2019 Master Plan: Initial Draft & Discussion

Ryan Patterson
Capacity Market Design Associate

ICAPWG/MIWG

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Agenda

- Background
- Strategic Themes
- Project Template Updates
- Project Overviews
- Next Steps

Background

Background

- **In 2018, the NYISO created the first "Master Plan" at the request of stakeholders**
  - The goal was to create a single document that provided one cohesive, strategic multi-year vision for future market design enhancements
  - The document ended up serving multiple purposes including providing valuable information for the NYISO's project prioritization and strategic planning processes

Background

- **During the development of the 2018 Master Plan and 2019 Project Prioritization, stakeholders had several suggestions for improving the Master Plan:**
  - Update the Master Plan more frequently
  - Provide some form of cost-benefit comparison for each of the initiatives listed in the Master Plan
  - Improve the timeline for the development of the Master Plan to avoid circumventing the project prioritization process

Background

- **In response to these stakeholder recommendations:**
  - The NYISO has committed to updating the plan annually
  - The Master Plan template has been updated to better compare the level of effort required to obtain the expected benefits for each initiative
  - The template has also been updated to better improve the understanding of the problem that each initiative aims to address
- **We will be discussing the Master Plan process and timeline going forward**

Strategic Themes

Strategic Themes

- **With the Master Plan, the NYISO aims to achieve three concurrent goals:**
  - Establish a clear framework for achieving the NYISO's vision of the future wholesale markets
  - Align the objectives for the next five years with the most recent Strategic Plan (2019-2023)
  - Support annual stakeholder-driven project prioritization efforts.

Establishing a Clear Framework

- **The NYISO is currently engaged in an ongoing review of the NYISO's existing market products to ensure the continued ability to efficiently and reliably serve New York's electricity requirements**
  - Many of the projects included on this Master Plan are large efforts that seek to holistically examine whether the current constructs are effective in a future with significantly more renewable, storage, distributed, and demand-side resources
  - This includes several studies that may produce recommendations for additional market design or operational projects
  - Other projects will focus on tailoring discrete products to represent the challenges and opportunities of a changing grid

Align with the Strategic Plan

- **Each project is grouped into one of three initiatives discussed in the Strategic Plan:**
  - Grid Reliability and Resilience
    - Projects that serve to maintain reliability and efficient operation of the grid under normal, stressed, and extreme conditions
  - Efficient Markets for Grid in Transition
    - Examining current and future products for how they support price formation, flexibility and resilience in a future with high renewables, storage, DER, and changing load shapes
  - New Resource Integration
    - Developing the participation models for new resource types, such as storage, DER, and aggregations

Support Project Prioritization

- **The Master Plan seeks to provide input into the multi-year plan for market changes**
  - It is not meant to replace or circumvent the annual project prioritization effort
  - The goal of the Master Plan is to provide a list of the projects that NYISO deems important over the next several years, at the snapshot in time when the Master Plan is released
  - The Master Plan does not include every project the NYISO may undertake, rather it presents what the NYISO deems are the strategic projects that will help to maintain alignment between markets and the changing grid
  - It does not represent a commitment beyond the current year's project prioritization effort

Project Template Updates

Project Template Updates

- **At the presentation to the BPWG on March 5th, stakeholders provided feedback on the project description templates in last year's Master Plan, summarized below:**
- **Better project descriptions:**
  - Make it easier to understand the issue or problem that generated the need for an initiative
    - How did we get here and what issue/problem are we trying to solve?
  - Describe in better detail the expected benefits provided by each project as compared to the expected level of effort to achieve those benefits
    - How do I know that this project is the best bang for the buck?

Project Template Updates

- **More understanding of the anticipated project length:**
  - Provide more insight into the anticipated length for each aspect of a project
    - When we say three years, what is really in those three years? Is the design phase longer than implementation?
  - To the extent that certain initiatives depend on other projects, call out dependencies
    - Dependencies are called out in the text, if necessary
- **Better coordination with Project Prioritization without circumventing the established process:**
  - Timelines are excluded in the early drafts while prioritization is still developing
  - Project prioritization will inform the timelines in later drafts

Project Benefits

- **The NYISO will score each project for its anticipated benefits as either High, Medium or Low**
  - Based on feedback provided at the March 5th BPWG, we are no longer planning to evaluate projects based on the proposed initiatives of Market Transparency, Market Efficiency, and Market Support of Reliable Grid Ops
- **We propose to analyze each project based on its potential to support the Strategic Initiative in which it is grouped**
  - Grid Reliability & Resilience, Efficient Markets for a Grid in Transition, and New Resource Integration
  - High benefit reflects a broad effort with the potential to impact a wide-range of price outcomes
  - A Medium benefit is typically a more focused enhancement to a specific product
  - There are no projects with a Low benefit included on the Master Plan

Project Effort

- **Along with the anticipated benefits, each project will receive a separate score of High, Medium or Low to reflect the expected level of effort to achieve the anticipated benefits**
  - High effort projects typically take approximately 4 or more years from study, design through implementation
  - Medium effort projects are projected to be completed in approximately two to three years
  - Low effort projects are typically already underway, with an estimated completion of one to two years
- **Projected length of time is an important consideration, but not the only factor that determines score**
  - For example, the *Demand Curve Reset* is a two year project with a High level of effort due to the complexity and resource-intensive nature of the project for both the NYISO and stakeholders
- **The NYISO will include a discussion of expected level of effort within each project description to better communicate the effort level for each aspects of the project (e.g. design vs. implementation)**

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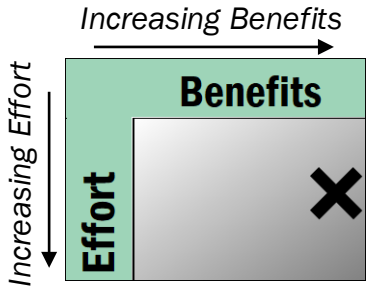
Benefits – Effort Matrix

- The NYISO will include a matrix to depict the interaction of benefits and effort for each project



This project has High Benefits and a Medium Effort

Current Project Template

Project Name

One sentence, high-level project description

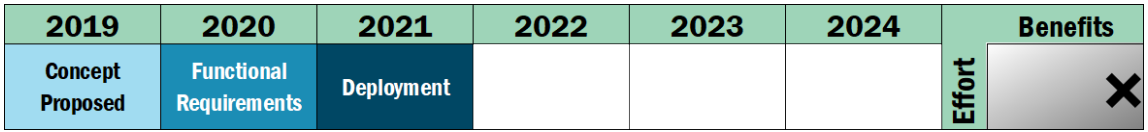
Problem Statement

Discussion of the problem. What are we trying to solve?

Background

History, past work, and motivation. Why is this an important project?

Project Scope



Captures the project plan, expected benefits, anticipated level of effort, deliverables. How do we plan to solve this problem?

- NYISO will develop final timelines after project prioritization to better incorporate that feedback into the Master Plan

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Project Overviews

Project Groupings

- **Each project is grouped into one of three initiatives discussed in the Strategic Plan:**
  - Grid Reliability and Resilience
    - Projects that serve to maintain reliability and efficient operation of the grid under normal, stressed, and extreme conditions
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Grid Reliability and Resilience

Reliability and Market Considerations for a Grid in Transition		Benefits	Effort
Further Discussions on Concepts Proposed in Grid in Transition Report Development of Potential Projects Resulting from Concepts Proposed	The goals of this study are to identify what market changes might be prudent in order to support reliability, efficient markets, and investment given the expected future resource mix. The NYISO is expecting this study to complete during 2019, at which point discussions will begin with stakeholders and MPs about the concepts proposed in the report. It is likely that projects, which may be included in the Master Plan, will develop as a result of this report and subsequent discussions; however, it is difficult to anticipate what those projects, and respective milestones, would be at this time.	N/A	N/A
Enhancing Grid Resilience		**Benefits**	**Effort**
Enhancing Fuel and Energy Security	This project seeks to enhance NYISO markets to provide for NY's anticipated generating fuel needs, which will support grid reliability.	N/A	N/A
Reserves for Resource Flexibility	This project seeks to incentivize flexible resources to provide additional system up-ramp capability, which will improve grid reliability and flexibility.	High	Low
Large-Scale Solar On Dispatch	This project seeks to place front-of-the-meter solar resources on dispatch in the NYISO's energy markets, so that they can provide downward ramping capability when necessary and improve operational flexibility.	High	Low

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Efficient Markets for a Grid in Transition

Carbon Pricing		**Benefits**	**Effort**
Carbon Pricing	The NYISO's Carbon Pricing proposal seeks to harmonize New York State (NYS) public policy and the NYISO's wholesale markets by incorporating the social cost of carbon dioxide ("carbon") emissions when scheduling resources through the energy markets.	High	High
Evolution of Ancillary Services		**Benefits**	**Effort**
Ancillary Services Shortage Pricing (SOM)	The purpose of this project is to evaluate the NYISO's Ancillary Services shortage pricing values, considering the implications of the grid of the future and the payment incentives in neighboring ISOs, including pay-for-performance capacity market designs.	High	Low
Dynamic Reserve Requirements (SOM)	This project seeks to dynamically procure operating reserves based on system needs and transmission capabilities.	High	High
More Granular Operating Reserves		**Benefits**	**Effort**
Zone J Reserve Requirement	This project seeks to establish an operating reserve region in Load Zone J (NYC).	High	Low
Load Pocket Reserve Requirements	This project seeks to improve price signals for reserve procurement in constrained load pockets of New York City (NYC).	High	Medium
Enhancing Locational Price Formation		**Benefits**	**Effort**
Constraint Specific Transmission Shortage Pricing (SOM)	This project seeks to improve resource scheduling efficiency and investment signals by enhancing the way that constraints on the transmission system are priced in the NYISO's energy markets.	High	Medium
Enhanced Fast Start Pricing	This project seeks to revise pricing logic for resources that can start up in 30 minutes or less, to improve price formation and incentivize new investment.	Medium	Medium

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Efficient Markets for a Grid in Transition

Reliability Value of Resources		Benefits	Effort
Demand Curve Reset	The demand curve reset (DCR) is a quadrennial study required by the NYISO Services Tariff of the various parameters used to set the Installed Capacity (ICAP) Demand Curves that seeks to align the capacity market with the expected costs of adding new capacity in New York State.	High	High
Expanding Capacity Eligibility/Capacity Values	Every four years, the NYISO will select a consultant to reassess the reliability benefit of short duration resources in the NYISO markets and provide the right investment signals to developers.	High	High
Tailored Availability Metric	This project looks to incentivize capacity resources to be available and perform during peak hours of operation.	Medium	Medium
Capacity Market Fundamentals		**Benefits**	**Effort**
Improving Capacity Price Formation	The Improving Capacity Price Formation project aims to examine the effects of using different slopes and shapes for the ICAP Demand Curves.	High	Medium
Capacity Zone Evaluation	The Capacity Zone Evaluation project will review the existing rules that govern how, when and why Capacity Zones are established, changed or eliminated, and evaluate if additional rules or modifications to the existing rules are needed.	High	High
Comprehensive Mitigation Review	While there have been many incremental changes to align mitigation measures with changes in the market, there has not been a holistic evaluation of the Buyer-side Market Power Mitigation ("BSM") rules and methodology to evaluate whether the current framework will be adequate in a future with significant renewable resources and ambitious policy objectives.	N/A	Medium

New Resource Integration

New Resource Participation Models		Benefits	Effort
Energy Storage Resource Participation Model (SOM)	This project aims to deploy a participation model for Energy Storage resources with a minimum size of 100kW to effectively participate in the NYISO's energy, capacity and ancillary services markets.	High	Medium
Hybrid Storage Model	This project seeks to develop market participation rules for front-of-the-meter generators collocated with energy storage resources.	Medium-High	High
DER Integration		**Benefits**	**Effort**
DER Participation Model	This effort will position the NYISO for future trends in electric grid advancements and allow for aggregations, including DER to participate in the wholesale electricity markets as well as more closely align those resources with limited duration capability to their respective Capacity payments.	High	Medium
NYISO Pilot Framework	This effort would allow NYISO staff to engage and learn about nascent technologies and their applications on the electric power system which would allow staff to prepare for future market design changes.	Medium	Medium
Meter Service Entity for DER	This project seeks to create a third party metering construct providing additional flexibility, optionality, and a modern approach to data services currently unavailable to Market Participants.	Medium	Medium
Dual Participation	The NYISO's proposed DER market design will allow resources that provide Wholesale Market services to also provide services to entities outside of the NYISO wholesale markets (e.g., the utility or a host facility).	High	Medium

Next Steps

Next Steps

- **We will take the feedback obtained today and make changes to the draft for May**
  - Please submit additional questions or feedback to rpatterson@nyiso.com
- **Discussions will take place at ICAPWG/MIWG when drafts of the Master Plan are released**
  - ~~March 2019 – Meet with each governance sector to get initial feedback~~
  - ~~April 23, 2019 – Release and discuss the initial draft of the Master Plan~~
  - May 22, 2019 – Release and discuss updated draft
  - August 27, 2019 – Release and discuss final draft of the Master Plan
  - December 2019 – Release final Master Plan in conjunction with the 2020 Business Plan

Feedback/Questions?

email: rpatterson@nyiso.com

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers 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

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