Highlights from the MMU Review of the Class Year 2019 BSM Evaluation

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Purpose

- The Tariff requires the MMU to:
  - ✓ Review the NYISO's Buyer Side Mitigation ("BSM") evaluations,
  - ✓ Post a report discussing the results of its review

- The NYISO's BSM evaluation in Class Year 2019 ("CY19") entailed:
  - ✓ New technologies
  - ✓ An increased number of Examined Facilities
  - ✓ A new type of BSM exemption test

- This presentation is intended to enhance transparency of the NYISO's evaluation and summarize key drivers of CY19 BSM determinations

Overview

- Background on BSM
- Class Year 2019 Examined Facilities evaluated for BSM
  - ✓ See MMU Report on CY19 Evaluation
- Results and key drivers of NYISO's evaluations
  - ✓ Energy Storage Resources
  - ✓ Renewable Resources
  - ✓ Repowering Projects
  - ✓ Other Natural Gas Projects
- Conclusions

Background

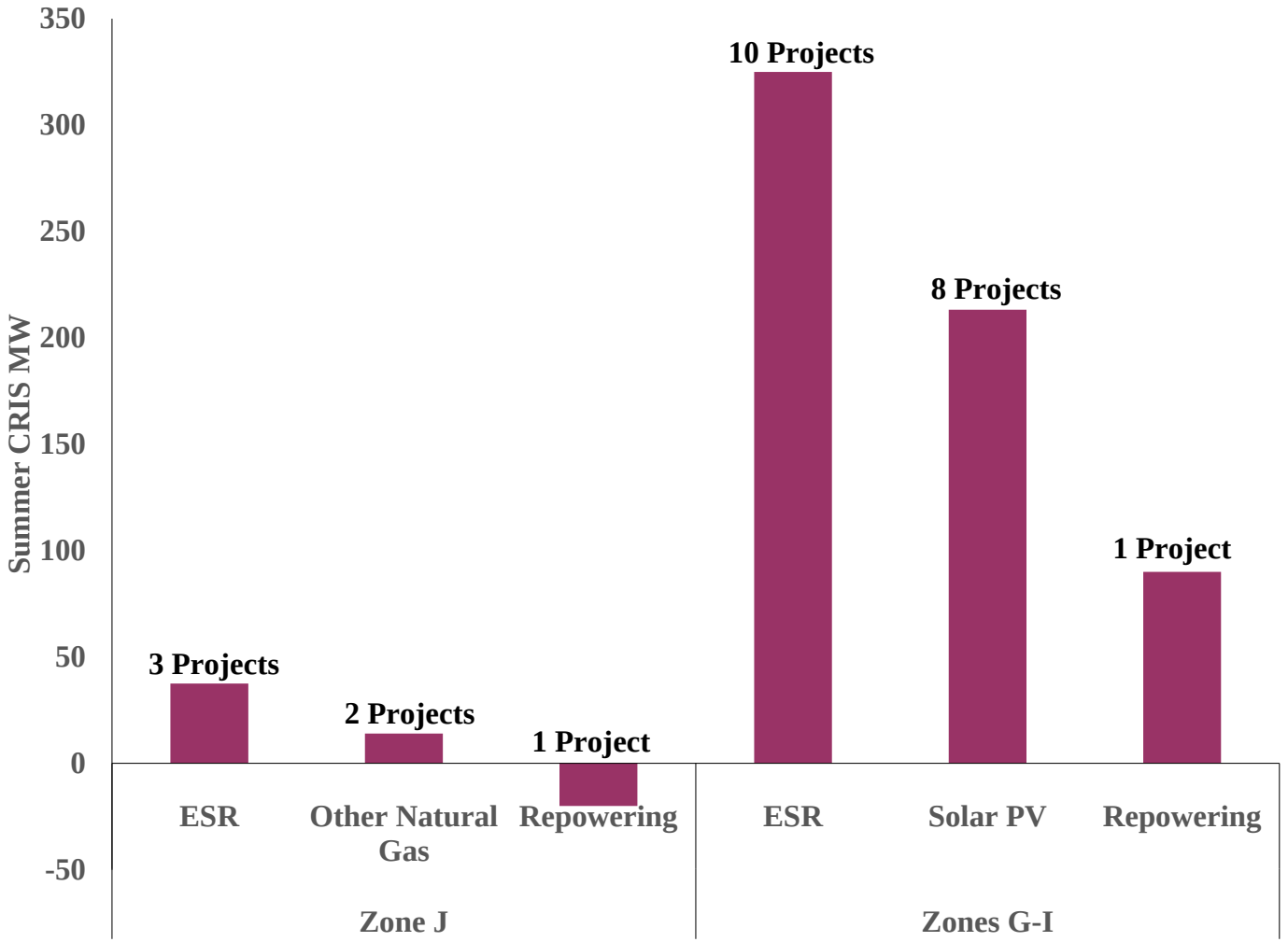
- NYISO conducts Buyer-side Mitigation ("BSM") evaluations for new entrants interconnecting in Zone J and the G-J Locality

- The objective of BSM rules is to prevent artificial suppression of capacity prices below competitive levels due to subsidized entry of uneconomic resources
  - ✓ Resources that satisfy one of the four exemption tests receive a BSM "exemption"
  - ✓ Resources that do not receive an exemption are subject to an Offer Floor
  - ✓ The Offer Floor prevents the resource from reducing the auction clearing price below the resource's cost of entry

Background:
Types of BSM Exemptions

- *Renewable Entry Exemption* – Exempts renewable technologies that the NYISO determined to be weak instruments for the exercise of buyer-side market power because of their low capacity value and high fixed costs
- *Competitive Entry Exemption* – Exempts unsubsidized merchant facilities that enter based on their own expectation of market conditions
- *Part A Test* – Exempts a resource when its capacity will not lead the capacity surplus of a Locality to exceed four to six percent
- *Part B Test* – Ensures that a project is not mitigated when it would be economic for the project to move forward

Class Year 2019 Examined Facilities



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Results for Energy Storage Resources

- CY19 Results
  - ✓ 3 ESRs (37.5 MW ICAP) in Zone J received Part A exemptions
  - ✓ 6 ESRs (65 MW ICAP) in Zones G-I were subject to an Offer Floor
  - ✓ 4 ESRs (260 MW ICAP) in Zone G rejected their cost allocation in the first round and did not receive a final BSM determination
- Low forecasted capacity margin – this resulted in Part A exemptions in Zone J
  - ✓ Additional retirements reduce capacity margin and could enable further entry of ESRs in future
  - ✓ NYISO's Part A enhancements filing prioritizes public policy resources
- High cost of new entry – ESR projects did not receive exemptions under the Part B test as discussed in the next slide

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Results for Energy Storage Resources: Factors Affecting Costs of ESRs

- Distribution utility demand charges - $50-$100 per kW-yr
  - ✓ ESRs interconnected to the distribution system are expected to incur demand charges for energy withdrawals
- Distribution-level reliability benefits – not claimed by many projects
  - ✓ Some projects could provide reliability benefits at the distribution level, but developers must provide info to get credit in the Part B Test.
- High capital costs
  - ✓ Technology costs are projected to decline – costs in future evaluations could be lower
  - ✓ The entry date for some projects was later than the date assumed in the test, which was May 2022
  - ✓ Some projects submitted very preliminary or unsubstantiated cost information - NYISO utilized benchmark values and/or increased contingency to reflect greater uncertainty

Results for New Natural Gas Projects

- CY19 Results
  - ✓ 2 gas-fired projects in Zone J (14 MW ICAP) that interconnect at lower voltage levels received Part A and/or Part B exemptions

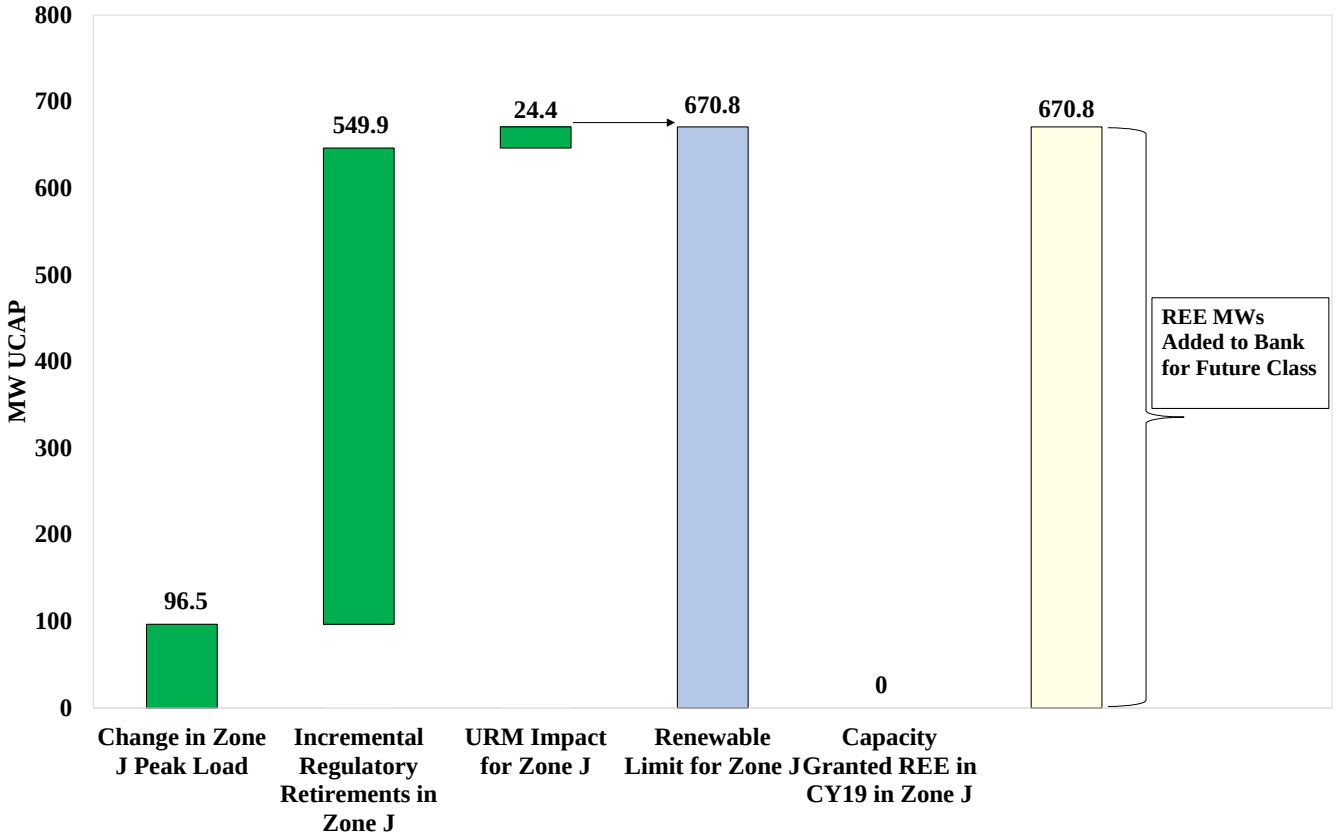
- Key drivers were similar to those affecting the ESR evaluations
  - ✓ Low forecasted capacity margin – this resulted in Part A exemptions in Zone J
  - ✓ Distribution-level reliability benefits – Inclusion of these revenues significantly reduced the estimated cost of new entry

Results for Renewable Resources

- CY19 Results
  - ✓ 6 solar projects (173 MW ICAP) received Renewable Entry Exemptions
  - ✓ 2 solar projects (40 MW ICAP) in Zone G rejected their cost allocation in the first round, and did not receive a final BSM determination

- DEC Peaker Rule – 2023 peaker retirements (nearly 600 MW UCAP in the G-J Locality) were the key driver for REEs
  - ✓ These peaker retirements will allow for more entry of renewables in Zone J after CY19
  - ✓ Additional regulation-driven retirements in the future would allow for more REEs as well

Results for Renewable Resources: Bank for Renewable Entry Exemptions in Zone J



- Zone J REE Bank after CY19 is 670.8 MW (UCAP) – equivalent to approximately 1765 MW of Offshore Wind

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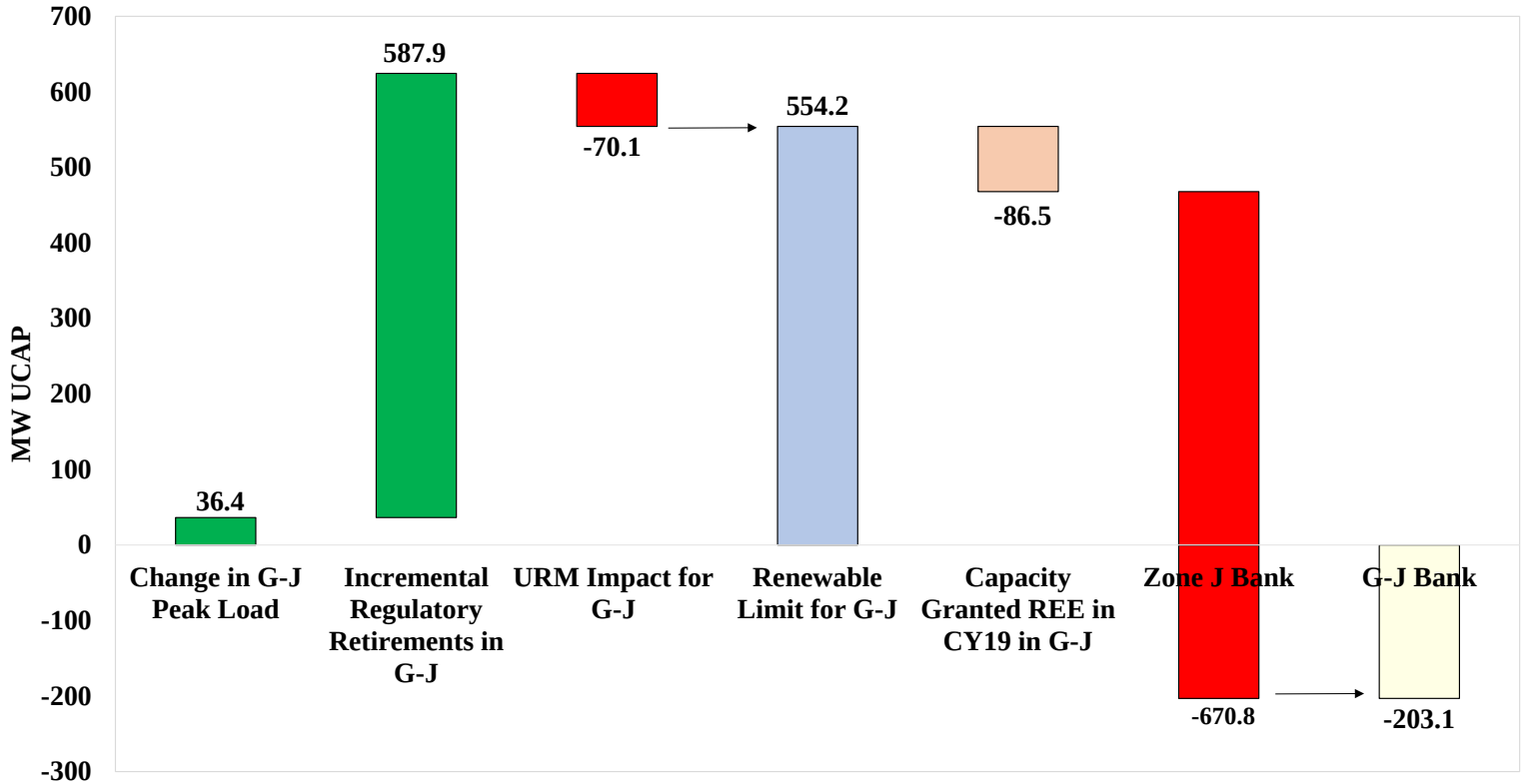
Results for Renewable Resources: Bank for Renewable Entry Exemptions in G-J Locality



- G-J Locality REE Bank after CY19 is *negative* 203 MW
- This figure illustrates two concerns with calculation of the Renewable Exemption Limit, as discussed on next slide

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Results for Renewable Resources: Bank for Renewable Entry Exemptions in G-J Locality

- Issue #1 – URM Impact should be positive (not negative) when the UCAP MW of the renewable unit exceeds its resource adequacy value.
  - ✓ We are evaluating why the LCR Optimizer is producing negative values.

- Issue #2 – Future projects in Zones G-I may not be able to receive REE if G-J REE Bank is negative but the Zone J Bank is positive
  - ✓ This is inconsistent with how REEs are awarded in current CY, where retirements in Zone J can enable REE for projects in Zones G-I.

- Although, G-J Locality REE Bank after CY19 is negative:
  - ✓ Resources in G-J could still receive REE in future evaluations up to the Minimum Renewable Exemption Limit (54 MW UCAP in CY19)
  - ✓ Additional retirements could also lead to increase in Bank

Results for Renewable Resources: Factors Affecting Costs of Solar PV Resources

- REC revenues – $30 to $35 per kW-yr for a typical solar PV project
  - ✓ The Part B Test considers revenues from sale of RECs.
  - ✓ Average Tier 1 REC prices from recent NYSERDA solicitations were used to estimate the value of this revenue stream.

- High capital costs
  - ✓ Technology costs are projected to decline – costs in future evaluations could be lower

Results for Repowering Projects

- CY19 Results
  - ✓ 1 repowering project (89 MW net addition) in Zone G received a Competitive Entry Exemption
  - ✓ 1 repowering project in Zone J rejected its cost allocation in the first round, and did not receive a final BSM determination

- Factors affecting cost of new entry of repowering projects:
  - ✓ Repowering projects can realize cost savings by utilizing existing infrastructure. However, higher interconnection standards for new units limit cost savings for some repowering projects.
  - ✓ Premature retirement of existing generation results in foregone profits, adding to the estimated cost of entry for the new unit. The misalignment of actual start date with assumed start date could exacerbate this issue.

Conclusions

- In CY19, low capacity margins and regulatory retirements resulted in Part A exemptions and Renewable Entry Exemptions
  - ✓ Additional retirements (e.g., from DEC Peaker Rule) could enable more
  - ✓ However, two issues with the REE limit should be evaluated further
- Acceptance of NYISO's Part A Enhancements filing could facilitate additional entry by:
  - ✓ Prioritizing public policy resources
  - ✓ Improving the alignment of actual project entry date with the date used in the Part A Test
    - However, fixing this in Part B would require additional tariff changes
- REC revenues and revenues from distribution-level benefits could significantly lower the cost of new entry of renewables, ESRs, and DERs
- Complete and well-substantiated submissions could help reflect more accurate project costs and revenues