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Independent System Operator

Capacity Accreditation: Project Schedule Update

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ICAPWG/MIWG

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- Project Schedule Overview
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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
October 18, 2021	ICAPWG	Comprehensive Mitigation Review Proposal and Tariff Updates: https://www.nyiso.com/documents/20142/25440628/20211018%20NYISO%20-%20CMR%20v9.pdf
October 29, 2021	ICAPWG	Comprehensive Mitigation Review Proposal and Tariff Updates: https://www.nyiso.com/documents/20142/25780701/20211029%20NYISO%20-%20CMR.pdf

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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 Potomac CMR Consumer Impact Analysis: https://www.nyiso.com/documents/20142/25835955/MMU%20ICAP%20Accreditation%20Consumer%20Impact%20Analysis%2011-02-2021.pdf
November 9, 2021	BIC	Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/25928340/5%2020211109%20NYISO%20-%20CMR%20v3.pdf Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/25928340/110921%20bic%20final%20motions.pdf
November 17, 2021	MC	Comprehensive Mitigation Review Proposal and Tariff: https://www.nyiso.com/documents/20142/26119798/05%20CMR.pdf Comprehensive Mitigation Review Approved Motion: https://www.nyiso.com/documents/20142/26119798/111821%20MC_Final_Motions.pdf

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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
February 3, 2022	ICAPWG	Improving Capacity Accreditation Plan: https://www.nyiso.com/documents/20142/28227906/Improving%20Capacity%20Accreditation%20Plan.pdf
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 MARS Review (GE Consulting): https://www.nyiso.com/documents/20142/28687884/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0224-v4.pdf
March 3, 2022	ICAPWG	CMR Draft Deficiency Response: https://www.nyiso.com/documents/20142/28897222/CMR%20Deficiency%20Draft%20Responses%2003-03%20ICAPWG.pdf

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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
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 ELCC and MRI Overview (GE): https://www.nyiso.com/documents/20142/29607069/3%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0331.pdf
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

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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 Preliminary ELCC and MRI Results (GE): https://www.nyiso.com/documents/20142/30276257/GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0428.pdf
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 Additional Preliminary ELCC and MRI Results (GE): https://www.nyiso.com/documents/20142/30888946/2%20GE-Support%20for%20NYISO%20Capacity%20Accreditation%20Project_0524.pdf
June 16, 2022	ICAPWG	Sensitivity Scenarios and Seasonal CAFs: https://www.nyiso.com/documents/20142/31532822/2%20Capacity%20Accreditation%20v6.pdf

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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 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

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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**

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CAFs and Resource Specific Derating Factors

Capacity Accreditation Factors

- **CAFs will be determined annually and 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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Project Schedule Overview

2022 Project Tasks

Completed	Ongoing	Remaining
• CARC Assignment Criteria, Definitions, and Annual Process • Methodology for Annual Assessment of the Summer Peak Load Window • Energy Duration Limitation Elections Rules and Bidding Requirements • Resource Specific Derating Factor Methodology for Availability-Based Resources	• CAF Calculation Technique (ELCC vs MRI, Seasonal vs Annual CAFs, Representative Unit Size and Location) • Methodology for Annual Assessment of the Winter Peak Load Window • Resource Specific Derating Factor Methodology for Performance-Based Resources	• CAF Interaction with Demand Curve Reference Point

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Timeline for Implementation

Q3 2022

- Review Sensitivity Scenario Results
- Finalize Accreditation Technique and Implementation Details
- Draft ICAP Manual Revisions

Q4 2022

- Finalize ICAP Manual Revisions
- Conduct Consumer Impact Analysis

Q1 - Q3 2023

- Update NYISO software for implementation of Capacity Accreditation
- Complete 2023 Modeling Improvements Project
- Publish the preliminary CARC list for the 2024-2025 Capability Year

Q4 2023

- Post the final CARC list for the 2024-2025 Capability Year
- Assign Resources to CARCs
- Finalize the LCR model

Q1 2024

- Calculate and post CAFs and PLWs for the 2024-2025 Capability Period by March 1st
- Calculate resource specific derating factors for the Summer Capability Period by mid-March
- First auction with Capacity Accreditation begins at the end of March

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Completed Project Tasks

Completed Project Tasks

Task	Date Presented
CARC Assignment Criteria	03/16/2022 ICAPWG
Resource Specific Derating Factor Methodology for Availability-Based Resources	03/31/2022 ICAPWG
Preliminary CARC Definitions	05/24/2022 ICAPWG
Annual Process for Establishing CARCs	05/24/2022 ICAPWG
Methodology for Annual Assessment of the Summer Peak Load Window	06/28/2022 ICAPWG
Energy Duration Limitation Elections Rules and Bidding Requirements	06/28/2022 ICAPWG

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Completed Project Tasks

Task	Date Presented
Calculation of Preliminary CAFs using the ELCC and MRI Techniques[1]	04/28/2022 ICAPWG 05/24/2022 ICAPWG 06/28/2022 ICAPWG

[1] The NYISO plans to present the preliminary CAF results for Special Case Resources (SCR) at the 07/28/2022 ICAPWG

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Ongoing Project Tasks

Ongoing Project Tasks

Task	Target Completion
Seasonal vs Annual CAF Determination	July 31, 2022
Methodology for Annual Assessment of the Winter Peak Load Window	July 31, 2022
Present Preliminary CAF Results for SCRs	July 31, 2022

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Ongoing Project Tasks

Task	Target Completion
Resource Specific Derating Factor Methodology for Performance-Based Resources	August 31, 2022
Representative Unit Size and Location	August 31, 2022
MRI vs ELCC Determination	September 30, 2022
Sensitivity Scenario Results[1]	September 30, 2022

[1] The NYISO did not receive stakeholder requests for additional sensitivity scenarios and will proceed with the sensitivity scenarios described at the 06/16/2022 ICAPWG

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Remaining Project Tasks

Remaining Project Tasks

Task	Target Completion
CAF Interaction with Demand Curve Reference Point	September 30, 2022
Consumer Impact Analysis	October 31, 2022
Manual Revisions	November 30, 2022

2023 Modeling Improvements Project

2023 Modeling Improvements Project

- The NYISO appreciates and supports the desire to improve resource adequacy modeling for the purposes of capturing risks to resource availability such as fuel limitations, notification times, use of emergency resources such as Special Case Resources
  - The NYISO continues to capture improvement opportunities with the current resource adequacy model as they arise in the Improving Capacity Accreditation effort and will be working with stakeholders to address these topics. This will take time and resources to consider these topics and develop workable approaches to each.
- Once the core set of work has been completed with respect to finalizing the determination of derating factors, the technique used to determine CAFs (ELCC or MRI), and the initial set of CARCs, the NYISO will begin working through these topics with stakeholders which will continue in 2023 as part of the Modeling Improvements for Capacity Accreditation project. Each modeling improvement opportunity can be complicated to address, such that the NYISO must prioritize the work considered in this project. Ultimately, these modeling changes will impact the resource adequacy model that is used by the NYSRC and NYISO to establish IRMs and LCRs which means changes to the model also needs to be vetted with the NYSRC.
- The NYISO is committed to working these issues as quickly as possible and is considering the following topics as the current modeling improvements priority for CAFs, IRM, and LCRs:
  - Winter natural gas constraints
  - Startup notification requirements
  - Expected operations of SCRs

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Winter Natural Gas Constraints

- Correlated unavailability of gas-only resources due to winter natural gas constraints is currently not captured in the assumptions or modeling used in the IRM model
- As part of the 2023 project, the NYISO will 1) evaluate how to capture the impact of correlated unavailability of gas-only resources due to winter natural gas constraints in the assumptions and/or modeling used in the IRM model and 2) recommend updated assumptions and/or modeling enhancements for incorporation in the calculation of the IRM, LCRs, and CAFs

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Startup Notification Requirements

- Startup notification requirements are currently not captured in the assumptions or modeling used in the IRM model
- As part of the 2023 project, the NYISO will 1) evaluate how to capture the impact of startup notification requirements in the assumptions and/or modeling used in the IRM model and 2) recommend updated assumptions and/or modeling enhancements for incorporation in the calculation of the IRM, LCRs, and CAFs

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Expected Operations of SCRs

- The modeling of SCRs in the current IRM model does not align with the expected operations and NYISO requirements of SCRs
  - SCRs are modeled as an Emergency Operating Procedure (EOP) with a maximum of 5 calls per month limit in the IRM model
- As part of the 2023 project, the NYISO will 1) evaluate aligning the IRM modeling of SCRs with the expected operations and requirements of SCRs in the NYISO's markets and 2) recommend updated assumptions and/or modeling enhancements for incorporation in the calculation of the IRM, LCRs, and CAFs

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Project Timeline

- **Q4 2022 - Q1 2023**
  - Investigate updated assumptions and/or modeling enhancement options to incorporate the impacts of winter natural gas constraints and startup notification requirements in the IRM model
  - Investigate options to better reflect the expected market operations of SCRs in the IRM model
- **Q2 2023**
  - Identify preferred assumptions updates and/or modeling enhancements based on options investigated in Q4 2022 - Q1 2023
  - Prototype preferred assumptions updates and/or modeling enhancements in GE MARS
- **Q3 2023**
  - Finalize recommendations for assumptions updates and/or modeling enhancements for incorporation in the calculation of the IRM, LCRs, and CAFs

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Future Items for Consideration

Future Items for Consideration

- **Winter modeling assumptions outside natural gas constraints**
  - Examples: Winter load levels, import assumptions, transmission line ratings, etc.
- **Enhanced outage modeling**
  - Correlated unit outages
    - Temperature related outages
    - Shared facilities outages
- **Weather correlation of load and intermittent resource profiles**

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Next Steps

Next Steps

- The NYISO plans to return to the next ICAPWG with CAF results for SCRs, a proposed path forward regarding seasonal vs annual CAFs, and a proposed methodology for the annual assessment of the Winter 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

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