New York ISO
Independent System Operator

Project Prioritization Recommendations and Continuing Project Discussion

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March 30, 2022, KCC

Agenda

- Stakeholder Feedback
- Scoring Recommendations
- Other Process Recommendations
- Project Prioritization Timeline
- Continuing Project Discussion
- Next Steps

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Stakeholder Feedback

Summary of Stakeholder Feedback

- Stakeholders would like to see all the previously discussed changes, including the most recent scoring proposal, included for the March 30 BPWG
- Scoring – Stakeholders asked that the NYISO provide NYISO scoring before stakeholder survey due date
  - Stakeholders would like to visualize how the scoring results for both the NYISO and stakeholder survey will be presented
  - Stakeholders would like to understand how the separate scoring results are used to come up with the initial recommendation – Are scores combined?
- Identify and Discuss Urgent Projects Early – Stakeholders asked that the NYISO identify projects that are important to work on due to existing concerns early in the process and specifically before stakeholder scoring is completed
- Project Dependencies – Stakeholders requested the explanation the NYISO provided on identifying the key project constraints be included in the presentation
  - Prior to survey due date based on the NYISO ranked list of projects
  - Prior to the initial survey recommendation based on the stakeholder survey ranked list
- Periodic Discussion of Project Priorities – Stakeholders requested an opportunity to discuss current priorities on a quarterly basis
- Scope – Stakeholders raised concerns about changes to project milestones after project scoring is complete
- Continuing – Stakeholders would like to revisit how to treat this category

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Scoring Recommendations

Scoring & Urgent Projects

- **The NYISO recommends:**
  - Sharing the NYISO project priorities earlier in the process as part of the revised and simplified NYISO scoring
  - Present urgent projects at BPWG for discussion
  - Providing NYISO scoring to stakeholders prior to the survey completion to inform stakeholders of the NYISO ranking
- **At the January 31 BPWG, the NYISO identified the project prioritization criteria under consideration for potential change to gather stakeholder feedback**
- **The NYISO incorporated stakeholder feedback on the scoring recommendation and provided the NYISO's scoring proposal at the February 23 BPWG**

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Scoring Process Overview

- For projects to be prioritized, the NYISO will provide scores for the three categories: Strategy, Operational or Market Issue, and Cost and Complexity
- The NYISO will provide a ranked order list of projects based on the category scores times the category weights
- Process to determine category scores and rank
  - Individual project teams working with business owners score each project across the three categories
  - Category scores are further reviewed by Product Managers individually and as a group to produce an agreed upon set of scores and rank
  - Project scores and ranking are reviewed and finalized with senior leadership team
- Project scoring provided to stakeholders prior to stakeholder survey due date

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Strategy Score

- Six strategic objectives provide guidance for assessing / prioritizing proposed projects
- The strategy score indicates how well a particular project contributes to the NYISO's strategic objectives
- The NYISO proposes a category weight of 40%

Category	Category Score	Criteria Supported	Category Weight
Strategy (Leader in Reliability, Leader in Market Design & Performance, Leader in Application of Technology, Robust System Planning, Excellence In Execution, & Authoritative Source of Information on Key Issues)	How well does the project support the strategic objectives where 10 is highest and 0 is lowest	Identify what primary strategic objective the project supports, none to several	40%

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NYISO Strategic Objectives

- **A Leader in Reliability**
  - Sustain and enhance reliable operation of the changing New York electric grid.
  - Provide a secure environment to protect the NYISO cyber, physical, and personnel resources.
- **A Leader in Market Design and Performance**
  - Support and increase reliability, market efficiency and value for consumers through the development of enhancements to the wholesale electricity markets.
  - Foster fair, competitive and transparent wholesale electricity markets that attract new investments and retain needed resources.
  - Advance the transformation of the power grid with state-of-the-art technologies.
- **A Leader in the Application of Technology**
  - Provide industry leading reliability management systems that evolve with the needs of the grid.
  - Enable industry leading market capabilities through the application of advanced technology platforms.
  - Build and evolve a technology ecosystem that provides new levels of flexibility and agility to meet the needs of the future grid.
  - Enhance cyber security capabilities to protect grid and market operations against evolving and escalating cyber threats.

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NYISO Strategic Objectives

- **Excellence in Execution**
  - Sustain a culture that fosters quality in all that we do and engenders customer confidence in our operations, markets and planning.
  - Support and develop our workforce to ensure the organization has the professional talent and skills needed to fulfill the NYISO's mission.
  - Demonstrate fiscal responsibility and cost management in order to mindfully provide value to consumers.
- **Robust System Planning**
  - Continuously enhance comprehensive system planning, including the reliability, economic, and public policy studies and other planning initiatives in New York.
  - Provide insight and guidance regarding the evolving power system.
  - Complete studies to analyze reliability, operations and market impacts to enable federal and state clean energy policy goals.
- **Authoritative Source of Information on Key Issues**
  - Provide an independent, unbiased source of information on the reliable operation of New York's bulk electric system and wholesale electricity markets. Identify future needs by analyzing policy and technology developments.
  - Provide industry leadership through leadership forums, conferences, and professional and standard setting groups.

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Operational or Market Issue

- **The Operational or Market Issue score indicates the level which a particular project is needed to address an ~~existing~~ operational or market issue**
- **The Operational or Market Issue score utilizes three criteria:**
  - Compliance: Project addresses a risk that could lead to compliance violation
  - Sustaining NYISO Systems: Project addresses needs associated with maintaining NYISO systems, keeping them operational and supportable
  - Reliability and Market: Project addresses ~~existing~~ operational or market issue
- **The NYISO proposes a category weight of 40%**

PRIORITIZATION CRITERIA			
Category	Category Score	Criteria Supported	Category Weight
Operational or Market Issue (The category focuses on the need to include a project to address an ~~existing~~ operational or market issue including sustaining NYISO systems)	How well does the project address operational or market issue where 10 is highest and 0 is lowest	Identify what primary operational or market issue criteria the project supports, none to several	40%

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Cost & Complexity

- **Proposed projects are scored in terms of their cost and complexity using three criteria:**
  - Cost and Complexity: This criteria looks at total project cost (current and future years), which reflects the overall complexity from a technological and business perspective
  - Multi-Year Dependency: This criteria assess the extent to which ~~the impact of~~ stopping a project before project is complete could impact the value of the previous investment
  - Post-Production Sustainability: This criteria considers the NYISO's support structure for maintaining the proposed project solution
- **The NYISO proposes a category weight of 20%**

PRIORITIZATION CRITERIA			
Category	Category Score	Criteria Supported	Category Weight
Cost & Complexity (This category looks at current & future year project cost, complexity and sustainability of the proposed solution)	Scores project form a cost and complexity standpoint where 0 is highest cost, most complex project; and 10 is lowest cost, simplest project	Identify if project has a significant multi-year dependency	20%

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Proposed Simplified Scoring Criteria

PRIORITIZATION CRITERIA			
Category	Category Score	Criteria Supported	Category Weight
Strategy (Leader in Reliability, Leader in Market Design & Performance, Leader in Application of Technology, Robust System Planning, Excellence In Execution, & Authoritative Source of Information on Key Issues)	How well does the project support the strategic objectives where 10 is highest and 0 is lowest	Identify what primary strategic objective the project supports, none to several	40%
Operational or Market Issue (The category focuses on the need to include a project to address an ~~existing~~ operational or market issue including sustaining NYISO systems)	How well does the project address operational or market issue where 10 is highest and 0 is lowest	Identify what primary operational or market issue criteria the project supports, none to several	40%
Cost & Complexity (This category considers current & future year project cost, complexity and sustainability of the proposed solution)	Scores project form a cost and complexity standpoint where 10 is lowest cost, simplest project; and 0 is highest cost, most complex	Identify if project has a significant multi-year dependency	20%

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Scoring Results Example

- Stakeholders requested an example showing how the NYISO scoring results would be presented
- Using mock test data, the below table shows how results would be presented in a NYISO rank order

Product / Project	Product portfolio	Strategy	Operational or Market Issue	Cost & Complexity	Score (1-100)	Rank
		4	4	2		
Improving Capacity Accreditation (SOM)	Capacity Market	9.5	4.0	6.0	66	1
Dynamic Reserves (SOM)	Energy Market	8.5	4.0	6.0	62	2
Coordination of Interconnection and Transmission Expansion Study	Planning	6.5	5.0	6.5	59	3
Improve Duct-Firing Modeling (SOM)	Energy Market	7.0	5.0	4.0	56	4
Constraint Specific Transmission Shortage Pricing (SOM)	Energy Market	6.5	4.0	6.0	54	5
Internal Controllable Lines	New Resource	6.0	2.0	2.0	36	6
Hybrid Aggregation Model	New Resource	5.5	2.0	2.0	34	7
Monthly Demand Curves (SOM)	Capacity Market	4.0	2.0	2.0	28	8
Expanding Application of Peak Hour Forecasts	Capacity Market	1.0	2.0	6.0	24	9

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Other Process Recommendations

Project Dependencies

- **The NYISO has considered whether and how it can identify interchangeable project resource constraints and does not support such an approach**
  - This type of approach would undermine the purpose of the prioritization process and is not readily administrable
    - There can be dozens of combinations of projects that can or cannot be done based resources, costs, and interest
    - The NYISO believes that by sharing its project priorities earlier in the process, stakeholders will be better informed on conflicts earlier to allow for discussion about options both before and after project scoring
- **The revised project prioritization process timeline provides an opportunity to discuss high-priority project resource constraints, and provide stakeholder feedback on potential options prior to the NYISO making the initial project recommendation**

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Example of Potential Project Resource Constraints

- **Stakeholders requested an example of how the NYISO would be able to share specific resource constraints on individual teams prior to the stakeholder survey due date**
- **The sample constraints below have been made up for demonstration purposes based on the prior scoring example:**
  - No resource constraints have been identified for the first three projects
  - The NYISO has identified minor resource constraints on the Energy Market Team with the 4th project conflicting with the 2nd – minor delivery date adjustments may be necessary
  - The 5th project could be supported if 4th project is eliminated (no changes required to 2nd project), or if scope is reduced on 2nd project (may allow 4th and 5th to be completed), or the 5th project may be supportable if the scope was sufficiently reduced
  - The 6th project can be supported providing the option above selects eliminating the 4th project over the reducing scope of 2nd and 4th project, otherwise resource constraints are too significant to likely include 6th project in budget recommendation
  - Unclear if the 7th project can be supported without having a clear understanding of what happens on the 2nd, 4th, 5th and 6th project
  - One or two other smaller projects down the list could potentially be supported depending on what happens with the larger projects ranked higher on the list

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Continuing Projects

- The NYISO appreciates the concerns raised regarding scoring projects multiple years in a row
- The NYISO also believes that priorities can change from year-to-year and disagrees that projects previously prioritized should be automatically included in future years
- The NYISO also recommends retaining the current qualification for establishing continuing projects
  - The NYISO will establish a discussion with BPWG regarding continuing status of prior-year approved projects that do not otherwise qualify as continuing early in the project prioritization process
  - The NYISO will consider requests to designate a project as continuing on a case-by-case basis
  - Material to support having that discussion during today's meeting is included later in this presentation

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Periodic Discussion of Priorities

- The NYISO encourages feedback from its stakeholders and asks stakeholders to raise ideas or concerns as they arise
- The NYISO has incorporated a discussion on priorities as part of the quarterly project status discussions
  - This discussion can include any idea or concern and is not limited to just project discussions

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Project Scope

- **The NYISO may modify project scope and/or project milestones before stakeholder scoring begins**
- **The NYISO proposes to facilitate discussions with stakeholders before making any changes to project scope or project milestones after stakeholder scoring has completed**
  - The NYISO has moved up the survey completion date by one week as shown in process timeline
  - The NYISO believes that some flexibility is important with the project prioritization process and is committed to working with stakeholders on potential options for managing project constraints before the NYISO issues its final project recommendation list
  - The example of potential project resource constraints shows the type of constraints that could also be assessed on a stakeholder survey results ranked order list
  - The NYISO plans to discuss high-level resource constraints when the stakeholder survey results are presented, and seek stakeholder feedback to proposed options the NYISO may develop for reducing constraints prior to providing initial project recommendation

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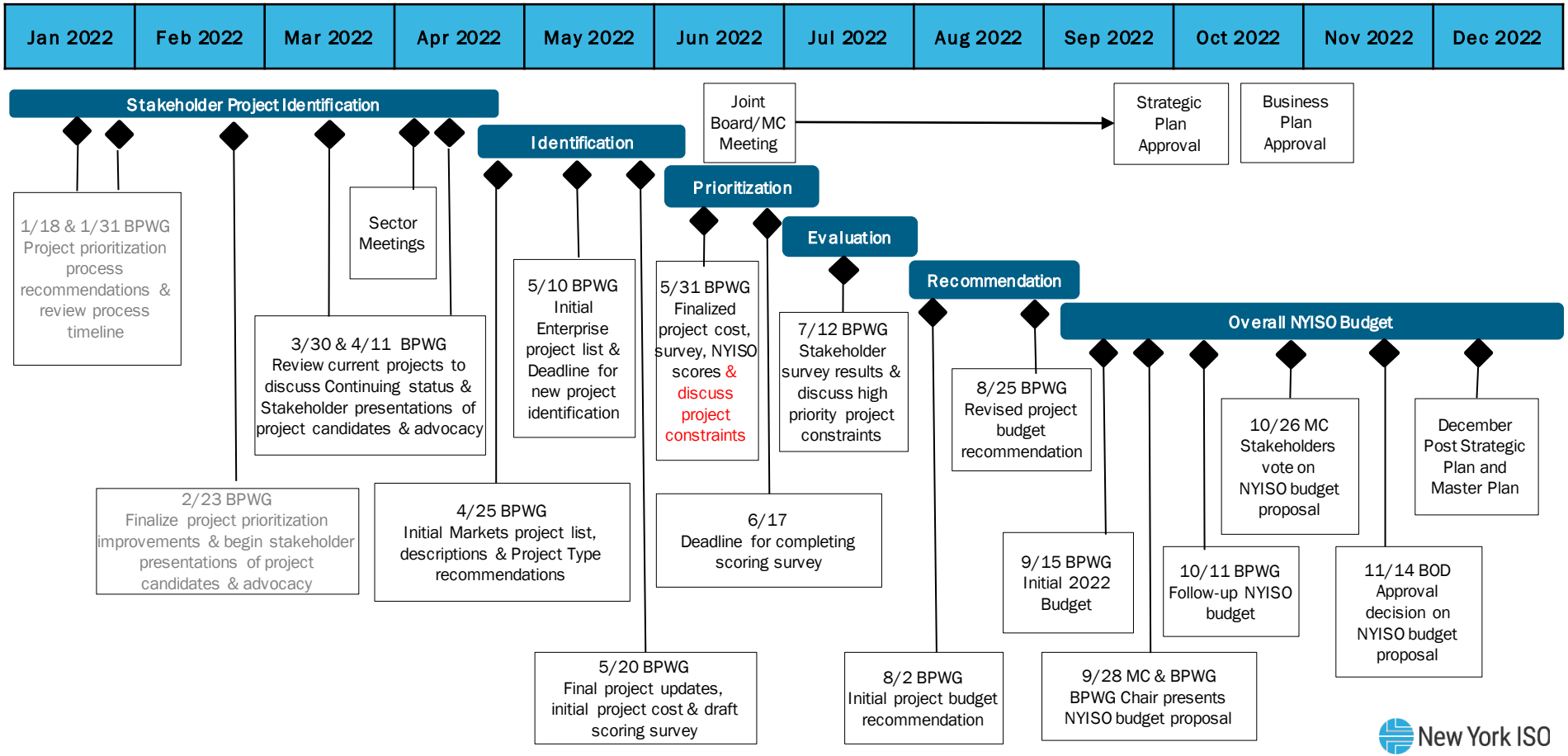
Project Prioritization Timeline

2023 Proposed Project Prioritization Timeline



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DRAFT – FOR DISCUSSION PURPOSES ONLY

Continuing Project Discussion

Continuing Project Recommendations

- The NYISO agreed, as part of process improvements this year, to establish a discussion with BPWG regarding the NYISO's Continuing Project Type recommendations of prior-year approved Market projects that do not otherwise qualify as Continuing early in the project prioritization process
- Market projects prioritized for the current year that do not achieve a Milestone of Software Design, Development Complete, or Deployment, will generally be proposed as Prioritize for next year, subject to Stakeholder input Eight Market projects in the current year do not meet this criteria, so their default status would be Prioritize for 2023
  - The NYISO will consider requests to designate these project as Continuing on a case-by-case basis
  - The 2022 project descriptions are being provided to facilitate discussions on each project

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2022 Projects Not Meeting Continuing Criteria

Project	Product Area	2022 Proposed Deliverable
Constraint Specific Transmission Shortage Pricing (SOM)	Energy Market	Functional Requirements
Hybrid Aggregation Model	New Resource	Functional Requirements
Coordination of Interconnection and Transmission Expansion Study	Planning	Market Design Complete
CRIS Expiration Evaluation	Capacity Market	Market Design Complete
Improving Capacity Accreditation (SOM)*1	Capacity Market	Market Design Complete
Dynamic Reserves (SOM)	Energy Market	Market Design Concept Proposed
Improve Duct-Firing Modeling (SOM)	Energy Market	Market Design Concept Proposed
Internal Controllable Lines*2	New Resource	Market Design Concept Proposed

*1The NYISO recommends treating this project as continuing, as it is expected that this project will become mandatory once the filing is accepted by FERC.

*2The NYISO agreed as part of the finalizing the 2022 project budget, that Internal Controllable Lines would be proposed as a Continuing project for 2023, subject to stakeholder input.

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Constraint Specific Transmission Shortage Pricing (SOM)

Problem / Opportunity

Transmission facility and line ratings limit the amount of energy that can flow from one location to the next on the bulk electric system. As transmission constraints arise, the NYISO's energy market software prices the quantity of energy that would be necessary to alleviate them. The existing transmission constraint pricing logic applies a single graduated pricing mechanism to all facilities assigned a non-zero constraint reliability margin (CRM) value. Under the current pricing logic, some transmission constraints are relaxed without being resolved by the graduated mechanism.

In 2018, the NYISO's Constraint Specific Transmission Demand Curves study concluded that certain enhancements to the current logic would be beneficial and should be further explored with stakeholders. Based on this study, it is expected that the NYISO and its stakeholders will complete a Market Design in 2021 to utilize a revised and more graduated transmission demand curve mechanism that better accounts for the various non-zero CRM values assigned to facilities. Under this new construct, transmission demand curve prices will increase with the severity of transmission overloads. The design reduces occurrences of constraint relaxation by instead seeking to resolve constraints for internal facilities through use of a graduated transmission demand curve mechanism that includes pricing values for shortages that exceed applicable CRM values.

Project Objective(s) & Anticipated Deliverable(s)

The 2022 deliverable for this project will be Functional Requirements.

Project Justification

The transmission constraint pricing logic enables the NYISO's market software to re-dispatch suppliers efficiently in the short term to alleviate constraints, and incentivizes long-term investment in locations where suppliers could provide the greatest benefits.

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Hybrid Aggregation Model

Problem / Opportunity

The NYISO's market rules do not currently allow an ESR and another Generator to be co-located at a single point of interconnection and share the same point identifier (PTID). Instead, where an ESR and another Generator are co-located behind the same point of interconnection, each resource type must be separately metered and have its own PTID.

Project Objective(s) & Anticipated Deliverable(s)

This project is distinct from the DER and ESR Integration initiatives, but it will build on work completed as part of those initiatives. This project is a continuation of the 2021 Market Design Complete effort. The 2022 project deliverable is Functional Requirements.

Project Justification

State and Federal initiatives such as Renewable Energy Credit (REC) procurements provide incentives for developers to couple storage and intermittent renewable assets. Such programs are aimed at reducing the output volatility and improving the availability of intermittent resources. The 2020 deliverable developed a market participation model(s) for front-of-the-meter generators plus storage acting as two distinct resources with a shared injection limit that better align the NYISO's market procurement with state and federal efforts to integrate more clean energy into the grid. The 2022 deliverable will establish the functional requirements necessary to implement a new market participation model to improve grid flexibility and resilience by enabling new resource types to provide their full capabilities.

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Coordination of Interconnection & Transmission Expansion Study

Problem / Opportunity

The NYISO supports several different interconnection and transmission expansion processes to evaluate the reliability impact of transmission and generation projects that seek to interconnect to FERC-jurisdictional interconnection facilities.

Certain transmission projects are evaluated under the Transmission Interconnection Procedures (TIP) in OATT Attachment P. Such Transmission Projects include all proposed transmission expansions of the New York State Transmission System, regardless of whether the Transmission Developer seeks cost allocation under the NYISO OATT or proposes a market-based project, other than: 1) a new transmission facility or upgrade to an existing transmission facility pursued by a Transmission Owner (TO) as part of a Local Transmission Plan (LTP) or NYPA transmission plan that is not subject to the NYISO's competitive selection process under Attachment Y and for which the TO is not seeking regional cost allocation under the NYISO OATT, and 2) Class Year Transmission Projects seeking CRIS that fall under the NYISO Large Facility Interconnection Procedures in Attachment X to the NYISO OATT.

Other transmission projects are evaluated under OATT 3.7 and would include, for example, LTP projects and NYPA transmission plan projects.

All new Large Generating Facilities and Class Year Transmission Projects that propose to interconnect to the NYS Transmission System or Distribution System are subject to the NYISO interconnection procedures in OATT Attachments S and X. Also, projects that materially increase the capacity of an existing Large Generating Facility or Class Year Transmission Project that is interconnected to the NYS Transmission System or Distribution System, or to make a material modification to the operating characteristics of such Large Facilities, also are subject to the NYISO's interconnection procedures. Similarly, Small Generating Facilities that propose to interconnect to the NYS Transmission System or Distribution System are subject to the NYISO's interconnection procedures in OATT Attachment Z.

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Coordination of Interconnection & Transmission Expansion Study

Each set of interconnection and transmission expansion procedures has base case inclusion rules that establish the updated base case at the start of each study. As a result, it is conceivable for projects to proceed in different interconnection study processes without taking into account projects in another study process that could directly impact each other. The chance of this circumstance occurring is now more likely to be encountered given the transformation of the grid that will be needed to meet CLCPA requirements.

In addition, the NYISO's interconnection procedures provide a mechanism for updates to the Connecting Transmission Owner's system representation, including distribution level updates provided by the Connecting Transmission Owner. With the increasing number of distribution-level interconnections proceeding outside the NYISO interconnection queue, it is important to capture the collective reliability impacts of projects in both NYISO and TO interconnection queues.

Revising the interconnection and transmission expansion tariffs to provide for coordination among the various processes – both NYISO and Connecting Transmission Owner interconnection study processes – would mitigate the potential for inconsistent treatment among projects developers, would provide for more comprehensive study results, and would help avoid not having an explicit tariff process to address the potential for interactions between projects in different processes.

Project Objective(s) & Anticipated Deliverable(s)

The 2022 deliverable for this project would be Market Design Complete.
Tariff Updates
Potential for identification of new requirements for Salesforce Portal

Project Justification

In addition to the benefits described in the objectives above, this project would also lead to improved efficiencies of the interconnection study process.

New York ISO

CRIS Expiration Evaluation

Problem/Opportunity

As part of the Class Year Redesign project, the NYISO identified proposals providing for more stringent CRIS expiration rules. Some of those proposals were implemented as part of that initiative, while others were deferred for later consideration. Although the new CRIS rules are expected to prevent retention of CRIS by certain facilities not participating in the ICAP market and increase deliverability "headroom," the rules, as accepted by FERC and implemented by the NYISO, do not significantly address circumstances under which facilities can retain their CRIS beyond the effective date of their retirement for up to three years and retain unused CRIS with minimal participation in the ICAP market under Section 25.9.3 of the NYISO Open Access Transmission Tariff (OATT).

The current tariff provisions may allow facilities to retain CRIS that, if terminated, could eliminate the need for deliverability upgrades or require less costly deliverability upgrades, thereby facilitating new entry. For example, the existing rules allow a facility to retain its full CRIS by offering as little as 1 MW into the capacity market. Additionally, a facility is able to retain all CRIS obtained for up to three years after it retires, rather than immediately making its unused CRIS available to other new entrants.

Modifying the current tariff language with respect to CRIS transfers may allow for more flexibility as more public policy resources come on to the system. Modifications could include exploring options to include same-location transfers to better facilitate these new entrants.

Project Objective(s) & Anticipated Deliverable(s)

Continuing the work from the 2021, the objective of this project is to develop modifications to CRIS Expiration rules as well as the rules surrounding CRIS Transfers. The milestone for 2022 is a Market Design Complete.

Project Justification

This project will seek to further enhance and provide additional clarification to the CRIS expiration rules. Further enhancements to the CRIS expiration rules will more appropriately address the retention of CRIS by retired facilities and facilities no longer fully participating in the ICAP market.

Finally, this project will seek to increase the capacity deliverability headroom and potentially lower the cost of market entry to future facilities seeking to participate in the ICAP market.

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Improving Capacity Accreditation (SOM)

Problem / Opportunity

The resource mix is evolving and the NYISO's markets need to continue to accurately value resources for the attributes they provide in meeting system reliability. Specifically for the Installed Capacity market, a review of resource adequacy concepts including the determination of capacity requirements as well as resources' contribution to reliability is needed.

As the resource mix transitions to one more dependent on resources that rely on the sun or wind to produce energy and/or resources with energy limitations, each resources' contribution to reliability also evolves. For example, as more solar generation is added to the grid the peak load shifts to non-daylight hours therefore making it less valuable to resource adequacy.

The resource adequacy contribution of all resources must be reviewed as the diversity and performance of the resource mix changes, and must be accurately reflected in the Installed Capacity market and its processes.

Project Objective(s) & Anticipated Deliverable(s)

The objective for this project would be to expand on the principles established with the Expanding Capacity Eligibility, Tailored Availability Metric, and Capacity Valuation projects to apply to all resources. The deliverable for 2022 would be a Market Design Complete.

Project Justification

Properly valuing resources contribution to maintaining grid reliability, known as capacity accreditation, will provide the signals necessary to maintain a diverse resource mix. Enhancing these capacity accreditation measures will allows the Installed Capacity market to continue to support grid reliability as the transition of the resource mix unfolds.

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Dynamic Reserves (SOM)

Problem / Opportunity

Today, the NYISO procures fixed quantities of operating reserves in specified regions across the state. Under this structure, the static modeling of reserve regions and their associated requirements may not optimally reflect the varying needs of the grid to respond to changes in system conditions. These system conditions are expected to become more variable as new resources enter into the market in the coming years.

Based on New York State Reliability Council, L.L.C. (NYSRC) rules, the NYISO is required to procure sufficient reserves to account for the single largest source contingency at all times. However, the current static modeling approach does not account for the potential for the largest source contingency changing based on system conditions and system topology every market run. Dynamically determining the operating reserve requirements could enhance system reliability and market efficiency based on the system needs at any time.

The NYSRC rules also require the NYISO to ensure that transmission facilities are not loaded above their Long-Term Emergency (LTE) rating, post-contingency. In some cases within NYC, the NYISO is permitted to operate transmission facilities above LTE, using generating capacity not otherwise scheduled to provide energy and phase angle regulator actions to quickly secure the transmission facilities, post-contingency. This offers opportunities to reduce production costs by relaxing the transmission limits of facilities that feed New York City load pockets. Currently, operating reserve providers in these NYC load pockets are not compensated for the avoided transmission congestion they enable by allowing certain facilities to be secured to a rating that is higher than LTE.

Therefore, Dynamic Reserves would enhance the current modeling by: (i) allowing the adjustment of the minimum operating reserve requirements based upon the single largest source contingency and (ii) accounting for transmission capability when determining reserve needs within a constrained area. These enhancements could allow the scheduling of energy above the minimum operating reserve requirements from individual suppliers when sufficient reserves are available and also the shifting of reserves to lower-cost regions when transmission capability exists. A dynamic reserve procurement methodology could improve market efficiency through enhancing competition among suppliers, and better aligning market outcomes with how the power system is operated.

New York ISO

Dynamic Reserves (SOM)

Objective(s) & Anticipated Deliverable(s)

The market design will seek to leverage the recommendations from the study being conducted in 2021 and develop potential changes to the NYISO's market software and market rules to facilitate more efficient scheduling of operating reserves based on system conditions. Additionally, if determined to be feasible in the prototyping effort as part of the 2021 study, such enhancements could facilitate the capability for reserves to be scheduled in more cost-effective regions if sufficient transmission capability is available to deliver the reserves to another location/reserve region, post-contingency. Finally, the 2021 study is expected to provide additional information regarding how to most efficiently incorporate potential reserve requirements within certain load pockets in New York City into the market software. The deliverable for this effort in 2022 will be Market Design Concept Proposed.

Project Justification

As the markets and grid are expected to rapidly evolve in the coming years, the modeling of reserves will need to also evolve and become more flexible. The Market Monitoring Unit (MMU) has recommended that the NYISO "[d]ynamically adjust operating reserve requirements to account for factors that increase or decrease the amount of reserves that must be held on internal resources [SOM Recommendation 2015-16]." Dynamic Reserves would seek to ensure the reserve requirements and procurement of the reserves adequately reflect the conditions of the system. Specifically, the reserve modeling should dynamically account for the single largest source contingency or transmission capability into a region. This would improve market efficiency by allowing more energy to be produced from a single source if adequate reserves are available and also reserves to be scheduled in a less expensive regions when there is available transmission capability to import power into a more constrained region post-contingency. Dynamic reserve procurements present opportunities to enhance grid resilience, incentivize resource flexibility, lower total production costs, and increase efficiency in meeting applicable reserve requirements.

This project also considers an additional recommendation made by the MMU in past State of the Market Reports. The MMU has recommended that the NYISO "[c]onsider rules for efficient pricing and settlement when operating reserve providers provide congestion relief [Recommendation 2016-1]."

New York ISO

Improved Duct-Firing Cycle Modeling (SOM)

Problem/Opportunity

Providers of reserves and regulation are currently required to achieve their emergency response rate over the entire range of operation. This is problematic for combined-cycle gas turbines ("CCGTs") with duct firing because the response rate of the duct-firing portion is typically slower than the baseload portion of the plant. These plants cannot achieve the emergency response rate in the duct-firing portion of their range (typically the upper 10-20% of capability), which limits their availability to provide reserves and regulation.

This project would seek to develop a design that better utilizes the capability of each plant segment. Simpler alternatives may also be considered, such as: (1) testing response rates for each MW block and not the emergency rate for the entire output of the plant or (2) allowing reserves and regulation to be provided for just the baseload output of the plant.

Project Objective(s) & Anticipated Deliverable(s)

The 2022 project deliverable would be Market Design Concept Proposed. The project would evaluate the market enhancements that would be required for a combined-cycle generator to reflect its operating characteristics in the duct-burning range as well as the benefits of this functionality.

Project Justification

There are currently many combined cycle generators in the New York Control Area and the majority of these combined cycle generators have duct-firing capacity. These resources currently represent a large source of dispatchable resources. Having access to these resources' full dispatchable capability will become increasingly important as generation from intermittent resources grows over the coming years. Enabling their participation will provide consumer benefits as increased competition could result in lower market prices and greater availability of resource capability to provide various ancillary services. Thus, the project would seek to evaluate the enhancements to the scheduling of a generator's capacity that would provide more flexibility to participate in the reserves and regulation markets.

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Internal Controllable Lines

Problem / Opportunity

As of April 2021, there are no internal controllable lines in operation within the NYCA. Although NYISO has high-level rules to allow Internal Unforced Capacity Deliverability Rights (UDRs) to participate within the ICAP Market, these rules also have gaps including, but not limited to, the determination of requirements for providing capacity on the Internal UDR and the determination of obligations for the Internal UDR that sells capacity.

Additionally, market rules for the scheduling and pricing of internal controllable lines within the Energy Market do not exist.

Project Objective(s) & Anticipated Deliverable(s)

The development of market rules for internal controllable lines that will support outcomes in the best interests of all stakeholders is needed. This project would begin with developing market rules for the scheduling and pricing of internal controllable lines within the Energy Market. Based on these newly developed rules, the NYISO would evaluate and, if necessary revise, the existing ICAP market rules for Internal UDRs to ensure compatibility with the expected operation of internal controllable lines in the Energy Market. These newly-developed rules must also consider how internal controllable lines could be used to support state and local programs.

This project will proceed to a Market Design Concept Proposed on a point-to-point internal controllable line and complete an assessment on the feasibility of implementing a multi-terminal internal controllable line. This would allow the NYISO to proceed with a market design on a point-to-point internal controllable lines if it is determined that the multi-terminal line problem is extremely complicated, but allow the NYISO to complete a market design for both point-to-point and multi-terminal internal controllable lines if no issues are found.

Project Justification

State and local initiatives such as Tier 4 REC procurements and NYC Local Law 97 provide incentives for developers to deliver renewable generation into congested areas using HVDC lines.

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Next Steps

Next Steps

- Review of stakeholder identified project candidates and advocacy at upcoming BPWG meetings
- April 11th the NYISO will respond to stakeholder feedback on those projects stakeholders would like to see proposed as Continuing
- April 25th the NYISO will share the Initial Markets project list, descriptions & Project Type recommendations

New York ISO

Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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Questions?

Appendix – Milestone Definitions

Milestone Definitions

Milestone	Definition
Issue Discovery	NYISO has facilitated education session(s) for stakeholder knowledge development of problem/issue, conducted stakeholder solicitation of potential solutions to address problem/issue, and summarized findings at a working group meeting for potential ranking and future project identification.
Study Defined	The scope of work for the study has been presented to stakeholders, including a discussion on the necessary input(s), assumption(s) and objective(s) of the study.
Study Complete	Scope of work to be performed has been completed; results and recommendations have been presented to the appropriate Business Owners and stakeholders.
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.
Functional Requirements	NYISO has completed documentation of the functional requirements and the Business Owner has approved.
Architectural Design	The architectural design document is complete and software development is ready to begin.
Projects with the following Milestones will generally be proposed as Continuing in future years, subject to Stakeholder input	
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.

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Project Prioritization Process

Phase	Description
Stakeholder Project Identification	Stakeholders may present project ideas at stakeholder meetings, sector meetings, get feedback and refine their proposal during this phase before the NYISO provides a comprehensive list of candidate projects for consideration.
Identification	The NYISO develops a Markets and Enterprise project candidate lists from regulatory obligations, strategic initiatives, State of the Market recommendations, infrastructure enhancements, product plans and stakeholder proposals. These are presented and further refined with stakeholder input during this phase.
Prioritization	This phase involves a stakeholder survey and the NYISO prioritization of projects. The stakeholder survey will facilitate an assessment of the relative priority of the topic within the portfolio and is used to determine stakeholder appeal. The NYISO prioritization incorporates the stakeholder appeal into objective criteria that reflects strategic alignment, expected outcomes, risks, and ability to execute in development of a priority score for each Market project.
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.

Project Type

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, or Deployment. 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 into 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

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Project Category

Project Category	Description
Enterprise	Includes internal-facing technology and back office support projects that have no market rule changes. This list includes projects that may be noticeable to Market Participants. These projects are NOT included in the stakeholder survey
Market	Projects associated with market rule(s) including market design and study projects as well as any project implementing market rule changes. These projects are included in the stakeholder survey unless they are Mandatory, Continuing, or Future

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Project Scoring

Project Scoring	Description
NYISO Only	Enterprise projects that are not Mandatory, Continuing, or Future types are scored by the NYISO Only during the Prioritization phase. These projects are included in the budget based on a feasibility assessment taking into consideration resources, time constraints, priority score and other project dependencies.
Stakeholder Scored	Market projects that are not Mandatory, Continuing, or Future are included in the stakeholder survey and 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.

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Appendix – Scoring

Project Prioritization Criteria

PRIORITIZATION CRITERIA						
Category	Criteria	Criteria Weight	HIGH 10	MEDIUM 7	LOW 3	NONE 0
Strategy (If we do this project)	Leader in Reliability	10	Significantly improves NYISO ability to maintain NYCA Reliability	Moderately improves NYISO ability to maintain NYCA Reliability	Minimally improves NYISO ability to maintain NYCA Reliability	None
	Leader in Market Design	10	Significantly improves NYISO Market Design	Moderately improves NYISO Market Design	Minimally improves NYISO Market Design	None
	Leader in Technology Innovation	6	Significantly advances the IT strategy or technology improvement	Moderately advances the IT strategy or technology improvement	Minimally advances the IT strategy or technology improvement	None
	Sustain and Enhance Robust Planning Processes	9	Supports tariff, FERC, NPCC, or NYSERC compliance requirements for Planning Process	Supports reliability planning and/or Business Plan objectives	Required for SRP planning study efficiency or continuous improvement initiatives	None
Outcome (If we do this project)	NYISO Annual Cost Reduction	10	>$500k savings-Direct and soft (labor)	>$100k, <$500k savings-Direct and soft (labor)	>$10k,<$100k savings - Direct and soft (labor)	<$10k savings - Direct and soft (labor)
	Appeal	15	Broad Customer Support : Supported by 5 sectors with 25% or more of survey respondents per sector applying points and average across the survey respondents per sector of 5 points or more; or either raw or weighted scores equivalent to 20% of survey respondents applying 25 points or more	Moderate Customer Support: Supported by 4 sectors with 25% or more of survey respondents per sector applying points and average across the survey respondents per sector of 5 points or more; ; or either raw or weighted scores equivalent to 10% of survey respondents applying 25 points or more	Minimal Customer Support: Supported by 2 sectors with 25% or more of survey respondents per sector applying points and average across the survey respondents per sector of 5 points or more; : or either raw or weighted scores equivalent to 5% of survey respondents applying 25 points or more	Little to No Customer Support
	Market Efficiency	10	Significant improvement	Moderate improvement	Minimal improvement	No impact
	Post Production Sustainability	5	Existing support structure and skills	Support structure exists but needs minimal modifications	Support structure exists but needs major modifications	No skills or support structure in place
Risk (If we do NOT do this project)	Compliance	10	Significant risk of compliance violation	Moderate risk of compliance violation	Minimal risk of compliance violation	None
	Business Process (inclusive of technology impact on business process)	5	Enterprise Wide and/or Bid to Bill Impact. The project impacts processes in most departments	Multiple Department Impact.	Department Wide Impact The project impacts many processes within a department	Only one or two processes impacted
	Reliability and Market	10	Mission-critical systems becoming non operational or above $1 million market impact	Non mission-critical systems becoming non operational or $100,000 - $1 million market impact	Non mission-critical systems affected or $10,000 - $100,000 market impact	No or less than 10,000 impact
Execution (If we do this project)	Cost	4	Total project cost (current & future years) estimated <$100k	Total project cost (current & future years) estimated >$100k, <$500k	Total project cost (current & future years) estimated >$500, <$1M	Total project cost (current & future years) estimated >$1M
	Multi-Year Dependency	8	Continuation of a multi-year project - postponement significantly disrupts value of previous investments	Continuation of a multi-year project - postponement moderately disrupts value of previous investments	Continuation of a multi-year project - postponement minimally disrupts value of previous investments	None
	Complexity of Business and Technology	4	One area/technology	Cross-functional < 3 Areas/Technology	Highly Cross-functional/ Re-engineering	Complex, solution and impact unknown
	Compliance	8	Non-appealable, ordered by FERC / desired by NYISO and MP	Ordered by FERC, undesired by NYISO or MP	Potential order identified by FERC	No order identified by FERC

Circles indicate areas the NYISO is considered changing

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High-Level Proposal

- Revise Strategy category to incorporate all 6 strategic objectives from the NYISO's Strategic Plan to reflect how well a project supports NYISO strategy
- Replace Risk category that addresses the risk of not doing a project with an Operational or Market Issue category that addresses whether the project is needed to address an existing operational or market issue
- Revise Execution category to Cost and Complexity category
- Eliminate Outcome category
  - Market Efficiency is now identified in a strategic objective
  - Post Production Sustainability will be captured in Cost and Complexity

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