

# Capacity Accreditation

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**ICAPWG/MIWG**

October 19, 2022

# Agenda

- Previous Discussions
- Background
- Capacity Accreditation Factors vs Resource Specific Derating Factors
- Translation Factors for IRM/LCR Studies and Deliverability Testing
- Sensitivity Scenario Update
- Draft 5 Year ICAP Market Resource Adequacy Plan
- 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>

# Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
April 28, 2022	ICAPWG	<p>Preliminary Capacity Accreditation Resource Classes:  <a href="https://www.nyiso.com/documents/20142/30276257/04-28-22%20Capacity%20Accreditation%20-%20Preliminary%20CARCs.pdf/c82c47c5-28c2-cf19-c602-16bf3cfc4aca">https://www.nyiso.com/documents/20142/30276257/04-28-22%20Capacity%20Accreditation%20-%20Preliminary%20CARCs.pdf/c82c47c5-28c2-cf19-c602-16bf3cfc4aca</a></p> <p>Preliminary ELCC and MRI Results (GE):  <a href="https://www.nyiso.com/documents/20142/30276257/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0428.pdf/3c761f16-7bc0-b469-b1e8-c2a69feb58ef">https://www.nyiso.com/documents/20142/30276257/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0428.pdf/3c761f16-7bc0-b469-b1e8-c2a69feb58ef</a></p>
May 24, 2022	ICAPWG	<p>Updated Preliminary CARCs and Annual Process to Establish CARCs:  <a href="https://www.nyiso.com/documents/20142/30888946/3%2005-24-22%20Capacity%20Accreditation.pdf/cd61d855-f634-0fe8-6109-7d8c0547beda">https://www.nyiso.com/documents/20142/30888946/3%2005-24-22%20Capacity%20Accreditation.pdf/cd61d855-f634-0fe8-6109-7d8c0547beda</a></p> <p>Additional Preliminary ELCC and MRI Results (GE):  <a href="https://www.nyiso.com/documents/20142/30888946/2%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0524.pdf/0976330d-f4eb-4db3-2613-c8be9baf6452">https://www.nyiso.com/documents/20142/30888946/2%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0524.pdf/0976330d-f4eb-4db3-2613-c8be9baf6452</a></p>
June 16, 2022	ICAPWG	<p>Sensitivity Scenarios and Seasonal CAFs:  <a href="https://www.nyiso.com/documents/20142/31532822/2%20Capacity%20Accreditation%20v6.pdf/4ffe4fa9-bdaf-2c23-77be-d49ed04c5ea5">https://www.nyiso.com/documents/20142/31532822/2%20Capacity%20Accreditation%20v6.pdf/4ffe4fa9-bdaf-2c23-77be-d49ed04c5ea5</a></p>



# Previous Discussions (cont.)

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

# Previous Discussions (cont.)

Date	Working Group	Discussion Points and Links to Materials
August 9, 2022	ICAPWG	<p>Modeling Discussion and ICAP Manual Revision Process Options:  <a href="https://www.nyiso.com/documents/20142/32687686/08-09-22%20Capacity%20Accreditation.pdf/1009a4d-cb9f-17f3-bb34-908fd8d5704d">https://www.nyiso.com/documents/20142/32687686/08-09-22%20Capacity%20Accreditation.pdf/1009a4d-cb9f-17f3-bb34-908fd8d5704d</a></p>
August 29, 2022	ICAPWG	<p>Annual CAF Proposal, Winter PLW Assessment, and CAF Interaction with the ICAP Demand Curves:  <a href="https://www.nyiso.com/documents/20142/32977661/Capacity%20Accreditation%2008292022%20ICAPWG.pdf/13c04d12-f77f-3184-15c4-8f0b22897f3d">https://www.nyiso.com/documents/20142/32977661/Capacity%20Accreditation%2008292022%20ICAPWG.pdf/13c04d12-f77f-3184-15c4-8f0b22897f3d</a></p> <p>Compiled Preliminary CAF Results: <a href="https://www.nyiso.com/documents/20142/32977661/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_LCR-results.pdf/e9fdeb01-1ee0-7651-6a3f-0823aedcef1d">https://www.nyiso.com/documents/20142/32977661/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_LCR-results.pdf/e9fdeb01-1ee0-7651-6a3f-0823aedcef1d</a></p>
September 30, 2022	ICAPWG	<p>Resource Specific Derating Factor Proposal for Performance-based Resources, CAF Interaction with ICAP Demand Curves, ISO Review of Peak Load Windows, and Modeling CAFs At Criteria vs Level of Excess: <a href="https://www.nyiso.com/documents/20142/33520089/9-30-2022%20ICAPWG%20Capacity%20Accreditation%20v3.pdf/0178b3b4-4398-ce4a-3197-224e24086c51">https://www.nyiso.com/documents/20142/33520089/9-30-2022%20ICAPWG%20Capacity%20Accreditation%20v3.pdf/0178b3b4-4398-ce4a-3197-224e24086c51</a></p> <p>Capacity Value Results for 2022 LCR at LOE and 2022 RNA 2030 Base Case (GE):  <a href="https://www.nyiso.com/documents/20142/33520089/GE-CapacityAccreditation-LOEandBaseRNA-results%20v5%20-clean.pdf/4e05032a-91c3-ff78-08a2-9202efead08a">https://www.nyiso.com/documents/20142/33520089/GE-CapacityAccreditation-LOEandBaseRNA-results%20v5%20-clean.pdf/4e05032a-91c3-ff78-08a2-9202efead08a</a></p> <p>Consumer Impact Analysis Methodology: <a href="https://www.nyiso.com/documents/20142/33520089/CIA%20Methodology%20-Capacity%20Accreditation_Final.pdf/37c9b5f5-ab29-8eb0-afd2-fdc369f097f5">https://www.nyiso.com/documents/20142/33520089/CIA%20Methodology%20-Capacity%20Accreditation_Final.pdf/37c9b5f5-ab29-8eb0-afd2-fdc369f097f5</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**
  - Completion of the project is delayed. The NYISO is now targeting a Q4 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](#)

# Translation Factors for IRM/LCR Studies and Deliverability Testing



# Translation Factors

- Translation factors are currently used as part of the ICAP-to-UCAP translation for 1) the shifting methodology carried out in the IRM/LCR studies and 2) modeling resources for deliverability studies
- The NYISO calculates translation factors for both Intermittent Power Resources and non-Intermittent Power Resources following ISO procedure and NYSRC Policy
- The current ISO procedure to calculate translation factors for Intermittent Power Resources utilizes the existing market UCAP calculation (detailed in Section 4.5 of the ICAP Manual) applied to the 5-year-historical production of the resource
- With the implementation of Capacity Accreditation, the market UCAP calculation for all resources will reflect the use of marginal CAFs
  - Therefore, a separate ISO procedure will be required to calculate the translation factors for Intermittent Power Resources for use in the IRM/LCR and deliverability studies
    - The current ISO procedure for calculating translation factors for non-Intermittent Power Resources (i.e., using a blended average of the derating factors of non-Intermittent Power Resources) will not reflect the use of marginal CAFs. Therefore, the current ISO procedure for non-Intermittent Power Resources will be maintained

# Proposed ISO Procedure

- **The NYISO is proposing an updated procedure to calculate translation factors for Intermittent Power Resources for the purposes of the IRM/LCR studies and deliverability testing**
- **The proposed ISO procedure will follow the steps described below:**
  - 1) Calculate average hourly production factors by averaging the output of the resource in June, July, and August for a given hour across all 5 years of production data
  - 2) Calculate the hourly Loss of Load Risk by calculating the percentage of Loss of Load Events that exist in each hour
    - For this step, the NYISO will use the hourly LOLE distribution percentages of the most recently completed final IRM/LCR model
  - 3) Calculate the hourly weighted contribution by multiplying the results from steps 1) and 2) for each hour
    - The calculation will use full percentages (as shown in the example on the next slide)
  - 4) Calculate the weighted production factor by summing up the hourly weighted contributions from step 3)
  - 5) Calculate the unit-specific availability factor by dividing the weighted production factor from step 4) by the available ICAP of the resource
  - 6) Calculate the unit-specific translation factor as one minus the availability factor from step 5)

# Proposed ISO Procedure – Example IPR

HB	1 Avg Hourly Production Factor (MW)	2 Hourly LOLE Distribution	3 Hourly Weighted Contribution (1)*(2)
0	5	0%	0.0
1	0	0%	0.0
2	0	0%	0.0
3	0	0%	0.0
4	0	0%	0.0
5	0	0%	0.0
6	0	0%	0.0
7	0	0%	0.0
8	0	0%	0.0
9	0	0%	0.0
10	5	1%	0.1
11	8	2%	0.2
12	10	6%	0.6
13	10	10%	1.0
14	10	18%	1.8
15	20	22%	4.4
16	20	22%	4.4
17	30	11%	3.3
18	30	4%	1.2
19	30	3%	0.9
20	40	1%	0.4
21	40	0%	0.0
22	30	0%	0.0
23	5	0%	0.0
	4 Weighted Production Factor		Sum = 18.21

## 5 IPR Unit Specific Availability Factor

Available ICAP = 100 MW

Weighted Production Factor = 18.21 MW

Availability Factor =  $18.21/100 = 0.1821$

## 6 IPR Unit Specific Translation Factor

Translation Factor =  $1 - \text{Availability Factor}$

Translation Factor =  $1 - 0.18 = 0.8179$

# Next Steps

- **The NYISO is proposing tariff revisions to the OATT Attachment S to better capture the UCDF methodology used in deliverability studies for different resource classes**
  - Edits to Section 25.7.8.2.1.3 regarding the calculation of UCDFs for Intermittent Power Resources and non-Intermittent Power Resources are included in today's meeting materials as part of the OATT revisions for the Internal Controllable Lines project
    - Edits to Section 25.7.8.2.1.3 will be voted on as part of the interconnection changes for the Internal Controllable Lines project
- **The proposed ISO procedure will be included in the ICAP Manual as part of the Capacity Accreditation project's ICAP Manual revisions**
- **The NYISO will bring the proposed ISO procedure to the NYSRC for approval, as the translation factor calculation relates to the IRM study assumptions**

# Sensitivity Scenario Update

# Sensitivity Scenario Update

- A translation error was found in the inputs to the LCR Optimizer, which was used to establish the IRMs, LCRs, and at-criteria systems for the following sensitivity scenarios:
  - Year 2030 of the 2022 RNA Base Case
  - Year 2030 of the 2022 RNA Policy Case
- Translating the original IRMs and LCRs with the corrected inputs results in the corrected IRMs and LCRs in table on the right
  - The corrected IRM and LCRs still reflect at-criteria systems but may not reflect the least cost at-criteria systems

	2022 RNA Base Case: Year 2030		2022 RNA Policy Case: Year 2030	
	Original	Corrected	Original	Corrected
NYCA IRM	126.2%	125.5%	125.5%	162.3%
G-J LCR	84.2%	80.6%	77.0%	108.7%
J LCR	98.1%	80.7%	93.0%	120.5%
K LCR	114.5%	109.2%	119.0%	140.1%

# Sensitivity Scenario Update

- **The LCR Optimizer is being rerun with the corrected data to determine the least cost at-criteria systems**
  - GE will recalculate the MRI results with the least cost at-criteria systems for all resource types previously evaluated
    - A full set of MRI results can be calculated within a few days, whereas a full set of ELCC results can require multiple weeks
    - For shape-based resources, only the MRIs for the NYCA-average shape will be recalculated
    - For ELRs, only the MRIs using the dynamic model will be recalculated
  - If the new MRI results are not consistent with the MRI results from the original at-criteria systems, the ELCCs will be recalculated as well
    - The MRI and ELCC results from the original at-criteria system for the 2022 RNA Policy Case will be presented to stakeholders in addition to the new results for the least cost at-criteria system for the 2022 RNA Policy Case
      - The MRI and ELCC results from the original at-criteria system for the 2022 RNA Base Case were presented to stakeholders at the 09/30/2022 ICAPWG

# Draft 5 Year ICAP Market Resource Adequacy Plan





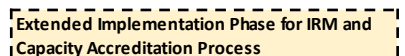

# Draft 5 Year ICAP Market Resource Adequacy Plan

- **The NYISO has been coordinating with the NYSRC Executive Committee on the needs for updating the Resource Adequacy model and methods for use with the ICAP Market**
  - These needs encompass the changing electricity system and the need to refine the calculations of both Resource Adequacy Reliability Targets and the Capacity Accreditation value of resources
  - The following slides are a draft of a 5-year plan to enhance the Resource Adequacy model and methods for use with the ICAP Market

# The Proposed RA Model Improvements & Strategic Priorities

Modeling Themes	2022	2023	2024	2025	2026
1. LCR Optimizer/Tan45 Methodology		LCR/TSL Improvement			
			Tan45 Methodology (pending estimated impact from BTM Solar treatment)		
				Comprehensive LCR/Tan45 Review	
					Stability of IRM/LCR
2. Winter Reliability and Modeling	Winter Modeling Initial Assessment	Winter Modeling Fuel Limitation Modeling			
			Tie and Seasonal Specific Emergency Assistance		
				Seasonal Specific Load And Topology	
					Winter Reliability & Outage Correlation
3. Energy Limited Modeling (ESR, SCR, DER, and ELR etc.)	ELR Model Adoption	EOP Structure Review (sequence of SCR/EA)			
			Modeling of DER		
				Continuous Improvement to the ELR Modeling	
4. Load Modeling	New Load Shape				
		New Load Shape + Updated LFU			
				Seasonal Specific Load Modeling	
5. Extreme Weather	Incorporate modeling improvements pending on progress and outcome from Extreme Weather working group				

**LEGEND:**

-  NYISO Proposed Prioritized Modeling Improvements
-  Expected Implementation Phase for IRM and Capacity Accreditation Process
-  Extended Implementation Phase for IRM and Capacity Accreditation Process
-  Specific model improvements are to be determined



# NYSRC Modeling Priorities for 2023

- **Theme 1: Improvement to the LCR optimizer tool**
  - Consider inputs from MMU to ensure intuitive LCR outcome and stability of model results
- **Theme 2: Winter Reliability Modeling**
  - Fuel limited modeling with the focus on gas constraints during winter season
- **Theme 3: Investigate and improve the sequence within EOP steps, particularly Emergency Assistance and SCRs**
  - Improvement in this area will have an impact on the ELR modeling and set up for winter reliability modeling improvement for 2024
- **Theme 4: Adopt the new load shapes and improve LFU scaling in the IRM study**
  - LFU modeling improvement (LFU Phase 3 Whitepaper)
  - New load shapes combining with improved scaling from the LFU phase whitepaper
- **Additional items may be desired:**
  - (by RA team) Testing of the impact of BTM solar to inform prioritization for 2024 Tan45/LCR/TSL improvement
  - (by NYSRC) **Theme 5** - Extreme weather event modeling, improve ESR modeling and offshore wind impact

# NYSRC Modeling Priorities for 2024

- **Theme 1: Comprehensive review of the IRM setting process, particularly the Tan45 methodology**
  - The current Tan45 methodology will require improvement in shifting capacity between upstate and downstate
  - The improved LCR optimizer may offer an alternative methodology to the Tan45 process
  - Pending on estimated impact, incorporate the BTM solar methodology in the comprehensive Tan45/LCR review
- **Theme 2: Winter Reliability Modeling**
  - Improve the modeling for emergency assistance from individual inertia and seasonal assumptions (summer and winter)
  - Effort to improve and simplify the external area modeling may also be included
- **Theme 3: Modeling for emerging resources/participation modes, i.e. DER, CSR and Hybrid resources**
  - Improvement to the ELR model may be required
- **Additional Items that may be desired:**
  - (by RA team) Investigate impacts on LCRs post peaker retirement
  - (by NYSRC) **Theme 5** - Extreme weather event modeling, improve ESR modeling
  - (by NYISO) Support the Capacity Demand Curve reset process

# NYSRC Potential Focus for 2025-2026

- **Theme 1**: Continue the enhancement of Tan45 and LCR processes
  - Shifting methodology in Tan45 process may start to fail after significant resource and topology changes between upstate and downstate
  - Impact from changes to southeast reliability due to combination of peaker retirement and offshore wind entry
  - Methodology review between the Tan45 and the LCR optimizer, with the potential of optimizing the IRM
  - Ensure the stability of IRM and LCR outcomes amid significant system changes and modeling enhancements
- **Theme 2**: Continue to refine assumptions during winter season and assess the reliability during winter
  - Winter assumptions include incorporating winter peak in load modeling (Theme 4), seasonal topology limits, as well as weather correlated outages
- **Theme 3**: Continue the modeling improvement for energy limited resources, particularly the modeling for DER, SCR and large penetration of ESRs
- Additional Items that may be desired by the NYSRC includes
  - Theme 5 - Extreme weather event modeling and additional reliability standards

# Capacity Accreditation (5-Year Plan)

- **The Capacity Accreditation project is expected to involve continuous model improvement and implementation for the next 5 years. The anticipated work scope includes:**
  - 2023
    - Implementation of Capacity Accreditation process and software
    - Research on Gas Constraints, Start up time, and SCR modeling
  - 2024
    - Implementation of Gas Constraints, Start up time, and SCR modeling
    - Research on Winter Reliability issues
  - 2025
    - Implementation of Winter Reliability Issues
    - Research on Correlated outages and unit size
  - 2026
    - Implementation of Correlated outages and unit size
    - Research on alignment of load and resource output profiles

# Next Steps

# Next Steps

- **The NYISO plans to return to the ICAPWG in October with the sensitivity scenario results for the 2022 RNA Policy Case Year 2030 and 2023 IRM Preliminary Base Case**



# 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