2018 Project Prioritization and Budgeting Process

Brian Hurysz
Manager, Market Products

Budget and Priorities Working Group

June 20, 2017, Krey Corporate Center

NEW YORK
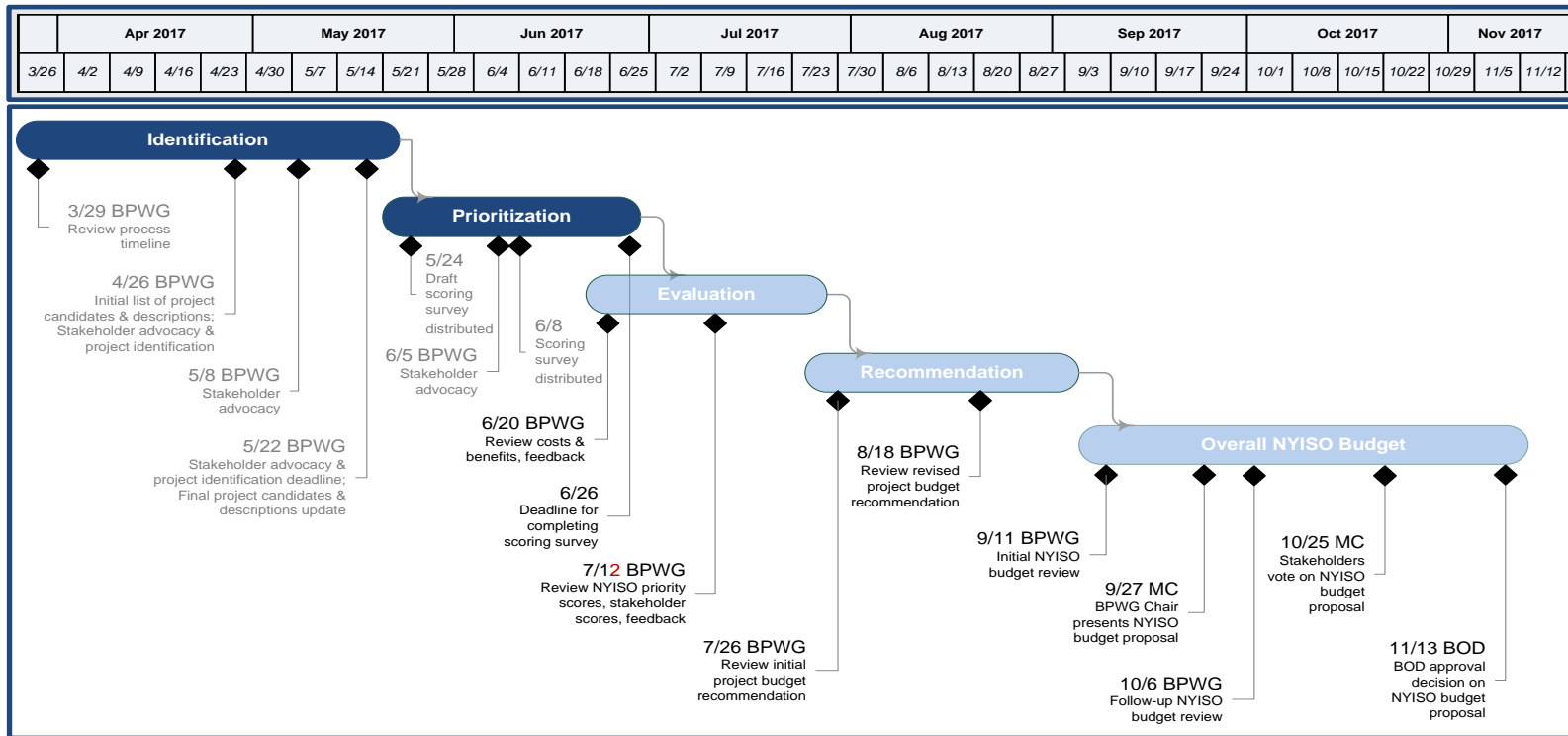INDEPENDENT
SYSTEM OPERATOR

Agenda

- 2018 Project Prioritization Process

- Project Prioritization Timeline

- Stakeholder Scoring Survey

- Milestone Definitions

- 2018 Project Costs/Benefits

- Next Steps

2018 Project Prioritization Process

Phase	Description
Identification	This phase involves developing the list of project candidates taking into consideration regulatory obligations, strategic initiatives, State of the Market recommendations, necessary infrastructure enhancements, product plans, stakeholder feedback, etc.
Prioritization	The phase involves the NYISO and stakeholder scoring of projects. The NYISO scores projects using objective criteria that reflects strategic alignment, expected outcomes, risks, and ability to execute. Stakeholders score projects based on their organizational priorities via a survey mechanism.
Evaluation	This phase involves performing a feasibility assessment based on detailed cost and labor estimates, dependencies, priority scores, and stakeholder feedback.
Recommendation	This phase involves proposing a feasible set of project deliverables and related budget requirements. The proposal is refined as needed based on stakeholder feedback.

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Proposed Project Prioritization Timeline

Apr 2017				May 2017				Jun 2017				Jul 2017				Aug 2017				Sep 2017				Oct 2017				Nov 2017	
3/26	4/2	4/9	4/16	4/23	4/30	5/7	5/14	5/21	5/28	6/4	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13	8/20	8/27	9/3	9/10	9/17	9/24	10/1	10/8	10/15	10/22	10/29	11/5	11/12

Identification

Prioritization

Evaluation

Recommendation

Overall NYISO Budget

3/29 BPWG
Review process timeline

4/26 BPWG
Initial list of project candidates & descriptions; Stakeholder advocacy & project identification

5/8 BPWG
Stakeholder advocacy

5/22 BPWG
Stakeholder advocacy & project identification deadline; Final project candidates & descriptions update

5/24
Draft scoring survey distributed

6/5 BPWG
Stakeholder advocacy

6/8
Scoring survey distributed

6/20 BPWG
Review costs & benefits, feedback

6/26
Deadline for completing scoring survey

7/12 BPWG
Review NYISO priority scores, stakeholder scores, feedback

7/26 BPWG
Review initial project budget recommendation

8/18 BPWG
Review revised project budget recommendation

9/11 BPWG
Initial NYISO budget review

9/27 MC
BPWG Chair presents NYISO budget proposal

10/6 BPWG
Follow-up NYISO budget review

10/25 MC
Stakeholders vote on NYISO budget proposal

11/13 BOD
BOD approval decision on NYISO budget proposal

NEW YORK INDEPENDENT SYSTEM OPERATOR

Stakeholder Scoring Survey

- Registered shared governance organizations, including non-voting participants and affiliates, will have an opportunity to score projects

- Each organization may provide one survey response with 100 points available to assign to projects based on their priorities

- There will be an opportunity to provide written comments to supplement scoring and identify small projects not selected in previous years

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR

Stakeholder Scoring Survey

- Surveys have been sent to the primary MC representative (unless written notification was provided in advance to use a different contact)

- Surveys sent from Member Relations to avoid being caught in SPAM filters

- Official survey distributed June 8th

- Surveys must be submitted by June 26th

Milestone Definitions

Milestone	Definition
Market Design Concept Proposed	NYISO has initiated, or furthered discussions with stakeholders that explore potential concepts to address opportunities for market efficiency or administration improvements.
Market Design Complete	NYISO has developed with stakeholders, a market design concept such that the proposal can be presented for a vote at the BIC or MC to define further action on the proposal.
Architectural Design	The architectural design document is complete and software development is ready to begin.
Functional Requirements	NYISO has completed documentation of the functional requirements and the Business Owner has approved.
Software Design	The software design document is complete and software development is ready to begin.
Development Complete	Development has been completed, packaged and approved by the Supervisor.
Deployment	Required software changes to support commitment have been integrated into the production environment.
Study Complete	Scope of work to be performed has been completed; results and recommendations have been presented to the appropriate Business Owners and stakeholders.

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Business Intelligence Products						
Enterprise Information Management - Data Integration Phase III	*Deploy*	0.48	0.00	0.15	0.64	• Improve impact analysis capability • Standardize data extraction and transformation under one technology
Enterprise Information Management - Analytics Environments – Phase II	*Deploy*	0.04	0.36	0.02	0.43	• Improve cost effectiveness • Improve the reliability of the environment
Public Website Content Management Platform and Redesign	*Deploy*	0.30	0.11	0.48	0.89	• Improve usability • Enhance ability to locate information
NAESB PKI Phase II	*Deploy*	0.16	0.00	0.06	0.22	• Meet FERC compliance obligation
Mobile Functionality	*Architecture Design*	0.02	0.00	0.00	0.02	• Improve customer experience
Intranet Redesign	*Architecture Design*	0.05	0.00	0.00	0.05	• Improve usability • Improve efficiency
Third-Party Test Environment	*Deploy*	0.14	0.00	0.00	0.14	• Expand testing capabilities to non-NYISO customers • Reduce risk post deployment

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Capacity Market Products						
Automate ICAP Import Rights	*Deploy*	0.20	0.00	0.00	0.20	• Streamline process for procurement of ICAP import rights • Replace fax technology with web
RMR Cost Recovery Phase II	*Deploy*	0.57	0.00	0.15	0.72	• Enhance reliability by establishing rules and compensation for a generator seeking to deactivate but a resource is required to meet a reliability need
ICAP AMS Redesign & Test Improvements Phase II	*Deploy*	0.38	0.00	0.09	0.47	• Improve end-user experience • Improve maintainability • Improve testability
ICAP AMS Redesign & Test Improvements Phase III	*Functional Requirements*	0.13	0.00	0.03	0.16	• Improve end-user experience • Improve maintainability • Improve testability
Alternative Methods for LCRs (SOM)	*Market Design Complete*	0.17	0.00	0.25	0.42	• Enhance market efficiency • May result in lower cost to load • More stable, transparent, and predictable LCRs
CRIS for External-ROS Transmission Investments	*Functional Requirements*	0.12	0.00	0.00	0.12	• Creation of a capacity product that would provide capacity rights for certain transmission investments not eligible for UDRs
Treatment of Locality Exports and Imports (SOM)	*Concept Proposed*	0.15	0.00	0.40	0.55	• Establish rules for resources that export from or import to constrained Localities • Evaluate rules for resources importing into constrained localities
On Ramps and Off Ramps	*Market Design Complete*	0.21	0.00	0.35	0.56	• May result in more timely Locality creation or elimination • Establish more transparent rules for creation and elimination of Localities

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Capacity Market Products						
Performance Assurance	Concept Proposed	0.34	0.00	0.20	0.34	• Incent intra-day operational flexibility • Promote increased resource availability and performance
Competitive Entry Exemption for Increased CRIS	Concept Proposed	0.02	0.00	0.00	0.02	• Expand the Competitive Entry Exemption to allow for the evaluation of merchant requests for incremental CRIS
Enhanced BSM Mitigation Study Period	Concept Proposed	0.01	0.00	0.00	0.01	• Enhance the rules governing BSM analyses to better capture in-service dates for Examined Facilities
Review Capacity Physical Withholding Rules	Concept Proposed	0.01	0.00	0.00	0.01	• Review and potentially update supply side mitigation rules to ensure they protect the markets from anticompetitive behavior effectively
Winter CRIS Enhancements	Deploy	0.09	0.00	0.00	0.09	• Reduces manual processes • Improves efficiency
Payment for Locality Exports	Concept Proposed	0.07	0.00	0.00	0.07	• May result in a mechanism for compensating exporting capacity resources
CRIS Treatment for Exports	Concept Proposed	0.04	0.00	0.00	0.04	• May result in rules addressing the expiration of CRIS for exporting capacity resources
BSM Repowering	Concept Proposed	0.01	0.00	0.00	0.01	• A specially-tailored BSM evaluation process may be able to reduce the potential for over-mitigation of repowering projects
Explore Alternate LCR – Reliability Impact	Concept Proposed	0.30	0.00	0.45	0.75	• Enhance market signals by tying LCR and/or capacity prices to the incremental reliability contribution of new capacity • May result in lower cost to load
Aligning ECR Bilateral Deadlines	*Concept Proposed*	0.02	0.00	0.00	0.02	• Reduced barriers to participation in the UCAP bilateral market • Ensure more comparable treatment of ECR and non-ECR resources in the ICAP market

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
DER Products						
FERC Order No. 745	*Deploy*	0.22	0.00	0.00	0.22	• Implement FERC order
DER Participation Model	*Market Design Complete*	0.36	0.00	0.45	0.81	• Provide opportunities for Distributed Energy Resource Participation in Wholesale Markets. Alignment with NYS PSC's REV initiative
Granular Pricing & Market Price Delivery	*Deploy*	0.20	0.02	0.00	0.22	• Localized market signals for Distributed Energy Resource participation. Improved methods for publicly sharing pricing data
DER Pilot Framework	*Deploy*	0.26	0.00	0.25	0.51	• Streamline process for new technologies and resources to demonstrate capability and gain operational confidence before wholesale market implementation

NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Energy Market Products						
Energy Storage Integration and Optimization	*Market Design Complete*	0.18	0.00	0.00	0.18	• Improve modeling of resources that can inject and withdraw energy from the grid in response to NYISO dispatch signals • Increase market efficiency through more economic utilization of storage resources
RTC-RTD Convergence Improvements (SOM)	*Concept Proposed*	0.08	0.00	0.00	0.08	• Potential reduction in real time price volatility • Potential for more efficient resource scheduling
5-minute Transaction Scheduling	*Study Comp.*	0.07	0.00	0.30	0.37	• Additional flexibility to secure the system in real time • More efficient utilization of interties with neighboring control areas • Reduction in uneconomic scheduling of transactions • Potential reduction in real time price volatility
15-minute Transaction Scheduling – IESO	*Concept Proposed*	0.05	0.00	0.00	0.05	• Increased economic efficiency for both IESO and the NYISO through more effective utilization of the intertie • Potential reduction in real time price volatility
Model 100+kV Transmission Constraints (SOM)	*Market Design Complete*	0.09	0.00	0.00	0.09	• Improve alignment of markets and EMS model • More efficient pricing of transmission constraints • Improved market signals • Potential for more efficient resource scheduling
Constraint Specific Transmission Demand Curves (SOM)	*Market Design Complete*	0.07	0.00	0.00	0.07	• More efficient pricing of transmission constraints • Potential reduction in price volatility • Potential for more efficient resource scheduling

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Energy Market Products						
FERC Order 831: Offer Caps	*Deploy*	0.38	0.00	0.06	0.44	• Allow market to reflect actual generation cost during extreme conditions up to the 2000/MWh hard cap • Compliance with a mandatory FERC Order • Align with the offer caps of neighboring ISO/RTOs
Large Solar Participation Model	*Concept Proposed*	0.05	0.00	0.00	0.05	• Improve the modeling of large solar resources • Guard against potential reliability issues from large intermittent solar resources
Mitigation Bid Transparency	*Deploy*	0.06	0.00	0.00	0.06	• Provide additional data involved in price formation
Reinstitute Import Guarantees	*Concept Proposed*	0.06	0.00	0.00	0.06	• Potential for improved liquidity at the external interfaces
Integrating Public Policy	*Concept Proposed*	0.27	0.00	0.40	0.67	• Harmonize state decarbonization policies with New York's wholesale market design • Evolve wholesale market incentives to maintain grid reliability

NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Enterprise Products						
Database Platform Upgrades Phase II	*Deploy*	0.25	0.40	0.09	0.74	• Improve performance of various databases • Upgrade to latest version of Oracle
Telephony System Upgrade	*Deploy*	0.14	0.00	0.15	0.29	• Improve cost effectiveness • Enhance service levels
Application Platform Upgrade Phase V	*Deploy*	0.83	1.12	0.15	2.10	• Improve performance and availability • Improve support for technology
Identity and Access Management (IAM) – 2018	*Deploy*	0.33	0.12	0.20	0.64	• Improve availability and security • Improve compliance
Application Testing Improvements Phase II	*Deploy*	0.28	0.06	0.25	0.59	• Automate test scripts • Reduce risk
Software AG Upgrade	*Deploy*	0.23	0.00	0.00	0.23	• Improve performance and availability • Improve support for technology
Corporate Workstation Replacement	*Deploy*	0.13	0.25	0.07	0.45	• Improve performance and availability • Improve support for technology
Laptop Refresh and Upgrade	*Deploy*	0.16	0.59	0.08	0.83	• Improve performance and availability • Improve support for technology
Microsoft Systems Upgrade	*Deploy*	0.38	3.00	0.00	3.38	• Improve performance and availability • Improve support for technology
Network Infrastructure Upgrade	*Deploy*	0.20	2.34	0.00	2.54	• Improve performance and availability • Improve support for technology
Planning High Performance Computing (HPC) Platform Upgrade	*Deploy*	0.13	0.40	0.00	0.53	• Improve performance and availability • Improve support for technology

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Finance Products						
North Subzone Redistricting						
	Deploy	0.37	0.00	0.00	0.37	• Reduce Unaccounted For Energy
Transactions Modifications & Confirmation Tool						
	Architecture Design	0.04	0.00	0.00	0.04	• Improve efficiencies and reduce risk
CMS/ ConInvoice Data Integration	*Functional Requirements*	0.04	0.00	0.00	0.04	• Reduce manual processes • Improve efficiencies and reduce risk
Expense Reports Automation						
	Deploy	0.17	0.00	0.13	0.30	• Improve efficiencies
Rate Schedule 12 Settlement						
	Deploy	0.42	0.00	0.00	0.42	• Provide Rate Schedule 12 settlements per tariff
CMS Projected True-up Exposure Enhancement						
	Deploy	0.19	0.00	0.00	0.19	• Ensure credit requirements are aligned with market risk
FERC Form1 Redesign						
	Deploy	0.10	0.00	0.00	0.10	• Meet new FERC standards
Vendor Management Tool	*Functional Requirements*	0.08	0.00	0.00	0.08	• Eliminate manual processes • Reduce risk
Electric Quarterly Report (EQR) DSS Report Update						
	Deploy	0.11	0.00	0.00	0.11	• Support MPs in meeting FERC expanded EQR requirements

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Operations & Reliability Products						
EMS/BMS System Upgrade	Dev. Comp.	5.36	0.60	1.71	7.67	• Increase supportability • Increase platform stability
TOA Platform Upgrade Phase II	Dev. Comp.	0.22	0.00	1.14	1.35	• Increase supportability • Avoid obsolescence
2017 Reference Level Software Enhancements	Deploy	0.35	0.00	0.18	0.53	• Improve speed and accuracy in identifying potential problems with reference levels
PI System Upgrade	Dev. Comp	0.11	0.00	0.00	0.11	• Increase supportability • Avoid obsolescence
EMS/BMS Workstation Upgrade	Dev. Comp.	0.14	1.08	0.00	1.22	• Increase supportability • Increase platform stability
Gurobi (MIP) Hardware Refresh	Dev. Comp.	0.03	0.30	0.00	0.33	• Increase supportability • Avoid obsolescence
Gurobi (MIP) Software Upgrade	Dev. Comp.	0.11	0.00	0.00	0.11	• Increase supportability • Avoid obsolescence
Load Forecaster Upgrade & Buildout	Dev. Comp.	0.21	0.06	0.08	0.34	• Maintain reliability • Maintain vendor support
EPG PMU Enhancements	Deploy	0.12	0.47	0.00	0.59	• Assist in validating, conditioning, and analyzing PMU data • Improve situational awareness • Increase distribution of data to internal users

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
Planning Products						
Interconnection Project Queue (or Portal) Automation	*Functional Requirements*	0.17	0.00	0.20	0.37	• Improve interconnection process to ensure resources are available and able to respond to resource adequacy market signals
Transmission Planning Process Review	*Concept Proposed*	0.03	0.00	0.05	0.08	• Review transmission planning process to evaluate potential improvements
Model on Demand Upgrade and Build-Out	*Deploy*	0.06	0.07	0.03	0.16	• Upgrade the version of the MOD application to improve supportability and performance • Build out an additional test environment for greater ability to test and upgrade the application in the future
Interconnection Process Review	*Concept Proposed*	0.10	0.00	0.03	0.13	• Market Participant suggests project may improve interconnection process

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR

2018 Project Estimated Costs and Expected Benefits

Project	Deliverable	Estimated Cost (in millions)				Expected Benefits
		Labor	Capital	Prof. Serv.	Total	
TCC Products						
On-Peak/Off-Peak TCCs	*Study Comp.*	0.04	0.00	0.00	0.04	• Market Participant suggested project

Next Steps

- The deadline to submit stakeholder scoring survey is June 26th

- We will review the NYISO priority scores and stakeholder scoring at the July 12th BPWG meeting

- We will review an initial project budget recommendation at the July 26th BPWG meeting

- We will review a revised project budget recommendation at the August 18th BPWG meeting

Questions?

NEW YORK
INDEPENDENT
SYSTEM OPERATOR

The Mission of the New York Independent System Operator is to:

- Serve the public interest and
- Provide benefit to stakeholders by
  - Maintaining and enhancing regional reliability
  - Operating open, fair and competitive wholesale electricity markets
  - Planning the power system for the future
  - Providing factual information to policy makers, stakeholders and investors in the power system

www.nyiso.com

ISO NEW YORK INDEPENDENT SYSTEM OPERATOR