Attachment #7.2.1
Return to Agenda

New York ISO
Independent System Operator

Improving Capacity Accreditation Overview

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NYSRC Executive Committee

October 14, 2022

Agenda

- Background
- Project Tasks
- Modeling Considerations
- Questions
- Appendix

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Background

Background

- **Capacity accreditation that reflects resources' marginal contribution to resource adequacy is crucial to just and reasonable ICAP Market outcomes. Therefore, the Improving Capacity Accreditation project was pursued by the NYISO in 2021.**
  - Capacity Accreditation will be determined using GE MARS and the IRM base case model to ensure consistency between the LOLPs used to determine the NYSRC resource adequacy requirements and Capacity Accreditation Factors
  - FERC approved marginal capacity accreditation on May 10, 2022
- **The NYISO has begun stakeholder discussions to 1) develop the implementation details and technical specifications for establishing Capacity Accreditation Factors (CAFs) and Capacity Accreditation Resource Classes and 2) propose necessary ICAP Manual revisions**
- **These rules are expected to be completed by the end of 2022**

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Project Tasks

Project Tasks

- **Determine the process for establishing Capacity Accreditation Resource Classes**
  - A Capacity Accreditation Resource Class is a " defined set of Resources and/or Aggregations, as identified in accordance with ISO Procedures, with similar technologies and/or operating characteristics which are expected to have similar marginal reliability contributions toward meeting NYSRC resource adequacy requirements for the upcoming Capability Year."
  - All ICAP Suppliers will be assigned a Capacity Accreditation Resource Class
  - The NYISO will evaluate resources with different technologies and operating characteristics to determine the process for establishing Capacity Accreditation Resource Classes and will determine the procedural steps for assigning ICAP Suppliers to Capacity Accreditation Resource Classes

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Project Tasks

- **Determine modeling characteristics of incremental units for each class**
  - Characteristics include:
    - Size
    - Location in multizonal CAF regions
    - Generation/availability profiles
    - Operating characteristics

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Project Tasks

- **Review and recommend the technique for calculating CAFs and establish implementation procedures**
  - Utilizing GE MARS, the NYISO will evaluate ELCC and Marginal Reliability Improvement (MRI) techniques for calculating CAFs of Capacity Accreditation Resource Classes
    - Utilizing GE MARS will ensure consistency between the LOLPs used to determine the NYSRC resource adequacy requirements and CAFs
    - Additionally, the short time window between the finalization of the LCR database and the start of a new Capability Year may make it infeasible to transfer the LCR database from GE MARS to another software to calculate CAFs
  - See next slides for more details on these techniques

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Effective load-carrying capability (ELCC) technique

- To measure the ELCC of a particular resource type, of a concrete size, at a location:

1. Start with the LCR database (Record initial (target) LOLE)
2. Add the incremental MWs of the representative
3. unit to the desired location (LOLE is reduced)
4. Iteratively, remove perfect capacity (LOLE starts increasing)
5. Stop when the NYBA reliability is back to (1) (LOLE is back to the initial LOLE)

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Marginal Reliability Improvement (MRI) technique

- To measure the MRI of a particular resource type, of a concrete size, at a location:

1. Start with the LCR database and record the LOLE ($LOLE_i$)
2. Add the incremental MWs of the representative unit to be measured and record the LOLE ($LOLE_m$)
3. Replace the incremental MWs of the representative unit with perfect capacity of the same size in the same location and record the LOLE ($LOLE_p$)

- The capacity value is $\frac{LOLE_i - LOLE_m}{LOLE_i - LOLE_p}$

- The capacity value formula can also be described as:
  - $\frac{\Delta LOLE_{resource}}{\Delta LOLE_{perfect\ capacity}}$
- Where $\Delta LOLE_{resource}$ is the change in the initial LOLE from the addition of the incremental MWs of the representative unit and $\Delta LOLE_{perfect\ capacity}$ is the change in the initial LOLE from the addition of perfect capacity of the same size in the same location.
- The MRI technique produces capacity values bounded by 0 and 1 as the system with the incremental MWs of the representative unit cannot be more reliable than the system with perfect capacity of the same size in the same location (*i.e.,* $\Delta LOLE_{resource}$ will be less than or equal to $\Delta LOLE_{perfect\ capacity}$)

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Modeling Considerations

Modeling Considerations

- **The NYISO has received much feedback about considerations impacted by modeling that would change the outcomes of Capacity Accreditation Factors including:**
  - Energy Duration Limitations
  - Correlated unavailability due to weather and/or fuel supply limitations
  - Synergistic and antagonistic effects
  - Start-up notification time limitations
- **This has created much more scrutiny on how GE MARS handles each resource type and the assumptions surrounding that model**

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Questions?

Appendix

Add'l Supporting Tasks

Add'l Project Tasks

- **Review and recommend a methodology to annually assess the Peak Load Window**
  - As part of the annual CAF review, the Peak Load Window, and associated bidding requirements, will be assessed and modified if necessary
  - This project will determine the methodology for this annual assessment of the Peak Load Window
- **Conduct sensitivity analyses to calculate CAFs under possible future system conditions**

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Add'l Project Tasks

- **Assessment of possible conforming changes**
  - Conforming changes will be needed to accommodate the use of CAFs. These changes include updates to resource specific derating factor calculations as well as the translation of ICAP requirements to UCAP requirements

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Add'l Project Tasks

- **Finalize documentation of all implementation details**
  - The NYISO will update the ICAP Manual to reflect the:
    - Selected technique for calculating CAFs
    - CAF implementation procedures
    - Process for establishing Capacity Accreditation Resource Classes
    - Procedural steps for assigning ICAP Suppliers to Capacity Accreditation Resource Classes
    - Annual assessment of the Peak Load Window
    - Necessary conforming changes
  - The NYISO will also evaluate all ISO procedures for clarifying and conforming changes

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Our Mission & Vision

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