Attachment C

Broader Regional Markets,
Long-Term Solutions to Lake Erie Loop Flow
Slide Presentation from the October 29, 2009
Technical Conference Held in Albany, New York

NEW YORK INDEPENDENT SYSTEM OPERATOR

Broader Regional Markets

Solutions to Loop Flow

Technical Conference

Joint Meeting of NYISO-PJM-MISO-IESO Stakeholders

Desmond Hotel and Conference Center

Albany, NY

October 29, 2009

Agenda

- **Welcome** -- *Stephen G. Whitley - NYISO*
- **Technical Conference** -- *Rana Mukerji - NYISO*
  - *Introductions*
  - *Background*
- **Proposed Solutions to Loop Flow** -- *Robert Pike - NYISO*
  - *Physical Solutions -- Peter Sergejewich - IESO*
  - *Parallel Flow Visualization -- Tom Mallinger - MISO*
  - *Market Solutions*
    - Buy-Through of Congestion -- *Robert Pike - NYISO*
    - Congestion Management -- *Stan Williams - PJM*
    - Interregional Transaction Coordination -- *Robert Pike - NYISO*
- **Next Steps** -- *Rana Mukerji - NYISO*
  - *Potential Implementation Timeline*
  - *Feedback*
  - *Ongoing Efforts*

Welcome

- **Coming together is a start…**
- **Staying together is progress…**
- **Working together is success!**

Technical Conference

- Introductions
- Conference Expectations
- Background

FERC Order

July 16, 2009 Lake Erie Loop Flow Report/Order

- Finds no evidence of market manipulation by market participants scheduling external transactions around Lake Erie
- Determines that there were no tariff violations by the NYISO or by market participants
- Orders the NYISO to "expeditiously develop long-term comprehensive solutions to the loop flow problem with its neighboring RTOs, including addressing interface pricing and congestion management."
  - *NYISO must submit a report to FERC detailing its proposed solution, including necessary Tariff revisions, by mid-January 2010*

Proposed Solutions

Robert Pike - NYISO

Concept Development

- Stakeholder meetings to review background issues and solutions to loop flow concepts.
  - *Individual ISO briefings to stakeholders on concepts*
- Joint ISO Meetings
  - *Senior level scope reviews and updates*
  - *Weekly conference calls and additional in-person meetings to develop concepts of buy-through of congestion and congestion management as well as potential timeline.*
  - *Developing whitepaper that describes the proposed solutions in greater detail*
- Any solutions will require tariff development and stakeholder support.

Current Market Outcomes

- Day-Ahead Modeling:
  - *All ISO's incorporate a prediction / forecast of Lake Erie loop flows into their respective Day-Ahead evaluations.*
    - NYISO updates weekly based upon the hourly loop flows experienced in real-time over the past 30 days.
    - PJM updates annually based upon hourly loop flows experienced in real-time over the past year.
    - IESO updates daily based upon previous days experienced loop flows resulting from firm transaction schedules.
    - MISO updates quarterly, with daily incremental revisions, based upon system projected conditions.
- Real-Time Operation:
  - *All ISO's incorporate real-time actual loop flows into the market solutions.*
- Transmission Loading Relief (TLR) events initiated to address reliability constraints on flow gates impacted by Lake Erie loop flows.

Broader Regional Markets

- Proposed Solutions to Loop Flows
  - *Physical Solution*
    - Installation and operation of the Michigan/Ontario PARs to better conform actual power flows to scheduled power flows
  - *Parallel Flow Visualization*
  - *Market Solutions*
    - Buy-Through of Congestion
    - Congestion Management (Market-to-Market Coordination)
    - Interregional Transaction Coordination

Solution Objectives

- Reduce need for, frequency of, and magnitude of Transmission Loading Relief (TLR) events to address loop flow.
  - *Buy-Through of Congestion provides an alternative to market and operational interruptions caused by TLR events; establishes an economic based alternative to imposed curtailments.*
- Align constraint management cost recovery with sources of flow
  - *Parallel Flow Visualization and Buy-Through of Congestion facilitate identification of sources of loop flow and provide a mechanism to recover congestion management costs incurred to support loop flows.*
- Reduce constraint management costs for consumers across region.
  - *Congestion Management achieves a more cost effective utilization of the region's collective assets to address constraints across multiple systems.*
- Improve regional price consistency and transmission utilization
  - *Congestion Management expands asset pool to address regional constraints.*
  - *Interregional Transaction Coordination provides for the more frequent adjustment of interchange schedules in response to changing market conditions; expands pool of flexible assets to balance intermittent power resources output.*

Physical Solution

Peter Sergejewich - IESO

Physical Solutions to Loop Flows

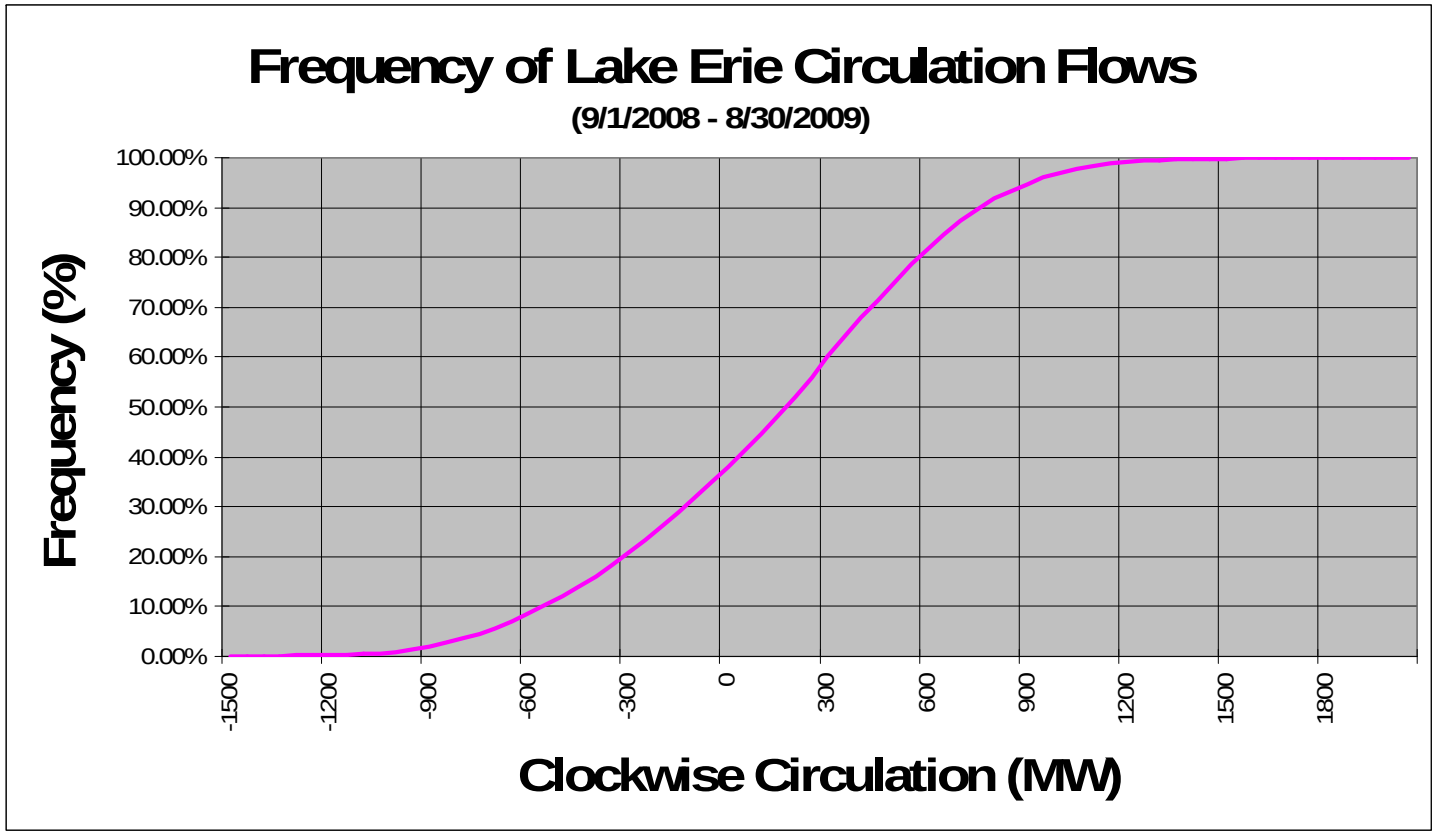
- Some control of loop flow can be achieved through the use of physical devices such as phase shifting transformers, also know as phase angle regulators or PARs.
- In addition to PARs, variable frequency transformers, series capacitors, and other such devices have the ability to alter flows and should be coordinated and included in solutions to loop flows.
- Of particular note in respect to controlling loop flows around Lake Erie are the Ontario-Michigan PARs which are soon to be in-service. Once in-service, Ontario will have the ability to control the flows across each of its interconnection interfaces to some extent, and in particular the circulation flow across the top of Lake Erie.
- The intent is to operate the Michigan-Ontario PARs so as to better match actual flows with the scheduled flows across the interconnection.

Status of Michigan-Ontario PARs

- Initial installation completed in 1999
- Ongoing operation delayed due to equipment failures & difficulties in getting operating agreements in place
- Failed equipment replaced and additional further protection upgrades scheduled to be in place by the end of Q1 2010

Capability of Michigan-Ontario PARs

- Expect to be able to control up to 600 MW of loop flow in either direction



Coordinated Operation of All Devices

- All physical controls will play a complementary role in any comprehensive loop flow solution
- Since uncoordinated operation of physical devices could increase circulation flows, it is important that the operation of such devices by the four markets around Lake Erie be coordinated to avoid detrimental impacts.

Parallel Flow Visualization

Tom Mallinger - MISO

Parallel Flow Visualization/Mitigation Proposal

Joint Meeting of NYISO-IESO-MISO-PJM Stakeholder
October 29, 2009

MidwestISO Energizing the Heartland

pjm

SPP Southwest Power Pool

History of TLR in Eastern Interconnection (EI)

- Primary congestion management procedure used during the past 10 years. Only minor modifications have been made during this time period.
- Where TLR is not the primary congestion management mechanism, it has been used as a reliability backstop when significant, externally induced parallel flows make local procedures insufficient to control facility loading.
- Historically, Reliability Coordinators (RCs) have relied on tag curtailments to curtail non-firm usage and a combination of tags and NNL relief obligations to curtail firm usage (share-the-pain approach).

Recent Enhancements to the TLR Procedure

- With the expansion of the PJM market and the start of the Midwest ISO and SPP markets, the TLR procedure has been enhanced to include market flows on the systems of these entities in place of tags.
- Midwest ISO and PJM have implemented a M2M congestion management process where they use the most cost effective generation in the two markets to meet their combined relief obligations during TLR.

RCs Rely on IDC for Parallel Flow Information

- RCs monitor real-time flows using RTCA and SCADA. This process is effective monitoring total flow but does not identify the source and magnitude of parallel flows.
- Transaction impacts for current hour and next hour are available in the IDC.
- Likewise, Midwest ISO, PJM and SPP generator-to-load (GTL) impacts for current hour and next hour are available in the IDC.
- An RC should know its own GTL impacts. However, there is no real-time information in the IDC on parallel flows caused by the GTL impacts from outside the RC area.

Instances When Parallel Flows in the EI Caused Reliability Concerns

Lake Erie Circulation Flow

- The MISO-PJM Loop Flow Study Phase I report documented instances when high clockwise and counter-clockwise loop flows occurred around Lake Erie:
  - Two dates involved high clockwise flows (on Feb 17, 2005 and April 17, 2005).
  - Two dates involved high counterclockwise flows around Lake Erie (on March 1, 2005 and June 23, 2005).
- The Loop Flow Study Phase I report identified the magnitude of the circulation flows, their direction and the time of the day when they occurred.
- Due to the difficulty of obtaining historical tag impacts and GTL impacts, the Loop Flow Study Phase I report recommended creating an Energy Schedule Tag Archive that contains tag impacts, market flow impacts and GTL impacts for all flowgates contained in the IDC.

Instances When Parallel Flows in the EI Caused Reliability Concerns

Lake Erie Circulation Flow

High counter-clockwise Lake Erie circulation flows occurred on June 11-13, 2007. IESO implemented TLR 3a on FG 7102 (QFW) that resulted in the following PJM relief obligations:

June 11, 2007 TLR 3a	13:00-14:00 CST	29.8 MW
	15:00-16:00 CST	373 MW
June 12, 2007 TLR 3a	10:00-11:00 CST	235 MW
	11:00-12:00 CST	243 MW
	12:00-13:00 CST	76.8 MW
	13:00-14:00 CST	177.7 MW
	14:00-15:00 CST	180.9 MW
	15:00-16:00 CST	299 MW
June 13, 2007 TLR 3a	14:00-15:00 CST	9.9 MW
	15:00-16:00 CST	152.5 MW
	16:00-17:00 CST	25.8 MW

Instances When Parallel Flows in the EI Caused Reliability Concerns

Lake Erie Circulation Flow

- IESO reported that on June 12, 2007, a combination of transmission and generation contingencies plus high Lake Erie circulation contributed to IESO initiating its voltage reduction program.
- January-December, 2008-IESO call TLR on Lake Erie flowgates 163 times. This is usually an indication that there are high circulation flows around Lake Erie.

Major Issues Being Addressed by Proposal

- Replacing the current native and network load (NNL) calculation made in the IDC with the reporting of near real-time flows addresses three major issues:
  - NNL calculation made in IDC is used when TLR 5 is called (firm curtailments). Use of static data in NNL calculation produces questionable results, delays in calling TLR 5 and allows no after-the-fact reviews.
  - RCs in EI lack visualization as to the source and magnitude of parallel flows when they experience congestion.
  - IDC NNL calculation currently assumes all GTL impacts are firm and can only be curtailed on a pro-rata basis during TLR 5.

Use of Static Data in NNL Calculation

- NNL calculation in the IDC relies heavily on operating information submitted to the SDX to model system conditions. There is no NERC requirement that operating data be submitted to the SDX.
- Default assumptions are used where operating information is missing (i.e. generator outages, load and net scheduled interchange).
- There must be a total of 20 MW or more generation at a bus in order to have NNL impacts determined.
- Because NNL calculation is made on an on-demand basis, RCs must adjust the static data to improve the NNL relief obligation. This can delay calling TLR 5 anywhere from 30 to 45 minutes.
- Because NNL calculation is made on an on-demand basis, there is no real-time view of GTL parallel flows (except during TLR 5). There is no historical archive of impacts that could be reviewed on an after-the-fact basis.

RCs Lack Parallel Flow Visualization

- Because NNL calculation is made on-demand and uses static operating information, it is not a suitable source for real-time impact of parallel flows.
- Midwest ISO and PJM issued a Loop Flow Study Phase I report in May 2007 that focused on Lake Erie circulation flow and PJM Southeast versus Southwest Interface flows (http://www.jointandcommon.com/working-groups/joint-and-common/joint-and-common-wg.html).
- Midwest ISO and PJM issued a Loop Flow Study Phase II report in November 2008 that focused on the source and magnitude of parallel flows on 35 flowgates that experienced significant congestion in 2007 (http://www.jointandcommon.com/working-groups/joint-and-common/joint-and-common-wg.html).
- Both loop flow studies took longer to produce and required extensive simulation due to limited historical information on loop flows. One of the Loop Flow Study Phase I recommendations is to create an archive of tag impacts, GTL impacts and market flow impacts that can be used to make after-the-fact reviews.

Generators Using Non-Firm Transmission Service

- For TSPs that are subject to an OATT, designated resources are considered firm use of the transmission system. Non-designated resources are considered non-firm use of the transmission system.
- The IDC is unable to assign relief obligations to non-firm GTL impacts during TLR. If a non-designated resource is below the 20 MW threshold, transmission usage is treated firmer than firm.
- Tagging these non-firm uses not effective since the IDC lacks the granularity to determine tag impacts of intra-BAA transactions.
- Instances where non-firm transmission service is used to serve load within the BAA:
  - Non-designated resources that are being used to serve load inside the BAA have the highest priority of non-firm service (Priority 6-NN).
  - Renewable resources that have elected to use non-firm transmission service to deliver to load inside the BAA.
  - Qualifying facilities that are delivering to load within the BAA.

Parallel Flow Visualization/Mitigation Proposal

- RCs would report their GTL impacts to the IDC on a real-time basis or make arrangements to have someone report on their behalf.
- The IDC would indicate the source of all flows on a flowgate and the priority of these flows (tag impacts, GTL impacts and market flow impacts).
- An RC experiencing congestion would have visualization of the magnitude and source of all flows affecting their flowgate using information from the IDC.
- An RC experiencing congestion would request an amount of flow reduction that would be processed by the IDC. A relief obligation would be issued to all parties contributing to the loading.
- NAESB will establish methodology for assigning the GTL flows into the appropriate buckets.

NERC Involvement in Parallel Flow Proposal

- A comprehensive parallel flow motion was approved at the May 6, 2009 ORS meeting (see attached motion). It provided direction to the IDCWG to develop a final set of requirements, to seek revised vendor estimates and to prepare a recommendation that will be reviewed at the Nov ORS meeting.
- The ORS addressed a number of issues on the approach to be taken:
  - A single vendor will make the GTL calculation for all RCs in the EI.
  - The three RTOs that currently report their market flows to the IDC will replace their own calculation with the vendor calculation.
  - A staged implementation of the new software where it would run in parallel with the existing IDC for some period of time. There will be a set of reliability metrics that demonstrate an improvement over the NNL calculation before changing to the new software.

NERC Involvement in Parallel Flow Proposal

- The IDCWG has held a number of meetings on the parallel flow visualization process. They have identified data requirements and are reviewing IDC COs.
- The IDCWG presented the data requirement at the Sept 23, 2009 ORS meeting.
- The IDCWG will recommend a parallel flow process and a vendor at the Nov 2009 ORS meeting.
- The 2010 NERC Budget includes funding for this project.

NAESB Involvement in Parallel Flow Proposal

- The NAESB Annual Plan included a line item on Future Path of TLR. An accompanying white paper described two phases of this initiative:
  - The first phase involves enhancements to the TLR reporting process to provide near real-time GTL reporting by all RCs in the EI similar to MISO, PJM and SPP.
  - The second phase involves enhancements to the TLR curtailment process to replace the “share the pain” approach with an approach that is more efficient in managing congestion. The second phase is dependant on completion of the first phase.
- The line item in the NAESB 2008 Annual Plan was carried forward into the NAESB 2009 Annual Plan.

NAESB Involvement in Parallel Flow Proposal

- The NAESB BPS has been working on a mechanism that assigns the GTL priorities used in the IDC.
- The NAESB BPS is working on concepts that would be applicable to jurisdictional entities, non-jurisdictional entities and Canadian entities.
- The NAESB BPS will work jointly with the IDCWG such that the mechanism used to assign GTL priorities is consistent with the calculations in the IDC.

General Timeline for Parallel Flow Proposal

- The IDCWG will not finalize this timeline until after a vendor has been selected and there is a commitment by the ORS to move forward with this project.
  - It is expected that a vendor will be recommended and the NERC ORS will approve the recommendation at their Nov 2009 meeting.
  - It is expected that the IDCWG will oversee IDC software development in parallel with the NAESB BPS working on prioritization in spring and summer 2010.
  - It is expected that by Sept 2010, will start parallel operation in staging environment. Will run in this mode anywhere from 3 to 6 months to evaluate results while benchmarking against current NNL calculation. The visualization features will be available while in staging environment.
  - It is expected that no later than summer 2011, will implement new software and rely on this process to assign relief obligations during TLR.

Parallel Flow Visualization/Mitigation Proposal

- Questions?

Parallel Flow Visualization/Mitigation Proposal

Attachment

Parallel Flow Proposal Motion Approved on May 6, 2009

- . . . moved that the ORS agrees that the future use of GTL impacts, as identified in the MISO, PJM, and SPP "Generation-to-Load Reporting Requirements" white paper, will improve visibility and as such will enhance reliability of the Eastern Interconnection. The ORS believes the IDC should be modified to accept GTL calculations. The GTL impact calculation should be consistent for all EI RCs and, as such, a single vendor should be selected to implement the methodology and to perform the actual calculations for all EI RCs.
- These changes are intended to provide information only at this point (i.e. providing the calculated GTL impacts without changing the functionality of the tools) until the ORS agrees that it is appropriate to utilize the additional data to enhance tool processes or possible changes to TLR procedures. It is recognized that any changes to the TLR process to utilize the additional data made available as a result of this initiative will be determined preferably by the existing joint NAESB/NERC TLR SDT. Industry support will be critical to the success of this initiative and will be best achieved by ensuring appropriate industry input and transparency in the decisions taken.

Parallel Flow Proposal Motion Approved on May 6, 2009

- The ORS directs the IDCWG to take the following actions:
  - Identify the minimum data set required to achieve the required calculations by the September 2009 ORS meeting.
  - Identify the required changes to the IDC to identify the GTL impacts
  - Recommend a vendor to perform the GTL calculations for all EI RCs
  - Determine, in cooperation with the vendor, the GTL calculation methodology.
  - Identify to the ORS any additional items that are required to incorporate GTL impacts
- The IDCWG should target having proposed recommendations to the ORS for the November 2009 meeting.
- The GTL impacts should be archived in the IDC for an initial period of 12 to 18 months to allow analysis to be performed to assess the potential impact of any proposed changes to the TLR process including the possible use of near real time data for NNL calculations and possible use of near real time data for other TLR calculations as determined by NAESB. Process changes may be incorporated before the completion of the analysis period if the ORS determines it is appropriate.

Parallel Flow Proposal Motion Approved on May 6, 2009

- In addition, the NERC ORS will develop reliability metrics to confirm that the Generation-to-Load calculation is an improvement in accuracy over the static NNL calculation which must be met before changing to using the Generation-to-Load calculated impacts for TLR.

Buy-Through of Congestion

Robert Pike – NYISO

Buy-Through of Congestion

- Benefits
  - *Buy-Through of Congestion provides for the recovery of congestion management costs incurred in managing loop flow impacts.*
    - Provides for an alternative to market and operational interruptions caused by Transmission Loading Relief (TLR) actions by establishing an economic based alternative to imposed curtailments.
    - More efficient utilization of the transmission network.
    - More consistent transaction scheduling decisions with regional prices.

Buy-Through of Congestion

- Concept
  - *Parties scheduling transactions with any of the other ISO/RTOs surrounding Lake Erie would be billed for the real-time congestion costs incurred by neighboring systems supporting the loop flow created by the transaction to maintain the schedule.*
    - Sources of loop flow identified via the NERC IDC tools
    - Congestion costs captured by regions LMP prices.
    - Allocate costs to the transaction schedules in proportion to the schedules loop flow impacts
    - Exposure to congestion costs can be hedged with existing Day-Ahead transmission scheduling processes, or avoided with real-time scheduling processes

Buy-Through of Congestion

- Parallel Flow Visualization
  - *Provides single common source and methodology for isolating sources of flow.*
    - Identify sources of flowgate impact, included Balancing Authority to Balancing Authority interchange schedules, and intra-regional generation-to-load impacts.
    - Incorporates state of phase angle regulator controls.
  - *Market visibility of impacts available through the NERC IDC or OATi tools.*
  - *Loop flow impacts calculated by IDC will reflect the ability (or lack thereof) of the PARs to maintain actual flow consistent with scheduled flow.*

Buy-Through of Congestion

- Responsible Control Area (RCA)
  - *Define RCA as the sink balancing area or the last control area of the four Lake Erie ISOs to be engaged in a transaction.*

Buy-Through of Congestion

- Biddable Options
  - *Provide capability at bid submission for market participant to identify whether they are willing to pay, or not willing to pay, for congestion charges caused by their off-control path flow impacts*
    - Transactions that indicate they are not willing to pay congestion will be curtailed when congestion detected and flowgate impacted by the transactions loop flow. Those transactions will not be charged for congestion related impacts.

Buy-Through of Congestion

- Biddable Options
  - *There will not be an option to specify an "up-to" congestion charge value. Implementation not viable given the:*
    - Dynamic nature of markets in establishing market clearing prices;
    - Complexity of multiple ISOs engaged in applying congestion charges for loop flow impacts, and the;
    - Operational uncertainty associated with continuously adjusting interchange values.

Buy-Through of Congestion

- Transaction Removal Process
  - *A monitoring ISO that encounters congestion, will:*
    - Determine impact on flowgate from loop flows
    - Identify the transaction schedule sources of the loop flows
    - Coordinate with the RCA(s) of transactions identified.
  - *The RCA(s) will:*
    - Review the set of transactions and curtail the set that is not willing to pay congestion costs. This set will not be billed for congestion charges.
    - Communicate with the monitoring ISO upon completion of review and curtailment.
- Throughout the process, TLR procedures remain as an alternative to the monitoring ISO to address system overloads.

Buy-Through of Congestion

- Transaction Re-Instatement Process
  - *Applicable after a transaction has been curtailed due to not be willing to pay for congestion costs.*
  - *An RCA will not re-initiate transaction schedules (or add new transaction schedules) that have an indication they are not willing to pay for congestion costs if scheduling the transaction would increase loop flows on an active flowgate.*
    - An RCA can initiate transaction schedules that have indicated they are willing to pay for congestion costs associated with their loop flow impacts.
  - *A monitoring ISO will continue to evaluate congestion on the original flowgate and notify the RCA(s) when the constraint is relieved.*
    - Notification will be provided in advance of the bottom of the hour for next hour scheduling changes, consistent with TLR procedures.

Buy-Through of Congestion

- Settlement of Allocated Charges
  - *The monitoring ISO will determine the congestion costs to be recovered based upon NERC IDC tools to identify transaction and their respective impact on the constrained flowgates and LMP calculations of constraint cost and will provide the costs to the respective RCA(s).*
  - *The RCA(s) will apply charges to specific transactions as part of their normal billing procedures, collect revenue, and return revenue to the monitoring ISO.*

Buy-Through of Congestion

- Settlement of Allocated Charges
  - *Loop flows having a counter-flow impact on prevailing flows will produce lower net flows and lower constraint management costs, thereby lowering the costs to be recovered from prevailing flow loop flows.*
  - *Counter-flow transaction will not be compensated for the relief they provide via Buy-Through of Congestion.*
  - *Counter-flow transactions must be explicitly represented into the ISO-market that is expected to benefit from the transaction in order to receive the compensation.*

Buy-Through of Congestion

- Responsible Control Area (RCA)
  - *Responsibilities include:*
    - Collecting bidding indicators of willingness to pay congestion;
    - Manage transaction schedules in response to identification by monitoring control area of transactions impact and occurrence of flowgate constraints;
    - Process, collect and distribute settlement charges.
  - *RCA(s) settlement necessary as all market participants may not be members of all market areas.*

Buy-Through of Congestion

- Monitoring ISO
  - *Responsibilities include:*
    - Monitoring for flowgate congestion impacted by loop flow resulting from transaction schedules;
    - Coordinate with RCA(s) to identify and review transaction schedules impacting flow gates;
    - Release flowgate transaction scheduling restrictions;
    - Calculate and communicate congestion charges to RCA(s) for transaction impacts.

Buy-Through of Congestion

- Managing Congestion Cost Exposure
  - *NYISO: Up-to congestion product available in DA. Opportunities to expand virtual trading to the proxy bus locations.*
  - *PJM: Up-to congestion product available in DA. 20-minute advance notice schedule termination. Virtual bidding options available.*
  - *MISO: Up-to congestion product available in DA. 20-minute advance notice schedule termination. Virtual bidding options available.*
  - *IESO: No products currently available.*

Buy-Through of Congestion

- Example
  - *A 100 MW transaction from IESO to PJM, via MISO. The transaction has indicated they are willing to pay for congestion costs.*
  - *Transaction is submitted, reviewed and scheduled through the standard ISO/RTO processes.*
  - *The OH-Michigan PARs are operated and control schedule to 90 MWs. 10 MWs remain flowing through NY as loop flow (10% of the transaction schedule).*
  - *A flow gate within NY becomes constrained at xx:30 of the hour. The flowgate is impacted by the loop flows.*
  - *The resulting congestion cost is $10/MWhr.*
  - *The transaction would receive a buy-though of congestion settlement of:*

    (10%)(100 MW)*(0.5 hour)*($10) = $50 (or $0.50/MWhr)*

Congestion Management

Stan Williams - PJM

PJM & Midwest ISO Market-to-Market Coordination

Broader Regional Markets

Joint Stakeholder Meeting

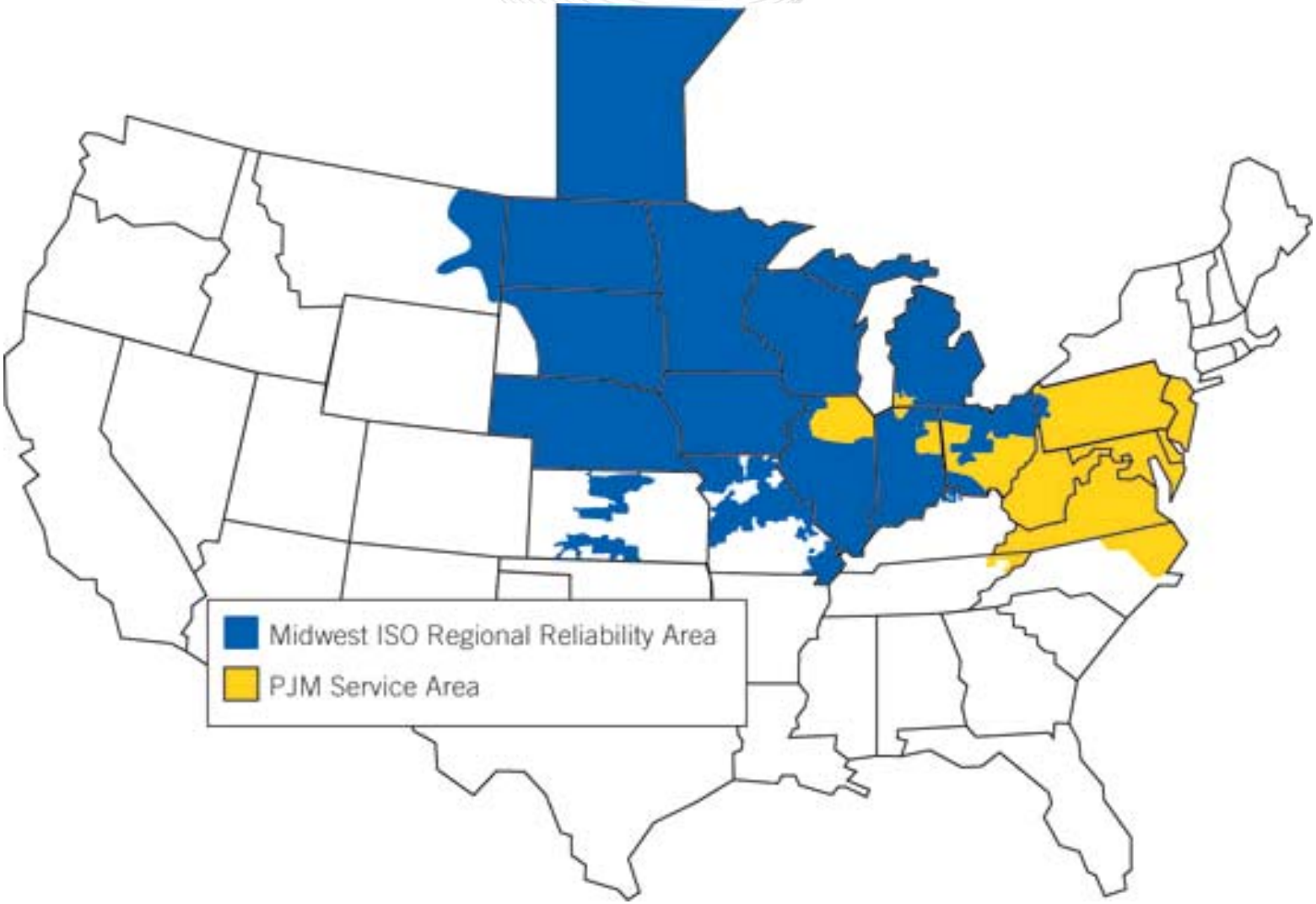
October 29, 2009

Agenda

Market-to-Market Coordination

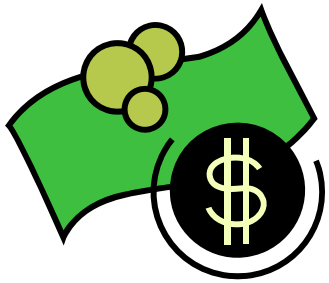
- Objectives
- Overview
- Example
- Results

PJM and Midwest ISO Service Area

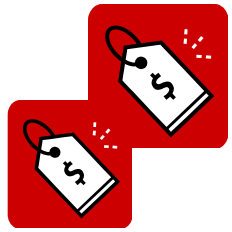


Objectives of Market-to-Market Coordination

- Achieve the least cost redispatch solution for coordinated constraints across multiple systems.



- Provide a more consistent pricing profile across the two markets.



- Enhance system reliability by pooling resources from both RTOs to jointly control transmission constraints near the RTO border.

Market-to-Market Coordination Overview

- When the monitoring RTO (MRTO) controls a reciprocal coordinated flowgate (RCF) in its real-time dispatch system, it will initiate the Market-to-Market coordination process with a relief MW request.
- The non-monitoring RTO (NMRTO) will respond by adjusting the RCF limit using the desired relief request from the MRTO and redispatching its generation to control the RCF to either

  (a) provide the relief requested by the monitoring RTO;

  (b) redispatch up to the current shadow price from the MRTO.

Market-to-Market Coordination Overview (cont'd)

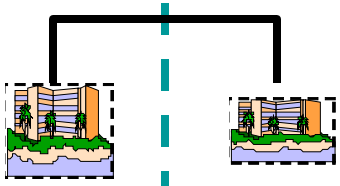
- As the relief provided by the NMRTO is realized in the RCF, the MRTO can control the RCF at a lower shadow price. The updated shadow price is sent to the NMRTO.
- Both RTOs will then continue to redispatch their systems respecting the constrained flowgate.
- The result of this coordination will be a cost effective redispatch solution for the combined footprint.
- The RTOs will then compensate each other for the redispatch provided based on the real time market flow of the NMRTO comparing to the historic usage.

Market-to-Market Coordination Example

Market-to-Market Example – Stage 1

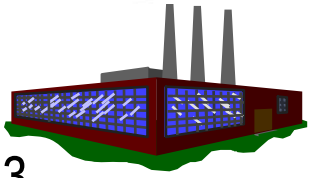
Midwest ISO
System Price $40

PJM (Monitoring RTO)
System Price $40

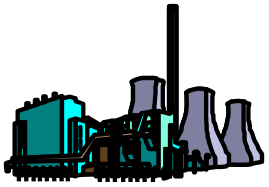


LOAD Y
+15% Dfax
LMP = $40

LOAD X
+15% Dfax
LMP = $40



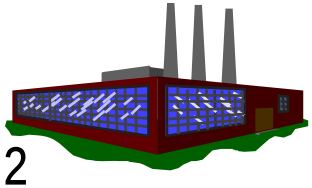
GEN 3
$60 Offer; - 20% Dfax
0 MW (Max 20)
LMP = $40



GEN 1
$22 Offer; +32% Dfax
200 MW (Econ min 100)
LMP = $40

MISO MF = 35

Flowgate A
100 MW
(limit 100)



GEN 2
$58 Offer; - 30% Dfax
0 MW (Max 20)
LMP = $40

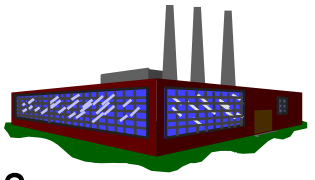
LOAD X (in PJM) and LOAD Y (in Midwest ISO) are electrically close to each other and have the same impact on Flowgate A.

The initial Midwest ISO Market Flow on Flowgate A is 35 MW.

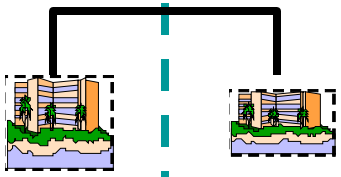
Market-to-Market Example – Stage 2a

Midwest ISO
System Price $40

PJM (Monitoring RTO)
System Price $40

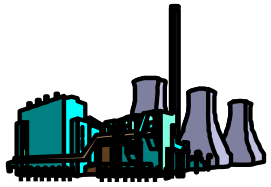


GEN 3
$60 Offer; - 20% Dfax
0 MW (Max 20)
LMP = $40

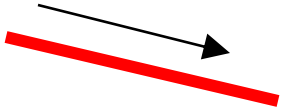


LOAD Y
+15% Dfax
LMP = $40

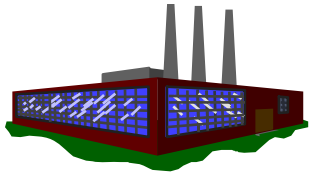
LOAD X
+15% Dfax
LMP = $40



GEN 1
$22 Offer; +32% Dfax
200 MW (Econ min 100)
LMP = $40



Flowgate A
110 MW
(limit 100)



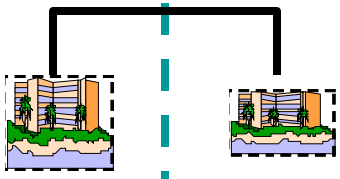
GEN 2
$58 Offer; - 30% Dfax
0 MW (Max 20)
LMP = $40

The flow on Flowgate A increases to 110 MW due to higher load in PJM

Market-to-Market Example – Stage 2b

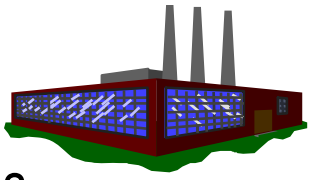
Midwest ISO
System Price $40

PJM (Monitoring RTO)
System Price $40

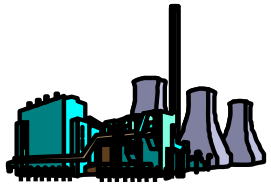


LOAD Y
+15% Dfax
LMP = $40

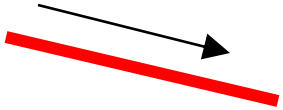
LOAD X
+15% Dfax



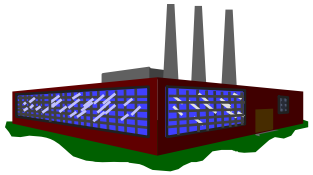
GEN 3
$60 Offer; - 20% Dfax
20 MW (Max 20)
20 * 0.2 = 4 MW of relief



GEN 1
$22 Offer; +32% Dfax
200 MW (Econ min 100)
LMP = $40



Flowgate A
110 MW
(limit 100)



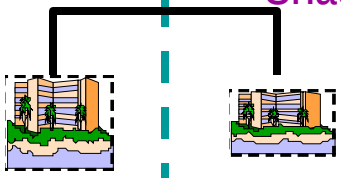
GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief

PJM dispatches GEN 2 and GEN 3 to control the Flowgate A

Market-to-Market Example – Stage 2c

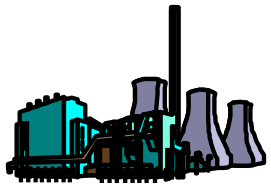
Midwest ISO
System Price $40

PJM (Monitoring RTO)
System Price $40
Shadow Price = - 100

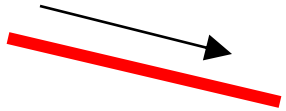


LOAD Y
+15% Dfax
LMP = $40

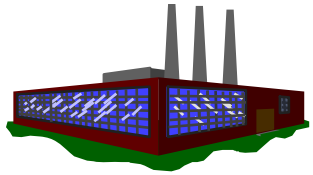
LOAD X
+15% Dfax
LMP = $25



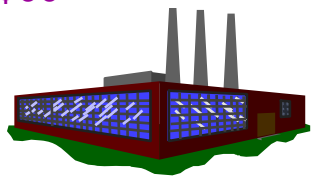
GEN 1
$22 Offer; +32% Dfax
200 MW (Econ min 100)
LMP = $40



Flowgate A
100 MW
(limit 100)



★ GEN 3
$60 Offer; - 20% Dfax
20 MW (Max 20)
20 * 0.2 = 4 MW of relief
LMP = $60



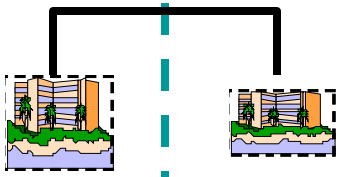
GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief
LMP = $70

PJM dispatches GEN 2 and GEN 3 to control the Flowgate A
GEN 3 is the marginal unit and constraint shadow price is (60-40)/(-.2)=-100
GEN 2 LMP = 40 +(-0.3 * -100) = $70; LOAD X LMP = 40 + (0.15 * -100) = $25

Market-to-Market Example – Stage 3a

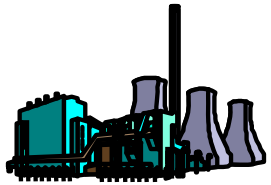
Midwest ISO
System Price $40

PJM (Monitoring RTO)
System Price $40
Shadow Price = - 100



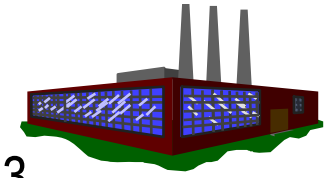
LOAD Y
+15% Dfax

LOAD X
+15% Dfax
LMP = $25

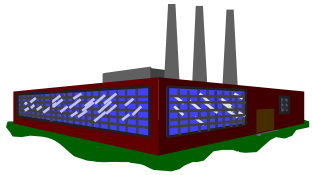


GEN 1
$22 Offer; +32% Dfax

Flowgate A
100 MW
(limit 100)



★ GEN 3
$60 Offer; - 20% Dfax
20 MW (Max 20)
20 * 0.2 = 4 MW of relief
LMP = $60



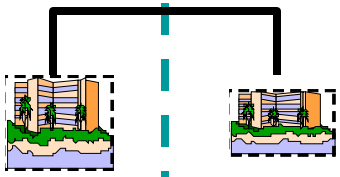
GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief
LMP = $70

PJM notifies Midwest ISO to invoke M2M to control Flowgate A.
PJM requests 4 MW of relief at the current shadow price of -100.
Midwest ISO reduces GEN 1 to provide the relief requested by PJM

Market-to-Market Example – Stage 3b

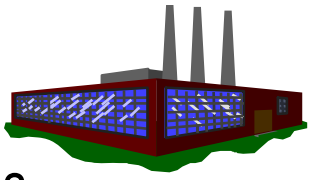
Midwest ISO
System Price $40
Shadow Price = - 56.25

PJM (Monitoring RTO)
System Price $40
Shadow Price = - 100

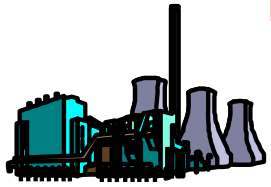


LOAD Y
+15% Dfax
LMP = $31.6

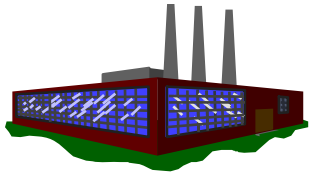
LOAD X
+15% Dfax
LMP = $25



★ GEN 3
$60 Offer; - 20% Dfax
20 MW (Max 20)
20 * 0.2 = 4 MW of relief
LMP = $60



MISO MF = 31



★GEN 1
$22 Offer; +32% Dfax
187.5 MW (Eco min 100)
12.5 * 0.32 = 4 MW of relief
LMP = $22

Flowgate A
96 MW
(limit 100)

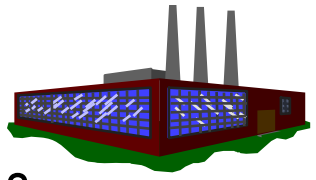
GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief
LMP = $70

GEN 1 is reduced by 12.5 MW (to 187.5 MW) to provide 4 MW of relief.
Midwest ISO constraint shadow price is (22-40) / 0.32 = - 56.25
LOAD Y LMP = 40 + (0.15 * - 56.25) = 31.6

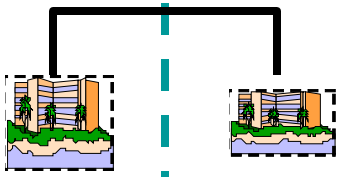
Market-to-Market Example – Stage 4a

Midwest ISO
System Price $40
Shadow Price = - 56.25

PJM (Monitoring RTO)
System Price $40

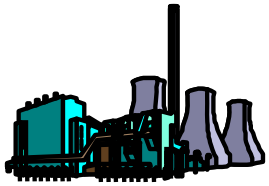


GEN 3
$60 Offer; - 20% Dfax
0 MW (Max 20)
0 * 0.2 = 0 MW of relief

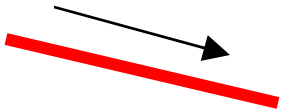


LOAD Y
+15% Dfax
LMP = $31.6

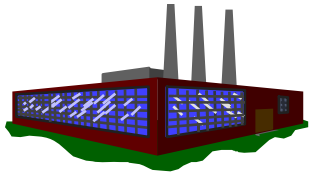
LOAD X
+15% Dfax



GEN 1
$22 Offer; +32% Dfax
187.5 MW (Eco min 100)
12.5 * 0.32 = 4 MW of relief
LMP = $22



Flowgate A
100 MW
(limit 100)



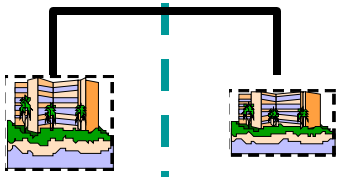
GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief

With loading decreases on Flowgate A, PJM can release the less cost-effective GEN 3.

Market-to-Market Example – Stage 4b

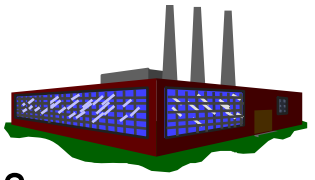
Midwest ISO
System Price $40
Shadow Price = - 56.25

PJM (Monitoring RTO)
System Price $40
Shadow Price = - 60

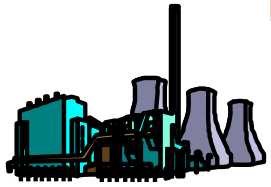


LOAD Y
+15% Dfax
LMP = $31.6

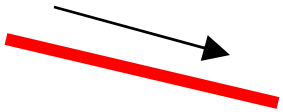
LOAD X
+15% Dfax
LMP = $31



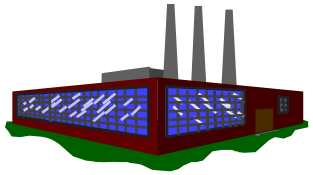
GEN 3
$60 Offer; - 20% Dfax
0 MW (Max 20)
0 * 0.2 = 0 MW of relief
LMP = $52



GEN 1
$22 Offer; +32% Dfax
187.5 MW (Eco min 100)
12.5 * 0.32 = 4 MW of relief
LMP = $22



Flowgate A
100 MW
(limit 100)



GEN 2
$58 Offer; - 30% Dfax
20 MW (Max 20)
20 * 0.3 = 6 MW of relief
LMP = $58

With GEN 3 offline, GEN 2 becomes the new marginal unit for the constraint
Constraint shadow price is (58 - 40) / (- 0.3) = - 60
GEN 3 LMP = 40 + (- 0.2 * - 60) = 52; LOAD X LMP = 40 + (0.15 * - 60) = 31

Market-to-Market Coordination Results

What have been the Market-to-Market Results?

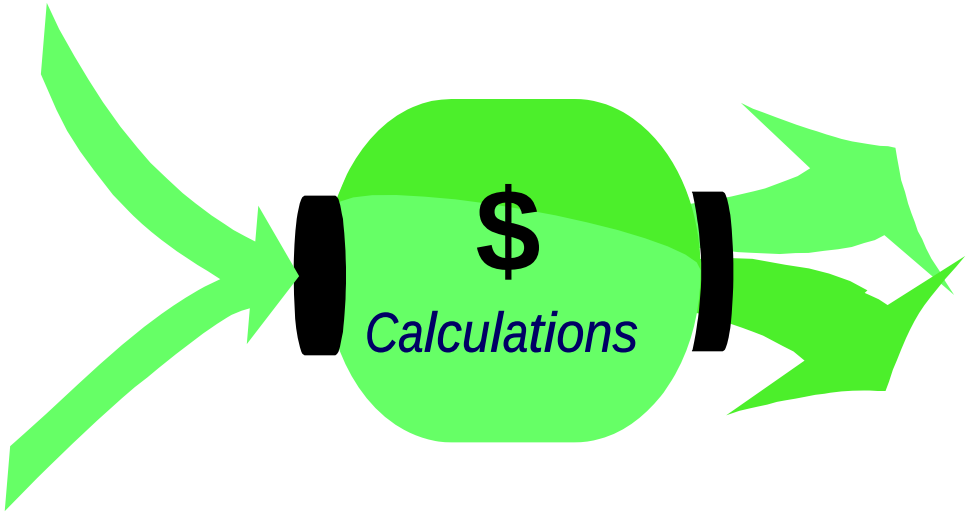
PJM has observed the following:

- Lower congestion cost: The redispatch cost for the PJM market would have been higher if PJM had to control all transmission constraints on its own.

- More consistent pricing across the RTO border: When the market-to-market coordination is in effect, the prices at the Midwest ISO and PJM border converge better than before.

- More Reliable operation: Since economic generation in Midwest ISO is now available for constraint control, PJM has experienced fewer emergency transmission operations.

Market-to-Market Coordination
Example – Settlement Calculations



(assuming Stage 4 from the example went on for one full hour)

Scenario 1 : Midwest ISO is below the **Network and Native Load (NNL*)**

NNL for Midwest ISO on Flowgate A per the example = 40MW
Real-Time Market Flow MW by Midwest ISO on Flowgate A
= 31MW (requested by PJM)
Midwest ISO Shadow Price on Flowgate A = -$56.25/MWh

Payment (PJM to Midwest ISO) = (NNL – Real-Time Marketflow) * Transmission Constraint Shadow Price in Non-Monitoring RTO's Dispatch Solution

Payment (PJM to Midwest ISO) = (40/MWh-31/MWh) * -$56.25/MWh

Payment (PJM to Midwest ISO) = -$506.25

*** Midwest ISO NNL on Flowgate A is the Midwest ISO generation-to-load impact on Flowgate A (in PJM) based on historic usage.**

Market-to-Market Settlement Calculations (cont'd)

Scenario 2: Midwest ISO is above the Network and Native Load (NNL)

NNL for Midwest ISO on Flowgate A per the example = 28MW
Real-Time Market Flow MW by Midwest ISO on Flowgate A
= 31MW (requested by PJM)
PJM Shadow Price on Flowgate A = -$60/MWh

Payment (Midwest ISO to PJM) = (NNL – Real-Time Marketflow) * Transmission Constraint Shadow Price in Monitoring RTO's Dispatch Solution

Payment (Midwest ISO to PJM) = (28/MWh-31/MWh) * -$60/MWh

Payment (Midwest ISO to PJM) = $180

Interregional Transaction Coordination

Robert Pike - NYISO

Interregional Transaction Coordination

- Benefits
  - *In-hour transaction scheduling lowers total system operating costs through improved consistency of transaction schedules with market-to-market price patterns.*
  - *Expand pool of flexible assets to balance intermittent power resources output.*
  - *Improve price consistency and transmission utilization across markets.*
  - *Address uncertainty in forward looking scheduling horizons.*

Interregional Transaction Coordination

- Concept
  - *Allow Market Participants to provide flexible energy, reserve and regulation transaction bids, where the real-time dispatch tools will evaluate these flexible transactions on an intra-hour basis.*
  - *Phase 1 – Adjust HQ energy interchange on a 5-minute frequency based upon NY economic evaluation of flexible bids.*
    - Pre-coordination of flexible bids and automated coordination of energy schedules necessary to support frequency of interchange adjustments.

Interregional Transaction Coordination

- Future Steps
  - *Phase 2 – Establish market and coordination processes to support purchase and sale of reserve and regulation between markets.*

Interregional Transaction Coordination

- Future Steps
  - *Phase 3 – Define process to apply dynamic scheduling between two market systems.*
    - Creation of new “spread” bid product.
      - Market Participant supplies single bid to be used by both neighboring ISOs, indicating desired profitability for transaction.
      - ISO uses current/forecasted prices to schedule transactions. Select spread bids with lower bid than predicted difference between market prices.
      - ISOs incorporate updated transaction schedules into dispatch tools.
      - Process is repeated at defined intervals.
    - Market participant assumes risk of final prices being different than those used in scheduling decisions.

Next Steps

Rana Mukerji – NYISO

Implementation Timeline*

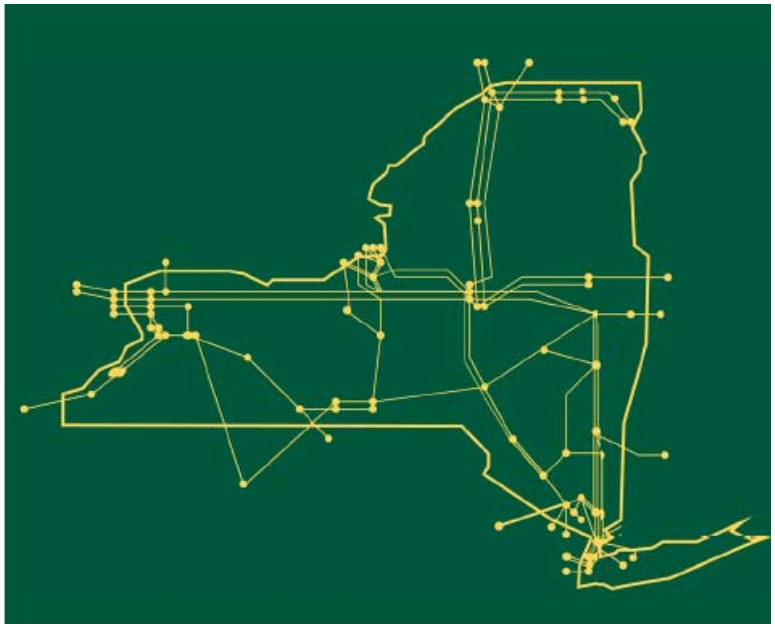
- Parallel Flow Visualization
  - *Software Ready / Parallel Operations* — *2010*
- Buy-Through of Congestion
  - *Design Development* — *2010*
  - *Implementation* — *2011*
- Congestion Management
  - *PJM-NYISO Implementation* — *2011*
  - *Extend to Additional Regions* — *2012*
- Interregional Transaction Coordination
  - *Energy Scheduling with NY/HQ* — *2010*
  - *Extend to Additional Regions* — *2011-12*

**Prospective timeline pending design development and approval from Market Participants, neighboring Control Areas and the Commission.*

Ongoing Efforts

- **Request feedback to rpike@nyiso.com by November 13, 2009 or through each ISO's stakeholder discussion.**
  - *Follow-up Joint Stakeholder meeting in December*
- **Ongoing Solution and Schedule Development**
  - *MIWG: September – December, 2009*
  - *Joint ISOs: August – December, 2009*
  - *Joint Stakeholder Meetings: October, December, 2009*
  - *BIC: Concept Review – December 9, 2009*
  - *FERC: Response – January 12, 2010*
- **Design and Stakeholder Approvals**
  - *Detailed design, Joint Operating Agreements and tariff development beginning in 2010*

The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and conducts comprehensive planning for the state's bulk electricity system.



www.nyiso.com

Attachment D

Overview of Proposed Inter-Area Coordination Between ISO New England and New York ISO

Inter-Area Coordination between ISO New England and New York ISO

1. Introduction

ISO New England (ISO-NE) and New York ISO (NYISO) are committed to removing barriers to a broader regional market and improving the efficiency of electricity exchange between our markets. To that end, over the last several months, staff from ISO-NE and NYISO have met to explore a package of joint operational coordination measures and market design changes. The shared objective is to improve the economic utilization of the transmission ties and leverage the region's capabilities to minimize out-of-market actions.

The initiatives identified are:

- Interregional Transaction (Scheduling) Coordination; and
- Market-to-Market (Congestion Management) Coordination

The following plan presents the high-level scope of work, major milestones and schedule for a multi-phased project that will improve the efficiency of the energy markets and transmission system utilization on a regional basis.

2. Scope

(a) Interregional Transaction (Scheduling) Coordination

Currently ISO-NE and NYISO clear and schedule transactions using separate and independent mechanisms. For example, the NYISO market allows transactions to be submitted up to 75 minutes before the start of the transaction, and all transactions must have a price. The ISO-NE market allows transactions to be submitted 60 minutes before the start of the transaction, but to submit in this timeframe the transactions must be self-scheduled (price-takers). At a high level, the result of the differences in external transaction rules is that NYISO clears real-time transactions before ISO-NE, using bid and offer information entered into its market system. This clearing generates a set of available transactions. Then ISO-NE clears transactions in its market system and compares that set of cleared transactions to the set of transactions previously cleared by NYISO. Those cleared in both markets can be scheduled to flow in the hour.

The Interregional Transaction Coordination component of the proposed project constitutes the first major phase of work. The objective of this phase is to design, build and implement a joint transaction scheduling system that accepts transactions and clears them simultaneously based upon the expected prices in the regions, thereby creating a set of transactions and net tie schedule for each hour in a single pass. It is envisioned that initially transactions will be scheduled hourly, as is done today, and subsequently will allow for intra hour scheduling.

In addition to working out the market design changes and the associated market clearing function, the project design team will have to determine and answer several questions related to the software infrastructure, such as whether a new software system is required to receive and process transactions, how and where the required information is collected and the modeling of each area's operating protocols and scheduling rules.

(b) Market-to-Market (Congestion Management) Coordination

An interconnected transmission network provides benefits of improved operational reliability and redundancy. The re-dispatch of generators within a neighboring control area may address transmission constraints more cost effectively than the re-dispatch of generators or other control action within the monitoring control area. A congestion management protocol allows for the inter-control area dispatch to manage the congestion (at a lower overall resulting cost) and the appropriate settlement of those actions.

The purpose of this congestion management function is to

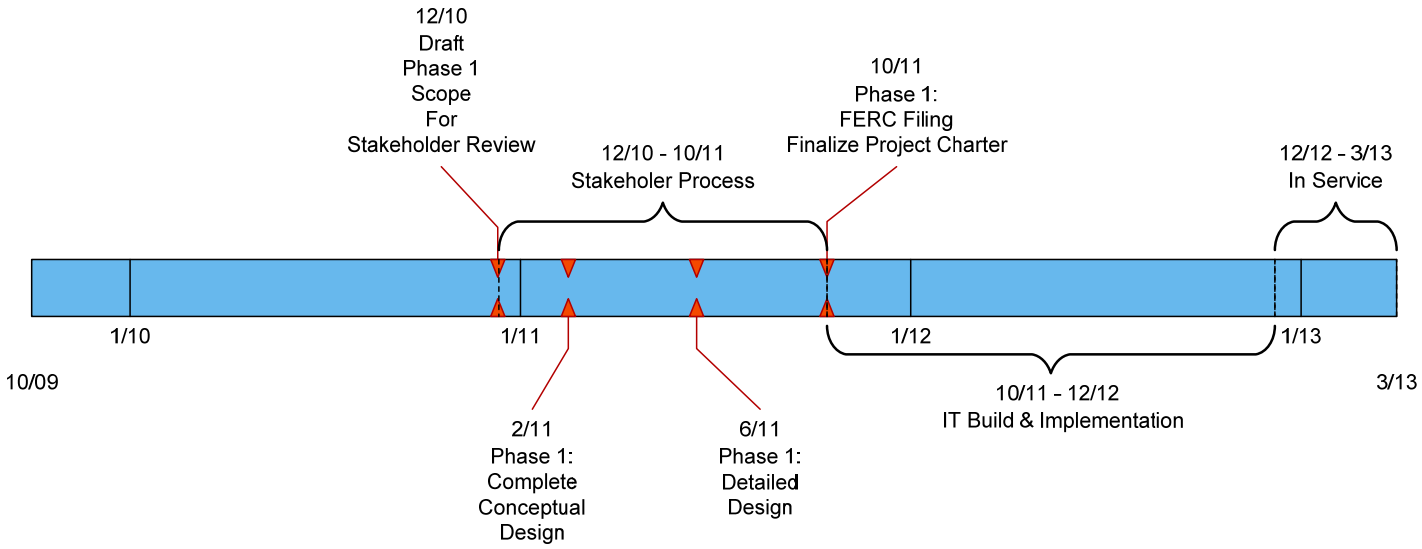
(a) Pre-identify constraints that multiple control areas can address through re-dispatch actions;
(b) Develop an agreed to baseline of allowable usage of each control area's transmission network; and
(c) Establish data sharing protocols to communicate real-time constraint management costs

Market-to-Market Coordination is intended to ensure cost effective utilization of the regions' collective assets to address constraints across multiple systems, with the goal of lowering overall congestion costs to consumers.

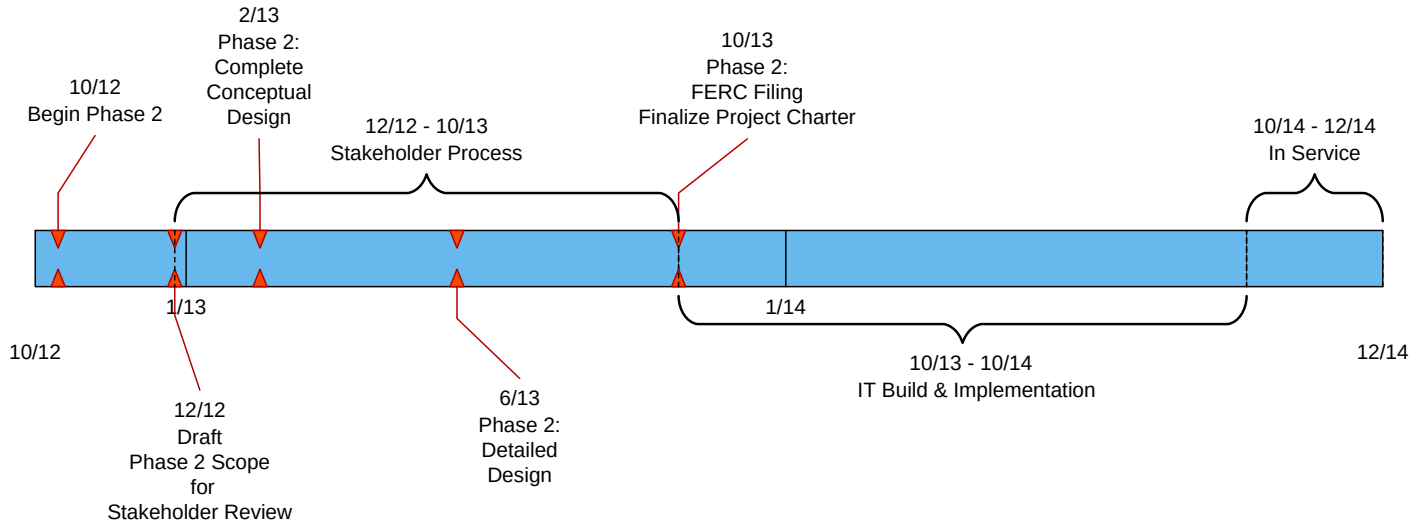
3. Schedule

Based on current priorities for ISO-NE, the plan is to implement the project in two phases starting in the fourth quarter of 2010. Phase I is focused on Interregional Transaction Coordination and Phase II is focused on Market-to-Market (Congestion Management) Coordination. Furthermore, the two phases are designed to be in sequential order rather than in parallel. This is to ensure that resources are sufficiently available to deliver the two phases in a successful manner.

Phase 1: Interregional Transaction (Scheduling) Coordination



Phase 2: Market-to-Market (Congestion Management) Coordination



4. Milestones

For the Phase I (Interregional Transaction Coordination) and Phase 2 (Congestion Management Coordination) projects, the following preliminary high-level milestones are identified.

Milestones	Target Dates for Phase I	Target Dates for Phase II
Draft Scope for Stakeholder Review	12/10	12/12
Conceptual Design	2/11	2/13
Detailed Design	6/11	6/13
Filing with FERC and Finalize Project Charter	10/11	10/13
Software and Business Procedures Completed	10/11 - 12/12	10/13 - 10/14
In Service	12/12 - 3/13	10/14 - 12/14

5. Roles, Responsibilities, and Staffing

The project leads for this multi-year effort will be Robert Laurita for ISO-NE and Robert Pike for NYISO. ISO-NE and NYISO market development staffs will work jointly to design the components of the project. The project leads will provide necessary liaison with needed subject matter experts within each organization. As the project scope evolves, specific roles will be established and resource assignments will be made to ensure deliverables are produced consistent with the above mentioned project milestones and schedule.

6. Budget and Project Charters

The budget and project charter for this project will depend on the final scope of work and specified requirements. Both ISO-NE and NYISO expect that Phase I of this project is larger in scope than Phase II and will require a higher budget. Both phases of the project are dependent on appropriate funding in the operating and capital budgets from 2010 to 2014. Project charters for each phase (containing detailed scope, budget and a resource plan) will be prepared at the culmination of the stakeholder review process for each phase.

7. Risks

This project is a multi-year endeavor that will require the dedicated commitment of both NYISO and ISO-NE staff to this project over multiple years. This project will compete with other priorities for human and financial resources. In the case of ISO-NE, current major priorities include the design of enhancements to the Forward Capacity Market (FCM) and Price Responsive Demand. Furthermore, both RTOs will have to respond to any FERC initiatives that may arise during the project life cycle. In the event that major priorities arise beyond those that have already been identified and planned for, ISO-NE and NYISO management might need to revisit the project schedule. If resources free up from FCM and other previously committed projects, it may be possible to accelerate the projects identified in this document.

Attachment E

Letter from ITC Holdings to NYISO
Dated December 23, 2009

ITC HOLDINGS CORP.
27175 Energy Way • Novi, MI 48377
phone: 248.946.3000
www.itctransco.com

December 23, 2009

Rana Mukerji
Vice President, Market Structures
New York Independent System Operator, Inc.
10 Krey Boulevard
Rensselaer, NY 12144

Dear Mr. Mukerji:

In response to your December 16, 2009 inquiry regarding the implementation status of the Ontario-Michigan phase angle regulators ("PARs"), please be advised that International Transmission Company d/b/a ITC*Transmission* ("ITC") has installed new PARs at its Bunce Creek Station in Marysville, Michigan. In coordination with Hydro One Networks, Inc. ("Hydro One"), the owner of the Canadian interface facilities, a fiber optic communication system is now being installed. ITC has been informed that this work will be completed during the first quarter of 2010, at which time the Ontario-Michigan PARs will be physically ready to go into service.

Despite the physical status of the facilities, there is a substantial impediment which if not promptly resolved, will delay activation of the PARs. Specifically, as stated in ITC's comments on the draft loop flow report recently circulated by the New York Independent System Operator Inc. ("NYISO"), it is clear that ITC's PARs, by helping to control loop flow around Lake Erie, will provide substantial benefits to the entire surrounding region. Nevertheless, under the current rate structure, when the PARs are activated, their capital costs and their maintenance and operations expenses – approximately $8 million per year – will be borne entirely by consumers in the State of Michigan, specifically, only the transmission customers of ITC. Consumers in the other markets surrounding the lake will receive substantial benefits, but will bear none of the costs.

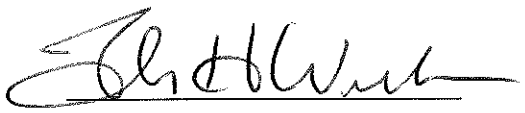
ITC believes that it is essential that the costs of the PARs be shared more broadly by the beneficiaries and it has attempted to work with NYISO, the Midwest Independent Transmission System Operator, Inc. ("MISO") and others to develop a reasonable cost sharing plan. An agreement has not yet been reached, however, and ITC has, in fact, been quite disappointed by

the seeming lack of commitment of these parties to reach such an agreement. Until substantially more progress is made on the cost sharing issue, ITC will be unable to execute the various necessary operating agreements for the PARs – which are otherwise in final form – and the Department of Energy will, accordingly, not be in a position to approve the pending amendment to ITC's Presidential Permit which is required to place the PARs into service.

ITC regrets this potential delay in placing the PARs into service and it remains ready and willing to devote whatever resources are necessary to working with NYISO, MISO and other interested parties to develop an acceptable cost sharing plan as a promptly as possible. In these difficult economic times, however, ITC is not willing to saddle Michigan consumers with the full costs of these facilities, so until substantial progress is made on the cost sharing issue, activation of the PARs will not be possible.

Please contact me if you have any questions or further thoughts on this issue.

Very truly yours,



Thomas H. Wrenbeck
Director, Regulatory Strategy

Attachment F

Northeast ISO Seams Resolution Report for the Third Quarter of 2009, Issued October 19, 2009

Northeast ISOs
Seams Resolution Report
History of Seam Issues Resolution

Broader Regional Markets

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 is 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 arbitraged 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_miwg&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)

P21 NORTHEAST GENERATOR ATTRIBUTES TRACKING (GAT) SYSTEM

Green power suppliers need transparent and efficient tracking of the attributes of green power traded across the ISOs that assures that no double counting occurs.

- NY is working with market participants to determine the suitability of adapting the New England Generator Information System (GIS) to New York markets. The NYISO has been actively participating in the NY Dept. of Public Service hearings on a Renewable Portfolio Standard, where attributes trading is identified as a necessary and desirable condition. On September 24, 2004, the New York State Public Service Commission (PSC) issued its Order on the Renewable Portfolio Standard that outlines a centralized procurement process for renewables. A workshop on the need for a GATS system, sponsored by the PSC and New York State Energy Research and Development Authority (NYSERDA), was held on July 14, 2005. On September 21, 2005, the PSC issued a State Administrative Procedure Act (SAPA) notice stating that it is considering authorizing PSC Staff and NYSERDA, in consultation with the NYISO, to begin the design of a certificate-based tracking and trading system. In the RPS Program January 26, 2006 Order in Case 03-E-0188, the New York Public Service Commission expressed its inclination to modify the current Environmental Disclosure Program to include an attributes accounting system similar to systems used in other states. The NYISO, NYPSC, and NYSERDA met on December 19, 2006 to discuss the PSC's implementation schedule and to review the potential involvement of the NYISO in such a system.

- NYISO is supporting the NYSERDA and NYDPS staff effort to develop a comprehensive set of functional requirements for a New York GATS. (Q2-2009)

- The IESO is awaiting direction from government before proceeding further on this initiative.

- PJM Environmental Information Services Inc (PJM-EIS), a wholly owned subsidiary of PJM Technologies, launched its Generation Attribute Tracking System (GATS). The system was placed in service in September 2005. The system is now being used by PJM LSEs to demonstrate compliance with RPS programs in five PJM jurisdictions (NJ, MD, DC, DE, and PA). As of March 2008 there are 181 subscribers and 342 registered renewable generators in GATS. 22 of these registered renewable generators are located outside of PJM in regions where a tracking system does not currently exist. Each of these external facilities has qualified for one or more PJM-state RPS programs, and GATS facilitates their participation and enhances their liquidity.

- In July 2002, the New England Power Pool (NEPOOL) launched the NEPOOL Generation Information System (GIS). This system tracks the generation attributes, emissions, and outputs of all generators in New England. The system also facilitates the trading of renewable energy certificates (REC) for states with renewable energy portfolio standards (RPS). Consistent with current New England state requirements, NEPOOL's Generator Information System Operating Rules recognize the need to track the attributes of all energy transmitted between New England and other ISOs. Under those rules, energy transactions with unit-specific NERC Tags are given the attributes of the particular generating station while all other energy transactions are given attributes of the system mix of the exporting control area.

- The NEPOOL GIS was the first tracking system in the nation to support multi-state RPS programs. The PJM-EIS GATS was designed on the basis of the NEPOOL GIS. Although there are some functional differences, the two systems are compatible in architecture, core functionality and look-and-feel.

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.

- Linden VFT, a 300MW injection from PJM to NYISO is targeted to begin operations during the third quarter 2009 with full operation targeted for the fourth quarter of 2009.

- 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)

P33 INTERREGIONAL CONGESTION MANAGEMENT

NYISO and PJM are evaluating a coordinated bilateral Congestion Management Process concept. PJM and NYISO met in April and May 2007 and discussed possible opportunities for coordination. The main intent of this activity is to develop a concept that enables optimal dispatch between control areas such that one control area may alleviate congestion in the other.

- A straw-man proposal is planned to be developed by late 2007 with market participant review planned for early 2008. Any PJM-NYISO congestion management results are expected to be shared with ISO-NE. PJM and NYISO met in September 2007 to continue discussion of possible opportunities for coordination.

- NYISO and PJM are evaluating a coordinated bilateral Congestion Management Process concept. The intent of this activity is to develop a concept that enables optimal dispatch between control areas such that one control area may alleviate congestion in the other. NYISO continues to work with PJM on the development of a feasible process. NYISO presented a Congestion Management process overview to market participants at the December 14, 2007 Market Issues Working Group.

- PJM and NYISO had a productive meeting on January 29th, 2008 to continue discussions on a potential congestion management process. More specifically, the parties reviewed RTO to RTO redispatch examples, interaction between any new process and existing PJM NYISO agreements and potential data exchanges. It is PJM's and NYISO's intent to complete the development of a conceptual design for a congestion management process and present this to stakeholders by the end of 2008.

- PJM and NYISO have held several meetings in the first half of 2008 to develop a conceptual design for implementing a coordinated congestion management process. These discussions have focused on the overall design, potential operational procedures and data coordination protocols necessary to integrate a congestion management process. The last meeting between the design teams occurred on April 9th, 2008. The ISOs will continue work on the development of a conceptual design serving the needs of both control areas with the intent of bringing a proposal forward by the end of 2008.

- The Commission issued an order November 17, 2008, approving NYISO's exigent circumstances/loop flow tariff filing in Docket No. ER09-198-001. In this order, the Commission directs NYISO to work with its market participants, NERC, and neighboring RTOs to develop potential solutions to the loop-flow problem on a comprehensive basis through a collaborative process. The Commission also directs the NYISO, within 90 days of the date of the order, to file a status report on its progress in developing solutions to the loop flow problem, including an inter-RTO congestion management process. NYISO and PJM staff met on December 12, 2008 to continue discussions on a congestion management process.

- On February 12, 2009, NYISO hosted a technical conference for market participants, with representatives from PJM, MISO, IESO and ISO-NE participating, to discuss design considerations and take stakeholder feedback on the development of an Interregional Congestion Management Process. NYISO and PJM staffs have met to discuss the details of performing the market flow calculation and have begun the internal evaluation of identifying the necessary data to be shared to support that process.The NYISO's 90 Day Status Report on Development of Solutions to Loop Flow and Development of Inter-ISO/RTO Congestion Management Process was filed on February 17, 2009.

- PJM and NYISO continue to work on the development of a market flow calculation tool. The development of a unified approach to the calculation of market flows across regions is required in order to evaluate the implications of the use of historic entitlements in a congestion management process. The NYISO presented an overview of activities in support of the development of a congestion management process at the June 26, 2009 Market Issues Working Group (MIWG) meeting. (Q2-2009)

- At the September 1, 2009 Market Issues Working Group (MIWG) meeting, the NYISO provided an update on efforts to develop a congestion management process. The current effort is focused on development of the market flow calculation tool and identification of the appropriate baseline for measuring relief provided as part of the settlement process. As noted in the presentation, the plan calls for implementation of the market flow calculation tool in 2010 with full implementation of a congestion management process between NYISO and PJM in 2011 and implementation with additional neighboring control areas in 2013. Also included in this presentation is a schedule for the development of these proposals to support a January 2010 filing with FERC. The presentation can be found at http://www.nyiso.com/public/webdocs/committees/bic_miwg/meeting_materials/2009-09-01/MIWG_Market_Solutions_to_Loop_Flow.pdf. (Q3-2009)

P36 LONG-TERM SOLUTION FOR UNSCHEDULED LAKE ERIE LOOP FLOWS

Unscheduled power flows, particularly around Lake Erie, can negatively impact both electric system reliability and market operations. The NYISO is conducting a comprehensive investigation of transaction scheduling and pricing protocols and incentives in order to assist its efforts to work with PJM, MISO and IESO to develop an alternative long-term solution to mitigate the market and reliability impacts of unscheduled Lake Erie power flows. The results of this ongoing analysis have been, and will continue to be, shared with stakeholders to facilitate an informed discussion of a viable long term solution for managing loop flow.

- Representatives from NYISO, PJM, IESO and MISO met on March 23, 2009 to address the development of solutions to mitigate loop flows. Discussion of the underlying causes of loop flow and the process for sharing data to further the analysis were discussed.

- NYISO met with PJM in June 2009 to discuss their experience with a process that allows MPs to "buy through" TLRs. The NYISO is exploring this process as a potential solution to manage loop flows on a long term basis. The NYISO expects to provide an update on the development of a solution to address loop flow at a future Market Issues Working Group (MIWG) meeting. (Q2-2009)

- The NYISO is working on the development of a "buy-through of congestion" approach to manage the cost of loop flows. This would require a collective solution among all of the ISO and RTO markets surrounding Lake Erie to manage scheduling data and settlement impacts, firm transmission and the potential for free-riders. This approach would entail charging parties scheduling transactions for the cost of congestion incurred by neighboring systems to support flows on systems that are not part of the direct scheduling path for the transaction. A presentation providing additional details on this approach can be found at http://www.nyiso.com/public/webdocs/committees/bic_miwg/meeting_materials/2009-09-01/MIWG_Market_Solutions_to_Loop_Flow.pdf. (Q3-2009)

- FERC's July 16, 2009 Lake Erie Report/Order orders the NYISO to "expeditiously develop long-term comprehensive solutions to the loop flow problem with its neighboring RTOs, including addressing interface pricing and congestion management. NYISO is required to submit a compliance filing to FERC detailing its proposed solution, including necessary Tariff revisions by mid-January 2010. Executives from PJM and the NYISO met on August 12, 2009 to address the July 16, 2009 FERC order, physical solutions and market solutions to address circuitous transaction schedules. (Q3-2009)

- On September 16, 2009, FERC issued an Order Granting Clarification to the NYISO request for clarification or rehearing of the Commission's order issues July 16, 2009. In this Order, FERC states "we clarify here that NYISO must address, in its 180-day report, all solutions to the Lake Erie loop flow problem, including but not limited to: (i) the implementation status of the Ontario-Michigan PARs; (ii) the progress that has been made on the operating agreements for the Ontario-Michigan PARs; and, (iii) the complementary role that physical controls will play in the comprehensive solution to the Lake Erie loop flow problem." (Q3-2009)

- Representatives from Midwest ISO, NYISO, IESO and PJM have conducted a series of conference calls on August 27, September 3 and September 10 followed by an in-person meeting on September 14 to discuss the development of solutions to mitigate loop flows around Lake Erie. These conference calls discussed the implementation status of the Ontario-Michigan PARS, improvements to the process for sharing data to support further loop flow analysis, and solutions to support the development of broader regional markets. (Q3-2009)

- A white paper addressing the development of broader regional markets is being written. The white paper will address solutions to loop flows (both physical and market based,) congestion management and interregional transaction coordination. This white paper is expected to be the focal point of discussion for a joint ISO-stakeholder meeting scheduled for October 29, 2009 in Albany, New York. (Q3-2009)

P37 ENHANCED INTERREGIONAL TRANSACTION COORDINATION

The NYISO is leading an effort to develop enhanced interregional transaction capabilities at its borders with neighboring control areas. This enhancement would allow market participants to submit flexible transaction bids for evaluation on an intra-hour basis leading to sub-hourly adjustment of transaction schedules and interchange between control areas. This capability would support convergence of scheduled interchange with pricing patterns between control areas. It would also expand the pool of flexible resources available to balance intermittent generation between control areas and improve transmission utilization and price consistency between control areas. Implementation would take place in phases in conjunction with neighboring control areas.

- At the September 1, 2009 Market Issues Working Group (MIWG) meeting, NYISO provided an overview of the enhanced interregional transaction scheduling capability. The presentation can be found at: http://www.nyiso.com/public/webdocs/committees/bic_miwg/meeting_materials/2009-09-01/Enhanced_Interregional_Transaction_Coordination_Concept.pdf. This presentation includes an overview of energy bidding, scheduling, pricing, settlement and NERC tag changes necessary for the initial phase of this project supporting intra-hour energy transactions at the NYISO-HQ interface and additional details regarding the schedule for further review with stakeholders. (Q3-2009)

I4 REDUCED LEAD TIME FOR IN-DAY TRANSACTION SCHEDULING (NY)

NYISO market participants have expressed a desire to reduce the lead time for submission of real time transactions below the 75-minute limit currently in effect. This feature will also be considered as part of the NYISO rules assessment initiative currently underway. (July 2003)

- At the March 20, 2009 Market Issues Working Group the NYISO presented an overview of the current 75-minute bid lockdown. Scheduling of transaction for the next hour and 30-minute gas turbine commitments are the primary reason for this timetable. Some market participants have speculated that reducing this window would permit less expensive resources to be scheduled, however, NYISO is not aware of any changes in costs for resources that are unable to be represented prior to the 75 minute bid lockdown. As the NYISO currently evaluates every 15 minutes for the least cost solution, the NYISO sees no demonstrable benefits of reducing the bid lockdown. Subsequently, NYISO does not endorse reducing the current 75-minute window due to potential negative impacts resulting from a less secure bid set.

I6 RESERVES PARTICIPATION IN ADJACENT REGIONAL MARKETS (NY–NE-HQ)

There is Market Participant interest in selling operating reserves from generation sources in one region to provide reserves in another region. This issue will be considered along with other longer-term market issues as part of the NYISO Market Evolution Plan, which was presented to NY stakeholders in June 2005. Since late 2005, the NYISO's Market Evolution Plan is part of its strategic planning process. The NYISO suggested this item to its Market Issues WG for stakeholder discussion and prioritization. Following implementation (October 2006) and assessment of their reserve market, ISO-NE will consider inter-control area provision of reserves. (April 2004).

- Reliability issues related to inter-area reserve have been addressed at the NPCC level, and concepts have been approved to be placed in NPCC Criteria documents.

- Two alternatives were explored. One was an expansion of existing ISO-NE/NYISO reserve sharing agreements, which was rejected because it would meet reliability interests but not market interests. The second alternative was preferred in that it would give access to external reserve resources to the ISO-NE and NYISO markets and would allow competition for the provision of reserve reliably and on a comparable basis.

- ISO-NE and NYISO have had preliminary implementation discussions, but the effort is presently on hold due to manpower limitations and awaits prioritization for implementation. ISO-NE's ability to aggressively pursue this initiative is very much dependent on the final schedules for completion of major market initiatives currently under way or pending FERC decisions and on the results of the collaborative priority setting process that ISO-NE conducts with its stakeholders.

I7 THE IMPACT OF EXTERNAL TRANSMISSION OUTAGES ON CONGESTION RENT SHORTFALLS AND ICAP MARKETS (NY-NE**)**

In the TCC auctions that it conducts, the NYISO permits bidders for TCCs to specify external proxy generator buses as the injection or withdrawal locations. Transmission outages or deratings occurring outside of the NYCA that are not anticipated at the time of a TCC auction can force the NYISO to reduce the assumed transfer capability between the NYCA and the adjacent control area. If the resulting set of TCCs is rendered infeasible, the NYISO will incur congestion rent shortfalls in the day-ahead market. There is currently no way to assign the cost impact (due to the congestion rent shortfall) of that outage to the responsible external transmission owner. TCCs in New York are fully funded, therefore the New York Transmission Owners are exposed to revenue shortfalls when transfer capability is reduced by external outages outside of their control. In addition, transmission outages or deratings that cause reductions in transfer capability between regions may have an impact on ICAP sales between regions. Due to the

emphasis on evaluating SMD2 performance subsequent to deployment in February 2005, NY deferred stakeholder discussion on this issue. NYISO Senior Management will evaluate project, scheduling, and budget impacts in conjunction with all other identified initiatives and determine what further action will be taken. (Oct 2004)

I8 ELIMINATION OF RATE PANCAKING

The NYISO, with the support of the New York TOs, will initiate discussions among the affected parties in the Northeast to explore the potential for rate pancaking relief between New York and PJM. A meeting between the NY and PJM TOs was held on August 18, 2005 to initiate discussions on this issue. With the Transmissions Owners as the primary drivers of this issue, NYISO and PJM are awaiting indications of intent from PJM's TOs as to the level of priority this issue has with the PJM's TOs. On November 02, 2006, PJM supplied transaction data regarding volume and rates for PJM exports into NY.

- The NYISO has also initiated discussions with IESO to eliminate export fees. The revenue application review process for the transmitter that owns the inter-tie transmission lines in Ontario, and is responsible to the provincial regulator for this fee, is currently ongoing. The possibility of eliminating the transmission export fee, along with other options, is being discussed at this rate hearing. In May 2007, the Ontario Energy Board recently upheld the $1/MWh export charge from IESO. However, the IESO will be (1) conducting a study on appropriate export transmission service rates for Hydro One Networks' 2010 rate process; and (2) will start negotiations with the NYISO and other neighboring jurisdictions to pursue reciprocal arrangements to eliminate export charges. The IESO will begin discussions with its neighbors early in 2008 and will complete its market impact studies in 2009. The Ontario Energy Board must approve any changes to Hydro One's export transmission charges.

I14 Asymmetric Capability Year Impact on Inter-Area Capacity Sales

The NYISO capability year begins May 1st, while the capability years for both PJM and ISO-NE begin on June 1st. The election to use Unforced Deliverability Rights (UDRs) for controllable tie-line capacity at an interface with an external control area is factored into the NYISO's annual planning process determining locational capacity requirements. The capacity of a controllable tie-line not used for UDRs may be modeled as emergency assistance in the planning process, subsequently reducing the locational capacity requirement. The one month difference between capability years across the ISOs may be an issue in instances where full capability year obligations or contracted capacity from one control area is transitioned meet requirements in the neighboring control area.

- NYISO and LIPA are discussing potential ways to address the impact for the May 2010 period.

- The NYISO is evaluating a number of options associated with the May/June difference; any option will likely involve changes to NYISO tariffs, manuals, and possibly New York State Reliability Council (NYSRC) rules. The NYISO expects to provide a proposal to MPs in the near future. (Q2-2009)

- NYISO has included a project to consider the extent of market rule changes, software changes and potential operations procedure changes that would be required to align NY's capability year with those of PJM and ISO-NE in its 2010 project candidate list including a recommendation to pursue this initiative. (Q3-2009)

Broader Regional Planning

P26 COORDINATION OF INTERREGIONAL PLANNING

To continue to develop ways to improve the coordination of planning for the Northeast region, this project is established to identify future deliverables towards achieving progress in this endeavor. ISO-NE, NYISO and PJM will be presenting the results of their current efforts under the Northeastern Coordination of Planning Protocol. Under the Northeastern Coordination of Planning Protocol, a Northeast group of NYISO, PJM, & ISO-NE called "Joint ISO/RTO Planning Committee" (JIPC) met with market participants at the March 23, 2007 meeting of the Inter-area Planning Stakeholder Committee (IPSAC) and several presentations were made. PJM, NYISO, and ISO-NE are currently exchanging modeling information and load flow analysis such that work completed in 2006 can be expanded in the 2007 work-plan.

- On December 14, 2007 another IPSAC meeting was held by teleconference and web-ex at which the ISOs made presentations on several topics, including: New England Loss of Source Feasibility Study; planned system improvements in each ISO/RTO region; environmental and renewable resource issues. In addition, the ISOs presented their proposed Scope of Work for an inter-regional transmission adequacy study for discussion and stakeholder input. Stakeholders raised additional issues that are currently under consideration. Interim study results for the transmission analysis were discussed with stakeholders at an IPSAC meeting held on June 27, 2008. At this meeting, the ISO/RTOs also reviewed their plans for additional analyses with stakeholders. Plans call for conduct of further transmission studies, and production analyses. An update will be presented to stakeholders at a meeting planned for the 4th quarter 2008.The agenda and meeting materials from the Dec 14, 2007 and the June 27, 2008 meetings are posted at the following link: http://www.interiso.com/documents.cfm. Additional materials have been posted by each of the ISO/RTOs on their secure links.

- The integration of over 450 MW (nameplate) of wind resources in the NY North Country is planned for 2009. ISO-NE and NYISO are conducting joint operating studies to ensure reliable operation of the system. These issues were discussed with stakeholders at the June IPSAC meeting.

- During the month of August 2008, high-level meetings were held between NYISO, PJM and ISO-NE to discuss possible expansion of inter-regional planning activities. Follow-up meetings were held.

- An IPSAC meeting was held on December 11, 2008 at which the following items were discussed: the NCSP, the Joint Coordinated System Plan, the North – Country Vermont Study, PJM 500kV Expansion Studies; Environmental Issues, Interregional Wind Integration Issues and Next Steps. Additional presentations demonstrated that Queue studies and other studies have also been well coordinated and resulted in proactive system plans.

- The draft NCSP was posted on January 9, 2009 and an IPSAC conference call was held on January 30, 2009 to discuss comments on the draft Plan and to receive further input from stakeholders regarding continuing studies of interregional system assessments and system improvements.

- Following these two IPSAC meetings a final comment period was concluded on February 4 and the final NCSP was posted on March 3, 2009. The final NCSP is a comprehensive document that discusses: summaries of the RTO's system plans, interregional studies conducted by the JCSP that include the coordination of projects in the Queues having potential interregional impacts, additional coordinated planning activities and issues, wind and renewable resource studies, key environmental issues with potential interregional impacts, renewable resource development, demand side resource development, and plans for additional JIPC analysis.

- Next steps planned are summarized in the NCSP. In particular, NYISO and PJM will be conducting both reliability and production cost analyses which will focus on the New Jersey – Southeast New York area. In addition new tie lines are being explored, including further analysis between ISO-NE and NYISO, as well as their respective transmission owners, that builds upon the prefeasibility study of a tie between Plattsburgh and Vermont. Upon completion of these studies, plans call for conducting a feasibility analysis of the need for a new tie between southern New England and Southeast New York.

- An IPSAC WebEx was held May 7, 2009 to discuss the planned scopes of work and the status of study work. Preliminary results of the Vermont-New York interconnection studies and the NYISO/PJM focused study reliability analysis were presented to stakeholders at an IPSAC meeting held on June 30, 2009. Other topics presented at this meeting included an overview of other inter-regional planning activities, coordination of studies and databases, an overview of each ISO's economic planning process and plans for development of an inter-regional production costing database for future economic analysis. Economic analysis will include focused studies of the ability to transfer power across the New York - PJM interface. Additional economic analysis will focus on the ability to transfer power across the New York - New England Interface. Once the coordinated data base is fully developed, plans call for conducting economic analysis for the three ISO/RTO regions. (Q3-2009)

- An IPSAC meeting was held on June 30, 2009 when an update was provided on: the Vermont-New York New Interconnection; North Country Studies including the integration of wind resources; NYISO/PJM Focused Reliability Study that will confirm generator deliverability modeling used in resource adequacy studies; Other Interregional Planning Activities such as the planned formation of the Eastern Interconnection Planning Collaborative (EIPC); Coordination of Studies and Databases Overview of ISO Economic Planning Processes for ISO-NE; NYISO, and PJM; and Background on joint modeling and plans for joint Interregional Economic Planning Efforts. (Q3-2009)

- An IPSAC WebEx meeting is scheduled for November 6, 2009. The WebEx will provide a status update regarding analysis of the Vermont-New York New Interconnection, NYISO/PJM Reliability and Market Efficiency Analysis and the development of a common economic database for the combined region. Process improvements for coordinating interconnection studies and transmission planning studies are under development. An in-person IPSAC meeting is being planned for mid-December in New England. (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)

P35 Eastern Interconnection Planning Collaborative (EIPC)

On September 1, 2009, 23 planning authorities representing about 95% of the peak load in the Eastern Interconnection, entered into an agreement to form the Eastern Interconnection Planning Collaborative Analysis Team. The goal of this initiative, the first of its kind in the Eastern Interconnection, is to provide a grass roots approach to interconnection-wide transmission analysis by the roll-up of the existing regional plans to identify potential opportunities for efficiencies between regions.

On September 14, 2009, members of the EIPC submitted a proposal, in response to a DOE Funding Opportunity Announcement, for performing interconnection-wide transmission analyses. The project proposes to facilitate the establishment of a multi-constituency stakeholder steering committee to provide strategic guidance to the technical studies. It is anticipated that this initiative will provide benefit to states, policy makers and other stakeholders by providing a coordinated analysis of scenarios of interest and developing potential transmission expansion options and cost estimates to inform their decisions. The DOE anticipates making an initial award selection in early November and a final award by the end of the year.

- The EIPC has announced two Webinars for October 13th and 16th to initiate dialogue with stakeholders, to receive input and to answer questions regarding this initiative. (Q3-2009)

I13 INTERREGIONAL COST ALLOCATION

The Northeastern ISO/RTO Coordination of Planning Protocol currently provides that cost allocation will be addressed consistent with the provisions of each ISO/RTO's Tariff. The discussions between NYISO and PJM and between NYISO and ISO-NE referred to in item P26 above also included potential consideration of a cross-border cost allocation mechanism for prospective application.

- At the December 11, 2008 IPSAC meeting there was discussion of interregional cost allocation. The ISO/RTOs current plans call for an open stakeholder process to address interregional cost allocation once projects have been identified and the individual ISO/RTO cost allocation procedures have been substantially finalized by the Commission. Stakeholders expressed different views regarding the schedule and timing for addressing such cost allocation issues. The JIPC is holding to this plan and a summary of existing regional cost allocation methods is included in the NCSP.

- The existing economic planning processes and cost allocation methodologies in the three regions were discussed in detail at the June 30, 2009 IPSAC meeting. If justifications for individual projects are identified, there are several means available in the existing ISO/RTO tariffs to pay for the projects. (Q3-2009)

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 Chateauguay 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/mrkts_comm/mrkts/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 appraised 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 BUSSES 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 is 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 arbitraged 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_miwg&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)