

More Granular Operating Reserves

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September 24, 2019, Rensselaer, NY

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Agenda

- Background
- Load Pocket Reserves
- Next Steps

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Background

2019 Energy Market Design Reserve Projects

- The NYISO is discussing three projects in 2019 that are directly relevant to the reserve market.
 - These projects are independent; one may be approved and implemented without the others
- **Reserves for Resource Flexibility (2020 milestone: Deploy)**
 - Increase reserve requirements to account for uncertainty on the transmission system
- **More Granular Operating Reserve (Not Prioritized for 2020)**
 - Establish reserve requirements for certain load pockets in NYC
- **Ancillary Services Shortage Pricing (2020 milestone: Market Design Complete)**
 - Reevaluate the demand curve prices used for ancillary services

Background

- **The More Granular Operating Reserves project consists of the following components:**
 - ✓ Establishing a reserve region in Zone J (completed)
 - ✓ Market design approved by stakeholders in March 2019
 - ✓ Zone J reserve requirements implemented on June 26, 2019
 - Evaluating load pocket reserves in New York City (NYC)
 - Reviewing performance of resources scheduled to provide reserves
 - Two components which were identified in the project scope earlier in 2019 have been moved to be a part of the Ancillary Services Shortage Pricing project:
 - Evaluating the NYCA 30-minute reserve demand curve structure that applies during certain activations of Special Case Resources (SCRs) and Emergency Demand Response Program (EDRP) resources
 - Reviewing the Zone J reserve demand curve pricing and applicable reserve requirements during Thunderstorm Alerts (TSAs)

State of the Market Recommendation

- 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 model these requirements based on the N-1-1 reliability criteria.

See Recommendation 2017-1 in the 2017 SOM report, located at the following link:

<https://www.nyiso.com/documents/20142/2223763/2017-State-Of-The-Market-Report.pdf/cd4ee8a0-1989-dfa0-b53e-2d642c65e46d>, and in the 2018 SOM report, located at the following link: <https://www.nyiso.com/documents/20142/2223763/2018-State-of-the-Market-Report.pdf/b5bd2213-9fe2-b0e7-a422-d4071b3d014b?t=1557344025932>



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Previous Presentations

Date	Working Group	Discussion points and links to materials
01-08-19	ICAPWG/MIWG	Proposed schedule for accelerating implementation of Zone J operating reserves
01-15-19	ICAPWG/MIWG	Establishing a new Zone J reserve region with a 500 MW 10-minute and 1,000 MW 30-minute reserve requirement
01-24-19	ICAPWG/MIWG	Proposed operating reserve demand curve prices for the Zone J reserve products and the proposed tariff revisions for this initiative Operating Reserve Background
03-04-19	ICAPWG/MIWG	Analysis of potential impact
03-13-19	BIC	Stakeholder vote: Establishing Zone J Operating Reserves
03-27-19	MC	Stakeholder vote: Establishing Zone J Operating Reserves
04-30-19	ICAPWG/MIWG	More Granular Operating Reserves
07-10-19	ICAPWG/MIWG	More Granular Operating Reserves

Load Pocket Reserves

What are Load Pockets?

- **Load pockets are areas in NYC which are constrained by:**
 - Load levels and generation capability within the pocket
 - Transmission-supported import levels into the pocket
- **The structure and boundaries of each load pocket varies based on load, generation, and transmission imports**

Local Reliability Requirements

- **Local Reliability Requirements (LRRs) can be fulfilled through resource commitments which may be accomplished by out-of-market actions**
 - Currently, the LRRs are evaluated during most passes of SCUC
- **The LRR evaluation determines if additional generation is needed within each load pocket**
 - Commonly, units with high start-up and minimum generation costs are committed to satisfy the LRRs
 - Units are often committed at their minimum generation level, even though additional output may be required to resolve an N-1-1 contingency
 - Commitment at minimum generation levels may result in circumstances where such units have not procured fuel in advance to readily accommodate increased output

Out-of-Market Costs

- **The LRR evaluation can result in committing resources that would not otherwise be committed economically**
 - These commitments may result in uplift if the resource does not earn enough revenue to recover its day-ahead bid cost
- **Uplift payments may result in market outcomes where the full cost of the resources required to meet system needs are not transparently reflected in energy prices**
 - The 2018 SOM report noted that the total value of Day-Ahead Bid Production Cost Guarantee (BPCG) payments incurred to satisfy N-1-1 contingency requirements for NYC load pockets was over \$26 million in 2018

Load Pocket Reserves

- **NYISO's proposed market design represents an incremental step in creating a market mechanism for procuring more granular reserve requirements for certain NYC load pockets**
 - As noted in the 2019 Master Plan, the NYISO believes that a more efficient implementation of load pocket requirements may be via a dynamic reserve procurement methodology. The NYISO intends to study the viability of the implementation of a dynamic reserve procurement before recommending this direction.
 - The implementation of the proposed design will be less complex, while still providing an effective market enhancement that improves price signals regarding the value of reserves in load pockets.
- **By the end of 2019, the NYISO intends to complete the development of a market design addressing the proposed load pocket reserve requirements and reserve provider performance for More Granular Operating Reserves**
 - Next steps with respect to this initiative would need to be determined in a future year project prioritization process
 - As a result, the remaining components of this effort currently do not have a project-related commitment for 2020

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Load Pocket Reserve Regions

- The NYISO is proposing to establish three new reserve regions within Zone J and associated 30-minute reserve requirements for the following load pockets:
 - Astoria East/Corona/Jamaica
 - Astoria West/Queensbridge/Vernon
 - Greenwood/Staten Island
- A 30-minute reserve requirement reflects the resource capability necessary to restore transmission flows to applicable limits following a contingency event within 30 minutes, consistent with rules for NYCA reliability
- The NYISO identified that resources within these load pockets are often committed out-of-merit for local reliability based on their ability to meet LRRs

Load Pocket Reserve Requirements

- The proposed 30-minute reserve requirements for these regions that would be procured in both the Day-Ahead and Real-Time Markets are set forth below:

Load Pocket	30-Minute Operating Reserve Requirement (MW)
Astoria East/Corona/Jamaica	325
Astoria West/Queensbridge/Vernon	225
Greenwood/Staten Island	250

- The reserve requirements are based on the quantity of generation required to return transmission lines into each pocket to applicable limits following an N-1 contingency on one of the other transmission lines into the pocket, consistent with rules for NYCA reliability
 - This method was also used in the development of the SENY, Long Island, and New York City reserve regions

Load Pocket Reserve Requirements

- The NYISO is proposing to establish operating reserve demand curves for each load pocket that assign a \$25/MWh value to the proposed reserve requirements
- A demand curve value of \$25/MWh is intended to:
 - Provide a reasonable increment over the otherwise prevailing reserve cost in the broader Zone J reserve region due to the cascading of reserve prices
 - Encourage efficient resource dispatch in response to the proposed load pocket reserve requirements
 - Facilitate distribution of reserves
 - Reasonably account for the typical range of potential foregone revenue margins that may arise from scheduling resources to provide reserves instead of energy and/or regulation service

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Load Pocket Reserve Requirements, con't

- The load pocket reserve regions would be nested within existing, upstream reserve regions
 - All reserves procured in the load pockets will contribute to meeting the Zone J, SENY, East and NYCA reserve requirements
- The NYISO will continue to evaluate the local reliability requirements in the Day-Ahead Market
- The NYISO has determined that the existing market mitigation rules are sufficient to address the proposed load pocket reserve requirements

Load Pocket Reserves: Expected Benefits

- **More efficient scheduling and procurement of resources**
 - Generators providing local reliability needs would be scheduled economically through a market-based mechanism
 - Help to offset some of the out-of-market commitment costs required to satisfy LRRs
- **Locationally specific market price signals**
 - Aligning reserve regions with load pockets provides a clear signal as to the additional value that may be attributable to resources located in certain areas
- **Incentive for investment in resources that can supply 30-minute reserve products**
 - In the absence of a market mechanism, economic incentives for investment in resources in load pockets capable of providing the required reserves are muted

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Next Steps

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More Granular Operating Reserves: Next Steps

- Stakeholder meetings through the remainder of 2019 will include the following topics:
 - Reserve provider performance
 - Consumer impact analysis

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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