

Updated 2019 Annual Work Plan



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Objectives and Highlights

- This report reflects changes to the 2019 Annual Work Plan since its initial release in September, 2018
 - In Q3 2019, the ISO begins full cycle again with 2020 Work Plan
- The 2019 work plan is focused on three broad efforts
 - Winter Energy Security
 - Boston transmission needs assessment and issuing a RFP
 - Cybersecurity and GridEx V
- The Annual Work Plan reports on scheduled, key initiatives; but the ISO also advances other work as needed
 - Examples of 2019 work not planned, but currently being worked on include: treatment of Energy Efficiency in FCM and new Cybersecurity initiatives
 - Some projects have become more demanding than anticipated

Objectives and Highlights

The following slides report on recent accomplishments and provide updates on select projects

- Accomplishments
 - Markets Related Projects
 - Capital Projects
 - Winter Energy Security (near and mid-term)
- Key Updates
 - Winter Energy Security Updates
 - Markets Related Updates
 - Planning/Operations Updates
 - Capital Project Updates

2019 WORK PLAN ACCOMPLISHMENTS

2019 AWP Projects Completed



Markets Related Accomplishments

- Delayed Commercial Resource Treatment
 - Initial design filed; ISO acknowledges the topic warrants further attention, thought, and discussion
- PRD Post Implementation Changes and Clean-up
- CASPR Conforming Changes, Clean-up, and Enhancements
- Order 841 Compliance: Electric Storage Participation in Markets
- Day-Ahead Enhancements: Technical Session 1



Capital Project Accomplishments

- **Competitive Auctions with Sponsored Policy Resources (CASPR)**
 - The first substitution auction (SA) associated with CASPR occurred in February 2019, for FCA 13
- **Operational Load Forecast: PV Integration**
 - Complex forecasting method to more accurately forecast load with an influx of behind-the-meter PV resources
 - The software went into production in Q1 2019
- **Annual Reconfiguration Transactions**
 - The Annual Reconfiguration Transaction (ART) replaces the FCM's existing annual bilateral contracting mechanism
 - The targeted completion date for this project is Q2 2019
- **Energy Storage Device Phase 1 (Enhanced Storage Participation)**
 - The ISO enhanced the participation of energy storage devices
 - The completion of phase 1 occurred on April 1, 2019



Winter Energy-Security Accomplishments

Implemented near-term projects addressing Winter Energy Security, completing mid-term projects, continuing efforts on longer-term improvements

- Near-term:
 - Implemented new OP-21: Energy Inventory Accounting and Actions During an Energy Emergency
 - Implemented Opportunity Costs and Energy Market Offers
 - The ISO is now focusing on automating its initial implementation, second phase not scheduled
- Mid-term:
 - Implemented changes to governing documents allowing for Retention of Resources for Fuel Security; continued review and updating assumptions
 - Completed stakeholder discussions on Interim Compensation Treatment

KEY UPDATES



Winter Energy Security Update: Longer-term

Energy Security Improvements (Process Update)

- Extension request sought until November 15, 2019 to make the Chapter 3 FERC filing
 - This extension will not impact the targeted implementation date associated with FCA 15 (CCP 2024-2025)
- FERC granted an extension until October 15, 2019
- The ISO made revisions to its proposal after initial feedback
 - The ISO's Discussion Paper was released April 1, 2019

Winter Energy Security Update: Longer-term

Energy Security Improvements

- Refined the problem statement to help focus the discussion
- Concept includes new ancillary services, multi-day-ahead energy clearing, and a forward component
- Energy Security Improvements incorporates elements of Day-Ahead Market Enhancements
 - The second Day-Ahead Enhancements Technical Session on April 2, 2019, includes discussion of other ISO/RTOs designs
 - Expected conclusion of technical sessions pushed from Q1 2019 to Q2 2019
- Will assess and discuss the forward procurement component ahead of the October filing

Markets Related Update: Nested Export Constrained Capacity Zones

- To be prepared for the possibility of a nested export constrained capacity zone, the ISO is modifying governing documents as needed to administer such a zone
 - The stakeholder process began at the Reliability Committee and PAC in March 2019
 - Will begin at the Markets Committee in April 2019
 - The expected conclusion of the stakeholder process changed from Q2 2019 to Q3 2019

Planning/Operations Updates: Order 845

- Order 845: Reform of Generator Interconnection Procedures (Compliance)
 - Previously scheduled to complete the stakeholder process in Q1 2019, now targeted for completion in Q2 2019
 - Associated conforming changes project now targeted for Q2 2020
- Discussions were delayed due to granted requests for rehearing on Docket No. RM17-8-000
- In response to Clarifying Order issued on February 25, 2019, the Transmission Committee resumed discussion on this topic, March 27th
 - The new filing date is May 22, 2019

Planning/Operations Updates: CIP IROL Cost Recovery Mechanism

- FERC Technical Conference on March 28, 2019, “Security Investments for Energy Infrastructure,” may affect the ISO’s approach on this item
- The ISO is still discussing the item with stakeholders at the Transmission Committee, but has delayed the vote to understand the FERC’s direction on this topic
- If FERC acts in this area, the ISO may need to change direction on its proposal
 - This project has been delayed from a completion of the stakeholder process in Q2 2019 to a targeted completion in Q3 2019

Capital Project Updates: Order 831: Energy Market Offer Caps

- The ISO anticipated it would begin the design of the required software after the completion of a set of changes to permit storage-related devices to participate in the Energy Market
- When the storage-related work was delayed, this delayed the design work to support the Order 831 revisions
- To contain the delays, the ISO will simplify one component of the original design
 - Filing will be made in Q2 2019
 - Completion delayed by one quarter from Q4 2019 to Q1 2020

Capital Project Updates: Identity and Access Management

- The Identity and Access Management project seeks to improve critical Access Rights functions and protect the ISO's information technology assets
 - Phase 1 is complete
 - Phase 2 will include an upgrade to best-in-class software, new hardware, and system functionalities that will significantly improve and automate access rights and further protect cyber assets
 - Phase 2 is targeted for completion in Q4 2020
 - In addition to this project, the ISO has initiated two new projects in 2019 to improve its defense posture:
 - The first is to build an “Edge Network” that improves ISO systems access and redundancy to the internet while minimizing security threats
 - The second is to upgrade external email filtering solutions

Capital Project Updates: Energy Management Platform (EMP) Upgrade

- The ISO's Energy Management System (EMS) is based on GE's suite of 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
 - Part 1 of this project expected to be complete in Q3 2019
 - Part 2 of this project is scheduled for implementation in Q3 2020

Capital Project Updates: Energy Storage Device

- Improves emerging grid-sized storage participation in the markets and strengthens the ISO's operational awareness through enhanced software to better monitor and dispatch Energy Storage Devices
- Phase 1 includes implementation of the Enhanced Storage Participation design which will enable storage devices to participate fully in the energy, reserve, and regulation markets
 - Phase 1 of this project is was completed in Q1 2019
- Phase 2 of this project will include additional changes
 - Phase 2 of this project is targeted for completion in Q2 2020