

# 2020 Market Projects

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Capacity, DER, and Energy Market Design Teams

**ICAPWG/MIWG/PRLWG**

December 19, 2019

# The Team

- **The Market Design Team (led by Mike DeSocio) is composed of 3 focused teams**
- **Capacity Market Design (led by Zach T. Smith)**
  - Amanda Myott
  - Emily Conway
  - Sarah Carkner
  - Ryan Patterson
- **Distributed Resources Integration (led by James Pigeon)**
  - Michael Ferrari
  - Harris Eisenhardt
  - Francesco Biancardi
- **Energy Market Design**
  - Ethan Avallone
  - Pallavi Jain
  - Ashley Ferrer
  - Kanchan Upadhyay
  - Nicole Bouchez

# Purpose

- Our objective is to share the 2020 Capacity, DER, and Energy Market Design projects including anticipated schedule and deliverables with stakeholders
- The following slides include the project description, schedule and deliverables of each project that was prioritized for 2020

# Expediting Market Changes

- **The New York electric system and wholesale markets are facing a tremendous amount of change driving more urgency to make market changes faster**
  - In 2020, there are 21 approved projects
  - Many of these will require significant stakeholder engagement while we try to expedite market structure changes
- **With this amount of change being considered, the NYISO will be relying on strong stakeholder engagement and looking for opportunities to ensure significant progress continues to be made**
  - This may require compressed review cycles of market design proposals and considering advancing some elements of a proposal more quickly
  - Compressed review cycles may lead to an increase in the frequency of some meetings, instances of tighter turnaround for material postings, and prioritization of the type of analysis performed.
  - The NYISO is interested in stakeholder feedback on other ways market design proposal discussions could be made more efficient and brought to conclusion more expeditiously

# Capacity Market Design

# Capacity Market Project Overview

2020 Capacity Market Design Projects	Q1	Q2	Q3	Q4	2020 Deliverable
BSM Renewables Exemption Study			CD	SC	Q4 Study Complete
Enhanced BSM Mitigation Study Period	CD	CD	MDC		Q3 Market Design Complete
Enhancing Fuel and Energy Security	CD	CD	CD	CP	Q4 Concept Proposed
Comprehensive Mitigation Review	CD	CD	CD	MDC	Q4 Market Design Complete
Expanding Capacity Eligibility	CD	CD	CD	DC	Q4 Development Complete
Demand Curve Reset	CD	CD	CD	SC	Q4 Study Complete
Locational Marginal Pricing of Capacity	CD	CD	ID		Q3 Issue Discovery
Tailored Availability Metric	CD	MDC			Q2 Market Design Complete

Key			
CD	Continued Discussions Issue Discovery Study Defined Study Complete Market Design Concept Proposed	MDC	Market Design Complete Functional Requirements Software Design Specification Development Complete Deployment
ID		FR	
SD		SD	
SC		DC	
CP		DEP	

# BSM Renewables Exemption Study

Amanda Myott, Market Design Specialist

# BSM Renewables Exemption Study

- **Background:**

- As part of the NYISO's proposed compliance revisions to its Services Tariff to implement a "Renewables Exemption" under the BSM Rules, the NYISO proposed that it would periodically review and determine which renewable technologies should be an "Exempt Renewable Technology", and do so during every ICAP Demand Curve Reset Filing Year



# BSM Renewables Exemption Study

- **Deliverable: Q4 2020 – Study Complete**
- **Project Description:**
  - The study will identify renewable technologies that have been shown to have high development costs and low capacity factors, and thus limited or no incentive or ability to suppress capacity prices
  - The NYISO will consider the cost of new entry and costs to operate, all potential market revenues, and potential cost savings to Loads due to capacity market price reductions resulting from new entry of each renewable technology evaluated

# BSM Renewables Exemption Study

## ■ Stakeholder Engagement Plan:

- Q3 2020
  - Discussion with stakeholders
- Q4 2020
  - Study completed and prepared for filing with FERC
  - If the study determines that changes to the Tariff definition of “Exempt Renewable Technology” are needed, the NYISO would propose them in the filing for the 2021 ICAP Demand Curves
  - Stakeholder presentation to present the findings of the study

# Enhanced BSM Mitigation Study Period

Amanda Myott, Market Design Specialist

# Enhanced BSM Mitigation Study Period

- **Background:**

- The Services Tariff currently states that all Examined Facilities in a Class Year will be assumed to enter the market beginning with the Summer Capability Period three years after the start of the Class Year, with the three-year period beginning three years after the start of the Class Year referred to as the Mitigation Study Period
- This assumption can overestimate or underestimate project timelines

# Enhanced BSM Mitigation Study Period

- **Deliverable: Q3 2020 – Market Design Complete**
- **Project Description:**
  - The NYISO will examine what, if any enhancements can be made to the existing timelines assumptions to more appropriately evaluate projects, with the objective of improving the accuracy of BSM determinations

# Enhanced BSM Mitigation Study Period

## ■ Stakeholder Engagement Plan:

- Q1-Q2 2020
  - Discussions with stakeholders regarding the NYISO's review of current BSM study period assumptions and possible enhancements
- Q3 2020
  - Market design complete presentation to stakeholders

# Enhancing Fuel and Energy Security

Amanda Myott, Market Design Specialist

# Enhancing Fuel and Energy Security

## ■ Background:

- In 2019, the NYISO engaged the Analysis Group to perform an evaluation of Fuel and Energy Security in New York
- The Analysis Group study report and NYISO management response were both completed in November 2019<sup>1</sup>

1 Link to Final AG Fuel and Energy Security Study:

<https://www.nyiso.com/documents/20142/9312827/Analysis%20Group%20Fuel%20Security%20Final%20Report%2020191111%20Text.pdf/cbecabaf-806b-d554-ad32-12cfd5a86d9e>

Link to Fuel and Energy Security Study Management Response:

<https://www.nyiso.com/documents/20142/9312827/NYISO%20Management%20Response%20to%20Analysis%20Group%20Fuel%20and%20Energy%20Security%20Study.pdf/56513957-ba43-0555-c475-30fe4a4c079a>



# Enhancing Fuel and Energy Security

- **Deliverable: Q4 2020 – Market Design Concept Proposed**
- **Project Description:**
  - In response to the results of the study, the NYISO will explore a number of enhancements to ensure ongoing monitoring of items related to fuel and energy security in New York

# Enhancing Fuel and Energy Security

- **Stakeholder Engagement Plan:**

- Q1-Q3 2020
  - Discussions with stakeholders regarding the NYISO's proposal for continued and enhanced monitoring
- Q4 2020
  - Presentation to stakeholders describing enhancements

# Comprehensive Mitigation Review

Sarah Carkner, Associate Market Design Specialist



# Comprehensive Mitigation Review

## ■ Background:

- In consideration of the recently signed Climate Leadership and Community Protection Act (CLCPA), the NYISO is reevaluating Buyer's Side Mitigation (BSM) rules to ensure that they promote competitive markets, support minimizing consumer cost, and harmonize with state energy policy targets that are now New York State law

# Comprehensive Mitigation Review

- **Deliverable: Q4 2020 – Market Design Complete**
- **Project Description:**
  - Modify NYISO market structures in a balanced manner that preserves competitive price signals and economically efficient market outcomes required to maintain system reliability and supports the CLCPA goals

# Comprehensive Mitigation Review

## ■ Stakeholder Engagement Plan:

- It is reasonable to expect that the design could be multifaceted, where some elements of the design are advanced faster than others
- Q1-Q4 2020
  - Discussions with stakeholders to solicit input and discuss the NYISO proposal(s)
  - Market Design Complete presentation(s) to stakeholders

# Expanding Capacity Eligibility

Sarah Carkner, Associate Market Design Specialist

# Expanding Capacity Eligibility

## ■ Background:

- Throughout 2018 & 2019 the NYISO worked through concepts, proposals and Tariff edits to enhance its market rules for DER participation in NYISO's Energy, Ancillary Services, and Installed Capacity markets
- This project, which was part of the DER Market Design, will allow resources with short run-time durations that currently cannot participate in the Installed Capacity market to be eligible to participate in the Installed Capacity market



# Expanding Capacity Eligibility

- **Deliverable: Q4 Development Complete**
- **Project Description:**
  - This project proposes rules to allow resources that have a daily run-time limitation to be eligible to participate in the Installed Capacity market
    - Resources that do not have a daily run-time limitation will continue to participate in the Installed Capacity market consistent with existing rules
  - Resources will be valued in the Installed Capacity market based on the reliability benefit that they provide to the system

# Expanding Capacity Eligibility

- Stakeholder Engagement Plan:
  - 2020/2021
    - Updates to Manuals, Guides, Training Material

# Demand Curve Reset

Ryan Patterson, Associate Market Design Specialist

# Demand Curve Reset

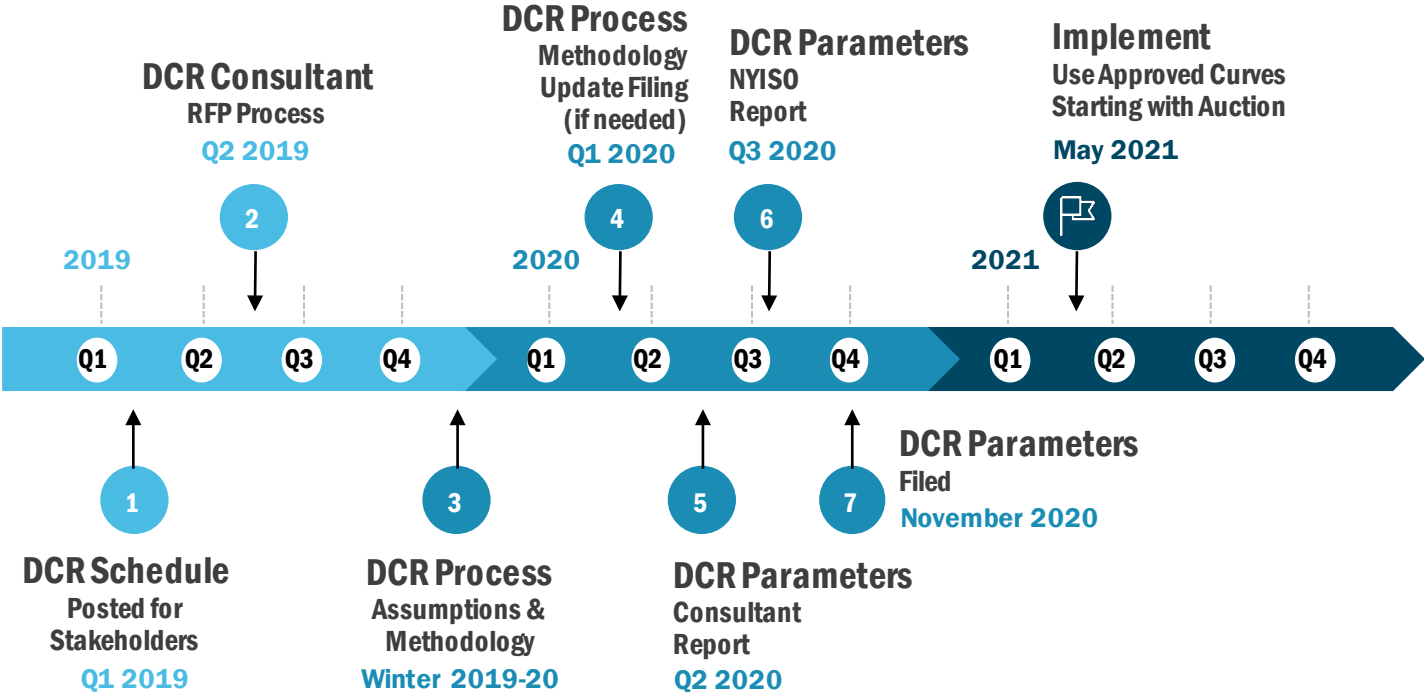
## ■ Background:

- The ICAP Demand Curve reset (DCR) is conducted on a regular, periodic basis (currently every 4 years, prior to 2014 it was every 3 years)
  - Resetting the Installed Capacity Demand Curves is a process that takes approximately 18 months
- The values for the DCR are developed by an independent consultant, discussed with stakeholders, and considered by NYISO staff and the NYISO Board of Directors (Board) prior to results being filed with FERC at the end of the process

# Demand Curve Reset

- **Deliverable: Q4 2020 – Study Complete**
- **Project Description:**
  - This project is ongoing from 2019 and will continue into 2021
  - This periodic review of the ICAP Demand Curves is done to analyze whether the capacity market continues to efficiently support reliability and send accurate, transparent price signals
    - The parameters, assumptions and methodology established through this process will be applicable to years 2021-2025

# Demand Curve Reset



# Demand Curve Reset

## ■ Stakeholder Engagement Plan:

- A schedule of the DCR process is posted to the Installed Capacity Market page
  - It can be found under Reference Documents -> 2021-2025 Demand Curve Reset
- Q4 2020
  - Market Services Tariff Section 5.14 requires the NYISO to file with FERC the results of the DCR, as approved by the Board no later than November 30, 2020

# Locational Marginal Pricing of Capacity

Ryan Patterson, Associate Market Design Specialist



# Locational Marginal Pricing of Capacity

- **Background:**

- The current framework for determining capacity prices involves estimating Net CONE and creating a demand curve for each existing Locality
- This project seeks to explore an opportunity to better align capacity market clearing prices with the marginal reliability value of capacity in each Locality

# Locational Marginal Pricing of Capacity

- **Deliverable: Q3 2020 – Issue Discovery**
- **Project Description:**
  - This project consists of exploring an entirely new framework for the capacity market and has the potential to fundamentally redesign how capacity resources are valued and how auctions are structured
  - The NYISO will facilitate educational sessions to develop knowledge of the issue, discuss different design paths, and solicit potential frameworks

# Locational Marginal Pricing of Capacity

- **Stakeholder Engagement Plan:**
  - Q1-Q3 2020
    - Discussions led by Potomac Economics and the NYISO will facilitate education sessions to develop issue knowledge and solicit potential feedback

# Tailored Availability Metric

Emily Conway, Associate Market Design Specialist

# Tailored Availability Metric

- **Background:**

- The Tailored Availability Metric is a part of the ongoing Performance Assurance effort, which was prompted by a 2017 Analysis Group report that identified areas where the NYISO could improve its market design in order to incentivize performance and reliability of all capacity suppliers

# Tailored Availability Metric

- **Deliverable: Q2 2020 – Market Design Complete**
- **Project Description:**
  - This initiative will focus on exploring modifications to the derating factor calculation to improve the measurement of the availability of a resource relative to peak load periods
    - For availability-based resources, the NYISO proposed the weightings of peak months in the Market Design Concept Proposal
    - For wind and solar resources, the NYISO proposed a reoccurring study that will result in relative capacity value weightings across the Peak Load Window hours
  - A tailored calculation should incentivize resources and enhance reliability during critical operating periods

Link to proposal for availability-based resources on July 24<sup>th</sup>:

<https://www.nyiso.com/documents/20142/7674442/Tailored%20Availability%20Metric.pdf/e28df5c2-6994-ba5c-7ca2-05abeba9daeb>

Link to proposal for performance-based resources on November 21<sup>st</sup>:

<https://www.nyiso.com/documents/20142/9312827/Tailored%20Availability%20Metric.pdf/c4271e59-b0e0-7c0a-c2f9-15cc91bbb2ef>

# Tailored Availability Metric

- **Stakeholder Engagement Plan:**
  - Q1 2020
    - Continue discussion and analysis based off of the Market Design Concept Proposal
  - Q2 2020
    - Market Design Complete for 2021 Implementation

# DER Market Design



# DER Project Overview

2020 DER Market Design Projects	Q1	Q2	Q3	Q4	2020 Deliverable
DER Participation Model	CD	CD	SD	CD	Q3 Software Design Specification
Dual Participation	CD	DEP			Q2 Deployment
NYISO Pilot Framework	CD	CD	CD	SC	Q4 Study Complete

Key			
CD	Continued Discussions Issue Discovery Study Defined Study Complete Market Design Concept Proposed	MDC	Market Design Complete
ID		FR	Functional Requirements
SD		SD	Software Design Specification
SC		DC	Development Complete
CP		DEP	Deployment

# DER Participation Model

Michael Ferrari, Associate Market Design Specialist  
Harris Eisenhardt, Associate Market Design Specialist  
Francesco Biancardi, Associate Market Design Specialist

# DER Participation Model

## ■ Background:

- Throughout 2018 & 2019 the NYISO worked through concepts, proposals and Tariff edits for the DER Market Design Concept Proposal to enhance its market rules for DER participation in NYISO's Energy, Ancillary Services, and Installed Capacity markets
- The market rule modifications made as part of this project will reduce wholesale market barriers to entry and help advance New York State policy initiatives

# DER Participation Model

- **Deliverable: Q3 Software Design Specification**
- **Project Description:**
  - Technological advancements and public policy support are encouraging greater adoption of DER to meet consumer energy needs as well as system needs. DER offer the potential to make load more dynamic and responsive to wholesale market price signals, potentially improving overall system efficiencies.
  - 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.

# DER Participation Model

- **Stakeholder Engagement Plan:**
  - 2020/2021
    - Updates to Manuals, Guides, Training Material
    - Identification of an initial set of Transmission Nodes
    - Identification of vendors for Software-Defined Wide Area Network telemetry solution
  - The NYISO will continue to work with utilities to support operational coordination and framework for DSP development, which is an ongoing effort in enabling DER and Aggregators.

# Dual Participation

Harris Eisenhardt, Associate Market Design Specialist

# Dual Participation

## ■ Background:

- Current NYISO wholesale market rules do not permit injection type resources to provide both wholesale and retail services.
- The NYISO believes that providing resources with the flexibility to meet wholesale and distribution system needs will benefit New York electricity consumers.

# Dual Participation

- **Deliverable: Q2 2020 Deployment**
- **Project Description:**
  - The rules proposed in the market design allow for the flexibility of all resources in the NYISO markets to also offer services in the retail markets. Dual participating resources will be required to comply with all NYISO market rules for services offered to the wholesale market, and non-compliance may result in financial penalty. It will be required that resources appropriately reflect any non-wholesale (e.g., retail) obligations when bidding into wholesale markets. Dual participating resources will need to submit offers to the NYISO to reflect non-wholesale dispatch, and will be required to follow all NYISO dispatch instructions.



# Dual Participation

## ■ Stakeholder Engagement Plan:

- Q1 2020:
  - Development Complete, Updates to Manuals, Guides, and Training Materials
- Q2 2020
  - Deployment upon FERC acceptance of proposed tariff edits.
- The NYISO will continue to work with utilities to support operational coordination and framework for DSP development, which is an ongoing effort in enabling Dual Participation for all resources including DER and Aggregators.

# NYISO Pilot Framework

Michael Ferrari, Associate Market Design Specialist



# NYISO Pilot Framework

## ■ Background:

- In 2017, the DER Roadmap initiated an effort to develop a framework to enable pilot projects to be tested to help the NYISO gain an understanding of how the integration of new technologies will affect NYISO systems
- The NYISO selected three proposals from a Final Review Process and include aggregations comprised of the following:
  - High-rise buildings capable of curtailing load
  - In-front-of-the-meter battery energy storage facilities
  - In-front-of-the-meter battery energy storage facilities co-located with solar
- The Pilot Program is administered through a test environment, not in the NYISO's production (i.e. "live") market and operations systems
- Participation in the Pilot Program is voluntary and provides no compensation for any energy supplied to the grid in response to a pilot dispatch

# NYISO Pilot Framework

- **Deliverable: Q4 2020 Study Complete**
- **Project Description:**
  - This project will use the Pilot Test Environment and framework that will allow developers of new or emergent technologies and the NYISO to gain knowledge about the technology's capabilities and uses as well as supporting REV demonstration efforts.
  - This will ultimately inform the NYISO of possible changes to market rules to appropriately incorporate new technology capabilities and meet grid needs.

# NYISO Pilot Framework

- **Stakeholder Engagement Plan:**
  - Q2 2020
    - Preliminary Pilot Results/Status Update
  - Q4 2020
    - Study Complete

# Energy Market Design

# Energy Market Project Overview

2020 Energy Market Design Projects	Q1	Q2	Q3	Q4	2020 Deliverable
Ancillary Services Shortage Pricing	CD	MDC			Q2 Market Design Complete
Enhanced Fast Start Pricing				DEP	Q4 Deployment
ESR Participation Model	CD	CD	CD	DEP	Q4 Deployment
Reserves for Resource Flexibility	CD	MDC			Q2 Market Design Complete
Carbon Pricing	CD	FR			Q2 FRS
Mitigation Thresholds Review	CD	CD	CD	CP	Q4 Concept Proposed
Hybrid Storage Model	CD	CD	MDC		Q3 Market Design Complete
5-Minute Transaction Scheduling	CD	SC			Q2 Study Complete
Relocating the IESO Proxy Bus	CD	DEP			Q2 Deployment
Grid in Transition Discussion	CD	CD	CD	ID	Q4 Issue Discovery

Key			
CD	Continued Discussions Issue Discovery Study Defined Study Complete Market Design Concept Proposed	MDC	Market Design Complete
ID		FR	Functional Requirements
SD		SD	Software Design Specification
SC		DC	Development Complete
CP		DEP	Deployment

# Ancillary Services Shortage Pricing

Pallavi Jain, Market Design Specialist



# Ancillary Services Shortage Pricing

## ■ Project Background:

- State energy and environmental policies are expected to encourage significant increases in intermittent generation. As intermittent penetration increases, the provision of ancillary services such as regulation and reserve will become increasingly important. The ongoing transition of the resource fleet presents an opportunity to incentivize increased flexibility and resilience in the NYCA as the grid evolves.
- The NYISO's market software makes tradeoffs between Energy and Ancillary Services products and transmission limitations based on pricing levels and other constraints.
  - Therefore, the relative value of Ancillary Service shortage prices will need to appropriately consider the interactions between Operating Reserves, Regulation Service, and transmission shortage cost pricing levels.
- This project was identified as beneficial by the Market Monitoring Unit, the 2018 NYISO Management Response to Analysis Group's Performance Assurance report, and the 2017 Integrating Public Policy Market Assessment report.
- The NYISO completed a study and published a study report in December 2019.<sup>1</sup>

1. For details please refer to the study report:

[https://www.nyiso.com/documents/20142/9622070/Ancillary%20Services%20Shortage%20Pricing\\_study%20report.pdf/15fb5f26-e1af-fa5a-ee29-3943ab483369](https://www.nyiso.com/documents/20142/9622070/Ancillary%20Services%20Shortage%20Pricing_study%20report.pdf/15fb5f26-e1af-fa5a-ee29-3943ab483369)



# Ancillary Services Shortage Pricing

- **Deliverable: Q2 2020 – Market Design Complete**
- **Project Description:**
  - This project will assess potential modifications to the NYISO's current Ancillary Services shortage pricing values and consider the interaction of the Operating Reserve, Regulation Service, and Transmission Shortage Cost pricing levels.
  - This project will address the changes to NYCA 30-minute reserve demand curve structure that applies during certain activations of Special Case Resources (SCRs) and Emergency Demand Response Program (EDRP) resources.
  - This project will also evaluate if changes are warranted to the New York City (Zone J) reserve demand curve pricing and applicable reserve requirements during Thunderstorm Alerts (TSAs).

# Ancillary Service Shortage Pricing

- **Stakeholder Engagement Plan:**

- Q1 2020
  - Discuss Market Design Concept Proposal (MDCP) with Market Participants
- Q2 2020
  - Continue stakeholder discussions
  - Conduct Consumer Impact Analysis
  - Present Market Design Complete and tariff language
  - Seek stakeholder approval of proposed enhancements at BIC and MC

# Enhanced Fast Start Pricing

Pallavi Jain, Market Design Specialist

# Enhanced Fast Start Pricing

## ■ Project Background:

- On December 20, 2017, FERC instituted a proceeding in Docket No. EL18-33, pursuant to FPA section 206 concerning fast start pricing in NYISO markets.
- The NYISO filed an Initial Brief<sup>1</sup> on February 12, 2018 outlining the NYISO's proposed approach to amend its tariffs and revise its market software to:
  1. Modify pricing logic to allow fast-start resources' commitment costs to be reflected in prices; and
  2. Allow the relaxation of all dispatchable fast-start resources' economic minimum operating limits by up to 100 percent for the purpose of setting price.
- FERC issued a final order on April 18, 2019<sup>2</sup> requiring the NYISO to submit its compliance filing by December and implement the project by December 2020
  - NYISO submitted (or will submit) its compliance filing in December 2019
  - NYISO plans to implement its design by December 2020

1. [https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1351/Attachments/20180212\\_NYISOInitialBrief\\_FastStart206.pdf](https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1351/Attachments/20180212_NYISOInitialBrief_FastStart206.pdf)

2. <https://www.ferc.gov/whats-new/comm-meet/2019/041819/E-2.pdf>

# Enhanced Fast Start Pricing

- **Deliverable: Q4 2020 - Deployment**
  - 2020 efforts include software development, testing, and implementation.
- **Stakeholder engagement plan:**
  - 2020
    - Updates to Manuals, Guides, Training Material

# Energy Storage Resource (ESR) Participation Model

Pallavi Jain, Market Design Specialist

# ESR Participation Model

## ■ Project Background:

- In early 2018, FERC issued Order No. 841 requiring to ISOs/RTOs to develop an ESR participation model to allow storage resources to participate in the wholesale markets.
- The NYISO has developed and submitted to FERC in compliance with Order No. 841 a market participation model for ESRs that recognizes their unique physical and operational characteristics to both inject and withdraw energy.



# ESR Participation Model

- **Deliverable: Q4 2020- Deployment**
- **Project Description:**
  - This project will implement the participation model for ESRs to provide increased resource flexibility and reliable market operations while preparing for a future where a significant number of generation assets are intermittent and weather-dependent.
  - This project is a continuation of the implementation project started in 2019.
- **Stakeholder Engagement Plan:**
  - 2020
    - Updates to Manuals, Guides, Training Materials.

# Reserves for Resource Flexibility

Ethan Avallone, Technical Specialist

# Reserves for Resource Flexibility

## ■ Project Background:

- The NYISO currently procures the minimum amount of operating reserves required to meet applicable reliability requirements.
- With this project, the NYISO proposes to examine the potential to increase the amount of reserves procured, thus incentivizing resource flexibility to support grid reliability and improve grid resilience.
- The NYISO presented a Market Design Concept Proposal in October 2019.<sup>1</sup>

1. Link to the Reserves for Resource Flexibility Market Design Concept Proposal:  
[https://www.nyiso.com/documents/20142/8922912/10\\_28\\_2019\\_Reserves\\_for\\_Resource\\_Flexibility\\_MDCP\\_FINAL.pdf/e8bedc39-867b-88d6-ef5a-fe92943d48ba](https://www.nyiso.com/documents/20142/8922912/10_28_2019_Reserves_for_Resource_Flexibility_MDCP_FINAL.pdf/e8bedc39-867b-88d6-ef5a-fe92943d48ba)

# Reserves for Resource Flexibility

- **Deliverable: Q2 2020 - Market Design Complete**
- **Project Description:**
  - This project seeks to investigate the procurement of additional reserves to support grid reliability and improve grid resilience.
  - The project efforts also include discussions on increasing the amount of 30-minute reserve procured within the SENY reserve region.

# Reserves for Resource Flexibility

## ■ Stakeholder Engagement Plan:

- Q1 2020
  - Continue market design discussions with stakeholders (including tariff revisions).
  - Discuss Consumer Impact Methodology with stakeholders.
- Q2 2020
  - Present Consumer Impact Analysis.
  - Discuss and finalize market design (included associated tariff revisions).
  - Seek stakeholder approval of proposed enhancements at BIC and MC.

# Carbon Pricing

Ethan Avallone, Technical Specialist

# Carbon Pricing

## ■ Project Background:

- New York State (NYS) public policy in recent years has been to promote carbon-free resources through the Clean Energy Standard.
- In 2016, stakeholders requested that the NYISO consider carbon pricing to better harmonize New York State public policy and the NYISO wholesale markets.
  - Harmonizing state policies and wholesale market design will provide consumers with more efficient ways to achieve public policy goals at the lowest possible cost.
- In 2019, the NYISO and its stakeholders finalized the market design, including draft tariff language.

# Carbon Pricing

- **Deliverable: Q2 2020 – Functional Requirement Specifications (FRS) Complete**
- **Project Description:**
  - The NYISO will develop an FRS to document system changes needed to implement carbon pricing in the NYISO markets.



# Carbon Pricing

## ■ Stakeholder Engagement Plan:

- Q1-Q4 2020
  - If support for carbon pricing is received from New York State, the NYISO will seek a stakeholder vote on carbon pricing at BIC and MC.
  - If approved by stakeholders and Board of Directors, the NYISO will file the proposal with FERC.

# Mitigation Thresholds Review

Ethan Avallone, Technical Specialist

# Mitigation Thresholds Review

## ■ Project Background:

- This project intends to perform a comprehensive review of mitigation thresholds, including solicitation of feedback from stakeholders.
  - This project will review all thresholds used for conduct and impact for mitigation, including the current Load Pocket Threshold process.
- At the November 29, 2018 presentation, the NYISO provided an overview of Load Pocket Thresholds (“LPT”) as part of the Mitigation Thresholds Review.
- At the October 8, 2019 ICAPWG/MIWG, the NYISO provided stakeholders with further information on the current LPT methodology.\*

\*For further information, please see the October 8, 2019 ICAPWG/MIWG meeting presentation at the following link:  
[https://www.nyiso.com/documents/20142/8577663/Load%20Pocket%20Thresholds\\_MIWG\\_October\\_2019\\_FINAL.pdf/dca755ec-d273-68e0-4bb1-c4394c73b8f0](https://www.nyiso.com/documents/20142/8577663/Load%20Pocket%20Thresholds_MIWG_October_2019_FINAL.pdf/dca755ec-d273-68e0-4bb1-c4394c73b8f0)

# Mitigation Thresholds Review

- **Deliverable: Q4 2020 – Market Design Concept Proposal (MDCP)**
- **Project Description:**
  - The NYISO will provide a comprehensive review of mitigation thresholds, leading to an MDCP in 2020.
  - The NYISO will evaluate conduct and impact thresholds currently used in mitigation. These include thresholds for identifying:
    - Physical withholding
    - Economic withholding
    - Uneconomic production
  - A review of Load Pocket Thresholds (“LPT”) will also be conducted.
    - LPTs are used in evaluating physical and economic withholding and are designed to prohibit exercise of market power in NYC that might exist under constrained conditions.



# Mitigation Thresholds Review

- **Stakeholder Engagement Plan:**
  - Q1-Q3 2020
    - Present LPT analysis
    - Continue stakeholder discussions
  - Q4 2020
    - Discuss Market Design Concept Proposal with stakeholders.

# Hybrid Storage Model

Kanchan Upadhyay, Market Design Specialist

# Hybrid Storage Model

- **Project Background:**
  - The NYISO's market rules do not currently allow two resources of different types to be co-located at a single point of interconnection and share the same point identifier (PTID).
  - Developing a market participation model for front-of-the-meter generators plus storage will better align the NYISO's market procurement with State and Federal efforts to integrate more clean energy into the grid.
  - The new market participation model is also expected to improve grid flexibility and resilience by enabling new resource types to provide their full capabilities.

# Hybrid Storage Model

- **Deliverable: Q3 2020 – Market Design Complete**
- **Project Description:**
  - The project seeks to develop market participation rules for front-of-the-meter renewable generators collocated with Energy Storage Resources
  - Project efforts will build on work completed as part of the Energy Storage Resource and DER Integration initiatives, by developing market rules that better integrate large-scale weather dependent and energy storage resources co-located behind a single interconnection point.



# Hybrid Storage Model

## ■ Stakeholder Engagement Plan:

- Q1 2020
  - Initiate discussions on market concepts for hybrid storage resources
- Q2 2020
  - Continue discussions on market participation concepts for hybrid storage resources
  - Discuss Consumer Impact analysis methodology with stakeholders
  - Present Market Design Concept Proposal to stakeholders
- Q3 2020
  - Present consumer impact analysis to stakeholders
  - Present Market Design Complete to stakeholders

# 5-Minute Transaction Scheduling

Ashley Ferrer, Market Design Specialist

# 5-Minute Transaction Scheduling

## ■ Background:

- Interchange scheduling with Hydro-Quebec (HQ) is currently achieved on either a 15-minute or an hourly basis using the NYISO's Real-Time Commitment (RTC) software.
- More frequent transaction scheduling with external control areas could improve convergence between prices in RTC and RTD and offer increased flexibility to the market optimization software, as the penetration of intermittent renewables increases.
- The NYISO has also determined that 5-minute transaction scheduling would be a pre-requisite for external resources to be eligible to provide operating reserves, and perhaps other ancillary services.

# 5-Minute Transaction Scheduling

- **Deliverable: Q2 2020 – Study Complete**
- **Project Description:**
  - The project will study the potential for other interties to also be scheduled on a 5-minute basis, depending on discussions with HQ and other control areas, namely, PJM, ISO-NE and Ontario.
  - This project will deliver a report that considers a proposed mechanism to enhance the real-time interchange scheduling processes by allowing the economic scheduling of interchange across interties nominally every 5-minutes using the RTD. Interchange scheduling is performed on a 15-minute and an hourly basis using the RTC software.

# 5-Minute Transaction Scheduling

- **Stakeholder Engagement Plan:**
  - Q1 2020
    - Perform initial research
    - Begin discussion with stakeholders
    - Outline study approach with stakeholders
  - Q2 2020
    - Continue stakeholder discussions
    - Present completed study to stakeholders

# Relocating the IESO Proxy Bus

Ashley Ferrer, Market Design Specialist

# Relocating the IESO Proxy Bus

## ■ Background:

- The NYISO's market software currently uses the BRUCE station as the proxy bus to schedule transactions with Ontario's Independent Electric System Operator (IESO).
  - The selection of the BRUCE station as the location of the IESO proxy bus is the determining factor for how the commitment software distributes the power flow for scheduled energy between IESO and NYISO.
- Analysis of the actual historical delivered energy from transactions between IESO and NYISO indicate a potential improvement that can be made with the power flow results from the NYISO's market software.

# Relocating the IESO Proxy Bus

- Deliverable: Q2 2020 – Deploy
- Project Description:
  - This project explored the options for a more optimal IESO proxy bus that more closely aligns power flow shift factors for energy schedules between IESO and NYISO with actual, observed power flows.\*
    - A number of locations within IESO were reviewed and tested for the fit as the external proxy bus.
    - The analysis indicates that BECK 220kV is a more optimal proxy bus for IESO scheduling as compared to BRUCE 500kV.

\*For further information, please see the December 3, 2019 ICAPWG/MIWG meeting presentation:

<https://www.nyiso.com/documents/20142/9521715/IESO%20PROXY%20BUS.pdf/86184ec4-8b1a-6e0a-9a56-8a5a473e2f8e>



# Relocating the IESO Proxy Bus

- **Stakeholder Engagement Plan:**
  - Q1 2020
    - Continue stakeholder discussions
  - April 2020
    - The NYISO is exploring feasibility of deploying BECK as IESO proxy bus in NYISO's energy market system, based on current project commitments

# Reliability and Market Considerations for a Grid in Transition Discussion

Emily Conway, Associate Market Design Specialist  
Ashley Ferrer, Market Design Specialist



# Grid in Transition Discussion

- **Background:**

- The draft *Reliability and Market Considerations for a Grid in Transition* report was posted in May 2019. An updated report will be published by the end 2019.
- In response to stakeholder requests to continue the discussion of topics in the Grid in Transition report, the NYISO will be conducting a series of stakeholder discussions through 2020.

# Grid in Transition Discussion

- **Deliverable: Q4 2020 – Issue Discovery**
- **Project Description:**
  - In a series of monthly meetings, the NYISO will provide a forum to address individual topics, allowing stakeholders to provide their perspectives, including presentations that describe concerns and potential solutions.
  - The objective of this project is to solicit a variety of stakeholder feedback on key market design issues related to New York State’s clean energy mandates and objectives.

# Grid in Transition Discussion

- **Stakeholder Engagement Plan:**
  - Q1-Q4 2020
    - Begin NYISO and stakeholder presentations and discussions at ICAPWG/MIWG on identified topics

# More Granular Operating Reserves

Ashley Ferrer, Market Design Specialist

# More Granular Operating Reserves

## ■ Project Background:

- The NYISO is required to satisfy reliability criteria in NYC to meet NYSRC reliability requirements for local areas under certain conditions. These local requirements are not expressly modeled in the market software, and can, therefore, require the need for out-of-market commitments.
- In its 2017 and 2018 State of the Market (SOM) reports, the Market Monitoring Unit (MMU) recommended that the NYISO consider implementing local reserve requirements in the New York City load pockets.
- Further, the MMU recommended that the NYISO “consider restructuring reserve payments to align with generator performance” and “consider discounting reserve awards based on past performance”.
- In November 2019, the NYISO:
  - Proposed a market design for load pocket reserves
  - Recommended metrics for evaluating the performance of reserve providers

# More Granular Operating Reserves

## ■ Deliverable:

- Not prioritized for 2020

## ■ Project Description:

- This project will seek to enhance locationally specific market price signals and will facilitate efficient resource scheduling through a market-based mechanism.
- This project will develop a process to enhance transparency of resource performance during reserve audits and pickups, and NYISO's reporting of performance analytics.



# More Granular Operating Reserves

## ■ Stakeholder Engagement Plan:

- Q1-Q4 2020
  - Provide metrics on reserve audits and pickups at SOAS meetings
  - Continue stakeholder discussions on proposed load pocket reserves (including tariff revisions)
  - Complete Consumer Impact Analysis

# Constraint Specific Transmission Shortage Pricing

Kanchan Upadhyay, Market Design Specialist

# Constraint Specific Transmission Shortage Pricing

## ■ Project Background:

- 2017 State of the Market report included a recommendation to utilize constraint specific demand curves to set transmission constraint Shadow Prices during transmission shortages.
  - The MMU continues to recommend the implementation of constraint specific transmission demand curves that would allow for prices to better align with the severity of transmission constraints.
- The NYISO completed a study of the current transmission constraint pricing logic in September 2018.<sup>1</sup>
  - The study included a number of recommended considerations with respect to potential enhancements to the current Transmission Constraints Pricing logic
- The NYISO presented a Market Design Concept Proposal in February 2019.<sup>2</sup>

1. Link to the Constraint Specific Transmission Shortage Pricing study:

[https://www.nyiso.com/documents/20142/2549789/Constraint%20Specific%20Transmission%20Shortage%20Pricing%20-%20Paper\\_Final.pdf/7f69227a-7ca8-656e-b895-0f8147635319](https://www.nyiso.com/documents/20142/2549789/Constraint%20Specific%20Transmission%20Shortage%20Pricing%20-%20Paper_Final.pdf/7f69227a-7ca8-656e-b895-0f8147635319)

2. Link to the Constraint Specific Transmission Shortage Pricing Market Design Concept Proposal:

[https://www.nyiso.com/documents/20142/5020603/Constraint%20Specific%20Transmission%20Shortage%20Pricing%20\\_MDCP\\_021519.pdf/d7d80189-e48e-a893-a860-6e4b9636b8bf](https://www.nyiso.com/documents/20142/5020603/Constraint%20Specific%20Transmission%20Shortage%20Pricing%20_MDCP_021519.pdf/d7d80189-e48e-a893-a860-6e4b9636b8bf)

# Constraint Specific Transmission Shortage Pricing

## ■ Deliverable:

- Not prioritized for 2020

## ■ Project Description:

- This project seeks to implement a revised transmission demand curve for internal facilities currently assigned a non-zero or zero CRM value.
- The project also plans to investigate potential improvements in the modeling of series segments of a transmission facility and interaction of the transmission demand curve in pricing shortages.

# Constraint Specific Transmission Shortage Pricing

- **Stakeholder Engagement Plan:**
  - 2020/2021
    - Complete additional analysis as necessary
    - Continue stakeholder discussions on the proposed transmission constraint pricing logic enhancements (including tariff revisions)
    - Complete Consumer Impact Analysis

# Next Steps:

Continue project-specific discussions at  
ICAPWG/MIWG meetings

# Questions?

# Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit 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 policymakers, stakeholders and investors in the power system

