2021 Enterprise Project Candidates

Product and Project Management

August 27,2020

This document represents potential 2021 Enterprise project candidates. Enterprise projects include internal-facing technology and back office support projects that have no market rule changes. The list includes projects that may be noticeable to Market Participants. These project candidates and their corresponding descriptions reflect information known about each of the project candidates as of the date of this document.

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Introduction

This document represents potential 2021 Enterprise project candidates. Enterprise projects include internal-facing technology and back office support projects that have no market rule changes. The list includes projects that may be noticeable to Market Participants. These project candidates and their corresponding descriptions reflect information known about each of the project candidates as of the date of this document. Projects are classified as four project types.

Project Type	Description
Mandatory	Strategic Initiatives and FERC Orders. These projects will be included in the budget
Continuing	Approved in a prior year and have progressed to either software design or development complete. Additional projects may be classified as Continuing based on stakeholder feedback. These projects will be included in the budget
Future	Consensus from stakeholder discussions of this projects priority relative to other projects has resulted in these projects NOT being prioritized and initiated in the coming budget year. Resources, time constraints, stakeholder feedback, and other project dependencies have been taken in to consideration
Prioritize	Projects to be prioritized and included in the budget based on a feasibility assessment taking into consideration resources, time constraints, stakeholder feedback, priority score, and other project dependencies. Market projects are included in the stakeholder survey

Enterprise projects are NOT included in the stakeholder survey. Enterprise projects that are Prioritize (not Mandatory, Continuing, or Future) are scored by the NYISO during the prioritization phase. These projects are included in the budget based on a feasibility assessment taking into consideration resources, time constraints, stakeholder feedback, priority score, and other project dependencies. The table that follows identifies project type for each of the projects included in this document.

Item	Project Name	Product Area	Project Type
1	Enterprise Information Management - Data Integration Phase IV	Business and Finance Products	Continuing
2	FERC Form1 Redesign	Business and Finance Products	Mandatory
3	Accounting and Settlements Integration	Business and Finance Products	Prioritize
4	Demand Curve Reset Tool Updates	Capacity Market Products	Prioritize
5	DAM Congestion Settlement Re-Allocation	Energy Market Products	Continuing
6	Application Platform Upgrade	Enterprise Products	Prioritize
7	Database Upgrade	Enterprise Products	Prioritize
8	IT Infrastructure Automation	Enterprise Products	Continuing
9	IT Service Management Improvements	Enterprise Products	Continuing
10	Network Infrastructure Upgrade	Enterprise Products	Continuing
11	2021 NERC CIP Audit	Enterprise Products	Mandatory
12	Linux and Storage Infrastructure Refresh	Enterprise Products	Prioritize
13	Windows System Upgrade	Enterprise Products	Prioritize
14	Gurobi (MIP) Migration and Upgrade	Enterprise Products	Prioritize
15	Automated Default Bid Mitigation	Operations & Reliability Products	Continuing
16	Load Forecasting System Upgrade and Build Out	Operations & Reliability Products	Prioritize
17	Transmission and Generation Scheduling System (TAGSS)	Operations & Reliability Products	Continuing
18	NextEra Transmission Owner Integration	Operations & Reliability Products	Mandatory
19	EMS/BMS Operational Enhancements	Operations & Reliability Products	Continuing
20	ePlanning Migration	Planning Products	Prioritize

Business and Finance Products

1 Enterprise Information Management – Data Integration Phase IV

This project is a continuation of the multi-year strategic initiative focused on bringing together process, design, and technology to satisfy market and operations information needs at the NYISO. This phase of the project will complete the migration of the Customer Settlements data mart, positioning the NYISO to upgrade the Oracle database to the latest version and to retire Oracle Warehouse Builder.

2 FERC Form 1 Redesign

The NYISO is required to submit different forms (Forms 1, 3-Q, 714, and 715) to the Federal Energy Regulatory Commission (FERC) quarterly and annually (depending on the form). On January 17, 2019, FERC issued a Notice of Proposed Rulemaking (NOPR) about its *Revisions to the Filing Process for Commission Forms* (Docket No. RM19-12-000), announcing its intention to replace Forms 1, 3-Q, and 714 (collectively, the VFP Forms), and other forms that NYISO does not submit. The NOPR indicates that FERC and the North American Energy Standards Board intend to replace the existing format to eXtensible Business Reporting Language (XBRL) format because the current filing software at FERC has been out of support since April 2015.

On July 17, 2020, FERC issued an order adopting the XBRL taxonomy, protocals, implementation guide, and other supporting documents. This project will procure and install, or will create, software to enter and submit FERC Form 1 data in the new electronic format prescribed by FERC and NAESB.

3 Accounting and Settlements Integration

This project will integrate the NYISO accounting system, settlement system or both systems with the existing TCC invoicing process, Working Capital process, and the process for the collection and distribution for Rate Schedule 1. Because each of the TCC invoicing, Working Capital, and Rate Schedule 1 collection and distribution processes have been created and maintained independent of the NYISO accounting and settlement systems, each include manual processes to re-type and reconcile information between systems that do not automatically share/transfer information.

Capacity Products

4 Demand Curve Reset Tool Updates

Every four years, the NYISO, along with its stakeholder community, conducts a comprehensive review to determine the parameters used in establishing the Installed Capacity (ICAP) Demand Curves. This process is referred to as the demand curve reset (DCR). To support the changes recommended by the DCR process, the NYISO must make updates to an internal DCR Tool used in support of the annual updates.

Energy Market Products

5 DAM Congestion Settlement Re-Allocation

The NYISO has a robust set of procedures and tools for performing the monthly DAM Congestion settlements specified in Attachment N of the OATT. A portion of this process is supported by outdated software that was developed in 2007 by an outside vendor. Maintaining this externally developed code is difficult and time-consuming and does not comport with the NYISO's IT application management process and standards. Creating an in-house replacement will improve application security and data integrity, ease of use, reliability of results, and improve the NYISO's ability to keep the underlying technologies of the application current.

Enterprise Products

6 Application Platform Upgrade

This project is a continuation of a multi-year effort to replace aging server infrastructure and migrate to a new application platform standard. This technology lifecycle project is necessary to ensure the ongoing availability of security patches and vendor support for critical systems.

7 Database Upgrade

This project is a continuation of a multi-year effort to upgrade the NYISO's database systems to the latest Oracle version to improve the overall performance of critical databases. This technology lifecycle project is necessary to ensure the ongoing availability of security patches and vendor support for critical systems.

8 IT Infrastructure Automation

The focus of this continuing, multi-year effort is on increasing automation of various IT management activities. By enhancing the NYISO infrastructure, with supporting processes and current and prospective tools, the NYISO will be increasingly responsive in supporting the frequency of change required by the business. Automation of activities, such as patching and upgrade processes, will also serve to improve the NYISO's security posture while reducing business impact of services.

9 IT Service Management Improvements

IT Service Management (ITSM) refers to the activities performed to design, plan, deliver, operate, and control the IT services offered to the NYISO business. A properly implemented ITSM solution increases the speed, cost-efficiency, and effectiveness of IT services; reduces and helps prevent IT incidents; enables employees to be more productive; and reduces risk by enforcing compliance regulations. This project aims to replace NYISO's legacy ITSM tool, which is approaching its end-of-support date, with a modern solution that will provide these benefits and continue to support NYISO's SOC 1 controls and NERC CIP requirements.

10 Network Infrastructure Upgrade

Key hardware for delivering networking services to NYISO end-users, business units, and external customers is entering the vendor-mandated end-of-life state. As a result, the NYISO will no longer receive necessary security patches to mitigate new cyber risks and/or software bugs once that threshold has been passed.

This project is a continuation of a multi-year effort to continue replacing outdated hardware with the objective of providing secure service delivery while modernizing and streamlining the NYISO's data centers in accordance with current industry best practices and vendor recommendations.

11 2021 NERC CIP Audit

The NYISO is obligated to comply with numerous mandatory physical and cyber security Critical Infrastructure Protection (CIP) reliability standards set for the by the North American Electric Reliability Corporation (NERC).

As part of a planned triennial cycle, the NYISO's CIP program will be formally audited by Northeast Power Coordinating Council (NPCC), the regional entity responsible for monitoring NYISO compliance with NERC standards, in Q4 of 2021. Additionally, NERC has modified its audit format to facilitate a parallel audit of all NERC Reliability Standards (CIP, Operations & Planning). This project will provide resources for the NERC CIP audit preparation (for all enforceable Standards), including a mock audit, to ensure preparedness.

12 Linux and Storage Infrastructure Refresh

The Linux and Storage Infrastructure used to store NYISO data and application run-time environments for critical systems is reaching its end of life. This project will upgrade this infrastructure prior to support expiring.

13 Windows System Upgrade

This project is a multi-year effort to upgrade NYISO's aging Windows Systems. Included in the effort will be the replacement of NYISO laptops that have reached end-of-life (out of warranty support starting in October 2020) and other supporting systems. This technology lifecycle project is necessary to maintain system performance and availability, as well as ensure ongoing vendor support for critical systems.

14 Gurobi (MIP) Migration and Upgrade

The mathematical problem for solving the unit commitment and dispatch optimization is formulated using a Mixed-Integer Programming (MIP) technique. The NYISO utilizes a commercial product solution engine, Gurobi, in its software to solve this problem. Major new releases of this product that include performance improvements and resiliency features occur every two to three years. To take full advantage of the new features, the NYISO must upgrade the hardware the Gurobi software runs on. Additionally, the NYISO must upgrade the Gurobi versions periodically to maintain support from the vendor. In 2020, the NYISO is testing updated Gurobi software on updated hardware to determine performance and resiliency feature improvements with the expectation that in 2021 the NYISO will have a project to upgrade Gurobi.

Operations & Reliability Products

15 Automated Default Bid Mitigation

If a generator fails both a conduct and impact test for withholding, MMA is required to apply the appropriate mitigation measure to that generator. One remedy described in the mitigation measures requires the generator to bid consistent with default bid for a defined time period. Currently, MMA manually monitors bids during the default bid mitigation period, but there is no mechanism to systematically enforce the mitigation. This project seeks to modify existing mitigation software routines and implement software changes to ensure that generator bidding conforms to the default bid mitigation requirements during the mitigation period.

16 Load Forecasting System Upgrade and Build Out

This is project would upgrade the NYISO's Load Forecasting application to replace aging hardware and upgrade to the latest software release. This technology lifecycle project is necessary to provide the ongoing availability of security patches and vendor support for critical systems. In addition, this project would build out a new product development environment.

17 Transmission and Generation Scheduling System (TAGSS)

The NYISO currently runs applications developed by a third-party vendor—TOA (Transmission Outage Application) and the iTOA (latest version of the TOA software)– for transmission and generation outage scheduling. TOA is used internally only to facilitate coordination of NYISO approval of transmission and generator outages requested by TOs (Transmission Owner) and GOs (Generation Owner), and outage reporting. iTOA, an interface used by GOs and TOs, is used externally only.

The dated platform of TOA and iTOA presents a growing technical risk to the NYISO and limits the NYISO's ability to implement new functionality. The NYISO is evaluating replacement options for TOA and iTOA. The project objective is to replace the TOA and iTOA applications with a new application.

18 NextEra Transmission Owner Integration

The NYISO, along with regulators, recently approved the Empire State Line proposal by NextEra Energy to build a new 345 kV transmission line and switchyard in Zone A in Western NY and upgrades and expansions to existing transmission facilities. The project is planned to be in service by June 2022. This project will consist of requirements definition, development, build-out, and testing of required changes to support the integration with NextEra in 2021 to meet the in service date in 2022.

19 EMS/BMS Operational Enhancements

The NYISO completed a multi-year project in 2020 to upgrade both the Energy Management System (EMS) and the Business Management System (BMS). The EMS encompasses the core reliability functions used by the system operators such as load flow and contingency analysis. The BMS encompasses the day ahead and real time energy market functionality. In 2020, the NYISO kicked off the EMS/BMS Operational Enhancements Project to implement additional functional enhancements that have been identified as post go-live changes; this project is a continuation of this effort and will implement the remaining enhancements not completed in 2020.

20 ePlanning Migration

FERC Order 890 requires NYISO to have a collaborative system to facilitate information sharing and commenting on planning studies. The current system involves several manual processes to administer users and sharing of Interconnection planning studies. This project would replace the current Microsoft SharePoint system with a new solution to provide secure access to authorized users to collaborate on planning studies.

In addition, this project will enhance the Interconnection Projects Community, which was implemented in 2019. The goal of these enhancements is to provide additional functionality and processes for expanded use of the Interconnection Portal to suit the needs of the System and Resource Planning department.