# Capacity Accreditation

Maddy Mohrman, Market Design Specialist

**ICAPWG/MIWG**

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# Agenda

- Previous Discussions
- Background
- Capacity Accreditation Factors vs Resource Specific Derating Factors
- Annual CAF Proposal
- Annual Assessment of the Winter Peak Load Window
- CAF Interaction with ICAP Demand Curves
- 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: 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 | NYISO CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/CIA%20-%20Comprehensive%20Mitigation%20Review.pdf/36d447d4-5b33-8ab1-2654-90a529ff1dfe<br><br>Potomac CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/MMU%20ICAP%20Accreditation%20Consumer%20Impact%20Analysis%2011-02-2021.pdf/637ba21e-db75-a4c1-5b41-f770dd26e529 |
| November 9, 2021 | BIC | Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/25928340/5%2020211109%20NYISO%20-%20CMR%20v3.pdf/84d8b429-126c-68dd-0308-caa50886de92<br><br>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<br><br>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<br><br>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<br><br>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 |

# Previous Discussions (cont.)

| Date | Working Group | Discussion Points and Links to Materials |
|---|---|---|
| April 28, 2022 | ICAPWG | Preliminary Capacity Accreditation Resource Classes:<br>https://www.nyiso.com/documents/20142/30276257/04-28-22%20Capacity%20Accreditation%20-%20Preliminary%20CARCs.pdf/c82c47c5-28c2-cf19-c602-16bf3cfc4aca<br><br>Preliminary ELCC and MRI Results (GE):<br>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:<br>https://www.nyiso.com/documents/20142/30888946/3%2005-24-22%20Capacity%20Accreditation.pdf/cd61d855-f634-0fe8-6109-7d8c0547beda<br><br>Additional Preliminary ELCC and MRI Results (GE):<br>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:<br>https://www.nyiso.com/documents/20142/31532822/2%20Capacity%20Accreditation%20v6.pdf/4ffe4fa9-bdaf-2c23-77be-d49ed04c5ea5 |

# 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<br><br>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<br><br>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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# Previous Discussions (cont.)

| Date | Working Group | Discussion Points and Links to Materials |
|---|---|---|
| August 9, 2022 | ICAPWG | Modeling Discussion and ICAP Manual Revision Process Options: https://www.nyiso.com/documents/20142/32687686/08-09-22%20Capacity%20Accreditation.pdf/1009a4dc-bb9f-17f3-bb34-908fd8d5704d |

# 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

# 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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# Annual CAF Proposal

# Annual CAF Proposal

- **As discussed at the 08/09/2022 ICAPWG, the IRM/LCR modeling approaches and assumptions for winter must be updated to reflect actual expected winter operating conditions before seasonal CAFs, that are consistent with reliability needs, can be calculated**
  - Determining and incorporating appropriate winter modeling approaches and assumptions will take time and will not be completed prior to the implementation of Capacity Accreditation in Capability Year 2024-2025
- **Additionally, without accompanied changes to the ICAP Demand Curves to reflect seasonal differences in reliability risk, seasonal CAFs will likely send inaccurate investment signals**
  - Slide 18 contains a discussion regarding the current structure of the ICAP Demand Curves and the value in incentivizing capacity market participation during all months of the year
  - Illustrative examples of possible capacity market investment signals sent under the seasonal and annual CAF approaches are included on slides 19-23
- **Due to the current limitations of the IRM/LCR model and the current design of the ICAP Demand Curves, the NYISO is proposing annual CAFs for initial implementation of Capacity Accreditation**

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# Annual CAF Proposal

- Historically, resource adequacy risk has occurred only in the Summer Capability Period
- However, the ICAP Market has been structured to incentivize capacity market participation during all months of the year, due to the additional value capacity market participation provides to the NYISO system
  - For example, capacity market participation provides incentives to participate in the NYISO's day-ahead market and outage scheduling process, which together increase the efficiency and reliability of the NYISO system
- As the mix of resources on the grid and seasonal differences in reliability risks change, there is increased value in sending seasonal capacity market signals that reflect seasonal differences in reliability risks
  - Currently, the same ICAP Demand Curves are used in both the Summer and Winter Capability Periods, with seasonal differences in the ICAP Market clearing prices driven by the seasonal differences in the Installed Capacity of thermal resources
    - As more thermal resources retire, the seasonal differences in the ICAP Market clearing prices will diminish given the current structure of the ICAP Demand Curves
- Although ICAP Demand Curves that reflect seasonal differences in reliability risks can 1) send clearer price signals of the value of capacity in each season and 2) facilitate the implementation of seasonal CAFs, the value of incentivizing capacity market participation during all months of the year must be maintained

# Seasonal CAFs: Near-Term Investment Signals

- **Currently, the ICAP Demand Curves are not designed to reflect seasonal differences in reliability risks**
  - The same ICAP Demand Curves are used in summer and winter regardless of differences in seasonal reliability risks (as shown on slides 19 and 20)
- **Example 1 shows that, given the current design of the ICAP Demand Curves and concentration of LOLE in the summer, the seasonal CAF approach underpays resources with lower winter reliability value and overpays resources with higher winter reliability value**
  - A resource with lower reliability value in winter than summer would receive annual capacity market revenue, relative to the annual capacity market revenue a perfect capacity resource would receive, that is less than the resource's annual marginal reliability contribution
    - Shown in red for solar and gas-only generators in example 1
  - A resource with higher reliability value in winter than summer would receive annual capacity market revenue, relative to the annual capacity market revenue a perfect capacity resource would receive, that is greater than the resource's annual marginal reliability contribution
    - Shown in red for wind in example 1

Example 1: Seasonal CAF Approach with Current NYCA ICAP Demand Curve

| | | Summer | Winter | Annual |
|---|---|---|---|---|
| NYCA Price at Level of Excess | A | $8.24 | $5.65 | |
| Share of LOLE | B | 100% | 0% | 100% |
| Perfect Capacity (PCAP) (1 MW) | | | | |
| Revenue | C=A*6*1000 (KW/MW) | $49,440 | $33,900 | $83,340 |
| Solar (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | D | 30% | 2% | 30% |
| Revenue: Seasonal CAF Approach | E=A*D*6*1000 (KW/MW) | $14,832 | $678 | $15,510 |
| *Relative to PCAP* | F=E/C | 30% | 2% | 19% |
| Wind (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | G | 10% | 30% | 10% |
| Revenue: Seasonal CAF Approach | H=A*G*6*1000 (KW/MW) | $4,944 | $10,170 | $15,114 |
| *Relative to PCAP* | I=H/C | 10% | 30% | 18% |
| Gas-Only Generator (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | J | 95% | 9.5% | 95% |
| Revenue: Seasonal CAF Approach | K=A*J*6*1000 (KW/MW) | $46,968 | $3,221 | $50,189 |
| Relative to PCAP | L=K/C | 95% | 9.5% | 60% |

# Seasonal CAFs: Near-Term Investment Signals

- Example 2 shows that if LOLE is concentrated in the winter, the seasonal CAF approach will underpay resources with lower summer reliability value and overpay resources with higher summer reliability value, given the current design of the ICAP Demand Curves
- Due to the misalignment of annual capacity market revenues and annual marginal reliability contributions, the seasonal CAF approach will likely not send the appropriate investment signals regarding resources' reliability value given the current design of the ICAP Demand Curves

**Example 2: Seasonal CAF Approach with Current NYCA ICAP Demand Curve**

| | | Summer | Winter | Annual |
|---|---|---|---|---|
| NYCA Price at Level of Excess | A | $8.24 | $5.65 | |
| Share of LOLE | B | 0% | 100% | 100% |
| Perfect Capacity (PCAP) (1 MW) | | | | |
| Revenue | C=A*6*1000 (KW/MW) | $49,440 | $33,900 | $83,340 |
| Solar (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | D | 30% | 2% | **2%** |
| Revenue: Seasonal CAF Approach | E=A*D*6*1000 (KW/MW) | $14,832 | $678 | $15,510 |
| *Relative to PCAP* | F=E/C | 30% | 2% | **19%** |
| Wind (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | G | 10% | 30% | **30%** |
| Revenue: Seasonal CAF Approach | H=A*G*6*1000 (KW/MW) | $4,944 | $10,170 | $15,114 |
| *Relative to PCAP* | I=H/C | 10% | 30% | **18%** |
| Gas-Only Generator (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | J | 95% | 9.5% | **9.5%** |
| Revenue: Seasonal CAF Approach | K=A*J*6*1000 (KW/MW) | $46,968 | $3,221 | $50,189 |
| Relative to PCAP | L=K/C | 95% | 9.5% | **60%** |

# Annual CAFs: Near-Term Investment Signals

- As shown in example 3, the annual CAF approach results in resources receiving annual capacity market revenues, relative to the annual capacity market revenue a perfect capacity resource would receive, that are equal to the resources' annual marginal reliability contributions
- Therefore, the annual CAF approach sends the appropriate investment signals regarding resources' reliability value given the current design of the ICAP Demand Curves and is appropriate for initial implementation of Capacity Accreditation

Example 3: Annual CAF Proposal with Current NYCA ICAP Demand Curve

| | | Summer | Winter | Annual |
|---|---|---|---|---|
| NYCA Price at Level of Excess | A | $8.24 | $5.65 | |
| Share of LOLE | B | 100% | 0% | 100% |
| Perfect Capacity (PCAP) (1 MW) | | | | |
| Revenue | C=A*6*1000 (KW/MW) | $49,440 | $33,900 | $83,340 |
| Solar (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | D | 30% | 2% | **30%** |
| Revenue: Annual CAF Approach | E=A*D*6*1000 (KW/MW) | $14,832 | $10,170 | $25,002 |
| *Relative to PCAP* | F=E/C | 30% | 30% | 30% |
| Wind (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | G | 10% | 30% | **10%** |
| Revenue: Annual CAF Approach | H=A*G*6*1000 (KW/MW) | $4,944 | $3,390 | $8,334 |
| *Relative to PCAP* | I=H/C | 10% | 10% | 10% |
| Gas-Only Generator (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | J | 95% | 9.5% | **95%** |
| Revenue: Annual CAF Approach | K=A*J*6*1000 (KW/MW) | $46,968 | $32,205 | $79,173 |
| *Relative to PCAP* | L=K/C | 95% | 95% | 95% |

# Annual CAFs: Long-Term Investment Signals

- **In the long-term, ICAP Demand Curves that are more aligned with seasonal reliability risks would send clearer price signals of the value of capacity in each season**
  - In example 4, seasonal ICAP Demand Curves are illustrated through seasonal prices at Level of Excess that reflect the seasonal differences in the share of LOLE[1]
- **Using seasonal ICAP Demand Curves, the annual CAF approach continues to send the correct annual investment signals but does not seasonally distribute revenue in line with seasonal marginal reliability contributions**

[1] In the market, seasonal ICAP Demand Curves may not mirror the exact seasonal differences in reliability risks as capacity market participation is still necessary in periods of lower reliability risk as discussed on slide 18

**Example 4: Annual CAF Approach with Seasonal ICAP Demand Curves**

| | | Summer | Winter | Annual |
|---|---|---|---|---|
| NYCA Price at Level of Excess | A | $9.72 | $4.17 | |
| Share of LOLE | B | 70% | 30% | 100% |
| Perfect Capacity (PCAP) (1 MW) | | | | |
| Revenue | C=A*6*1000 (KW/MW) | $58,338 | $25,002 | $83,340 |
| Solar (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | D | 30% | 2% | **22%** |
| Revenue: Annual CAF Approach | E=A*D*6*1000 (KW/MW) | $12,601 | $5,400 | $18,001 |
| *Relative to PCAP* | F=E/C | 22% | 22% | 22% |
| Wind (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | G | 10% | 30% | **16%** |
| Revenue: Annual CAF Approach | H=A*G*6*1000 (KW/MW) | $9,334 | $4,000 | $13,334 |
| *Relative to PCAP* | I=H/C | 16% | 16% | 16% |
| Gas-Only Generator (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | J | 95% | 9.5% | **69%** |
| Revenue: Annual CAF Approach | K=A*J*6*1000 (KW/MW) | $40,457 | $17,339 | $57,796 |
| *Relative to PCAP* | L=K/C | 69% | 69% | 69% |

# Seasonal CAFs: Long-Term Investment Signals

- **Using seasonal ICAP Demand Curves, the seasonal CAF approach can send the correct investment signals and align seasonal revenues with seasonal marginal reliability contributions**
  - In the long-term, the combination of seasonal ICAP Demand Curves and seasonal CAFs can send clearer investment signals regarding resources' seasonal and annual marginal reliability contributions

Example 5: Seasonal CAF Approach with Seasonal ICAP Demand Curves

| | | Summer | Winter | Annual |
|---|---|---|---|---|
| NYCA Price at Level of Excess | A | $9.72 | $4.17 | |
| Share of LOLE | B | 70% | 30% | 100% |
| Perfect Capacity (PCAP) (1 MW) | | | | |
| Revenue | C=A*6*1000 (KW/MW) | $58,338 | $25,002 | $83,340 |
| Solar (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | D | 30% | 2% | **22%** |
| Revenue: Seasonal CAF Approach | E=A*D*6*1000 (KW/MW) | $17,501 | $500 | $18,001 |
| *Relative to PCAP* | F=E/C | 30% | 2% | 22% |
| Wind (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | G | 10% | 30% | **16%** |
| Revenue: Seasonal CAF Approach | H=A*G*6*1000 (KW/MW) | $5,834 | $7,501 | $13,334 |
| *Relative to PCAP* | I=H/C | 10% | 30% | 16% |
| Gas-Only Generator (1 MW) | | | | |
| Assumed Marginal Reliability Contribution | J | 95% | 9.5% | **69%** |
| Revenue: Seasonal CAF Approach | K=A*J*6*1000 (KW/MW) | $55,421 | $2,375 | $57,796 |
| *Relative to PCAP* | L=K/C | 95% | 9.5% | 69% |

# Annual CAF Proposal

- **Due to the current design of the ICAP Demand Curves and current limitations of the IRM/LCR model in calculating winter CAFs, the NYISO is proposing annual CAFs for initial implementation of Capacity Accreditation**
- **After the ICAP Demand Curves are adjusted to reflect seasonal reliability risks and winter modeling approaches and assumptions are incorporated into the IRM/LCR model, the NYISO will evaluate implementing seasonal CAFs**
  - The NYISO is planning to investigate ICAP Demand Curves that reflect seasonal reliability risk as part of the 2025-2029 Demand Curve Reset that will be conducted in 2023-2024
  - The NYISO is also developing a plan to address assumptions that impact winter resource adequacy modeling and improve the IRM/LCR model's ability to determine seasonal CAFs consistent with expected winter reliability needs

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# Annual Assessment of the Winter Peak Load Window

# Annual Assessment of the Winter Peak Load Window

- **At the 6/28/2022 ICAPWG, the NYISO proposed two options for the annual assessment of the winter Peak Load Window (PLW)**
  - 1) Maintain the current winter PLW (HB 16-21) until a minimum winter LOLE threshold is reached
  - 2) Utilize the proposed summer PLW process with an adjusted IRM/LCR model
    - The NYISO envisioned utilizing this approach if the IRM/LCR model was adjusted to calculate winter CAFs
- **With the proposal to implement annual CAFs in the near-term, the NYISO proposes to maintain the current winter PLW until winter modeling approaches and assumptions are incorporated into the IRM/LCR model**
  - Once winter modeling approaches and assumptions are incorporated into the IRM/LCR model, the NYISO will re-evaluate utilizing the proposed summer PLW process to determine the winter PLW

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# CAF Interaction with ICAP Demand Curves

# CAF Interaction with ICAP Demand Curves

- MST 5.14.1.2.2.3 requires that ICAP Demand Curve reference point prices be calculated in accordance with ISO Procedures
- Section 5.5 of the ICAP Manual details the current calculation of the ICAP Demand Curve reference point prices as follows:

$$RP_z = \frac{ARV_z * AssmdCap_z}{6 * DAF_z * [SDMNC_z * \left(1 - \frac{LOE_z - 1}{ZCPR_z - 1}\right) + WDMNC_z * \left(1 - \frac{LOE_z - 1 + WSR_z - 1}{ZCPR_z - 1}\right)]}$$

- MST 5.14.1.2 and 5.14.1.2.2.4 require that the ICAP Demand Curves be translated to UCAP terms in accordance with ISO Procedures
  - Currently, the conversion of ICAP to UCAP essentially involves two-steps: (1) multiplying by the applicable Duration Adjustment Factor (DAF) [this value is equal to 100% for Resources not subject to an Energy Duration Limitation]; and (2) multiplying by the applicable derating factor
  - The current reference point price formula accounts for part of the adjustment from ICAP to UCAP terms by including the applicable DAF
- The current ICAP Demand Curve reference point price calculation formula will need to be revised to remove use of the applicable DAF beginning with Capability Year 2024-2025
  - With implementation of Capacity Accreditation in Capability Year 2024-2025, DAFs will no longer apply
- Given that Capacity Accreditation Factors (CAFs) will not be determined until March for the upcoming Capability Year and ICAP Demand Curves are required to be posted by (or, in the case of the first year of each reset, filed by) November 30th prior to the start of each Capability Year, the NYISO does not propose to include use of the applicable CAF in determining the ICAP Demand Curve reference point prices
  - For example, the CAFs for Capability Year 2024-2025 will be determined in March 2024
- Instead, the NYISO proposes to account for the applicable CAF as part of translating the ICAP Demand Curves to UCAP terms
  - Under Capacity Accreditation, conversion of ICAP to UCAP essentially involves the following two steps: (1) multiplying by the applicable CAF; and (2) multiplying by the applicable derating factor

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# CAF Interaction with ICAP Demand Curves

- **As previously noted, the translation of ICAP to UCAP under Capacity Accreditation essentially requires accounting for both the applicable CAF and derating factor**
  - As part of the Comprehensive Mitigation Review proposal, the NYISO clarified that beginning with the Capability Year 2024-2025, the applicable derating factor to use is that of the peaking plant for each ICAP Demand Curve
- **Accounting for the applicable CAF in the ICAP to UCAP translation rather than as part of the ICAP Demand Curve reference point price calculation continues to produce UCAP reference point prices that are designed to provide revenue adequacy for the applicable peaking plant at the level of excess conditions assumed in establishing the ICAP Demand Curves**
  - Additionally, accounting for both the applicable CAF and derating factor as part of the required ICAP to UCAP translation avoids any potential for adverse impacts to the November 30th deadline to post (or file) updated (or new) curves

# CAF Interaction with ICAP Demand Curves

- **Proposal Example - CAF incorporated into the ICAP to UCAP Translation:**
  - Given:
    - ICAP Demand Curve Monthly Reference Point Price (ICAP RP) = $8.87
      - Without CAF incorporated into the ICAP RP
    - Monthly Reference Point Price in UCAP = $\frac{ICAP\ RP}{CAF * (1 - derating\ factor)}$
  - Assume:
    - CAF = 90%
    - Derating Factor = 3%
  - Result:
    - Monthly Reference Point Price in UCAP = $\frac{\$8.87}{0.9 * (1 - 0.03)} = \frac{\$8.87}{0.873}$ = $10.16

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# CAF Interaction with ICAP Demand Curves

- **Status Quo Example - CAF incorporated into the ICAP Demand Curve Monthly Reference Point Price[1]:**
  - Given:
    - ICAP Demand Curve Monthly Reference Point Price w/o CAF (ICAP RP w/o CAF)= $8.87
    - Adjusted ICAP Demand Curve Monthly Reference Point Price (Adj. ICAP RP) = $\frac{ICAP\ RP\ w/o\ CAF}{CAF}$
    - Monthly Reference Point Price in UCAP = $\frac{Adj.\ ICAP\ RP}{(1 - derating\ factor)}$
  - Assume:
    - CAF = 90%
    - Derating Factor = 3%
  - Result:
    - Adj. ICAP RP = $\frac{\$8.87}{CAF} = \frac{\$8.87}{0.9}$ =$9.86
    - Monthly Reference Point Price in UCAP = $\frac{\$9.86}{(1 - 0.03)} = \frac{\$9.86}{0.97}$ = $10.16

[1] Illustrative example showing that the monthly reference point prices in UCAP will be the same, under the proposal to incorporate the CAF into the ICAP to UCAP translation, as the monthly reference point prices in UCAP that would result if procedures similar to the status quo could be maintained

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# Next Steps

# Next Steps

- The NYISO plans to return to the ICAPWG in September with an updated resource specific derating factor proposal for performance-based resources and initial sensitivity scenario results

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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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