2019 Market Projects Q2 Update

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Purpose

- This presentation provides updates on the 2019 Capacity, DER, and Energy Market Design projects as of April 30, 2019
- The following slides include status, schedule, and deliverables updates



Capacity Market Design



Capacity Market Project Overview

| 2019 Capacity Market Design Projects | Q1 | Q2 | Q3 | Q4 | 2019 Deliverable |
|---|----|------|------|----|------------------|
| Enhancing Fuel and Energy Security | CD | S | | | Q2 Study |
| External Capacity Performance & Obligations | PR | MDCP | MDC | | Q3 MDC |
| Tailored Availability Metric | PR | CD | MDCP | | Q3 MDCP |
| Demand Curve Reset | PR | | S | S | Q4 Study |
| Competitive Entry Exemption for Additional CRIS | PR | CD | MDC | | Q3 MDC |
| Repowering | PR | CD | MDC | | Q3 MDC |

KEY

| PR | Project Review |
|----|----------------|
| S | Study |

| MDCP | Market Design Concept Proposed |
|------|--------------------------------|
| MDC | Market Design Complete |

| FR | Functional Requirements |
|----|-------------------------|
| CD | Continuing Discussions |



Enhancing Fuel and Energy Security

- 2019 Deliverable: Q2 2019 Study Complete
- Stakeholder Engagement Plan:
 - Q1 2019
 - Consultant to present proposed study assumptions and scenarios to stakeholders
 - Consultant to present preliminary findings to stakeholders
 - Q2 2019
 - Consultant to present final report to stakeholders
- This effort is slightly behind schedule due to additional time taken in vetting assumptions and methodology with stakeholders
 - The NYISO currently anticipates sharing preliminary findings with stakeholders in early Q3



External Capacity Performance & Obligations

- 2019 Deliverable: Q3 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - Q2 2019
 - Discuss proposed market solutions that are aimed at enhancing reliability through refining the eligibility and energy delivery of external capacity suppliers
 - Q3 2019
 - Present revised tariff
 - Market Design Complete Presentation
- The External SRE proposal is slightly behind schedule due to some delays in finalizing the design
 - The NYISO expects to complete the design by the end of the month



Tailored Availability Metric

- Deliverable: Q3 2019 Market Design Concept Proposed
- Stakeholder Engagement Plan:
 - January, 2019: Problem Description
 - February, 2019: Discussion of Analysis
 - April July, 2019: Discussion of Analysis and Proposal
 - August September, 2019: Market Design Concept Proposal
- This initiative is on schedule
 - The most recent discussion was on May 9, 2019

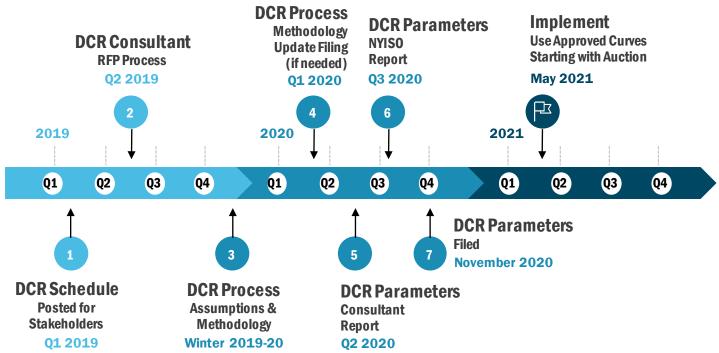


Demand Curve Reset

- Deliverable: Q2 2019 Issue RFP
- Stakeholder Engagement Plan:
 - Q3 2019: Begin engagement with selected independent consultant
- The RFP was issued on April 1, 2019



Demand Curve Reset





CEE for Additional CRIS

- Deliverable: Q3 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - 02 2019
 - Discuss draft tariff language
 - Q3 2019
 - Present revised tariff language
 - BIC & MC vote on final market design
 - Q4 2019 If approved by stakeholders
 - Seek BOD Approval
 - File tariff revisions with FERC
- This initiative is on schedule
 - The last discussion was on March 4, 2019



Repowering

- Deliverable: Q3 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - Q2 2019
 - Analyze impact of potential market design
 - Present draft tariff language
 - Q3 2019
 - Present revised tariff language
 - BIC & MC vote on final market design
 - Q4 2019 If approved by stakeholders
 - Seek BOD Approval
 - File tariff revisions with FERC
- This initiative is on schedule
 - The last discussion was on May 9, 2019



DER Market Design



DER Project Overview

| 2019 DER Market Design Projects | Q1 | Q2 | Q3 | Q4 | 2019 Deliverable |
|---------------------------------|-----|----|----|----|------------------|
| DER Participation Model | MDC | CD | CD | FR | Q4 FRS |
| NYISO Pilot Framework | S | S | S | S | Q4 Study |
| Enabling Technologies for DER | PR | S | | | Q2 Study |

PR Project Review
S Study





Enabling Technology for DER

- Deliverable: Q2 2019 Study Complete
- Stakeholder Engagement Plan:
 - Q1/Q2 2019
 - Evaluate and identify any needed upgrades
 - Discuss market facing finding with stakeholders
- Due to delays with the DER Participation Model market design, this initiative is behind schedule
 - The NYISO is considering whether alternative communications paths for telemetry and/or market data would ease DER integration

DER Participation Model

- Deliverable: Q4 2019 Functional Requirements
- Stakeholder Engagement Plan:
 - Q2 2019
 - Submit tariff filing to FERC, and begin functional requirements
 - Begin developing manual updates
 - Q3 2019
 - Continue development of manual updates
 - Q4 2019
 - Complete Functional Requirements
- The market design as approved by Market Participants on April 24, 2019
 - This project is currently at risk/delayed

DER Pilot Program

- Deliverable: Q4 2019 Study Complete
- Stakeholder Engagement Plan:
 - Q2-Q4 2019
 - Share with internal and external stakeholders the findings and results of the pilot projects that complete their demonstration periods
 - Q1 2020
 - Evaluate the feasibility of a 2nd round of pilot projects for selection and entry into the Pilot Program
- Testing with the first pilot project has begun



Energy Market Design



Energy Market Project Overview

| 2019 Energy Market Design Projects | Q1 | Q2 | Q3 | Q4 | 2019 Deliverable |
|---|------|------|------|----|------------------|
| Carbon Pricing | CD | MDC | | | Q2 MDC |
| Reserves for Resource Flexibility | PR | S | MDCP | | Q3 MDCP |
| More Granular Operating Reserves | PR | MDCP | MDC | FR | Q3 MDC |
| Ancillary Services Shortage Pricing | PR | CD | S | S | Q4 Study |
| Constraint Specific Transmission Shortage Pricing | MDCP | MDC | | FR | Q2 MDC |
| Enhanced Fast Start Pricing | | | FR | | Q3 FRS |

KEY

PR Project Review
S Study







Carbon Pricing

- Deliverable: Q2 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - Q1 2019
 - Continue carbon pricing discussions with stakeholders.
 - Collaborate with stakeholders providing necessary additional clarity on analysis, finalizing proposal and reviewing draft tariff language.
 - Q2 2019
 - Stakeholder vote on Carbon Pricing market design.
- This project is slightly delayed
 - Analysis Group requires more time to incorporate the feedback received from stakeholders and to complete the study
 - Preliminary results from the Analysis Group study are expected in mid-June
 - The NYISO is still working to complete its market design by the end of June



Constraint Specific Transmission Shortage Pricing

- Deliverable: Q2 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - Q1 2019
 - Complete Market Design proposal and propose specific enhancements to the current transmission constraint pricing logic to stakeholders.
 - Conduct Consumer Impact Analysis and present results to Market Participants.
 - Q2 2019
 - Finalize design proposal (including development/review of accompanying tariff revisions).
 - Seek stakeholder approval at BIC and MC.
- The NYISO is continuing to evaluate the implementation timeline for the proposed concept in consideration of potential implications for other reserve and shortage pricing related initiatives
 - The NYISO is considering whether it is prudent to request a stakeholder vote at this time



Enhanced Fast Start Pricing

- Deliverable: Functional Requirements
- Stakeholder Engagement Plan:
 - Q2-Q3 2019
 - Discuss the NYISO's design approach with stakeholders
- FERC Ordered the NYISO to submit a compliance filing by December 31, 2019
 - The order requires deployment by December 31, 2020
 - The NYISO will be consulting with Market Participants and its External Market Monitor on a methodology for amortizing commitment costs of fast start resources when determining LBMPs



More Granular Operating Reserves

- Deliverable: Q3 2019 Market Design Complete
- Stakeholder Engagement Plan:
 - Q2 2019
 - Discuss Market Design Concept Proposal
 - Q3 2019
 - Present complete Market Design proposal and associated tariff revisions
- Market Participants approved the creation of a Zone J reserve region March 2019
 - The NYISO anticipates deploying this change on June 26, 2019, pending FERC approval
- The NYISO is continuing to evaluate reserve provider performance and development of a proposal for load pocket reserves within NYC
 - As the NYISO considers a load pocket reserves design, the NYISO has identified several aspects that should be considered
 together, including dynamic reserves, reserves for congestion management, cost allocation, and potential enhancements to
 mitigation rules for operating reserves
 - The NYISO currently anticipates developing a proposal for implementing reserve requirements for certain load pockets within NYC prior to completing discussions regarding concepts for dynamic reserves and reserves for congestion management
 - For 2020, the NYISO has bundled all of the objectives described above in the Reserve Enhancements for Constrained
 Areas project, since the scope has grown beyond simply creating more granular operating reserves

Reserves for Resource Flexibility

- Deliverable: Q3 2019 Market Design Concept Proposed
- Stakeholder Engagement Plan:
 - Q2 2019
 - Discuss concepts and possible benefits within New York
 - Q3 2019
 - Discuss benefits, concepts and impacts
 - Present Market Design Concept Proposal
- This project is on schedule
 - The NYISO is considering the ability to potentially implement this proposal in Q4 2020 depending on stakeholder support of the concepts and design



Ancillary Service Shortage Pricing

- Deliverable: Q4 2019 Study Complete
- Stakeholder Engagement Plan:
 - 02 2019
 - Perform preliminary research
 - Outline study approach with stakeholders
 - Q3 2019
 - Perform preliminary analysis
 - Seek stakeholder feedback
 - Q4 2019
 - Present completed study to Market Participants
- This project is on schedule



Feedback/Questions?

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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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