

Discussion of a Draft Proposal for Priorities

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Objective

- The primary objectives of this presentation are to
 - Provide a draft proposal for planning the 2010/2011 priorities
 - Initiate discussions with stakeholders and seek input on the draft proposal
- As always, priorities are subject to change based on urgent or mandated ‘emerging work’

Planning/Operations Related Priorities

2010				2011			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Transmission Planning Studies (Slides 6-8)							
Eastern Interconnection Planning Collaborative (Slide 9)							
		2010 Attachment K Economic Studies (Slide 10)					
Inter Regional Planning (Slide 11-12)							
Transmission Cost Allocation (Slide 13)							
2013/14 ICR and LSR (Slide 14)							
Annual Reconfig Auctions and FCA #4 (Slide 15)							
Tie Benefits Study (16)							
Generator Interconnection Studies (Slide 17)							
RSP 10 (Slide 18-19)							
NERC Standards/Tariff Compliance (Slide 20)							
Wind Assessment Study (Slide 21)							
Transmission Operating Guides Updates (Slide 22)							

Non Capital Projects with primary focus on Operations/Planning

Markets Related Priorities

2010				2011			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
FCM WG Rules	(Slide 24)						
FCM Manuals (Slide 25)							
FCM Conforming Changes (Slide 26)							
FCM - Enhancements to Alternate Price Rule (Slide 27)							
Price Response Demand Program (Slide 28)							
			Pricing of Demand Resource Activation (Slide 29)				
Various Market Rule Enhancements (Slide 30-31)							
		Interarea Coordination with New York (Slide 32)					
			Real-time Reserve Requirement Calculations (Slide 23)				
FERC/CFTC Regulation (Slide 34)			Financial Assurance for LTTR (Slide 34)				
				Negative Offers; Wind Integration in Energy Markets (Slide 35)			

Non Capital Projects with primary focus on Markets

Capital Project Priorities

2010				2011			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
FCM Phase III (Slide 37)							
		FCM Enhancements (Slide 38)					
DR Integration (Slide 39)							
			Price Responsive Demand (Slide 40)				
		SMD Software Upgrade Phase III (Slide 41)					
Business Continuity Plan (Backup Control Center Enhancements) (Slide 42)							
Outage Scheduler Phase II (Slide 43)							
Smart Grid - Syncro-Phasor Initiative (Slide 44)							
Network Model Management (Slide 45)							
Market Mitigation Enhancements (Slide 46)							
Credit and Billing Enhancements (Slide 47)							
			Web Enhancements (Slide 48)				
					LTTR (Slide 49)		
Various System Enhancements (Slide 50)							
Issue Resolution (Slide 51)							

Capital Projects

Transmission Planning Studies

- Results of the first three Forward Capacity Auctions (FCAs) and changes to the region's load forecast will require Updated Needs Assessment
 - New England East-West Solutions (NEEWS)
 - Interstate and Central Connecticut
 - Greater Boston
 - Others
- Updated Needs Assessments will be conducted in 2010 in accordance with the Planning Process

Transmission Planning Studies, *cont.*

- Several requests for transmission service will require study and possible tariff and market rule changes in 2010
 - NU/NSTAR/HQUS proposed HVDC interconnection with Quebec
 - Multiple requests for interconnection of Maine Public Service (MPS) to the rest of New England
 - Requested interconnection between New England and New York (Plattsburgh – Burlington area)
 - Multiple requests for HVDC interconnection between Maine and Boston
 - Request for increase of the Norwalk Harbor - Northport Cable Export Capability

Transmission Planning Studies, *cont.*

- Several other studies are underway
 - New Hampshire Ten-Year Compliance Plan
 - Vermont Ten-Year Compliance Plan
 - Rhode Island Ten-Year Compliance Plan
 - Southern Connecticut Ten-Year Compliance Plan
 - Greater Boston Ten-Year Compliance Plan

Eastern Interconnection Planning Collaborative (EIPC)

- EIPC activities include
 - Administrative activities
 - Initiate work plan for the Technical Team and associated analysis teams and clarify Department of Energy (DOE) funding support
 - Engage in stakeholder outreach and establish stakeholder committees, as required
 - Information sharing with the Planning Advisory Committee (PAC) and the New England States' Eastern Interconnection States Planning Council (EISPC) members
 - EIPC support for at least two scenarios
 - Integrate Regional Plans
 - Support macroeconomic analysis and perform high-level analysis
 - Perform analysis and develop high-level cost estimates for identified interregional expansion option facilities

2010 Attachment K Economic Studies

- Completed 2009 Economic Studies focusing on the Governors' Blueprint Study Request
 - New England has access to significant renewable resources and transmission costs compare favorably to mid-west U.S. alternatives
- Remaining 2009 economic studies are underway and are scheduled for completion Q2 2010 for PAC review
 - Analysis of New York – New England transfers is being coordinated with NYISO and PJM
- The 2010 Economic Study requests must be submitted by April 1 and will be presented at the April 27 PAC meeting

Interregional Planning

- There are a number of forums and activities related to interregional planning efforts, beyond EIPC
 - North American Electric Reliability Corporation (NERC)
 - Northeast Power Coordinating Council (NPCC)
 - Joint ISO/RTO Planning Committee (JIPC)
 - DOE Congestion Study Support
 - Northeast Gas Association (NGA)
- Interregional cost allocation is an emerging issue
 - Potential federal legislation on this issue
 - This issue will likely be raised by the FERC during 2010
 - It will likely gain more focus in the Inter-Area Planning Stakeholder Advisory Committee (IPSAC)

Interregional Planning, *cont.*

- The Northeast Coordinated System Plan (NCSP) is scheduled for completion Q2 2010
- A FERC Order or Notice of Proposed Rulemaking (NOPR) is expected in 2010 dealing in part with system planning to facilitate the interconnection of renewable resources

Transmission Cost Allocation (TCA)

Transmission Owner	Project	Pool Transmission Facilities (PTF) Cost Estimate	Target Completion Date
NU and UI	Middletown-Norwalk Project	\$1.343B	Q1 2010
NU	Glenbrook Cables Project	\$234.2M	Q1 2010
NGRID	Western MA Reinforcements	\$118.7M	New TCA being submitted Q1 2010
NGRID	Merrimack Valley / North Shore Upgrades	\$233.5M	Q3 2010
CMP / BHE	Maine Power Reliability Program (MPRP)	\$1.5B	Draft Q3 2009 Final Q1 2010
VELCO	Southern Loop Project	\$241.5M	Q1 2010

2013/2014 Installed Capacity and Local Sourcing Requirements for FCA #4

- Power Supply Planning Committee (PSPC) review of all assumptions including tie benefits – **Feb 2010**
- PSPC review of ISO recommendation of Installed Capacity Requirement (ICR) values – **March 2010**
- Reliability Committee review/vote – **March 2010**
- Participants Committee review/vote – **April 2010**
- File with the FERC – **May 2010**
- Auction conducted – **August 2010**

FCM Auction Key Dates

- Commitment Period #1 (2010-11)
 - ARA #3 – **March 2010**
- Commitment Period #2 (2011-12)
 - ARA #2 – **May 2010**
- Commitment Period #4 (2013-14)
 - New Capacity, Static and Permanent De-list Notifications – **March 2010**
 - FCA #4 FERC Filing – **May 2010**
 - Conduct FCA #4 Auction – **August 2010**
- Commitment Period #5 (2014-15)
 - Show of Interest Deadline – **May 2010**
 - Existing and New Capacity Qualification Deadline – **October 2010**

Tie Benefits Study

- 2010 study includes a review of interrelated tie benefits issues
 - Criterion assumptions (as-is versus at-criterion)
 - Impact of internal and external constraints on the level and assignment of tie benefits
 - Relationship between tie benefits and internal generation (overlap issues)
- Reliability Committee process will start in early 2010
- FERC filing in Q4 2010

Generator Interconnection Studies

- In total, 100 generation projects are currently being tracked by ISO, totaling approximately 10,750 MW
 - 3 in scoping stage
 - 11 in feasibility study
 - 28 in system impact study
 - 1 in facilities study
 - 22 negotiating interconnection agreements
 - 17 with interconnection agreements
 - 15 distribution interconnections
 - 3 external interconnections

Regional System Plan (RSP) – 2010

- RSP10 activities have started
 - PAC meeting schedules on major RSP10 topics have been planned for 2010
 - Initial draft report will be mailed to stakeholders by late July
- RSP10 annual meeting scheduled for September 16

Regional System Plan – 2010, *cont.*

- Several comments were received on possible content and format changes for RSP10, including more references to detailed technical and cost information* on transmission projects and Regional Network Service (RNS) rate projections
 - The February 24 PAC meeting will discuss the RSP planning process and the RSP10 Scope of Work
 - The Regional Energy Efficiency Initiative (REII) will discuss the status of state and federal programs
 - Environmental issues will be discussed with the Environmental Advisory Group (EAG) and PAC (May 25)

* Update PP-4

NERC/FERC Tariff Compliance

- Ensure compliance with NERC standards
- Critical Infrastructure Protection (CIP) Compliance
- Continued interaction with Participants on matters relating to NPCC's administration and auditing of NERC Standards

Wind Integration

- Purpose: To quantify the anticipated effects of different wind resource scenarios on operations and markets
- Operational
 - Unit Commitment
 - Dispatch
 - Load-following
 - Regulation/AGC
- Market
 - Day-ahead
 - Real-time
- Planning
 - Resource adequacy
- Study expected to be completed in June 2010
 - Periodic updates to stakeholders on status



Transmission Operating Guides Update

- Review and update Transmission Operating Guides (TOGs) and develop new TOGs as changes in system topology occur or unique operating conditions arise
- Ongoing conversion of the TOGs into a standardized format to expedite approval process, provide better document control and provide users with query capabilities

Markets

FCM Working Group Market Rules

- Primary work effort includes the following:
 - Develop Market Rules related to Alternate Price Rule and Zones
 - PC vote and FERC filing in February

FCM Manuals

- The ISO is updating nearly all of the Manuals to conform to Section III.13 of *Market Rule 1*, which governs the administration of the Forward Capacity Market
 - This includes Manuals 20, 11, 36, 28
 - Also creating new Manuals, such as one focusing on resource registration and audits
- The NEPOOL Participants Committee will vote on all manuals by May 2010

FCM Conforming Rule Changes

- Section III.13 of Market Rule 1 introduces new terminology and adds requirements to the rules covering the FCM
 - To ensure consistency, other sections of Market Rule 1 must be reviewed and modified as appropriate to conform to the FCM rules
- The review initially focuses on the rules to identify provisions that need to be retained beyond May 31, 2010, when the first FCM capacity commitment period will begin
- The balance of the rules will then be examined to identify obsolete terminology and to provide appropriate modifications

FCM Enhancements to Alternate Price Rule

- Primary work effort includes the following:
 - Identify, hire and manage consultant(s) to evaluate and identify potential enhancements to the current Alternative Price Rule and out-of-market definition
 - Develop ISO position and support as necessary
 - Develop Market Rules to implement any desired enhancements
 - The target filing date with FERC is Q1/Q2 2011

Price Response Demand (PRD)

- The goal is to provide demand resources the ability to ration their consumption through direct participation in the wholesale market
- Two approaches are being developed: a demand-side approach and a supply-side approach
- The ISO will work with stakeholders in the first half of 2010 on the Market Rules
- Also, initiate discussions with stakeholders during Q1 2010 on load reconstitution

Pricing of Demand Resource activation and non-market operator actions

- Per current Market Rules, Demand Resource activation and other non-market operator actions such as Voltage Reduction are not priced
- Demand Resources receiving capacity credit through the FCM, when called upon, will not be reflected in the real-time dispatch solution.
- To prevent prices from collapsing, pricing algorithms must be appropriately designed
- Initiate discussions with stakeholders in Q4 2010

Various Market Rule Enhancements

- Other FCM Enhancements (beyond those identified in slides 24-27)
- Revisions to Failure-to-Follow criteria in Energy Market
- Update and simplify NCPC payment rules consistent with the intent of the overall market design
 - The NCPC infrastructure has not been comprehensively revised since 2003
 - Many incremental changes have been made to support the various rule changes
 - Under current framework, changes are costly to implement and manage

Various Market Rule Enhancements

- External transaction competitive offer requirement
- Alternative technology regulation pilot
- Small resource reserve pilot
- Forecasting of output from intermittent resources in the Day Ahead Market

Inter-area Coordination with New York

- Phase I: Interregional Transaction Coordination
 - Develop a joint transaction scheduling approach that would simultaneously evaluate submitted transactions in each control area and produce one consistent set of accepted transactions
 - This phase is expected to begin in Q4 2010 and finish in Q4 2012
- Phase II: Congestion Management Coordination
 - Develop a system that allows for re-dispatch of resources in adjoining control areas when doing so would reduce production costs
 - This phase is expected to begin in Q4 2012 and finish in Q4 2014

Real-time Reserve Requirements

- The ISO proposes to modify the reserve monitor and the reserve calculations so that when the real-time Unit Dispatch System (UDS) is solving for reserve requirements, it appropriately reflects the operator decisions to commit supplemental or replacement reserves when faced with an unusually large contingency exposure

CFTC/FERC Regulation

- Monitor and appropriately react to any FERC/CFTC related regulation/legislation changes
- Initiate discussions with stakeholders regarding financial assurance for Long-Term Firm Transmission Rights during the second half of 2010

Negative Offers

- Develop rules that support the re-introduction of negative energy offers in the Day Ahead and Real Time Markets
- This is consistent with broader efforts to better integrate intermittent resources into the market and better prioritize backing down of resources

Capital Projects

FCM Phase III

- This is the final major implementation phase of the FCM project (does not include several subsequent enhancements and the current efforts related to the FCM Working Group)
- Phase III of this project, in 2010, will focus on the following:
 - Development of Settlement Systems
 - Complete the development of the FCM Tracking System and Financial Assurance modules
 - Modifications to systems associated with changes to Real-Time offers, performance measures, availability tracking and asset registration
 - Complete business processes and procedures

FCM and Operational Enhancements

- After the completion of FCM Phase III, several agreed upon changes and other operational enhancements need to be implemented. Some of the enhancements include:
 - Integration of Conditional Qualification into FCM infrastructure
 - Competitive Offers for Imports
 - Revisions to financial assurance
 - Bridge generation outages from outage coordination desk for use in Monthly Qualification for Bilaterals and Reconfiguration Auctions
 - Historical Bid Publishing
- Changes currently being drafted (FCM Working Group) will be implemented in a subsequent project

Demand Resource Integration

- Design, develop and build tools to integrate Demand Resources into the Control Room so that operators are able to study interruptions and dispatch them appropriately
- Design and develop a more robust communication infrastructure
- Update processes and manuals to effectively integrate Demand Resources into operations
- Design and develop an registration methodology that will define assets at the nodal level

Price Responsive Demand

- Based upon FERC ruling of either the supply-side (or) demand-side (or) both options of the Price Responsive Demand filing, the ISO will initiate a project to design and develop necessary software infrastructure

Standard Market Design (SMD) Software Upgrade Phase III

- This is the final phase of the SMD software upgrade project
- This project will focus on:
 - Market User Interface (eMkt) upgrade
 - Market Operator Interface upgrade
 - FTR User Interface
 - Enhancements to Simultaneous Feasibility Test (SFT)
 - Enhancements to Dispatch Management Tool (DMT)

Backup Control Center Enhancements

- This project is a multi-year effort that will bring the ISO into compliance with new requirements of the Electric Reliability Organization (EOP-008-1)
- This project will focus on the following
 - Ensure high speed connectivity between the Main and the Backup Control Center to significantly enhance recovery times for reliability and market systems
 - Provide for a full transition from the MCC in less than two hours
 - Implement a four-way Energy Management System (EMS)
 - Provide the ability to operate from the BCC for an indefinite period of time if the MCC is unavailable
 - Enhance computer network architecture at the BCC to meet all NERC Cyber Security standards

Outage Scheduler Phase II

- Phase II of this project will focus on the modeling of generation outages and the consolidation of generation and transmission outages into a single database to increase operational efficiency with respect to outage coordination
 - Phase I of this project focused on the implementation of a new tool to model transmission outages

Smart Grid

- One of the proposals dealing with Synchro-phasor Infrastructure and Data Utilization in the ISO-NE Transmission Region was approved by the DOE
 - The total project cost over three years is \$18M and the DOE will fund \$8M
 - The ISO is currently in discussions with the DOE with regards to terms and conditions
 - The DOE intends to finalize contract terms as soon as possible
 - Under this project, Phasor Measurement Units (PMU's) will be deployed in each of the New England states

Network Model Management

- Implement a Network Model Management platform to improve the efficiency of modeling and managing network models across System Planning, FCM Administration, Operation Support Services and Control Room
- The new architecture will allow for the use of new tools and applications, will increase automation, will allow for quicker releases of network models and will improve the synchronization of models across the various functions
- This project will be done in multiple phases spanning 2010 and 2011

Market Mitigation Enhancements

- Mitigation will be done ex-ante, as part of the Day Ahead Market and Resource Adequacy Assessment rather than ex-post, in Settlements as is done now
- This requires changes to the SMD software and to the Market Monitoring applications to facilitate the preparation of mitigation schedules and the transfer of such schedules to the Market System

Credit and Billing Enhancements

- Financial Assurance Policy Changes
 - Implement provisions related to Unsecured Credit, Letters of Credit and Governing Rating
- Billing Policy Changes
 - Twice-Weekly Billing
 - Option for separate Transmission Bill
 - Automate and modify Shortfall and Payment Default Allocation

Web Enhancements

- Initiate a project in 2010 to enhance the usability and content of the external web
- Work with stakeholders in 2010 to prioritize activities
- Based on stakeholder feedback, finalize a project charter by the end of 2010 and launch a multi-year initiative to address identified issues

Long-Term Firm Transmission Rights

- Following the design and development of Financial Assurance, design and develop software to implement the Long-Term Firm Transmission Rights design

Various System Enhancements/Upgrades

- Oracle Upgrade
 - Most of the ISO's market and reliability applications use Oracle
- e-Tariff System
 - Implement an e-Tariff system consistent with FERC directive
- Resource Audit Function
- Baseline tracking system (moving the system in house from an external vendor)
- Various Hardware upgrades

Issue Resolution

- Reduce Backlog in Issues Management
 - Improve the resolution pace of issues that have been logged
 - This will increase operational efficiency and accuracy and reduce risk
- Increased efficiency in Market and System operations – primarily in the areas of day-ahead market administration, settlement, outage coordination, asset registration and management, NCPC and reporting tools

Estimated 2010 Capital Project Resource Loading

Estimated Resource Allocation to Capital Projects

