

⁵⁵ These software limitations do not prevent entities from submitting virtual price sensitive load bids to purchase load to be exported from the New York Control Area. However, they do restrict the ability of market participants to utilize price sensitive load bids for transactions within the New York Control Area.

⁵⁶ See Attachment VI (Affidavit of Ricardo T. Gonzales.)

some frequency in the NYISO-administered markets. The NYISO's efforts to reduce curtailments, that are not related specifically to energy imports, most of which have to do with fixing BME-related problems, are described in various other portions of this Report.⁵⁷

The NYISO's most significant import-related interim corrective action was its successful implementation in May of software changes giving external transactions, *i.e.*, imports, exports and wheel-throughs, that are scheduled in the day-ahead market priority over other transactions reviewed by BME. This was accomplished by automatically adding or subtracting \$20,000 from the decremental bids or sink price cap bids⁵⁸ of such transactions, thereby affording them automatic priority over other transactions, which can bid no higher/lower than positive/negative \$9,999.99.⁵⁹ Affording external transactions *de facto* "must-run" status in this way has functioned as intended and has substantially decreased the frequency of import curtailments. However, the "must-run" system has had a negative side effect insofar as it contributes to the divergence of hour-ahead prices forecast by BME from actual real-time prices. In this context, by tending to drive BME's hour-ahead price forecasts lower the "must-run" fix has probably caused BME to reject some economic transactions, which in turn causes SCD to call on more expensive units, putting upward pressure on real-time energy prices.⁶⁰ The

⁵⁷ See, *e.g.*, Part VI.B.6. See also Part VII (re-emphasizing the NYISO's successful correction of an SCUC software problems that had been causing erroneous export curtailments.)

⁵⁸ Market participants scheduling imports submit decremental bids to signal their willingness to have an import transaction curtailed. Lower decremental bids indicate that a market participant does not want an import transaction to be curtailed. By contrast, higher sink price cap bids indicate that a market participant does not want an export transaction to be curtailed.

⁵⁹ Until the NYISO's temporary bid caps expire on October 28th market participants will not be allowed to submit decremental bids below negative \$1,000 or sink price cap bids higher than \$1,000.

NYISO staff believes that the solution to this problem lies not in prematurely abandoning the “must run” system but in its efforts to improve BME’s performance, which are described *infra*.

The NYISO’s other major import-related interim corrective action was its payment of BPCGs to external suppliers. The NYISO staff believes that these payments have worked as intended by eliminating a potential disincentive to external suppliers’ participation in the NYISO-administered markets and thereby increased supply and enhanced reliability. The NYISO staff believes that these payments have not had unanticipated adverse effects. In particular, although BPCG payments have increased substantially in recent months, BPCG payments to external suppliers are responsible for only a very small portion of the increase.

Looking ahead, the NYISO is working through the ISO-MOU process to resolve differences between the northeastern ISOs’ external transaction and curtailment “checkout” procedures. These differences still cause problems from time-to-time in New York. The NYISO is hopeful that the MOU process will harmonize these practices among the four system operators and provide the basis for a permanent solution to problems that are being addressed in the interim by the must-run scheduling system.

3. Dispatch of Fixed Block Generation

As the NYISO explained in its Answer, the existence of large multi-unit bidding blocks is a carry-over from the NYPP that was inherited by the NYISO. Because these blocks pose a variety of scheduling and dispatching problems the NYISO has worked diligently to reach agreement with block generation owners to permit the NYISO to model each block-loaded GT as an individual unit. At the

⁶⁰ The NYISO staff believes that the price effects of the “must-run” fix have not been large, and that the system’s positive effect, (*i.e.*, substantially reducing the frequency with which day-ahead external transactions are curtailed, outweighs its negative effect on price.

time that the NYISO submitted its answer in May, it had eliminated all but three 160 MW blocks, each of which was comprised of four 40 MW quick start (*i.e.*, 10 minute start time) units. As of early August, two of these blocks were remodeled and are being bid and operated as four individual 40 MW units. The owner of the remaining block has indicated that it will permit its block to be re-modeled as soon as it completes certain control hardware enhancements necessary to allow each unit to respond to a start command within 10 minutes. Thus, the NYISO has all but completed its efforts to eliminate the artificial restrictions associated with the fixed block generation rules. The changes have greatly enhanced its scheduling flexibility and will more closely align the NYISO dispatching decisions with economics.

In addition, as was noted above in Part V, the NYISO has successfully modified its SCD software to prevent the miscalculation of real-time prices under circumstances where large amounts of uneconomic block energy is running, which has sometimes occurred due to minimum run time requirements. This change has resulted in a substantial reduction in real-time price errors and has not had unanticipated adverse effects.

The NYISO reiterates that its market-monitoring unit monitors fixed-block bidding in the area east of Central-East just as it monitors all sectors of all the markets that it administers. The NYISO does not believe that its fixed block generation pricing rules, as they existed prior to the Bid Cap Order, encouraged gaming.

With respect to fixed block generation pricing, the NYISO recently sought rehearing⁶¹ of the Bid Cap Order's holding that the NYISO must "revise how it is setting the price of energy with respect

⁶¹ See *New York Independent System Operator, Inc.'s Request for Partial Rehearing*, Docket No. ER00-3038-002, EL00-70-003 (August 25, 2000).

[to] the dispatch of fixed block resources”⁶² As the NYISO explained in great detail in that proceeding, it has asked the Commission to permit it to implement a hybrid pricing rule that will eliminate the inefficiencies associated with its current pricing rule, while minimizing adverse effects that the Bid Cap Order’s revised pricing rule would inadvertently create.

4. Recognition of Market Resources

In Docket No. EL00-70-000, it was alleged that the NYISO had failed to implement a market improvement that permitted suppliers to bid up to the level of their “maximum production capabilities” and was artificially restricting them to bidding up to the level of their “Dependable Maximum Net Capability.” As the NYISO explained in its Answer, however, it has already modified its rules and eliminated all of the alleged resource recognition problems. Suppliers in the NYISO-administered markets have been free for months to submit bids up to their proven maximum production capability for the current capability period or either of the prior two capability periods. The rule has worked well and has not had unanticipated adverse effects.

5. Timely Communication of Information

In its Answer, the NYISO recounted numerous improvements it had made to remedy problems adversely affecting NYISO staff communications with market participants and market participants’ receipt of market information.⁶³ Since May, the NYISO has taken a number of other steps to enhance its performance in this area. These include:

⁶² July 26 Order, *slip op.* at 20.

⁶³ Certain other communications related issues are addressed in other parts of this report. For example, price reservations and corrections are discussed *supra* in Part V, billing issues are described *infra* in Section 8, and OASIS issues are noted in Section 11(g).

- Providing for automatic e-mail notification of curtailments to customers and developing more advanced notification procedures;
- Hiring two additional NYISO customer account representatives;
- Reassigning customers among NYISO customer account representatives to equalize the account representatives' workloads and ensure more timely responses to market participants questions;
- Redesigning its presentation of ancillary services and Schedule I cost information, as required by the *SPM Order (see supra Part IV)*;
- Focusing resources on eliminating the backlog of unanswered questions from market participants. This backlog was attributable to the NYISO's inadequate initial staffing levels. The NYISO is meeting directly with affected Market Participants to expedite the resolution of any remaining backlog issues.

In addition, the NYISO has acted expeditiously to ensure that important market information is promptly conveyed to market participants. For example, when the NYISO first implemented its temporary bid caps, NYISO staff contacted all sellers to ensure that they understood the new bidding rules. Similarly, the NYISO immediately notified market participants, via its TIE-list server and through postings on its web site, when voltage problems forced it to reduce the Hydro-Quebec import limitation, and implemented software modifications that eliminated certain problems faced by exporters.

Finally, on numerous occasions the NYISO has made senior staff resources available for private meetings with market participants that have raised technical and/or legal questions that the NYISO's account representatives have not been able to handle on their own. The NYISO believes that these meetings have often helped to reduce confusion and satisfied market participants' concerns.

Nevertheless, the NYISO recognizes that communications problems have been a particularly sore point for many market participants and that some are continuing to experience frustration in this

area. The NYISO believes, however, that it has already successfully made a number of communications improvements. The NYISO believes that the effects of its improvements should already be apparent and will become even clearer in coming months. The burdens imposed on NYISO communications staff should also be alleviated as the NYISO-administered markets mature and other improvements take effect.

6. Energy Price Fluctuations/Volatility

The NYISO reiterates that allegations concerning the volatility of NYISO energy prices must be considered in context. Approximately 95% of transactions in the NYISO-administered markets occur in the day-ahead market, where volatility has not been a concern.⁶⁴ Although energy prices have fluctuated to a much greater extent in the real-time market, the NYISO has previously explained that the volatility has often not been unreasonable given the economic characteristics of the real-time market. As the NYISO explained in its Answer, it is to be expected that real-time prices, which are normally calculated every five minutes, but which can vary even more frequently, will be volatile when market conditions change abruptly.

At the same time, the hour-ahead advisory prices calculated by BME have been highly volatile and BME often has not been a reliable predictor of real-time prices. This has been a major concern because BME establishes off-dispatch generation, imports and export schedules that directly affect SCD's decisions. Thus, BME volatility has the potential to exacerbate real-time volatility and inaccurate BME price forecasts can reduce the accuracy of real-time prices. BME's inaccuracy can also result in increases to real-time prices, or increased uplift payments.

⁶⁴ Moreover, slightly less than half of all transactions involving New York market participants take place in the NYISO-administered markets (day-ahead market and real-time market), the remainder are bilateral transactions.

In May, the NYISO published an *Initial Report On Price Differentials Between Balance Market Evaluation And Real-Time* (“Initial Report”), which discussed the extent and causes of BME and real-time market price volatility as well as the relationship between them. The Initial Report noted that there are inherent differences between the BME and SCD algorithms which make some divergence between them inevitable, but identified four factors that make the largest contribution to their divergence.

They are:

- Changes in the amount and mix of generation assumed during the execution of BME versus the amount actually available in real-time;
- Changes in the amount of load assumed by BME versus the amount that must actually be met in real-time;
- Differences in the security model used in the two programs which results in different sets of constraints being considered in the two environments; and
- Changes in transmission topology that occur unexpectedly in real time.

The Initial Report also indicated that “[s]ome of the reasons for differences are within the ability of the ISO and the Market Participants to control . . . [and] . . . can largely be remediated.” The NYISO has already made a number of remedial changes, and will work with its committees to develop an action plan for implementing software changes that will more closely align BME’s predictions with the real-time market. The goal will be to do as much as possible to eliminate artificial, BME-driven volatility from the NYISO’s real-time prices and thus minimize the impact of non-market forces on real-time volatility.

With respect to “changes in the amount and mix of generation assumed during the execution of BME versus the amount actually available in real-time” the NYISO has identified three areas of concern. First, import transactions that BME expects to flow in real-time are often not properly scheduled in the supplying control area and are thus eliminated in the “checkout process” with

neighboring control areas 30 minutes before each hour. This is a recurring problem for all of the Northeastern ISOs. The NYISO hopes to reduce the frequency of checkout failures by developing rule and software changes that will give market participants stronger incentives to submit proper schedules to all control areas associated with their transactions. The NYISO is also developing a display function that will mitigate the problem by enabling dispatchers to eliminate a failed transaction from consideration by BME in future hours or until the market participant properly re-schedules it with all control areas.

In addition, all of the Northeastern ISOs are discussing the development of procedures that will help reduce checkout problems.

Second, BME currently lacks the ability to determine whether generators are running "out-of-merit" order. Units are put on "out-of-merit" by local distribution companies in order to preserve local reliability or manage contingencies or overloads of transmission facilities not under the NYISO's control. These unit commitments are not made by the NYISO's scheduling software. There is currently no mechanism to pass the out-of-merit generator schedules into BME. Thus, when BME evaluates these "out-of-merit" generators, it schedules them as if they turn off at the economically appropriate time. However, the duration of the out-of-merit commitments made by the local distribution companies to these units may last for several hours or the remainder of the day, creating a conflict between BME schedules and the actual dispatch of the system. This can lead to substantial errors. The NYISO is working to address this problem by developing a display and logging function through which schedules for all out-of-merit units will be maintained and made an input to BME, thereby ensuring that they are scheduled appropriately.

Third, BME has encountered a number of problems tracking the performance of intermittent generation, combined cycle turbines and certain PURPA units. The NYISO has engaged in extensive discussions with the owners of these units to find ways to improve the quality of the hourly schedules

software⁶⁵ and BME against pre and post contingency violations. However, some portions of ConEd's bulk power network were historically not secured by SCD in real-time, but were instead managed by ConEd's operations staff. By pre start-up agreement this operating arrangement has continued to the present as the most prudent process to follow from a reliability standpoint during initial NYISO operation. It has become apparent, however, that this scheduling and operating methodology causes divergences between BME's price forecasts and real-time prices which contribute to real-time price

⁶⁵ SCUC is a computerized algorithm that calculates prices in the NYISO-administered day-ahead markets.

volatility. The NYISO is currently engaged in discussions with ConEd that are intended to result in all of the bulk power elements of ConEd's transmission system being secured in real-time by the NYISO. The NYISO expects to assume this responsibility as soon as all remaining operating issues are resolved.

Second, the NYISO has determined that BME-SCD divergence is exacerbated by SCD's inability to recognize the constraint costs associated with the hourly interchange schedules established by BME. SCD adjusts schedules to internal NYCA energy every five minutes to hold these interchange schedules constant with each of the neighboring control areas as system load conditions change during an hour. BME sees the NYCA, the proxy busses of its neighbors and the transactions requesting service at each of them and solves scheduling problems for the hour. In so doing, BME resolves all transaction scheduling issues, including those resulting in congestion at proxy buses. When SCD executes, all congestion has been resolved, feasible schedules exist with each control area, and therefore the proxy bus prices computed by SCD do not reflect congestion problems, and respective congestion costs, that were present in the BME execution. The problem arises only when more service is requested across control area boundaries (interfaces) than can be accommodated within the flow limits on those interfaces or by the limit to the total hourly change in control area interchange, *i.e.*, when BME detects congestion between the proxy busses and the NYCA caused by flow and schedule change limits. When this occurs, SCD computed proxy bus prices do not correctly reflect the congestion costs inherent in the BME scheduling of those transactions.

The NYISO is pursuing short-term changes that will incorporate congestion information into the SCD prices used for the subsequent settlement process. On a longer-term basis the NYISO will develop a means to incorporate the appropriate congestion costs into the original SCD computed proxy bus prices.

Finally, with respect to "changes in transmission topology that occur unexpectedly in real time" the NYISO staff believes that this is an inherent problem and that cannot be eliminated. Therefore, the

NYISO expects that it will, inevitably, continue to be the cause of differences between the prices estimated by BME and those that occur in real-time. The NYISO also expects, however, that the divergence between BME and real-time prices will be greatly reduced by the improvements discussed above.

7. Price Convergence

The NYISO staff stands by the position it took in the Answer, and in Docket No. EL00-90-000,⁶⁶ that allegations concerning the adverse consequences of the divergence between prices in its day-ahead and real-time markets are exaggerated. The NYISO staff does not believe that perfect convergence of day-ahead and real-time prices was one of the goals of the NYISO's market design. Real-time prices are, and, for a variety of reasons, will likely continue to be more volatile than day-ahead prices. It is therefore to be expected that LSEs will be willing to pay a premium to avoid exposure to the more risky real-time market.

The NYISO staff has determined that on average, day-ahead prices have been approximately \$6.17 higher than real-time prices from January 1 through August 16, 2000, and that this difference is consistent with the specified difference between day-ahead and real-time prices.⁶⁷ The NYISO staff does not believe that day-ahead and real-time prices will have reached an efficient equilibrium only when there is perfect convergence between them. Similarly, it does not believe that the average divergence experienced thus far is necessarily inefficient, although it acknowledges that day-ahead and real-time prices may converge to a somewhat greater extent as the NYISO-administered markets

⁶⁶ See *New York Independent System Operator, Inc.'s Answer to Morgan Stanley Capital Group, Inc.'s Complaint and Request for Fast-Track Processing*, Docket No. EL00-90-000 (July 17, 2000) (addressing day-ahead, real-time convergence issues in the body of text and its attached affidavits.)

⁶⁷ See Attachment V.

mature. In addition, the NYISO has previously explained that the day-ahead/real-time price divergence does not send incorrect price signals, exacerbate market flaws, slow the correction of market flaws or otherwise harm market participants.

The NYISO has already addressed the reasons for the lack of convergence between BME price forecasts and real-time prices.⁶⁸ Unlike the divergence between day-ahead and real-time prices, the NYISO agrees that the difference between BME and real-time prices is problematic and, although some divergence is inevitable, is taking steps to reduce it.

8. Revision of Advisory Bills and Settlement Information

The NYISO's billing and settlement procedures have continued to experience software and technical problems that have prevented the issuance of final bills to market participants. The NYISO is aware of the difficulties that this has posed for market participants and does not take them lightly. Indeed, in early August, the NYISO believed that it had resolved all billing problems and effectively completed its work in this area. By late August, however, the NYISO realized that a combination of factors, *e.g.*, unforeseen metering anomalies, incorrect beginning and end-date data for certain Transmission Congestion Contracts ("TCCs") in the TCC database, and a handful of other previously undetected billing code problems would create another delay in the finalization of its bills.

Its recent setback notwithstanding, the NYISO has successfully addressed a number of software and technical problems that led to billing and settlement problems in the past. The NYISO's corrections include:

- Accurately reflecting BPCG payments to external suppliers;
- Preventing BPCG costs from being inappropriately assigned to LSEs in local reliability cases;

⁶⁸ See *supra* Section 6.

- Eliminating a software flaw that incorrectly calculated bills as if LSEs were purchasing energy at their load busses to replace curtailed imports;
- Correcting for excess load curtailments in certain PURPA curtailment cases;
- Ensuring that day-ahead regulation payments were accurately accounted for in cases where units were dispatched to provide energy in real-time;
- Using correct MW/mile co-efficients when allocating congestion balancing charges;
- Fixing an administrative error that caused the NYISO to confuse TCCs and grandfathered transmission rights;
- Making reserve payments to grouped units; and
- Allocating TSCs using a correct DFAX table.

In addition, the NYISO has worked with New York's transmission owners to improve the flow of timely and accurate load and metering information. As the NYISO explained in its Answer, both the NYISO and the transmission owners initially underestimated the technical challenges presented by billing but both have gained a better understanding of the process over time. The NYISO has also successfully sped up the billing process. Whereas in the early months of NYISO operations it sometimes took as much as two weeks from the end of the month to issue initial bills, May, June and July bills were all issued within five days. The NYISO expects to continue to issue bills within this timeframe in the future. In addition, the NYISO now performs intra-monthly billing re-runs as soon as information concerning price corrections is received, rather than waiting until the end of the month as it had in the past.

With these improvements in place, the NYISO believes that it is nearing the end of its effort to fix its billing system. Nevertheless, due to its recent difficulties the NYISO now expects that rebilling for

November, 1999 will not be complete until mid-September. Rebills for December, 1999 will be complete by the third week of September. January, February and March rebills will be complete by the beginning of October and April, May and June rebills will be complete by the middle of October. Similarly, the NYISO also expects that it will complete the true-up process for: (i) November and December, 1999 bills by the third week of September; (ii) January bills by the end of the first week of October; (iii) February and March bills by the end of October; (iv) April and May bills by the end of the third week of November; and (v) June bills by the end of the first week of December. July and August rebills and true-ups should follow in December. The NYISO staff is not satisfied with this schedule but it is the best that can be done under the circumstances. Future bills will be rebilled and trued-up in a much more expeditious manner and, in light of the NYISO's many fixes in this area, it is very unlikely that a major billing backlog will develop again.

Looking ahead, and in recognition of the importance of providing market participants timely, accurate billing and settlement information, the NYISO has participated in the formation of a special BAWG sub-group which will make recommendations to the full BAWG on additions or revisions to the NYISO's billing and settlement procedures. The NYISO will work diligently to implement any enhancements that are adopted by this group.

In short, the NYISO believes that it has greatly improved its billing and settlement procedures. However, as of this writing, it has not yet been able to overcome all of the effects of its past problems.

9. Ancillary Services Prices:

In its Answer the NYISO explained that, with the obvious exception of its 10-minute reserves markets, its ancillary services markets had performed in a workably competitive manner and should not be subjected to cost-based bidding rules, price caps or "price screens." For the same reason, the NYISO opposed the imposition of temporary bid caps on its ancillary service markets in late June.

Nothing has changed since May to cause the NYISO to alter its position. To the contrary, all of the NYISO's ancillary services markets, excluding the still restricted 10-Minute NSR portion of the reserve market, have been workably competitive. Regulation, 10-Minute Spinning Reserves and 30-Minute Reserves prices have all moved within a relatively narrow range. There have been a few price spikes, but all were short-lived and were attributable to identifiable and legitimate market circumstances. In all three markets, adequate quantities of supply were generally available to meet demand. Prices have therefore not risen to levels or evinced the kind of volatility that has caused the Commission concern in other proceedings.⁶⁹

The NYISO is confident that these results are not accidental. Rather, it believes that a combination of software corrections, market improvements and more robust market monitoring have mitigated the conditions that caused regulation and 10-Minute Spinning Reserves prices to escalate dramatically from December, 1999 through February 2000. The NYISO's efforts to rectify problems in the 10-Minute NSR portion of its reserves market, which have more to do with high market concentration levels than design flaws, are discussed above in Part V.

10. Hydro-Quebec Import Limitations:

The NYISO resolved the reserves issue that required it to limit HQ imports to 1200 MW in late May. Thus, on June 1, 2000 the NYISO increased the HQ import limit to an 1800 MW level for the NYISO day-ahead market and real-time market.

Unfortunately, the increase in imports almost immediately created severe, recurring real-time low voltage problems at critical buses on the New York State transmission system. In order to restore voltage levels to normal, and to preserve reliability, the NYISO was frequently forced to cut HQ import and wheel-through transactions in real-time even though they had been scheduled day-ahead. Studies

⁶⁹ See Attachment V for additional discussion.

conducted by the NYISO prior to increasing the HQ import limit did not predict the resulting voltage problems because they did not consider the relationship between variations of HQ imports above 1200 MW and voltage and reactive limitations in New York. Indeed it took weeks for the NYISO to ascertain the cause of the problems. In any event, after reviewing the problem, the NYISO temporarily limited HQ imports to 1500 MW and launched a more in-depth investigation intended to establish the true amount of HQ imports its system can accept without experiencing serious voltage problems.

The NYISO announced the change on August 8. A copy of its *Interim Evaluation of Hydro Quebec Import Capability*, which explains the reasons for the reduction and includes a graph clearly demonstrating the downward pressure HQ imports greater than 1500 MW have on voltage levels in New York. A copy of the *Interim Evaluation* is appended to this filing as Attachment IX, and is also posted on the NYISO's web-site.

11. Additional Issues:

In addition to the alleged and actual market flaws identified in the Bid Cap Order the Commission directed the NYISO to address “whether additional changes are necessary” in its markets.⁷⁰ The Bid Cap Order also indicated that this Report should provide the Commission with a “comprehensive picture concerning all the significant changes NYISO has implemented and those that are still under review in all of the NYISO's markets.”⁷¹

Consistent with these instructions, the following sections address a number of projects that the NYISO has undertaken to eliminate software problems and/or otherwise improve its markets. Three similar efforts involving the NYISO's reserves markets are discussed above in Part III.C.9. In general, the projects described herein are aimed at correcting market flaws that have made the NYISO's

⁷⁰ Bid Cap Order, *slip op*, at 23.

⁷¹ *Id.*

Commission-approved market design function less efficiently than originally anticipated. They are thus distinct from a substantially larger group of market improvements that the NYISO is pursuing in order to enhance its markets and make them function better than originally contemplated, *e.g.*, creating trading hubs. Because this latter category of improvements are not being instituted in response to “market flaws” the NYISO has not described them in detail in this filing.

For informational purposes, the NYISO has appended a copy of the most recent “NYISO Issues/Concepts Management List” (“Project List”) to this filing as Attachment X. The Project List describes all of the NYISO’s current projects, with the exception of those that have been launched very recently, including: (i) both those that will, and those that will not, ultimately require FERC filings; and (ii) those that have, and those that have not, been undertaken to correct market flaws.

The NYISO continuously analyzes the performance of its markets and is currently investigating certain other possible market flaws. The NYISO has concluded that it would be inappropriate to identify these flaws in this filing since doing so could compromise ongoing investigations and provide a road-map for possible gaming by market participants.

a. BME Improvements

The NYISO has joined with market participants involved in the Scheduling and Pricing Working Group (“S&PWG”) to find a permanent solution to the BME’s forecasting problems. Because reliability considerations make it absolutely essential that the BME’s operations not cease while permanent solutions are implemented, the NYISO is working with the S&PWG to identify suitable short-term measures that will protect market participants from financial harm.⁷² Specifically, certain S&PWG participants have recommended either that: (i) BME no longer make decisions about imports, exports and off-dispatch generation based upon its estimate of forecast prices; or (ii) that a guarantee

⁷² These efforts are in addition to those described *supra* in Part V1.B.6.

mechanism be established to prevent market participants from being harmed by inaccurate BME decisions. The NYISO recently agreed to report back to the S&PWG on the technical feasibility and economic effects of both short-term proposals at the S&PWG's September 12th meeting. The NYISO will also work with market participants to explore longer term BME improvements.⁷³

b. Virtual Bidding

As the NYISO explained in a recent pleading in Docket No. EL00-90-000,⁷⁴ it does not believe that the existing limitations on "virtual bidding," *i.e.*, direct bidding by "non-physical" or "financial" market participants, such as marketers and brokers, in its markets constitutes a design flaw. Nevertheless, the NYISO recognizes that the introduction of "virtual bidding" may enhance the NYISO-administered markets and has worked out a phased virtual bidding implementation plan with its stakeholder committees. Under the current plan, the NYISO will work to implement virtual load bidding, on a staged basis. The NYISO has agreed to examine feasible methods of implementing virtual supply bidding, which poses more difficult technical challenges, somewhat later.

The NYISO's efforts to implement internal⁷⁵ virtual load bidding are underway and it is already grappling with a number of demanding technical problems. As this work proceeds, it is becoming increasingly clear that establishing virtual bidding will be challenging, and that the process must be managed very carefully, since there could be severe financial and reliability consequences if the linkages between the existing "totally physical" and the to-be created financial markets are not constructed

⁷³ This project is not listed on the NYISO's Project List.

⁷⁴ See *New York Independent System Operator, Inc.'s Answer to Morgan Stanley Capital Group Inc.'s Complaint and Request for Fast-Track Processing*, Docket No. EL00-90-000 (July 17, 2000).

⁷⁵ Currently, only LSEs may submit internal demand bids in the NYISO-administered markets. Non-physical market participants, may, however, submit virtual bids at external proxy buses.

properly. The NYISO has also come to recognize that it may be necessary to closely coordinate the expansion of virtual bidding with the correction of software problems that currently restrict the use of price sensitive load bids by participants in the NYISO-administered markets.⁷⁶ It is therefore possible that the NYISO will propose that the start of the implementation of virtual bidding be deferred, or that the time between implementation stages be lengthened. However, the NYISO has not yet reached this conclusion and will not do so until it has: (i) completed discussions with its software vendor; and (ii) thoroughly discussed the implementation question, and any potential impediments to implementation, with the committees.

c. **Additional Modifications to the NYISO's Security Constrained Unit Commitment Software**

The NYISO is also in the process of implementing a variety of improvements to its SCUC software

First, SCUC currently does not calculate marginal losses based on expected loads and generation but uses marginal losses averaged over a prior day. SCUC also fails to properly account for marginal losses at external proxy buses in certain of its reliability steps. This is inefficient because at certain points in the SCUC process, commitment decisions that choose between importing energy and incurring the startup and minimum load costs of internal capacity are being biased by this omission, leading to potentially inefficient commitment decisions. The NYISO has pledged to solve this problem in a Commission approved settlement agreement.⁷⁷ The NYISO is currently testing software changes that would correct this problem and expects that they will be in place by the end of October.

⁷⁶ See *supra* Part VI.B.1.

⁷⁷ The NYISO made this commitment in a settlement agreement submitted to the Commission on May 16, 2000 in Docket Nos. ER97-1523-000, ER97-1523-044, OA97-470-000, OA97-470-042,

Second, external load must be dropped from SCUC's forecast load step. Presently, external loads are being included in the forecast load and local reliability passes of the SCUC. Capacity is committed in these passes to include the level of external load cleared in the bid-load commitment. The dispatch of the units in these passes may result in external loads being backed down to the extent that they are not willing to pay the LBMP prices determined as a result of the SCUC preliminary unit commitments. This can lead to situations, particularly on high load days with a large difference between bid load and forecast load, where SCUC will commit very expensive internal generators in the forecast load passes to serve external loads that would most likely not be served in real time if the expected forecast load were realized.

Third, the NYISO is considering SCUC changes that would make its Phase Angle Regulator ("PAR") scheduling methodology more closely match operational reality, which may result in lower commitment and dispatch costs than its current approach. Hourly schedules for PARs, both internal to the NYCA and located at interfaces, are a required SCUC data input. Currently, all PAR controlled facilities are designated to maintain the hourly schedules as constant power flows. The NYISO intends to implement software changes that would allow PAR control to action to mitigate or minimize congestion associated with real power transfer limitations.

d. Additional Modifications to the NYISO's Security Constrained Dispatch Software

In addition to the changes described in other parts of this compliance filing, the NYISO is implementing a number of additional improvements to fix problems in SCD.

First, the NYISO is attempting to add new economic parameters into SCD's logic. Currently, SCD attempts to find a dispatch solution to every set of constraint conditions within a five-minute interval, no matter how high the cost of doing so. However, the NYISO has determined that SCD could sometimes solve constraints much less expensively, without sacrificing reliability, if it had the capability of considering a slightly longer time period. For example, new logic could be incorporated into SCD that would permit it to consider whether it would be more economic to solve for constraints over a five-minute period if the cost of solving for them over a five minute period would exceed a certain threshold. The NYISO has made developing such logic a high priority.

Second, the NYISO hopes to institute a more gradual phase-in of transmission limit changes in SCD. This correction would dampen the effects of thunderstorm alerts and scheduled maintenance, which are presently accounted for in a single SCD interval. For example, when thunderstorm alerts occur, state reliability rules require the NYISO to call on enough eastern suppliers to make the area located east of Central-East more electrically self-sufficient in order to reduce the system's vulnerability to lightning induced blackouts. SCD currently implements this change in a single interval, instantly causing a major spike in eastern prices and a major downswing in western prices. The NYISO intends to introduce SCD modifications in the near future that will allow the software to account for the effects of events over several intervals and thereby diminish their impact. More broadly, with respect to thunderstorm alerts, the NYISO hopes to work with its committees and the New York State Public Service Commission to review the economic effects of thunderstorm alert-related reliability rules and to determine whether they should be modified to reflect New York's move from traditional regulation to competition in the electricity industry.

Third, the NYISO is working on a number of SCD modifications in support of its efforts to reduce the divergence between BME and SCD prices.⁷⁸

Finally, as was noted *supra* in Section 6, there is a substantial flaw in the way in which SCD calculates prices at external proxy buses under certain conditions. The flaw may cause a sizable discrepancy between the external proxy bus price calculated in the BME and the real-time price calculated in SCD, which can create uplift when in fact there should be little or no uplift. The problem arises because SCD is unable to recognize the constraint costs associated with the hour's interchange schedules. The NYISO is reviewing a variety of possible solutions to these problems. It is also in the process of determining whether additional steps are warranted in this area.

e. **Making Qualifying Facilities and Independent Power Producers Directly Dispatchable by the NYISO**

The NYISO has been working with New York's transmission owners to find ways to facilitate the NYISO dispatching of Qualifying Facilities ("QFs") and Independent Power Producers ("IPPs"). Increasing the dispatchability of these units would increase the NYISO's scheduling flexibility in real-time, which would help to mitigate price spikes and bring other market benefits. Previously, the NYISO has had little authority in this area and QF/IPP scheduling has been handled by each transmission owner pursuant to its own rules and procedures. The NYISO has made substantial progress working with transmission owners to gain direct control over the dispatching of these units. Additional work needs to be done with the QF and IPP owners. Nevertheless, the NYISO will have the ability to dispatch some QFs and IPPs directly by the end of the year.

f. **Load Forecasting**

⁷⁸ See *supra* Section 6.

The NYISO considers market participants' bids and load forecasts in developing its estimate of forecasted load. In some cases the NYISO has observed very high market participant load forecasts and bids. The NYISO recently addressed this problem by adopting a new policy pursuant to which it rejects any market participant's load forecast, and uses its own forecast, if the participant's forecast is more than 5% greater than the NYISO's for the area and time. This solution eliminated potential inefficiencies and gaming incentives. The NYISO has not had enough time to determine whether it will bring tangible benefits, or have unexpected incidental effects.

g. Open-Access Same-Time Information System ("OASIS") Matters

The NYISO is currently undertaking a comprehensive review of its OASIS posting procedures to ensure their compliance with the applicable provisions⁷⁹ of Order No. 889 and its progeny.⁸⁰ In particular, the NYISO is taking steps to ensure that it promptly posts: (i) transmission owners' requests to commit generators that were not committed in the day-ahead market for local reliability purposes; and (ii) information on available transmission capacity and total transmission capacity for all paths into, through and out of the NYISO.

h. Automatic Generation Control ("AGC")

In the next few months, the NYISO will finalize its implementation of a new AGC system, replacing the outdated system it inherited from the NYPP. This improvement will send generators which

⁷⁹ The Commission has granted the NYISO a limited waiver of certain of its OASIS requirements to reflect the differences between its LBMP-based transmission system and physically-based transmission systems. *See Central Hudson Gas & Electric Corp.*, 88 FERC ¶ 61,253 (1999).

⁸⁰ *See Open Access Same-Time Information System and Standards of Conduct*, Order No. 889, FERC Stats. & Regs. ¶ 31,035 at 31,586 (April 24, 1996), *order on reh'g*, Order No. 889-A, FERC Stats. & Regs. ¶ 31,049 (March 4, 1997), *order on reh'g*, Order No. 889-B, 81 FERC ¶ 61,253 (1997), *order on reh'g*, Order No. 889-C, 82 FERC ¶ 61,046 (1998).

provide regulation much smoother signals and reduce the variability of system conditions between SCD intervals.

i. Improper Curtailments of Export Transactions

Although the NYISO has successfully corrected a SCUC scheduling problem that was leading to erroneous export curtailments, *see infra* Part VII, a much less serious problem persists that could occasionally cause export transactions to be improperly curtailed. Export transactions are currently scheduled on the basis of their sink price cap bids but are curtailed on the basis of the incremental bid of the generator that actually supplies the energy. As is noted below, the NYISO has fixed a software problem on the scheduling side that previously caused improper curtailments. However, the NYISO also intends to change its procedures so that exports are curtailed on the basis of the exporter's sink price cap bid, not the generator's incremental bid, in order to avoid the occasional curtailment errors that would otherwise result.

j. Ramping Issues

The NYISO staff and the committees are considering several ramping issues that have arisen between the NYISO and PJM, and which have led to curtailments. NYISO staff is currently working to determine which of these ramping problems are "seams" issues that can be addressed by discussions between the NYISO and PJM, and which, if any, are market flaws that the NYISO can address alone. NYISO staff will work with the committees to identify the most effective ways to address any ramping problems that are attributable to NYISO market flaws.

k. Additional Market Flaws

On September 6, 2000, William J. Museler, the NYISO's President and Chief Executive Officer, announced that the NYISO had identified two additional market flaws,⁸¹ after extensive consultations with its market monitoring unit and independent Market Advisor. The first market flaw has to do with hour-ahead bidding strategies involving external transactions (*i.e.*, imports and exports) that are cut in the inter-Control Area transaction check-out process during the time between the completion of the NYISO's BME analysis and the SCD operating hour. The second involves the calculation of real-time energy prices at external proxy buses during transmission limitation periods. The NYISO staff has concluded that both flaws have recently had substantial effects on prices and must be corrected on an interim basis to give the NYISO staff and the committees more time to craft a permanent solution. The NYISO therefore anticipates that it will soon announce new ECAs to address the newly identified market flaws.⁸²

VII. The NYISO's Compliance with the NMEM Order

A. Background:

NMEM's complaint criticized the NYISO for failing to fix a software flaw that was leading to the erroneous export curtailment. The *NMEM* Order, rejected most aspects of NMEM's complaint and directed the NYISO to submit a "comprehensive filed statement of the status of changes the NYISO has made to correct the market flaws identified by [NMEM] in this proceeding, and a report

⁸¹ The announcement concerning the identification of these market flaws is posted on the NYISO's OASIS and on the "What's New" portion of its web site at <http://www.nyiso.com/topics/whats_new/whatsnew.html>.

⁸² The ECAs will be available via OASIS, from the "What's New" portion of the NYISO's web-site and the market monitoring section of the website. *See* [<http://www.nyiso.com/markets/mktmon.html>].

on the effects of the changes on the NYISO's markets." The Commission added that it would use this information to determine the need for further action, including the possibility of establishing compensation mechanisms for the benefit of exporters whose transactions are curtailed.

B. Compliance Report

In its August 10th *Notice Concerning Docket Nos. EL00-82-000, EL00-70-001 and ER00-3038-002*, the NYISO explained that a permanent fix to the software problem that was causing erroneous export curtailments was successfully implemented on August 4. To the best of the NYISO's knowledge, this correction has worked as intended and there have been no erroneous curtailments since it was instituted. It appears that since August 4, export transactions are being scheduled in an economically rational manner and that the NYISO's software modifications have not had unintended adverse effects.⁸³ The NYISO will continue to closely monitor the scheduling of export transactions and will take whatever action is necessary to avoid future problems in this area.

In an earlier pleading in Docket No. EL00-82-000,⁸⁴ the NYISO opposed NMEM's claim that the NYISO should be required to pay lost opportunity costs to exporters whose transactions were curtailed prior to the completion of its software corrections. NMEM's claim is now moot, since the NYISO's software corrections are now in place. Moreover, the NYISO does not believe that it would be appropriate for the Commission to require the NYISO to pay lost opportunity costs to exporters whose transactions are curtailed in the future. As the NYISO explained in Docket No. EL00-82-000, export transactions are curtailed or adjusted only when necessary to maintain system reliability, or when

⁸³ On August 22, 2000, the NYISO issued a press release declaring its software fix a success and noting that no market participants had complained of export problems since the fix was implemented. See Attachment XI.

⁸⁴ *Request of the New York Independent System Operator, Inc., for Leave to Submit Supplemental Answer and Supplemental Answer*, Docket No. EL00-82-000 (July 24, 2000).

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requested by the exporter for economic reasons pursuant to its sink price cap bid. Such curtailments and adjustments are an inherent part of an exporter's risk of doing business in a transmission system that does not have infinite capacity. The NYISO does not believe that it should be expected to insure such risks, especially since it does not monitor bilateral transactions and has very little information about them.

VIII. Conclusion

WHEREFORE, for the foregoing reasons the New York Independent System Operator, Inc., respectfully asks that the Commission accept this combined compliance filing and report.

Respectfully submitted,

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