New York ISO
Independent System Operator

Capacity Accreditation: Modeling Discussion and ICAP Manual Revision Process

Maddy Mohrman, Market Design Specialist

ICAPWG/MIWG

August 09, 2022

Agenda

- Previous Discussions
- Background
- Capacity Accreditation Factors vs Resource Specific Derating Factors
- Complications Related to Calculating Seasonal CAFs
- ICAP Manual Revision Process
- Next Steps

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Previous Discussions

Previous Discussions

Date	Working Group	Discussion Points and Links to Materials
August 5, 2021	ICAPWG	Review of Existing Capacity Accreditation Rules: https://www.nyiso.com/documents/20142/23590734/20210805%20NYISO%20-%20Capacity%20Accreditation%20Current%20Rules%20Final.pdf
August 9, 2021	ICAPWG	Capacity Accreditation Proposal: https://www.nyiso.com/documents/20142/23645207/20210809%20NYISO%20-%20Capacity%20Accreditation%20Straw%20Proposal.pdf
August 30, 2021 & August 31, 2021	ICAPWG	Capacity Accreditation Proposal: https://www.nyiso.com/documents/20142/24172725/20210830%20NYISO%20-%20Capacity%20Accreditation_v10%20(002).pdf
September 28, 2021	ICAPWG	Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/24925244/20210928_NYISO_-CMR_Final.pdf/769828a1-f224-0140-240b-0762ec18efec
October 18, 2021	ICAPWG	Comprehensive Mitigation Review Proposal and Tariff Updates: https://www.nyiso.com/documents/20142/25440628/20211018%20NYISO%20-%20CMR%20v9.pdf/4475e775-159c-75c7-9cf8-7050dad9a363
October 29, 2021	ICAPWG	Comprehensive Mitigation Review Proposal and Tariff Updates: https://www.nyiso.com/documents/20142/25780701/20211029%20NYISO%20-%20CMR.pdf/ea8494b0-0860-b260-89b6-0c418d28a91d

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Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
November 2, 2021	ICAPWG	NYISO CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/CIA%20-%20Comprehensive%20Mitigation%20Review.pdf/36d447d4-5b33-8ab1-2654-90a529ff1dfe Potomac CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/MMU%20ICAP%20Accreditation%20Consumer%20Impact%20Analysis%201-02-2021.pdf/637ba21e-db75-a4c1-5b41-f770dd26e529
November 9, 2021	BIC	Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/25928340/5%20202111109%20NYISO%20-%20CMR%20v3.pdf/84d8b429-126c-68dd-0308-caa50886de92 Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/25928340/110921%20bic%20final%20motions.pdf/785d5869-1e04-9f97-e330-e2e632ae7a9c
November 17, 2021	MC	Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/26119798/05%20CMR.pdf/11217ade-152a-74a2-d478-6b5ae5e21207 Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/26119798/111821%20MC_Final_Motions.pdf/bbf15d66-4108-7173-1596-9b20677914e6

Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
January 20, 2022	ICAPWG	2022 Market Projects: https://www.nyiso.com/documents/20142/27799605/2022%20Projects%20Presentation.pdf/4553eb95-177d-7cbc-f2fe-7754b7c66644
February 3, 2022	ICAPWG	Improving Capacity Accreditation Plan: https://www.nyiso.com/documents/20142/28227906/Improving%20Capacity%20Accreditation%20Plan.pdf/92560e95-5703-4c57-45cb-7706c36f4656
February 24, 2022	ICAPWG	Improving Capacity Accreditation Project Kick Off: https://www.nyiso.com/documents/20142/28687884/Capacity%20Accreditation%20Kick%20Off%2002-24-22%20v7.pdf/5ab742c4-650b-5094-6a22-d41a2f29da6f MARS Review (GE Consulting): https://www.nyiso.com/documents/20142/28687884/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0224-v4.pdf/d302df1c-5607-16a8-ba01-fba700d5bbd1
March 3, 2022	ICAPWG	CMR Draft Deficiency Response: https://www.nyiso.com/documents/20142/28897222/CMR%20Deficiency%20Draft%20Responses%2003-03%20ICAPWG.pdf/0a3c8303-515e-7725-dee5-a9dda1398672

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Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
March 16, 2022	ICAPWG	Capacity Accreditation Resource Class Criteria, Resource-Specific Derating Factors, and Areas of Needed Change: https://www.nyiso.com/documents/20142/29177064/Capacity%20Accreditation%2003-16-22%20v7.pdf/b26e6a99-5f4e-29cc-c60c-47608c78c983
March 31, 2022	ICAPWG	Capacity Accreditation Representative Unit Modeling: https://www.nyiso.com/documents/20142/29607069/2%20CA%20Representative%20Unit%20Modeling%2003-31-22%20ICAPWG.pdf/1c3af8ac-625a-5066-3977-8c3d9ae0ddda ELCC and MRI Overview (GE): https://www.nyiso.com/documents/20142/29607069/3%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0331.pdf/08355c9a-d104-e1b6-6b8a-8266c61b74a3
April 19, 2022	ICAPWG	Capacity Accreditation Adjusted Resource Specific Derating Factors and External Resources: https://www.nyiso.com/documents/20142/30025560/04-19-22%20CA%20Adjusted%20Derating%20Factors%20and%20External%20Resources.pdf/5dd1f4b2-092d-6a6a-3b99-4d768ea6c5eb

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Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
April 28, 2022	ICAPWG	Preliminary Capacity Accreditation Resource Classes: https://www.nyiso.com/documents/20142/30276257/04-28-22%20Capacity%20Accreditation%20-%20Preliminary%20CARCs.pdf/c82c47c5-28c2-cf19-c602-16bf3cfc4aca Preliminary ELCC and MRI Results (GE): https://www.nyiso.com/documents/20142/30276257/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0428.pdf/3c761f16-7bc0-b469-b1e8-c2a69feb58ef
May 24, 2022	ICAPWG	Updated Preliminary CARCs and Annual Process to Establish CARCs: https://www.nyiso.com/documents/20142/30888946/3%2005-24-22%20Capacity%20Accreditation.pdf/cd61d855-f634-0fe8-6109-7d8c0547beda Additional Preliminary ELCC and MRI Results (GE): https://www.nyiso.com/documents/20142/30888946/2%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0524.pdf/0976330d-f4eb-4db3-2613-c8be9bafe452
June 16, 2022	ICAPWG	Sensitivity Scenarios and Seasonal CAFs: https://www.nyiso.com/documents/20142/31532822/2%20Capacity%20Accreditation%20v6.pdf/4ffe4fa9-bdaf-2c23-77be-d49ed04c5ea5

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Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
June 28, 2022	ICAPWG	Annual Peak Load Window (PLW) Review and Energy Duration Limitation Proposals: https://www.nyiso.com/documents/20142/31790818/06-28-22%20PLW%20and%20EDL%20Proposal.pdf/ffca7c8a-767e-3de1-9b46-404f661351b3 Revised Shape-based Resource Results and ELR Modeling Functionality in MARS (GE): https://www.nyiso.com/documents/20142/31790818/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0628.pdf/999c7dfa-0b5d-a6bc-a57a-b35a1cda5aa4
July 21, 2022	ICAPWG	Capacity Accreditation: Project Schedule Update: https://www.nyiso.com/documents/20142/32356084/7-21-2022%20ICAPWG%20Project%20Schedule.pdf/958ef86a-12de-32a1-c115-5c1af39abb54
July 28, 2022	ICAPWG	Capacity Accreditation: SCR CAF Results and Proposal: https://www.nyiso.com/documents/20142/32491922/2%207282022%20ICAPWG%20Capacity%20Accreditation.pdf/3f991228-5011-7cc2-cfd3-a7762fa8c8f6 Sensitivity Scenario Methodologies (GE): https://www.nyiso.com/documents/20142/32491922/3%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0728.pdf/9fd89cbc-2baa-3c54-dc74-17c2e8cf588a

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Background

Background

- **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 (CARCs) and (2) propose necessary ICAP Manual revisions**
  - The NYISO has contracted with GE Energy Consulting to support the NYISO and its stakeholders in the development of the implementation details and technical specifications
- **The 2022 Improving Capacity Accreditation project deliverable is a Q3 Market Design Complete**
  - Completion of the project is delayed. The NYISO is now targeting a Q4 Market Design Complete

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CAFs vs Resource Specific Derating Factors

Capacity Accreditation Factors

- **CAFs will reflect the marginal reliability contribution of the representative unit of each CARC for each location that is evaluated**
- **The impact of the following characteristics would be captured by CAFs:**
  - Energy Duration Limitations
  - Correlated unavailability due to weather and/or fuel supply limitations
  - Synergistic and antagonistic effects
  - Start-up notification time limitations

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Resource Specific Derating Factors

- **As discussed previously, resource specific derating factors will capture differences in availability that is specific to an individual resource and not captured in the CAF of the resource's CARC**
  - Examples:
    - Forced outages, forced derates, failed starts, etc.
    - Resource output that is different from the modeled production profile of the CARC
- **Generally, a Resource's UCAP will be determined by combining the Resource's ICAP, CAF, and resource specific derating factor as illustrated below**
  - UCAP = Adjusted ICAP x (1 – resource specific derating factor)
    - Where:
      - Adjusted ICAP = ICAP * CAF
      - ICAP = min(DMNC, CRIS)
    - So, UCAP = min(DMNC, CRIS) * CAF * (1 – resource specific derating factor)
  - For more information on current resource-specific derating factors, see the 03/16/22 ICAPWG presentation

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Complications Related to Calculating Seasonal CAFs

Complications Related to Calculating Seasonal CAFs

- **The NYCA system has historically been more stressed in the summer, with conditions involving annual peak load, lower availability of Installed Capacity, and reduced system transfer limits. Due to this, the modeling conducted to calculate the Installed Reserve Margin (IRM) and Locational Capacity Requirements (LCRs) has been tailored towards summer operating conditions**
  - Modeling approaches and assumptions in the current IRM/LCR model related to load, interface transfer limits, external areas/emergency assistance and natural gas availability are specific to expected summer conditions and largely not adjusted for winter
    - Load: The annual 8760 hourly load profiles are scaled to the forecasted peak summer load for the study year. Winter load is not separately scaled to the forecasted peak winter load for the study year
    - Interface transfer limits: Set to summer transfer limits for the entire study year
    - External areas/emergency assistance:
      - External areas data is sourced from NPCC and inputted into the model to be largely aligned with the NYCA summer conditions
      - The emergency assistance from external areas can be up to 3,500 MWs for the entire study year, which is based on the support from neighboring jurisdictions during summer conditions
    - Natural gas availability: Correlated unavailability of gas-only units due to limited natural gas availability during peak winter demand is not currently captured in the IRM/LCR model

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Complications Related to Calculating Seasonal CAFs

- **Because reliability needs have historically occurred in the summer, modeling approaches and assumptions tailored to winter have not been needed in the IRM/LCR model**
  - Without winter specific modeling approaches and assumptions, winter reliability needs that occur in the model will not align with the actual expected winter reliability needs
  - With the expected tightening of available capacity in the winter, the NYISO is investigating and will be incorporating winter modeling approaches and assumptions in future IRM/LCR models. This process will take time and will not be completed for implementation of Capacity Accreditation in Capability Year 2024-2025
- **Implementing seasonal CAFs and calculating winter CAFs before winter modeling approaches and assumptions are incorporated in the IRM/LCR model will produce CAFs that are not consistent with resources' actual winter marginal reliability contributions**
  - The NYISO is developing a plan to address assumptions that impact winter resource adequacy modeling and improve the model's ability to determine seasonal CAFs consistent with expected winter reliability needs
  - Therefore, the NYISO is investigating options for Capacity Accreditation calculations until further modeling of winter reliability risk can be implemented

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ICAP Manual Revision Process

ICAP Manual Revision Process

- **Revisions to the ICAP Manual for Capacity Accreditation, the DER project, and 2023/2024 External ICAP Rights will be occurring between Q3 2022 and Q1 2023**
- **Due to the need for overlapping revisions and layered effective dates, the NYISO is seeking feedback on how to proceed with the stakeholder approval process for the ICAP Manual revisions related to Capacity Accreditation**
  - Layered effective dates:
    - 2023/2024 External ICAP Rights will need to be effective prior to Capability Year 2023-2024
    - DER-related revisions will need to be effective for DER implementation mid-2023
    - Effective dates for Capacity Accreditation revisions will span mid-2023 through 2024
      - For example, the annual process for establishing CARCs will need to be effective prior to the posting of the preliminary CARCs in September 2023. However, the incorporation of CAFs into the calculation of UCAPs cannot be effective until 2024

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ICAP Manual Revision Process

- **Option 1:**
  - In 2022, present the full set of ICAP Manual revisions for Capacity Accreditation to the Business Issues Committee (BIC) without seeking a vote
  - In 2023, vote on the final ICAP Manual revisions after 2023/2024 External ICAP Rights and DER-related revisions have been approved and incorporated
    - ICAP Manual revisions for Capacity Accreditation that need to be effective mid-2023 would be voted on prior to the revisions that cannot be effective until 2024
- **Option 2:**
  - In 2022, vote on the ICAP Manual revisions for Capacity Accreditation that will not be impacted by the 2023/2024 External ICAP Rights and DER-related revisions
    - This might include revisions related to the annual process for establishing CARCs, the assignment of Resources to CARCs, the technique for calculating CAFs, and the annual assessment of the Peak Load Windows
  - In 2023, vote on remaining ICAP Manual revisions for Capacity Accreditation after 2023/2024 External ICAP Rights and DER-related revisions have been approved and incorporated
    - This would include the remaining revisions such as incorporating CAFs into the calculation of UCAPs and the calculation of resource specific derating factors that cannot be effective until 2024

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Next Steps

Next Steps

- The NYISO plans to return to the ICAPWG later in August with a proposed path forward regarding seasonal vs annual CAFs and a proposed methodology for the annual assessment of the Winter Peak Load Window

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Questions?

Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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