

# Preliminary Capacity Accreditation Resource Classes

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**ICAPWG/MIWG**

April 28, 2022

# Agenda

- Previous Discussions
- Background
- Capacity Accreditation Factors vs Resource Specific Derating Factors
- Preliminary Capacity Accreditation Resource Classes
- Conforming Changes Update
- 2023 Project
- Next Steps

# Previous Discussions

# Previous Discussions

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

# Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
November 2, 2021	ICAPWG	<p>NYISO CMR Consumer Impact Analysis:  <a href="https://www.nyiso.com/documents/20142/25835955/CIA%20-%20Comprehensive%20Mitigation%20Review.pdf/36d447d4-5b33-8ab1-2654-90a529ff1dfe">https://www.nyiso.com/documents/20142/25835955/CIA%20-%20Comprehensive%20Mitigation%20Review.pdf/36d447d4-5b33-8ab1-2654-90a529ff1dfe</a></p> <p>Potomac CMR Consumer Impact Analysis:  <a href="https://www.nyiso.com/documents/20142/25835955/MMU%20ICAP%20Accreditation%20Consumer%20Impact%20Analysis%201-02-2021.pdf/637ba21e-db75-a4c1-5b41-f770dd26e529">https://www.nyiso.com/documents/20142/25835955/MMU%20ICAP%20Accreditation%20Consumer%20Impact%20Analysis%201-02-2021.pdf/637ba21e-db75-a4c1-5b41-f770dd26e529</a></p>
November 9, 2021	BIC	<p>Comprehensive Mitigation Review Proposal and Tariff:  <a href="https://www.nyiso.com/documents/20142/25928340/5%2020211109%20NYISO%20-%20CMR%20v3.pdf/84d8b429-126c-68dd-0308-caa50886de92">https://www.nyiso.com/documents/20142/25928340/5%2020211109%20NYISO%20-%20CMR%20v3.pdf/84d8b429-126c-68dd-0308-caa50886de92</a></p> <p>Comprehensive Mitigation Review Approved Motion:  <a href="https://www.nyiso.com/documents/20142/25928340/110921%20bic%20final%20motions.pdf/785d5869-1e04-9f97-e330-e2e632ae7a9c">https://www.nyiso.com/documents/20142/25928340/110921%20bic%20final%20motions.pdf/785d5869-1e04-9f97-e330-e2e632ae7a9c</a></p>
November 17, 2021	MC	<p>Comprehensive Mitigation Review Proposal and Tariff:  <a href="https://www.nyiso.com/documents/20142/26119798/05%20CMR.pdf/11217ade-152a-74a2-d478-6b5ae5e21207">https://www.nyiso.com/documents/20142/26119798/05%20CMR.pdf/11217ade-152a-74a2-d478-6b5ae5e21207</a></p> <p>Comprehensive Mitigation Review Approved Motion:  <a href="https://www.nyiso.com/documents/20142/26119798/111821%20MC_Final_Motions.pdf/bbf15d66-4108-7173-1596-9b20677914e6">https://www.nyiso.com/documents/20142/26119798/111821%20MC_Final_Motions.pdf/bbf15d66-4108-7173-1596-9b20677914e6</a></p>

# Previous Discussions (cont.)

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

# 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:  <a href="https://www.nyiso.com/documents/20142/29177064/Capacity%20Accreditation%2003-16-22%20v7.pdf/b26e6a99-5f4e-29cc-c60c-47608c78c983">https://www.nyiso.com/documents/20142/29177064/Capacity%20Accreditation%2003-16-22%20v7.pdf/b26e6a99-5f4e-29cc-c60c-47608c78c983</a></p>
March 31, 2022	ICAPWG	<p>Capacity Accreditation Representative Unit Modeling:  <a href="https://www.nyiso.com/documents/20142/29607069/2%20CA%20Representative%20Unit%20Modeling%2003-31-22%20ICAPWG.pdf/1c3af8ac-625a-5066-3977-8c3d9ae0ddda">https://www.nyiso.com/documents/20142/29607069/2%20CA%20Representative%20Unit%20Modeling%2003-31-22%20ICAPWG.pdf/1c3af8ac-625a-5066-3977-8c3d9ae0ddda</a></p> <p>ELCC and MRI Overview (GE):  <a href="https://www.nyiso.com/documents/20142/29607069/3%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0331.pdf/08355c9a-d104-e1b6-6b8a-8266c61b74a3">https://www.nyiso.com/documents/20142/29607069/3%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0331.pdf/08355c9a-d104-e1b6-6b8a-8266c61b74a3</a></p>
April 19, 2022	ICAPWG	<p>Capacity Accreditation Adjusted Resource Specific Derating Factors and External Resources:  <a href="https://www.nyiso.com/documents/20142/30025560/04-19-22%20CA%20Adjusted%20Derating%20Factors%20and%20External%20Resources.pdf/5dd1f4b2-092d-6a6a-3b99-4d768ea6c5eb">https://www.nyiso.com/documents/20142/30025560/04-19-22%20CA%20Adjusted%20Derating%20Factors%20and%20External%20Resources.pdf/5dd1f4b2-092d-6a6a-3b99-4d768ea6c5eb</a></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](#)

# Preliminary Capacity Accreditation Resource Classes

# Capacity Accreditation Resource Classes

- Based on GE's initial testing, the NYISO is proposing the preliminary CARCs listed on the following slide
- The list of preliminary CARCs is not exhaustive and will likely be expanded upon as the NYISO and GE continue testing
- The NYISO will annually determine CARCs and CAFs for the upcoming Capability Year, beginning with the 2024-2025 Capability Year
  - CAFs will not be calculated for technologies that are not expected to enter the ICAP market in the upcoming Capability Year

# Potential Capacity Accreditation Resource Classes

- Solar
- Onshore Wind
- Offshore Wind
- Limited Control Run-of-River Hydro
- Landfill Gas
- Special Case Resources
- 2-hour Energy Duration Limited\*
- 4-hour Energy Duration Limited\*
- 6-hour Energy Duration Limited\*
- 8-hour Energy Duration Limited\*
- Non-Duration Limited Internal Resources
- Non-Duration Limited External Resources

\*Energy Duration Limited CARCs will apply to resources with Energy Duration Limitations, such as Energy Storage Resources, Energy Limited Resources, and Distributed Energy Resources

# Conforming Changes Update

# CRIS Rules

- **After evaluation of the current CRIS rules, the NYISO has determined no CRIS-related process changes will be necessary in order to accommodate the implementation of Capacity Accreditation**

# 2023 Project

# 2023 Project

- The NYISO is proposing a 2023 project to enhance the inputs to and modeling in the GE MARS software
- Examples of potential enhancements include incorporating correlated fuel unavailability for non-renewable resources and start up notification time limitations
- The 2023 project will involve working with NYISO's stakeholders and the NYSRC to examine the potential enhancements to GE MARS and incorporate the enhancements in establishing the Installed Reserve Margin, Locational Capacity Requirements, and CAFs

# 2023 Project

- **As part of the 2022 Improving Capacity Accreditation project, the NYISO will be leveraging the modeling currently available within GE MARS and will calculate CAFs consistent with resource limitations currently captured in the IRM/LCR model**

# Next Steps

# Next Steps

- **The NYISO plans to return to the ICAPWG with additional CAF results in May**

# 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