

Sensitivity Scenarios and Seasonal CAFs

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June 16, 2022

Agenda

- Previous Discussions
- Background
- Capacity Accreditation Factors vs Resource Specific Derating Factors
- Sensitivity Scenarios
- Seasonal CAFs
- Next Steps

Previous Discussions

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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

Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
November 2, 2021	ICAPWG	<p>NYISO CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/CIA%20-%20Comprehensive%20Mitigation%20Review.pdf/36d447d4-5b33-8ab1-2654-90a529ff1dfe</p> <p>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</p>
November 9, 2021	BIC	<p>Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/25928340/5%2020211109%20NYISO%20-%20CMR%20v3.pdf/84d8b429-126c-68dd-0308-caa50886de92</p> <p>Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/25928340/110921%20bic%20final%20motions.pdf/785d5869-1e04-9f97-e330-e2e632ae7a9c</p>
November 17, 2021	MC	<p>Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/26119798/05%20CMR.pdf/11217ade-152a-74a2-d478-6b5ae5e21207</p> <p>Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/26119798/111821%20MC_Final_Motions.pdf/bbf15d66-4108-7173-1596-9b20677914e6</p>

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/Capa%20city%20Accreditation%20Kick%20ff%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

Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
March 16, 2022	ICAPWG	<p>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</p>
March 31, 2022	ICAPWG	<p>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</p> <p>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</p>
April 19, 2022	ICAPWG	<p>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</p>

Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
April 28, 2022	ICAPWG	<p>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</p> <p>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</p>
May 24, 2022	ICAPWG	<p>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</p> <p>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-c8be9baf452</p>

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**

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

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**
 - $UCAP = \text{Adjusted ICAP} \times (1 - \text{resource specific derating factor})$
 - Where:
 - $\text{Adjusted ICAP} = \text{ICAP} * \text{CAF}$
 - $\text{ICAP} = \min(\text{DMNC}, \text{CRIS})$
 - So, $UCAP = \min(\text{DMNC}, \text{CRIS}) * \text{CAF} * (1 - \text{resource specific derating factor})$
 - For more information on current resource-specific derating factors, see the [03/16/22 ICAPWG presentation](#)

Sensitivity Scenarios

Sensitivity Scenarios

- **The NYISO is proposing to leverage the 2022 RNA model for sensitivity scenario testing of CAFs under future system conditions**
 - The 2022 RNA study period is 2026-2032
 - The 2022 RNA Base Case incorporates proposed generation and transmission changes that meet the inclusion rules detailed in the Reliability Planning Process Manual
 - Proposed generation and transmission changes included in the preliminary 2022 RNA Base Case were presented at the 04/26/2022 TPAS/ESPGW

Sensitivity Scenarios

- Utilizing the 2022 RNA model, the NYISO is proposing to calculate CAFs under the following sensitivity scenarios:
 - Year 2030 from the 2022 RNA Base Case
 - The NYISO will test both the ELCC and MRI techniques to validate the stability of the MRI technique in calculating CAFs under future system conditions
 - Year 2030 from the CLCPA scenario of the 2022 RNA Study
 - The CLCPA scenario will incorporate results from the System and Resource Outlook study
- **The NYISO will use the LCR Optimizer to establish the at-criteria base cases with the resulting IRMs and LCRs based on the Year 2030 sensitivity scenarios described above**
 - These base cases will be used to test CAFs under the future system conditions
- **The NYISO is also proposing to calculate select CAFs with the 2022 final LCR model adjusted to Level of Excess conditions**
- **Sensitivity scenario testing will be limited to select step sizes for the representative units**

Sensitivity Scenarios

- Due to the considerable resources required to set up and run capacity accreditation sensitivity scenarios, limited additional scenarios will be considered
 - Please send requests for additional sensitivity scenarios to mmohrman@nyiso.com by June 30, 2022
 - The NYISO will return to an ICAPWG in July to discuss the requests received

Seasonal CAFs

Seasonal CAFs

- The preliminary CAF results presented to date are annual CAF values
- However, due to the concentration of LOLE occurring in the Summer Capability Period, the preliminary CAF results largely reflect resources' summer performance and contributions toward meeting summer reliability needs
- Utilizing annual CAFs in the Winter Capability Period could result in winter UCAP ratings that are inconsistent with the winter reliability value expected from select resource classes (*e.g.*, wind, solar, conventional resources with non-firm fuel)

Seasonal CAFs

- **Calculating winter CAFs would require near term adjustments to the final LCR model**
 - Current winter LOLE is too low to produce stable and robust winter CAFs
- **The NYISO is investigating calculating seasonal CAFs and will return to a future ICAPWG to further discuss this issue**

Next Steps

Next Steps

- **The NYISO plans to return to the 6/28/22 ICAPWG with additional preliminary CAF results and a proposed methodology for establishing the annual Peak Load Window**

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