Draft 2013 Northeast Coordinated System Plan (NCSP13)

IPSAC WebEx

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NCSP13 Timeline

• Draft NCSP13 report posted for stakeholder review on March 26, 2014

• Today we will review and discuss the NCSP13

• Stakeholders will have approximately two (2) weeks to submit comments
  – Comments should be submitted by April 8, 2014 to PACMatters@iso-ne.com, or to your usual ISO/RTO contacts
  – JIPC will finalize the report after reviewing all comments
Northeastern ISO/RTOs Planning Coordination Protocol (Background)

- ISO-NE, NYISO and PJM follow a joint planning protocol to coordinate planning and address planning seams
  - Data and information exchange
  - Coordinate interconnection requests and transmission requests with cross-border impacts
- Develop a Northeastern Coordinated System Plan
- The Joint ISO Planning Committee (JIPC) performs planning studies through an open stakeholder process
- Allocate the costs associated with projects having a cross-border impact consistent with each party’s tariff and applicable federal regulatory policy
Northeastern ISO/RTOs Planning Coordination Protocol (cont.) *(Background)*

• The Inter-Area Planning Stakeholder Advisory Committee (IPSAC) reviews study scopes of work, assumptions, and draft results

• The ISO/RTOs are building on the Planning Protocol to comply with interregional requirements of FERC Order 1000
  – Requires the sharing of information regarding the respective needs of each region, and potential solutions to those needs; and
  – the identification and joint evaluation of interregional transmission facilities that may be more efficient or cost-effective solutions to those regional needs
  – Compliance filing made July 10, 2013 – Awaiting FERC Final Order
NCSP13 Outline

- Executive Summary (Section 1)
- FERC Order 1000: Transmission Planning & cost Allocation (Section 2)
- Summary of ISO/RTO System Plans (Section 3)
- Summary of Interregional Studies and Planning Activities in Support of the Protocol (Section 4)
- Process Enhancements Going Forward (Section 5)
- Emerging Issues With Potential Interregional Impacts (Section 6)
- Summary and Conclusions (Section 7)
NCSP13 Executive Summary (Section 1)

- Summarizes the Northeastern ISO/RTO Coordinated Planning Protocol
- Discusses required criteria
- The ISO/RTOs proactively coordinated interregional planning studies of needs and solutions
- Summarizes interregional planning activities
Order 1000 Review

*Section 2 – See today’s other posted materials*
Overview of ISO/RTO System Plans (Section 3)
Summary of ISO/RTO System Plans (Section 3)

• Each ISO/RTO has developed regional plans through their open stakeholder process
• Economic studies have been performed by each ISO/RTO
• Major system improvements have been coordinated across interregional borders
• JIPC will remain alert to opportunities to improve interregional planning through better coordination of individual ISO/RTO activities
PJM System (Section 3)  
2013 Regional Transmission Expansion Plan

- RTEP analyzes power system needs and solutions over 15-year planning horizon
  - Transmission baseline, and generation interconnection
  - Market Efficiency
  - Operational Performance

- PJM Board approved more than 700 individual bulk electric system (BES) baseline and network upgrades in 2013, totaling $2.8 billion and $4.3 billion respectively

- The following high-voltage backbone projects are approved/reaffirmed:
  - Susquehanna-Lackawanna-Hopatcong-Roseland 500 kV line
  - Reconductoring of Cloverdale-Lexington 500 kV line
  - Dooms-Lexington 500 kV line
  - Rebuild of existing Mount Storm – Doubs 500kV line
  - Surry-Skiffes Creek 500 kV line
  - Loudoun-Brambleton 500 kV line
  - Vassell 765 kV substation
  - New 500 kV substation at Jacks Mountain
NYISO System (Section 3)

NYISO 2012 Comprehensive Reliability Plan (March 2013), CARIS (Fall 2013) and Public Policy

• CRP requests solutions to any identified Reliability Need of the New York bulk power system over a ten-year study period
  – Transmission Security
  – Resource Adequacy

• CARIS study assesses both historic and projected congestion on the New York bulk power system and estimates the economic benefits of relieving congestion

• NYISO’s Public Policy Transmission Planning Process will be conducted in a two year cycle in parallel with the NYISO’s reliability and economic planning processes
  – Beginning implementation of this new process in 2014
ISO New England System (Section 3)
2013 Regional System Plan (November 2013)

• RSP13 analyzes power system needs and solutions over 10-year planning horizon
  – Transmission and power system planning
  – Capacity
  – Long-term load forecast

• Strategic Planning Initiative identifies and addresses risks to reliability and efficiency of the regional power grid
  – Reliance on natural gas for power generation
  – Retirements of older fossil fuel-fired generation
  – Interconnection of increasing levels of renewable resources
ISO New England System (Section 3)  
Economic Studies, Strategic Planning Initiative

- ISO-NE Economic Studies analyzed issues facing the region
  - 2011 study focused on impacts of integrating wind resources (production costs, load-serving energy expenses, transmission development)
  - 2012 study evaluated retirement scenarios and best locations for integrating resources without incurring congestion
  - 2013 study of increased loss of source limits in New England
Coordination of Transmission Projects with Potential Interregional Impacts (*Section 4*)
Coordination of Transmission Projects with Potential Interregional Impacts (PJM) (Section 4)

- Northern New Jersey PSE&G 138 kV corridor conversion
  - 80 kA short circuit duty violations at the Essex, Kearney and New Jersey Transit Meadowlands (NJT Meadows) 230 kV substations, originally identified in 2011 studies
  - Two 345 kV tie lines connecting PSE&G’s Hudson substation to Con Edison’s Farragut substation, contribute approximately 15 kA to short circuit duties at Hudson and 11 kA at Kearney and Essex
  - Hudson/Farragut HVDC alternative was originally recommended
  - Two northern New Jersey double-circuit upgrade option solutions: one at 230 kV and one at 345 kV were further examined. The 345 kV solution is approved in PJM’s RTEP
Coordination of Transmission Projects with Potential Interregional Impacts (PJM) (Section 4)

- Homer City Lines substations
  - Two reliability driven PJM upgrades requires cutting-in new substations on the Homer City – Stolle Road 345 kV and Homer City – Watercure 345 kV lines
  - Both substations establish an additional tie metering point to the NYISO / New York State Electric & Gas Corporation (NYSEG) system
  - Coordinated reviews are currently taking place. As of yet, no NYISO/NYSEG upgrades are required
  - Projects are entering the construction phase
Coordination of Transmission Projects with Potential Interregional Impacts (NYISO) *(Section 4)*

- Moses – Willis Double Circuit Separation
  - Contingencies existed on the New York Power Authority (NYPA) 230 kV system that limited New York’s ability to serve local load and to move power to New England
  - Although system upgrades eliminated these contingencies and improved reliability of service to New York, NYISO has recommended against relying on flow into Vermont across the existing Plattsburgh to Vermont tie (PV-20)
Coordination of Transmission Projects with Potential Interregional Impacts (ISO-NE) (*Section 4*)

- ISO-NE needs and major ISO-NE projects have been coordinated through the JIPC to determine potential interregional impacts

- For example, the Maine Power Reliability Program (MPRP), the New England East-West Solution (NEEWS), and the Long-Term Lower Southeastern Massachusetts (Lower SEMA) have been discussed
  - The need for these projects could not realistically be met with interconnections to neighboring systems and these projects have been shown to have no adverse impact on neighboring systems
Status of Planned Interconnections between the ISO/RTOs (*Section 4*)

- A tie between Plattsburgh, NY, and VT is proposed as an elective transmission upgrade
  - NYISO and ISO New England are coordinating the interconnection studies
Queue Projects with Potential Interregional Impacts (Section 4)

• Interconnection of Cricket Valley Energy Center (CVEC)
  – proposed interconnection to a New York (NY)-New England (NE) tie-line, additional studies and coordination with ISO-NE and affected NE transmission owners were required

• Energy Highway AC Transmission Upgrades
  – NYSPSC proceeding to increase transfer capability from Upstate New York to the Lower Hudson Valley and New York City utilizing AC transmission capacity
  – Numerous projects and alternatives are proposed by multiple incumbent and non-incumbent transmission developers. Interregional impacts will be evaluated through the NYISO interconnection process.
Queue Projects with Potential Interregional Impacts (Section 4)

• Champlain Hudson Power Express
  – a ± 320 kV bipolar HVDC underground project originating from Hydro Quebec’s Hertel 735 kV Substation (via 1 mile 315 kV AC circuit), terminating at Astoria Annex 345 kV

• Northern Pass
  – a ± 300 kV bipolar HVDC project planned between the HQ Des Cantons Substation and includes 153 miles of transmission between Pittsburg and Franklin, New Hampshire
Additional Coordinated Planning (Section 5)
Additional Coordinated Planning (Section 5)
Studies and databases have been coordinated

• Northeast Power Coordinating Council (NPCC)
  – Statutory activities relating to standards, compliance, and enforcement
  – Coordinates planning assessments for Quebec, the Maritimes, Ontario, NYISO, and ISO-NE within the broad region and with PJM
  – NPCC Overall Transmission Assessment and Resource Adequacy Analysis summarized

• ReliabilityFirst Corporation (RFC)
  – Conducts assessments that are coordinated with NPCC and other neighboring regions, including MISO, MRO, SERC, and VACAR
  – RFC 2023 Long-Term Assessment of Transmission Performance is summarized
Additional Coordinated Planning (Section 5)(cont.)

Studies and databases have been coordinated

- ISO/RTO Council (IRC)
  - Coordinates effective processes, tools, and standard methods for improving electricity markets and planning
  - Coordinates joint filings with FERC on many issues

- Eastern Interconnection Reliability Assessment Group (ERAG) conducts periodic reviews of generation and transmission expansion programs

- NERC 2013 Long Term Reliability Assessment
  - Summarizes regional plans for meeting resource adequacy and transmission reliability issues
National Planning Activities (Section 5)
Eastern Interconnection Planning Collaborative (EIPC)

- DOE Grant Project Work (2009 to 2014) - Eastern Interconnection analysis effort with a dedicated Stakeholder Steering Committee (SSC)
  - The EIPC Gas Electric System Interface Study is a continuation of work under the DOE grant
  - Stakeholder input is provided through the SSC as well as regional stakeholder processes
  - Study work is expected to continue through the end of the year, with a final report submitted to the DOE in June 2015
National Planning Activities (Section 5)
Eastern Interconnection Planning Collaborative (EIPC)

• EIPC’s non-grant activities receive stakeholder input based upon the existing regional stakeholder processes
  – An updated Roll-Up case was developed during 2013 which combined each region’s plan into a comprehensive model of the Eastern Interconnection
  – A draft Report summarizing the development and findings of the Roll-up Case was revised to address stakeholder comments and the final Report was posted in February 2014
  – The Planning Authorities are soliciting feedback from Stakeholders on potential scenarios to be analyzed during 2014
  – The final scenarios are expected to be determined and posted, together with the 2014 work plan, in April 2014
Emerging Issues with Potential Interregional Impacts (*Section 6*)

- Existing and pending air pollution (smog, regional haze, mercury, and other air toxics), greenhouse gas, cooling water, and wastewater discharge rules will affect many Northeast generators in the 2015 to 2022 timeframe
  - Capital and operating costs could increase, generator energy production may be limited, or unit retirements may impact reliability

- The Northeast states have targets for the proportion of electric energy that renewable resources and energy efficiency provide
  - States renewable targets vary and are changing, requiring different amounts and types of resources and ISO New England, NYISO, and PJM cannot project the precise amount of regional renewable energy production that will result
Summary and Conclusions (Section 7)

• Regional plans, economic studies, and queue interconnection projects have been well coordinated.

• Interregional studies for resource adequacy, transmission planning, economic performance, and other issues have been well coordinated through entities including:
  – JIPC
  – NPCC/RFC
  – NERC
  – EIPC

• The ISO/RTOs are acting to improve interregional procedures and timelines.
Summary and Conclusions (*Section 7*) (cont.)

- Interregional issues have been well coordinated through JIPC, IRC, and EIPC
  - Gas/electric interactions
  - Environmental issues
  - RPS/Intermittent resources
  - Demand resources (DG, EE, etc.)
    - Each ISO/RTO accounts for distributed resources and accounts for them as part of their planning process. They are reflected in interregional studies

- IPSAC provided stakeholder forum for discussing interregional issues
Summary and Conclusions (*Section 7*) (cont.)

- Order 1000 compliance filings have been made with the FERC that build on the Planning Protocol
  - We are still awaiting the Final Order
- The 3 ISO/RTOs have coordinated:
  - Data exchange
  - Interconnection studies and Firm Transmission Studies
  - Transmission studies and improvements
  - The NCSP
- System needs have been summarized and are being met by all 3 of the ISO/RTOs
  - Interconnection queue studies are being coordinated for new ties
  - No identification of need for new regulated ties among the 3 regions that would better meet needs than current projects
Questions