

# Consumer Impact Analysis: Reserves for Resource Flexibility (**Reposted with Additional Information – Slide 23**)

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# Proposed Enhancements

- **The NYISO is proposing to procure an additional 500 MW of 30-minute reserves in the SENY reserve region (zones G-K) at all times in both the Day-Ahead and Real-Time Markets.**
  - This proposal will increase the reserve requirement carried in SENY from 1,300 MW to 1,800 MW.
    - Consistent with current procedures, the NYISO will reduce the SENY 30-minute reserve requirement to zero in real-time during a Thunderstorm Alert (TSA)
- **The proposal contemplates shifting of current locational reserve procurements only and does not propose to increase the 2,620 MW level of 30-minute total reserves procured statewide (NYCA).**
- **The NYISO is proposing a reserve demand curve price of \$25/MWh for the 500 MW increase in the SENY 30-minute reserve requirement.**
  - The \$25/MWh price will continue to apply to the additional 500 MW during SCR/EDRP activations in real-time; any Scarcity Reserve Requirements for SENY would be added to the \$500/MWh “step” of the SENY 30-minute reserve demand curve
- **Consistent with the treatment of SENY reserves, the NYISO is also proposing to reduce the NYC (Zone J) reserve requirement to zero MW in real-time during Thunderstorm Alerts (TSAs) as part of this project.**

# Anticipated Benefits

- **The current SENY 1,300 MW 30-minute reserve requirement serves to bring transmission assets to Emergency Transfer Criteria after suffering a contingency.**
- **Procuring additional 30-minute reserves in the SENY reserve region is intended to provide ready access to additional resource flexibility through a market-based mechanism to bring transmission assets to Normal Transfer Criteria following a contingency.**
  - Absent such a mechanism, out of market actions may be required to return facilities to Normal Transfer Criteria following a contingency.

# Consumer Impact Assessment Process: Reserve Enhancement Projects

- **The NYISO acknowledges prior requests to provide information regarding the combined potential impact of various ongoing reserve enhancement projects:**
  - Reserves for Resource Flexibility
  - Ancillary Services Shortage Pricing
  - More Granular Operating Reserves
- **The NYISO intends to include Reserves for Resource Flexibility changes within the consumer impact analysis for the Ancillary Services Shortage Pricing project.**
  - The assessment for the Ancillary Services Shortage Pricing project will address the increase to the shortage price value of the additional 500 MW of SENY 30-minute reserves being proposed as part of that separate project effort
- **The NYISO anticipates taking this same approach for the More Granular Operating Reserves consumer impact analysis.**
- **This is intended to allow stakeholders to understand the cumulative impacts of the three initiatives.**

# Consumer Impact Analysis (IA) Evaluation Areas

- Present the potential impact on all four evaluation areas

## RELIABILITY

Procuring an additional 500 MW of 30-minute reserves in the SENY reserve region provides ready access to resource capability to bring transmission assets to Normal Transfer Criteria following a contingency.

## COST IMPACT/ MARKET EFFICIENCIES

A potential increase in short run consumer cost is estimated at \$330,000.

Potential for some savings in Bid Production Cost guarantee (BPCG) payments are not reflected in the potential impact shown above

## ENVIRONMENT/ NEW TECHNOLOGY

No Impact Expected

## TRANSPARENCY

Reflecting the value of the operational flexibility required in SENY to bring transmission assets to Normal Transfer Criteria following a contingency in market outcomes should provide for greater transparency.

# Potential Energy Market Impact

# Potential Consumer Impact Estimate

- **The NYISO estimates the short run annual consumer impact from the Reserves for Resource Flexibility proposal as \$330,000.**
  - This estimate does not include any reduction for potential BPCG savings
    - Data regarding the analysis of potential BPCG impacts are provided as part of this presentation
  - This estimate also does not include any offset for potential savings from reducing the NYC (Zone J) reserve requirement to zero MW during Thunderstorm Alerts (TSAs).

# Potential Impact– Energy Market

- Using the NYISO’s Day-Ahead Market (DAM) software, the NYISO re-ran select market days during the period from July 2019 through April 2020.\* The following revisions were included in the market software re-runs:
  - Increasing the SENY 30-minute reserve requirement to 1,800 MW
  - Assigning a \$25/MWh shortage pricing value to the additional 500 MW of SENY 30-minute reserves; current 1,300 MW requirement will retain a shortage price value of \$500/MWh.

*\*Note: The NYISO used this period to ensure that the days selected included the New York City reserve region requirements implemented on June 26, 2019*



# Potential Impact– Energy Market

- Day-Ahead days selected for re-run reflected days where less than 1,800 MW of 30-minute operating reserve was procured in SENY in at least four hourly intervals
  - ~~There were no days during the historic period analyzed in which less than 1,800 MW of 30-minute reserves was procured in SENY for all hours of the day~~
    - The highest number of DAM hourly intervals on any day for which less than 1,800 MW of 30-minute reserves was procured in SENY was 8 hours
  - These days are the most relevant when considering the proposed change, as they require a change in resource schedules in order to procure the proposed additional 30-minute reserves in SENY.

# Potential Impact – Energy Market

- **The following Day-Ahead Market days were re-run in the market software.**
  - 8/13/2019
    - 8 hours with less than 1,800 MW of 30-minute reserve in SENY
  - 9/23/2019
    - 7 hours with less than 1,800 MW of 30-minute reserve in SENY
  - 10/22/2019
    - 4 hours with less than 1,800 MW of 30-minute reserve in SENY
  - 12/20/2019
    - 4 hours with less than 1,800 MW of 30-minute reserve in SENY

# Potential Impact – Energy Market

- **The NYISO compared prices from re-run cases to the original prices to determine representative impact percentages.**
  - Representative impact percentage values were determined for each hour of the day for each Load Zone
- **The representative impact percentage values were used to estimate the consumer impact due to changes in DAM energy prices (LBMP, reserves, and regulation).**
  - Actual DAM energy prices from 2019 were used to calculate the consumer impact due to changes in energy prices.
  - The price impacts were applied only to hours in 2019 where less than 1,800 MW of 30-minute reserve was procured in SENY.
    - The impact was estimated by calculating revised prices in only those DAM hours where less than 1,800 MW of 30-minute reserves were procured in SENY

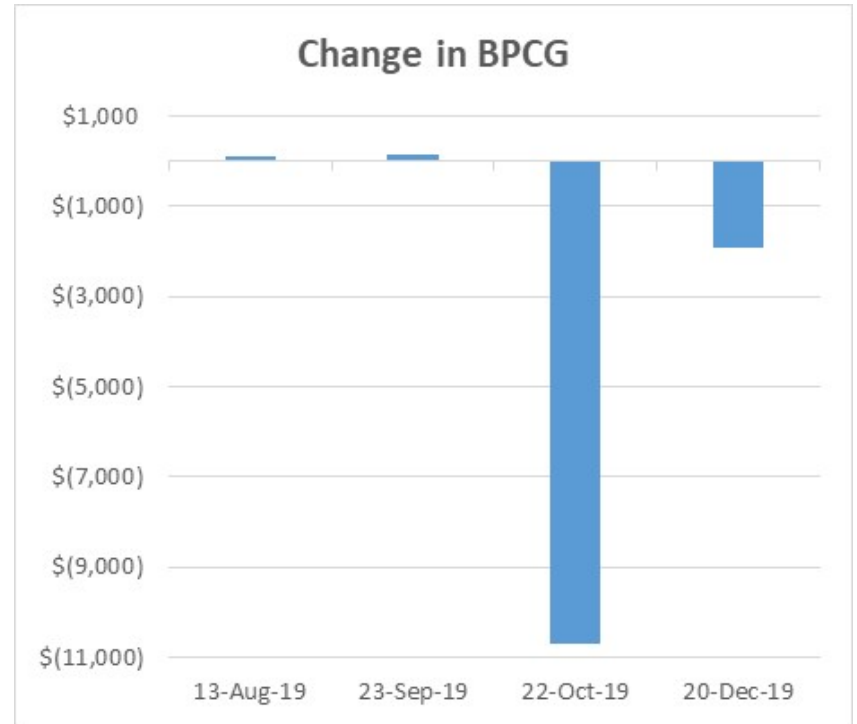
# Potential Impact – Energy Market

- **The adjusted 2019 DAM energy prices were then multiplied by the actual corresponding hourly demand (load in the case of LBMPs, ancillary services requirements in the case of reserves and regulation) during the historic one-year period.**
  - The result of this calculation was summed to determine an estimate of the potential annual consumer impact due to changes in energy prices.
  - The resulting potential annual impact was approximately \$330,000.

# Potential BPCG Impacts

# Potential Uplift Cost (DAM BPCG) Impact

- Assessed changes in total BPCG for days re-run
- The impacts on BPCG varied significantly across the market days that were re-run and the impacts tend to be specific to the resource schedules for a particular day
  - As a result, the NYISO did not extrapolate the data to estimate an average level of potential DAM BPCG savings



# Potential Capacity Market Impact

# Potential Capacity Market Impact

- Using the 2020-2021 ICAP Demand Curve inputs and parameters, the NYISO calculated revised net EAS revenue offset values and resulting reference price values to estimate the potential impact of the proposal on the ICAP Demand Curves.
  - Adjusted DAM and RTM LBMPs were developed for each hour of “year 3” of the historic three-year study period used for the most recent annual update (9/1/2018 – 8/31/2019), using the results from the energy market analysis.
    - Data for years 1 & 2 (9/1/2016 - 8/31/2018) were retained and unadjusted
  - All other inputs and parameters of the annual update for the 2020-2021 Capability Year were held constant
    - Note: The current peaking plant technology underlying each ICAP Demand Curve is a simple cycle F-class frame turbine



# Potential Capacity Market Impact

- **The potential impact on energy market prices is minimal.**
  - The net EAS revenue model thus produced minimal changes only to zones G and K

Zone	Net EAS Revenue Delta
F – Capital	\$0.00
G – Hudson Valley (Dutchess)	\$0.01
J – New York City	\$0.00
K – Long Island	\$0.02

# Potential Capacity Market Impact

- The minimal change to the net EAS revenue offset values did not result in any change to the resulting reference prices for the 2020-2021 ICAP Demand Curves. As a result no potential impact was identified for the capacity market.

# Additional Impacts

# Reliability Impacts

- **Procuring an additional 500 MW of 30-minute reserves in the SENY reserve region provides ready access to resource capability to bring transmission assets to Normal Transfer Criteria following a contingency.**

# Environmental Impacts

- No Impact Expected

# Impact on Transparency

- **Reflecting the value of the operational flexibility required in SENY to bring transmission assets to Normal Transfer Criteria following a contingency in market outcomes should provide for greater transparency.**

# Additional Information

- Stakeholders previously requested that the NYISO rerun the Reserves for Resource Flexibility consumer impact analysis using \$40/MWh as the demand curve price for the incremental SENY reserve requirement.
- The NYISO has further reviewed the results of the initial Day-Ahead Market (DAM) simulation assessing the potential impacts of the incremental SENY reserves using a \$25/MWh shortage price value and concluded that these DAM simulation results and the estimated impact calculated by the NYISO would be unchanged using a \$40/MWh shortage price value.
  - Further review of the results of the initial simulation concluded that there were no instances in this simulation where a shortage of meeting the incremental SENY 30-minute reserve occurred. As a result, there were no instances in which the \$25/MWh shortage price value was applied. In other words, within the simulations, the market software was capable of satisfying the incremental SENY reserve requirement at costs of less than \$25/MWh.
    - Thus, there would be no impact to the previously determined estimate of the DAM consumer cost impact if the NYISO were to rerun the analysis with a \$40/MWh demand curve price.
- **The consumer impact estimate is based on simulation results obtained using the existing resource bids from the DAM days that were rerun, however, there may be a *de minimis* increase in consumer costs due to changes in resource bidding behavior.**
  - Considering previous experience, resource bids typically increase slightly when reserve demand curve prices increase.
    - This occurs because resources may incorporate into their bids the potential risk that the resources will be scheduled for reserve in the DAM and be unable to fulfill the schedule in real-time.

# Feedback?

- Email additional feedback to: [deckels@nyiso.com](mailto:deckels@nyiso.com)



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- 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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