

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 information.