

Northeast Seams Report

Rana Mukerji

*Senior Vice President, Market Structures
New York Independent System Operator*

Management Committee Meeting

November 2, 2012

Rensselaer, NY

Broader Regional Markets

Issue	Description
1. Market Solutions to Loop Flow: Interregional Congestion Management	<ul style="list-style-type: none"> On October 20, 2010 Midwest ISO and ITC filed proposed tariff amendments at FERC seeking to allocate 30.9 % of the cost of ITC's phase angle regulating transformers at Bunce Creek on the Michigan-Ontario border to New York, and 19.5% to PJM. The Commission has set a November 10, 2010 comment date in Docket No. ER11-1844. The NYISO intends to vigorously oppose this proposal. On November 17, 2010 the NYISO, the New York TOs, ISO-New England and many other entities filed protests in opposition to joint Midwest ISO-ITC cost allocation proposal. NYISO contends that the cost allocation proposal is not consistent with Commission precedent or the Commission's recent transmission planning and cost allocation NOPR. On May 22, 2012, FERC issued a declaratory order instructing the NYISO "...the Commission has accepted MISO's proposed allocation and charges in Docket No. ER11-1844, and permitted them to become effective, subject to refund. Therefore, any charges properly billed pursuant to these Commission-accepted MISO Tariff provisions must be paid by NYISO in accordance with the provisions of MISO's Tariff." A hearing before the FERC Administrative Law Judge (ALJ) regarding cost recovery for the MI/ON PARs was concluded on September 13, 2012. Initial and Reply Briefs will be filed by all parties to the proceeding in October. The ALJ is scheduled to issue his Initial Decision on December 19, 2012.

Broader Regional Markets

Issue	Description
1. Market Solutions to Loop Flow: Interregional Congestion Management <i>(continued)</i>	<ul style="list-style-type: none"> ▪ On December 30, 2011, NYISO and PJM jointly filed revisions to their JOA, including the proposed Market-to-Market Coordination Procedures. ▪ On May 1, 2012 NYISO and PJM submitted a joint filing to FERC including updates to the JOA required for the implementation of M2M. This filing included proposed solutions to all five of the concerns (see March 26 MIWG) that NYISO and PJM identified in their 12/30/2011 filing. Additional details regarding specific potential PJM and NYISO M2M flowgates and entitlement levels were presented to stakeholders at the April 18 BIC. ▪ NYISO and PJM have started joint testing of M2M software. NYISO and PJM have begun flowgate qualification studies. ▪ On September 20, 2012 FERC issued an order accepting NYISO and PJM's joint compliance filing for implementation of M2M coordination no later than January 15, 2013.

Broader Regional Markets

Issue	Description
2. Market Solutions to Loop Flow: Enhanced Interregional Transaction Coordination (EITC)	<ul style="list-style-type: none"> On October 26, 2011 NYISO deployed pricing and scheduling software enhancements that are designed to allow the NYISO to better reflect the distribution of flows around Lake Erie. These enhancements are referred to as “Interface Pricing.” Today, the scheduling and pricing software does not explicitly distribute power flows around Lake Erie when determining schedules and prices. Market Participants will be given notice at least two weeks prior to the activation of this feature. On March 15, 2012 FERC issued an order specifying the method that the NYISO should use to price external interfaces. NYISO has submitted a request to FERC to convene a technical conference to allow NYISO to explain how it intends to address the March 15 order, correct misunderstandings about how PJM prices external transactions, and seek further guidance from Commission Staff about what NYISO should do to comply with the order. On August 22, 2012 FERC issued an order directing the NYISO to submit a detailed proposal outlining how it intends to use expected power flows for pricing purposes. NYISO is preparing a compliance filing in accordance with the FERC order.

Broader Regional Markets

Issue	Description
2. Market Solutions to Loop Flow: Enhanced Interregional Transaction Coordination (EITC) <i>(continued)</i>	<p><u>EITC Phase 1 (15-minute scheduling at HQ Chateaugay)</u></p> <ul style="list-style-type: none"> On July 27, 2011 NYISO and HQ activated 15-minute scheduling at the HQ-Chateaugay Proxy. NYISO increased the quarter-hour interchange ramp limit at the New York-Hydro Quebec Interface from 25 MW to 50 MW on November 2, 2011. The limit was increased from 50 MW to 100 MW on December 1, 2011. The was increased from 100 to 150 MW on February 9, 2012. The limit is expected be increased from 150 to 175 MW on April 18, 2012. On May 31, 2012 the limit was increased from 175 to 200 MW. <p><u>EITC Phase 3 (15-minute scheduling at PJM)</u></p> <ul style="list-style-type: none"> At the June 6, 2011 Market Issues Working Group NYISO provided an update on EITC Phase 3 which will provide for 15-minute transaction scheduling between NY and PJM. Software and tariff changes developed for EITC Phase 1 will support much of the EITC Phase 3 deployment. Additional operational tools and procedures will be developed to support 15-minute checkouts with PJM. At the April 26, 2012 MIWG NYISO provided stakeholders with an update on the rollout of 15-minute transaction scheduling with PJM. The roll-out order for the proxy buses will be: Keystone, Neptune, Linden VFT. Market Participants will be given two weeks notice before the implementation at each proxy. On June 27, NYISO activated 15-minute scheduling at the Keystone proxy bus.

Broader Regional Markets

Issue	Description
<p>2. Market Solutions to Loop Flow: Enhanced Interregional Transaction Coordination (EITC) (continued)</p>	<p><u>EITC Phase 3 (15-minute scheduling at PJM)</u></p> <ul style="list-style-type: none"> NYISO intends to activate 15-minute scheduling at the Neptune proxy bus by early November 2012. Market Participants will be given a minimum of two weeks advance notice prior to activation. <p><u>EITC Phase 4 (CTS with ISO-NE)</u></p> <ul style="list-style-type: none"> At the November 9, 2011 BIC meeting, stakeholders passed the motion recommending that the MC approve the CTS Tariff amendments. Stakeholders approved the Tariff changes at the November 29 MC meeting. On December 28, 2011 NYISO filed tariff revisions necessary to implement CTS with ISO-NE. On January 20, 2012 the NEPOOL Participants Committee voted in support of CTS tariff revisions. On February 24, 2012 ISO-NE filed tariff revisions necessary for the implementation of CTS. At the July 19, 2012 MIWG NYISO provided an update on CTS with ISO-NE. NYISO introduced the Joint Energy Scheduling System (JESS) common bidding platform. Joint requirements gathering between ISO-NE and NYISO staff is in progress. <p><u>EITC Phase V (CTS with PJM)</u> PJM and MISO are currently working on a joint interchange optimization initiative. They have engaged stakeholders through two joint stakeholder meetings held in November and December 2011 and expect to continue work on this initiative in 2012.</p> <ul style="list-style-type: none"> NYISO expects to present a market design proposal for a coordinated transaction scheduling mechanism between PJM and NYISO during the second half of 2012.

Broader Regional Markets

Estimated Benefits of Broader Regional Markets Initiatives

- An analysis of the Broader Regional Markets initiatives conducted by the NYISO's Independent Market Monitor indicates, under a \$6 per MMBTU natural gas price scenario, annual regional savings of at least \$362 million with \$193 million annual savings on New York interfaces and constraints.
- Coordination of flows around Lake Erie would result in an estimated \$53 million in annual savings regionally with \$18 million for New York interfaces and constraints
 - ✓ Gross value of over-priced and under-priced loop flow is \$430 on an annual basis
 - ✓ Reasonable to expect to capture 10-20% of this value
- Improved interface utilization would result in \$309 million in annual savings regionally with \$175 million for New York interfaces and constraints
 - ✓ Measured as reduction in production costs
 - ✓ Results in price convergence between regions
- At the September 27, 2010 joint stakeholder technical conference David Patton presented an update to the analysis of the benefits of the Broader Regional Market Initiatives originally presented at the April 21 MC meeting.

Broader Regional Markets

Issue	Description
3. Reserves Participation in Adjacent Regional Markets	<ul style="list-style-type: none"> ▪ 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. ▪ The NYISO intends to evaluate the capabilities for cross border reserve trading as part of the Interregional Transaction Coordination effort in 2010. ▪ On November 10, 2010 NYISO presented a proposed approach for allowing market participants to purchase or sell Operating Reserves and Regulation Service at an external interface. Reserve product qualification, performance management, scheduling, and settlement aspects of the proposed approach were discussed.

Broader Regional Markets

Issue	Description
4. Congestion Rent Shortfalls Resulting From External Transmission Outages	<ul style="list-style-type: none">▪ 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 are 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. In addition, transmission outages or deratings that cause reductions in transfer capability between regions may have an impact on ICAP sales between regions. 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.▪ NYISO will evaluate this issue as part of NYISO's market rules assessment initiative.

Broader Regional Markets

Issue	Description
5. Elimination of Rate Pancaking	<ul style="list-style-type: none"> ▪ 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 TOs. PJM has supply 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. The decision on the transmitter's revenue application is expected to be given in May of 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 to pursue a reciprocal arrangement 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. ▪ While rate pancaking between NYISO and ISO-NE has already been eliminated, it is anticipated that the recently initiated interregional cost allocation discussions taking place under the Northeastern ISO/RTO Coordination of Planning Protocol will address the elimination of through-and-out charges between NYISO and PJM.

Broader Regional Markets

Issue	Description
6. Asymmetric Capability Year Impact on Inter-Area Capacity Sales	<ul style="list-style-type: none"> ▪ 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 to meet requirements in the neighboring control area. ▪ On February 3, 2010 FERC approved Tariff changes necessary to support the Capability Year adjustment election for holders of UDRs. ▪ At the June 17, 2010 Installed Capacity Working Group (ICAP WG) NYISO presented an overview of market design considerations related to the realignment of NYISO's ICAP Capability Year with neighboring markets. PJM and ISO-NE both employ a planning year beginning on June 1 each year and the NYISO employs two distinct six-month capability periods within a capability year beginning on May 1 each year. The NYISO requested feedback from market participants related to anticipated market benefits, additional perceived obstacles, potential impacts on exports from New York, and prioritization with respect to other ICAP market enhancements.

Broader Regional Markets

Issue	Description
7. Capacity Market Enhancements	<ul style="list-style-type: none"> ▪ Explore Impediments to Reciprocal Capacity Wheeling with New England <ul style="list-style-type: none"> ♦ <i>Identity the scope of issues pertaining to auction structure, timing, planning, operations, IRM/LCR, cost allocation and other impact areas in NY and NE markets</i> ▪ Identify/enumerate capacity market seams <ul style="list-style-type: none"> ♦ <i>Investigate whether delisted capacity is treated similarly in ISO-NE and NYISO (ICAP vs. UCAP, interaction with export limit, losses, etc.)</i> ▪ Preliminary findings of the capacity market study were reviewed with stakeholders at the July 31, 2012 ICAPWG meeting. ▪ At the September 11, 2012 ICAPWG meeting FTI presented draft capacity market study results and solicited stakeholder feedback and comments. A draft version of the report will be distributed for stakeholder comment in mid-October with a final version issued in early November.

Broader Regional Markets

Issue	Description
8. Market Solutions to Loop Flow: Buy-Through of Congestion	<ul style="list-style-type: none"><li>■ 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 address 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.<li>■ Per the December 30, 2010 FERC order, the NYISO has suspended work on Buy-Through of Congestion in order to focus resources on the Commission's priorities of Interface Pricing and Market to Market.

Broader Regional Planning

Issue	Description
9. Coordination of Interregional Planning	<ul style="list-style-type: none"> ▪ The first meeting of the (NYISO) Interregional Planning Task Force was held as a Webex on January 29, 2010, followed by an in person meeting on February 10th . NYISO staff provided updates on IPSAC work plans for 2010 and the EIPC initiative and initiated discussions regarding the development of a process and schedule for addressing cross border planning and cost allocation issues. Numerous IPTF meetings have been held since then, primarily to update stakeholders on IPSAC and EIPC activities as well as to discuss the FERC Planning & Cost Allocation NOPR. ▪ An IPSAC meeting was held on March 30, 2011 to discuss: Draft IREMM Results of the Interregional Production Cost Study, Draft PROMOD Results of the Interregional Production Cost Study, Integrating Energy Efficiency in Long-Term ISO/RTO Planning, Update on the FERC Planning NOPR and Interregional Issues, EIPC Update, Next Steps on Production Cost Studies, Plans for NCSP11, Environmental issues, and other items. ▪ An IPSAC Webex meeting was held on June 27th to discuss: Environmental Issues and Variable Resource Technologies, Natural Gas Issues and ISO/RTO Reliability Update, IREMM Results of the Interregional Production Cost Study, Update on the PROMOD Interregional Production Cost Study, Update on Interregional Activities, and Next Steps and Plans for NCSP11. ▪ Reports have been posted on Environmental Issues and Variable Resource Technologies, and IREMM Results on the Interregional Production Cost Study.

Broader Regional Planning

Issue	Description
9. Coordination of Interregional Planning <i>(continued)</i>	<ul style="list-style-type: none"> ▪ An IPSAC Webex meeting was held on Nov 29th to discuss: results of the PROMOD Production Cost analyses, updates on Environmental Issues and Order 1000, and the development of the next Northeast Coordinated Regional Plan which is scheduled for completion in the Spring of 2012. ▪ An IPSAC Webex was held on March 30, 2012 which included presentations on: <ul style="list-style-type: none"> ▪ Draft 2011 Northeast Coordinated System Plan ▪ Status Update and Results of Northeast Production Cost Study ▪ Update on Environmental Issues ▪ Order 1000 Inter-regional Requirements ▪ EIPC Phase II Update ▪ NY-PJM Short Circuit Study ▪ Comments were requested from stakeholders on the draft 2011 NSCP Report as well as the Draft redline of the Northeast Protocol & Order 1000 issues matrix by April 13th. ▪ The ISOs are finalizing the 2011 NCSP Report to incorporate responses to stakeholder comments and anticipate posting the Final Report by the end of May. ▪ The final 2011 NCSP Report was posted on June 1, 2012. ▪ An IPSAC Webex was held on August 27th at which updates were provided on production cost database and analysis, environmental issues, transmission planning activities, proposed interregional electric/gas study and Order 1000.

Broader Regional Planning

Issue	Description
9. Coordination of Interregional Planning <i>(continued)</i>	<ul style="list-style-type: none"> ▪ FERC issued Order 1000, the Final Rule on Transmission Planning & Cost Allocation on July 21, 2011. It contains new requirements in the following areas: <ul style="list-style-type: none"> ▪ Regional Planning ▪ Public Policy Considerations ▪ Inter-regional Planning ▪ Cost Allocation: Both regional and inter-regional ▪ Eliminates “Right-of-First-Refusal” tariff provisions ▪ It is anticipated that the Northeast ISO/RTO Planning Coordination Protocol will be utilized as the vehicle for compliance filings related to inter-regional planning and cost allocation. ▪ Stakeholder discussions regarding Order 1000 will take place at ESPWG, IPTF as well as IPSAC. ▪ Compliance filings on most topics due on October 11, 2012. ▪ Compliance filings on inter-regional topics due on April 1, 2013. ▪ On August 22nd NYISO filed for rehearing of the Commission’s assertion that it has jurisdiction to assign the costs of transmission facilities to “all beneficiaries” regardless of their contractual relationship with the owner of those facilities. ▪ On May 17, 2012 FERC issued Order 1000-A which reaffirmed the Final Rule and largely rejected the requests for rehearing—including the NYISO’s.

Broader Regional Planning

Issue	Description
9. Coordination of Interregional Planning <i>(continued)</i>	<ul style="list-style-type: none"> ▪ NYISO and the TO's developed a Compliance Issues Matrix which was posted for discussion at a joint IITF/ESPW meeting on February 27th. <ul style="list-style-type: none"> ▪ Written comments were requested by March 9th. ▪ An IPSAC webex was held on June 22nd to continue discussions on inter-regional issues including: <ul style="list-style-type: none"> ▪ ISO/RTOs response to stakeholder comments on the draft Northeast Planning Protocol ▪ Discussion of an initial Strawman proposal for Inter-regional Cost Allocation ▪ An update on inter-regional issues was provided at an IPSAC webex on August 27th. There was also further discussion on the interregional cost allocation proposal. ▪ On October 11th, NYISO made a joint compliance filing with the TO's to address the regional planning and cost allocation requirements of Order 1000.

Broader Regional Planning

Issue	Description
10. Eastern Interconnection Planning Collaborative (EIPC)	<ul style="list-style-type: none"> ▪ On December 18, 2009, the DOE announced award selections totaling \$60 million dollars in funding to develop open and transparent stakeholder processes and to conduct transmission planning analyses on an interconnection-wide basis. The awardees for the Eastern Interconnection were the EIPC proposal for developing the stakeholder process and performing the technical analysis and the EISPC proposal to establish a consensus-building process among the Eastern states to identify resource and policy options as input to the technical analysis. <p>2011: Summary</p> <ul style="list-style-type: none"> ▪ Eight energy futures were developed and approved by SSC ▪ Macroeconomic analysis was completed on a total of 80 futures and sensitivities ▪ The SSC selected the final three Scenarios for analysis in Phase II: <ul style="list-style-type: none"> ▪ Business As Usual ▪ National RPS—Regional Implementation ▪ Combined Federal Climate and Energy Policy ▪ Phase I work was completed by December ▪ Phase I Report was filed with DOE on December 16th ▪ DOE authorization to proceed with Phase II of the Project has been received ▪ Phase I Report posted on EIPC Website at: http://eipconline.com/uploads/Phase_1_Report_Final_12-23-2011.pdf ▪ Planning Authorities are beginning preparation of inputs needed for an EI-wide power flow case for each of the final three Scenarios selected by Stakeholders

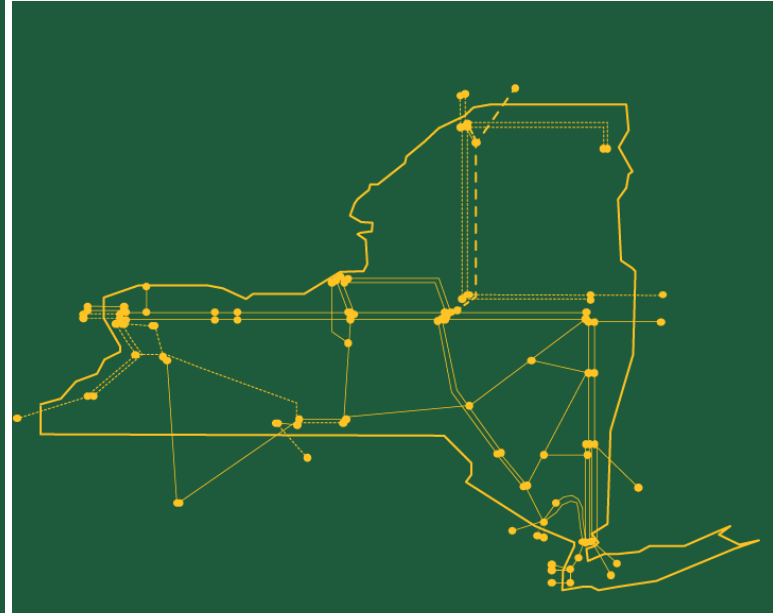
Broader Regional Planning

Issue	Description
10. Eastern Interconnection Planning Collaborative (EIPC) <i>(continued)</i>	<p>2012 Status Update</p> <ul style="list-style-type: none"> ▪ Next Steps <ul style="list-style-type: none"> ▪ EIPC modeling WG proceeding to develop EI load flow models for all three Scenarios ▪ Individual PAs performing regional analysis to integrate future resources ▪ TOTF Webinars were held on April 26th and May 3rd ▪ SSC meeting was held on April 18-19th in Omaha, NE ▪ TOTF Meeting was held on May 15-16th in Memphis and a webinar on May 31st <ul style="list-style-type: none"> ▪ Discuss additional transmission options needed to finalize Scenarios 1 & 3 ▪ Review schedule for Scenario 2 and Task 8 ▪ Modeling WG Webinar was held on June 5th to discuss input data and assumptions for the production cost modeling (Task 9) ▪ SSC Webinar was held on June 15th to review final Task 7 results for Scenarios 1 & 3; discuss progress on Scenario 2; and review the draft outline and schedule for the Phase 2 Report ▪ TOTF Meeting was held on June 29th to review and finalize Scenario 2 and to review the initial Task 8 results for Scenarios 1 & 3

Broader Regional Planning

Issue	Description
10. Eastern Interconnection Planning Collaborative (EIPC) <i>(continued)</i>	<ul style="list-style-type: none"> ▪ An SSC Webinar was held on July 9th to: <ul style="list-style-type: none"> ▪ Review the Scenario 2 transmission build-out results produced by the TOTF ▪ Discuss the Scenario 1 and Scenario 3 reliability testing results ▪ Review the Modeling Work Group's recommendations and discussions related to Production Cost (GE MAPS) Modeling ▪ Provide an update on the Phase II report and schedule ▪ A TOTF webinar was held on August 2nd to review the final results of the reliability analysis for all three Scenarios ▪ An SSC meeting was held on Sept 20-21st in Detroit to: <ul style="list-style-type: none"> ▪ Review initial production cost modeling results for Scenarios 1 & 3 ▪ Discuss potential production cost sensitivity cases ▪ Review the draft Phase 2 Report ▪ Provide an update on the Phase II schedule ▪ CRA is finalizing the production cost analysis for the initial three Scenarios ▪ Modeling WG is developing recommendations to the SSC for the sensitivity analysis ▪ SSC approval of the sensitivity analysis is expected before the end of October ▪ EIPC has posted the second draft of the Phase 2 Report for stakeholder comment

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



www.nyiso.com