

Northeast ISOs Seams Resolution Report

History of Completed Seams Projects

2000 – Completed Projects

1. **May 2000 – NY EMERGENCY TRANSFER AGREEMENT WITH PJM** – ensures that energy will flow across control area boundaries during emergency situations
2. **June 2000 - NYISO DATA FEED FOR PJM E-DATA TOOL** – provides NY zonal and generator LBMP data electronically for display on PJM's e-Data tool.
3. **August 2000 – NY EMERGENCY TRANSFER AGREEMENTS WITH ISO-NE** – ensures that energy will flow across control area boundaries during emergency situations
4. **Sept 2000 – NY PREVENTION OF TRANSACTION BID PRODUCTION COST GUARANTEE GAMING** - by scheduling transactions in NY and canceling them (or not scheduling them) in neighboring control areas, resulting in improper payments in NY and ramping difficulties in PJM. Immediate corrective action taken with a permanent fix implemented in the NY market software making this gaming scheme unprofitable.

2001 – Completed Projects

5. **Jan 2001 – PJM CHANGES TIMING REQUIREMENTS** – PJM implemented new business rules to allow schedule changes through the Enhanced Energy Scheduling (EES) system with only 20 minutes notice.
6. **Feb 2001 – NY RESERVE SHARING WITH ISO-NE** – Phase 1 allows NY to include 300 MW from ISO-NE as 30-min. reserves. Phase II (sharing of up to 100MWs of 10-minutes reserves) effective 6/15/01.
7. **March 2001 – NY TRANSACTION CURTAILMENT NOTIFICATION MESSAGES** – enhanced communication process by improving informational messages when transactions are not scheduled or curtailed.
8. **April 2001 – PJM MODIFIES NYPP-E/NYPP-W LMP DEFINITION** – PJM's NYPP-W and NYPP-E interface points are combined into a single New York Interface point. The two interfaces will continue to be used but the price at these points will be the same and reflect the definition of a single NY interface point.
9. **May 2001 – NY EMERGENCY TRANSFER AGREEMENT WITH HQ** – ensures that energy will flow across control area boundaries during emergency situations
10. **June 2001 – NY'S IMPLEMENTATION OF TRANSACTION SCHEDULING DESK** – NYISO implemented an additional scheduling position in the Control Room that can be directly accessed by market participants to address real-time scheduling questions and problems. Timely provision of information reduces business risk and facilitates a level playing field for all MP's.

11. **June 2001 – PJM IMPLEMENTATION OF CSS** – PJM implements the Collaborative Scheduling System (CSS), which is part of the EES system. It allows users to submit scheduling information to one place and the information is sent to the NY MIS system for processing.
12. **June 2001 – PJM/NY COORDINATION OF IN-DAY TRANSACTION SCHEDULES TO HELP CONTROL RAMPING ISSUES** – To help control ongoing ramping problems between NY/PJM schedules, PJM implemented an approval process for all hourly (HAM equivalent) PJM/NYISO schedules. These schedules will only be approved and hold ramp after being checked out hourly with the NY-ISO.
13. **Dec 2001 – NY MULTI-HOUR BLOCK TRANSACTIONS** - Develop process to accept and schedule external LBMP energy transactions with minimum run times. Allows a marketer to arrange the 5-day by 16-hour market products commonly offered in existing Trading Markets.

2002 – Completed Projects

- 13a. **Jan 2002 – ISO-NE AND NYISO ANNOUNCE AGREEMENT TO ESTABLISH COMMON MARKET DESIGN AND EVALUATE A SINGLE RTO** – Provides for the development of a plan to establish a common market design and to evaluate a New England and New York RTO.
14. **Jan 2002 – PJM IMPLEMENTS NYIS INTERFACE LMP** – The NYPP-W and NYPP-E interface points are converted into a single New York Interface point (NYIS).
- 14a. **Jan 2002 - PJM AND MISO ANNOUNCE PLAN TO DEVELOP A JOINT AND COMMON WHOLESALE MARKET** – Covers all or parts of twenty seven (27) Midwest and mid-Atlantic states, the District of Columbia, and the province of Manitoba. This removes the potential for seams over a large portion of the Eastern Interconnection.
15. **Feb 2002 – NY TRANSACTIONS PRESCHEDULING** - An external LBMP or wheel-through pre-schedule request may be submitted up to 18 months prior to the effective transaction date. A pre-schedule request is checked for ramp and ATC before being approved. It is then given economic priority in the scheduling software over other external transactions that are not prescheduled, to provide the greatest certainty that the transaction will flow. NYISO implementation of Long-term Pre-scheduling provides comparable treatment of long-term firm service with PJM firm and “non-firm willing to pay congestion” service options. Long-term pre-scheduling allows preferential (firm) treatment of transactions, consistent with PJM & ISO-NE SMD 1.0, and addresses scheduling requirements for bundled ICAP/Energy products.
- 15a. **April 2002 - PJM AND ALLEGHENY POWER SYSTEM FORM PJM WEST** - The larger energy market provides one market with a common transmission tariff, business practices and market tools, thus eliminating seams issues between Allegheny Power and PJM.
16. **May 2002 - ISO-NE CHANGES TO ICAP RULES** - amending procedures for submitting external ICAP transactions between ISO-NE and NYISO. The changes to ISO-NE Market Rule 4 insure that imports from NY to NE will not exceed the TTC of the New York ties.
17. **May 2002 - ISO-NE RULE CHANGES TO PERMIT/FACILITATE SNETS FROM ISO-NE TO NY** – FERC Order dated 4/26/2002; ISO-NE can use all available resources to

support short notice external transactions (SNETs) as long as ISO-NE replacement reserves are not depleted in doing so. The short-notice scheduling capability gives market participants the ability to schedule new transactions on an hourly basis in a manner compatible with the hourly market. Results from Summer 2002 indicate a 31% increase in MWh exports and a 54% increase in the number of contracts from New England to New York.

18. **May 2002 – NY TRANSACTIONS REINSTATEMENT** - for transactions curtailed for in-hour due to reliability violations. NYISO will reinstate external transactions in-hour as soon as the reliability problem is resolved (previously the transaction had to wait until the next hour-ahead commitment run).
19. **May 2002 – NY HOUR-AHEAD CLOSING TIME CHANGED FROM 90 TO 75 MINUTES** - to allow for closer coordination with ISO-NE, which uses a 75-minute closing time. This allows MPs to use more current information in formulating transaction strategy.
20. **May 2002 - INTERIM TRANSACTION CHECKOUT BETWEEN NYISO AND ISO-NE -** This NYISO/ISO-NE Interim Transaction Checkout Tool addresses a seams issue requirement to enhance checkout for summer 2002 until OSS is deployed. It provides an electronic means of sharing transaction information to assist the operators during checkout and identify transaction issues more easily.
21. **May 2002 – IMO SEAMS INITIATIVES** – implemented a procedure that permits staggered HAM closing times – IMO generally closes their market to MP's 2 hours before the hour – a process is in place that will evaluate their accepted NY import/export bids in the hour-ahead commitment. Also, an interconnection agreement between NYISO and the IMO was made effective on May 1, along with several critical joint control room procedures.
22. **May 2002 – NY EMERGENCY TRANSFER AGREEMENT WITH IMO** – ensures that energy will flow across control area boundaries during emergency situations.
23. **May 2002 – NYISO FILING FOR ICAP DELIVERABILITY TO PJM** – NYISO filed with FERC on May 24 to modify its tariff to provide delivery of ICAP purchased by PJM from NY suppliers, allowing NY generators the opportunity to meet the PJM deliverability requirement and participate in the PJM ICAP market.
- 23a. **June 2002 – IMO, ISO-NE, NYISO SIGN AGREEMENT TO WORK COOPERATIVELY TO HARMONIZE MARKET RULES, ELIMINATE SEAMS ISSUES AND DEVELOP LARGER MARKETS** – Goal is to develop larger markets for energy and ancillary services. Elimination of export charges is a priority.
24. **June 2002 - DISPLAY TTC/ATC FOR ALL INTERFACES ON NPCC WEBSITE** – provides market participants with a single location to view the most limiting values across neighboring control area interfaces. NPCC has developed a website where regional MP's can view in one location the TTC/ATC values for all regional interfaces.
25. **June 2002 – NY/PJM IMPLEMENT PLAN TO ENHANCE CONGESTION MANAGEMENT** - Under specific conditions between NY and PJM through control room operating procedures. The pilot provides a means to relieve congestion in western PJM by shifting generation in NYISO.
26. **June 2002 – NY AND NE AREA CONTROL ERROR (ACE) DIVERSITY EXCHANGE INITIAL DEPLOYMENT** - Intended to enhance regulation performance. Initial implementation with NYISO and ISO-NE participating; other NPCC Control Areas to

participate when IT resources are available. Takes advantage of the diversity among the control areas to reduce the burden on regulating units that should aid regulation performance.

27. **July 2002 – NY IN-DAY COMMITMENT AND SCHEDULING ENHANCEMENTS -** This project implements consistent treatment of reserves in NYISO's hourly and real-time markets which will improve price convergence at the proxy (boundary) transaction busses with the neighboring control areas.
- 27a. **August 2002– NPCC ENHANCEMENT/EXPANSION OF LAKE ERIE EMERGENCY REDISPATCH –** NPCC FERC filing to add the MISO as a signatory and incorporate new settlement provisions.
28. **Oct 2002 (Orig. Date Sept. 2002) – NY INTERCONNECTION AGREEMENT WITH HQ/TE –** Interconnection agreement signed in October 2002. Review of potential for increasing the 7040 transmission line import limit above 1500 MW and evaluation of ways to better utilize NY-HQ-ISO-NE DC facilities are scheduled to be addressed under P5 and P14.
- 29a. **Dec 2002 – PJM IMPLEMENTS SPINNING RESERVES MARKET –** The spinning market for PJM was implemented on December 1, 2002. Spinning reserves consist of extra power plant generating capacity that is kept running so it can be used on short-notice to respond to increased demand or to supplement an unexpected drop in generation on the grid. Power suppliers will be paid a per megawatt hour market clearing price to provide spinning reserve services – a pricing schedule that has been approved by the FERC.

2003 Completed Projects

- P1 March 2003 – ISO-NE IMPLEMENTED NE SMD 1.0** –Under *NE SMD 1.0*, ISO-NE implemented LMP with day-ahead and real-time balancing markets similar to those utilized in PJM and NY. This was successfully implemented on 3/1/2003. (30)
- P2 March 2003 – ISO-NE UCAP IMPLEMENTATION** – ISO-NE implemented NY-based UCAP market as part of *NE SMD 1.0*. New England market's is similar to New York's schedules and auction processes. First auction held in March 2003 for April 2003 capacity market. With the opening of the ISO-NE markets, the same UCAP product is now used throughout the Northeast Region (PJM, NY and ISO-NE) (31)
- P3 March 2003 – NY NEW TRADING HUBS** - Establish trading hubs as requested by market participants to provide locations that would facilitate and enhance trading activity in the New York Market. NY market participants agree that the need for trading hubs is currently being met by the existence of the zonal LBMPs and that no further action is required at this time. (36)
- P4 April 2003) – NY OPEN SCHEDULING SYSTEM (OSS) Phase I – Deployed on 4/13/2003.** OSS is implemented as a “one-stop-shopping” tool enabling interregional transaction scheduling for external transactions between NY and PJM. Phase I deliverables include: (38)
- Submittal of bilateral transaction bids and schedules
 - Pre-scheduling of available transmission and ramp
 - “One-stop-shop” transaction submittal with NY MIS and PJM EES
 - Enhanced transaction management tools

- P5 Q4 2003 (orig. August 2003) – NY MS-7040 Transfer Study** – NY study on the impact of MS-7040 transfers above the current 1500 MW limit is complete and recommended no change in the current limit but did recommend developing a process to assess available margins to support HAM scheduling above current MW limits.
- P6 Q4 2003 (orig. Summer 2003) – Maritimes to become participants in ACE Diversity Interchange process.** Completed and operational in November 2003.
- P8a Q3 2003 – NY OPEN SCHEDULING SYSTEM (OSS) Phase II – Ramp/ATC Posting**
- Integration of PJM ramp data effective 9/30/2003. PJM Ramp data now incorporated into OSS advisory Ramp / ATC displays and advisory pre-validation for pre-schedule bids.
 - Ramping - Allow multiple schedule changes per hour (included in I3, Issues Under Discussion)
 - ATC/TTC posting via OSS – Complete.

2004 Completed Projects

- P11 1st Quarter 2004 (Complete) - HARMONIZE NEW YORK DEMAND RESPONSE PROGRAMS WITH ISO-NE** – NYISO Demand Response staff have met several times with their counterparts in PJM and New England during 2003 and 2004 and determined that much harmonization has occurred since the original recommendations. For example:
- All three ISOs have similar emergency programs called under very similar system conditions with similar or identical price floors (\$500 in NYISO and PJM, \$500 or \$350 in ISO-NE)
 - All three ISOs have programs under which Demand Response can obtain ICAP credit by virtue of participation in an emergency/reliability program
 - All three ISOs have, or plan to have, planning processes that will, in general terms, allow Demand Response to compete alongside transmission and generation alternatives to meet economic/congestion needs.
 - All three ISOs have adopted Small Customer Aggregation programs that allow small customers lacking interval meters to participate in their demand response programs.
 - All three ISOs presently allow on-site generation to participate in their emergency DR programs.
 - ISO-NE and PJM presently allows on-site generation to participate in their economic DR programs. NYISO does not presently allow on-site generation to participate in its economic program. As NYISO was developing the planned extension to that program, neither NYISO nor a significant number of its Market Participants support allowing on-site generation to participate. Accordingly, this prohibition is intended to remain.
 - All three ISOs have, or are seeking participant/FERC approval of fundamentally similar day-ahead demand response programs.
 - All three ISOs are in fundamental agreement that DR has a role to play in providing ancillary services such as reserves and that DR should be appropriately integrated into each ISO's ancillary service markets. While it is unlikely that this will take place in the next year, each ISO intends to work with its market participants toward this common end.
- P20 Q4-2004 (complete) – ELIMINATION OF RATE PANCAKING (NYISO – ISO-NE)**
- The elimination of export fees between ISO/RTO regions is an important objective of FERC. The NYISO and ISO-NE have been working with their TOs and state regulators to accomplish this goal. During mid-2003, the NYISO and

the New York transmission owners developed principles for the elimination of export charges from the New York Control Area, subject to reciprocity. The New England transmission owners included similar provisions in the RTO-NE filing with FERC on October 31, 2003. On March 24, 2004, FERC's Order on RTO-NE was conditioned on the elimination of export fees between New York and New England by the end of 2004. In April 2004, an agreement in principle was achieved among ISO-NE, the NYISO, New York, and NE state regulators calling for the elimination of export fees between the regions on or before December 2004.

2005 Completed Projects

P7 Q2 2005 (Orig. Date Dec 2002) – COORDINATION OF CONTROLLABLE TIE LINES (PHASE-ANGLE REGULATORS) BETWEEN NY AND PJM

FERC issued an Order on the PSEG-ConEd wheeling contracts (FERC Docket EL02-23) Phase I issues 12/9/2002. Appeals of Phase I Order were denied in FERC's 12/23/03 order. The ALJ issued an Initial Decision in the Phase II litigation on June 11, 2003. Briefs have been finalized. FERC issued its final order on August 6, 2004 which requires NYISO, PJM, Con Edison and PSEG to develop an operating protocol to coordinate the scheduling of the PARS and other measures to implement the transmission service under the subject contracts to be filed with FERC by November 6, 2004. Con Edison and PSEG have both filed for rehearing of certain aspects of the FERC Order. PJM and NYISO have met several times to draft the operating protocols.

- On October 26, the parties filed with FERC for an extension of time (until January 17, 2005) to develop a mutually acceptable operating protocol, and proposed to identify issues they were unable to resolve by December 1, 2004. The Commission granted the joint motion in its November 1 notice.
- On December 13, 2004, the parties filed for additional time (until December 21, 2004) to identify outstanding issues in the proceeding.
- On December 22, 2004, the parties filed a joint submission of outstanding issues and requested assistance of the ALJ to help narrow their differences.
- On January 6, 2005, the parties met with the ALJ to explore outstanding issues.
- On January 13, 2005, the parties filed for an extension of time (until February 18, 2005) to resolve the outstanding issues and to finalize a mutually acceptable protocol.
- On February 18, 2005, the NYISO, PJM, and PSE&G submitted a joint compliance filing including a comprehensive operating protocol under which the NYISO and PJM would administer the subject contracts. The filing requested a June 1, 2005 implementation date.
- On May 18, 2005 FERC issued an Order approving the protocol as filed, with an effective date of July 2, 2005; the protocol was implemented on July 1, 2005

P8b Q3 2003 (orig. Projected 2003) – FACILITATED CHECKOUT

- NYISO, ISO-NE, IESO, HQ, NB, & MISO have been participating in the specification of the Facilitated Transaction Checkout (FTC) communication protocol. Pilot implementation with ISO-NE has been successful and demonstrated ISO-NE and NYISO capability to exchange transaction data in real-time. NYISO, ISO-NE, and IESO have completed implementation of the data exchange software. ISO-NE and IESO have successfully integrated the new data into their control room displays.

Milestones and timetable:

- FTC was implemented into NYISO's control room displays on July 5, 2005.

P8c Q2 2005 (orig. Projected 2004) – NY E-TAGGING

- NYISO has implemented automated tools to improve communication and updates of NYISO transaction bids and schedules with the E-Tag system. The tools allow automated response on incoming E-Tag requests and automated curtailments to the E-Tag system for bid / schedule changes resulting from hour-ahead evaluation, checkout, and curtailments.

Milestones and timetable:

- **NYISO** – Has implemented automated tools to improve communication and updates of NYISO transaction bids and schedules with the E-Tag system.
- Phase I development (operations automation) is complete and was deployed on April 25, 2004.
- Release 1.4 of the E-Tagging software was deployed February 1, 2005.
- Release 2.0 will provide more automated integration of this data, including the ability to identify and cut any MIS schedules without a corresponding E-Tag. Release 2.0 was successfully deployed on July 5, 2005.

P10 Q4 - 2005 (Orig. Date 2003) – NPCC EXPANSION OF REGIONAL RESERVE SHARING

- NPCC coordinated the implementation of a 100 MW reserve sharing pilot among NPCC members to improve regional reserve market efficiency. The NPCC RCC formally accepted the Reserve Sharing Procedure on June 1, 2005; the pilot was implemented on January 4, 2006. The RCC restricted reductions in individual Area reserve requirements to 50 MW for up to one hour. The pilot project does not address a market-based solution.

P12 Q1- 2005 (Orig. Date 2003) – NY REAL-TIME SCHEDULING (RTS) IMPLEMENTATION AND NY SMD 2.0

Real-Time Scheduling (RTS) is a major portion of the overall NY SMD 2.0 and involves developing new real-time commitment (RTC) and dispatch (RTD) software in place of the current hour-ahead commitment and real-time dispatch modules. The RTS time frame extends from 5 minutes in the future to 2½ hours in the future. Commitment and decommitment decisions are made every 15 minutes by the real-time commitment (RTC) process. Decisions to adjust the output of internal energy suppliers (dispatch) are made every 5 minutes by the real-time dispatch (RTD) process, as is the calculation of energy and ancillary services prices.

2006 Completed Projects**P23 Q2 2006 – COORDINATION OF INTERREGIONAL PLANNING**

In January 2003, a Liaison Task Force was formed including all NPCC members as well as PJM to develop ways to improve the coordination of planning for the Northeast region. As a result, there has been considerable improvement in communication on planning issues. During 2004, ISO-NE, NYISO, and PJM solicited stakeholder input on a draft protocol agreement. In general, stakeholders were supportive of moving ahead with the protocol.

Milestones and timetable:

- The ISOs developed a draft coordinated planning protocol document, incorporated stakeholder input and finalized the protocol document in December 2004. This document provides the basis for standardizing data and information exchanges,

developing a coordinated plan, and initiating a joint stakeholder process. The IESO, Hydro Quebec (Transenergie) and New Brunswick Power, while not parties to the protocol, have agreed to participate on a limited basis in order to ensure better coordination for the benefit of the Northeast region.

- The initial scope of work for a Northeast Coordinated System Plan began in summer 2004. It includes better coordination of information sharing by harmonizing the timing, development, and exchange of data bases and modeling assumptions used in planning analysis, the identification of joint planning issues, the establishment of standardized confidentiality agreements and building upon joint planning activities already under way.
- The initial draft Northeast Coordinated System Plan: 2005 (“NCSP 2005”) was issued to stakeholders on April 6, 2005. This report consolidates the system assessments and plans of each of the participating control areas, highlights existing inter-regional planning activities, summarizes perceived issues and risks, and identifies potential issues for future analysis.
- A region-wide planning process has been implemented which includes an open stakeholder advisory group and the issuance of a region-wide coordinated plan. This region-wide planning process is supplemental to each ISO or RTO’s individual and more detailed transmission planning process.
- The first meeting of the Inter-area Planning Stakeholder Advisory Committee (“IPSAC”) was held on June 17, 2005 to receive input and to initiate the process for developing the first fully coordinated NCSP for the Northeast, which is expected to be issued after mid-2006. This plan will include joint analysis performed by the ISO/RTOs.
- Based upon input from the June meeting, the ISOs have prepared a Scope of Work for the NCSP 2006. A meeting was held on October 28, 2005 to review the scope of work with stakeholders. Preliminary results were reviewed with stakeholders at an April 27, 2006 IPSAC meeting and final results are expected to be reviewed at an IPSAC meeting scheduled for September 20, 2006. Potential interregional cost impacts associated with interregional planning studies will be addressed in future IPSAC meetings.
- The ISO/RTOs have coordinated System Impact Studies that could have an impact on neighboring Areas. The potentially affected areas are contacted at the earliest possible date and the scope of work and study assumptions are modified to reflect this input.
- A joint website has been established and the ISO/RTOs are in the process of updating posted in

2007 Completed Projects

P14 Pending (Orig. Projected 2005) – NY-HQ-ISONE HVDC INTERCONNECTIONS (ISO-NE, NYISO, PJM and HQ)

This is a joint project lead by ISO-NE and HQ TransÉnergie to update the methodology and procedures for scheduling of the Phase II HVDC interconnection between New England and Quebec.

- Initial efforts were focused on use of the IDC as a possible tool to forecast availability of Phase II above the 1200 MW limit, however the parties have concluded that the IDC in its current form would not be suitable.

- The report, "Review of the PJM-NY-NE Procedures and Methodology for the TE-NE HVDC Line was finalized May 2005". This document is posted on the ISO-NE website at <http://www.iso-ne.com/trans/ops/limits/>.
- NYISO, PJM, and ISO-NE have signed a data sharing agreement
- All three recommendations in the May 6, 2005 Report are to be implemented, that is: (1) PJM will improve the calculation for the marginal Phase II limit and will implement this calculation method by the mid November - early December time period; (2) ISO-NE will post the NYISO and PJM real time limit for Phase II; and (3) an analysis for significant curtailments will be made with the ISO-NE administering the reporting function.
- ISO-NE has begun to develop the scope of work and schedule necessary for implementation.
- The posting of NYISO and PJM real time limits for Phase II (item 2 above) is scheduled for implementation in late May of this year (2007).
- A proto-type report and process for documenting significant Phase II curtailments is currently under consideration. A proposal for satisfying this recommendation will be prepared and presented at the meeting of the Joint TÉ-ISO NE Interconnection Committee.
- On May 9, 2007, ISO-NE began posting NYISO and PJM based real time limits for single source contingencies (including Phase II) in the New England Control Area.

P19 Q4-2006 (orig. Projected 2004) – ISO-NE PARTIAL UNIT ICAP SALES

ISO-NE's SMD 1.0 does not support the sale of UCAP to external control areas from portions of units. The Commission has directed that this functionality be added. ISO-NE has implemented changes that offer basic partial delisting functionality.

Milestones and timetable:

- ISO-NE presented a basic proposal for discussion with the Markets Committee ("MC") at the October 13, 2004 and December 2, 2004 MC meetings.
- A final proposal was presented to the MC for a vote in the December 15, 2004 meeting and passed with 70.48% voting in favor. The NEPOOL Participants Committee ("PC") voted at its January 7, 2005 meeting to support ISO-NE's proposal.
- Filed with FERC on January 31, 2005
- Manual changes approved by MC on March 8, 2005
- FERC issued order conditionally accepting tariff filing on March 31, 2005. Two compliance filings were required: a 30-day and a 60-day.
- Manuals were approved by MC on April 13, 2005, complying with FERC's order.
- ISO-NE and NEPOOL made the 30-day compliance filing on May 2, 2005, which was accepted by FERC on June 22, 2005.
- On May 2, 2005, ISO-NE also filed a request for rehearing of the Commission's March 31, 2005 directive to modify the partial de-listing provisions such that the requirement for partially de-listed units to offer their full capability into the Day-Ahead Energy Market (the "Offer All" requirement) will expire upon the implementation of a Locational ICAP market in New England. On September 15, 2005, the Commission issued an order granting the ISO's request for rehearing and rescinding the directive that the day-ahead Offer All requirements expire coincident with the implementation of a Locational ICAP mechanism.
- Partial unit ICAP sales were implemented on June 1, 2005.

- On November 17, 2005, the Commission directed ISO-NE and NEPOOL to continue to work on aspects of the rules relating to partial de-listing, without establishing specific deadlines. Specifically, the Commission directed ISO-NE and NEPOOL to continue to work to (1) remove the restriction that a unit be limited to a single listed and de-listed segment; and (2) eliminate restrictions associated with the treatment of partially de-listed resources in the Forward Reserve Market.
- On May 30, 2006, FERC issued an order directing ISO-NE, "within 90 days of the date of this order, to make a filing with the Commission providing a specific date on which ISO-NE will file to implement multiple segment delisting." The ISO is currently in the process of determining a target date for implementing multiple segment delisting.
- On August 28, 2006, the ISO-NE submitted a compliance filing providing for market rules to be submitted on or before March 30, 2007 (with a requested effective date of June 1, 2007) to allow sales of capacity and non-recallable energy to different buyers over different transmission interfaces.
- On March 12, 2007, ISO-NE reported to FERC that stakeholder discussions on a proposal to allow multiple sales of ICAP over multiple external interfaces from a single partially or wholly delisted resource will commence in April. Implementation of this capability is anticipated shortly after completion of the stakeholder discussions, scheduled to conclude in late spring or early summer.
- ISO-NE implemented rule changes to allow multiple sales of ICAP over multiple external interfaces from a single partially or wholly delisted resource on June 8, 2007.

P30a MODELING OF NETTED TRANSACTIONS AT THE NYISO-HYDRO QUEBEC INTERFACE (NY-HQ)

Currently, real-time imports from HQ are limited to 1200 MW based upon NY first contingency criteria. Day-ahead and real-time scheduling software recognizes a 1500 MW limit at the NY-HQ proxy bus comprised of imports, exports, and wheel-throughs. One solution that has been suggested would create a second proxy bus model at the interface, which would be used to schedule only wheel-through transactions; the first proxy bus would be used to schedule imports/exports up to a net level of 1200 MW. On December 16, 2005, the NYISO met with HQUS to discuss next steps. Based on the December meeting, a high-level presentation on functional requirements and preliminary resource requirements was presented at the Jan. 20, 2006 S&PWG meeting and at the February 9, 2006 Operating Committee meeting. The NYISO has proposed to implement a second proxy bus with HQ to account for wheel-through transactions. The HQ proxy buses will each have a ramp limit and will split the available ramp for that interface. The NYISO is currently reviewing software and modeling design requirements. The NYISO filed with FERC on March 28, 2007 and implemented the dual proxy generator bus arrangement at the Chateaugay Interface on July 1, 2007.

P30b MS-7040 TRANSFERS ABOVE THE CURRENT 1500 MW limit (NY-HQ)

A New York study on the impact of MS-7040 transfers above the current 1500 MW limit is complete and recommended no change in the current limit but did recommend developing a process to assess available margins to support HAM scheduling above current MW limits. A proposed solution was presented at the Feb. 9, 2006 Operating Committee meeting. Implementation of proposed real-time operation expected for Summer 2006 Capability period, subject to completion of Operating Studies and automated monitoring capabilities. A presentation was made to the Market Structure WG on April 13, 2006 detailing a proposed scheme for operating MS7040 transfers above

1500 MWs in real-time

(http://www.nyiso.com/public/webdocs/committees/bic_mswg/meeting_materials/2006-04-13/HQ_RTM_Limit_MSWG_4_13_06.pdf). A method for operating the MS7040 transfers above 1500 MWs in real-time (subject to defined operating conditions) was implemented on 11/1/06. (Jan 2005)

P31 Q2 2007 – NYISO and PJM JOINT OPERATING AGREEMENT (JOA)

In 2007, NYISO and PJM completed a JOA which enhanced the cooperation and coordination in the following areas:

- information exchange
- emergency assistance
- operating to SOL and IROL limits
- outage scheduling
- joint checkout procedures

P32 Q2 2007 – NY/PJM PROXY BUS CLEARING PRICE CALCULATIONS

NY and PJM calculated their respective proxy bus prices using the LMP method but with fundamentally different underlying assumptions. This can result in significant price differences between the NY and PJM proxy prices. These discussions have started between the ISOs. The NYISO presented its internal proposal to improve the proxy bus pricing at a series of stake holder meetings as follows: MIWG - 11/21/06 and 1/17/07, SOAS - 1/24/07, BIC (update) - 2/7/07, OC (update) - 2/8/07 and 4/20/07. With no Tariff changes required, a technical bulletin was issued on 4/13/07 describing the details of this methodology and the operations manual will be updated along with a larger set of queued changes at a future time. The implementation of this methodology was activated on June 6, 2007.

I10 ICAP SELF SCHEDULING REQUIREMENT IN ISO-NE

Market participants have expressed concern with the self scheduling requirement in the ISO-NE ICAP Manual that requires resources sold externally to self schedule the amount of capacity they offer for sale externally in order for the associated energy to be non-recallable. The market participant concern is that this requirement may not be consistent with the ICAP principles that have been agreed upon among the Northeast ISO/RTOs and that this requirement may be an unnecessary barrier to trade. The ISO provided a report on ICAP self-scheduling to New England Participants on September 18, 2006 (http://www.iso-ne.com/committees/comm_wkgrps/mrks_comm/mrks/mtrls/2006/oct17182006/a12_iso_memo_re_icap_exports_and_self_scheduling_09_15_06.doc). ISO New England report on ICAP Self-Scheduling was reviewed with NEPOOL Markets Committee in October of 2006.

- The referenced report concluded that no significant seam exists in that the requirements in the PJM, NY and NE markets for resources to produce the energy being sold externally under non-recallable sales are effectively the same.

2008 Completed Projects

P25 Q2-2007– NORTHEAST GAS/ELECTRIC INTERDEPENDENCY COORDINATION (PJM, NYISO, ISO-NE)

Much of the generation built in the Northeast in recent years is fired by natural gas. Periods of extreme cold weather place heavy demands on both the electric and natural gas transmission systems as energy consumption increases. Sometimes, the resulting delivery restrictions on the regional gas pipeline system, and/or lack of firm contracting, can limit the ability of gas-fired generation to produce electricity.

ISO-NE, NYISO, and PJM have agreed, through a Memorandum of Understanding signed in June of 2005, to collaborate to ensure electric power system reliability in the event of supply constraints on the natural gas supply system. The ISOs will coordinate operations and practices and share information and technology during periods of extreme cold weather and/or abnormal natural gas supply or delivery conditions through the Northeast ISO/RTO Natural Gas and Electric Interdependency Coordination Committee (“NGEICC”).

- Following hurricanes Katrina and Rita in the fall of 2005, and as a result of the devastating impacts those hurricanes had upon the oil, natural gas and refining infrastructure in the Gulf of Mexico, the NGEICC initiated an assessment of the potential impacts on regional fuel supply/delivery, as it relates to power generation fuels and subsequent reliability of the electrical power grids in the northeastern United States. The Committee retained the services of an industry consultant for this analysis. The consultant delivered study results for ISO-NE, NYISO, and PJM. The study predicted a delivery shortfall of approximately 1.5 Bcf/day through the winter season. That prediction turned out to be accurate, but the mild winter weather blunted any impact from the delivery shortfall.
- ISO-NE and NYISO have established mechanisms to automatically receive regional natural gas pipeline (Transportation Service Provider’s (“TSP”)) informational postings from their electronic bulletin boards (“EBB”). TSP informational postings contain Critical and Non-Critical Notices as well as Planned Service Announcements, detailing maintenance activities. PJM is now monitoring various sources of information to assess the natural gas delivery situation.
- PJM is now participating in the Mid Atlantic contingency planning group, which is a gas supplier/user group and continue to monitor the supply situation.
- NYISO is working with the New York Department of Public Service, select Transmission Owners and select Local Distribution Companies to finalize a communication protocol to be used in the event of severe natural gas restrictions in New York City and/or on Long Island. Under the protocol the NYISO would receive notification of operational flow orders (OFO) issued for New York City and Long Island and keep the Local Distribution Companies in New York City and on Long Island apprised of the status of the electric system. A draft version of the protocol has been shared with Market Participants.
- On February 1, 2008 NYISO filed Tariff updates with FERC to incorporate a New York State Gas-Electric Coordination Protocol into its OATT. The Coordination Protocol establishes communication pathways in the event of a gas or electric emergency in the State of New York between the local distribution companies serving gas fired generation plants, the power plant operators of gas fired generation plants, the Transmission Owners, the NYISO and the Staff of the New York State Department of Public Service. In addition, the NYISO submitted a Statement of Full Compliance with NAESB WEQ Standard 011-1.6 /WGQ Standard 0.3.15 as required by FERC Order 698. On March 28, 2008 FERC accepted the NYISO Tariff filing.
- With the projected increase in imported LNG deliveries being re-gasified to supplement domestic North American gas supplies, on June 15, 2006, FERC issued a Policy Statement on Natural Gas Quality and Interchangeability (Docket No. PL04-

- 3). Concerns have been expressed over the interchangeability and potential impacts on end-users due to various sources of global LNG supplies as compared with the historical composition of domestic natural gas. FERC delineated five (5) guidelines or principals and mandated the updating of each natural gas pipeline's gas quality tariff for interchangeability with new LNG supplies.
- With respect to monitoring the interests and concerns of regional gas-fired generation and simultaneously assessing the potential impact on bulk power system reliability, ISO-NE has been following several stakeholder collaboratives being driven by the regional pipelines. These stakeholder collaboratives have been working to gauge the impacts of LNG interchangeability with respect to end-user - "sensitive receptors," while trying to find common-ground on revisions to their gas quality compositions within these tariffs. ISO-NE will continue to monitor these regional developments and share its findings with NYISO and PJM."
 - In the fall of 2007, ISO-NE, NYISO and PJM collaborated to implement "common" measures in order to comply, by November 1st, 2007, with the mandates identified in FERC Order 698. FERC Order 698 requires improved coordination between natural gas and electric utilities in order to improve communications about scheduling of gas-fired generators, through incorporating certain standards promulgated by the Wholesale Gas Quadrant (WGQ) and the Wholesale Electric Quadrant (WEQ) of the North American Energy Standards Board (NAESB). On September 27, 2007, New England's Electric/Gas Operations Committee, which is comprised of representatives of ISO-NE, NYISO and the regional natural gas industry (as coordinated through the Northeast Gas Association), approved its revised "Electric/Gas Operations Communication Protocol" which supports the compliance measures of FERC Order 698. Subsequently, on November 1st, ISO-NE and PJM both filed a statement of compliance with Order 686 with FERC. On that same date, NYISO submitted to FERC a statement of partial compliance and requested a three (3) month extension in order to finalize several draft communications protocols with regional stakeholders. It is anticipated that NYISO will be compliant with FERC Order 698 by February 1, 2008. In addition, ISO-NE, NYISO and PJM coordinated efforts to request information about service levels for natural gas supply and transportation from their gas-fired generation as approved by FERC in Order 698. This information will assist reliability coordinators in assessing the relative reliability of various gas-fired generators. ISO-NE has also begun working with regional natural gas pipelines and gas LDCs to improve information sharing regarding the scheduling of transmission, generation and natural gas (transportation & distribution) maintenance activities. This process adheres to the appropriate confidentiality provisions within both the gas and electric sectors.
 - On February 20, 2008, the Electric/Gas Operations Committee (EGOC) held a public workshop entitled, "*2008 Electric/Gas Operations Communications Workshop.*" The EGOC is co-chaired by representatives of ISO-NE and the Northeast Gas Association (NGA), and is open for participation to all regional stakeholders. The EGOC promotes the education, understanding, coordination and communications between the regional (wholesale) electric and natural gas industries. The *2008 Electric/Gas Operations Communications Workshop*, held at ISO-NE, had over 30 attendees, which included electric sector representatives from ISO-NE, NYISO and PJM. Natural gas sector representatives included regional interstate pipelines, LDCs, and NGA. Workshop discussion primarily focused on improving the existing communications between electric control room operators and gas control operators, with respect to both verbal protocols and electronic information exchange. Both sectors highlighted their FERC Rules regarding Standards of Conduct, Antitrust Compliance, and non-dissemination of Confidential Information. In an effort to improve bi-directional communications protocols, ISO-NE Operations Staff will visit the control rooms of all regional interstate natural gas pipelines companies.

P35 DYNAMIC RAMP ALLOCATION BETWEEN PROXY BUSES AT THE NYISO-HYDRO QUEBEC INTERFACE

There are two proxy buses available for scheduling transactions at the NYISO-HQ interface. One proxy bus is available for scheduling import/export transactions into and out of the New York Control Area. The other proxy bus is available for scheduling wheel-through transactions sourced or sunk in another control area. This dual proxy bus arrangement was implemented to remove a barrier to the full use of TTC (Total Transfer Capacity) on the interface while still enforcing the 1,200 MW import limit based on NYCA reserve requirements. The allocation of ramp capacity between the import/export and wheel-through proxies is currently assigned on a fixed basis. Providing for the dynamic allocation of ramp capacity between the two proxy buses will allow for more efficient transaction scheduling at the interface by allowing ramp capacity for the interface to be allocated between the two proxy buses in the economic evaluation of transactions schedules.

- The NYISO is actively pursuing the development of software enhancements necessary to implement the dynamic allocation of ramp between the two proxy buses. The software development and testing is expected to be completed in time for deployment in the fourth quarter of 2008.
- Software enhancements to implement dynamic ramp allocation were deployed in September 2008. NYISO Operations will change from the static ramp limits to dynamic ramp during a transition period. Market Participants will be notified each time ramp limits are changed.

2009 Completed Projects and Closed Projects**P9 LAKE ERIE SYSTEM REDISPATCH PROJECT IMPLEMENTATION**

This NPCC procedure allows the redispatch of suppliers across regions to alleviate the potential curtailments of transactions due to TLR requests whenever a control area is in an energy short situation. The project requires implementation of operating procedures and billing and settlement process to account for the regional redispatch.

- PJM, NYISO, MISO, and IESO have finished analyzing the causes of high circulating flows and have provided a report with recommendations <http://www.jointandcommon.com/working-groups/joint-and-common/downloads/20070525-loop-flow-investigation-report.pdf>.
- The second phase of PJM and MISO's loop flow study to identify the sources of high circulation on specific flowgates was completed in November 2008. This study report and presentation materials can be found at <http://www.jointandcommon.com/working-groups/joint-and-common/downloads/20081114-loop-flow-phase-ii-study-report-final-20081112.pdf> and <http://www.jointandcommon.com/working-groups/joint-and-common/downloads/20081114-item-3c-loop-flow-phase-ii-study-presentation-v3.pdf>.
- This project has been moved to the closed list. P36 Long Term Solution for Lake Erie Loop Flows is being used to report on efforts to develop solutions to mitigate Lake Erie loop flows. (Q3-2009)

P15 REGIONAL RESOURCE ADEQUACY MODEL (RAM) GROUP

The Regional Resource Adequacy Model (RAM) Working Group (formerly the JCAG Working Group) was set up to develop longer-range UCAP markets in NY, PJM and ISO-NE than currently exist. The RAM Working Group developed initial recommendations in mid-2002. The work plan was reassessed in light of the SMD NOPR and the ISOs/RTOs filed joint comments addressing resource adequacy on January 10, 2003. The comments described a central market-based resource adequacy framework, which was

consistent with the goals of the SMD NOPR. NERA was selected to analyze the proposed central resource adequacy market design, and presented their final report at the February 26 regional RAM meeting. A NYISO status report was filed with FERC on February 27, 2004. The broad range of concerns raised by stakeholder groups in each ISO/RTO make it unlikely that all of the ISO/RTOs would adopt the RAM proposal as it was then currently formulated. It was anticipated that this effort would lead, instead, to enhancements in the capacity markets in each region. In enhancing their existing markets, the ISO/RTOs have committed to maintain the ability to trade the same product (UCAP) between regions and to identify and remove any remaining barriers to the trading of capacity between regions. Each region has Resource Adequacy/ICAP working groups looking at this issue.

- The NYISO submitted a hybrid proposal to its stakeholders for consideration which incorporates a voluntary forward capacity market for procurement of a portion of its future resource requirements.
- On June 16, 2006, the Commission issued an order approving the proposed capacity market settlement agreement for the New England region, which provides for the eventual implementation of a forward capacity market after an interim transition period that begins on December 1, 2006.
- PJM introduced a proposal for a Reliability Pricing Model (“RPM”) in June 2004 and has subsequently presented and revised the proposal at numerous stakeholder meetings. The proposal has been presented and discussed with its Members Committee, at FERC and at its jurisdictional commissions. PJM has presented training programs and tutorials to members and interested parties.
- Beginning on December 8 and ending on December 10, 2008, ISO New England conducted the second New England Forward Capacity Market Auction for the Capacity Year beginning June 1, 2011 and ending May 31, 2012. ISO New England’s Second Forward Capacity Auction Results Filing may be viewed at: <http://www.iso-ne.com/regulatory/ferc/filings/2008/dec/index.html>.
- PJM introduced a proposal for a Reliability Pricing Model (“RPM”) in June 2004 and has subsequently presented and revised the proposal at numerous stakeholder meetings and has discussed the proposal with various PJM states PUCs. PJM has discussed the proposal with the NY PSC, with the NYISO and with MISO to ensure that the RPM proposal would not impact seams or create adverse impacts on regional markets. PJM filed its RPM proposal with FERC on August 31, 2005 and FERC held a technical conference on RPM on February 3, 2006. In an order on (Docket Numbers EL05-148-000, ER05-1410-000) April 20, the FERC endorsed the major principles of RPM. It called for the technical conference and hearings, which were held on June 7th and June 8th, to help resolve details prior to implementing RPM in place. RPM Settlement Proceedings were initiated in mid-June 2006. Parties filed proposed settlement on Sept 29, 2006 which is expected to be contested by a few parties in opposition. On December 21, 2006, FERC approved, with conditions, the RPM Settlement Agreement. The December 21st Order also denies rehearing of the Commission’s finding of the April 20 order that PJM’s current capacity market rules are not just and reasonable. PJM’s first RPM auction began on April 2 and closed on April 6. It was for delivery of capacity during the 2007/2008 planning year (June 1, 2007 to May 31, 2008). The auctions procure needed capacity after participants have specified self-supply and contracted (bilateral) resources. Generally, annual auctions will procure capacity three years prior to the required need to provide opportunity for planned resources to compete to supply the needed capacity service. PJM’s long-standing capacity requirement ensures that there are sufficient resources in place to meet the peak demand for electricity plus a reserve

margin. PJM members can use generation, transmission or demand response, including energy-efficiency programs. They can meet their supply requirements by owning resources (self-supply) or contracting for them (bilaterals). PJM's analysis shows that the RPM will yield lower costs overall than the previous model. The intent of RPM is to send pricing signals that will attract investment in new capacity resources where they are most needed further enhancing reliability. The 2007-2008, 2008-2009, 2009-2010, 2010-2011 and 2011-2012 Base Residual Auction Reports and the 2008-2009 Third Incremental Auction Report are located on the PJM website under the corresponding Delivery Year headings: <http://www.pjm.com/markets/rpm/operations.html>.

- PJM commissioned a study in accordance with Open Access Transmission Tariff requirements to evaluate the performance of the Reliability Pricing Model in addressing the infrastructure investment issues identified by PJM and stakeholders in 2004-2006. The study report was released on June 30, 2008 and may be viewed at: <http://www.pjm.com/documents/ferc/documents/2008/20080630-er05-1410-000.pdf>.
- Following the issue of the Brattle Group Report on the Effectiveness of the Reliability Pricing Model in June 2008, PJM commissioned a stakeholder process to evaluate potential changes to the RPM market rules. Comprehensive proposals were created included changes to the RPM auction process design, the penalty structures, the types of resources that may participate, and the basis price that will factor into what the cleared resources will be paid (aka Cost of New Entry). None of the comprehensive proposals achieved super-majority in the stakeholder process. PJM subsequently filed with FERC to initiate a settlement process. The first meeting was held on December 16, 2008.
- The first RPM settlement meeting was held on December 16, 2008 in front of a FERC Administrative Law Judge. Settlement talks ended in January 2009, when parties established that agreement between them would not be possible. In February 2009, PJM filed with FERC a settlement agreement among some parties to resolve the issues at hand. PJM requested that FERC issue an order no later than March 27, 2009 so that changes could be implemented in time for the May 2009 RPM auction for the 2012/2013 Delivery Year.
- PJM has reconvened the Capacity Market Evolution Committee to address compliance items as directed in the March 26, 2009 FERC Order on the Reliability Pricing Model. The stakeholder group will investigate automated methods for updating the Cost of New Entry, which serves as the basis for price on the capacity market demand curve. The committee will also review the following issues: scarcity pricing revenue offset, incremental auction design, establishment of new Cost of New Entry regions, and longer-term issues. The FERC Order directs PJM to make compliance filings on September 1, 2009 and on December 1, 2009 to address various aspects of the capacity market design. (Q2-2009)
- Presentations were made by ISO-NE and PJM describing their FCM and RPM approved market designs at NYISO November 2nd and 17th, 2007 ICAP Working Group meetings.
- Further to the NYISO Board's direction, the NYISO presented to the ICAP Working Group, at meetings during 2008 and Q1 2009, an iterative design of a forward capacity market.
- The NYISO has engaged NERA to develop a conceptual forward market design.

- At the joint NYISO Board of Directors Management Committee meeting on June 10, 2008, and during several ICAP Working Group meetings in 2007, 2008, and Q1 2009, market participants expressed a range of views on the forward capacity market design proposed by the NYISO and two market participants presented alternate designs concepts.
- The present design presented by the NYISO for its stakeholders' consideration incorporates a voluntary forward capacity market for procurement of a portion of future resource requirement.

The general design includes:

Advance Auctions

- Approximately 75 and 60 months prior to commitment year
- Voluntary two sided auctions

Forward Procurement (FP)

- Certifications approximately 50 months prior to commitment year
- FP approximately 44 months prior to commitment year
- Primary purpose is for NYISO to ensure that capacity committed to market is adequate and regulated solution need not be triggered

Reconfiguration Auctions

- Physical Reconfiguration Auction - covers load forecast changes, replacement of FP capacity failing to meet milestones - held at y-37 months, y-23 months and y-10 months and accelerated if there was a significant failure of qualified capacity
- Voluntary Reconfiguration Auction - to allow reconfiguration of positions taken in the voluntary auctions (e.g., marketers)

Strip Auction (conceptually unchanged from current design)

- Annual auction held before spot auctions

Spot Auction (conceptually unchanged, frequency may be reduced from monthly to less frequent)

- Would use Demand Curve

- Work on remaining design elements is continuing in Q1 and will continue in Q2 2009.
- In Q1 2009, the NYISO engaged The Brattle Group to conduct a comparison of the costs and benefits of the contemplated forward capacity market design to the NYISO existing capacity market. The Brattle Group's analysis will include information received during stakeholder sector focus group meetings it will conduct in April 2009. The Brattle Group's draft report will be presented at the NYISO's ICAP Working Group meeting on May 8, 2009, and the final report will be presented at the June 5, 2009 ICAP Working Group meeting.
- The NYISO plans to present a forward capacity market proposal to the Business Issues Committee for vote. The outcome of that vote will determine the degree to which resources are committed to fully develop FCM market rules and tariff language.
- At the March 19, 2009 ICAP Working Group meeting, the NYISO presented details on qualifications and milestones for new entry to participate in a forward procurement auction, In-City mitigation, credit requirements, settlement rules and seasonal variations issues associated with the forward capacity market design proposal, and revisions to the demand curve setting process.
- The Brattle Group presented the cost benefit evaluation report for replacement of the NYISO's existing Installed Capacity (ICAP) market with a new Forward Capacity

Market (FCM) to the ICAP Working Group meeting on June 5, 2009. The evaluation report was based on three key inputs; stakeholder comments from sector focus group meetings, the PJM and ISO-NE experience with FCM development, and economic theory and literature relevant to forward capacity markets. The report concludes that a mandatory forward capacity market could have greater long-term net benefits than the existing ICAP market. However, the incremental benefits would not be reaped until new capacity is needed. The NYISO's most recent Reliability Needs Assessment (RNA) base case projects capacity surpluses through 2018. Monitoring both the PJM and ISO-NE experience with their forward market design would provide additional experience to guide the development of a FCM for NYISO. Deferring the development of an FCM market design would allow the NYISO to allocate resources to other high priority capacity market enhancements. (Q2-2009)

- At the June 10, 2009 NYISO Business Issues Committee Meeting (BIC) meeting the NYISO conducted an advisory vote to ascertain Market Participant interest in further development of functional requirements for an FCM. A majority of NYISO Market Participants supported ending the current FCM development work. The NYISO will continue to monitor the progress of neighboring forward capacity market designs. (Q2-2009)
- This project has been moved to the closed list. PJM, ISO-NE and NYISO all have capacity markets in place that provide for cross border capacity sales. The Regional Resource Adequacy Working Group is no longer active. (Q3-2009)

P18 NYISO AND ISO-NE – INTRA-HOUR TRANSACTION SCHEDULING (ITS) (INCLUDING PARTICIPANT DRIVEN AS WELL AS VIRTUAL REGIONAL DISPATCH (VRD) SOLUTIONS)

ITS is intended to provide a means to respond to excessive and persistent price differentials between the markets at times when sufficient capacity remains available on the transmission interface to provide substantive reduction in the differential. Due to market rules associated with transaction scheduling that require over one hour of advance notice to schedule a transaction and the associated risks to market participants, price differences are not well arbitrated in real-time by Market Participants (MPs).

- NYISO and ISO-NE have documented a technical definition of a virtual regional dispatch process and have received potentially viable alternative methodologies from their stakeholders. The ISOs will proceed with further stakeholder meetings to finalize the technical definition and to work towards a joint stakeholder acceptance of the proposal.
- The first set of pilot tests were conducted on April 20-21, 2005. Any additional tests will be scheduled based upon results evaluation of the April tests.
- NYISO and ISO-NE issued a report on the first pilot test on October 24, 2005. A joint meeting of NY and NE stakeholders to review the pilot test report and further develop market participant based proposals for improving the efficiency of the NYISO/ISO-NE interface was held on November 14, 2005. Based on discussions at that meeting, ITS will be considered along with other market issues as part of the NYISO rules assessment initiative currently underway.
- Prior to the interruption in ITS activity a participant-initiated proposal for intra-hour transaction scheduling was under consideration. (http://www.nyiso.com/public/committees/documents.jsp?com=bic_mswg&directory=2005-01-18&cols=5&rows=5&start=26&maxDisplay=999). The proposal would allow transactions to be scheduled on shorter notice and, potentially, for shorter duration.

The shorter timeframes would allow participants to more quickly respond to price differences between the two areas.

- In 2007 NYISO evaluated inter-market real-time transaction scheduling as part of an evaluation of scheduling and dispatch market rules. http://www.nyiso.com/public/committees/documents.jsp?com=bic_miw&directory=2007-05-24&cols=5&rows=5&start=1&maxDisplay=999. A resumption of ITS efforts would then consider any potential changes recommended by the NY rules assessment. Both NYISO and ISO-NE have high priority, large projects underway that preclude activity on Intra-hour Transaction Scheduling before 2008.
- NYISO and ISO-NE will jointly perform an analysis of the impact of uneconomic interchange between the NYISO and ISO-NE control areas. This analysis will attempt to identify the potential economic benefits of more efficient use of available interface transfer capacity. The ISO's intend to bring the results of this analysis forward to stakeholders for review and feedback. NYISO and ISO-NE will work together to identify market mechanisms that can lead to more efficient scheduling and dispatch across the interface between control areas.
- On June 23, 2008, the NEPOOL Participants Committee voted to support an ISO-NE proposal to allow intra-hour scheduling of transactions with neighboring control areas. Rule revisions to implement this change will be filed with the FERC in July 2008. Initially ISO-NE expects to implement this scheduling functionality at the New Brunswick interface. These rule revisions were approved by the FERC on September 30, 2008 (Docket # ER08-1277-000) to be effective on October 1, 2008.
- The NYISO's 2007 State of the Market Report provides an analysis of scheduling and pricing patterns at the NYISO's interfaces with neighboring control areas. This analysis indicates that there is an opportunity to increase the efficient use of transfer capacity during unconstrained periods resulting in both production cost and net consumer benefits in both control areas. The analysis indicates that reducing the transaction scheduling lead time would enable market participants to more efficiently schedule transactions. The report recommends the development of processes to improve coordination between the ISOs even if only during limited circumstances, such as reserve shortages.
- On October 10, 2008, the NYISO presented a proposal for a reserve shortage protocol. The protocol would allow for the curtailment of RTC export transactions to maintain adequate reliability based Operating Reserves due to unforeseen events until normal market transaction scheduling has an opportunity to solve for these events. The NYISO is in the process of developing revisions to its Operational protocols to accommodate this process. The NYISO intends to present additional details and responses to questions at stakeholder meetings in early 2009.
- The NYISO reviewed the Reserve Shortage Operating Protocol proposal with market participants at the January 5, 2009 Market Issues Working Group and the January 20, 2009 System Operations Advisory Subcommittee meetings. The protocol was also discussed at the February 20, 2009 Market Issues Working Group meeting. Revisions to operating procedures and training materials are under development. Implementation of the protocol is expected in the second quarter of 2009. The NYISO also met with ISO-NE operational staff to review the proposed changes.
- On June 1, 2009 the NYISO implemented a new operating protocol for handling RTC export transactions to ISO-NE during times of reserve shortages. The reserve shortage operating protocol states that if a deficiency of 10 minute Operating Reserves (East 10 and NYCA 10) occurs, or is forecasted to occur, for a sustained period, as a result of an unforeseen event, the NYISO may curtail RTC scheduled

export transactions to ensure adequate reserves are available to meet requirements. ISO-NE already has an operating protocol in place to address reserve shortages through curtailment of export transactions. Specific details of this protocol were discussed with Market Participants at the NYISO's Market Issues Working Group (MIWG) meetings and in the System Operations Advisory Subcommittee (SOAS) meetings on May 6, 2009 and May 20, 2009 respectively. On June 23, 2009 a draft Technical Bulletin, #187-Reserve Shortage Operating Protocol was posted to the NYISO website and distributed to Market Participants for review and comment. (Q2-2009)

- The NYISO is assessing the feasibility of a project to enhance interregional transaction coordination by offering dynamic transaction scheduling capabilities at the NYISO borders. This concept would provide Market Participants with the ability to submit flexible transaction schedules for evaluation on an intra-hour basis. Development of this capability is initially targeted for the HQ interface with the roll-out to additional interfaces in future phases. Future phases of the project may provide for the sale of reserve and regulation products; however, this functionality is not within scope of the current design effort. At the June 26, 2009 Market Issues Working Group (MIWG) the NYISO presented an overview of this concept. (Q2-2009)
- This project has been moved to the closed list. A new project, P37 *Enhanced Interregional Transaction Coordination*, has been added to the report. This project will cover efforts to improve the coordination of energy scheduling at the borders between control areas. (Q3-2009)

P34 LIMITATIONS DUE TO LOSS OF LARGE SOURCE

ISO-NE has historically limited resources above certain MW levels when tripping at higher outputs could result in reliability problems for one of the other northeastern markets. PJM, NYISO and ISO-NE have filed a joint protocol with FERC on the coordination of loss of source procedures (http://www.iso-ne.com/regulatory/ferc/filings/2006/dec/er07-231-000_12-22-06_iso_phase_ii.pdf). On January 12, 2007, the Commission issued an order in docket no. ER07-231-000 accepting the joint protocol, without suspension after 60 days notice, effective January 16, 2007. The Commission found, however, that it should have been filed under Section 205 of the FPA and directed the RTOs/ISOs to resubmit the Protocol on tariff sheets. The RTOs/ISOs complied with this directive on February 12, 2007. On May 21, 2007, the Commission issued an order accepting the tariff sheet revisions for the Phase II Procedure, with an effective date of January 16, 2007.

- Operating studies of the loss of source, including the Phase II HVDC line connecting Quebec and New England, have been updated and approved. Planning studies simulating loss of source events have been updated. The results of these studies were reviewed at the March 23rd Inter-Area Planning Stakeholder Advisory Committee meeting.
- Analysis of potential of short-term transmission changes (series reactors) that could relieve the severity of the loss of source contingencies have been shown to produce marginal benefits and to introduce potential operating problems. They were discussed at the December 14, 2007 stakeholder meeting and it was agreed that these changes should not be pursued.
- Draft results of a long term assessment of the transmission system that reflects major improvements planned for NYISO, PJM, and ISO-NE were presented at the June 27, 2008 IPSAC meeting.. This assessment includes a determination as to their effect on the limitations on the size of allowable source loss in New England. The analysis also identifies the technical feasibility of mitigating the loss-of-source through the use of voluntary load shedding. Compatibility of such a mechanism with existing

reliability rules must also be determined. The preliminary results suggest that the loss of source limit could potentially increase to a 1,500 MW to 1,600 MW level by the 2012 timeframe. A pre-feasibility study that determines the impacts of upgrading the Plattsburgh-Vermont tie to 230kV and of adding a 345kV tie between Southwest Connecticut and Westchester was also discussed with stakeholders. These improvements could result in a further increase in the loss of source limit. Additional study results will be discussed at an IPSAC meeting planned for the 4th quarter 2008. As needed, further analysis will then identify and analyze representative system improvements for discussion with stakeholders in 2009.

- Current plans call for presentation of more detailed study results at the December 2008 IPSAC meeting. These will more fully evaluate the impacts of 500kV transmission improvements in PJM and a potential upgrade of the Plattsburgh-Vermont tie.
- A status of more detailed loss of source studies was presented at the December 11, 2008 IPSAC meeting. With the addition of the planned 500kV improvements by 2012, the loss of source limit will likely be constrained by limitations in the PJM system to the 1,500 MW level. At 1,600 MW, the New York constraint will become less binding than the PJM constraint at that time. Loss of source analysis is continuing as a part of other interregional studies, such as the NY-VT tie, and the NJ- Southeast NY studies referenced in P26. The loss of source issues and studies are summarized in the NCSP and will be included in ongoing JIPC analysis reported under P26. This item as separate and distinct is considered closed. (Q3-2009)

2010 Completed Projects and Closed Projects

P24 CROSS-BORDER CONTROLLABLE LINE SCHEDULING

NYISO software will be designed or modified to model Controllable Lines across control areas through an external proxy bus, providing market participants with the ability to bid to or from the new proxy bus in the Day-Ahead Market and schedule transactions in real-time. NYISO and ISO-NE operators will have the ability to monitor a Controllable Line and curtail transactions on the line.

- Full market deployment of the Cross-Sound Scheduled Line occurred on June 7, 2005.. The Northport-Norwalk Scheduled Line was implemented on June 27, 2007. The Neptune Scheduled Line was implemented on July 1, 2007. The Dennison Scheduled Line was implemented in the NYISO's markets on October 1, 2008.
- Details on the operation, transmission reservations, and Tariff changes to support implementation of the Linden VFT Scheduled Line in the New York energy market were presented at the NYISO's MIWG teleconferences on January 26 and 30, 2009. Tariff changes necessary to support implementation of the Linden VFT in the energy market were passed at the NYISO's February 25, 2009 Management Committee meeting, were approved by the NYISO Board on March 17th and will be filed with FERC. NYISO will work with PJM and Con Ed to ensure emergency operating protocols are in place prior to operation of the Linden VFT Scheduled Line.
- The NYISO Tariff changes to support the implementation of the Linden VFT in the NYISO energy markets were approved by FERC on May 27, 2009. (Q2-2009)
- Test flows of power on the Linden VFT began on September 16, 2009. Commercial operation is targeted to begin on November 1, 2009. The NYISO will provide notice to FERC and to its Market Participants at least two weeks prior to commencing commercial operation over the Linden VFT Scheduled Line. (Q3-2009)
- The Linden VFT was placed into commercial service on November 1, 2009. (Q4-2009)

