

Northeast Seams Report

A map of New York State is overlaid with a network of power grid lines. The lines are color-coded: red lines form a dense network across the state, while blue and green lines represent specific transmission paths or interconnectors. Some lines are solid, while others are dashed, indicating different types of connections or planned infrastructure.

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Business Issues Committee Meeting

November 6, 2013

Rensselaer, NY

Broader Regional Markets

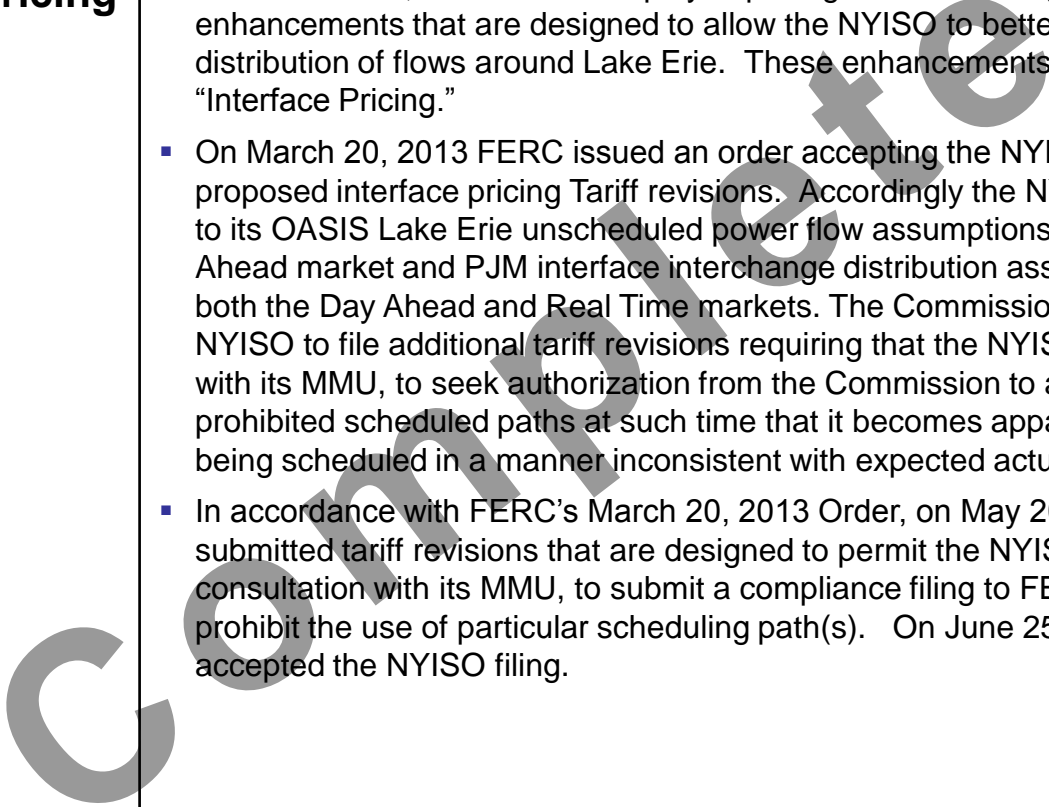
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| <p>1. Michigan-Ontario PAR Cost Allocation</p> | <ul style="list-style-type: none"> ▪ On October 20, 2010 Midwest ISO and ITC filed proposed tariff amendments at FERC seeking to allocate 30.9 % of the cost of ITC's phase angle regulating transformers 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 were filed by all parties to the proceeding in October. ▪ On December 18, 2012 the FERC ALJ issued his Initial Decision rejecting the MISO/ITC proposal to allocate a portion of the cost of the MI/ON PARs to PJM and New York. MISO and ITC filed exceptions arguing that the AJL's Initial Decision should be overturned by the Commission. Responses to the MISO/ITC Exceptions were submitted by NYISO, the NYTOs, PJM, the PJM TOs and the MISO TOs on February 6, 2013. |

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| Issue | Description |
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| <p>2. Market-to-Market Coordination-PJM</p> | <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 September 20, 2012 FERC issued an order accepting NYISO and PJM’s joint compliance filing for implementation of M2M coordination. On October 24, 2012 NYISO deployed software changes required to implement M2M. ▪ NYISO and PJM activated M2M coordination on January 15, 2013. The ISOs have successfully coordinated generation redispatch for several flowgates and have begun to coordinated Ramapo tap changes based on the M2M protocols. ▪ On July 30, 2013 FERC approved revisions to the PJM-NYISO JOA requested on June 13, 2013. These revisions allow for the temporary suspension of M2M coordination and settlements under certain conditions. ▪ On July 12, 2013 PJM suspended M2M Ramapo PAR coordination of the thunderstorm alert (TSA) M2M flowgates. NYISO and PJM are engaged in ongoing Dispute Resolution regarding PJM’s suspension of coordination on these flowgates. |

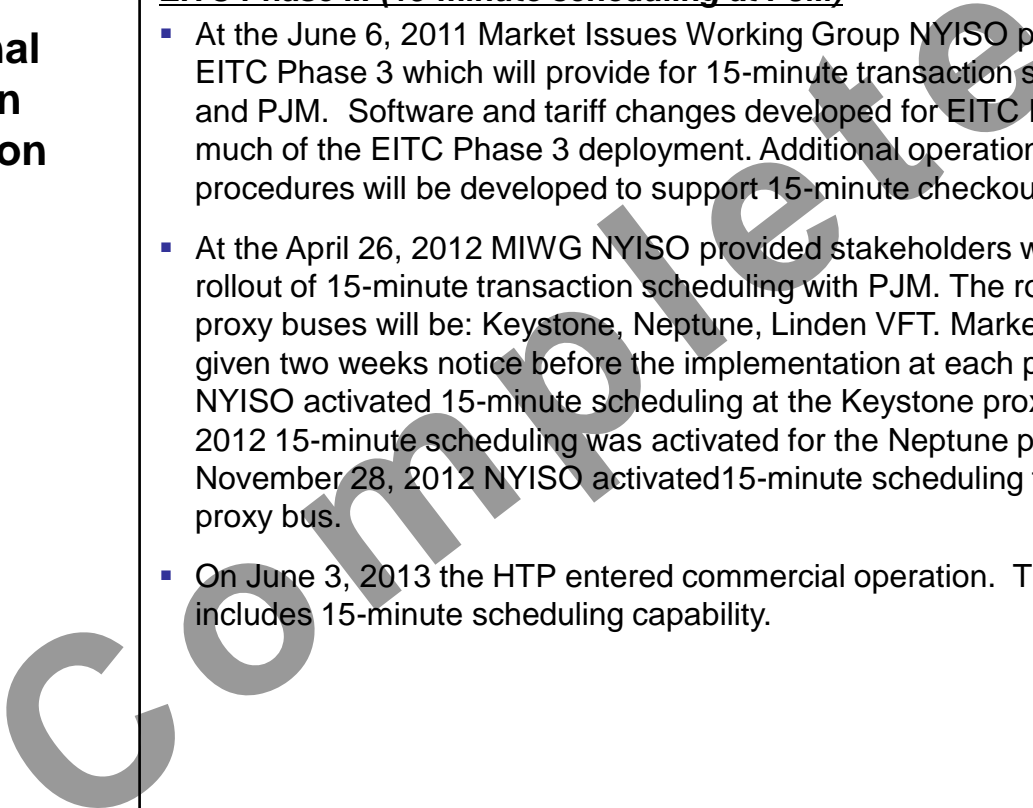
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| 3. Interface Pricing | <ul style="list-style-type: none"> ▪ On October 26, 2011 NYISO deployed pricing and scheduling software enhancements that are designed to allow the NYISO to better reflect the distribution of flows around Lake Erie. These enhancements are referred to as “Interface Pricing.” ▪ On March 20, 2013 FERC issued an order accepting the NYISO’s January 18 proposed interface pricing Tariff revisions. Accordingly the NYISO began posting to its OASIS Lake Erie unscheduled power flow assumptions used for the Day Ahead market and PJM interface interchange distribution assumptions used for both the Day Ahead and Real Time markets. The Commission also directed the NYISO to file additional tariff revisions requiring that the NYISO, in consultation with its MMU, to seek authorization from the Commission to add additional prohibited scheduled paths at such time that it becomes apparent that a path is being scheduled in a manner inconsistent with expected actual flows. ▪ In accordance with FERC’s March 20, 2013 Order, on May 20, 2013, the NYISO submitted tariff revisions that are designed to permit the NYISO, acting in consultation with its MMU, to submit a compliance filing to FERC proposing to prohibit the use of particular scheduling path(s). On June 25, 2013 FERC accepted the NYISO filing. |



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| <p>4. Enhanced Interregional Transaction Coordination</p> | <p><u>EITC Phase III (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. On October 30, 2012 15-minute scheduling was activated for the Neptune proxy bus. On November 28, 2012 NYISO activated 15-minute scheduling for the Linden VFT proxy bus. ▪ On June 3, 2013 the HTP entered commercial operation. The implementation includes 15-minute scheduling capability. |



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| <p>4. Enhanced Interregional Transaction Coordination (continued)</p> | <p><u>EITC Phase IV (CTS with ISO-NE)</u></p> <ul style="list-style-type: none"> ▪ On April 19, 2012 FERC issued an order accepting NYISO’s proposed tariff revisions effective with the implementation of CTS. ▪ Both ISOs are working toward an end of 2015 implementation. <p><u>EITC Phase V (CTS with PJM)</u></p> <ul style="list-style-type: none"> ▪ A joint NYISO-PJM meeting was held on November 28, 2012 to initiate stakeholder discussions on a proposal for Coordinated Transaction Scheduling between the regions. Joint stakeholder meetings between the ISOs continued through the first half of 2013 to review the CTS design with stakeholders and to solicit feedback. ▪ NYISO reviewed the tariff revisions necessary for implementation of CTS with PJM at six MIWG meetings from May through July 2013 ▪ The consumer impact analysis for CTS with PJM was presented to stakeholders at the August 6, 2013 MIWG. NYISO expects to see three to ten million dollars in annual NY production cost savings as a result of implementation of CTS with PJM. ▪ On September 30, 2013 the MC approved tariff revisions necessary for the implementation of CTS with PJM. On October 24 the PJM MC approved the CTS proposal. NYISO expects to file these CTS tariff revisions in December. ▪ At the November 1, 2013 MIWG NYISO provided stakeholders with and update on changes to the external transaction bid structure required for the implementation of CTS with PJM. |

Broader Regional Markets

| Issue | Description |
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| <p>4. Enhanced Interregional Transaction Coordination <i>(continued)</i></p> | <p><u>Five-minute Transaction Scheduling</u></p> <ul style="list-style-type: none"> ▪ Five-minute transaction scheduling would look to continue to improve real-time interchange scheduling processes by allowing economic scheduling of interchange across controllable interties via the 5 minute Real-Time Dispatch ('RTD'). ▪ This initiative is being considered for design and implementation in the 2015-2016 time frame. |

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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.

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| <p>5. Reserves Participation in Adjacent Regional Markets</p> | <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

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| <p>6. Congestion Rent Shortfalls Resulting From External Transmission Outages</p> | <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

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| <p>7. Elimination of Rate Pancaking</p> | <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

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| <p>8. Asymmetric Capability Year Impact on Inter-Area Capacity Sales</p> | <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

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| 9. 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>Identify 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. ▪ The deadline for submitting written comments on the draft capacity market study report was extended to December 20, 2012. The NYISO posted the final capacity market study report on March 14, 2013. |

Broader Regional Markets

| Issue | Description |
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| <p>10. Market Solutions to Loop Flow: Buy-Through of Congestion</p> | <ul style="list-style-type: none"> ▪ 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. ▪ 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 |
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| <p>11. Coordination of Interregional Planning</p> | <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. ▪ Order 1000 Regional Requirements ▪ On October 11, 2012 NYISO made a joint compliance filing with the TO’s to address the regional planning and cost allocation requirements of Order 1000. ▪ On April 18th FERC issued an Order on Compliance which conditionally accepted the NYISO/NYTOs’ regional compliance filing <ul style="list-style-type: none"> ▪ There were numerous conditions—and some are significant ▪ Additional compliance filing is required by August 16th ▪ NYISO will be working with the NYTOs and ESPWG to develop a response to the Order ▪ NYISO has scheduled joint IPTF/ESPWG meetings on a bi-weekly basis through August |

Broader Regional Planning

| Issue | Description |
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| <p>11. Coordination of Interregional Planning <i>(continued)</i></p> | <ul style="list-style-type: none"> ▪ Order 1000 Regional Requirements (cont'd) ▪ On July 17th FERC granted an extension of time –until October 15th for the further compliance filing on regional requirements in response to the April 18th Order ▪ NYISO has proposed tariff changes to Attachment Y, as well as a strawman for its evaluation and selection process for stakeholder review and discussion ▪ On October 15th, NYISO made a compliance filing to address the regional planning and cost allocation requirements of the April 18th order. |

Broader Regional Planning

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| <p>11. Coordination of Interregional Planning <i>(continued)</i></p> | <ul style="list-style-type: none"> ▪ Order 1000 Interregional Requirements <ul style="list-style-type: none"> ▪ NYISO, PJM and ISO-NE held IPSAC webex meetings on January 28th and February 26th to discuss stakeholder comments on the Northeast Protocol. Written comments were requested by March 4th ▪ On February 26th FERC issued an Order extending the compliance filing date for interregional planning & cost allocation to July 10th ▪ NYISO held joint IPTF/ESPPWG meetings from March through the end of June to review the proposed Attachment Y revisions and receive stakeholder input. Several IPSAC meetings were held during that period ▪ From April thru June, NYISO, PJM and ISO-NE worked with their Transmission Owners to finalize the cost allocation and 205 rights language ▪ Final presentations were made to IPTF/ESPPWG on June 14th and to IPSAC on June 20th ▪ Separate compliance filings were made by each region on July 10th ▪ On September 24th, NYISO filed an answer to third protests regarding certain aspects of the July 10th compliance filing ▪ Awaiting FERC response |

Broader Regional Planning

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| <p>12. Eastern Interconnection Planning Collaborative (EIPC)</p> | <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: Phase 1 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 Report was filed with DOE on December 16th ▪ Phase I Report posted on EIPC Website at: http://eipconline.com/uploads/Phase_1_Report_Final_12-23-2011.pdf |

Broader Regional Planning

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| <p>12. Eastern Interconnection Planning Collaborative (EIPC) <i>(continued)</i></p> | <p>2012: Phase II Summary</p> <ul style="list-style-type: none"> ▪ Power flow models were developed for the final three SSC Scenarios ▪ EIPC PAs identified transmission facilities to support each resource expansion ▪ Cost estimates were developed for the transmission and resource additions for each scenario ▪ Production cost analysis and sensitivity analysis was conducted for each scenario ▪ PAs prepared a draft Report to present the results of the Phase II analyses for stakeholder review and comment <p>▪ EIPC submitted the final version of the Phase 2 Report to DOE for review and comment on December 26th</p> <ul style="list-style-type: none"> ▪ <i>This report is posted on the EIPC website at http://eipconline.com/Phase II Resources.html</i> |

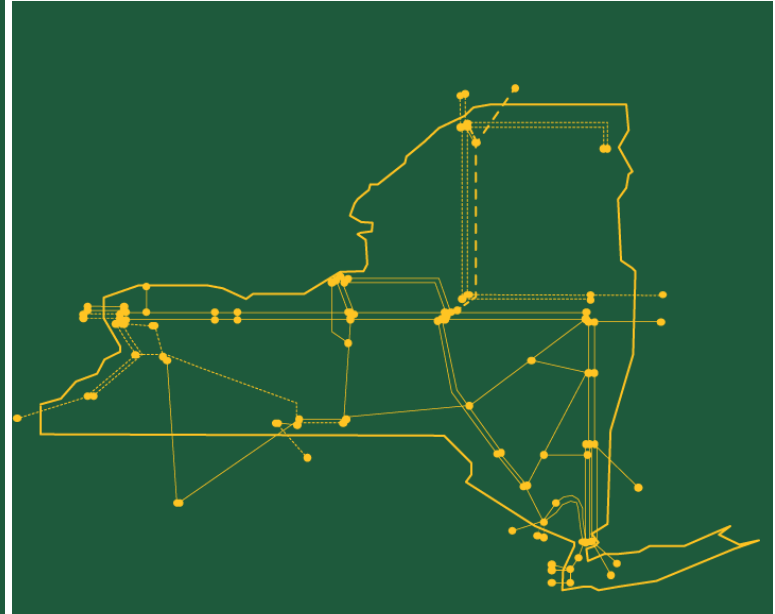
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| <p>12. Eastern Interconnection Planning Collaborative (EIPC) <i>(continued)</i></p> | <p>2013: EIPC Non-Grant Study</p> <ul style="list-style-type: none"> ▪ Work is underway to update the roll-up transmission model based upon the current regional plans of the Planning Authorities . ▪ Starting in June, EIPC Planning Authorities have begun to discuss the new stakeholder process and schedule in regional stakeholder meetings ▪ October: Suggested scenarios to be provided for stakeholder discussion ▪ November: Post draft roll-up report and analysis ▪ December: EI-wide Webinar to be scheduled to review scenarios & roll-up cases and draft report ▪ December – February: Regional meetings & EIPC webinar to discuss roll-up and finalize scenarios ▪ March: Final scenarios and 2014 schedule posted |

Broader Regional Planning

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| <p>12. Eastern Interconnection Planning Collaborative (EIPC) <i>(continued)</i></p> | <p>2013: EIPC Gas-Electric Interface Study</p> <ul style="list-style-type: none"> ▪ DOE has granted EIPC an extension of time in order to perform an analysis of the gas/electric interface. <ul style="list-style-type: none"> ▪ Participants in this study are: NYISO, PJM, ISO-NE, IESO, MISO and TVA ▪ SSC webinars were held on June 20th and 26th to discuss the Scope of Work and the Stakeholder process for the Gas Electric Interface Study ▪ NYISO made a similar presentation to EGCWG on June 17th ▪ Stakeholder comments due on SOW by July 12th ▪ Bids received on August 30th ▪ Levitan selected as consultant ▪ SSC Meeting scheduled for October 29-30th in Washington DC to kick-off the study |

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.



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