

Discussion of the ISO's Draft 2019 Annual Work Plan



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Objectives and Highlights

- After implementing several substantial market changes in June 2018, the 2019 work plan is primarily focused on developing a market-based solution to meet the region's winter energy-security needs
- In parallel, the ISO is continuing to assess Day-Ahead Enhancements, which will be the ISO's next focus



Objectives and Highlights: Winter Energy Security

- The ISO's efforts on Winter Energy Security will occur in the near-term, mid-term, and longer-term development horizons
- Near-term:
 1. Revisions to OP-21: Energy Inventory Accounting and Actions During an Energy Emergency
 2. Opportunity Costs and Energy Market Offers
- Mid-term:
 1. August 31, 2018 FERC filing to address FCA 13/14/15
 2. Interim Compensation Treatment in time for FCA 14
- Longer-term:
 1. July 1, 2019 FERC filing on market-based solution



Winter Energy Security: Near-term

1. Revisions to OP-21: Energy Inventory Accounting and Actions During an Energy Emergency

- After last winter's cold weather event, the ISO recognized that OP-21 could be enhanced by the addition of an energy emergency forecasting and reporting protocol to improve situational awareness
- The protocol will establish energy alert thresholds similar to those used in NERC Standards, encouraging proactive measures to avoid certain forecasted conditions
 - Expected completion in Q4 2018



Winter Energy Security: Near-term

2. Opportunity Costs and Energy Market Offers

- In response to Participants' feedback after this past winter, the ISO is formalizing a framework for specific opportunity costs to be incorporated into energy market supply offers
 - The first phase of this project focuses on addressing the energy opportunity costs of resources, such as oil-fired and dual-fuel, with fuel supply limitations over a relatively short (e.g., 7 day) period
 - Phase 1 implementation is targeted for Q4 2018
 - The second phase will evaluate a more comprehensive approach to opportunity-cost modeling



Winter Energy Security: Mid-term

1. Retaining Resources for Fuel-Security (Chapter 2)

- The chapter 2 process designed ways to address issues raised in FERC Order Nos. EL18-1509 and EL18-182 (Mystic waiver)
- The ISO developed a Tariff-based approach for reliability reviews and retention of resources to help maintain regional energy security
 - The Reliability Committee assessed criteria that may require retaining a resource in the FCM to address regional fuel-security risks
 - The Markets Committee reviewed the timing and integration of fuel-security reliability reviews, FCA pricing treatment, and allocation of associated costs for retained fuel-security resources
 - The Participants Committee voted on August 24 and the filing was made on August 31
- The ISO currently awaits a FERC Order

Winter Energy Security: Mid-term

2. Interim Compensation Treatment

- The ISO is evaluating an interim compensation treatment for periods associated with reliability reviews for fuel security
- The ISO's proposal will be developed in time for FCA 14 and FCA 15 and the associated Capacity Commitment Periods
- The stakeholder process for this project is scheduled to span from Q4 2018 through Q1 2019



Winter Energy Security: Longer-term

1. Winter Energy Security Improvements (Chapter 3)
 - The ISO is working towards developing a market-based approach to winter energy security
 - Stakeholder proposals are welcome as we reopen committee meetings on this effort in September
 - Stakeholder meetings on this phase were temporarily paused in order to accommodate the stakeholder schedule required to respond to the FERC Order on the Mystic waiver request
 - The ISO will file Tariff revisions improving its market design for winter energy security by July 1, 2019



Objectives and Highlights: Day-Ahead Enhancements

- The ISO continues to assess improvements to the day-ahead markets to better procure and price reserve products
- Day-Ahead Enhancements Technical Sessions will proceed as planned, including discussion of other ISO/RTOs designs
 - The first technical session will be held in Q4 2018
- The development of a full proposal will follow, subject to work on winter energy security



Other Highlights: Regional System Plan

- 2019 will be a Regional System Plan (RSP) development and publication year
- The ISO actively seeks feedback from stakeholders throughout the development of the RSP
- The RSP is a comprehensive planning report on system needs and the resource and transmission facilities needed to maintain the reliability of New England's power system over a 10-year horizon, while also accounting for market efficiencies, economic, and environmental considerations
 - The 2019 RSP is expected to begin in Q1 2019
 - The RSP public meeting will occur in mid-September
 - The RSP will be published by November

Other Highlights: CIP IROL

Critical Infrastructure Protection (CIP) Interconnection Reliability Operating Limit (IROL) Cost Recovery Mechanism

- Generators critical to derivation of an IROL may incur incremental capital expenses, and recurring operations and maintenance expenses, in order to meet NERC criteria under the CIP standard
- Costs incurred in complying with the CIP standard vary and are station-specific, providing no discernable uniform-pricing mechanism
- The ISO is considering facilitating compensation mechanisms for these CIP costs, as approved by the FERC in a generator's Section 205 cost-of-service filing



Other Highlights: Cyber Security

- Cyber Security will continue to be a major area of emphasis in 2019
 - The ISO will continue to implement various cyber-security related infrastructure improvements
 - Phase 2 of the Identity Access Management project, which will include an upgrade to best in class software (Sailpoint IIQ)
 - Phase 2 of this project is targeted for completion in Q4 2019
 - Compliance with any recommendations from the NPCC CIP Audit, which is scheduled for October 2018
 - In addition to the infrastructure improvements, the ISO is administering training and exercises on cyber security as a prominent corporate objective

Other Highlights: Capital Improvements

EMP 3.2 Upgrade

- The ISO's Energy Management System (EMS) is based on GE's suite of Energy Management Platform (EMP) applications, which has released version 3.2. In order for GE to provide EMP support, the ISO must upgrade to version 3.2
- When GE upgrades its software, a significant effort is needed to port the ISO's EMP customizations to the upgraded software
 - The targeted completion date for Part I this project is Q3 2019
 - The targeted completion date for Part II this project is Q1 2020

Other Highlights: Capital Improvements

Operational Load Forecast: PV Integration

- The ISO New England resource mix includes a considerable portion of behind-the-meter photovoltaic (BTM PV)
- This project incorporates the effects of BTM PV generation on net system load into the Day-Ahead and Seven-Day Load Forecasts
- A complex forecasting method is being implemented to more accurately forecast load with an influx of BTM PV resources
- The software will be ready for testing in Q4 2018 and is expected to go into production in Q1 2019

Other Highlights: FCM Projects

Competitive Auctions with Sponsored Policy Resources (CASPR)

- The first substitution auction (SA) associated with CASPR will occur in February 2019, for FCA 13
- The ISO is currently discussing proposed conforming changes, clean-up, and enhancements
- The stakeholder process is expected to conclude in Q4 2018

Other Highlights: FCM Projects

CONE and ORTP Consolidation

- The ISO proposes to align the full reviews of Cost of New Entry (CONE), Net CONE, Offer Review Trigger Price (ORTP), Dynamic De-List Bid Threshold (DDBT), and Payment Performance Rate (PPR) and conduct them for FCA 16
- These calculations involve many similar and inter-dependent inputs, and should be reviewed and adjusted concurrently
- Conducting the reviews for FCA 16 will allow any implications of winter energy improvements (e.g., new revenue streams) to be incorporated in these calculations, as they are likely to impact the results

Planning/ Operations Related Activities

| 2018 | 2019 | | | | 2020 | |
|---|---------------------------|---|---|---------------------------------|---|-------------------------------------|
| Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Revisions to OP21: Energy Inventory Accounting and Actions During an Energy Emergency | | | | | | |
| Order 1000 Implementation | | | | | | |
| CIP IROL Cost Recovery Mechanism | | | | | | |
| Order 845: Reform of Generator Interconnection Procedures (Compliance) | | Order 845: Conforming Changes | | | | |
| Interregional Planning | | | | | | |
| Long-Term 2019 Forecasts (PV, EE, Load) | | | Long-Term 2020 Forecasts (PV, EE, Load) | | | |
| FCA 13 Qualification and Delist/ Retirement Reviews | | FCA 14 Qualification and Delist/ Retirement Reviews | | | FCA 15 Qualification and Delist/ Retirement Reviews | |
| FCA 13: ICR/LSR Development | | FCA 14: ICR/LSR Development | | | | FCA 15: ICR/LSR Development |
| FCA 14 Zones: Expected Topology | Regional Transfer Limits | FCA 14: ID Potential Capacity Zones | | FCA 15 Zones: Expected Topology | Regional Transfer Limits | FCA 15: ID Potential Capacity Zones |
| | FCA 13/ ARA 3 CCP10 | ARA 1: CCP12 | ARA 2: CCP11 | | FCA 14/ARA 3 CCP11 | ARA 1: CCP13 |
| | Regional System Plan 2019 | | | | | |
| | Annual Economic Studies | | | | | |
| | | | | | Planning for Public Policy | |
| Transmission Planning Studies | | | | | | |
| Generator Interconnection Studies | | | | | | |
| NERC/FERC Compliance | | | | | | |
| Cyber Security | | | | | | |

Markets Related Activities

| 2018 | 2019 | | | |
|--|---|--|--|----|
| Q4 | Q1 | Q2 | Q3 | Q4 |
| Winter Energy Security Related Projects | | | | |
| Opportunity Costs and Energy Market Offers (phase 1) | | Opportunity Costs and Energy Market Offers (phase 2) | | |
| Interim Compensation Treatment | | | | |
| Winter Energy Security Improvements (Chapter 3) | | | Winter Energy Security: Conforming and/or Additional Changes | |
| Energy, Reserves, and Regulation Related Projects | | | | |
| PRD: Post Implementation Changes and Clean-Up | | | | |
| Day-Ahead Enhancements Technical Sessions | | | | |
| Forward Capacity Market Related Projects | | | | |
| Delayed Commercial Resource Treatment | | | | |
| CASPR Conforming Changes, Clean-Up, and Enhancements | | | | |
| CONE and ORTP Consolidation | | | | |
| | Nested Export Constrained Capacity Zones under Zonal Demand Curves (FCA 14) | | | |
| FERC Orders and NOPRs | | | | |
| Order 841: Compliance: Electric Storage Participation in Markets | | | | |

Capital Projects

| 2018 | 2019 | | | | 2020 | |
|--|------|--|---|---------------------|-----------------------|----|
| Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Operational Load Forecast: PV Integration | | | | | | |
| Competitive Auctions with Sponsored Policy Resources (CASPR) | | | | | | |
| Annual Reconfiguration Transactions (ART) | | | | | | |
| nGEM Software Development Phase I | | | | | | |
| New England External Transaction Tool (NEXTT) | | | | | | |
| FCM Delayed Commercial Resource Treatment | | | | | | |
| CIMNET Simultaneous Feasibility Test (SFT) with Data Transfer Elements | | | | | | |
| Order 831: Energy Market Offer Caps | | | | | | |
| Winter Energy Security | | | | | | |
| Balance of Planning Period (BoPP): Financial Assurance | | | | | | |
| Identity and Access Management Phase I | | | Identity and Access Management Phase II | | | |
| IMM Data Analysis Phase II | | | | | | |
| Energy Storage Device Phase I & II | | | | | | |
| Energy Management Platform (EMP) Upgrade Part I | | | | EMP Upgrade Part II | | |
| 2018 Issue Resolution | | 2019 Issue Resolution | | | 2020 Issue Resolution | |
| | | Nested Export Constrained Capacity Zones | | | | |
| Streamline Asset Registration Phase III | | | | | | |