Improving Capacity Accreditation

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ICAPWG/MIWG

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Agenda

- Background
- Capacity Accreditation Resource Class Criteria
- UCAP Calculation Background
- Existing Resource-Specific Derating Factor Calculations
- Areas of Needed Change
- Next Steps
- Appendix

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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

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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/36d447d4-5b33-8ab1-2654-90a529ff1dfe 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
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 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 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 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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Background

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Background

- The NYISO has begun stakeholder discussions to 1) develop the implementation details and technical specifications for establishing Capacity Accreditation Factors and Capacity Accreditation Resource Classes 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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Capacity Accreditation Resource Class Criteria

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Class Criteria

- The criteria that the NYISO will use to determine Capacity Accreditation Resource Classes (CARCs) are specified in the tariff -- technology, operating characteristics that are expected to result in similar marginal reliability contributions throughout the locations that are evaluated
  - Examples: Dispatchability, intermittency profiles, energy duration limitations, fuel supply limitations, start up notification limitations, etc.
- A resource's technology and operating characteristics will be assessed through the resource's chosen participation model, elected energy duration limitation, and resource characteristics provided upon registration
- The combination of a resource's chosen participation model, elected energy duration limitation, and resource characteristics will determine the exact CARC to which the resource belongs
- The NYISO envisions that a CARC could apply to several different locations. Therefore, a Capacity Accreditation Factor would be determined for each relevant CARC and location

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Class Criteria – Participation Model

- **A resource must elect a participation model based on the resource's technology and operating characteristics**

- **A resource may elect to change its participation model for an upcoming Capability Year by August 1st of the prior year**
  - Past August 1st, a resource cannot change its participation model for the current or upcoming Capability Year

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Class Criteria – Participation Models

- Conventional Generator
- Control Area System Resource
- Energy Limited Resource (ELR)
- Capacity Limited Resource (CLR)
- Special Case Resource (SCR)
- Intermittent Power Resource (IPR)
- Behind-the-Meter Net Generation Resource (BTM:NG)
- Limited Control Run-of-River Hydro (LCRoR)

- Energy Storage Resource (ESR)
- Co-located Storage Resource (CSR)
- Distributed Energy Resource (DER)
- Imports (External CRIS/Import Rights)
- External-to-ROS Deliverability Rights (EDRs)
- Unforced Capacity Deliverability Rights (UDRs)

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Class Criteria – Energy Duration Limitation

- **It is likely at least one CARC will be necessary for each Energy Duration Limitation (EDL)**

- **A resource can elect to change its EDL for an upcoming Capability Year by August 1st of the prior year**
  - Past August 1st, a resource cannot change its EDL for the current or upcoming Capability Year

- **Rules to determine valid EDLs will be necessary upon CAF implementation**

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Class Criteria – Resource Characteristics

- Upon registration in NYISO's markets, a resource must provide certain resource characteristics

- These resource characteristics do not change unless proof of modification is provided

- Resource characteristics such as technology, start up notification time, and fuel type can impact a resource's expected marginal reliability contribution and may be used in assigning a resource to its CARC if applicable

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UCAP Calculation Background

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Acronyms

- **CAF** – Capacity Accreditation Factor
- **CARC** – Capacity Accreditation Resource Class
- **CRIS** – Capacity Resource Interconnection Service
- **DAF** – Duration Adjustment Factor
- **DMNC** - Demonstrated Max Net Capability
- **EDL** – Energy Duration Limitation
- **PLW** – Peak Load Window

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UCAP Calculation Background

- A resource's UCAP is determined prior to each Capability Period and is applicable for the entire Capability Period

- The resource-specific derating factor utilized in the calculation of a resource's UCAP is posted in the ICAP AMS in mid-March for the Summer Capability Period and in mid-September for the Winter Capability Period

- After the IRM model is finalized and approved in December, CAFs will be calculated and publicly posted prior to mid-March for the upcoming Capability Year

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UCAP Calculation Background

- **In general, a resource's UCAP is currently calculated as follows:**
  - UCAP = Adjusted ICAP x (1 – resource-specific derating factor)
    - Where:
      - Adjusted ICAP = ICAP * DAF
      - ICAP = min(DMNC, CRIS)

- **Depending on the resource type, resource-specific derating factors are a function of the resource's forced outages, forced derates, and/or actual performance**

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UCAP Calculation Background

- Upon CAF implementation, a resource's CAF will replace its DAF in the Adjusted ICAP calculation

  - UCAP = Adjusted ICAP x (1 – resource-specific derating factor)

    - Where:

      - Adjusted ICAP = ICAP * CAF

      - ICAP = min(DMNC, CRIS)

- Because some CAFs will capture the impact of unavailability already included in existing resource-specific derating factor calculations, adjusted resource-specific derating factor calculations will be needed for affected participation models

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Existing Resource-Specific Derating Factor Calculations

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Conventional Generators

- The current derating factor for most conventional (i.e., thermal) capacity resources uses an Equivalent Demand Forced Outage Rate (EFORd) calculated as an average of the two previous like-Capability Period EFORds
  - EFORd evaluates the portion of time a unit is in demand but is unavailable due to forced outages
  - The EFORd is calculated based on submitted GADS
    - Most generators submit their operating data, including failed starts, forced outages, service hours, *etc.*
- The Average EFORd (AEFORd) of a resource is calculated based on the average of the two previous like-Capability Period EFORds
  - For example, the Summer 2022 AEFORd value is calculated by taking the average of the 2021 Summer Capability Period EFORd and the 2020 Summer Capability Period EFORd
  - Refer to Section 4.5 of the ICAP Manual and Section 3.1 of Attachment J for further details

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Conventional Generators

- ICAP = Minimum (CRIS, DMNC)

- Adjusted ICAP = ICAP * Duration Adjustment Factor

- UCAP = Adjusted ICAP * (1 – AEFORd)
  - Where:
    - The AEFORd is the average of the previous two like-Capability Period EFORds
    - The Duration Adjustment Factor is 100%, as conventional generators can't have a duration limitation

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Energy Storage Resources

- Similar to conventional generators, the current derating factor for Energy Storage Resources (ESRs) uses an Unavailability Factor calculated as an average of the previous two like-Capability Period Unavailability Factors
  - ESRs are eligible to elect an EDL
    - For ESR that elect an EDL, the measurement window for the Unavailability Calculation corresponds to the Peak Load Window (PLW)
    - For ESRs that do not elect an EDL, the measurement window is 24 hours
- The ESR Unavailability Factor calculation evaluates several different parameters over the measurement period
  - All ESRs are evaluated for their Upper Operating Limit (UOL), Storage Availability, and Energy Level Availability for all Interval Seconds used in the calculation
  - For ESRs without an EDL, the Lower Operating Limit (LOL) is also evaluated
    - Resources with an EDL must submit bids to charge during hours outside of the PLW
  - Refer to Section 4.5 of the ICAP Manual and Section 3.7 of Attachment J to the ICAP Manual for more details

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Energy Storage Resources

- **ICAP = Minimum (CRIS, DMNC)**

- **Adjusted ICAP = ICAP * Duration Adjustment Factor**

- **UCAP= Adjusted ICAP * (1 – Average Unavailability Factor)**
    - Where:
        - The Average Unavailability Factor is the average of the two previous like-Capability Period Unavailability Factors
        - The Duration Adjustment Factor is dependent on the EDL elected
            - If no EDL is elected, the Duration Adjustment Factor is 100%

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Distributed Energy Resources

- Similar to ESRs, the derating factor for Distributed Energy Resources (DERs) uses an Unavailability Factor calculated as an average of the previous two like-Capability Periods
  - DERs are eligible to elect an EDL
    - For DERs that elect an EDL, the measurement window corresponds to the DER's 1) EDL and 2) DAM schedule. If the DER does not receive a DAM schedule, the measurement window is altered to account for the resource's real time bidding
    - The measurement window is capped at the end of the PLW
- The DER Unavailability Factor calculation is 1 minus the time-weighted ratio of UOL availability to ICAP sold

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Distributed Energy Resources

- **ICAP = Minimum (CRIS, DMNC)**
  - For DERs using the Dispatchable DER Model:
    - ICAP = Minimum (CRIS, DMNC of injection) + DMNC of load reduction

- **Adjusted ICAP = ICAP * Duration Adjustment Factor**

- **UCAP= Adjusted ICAP * (1 – Average Unavailability Factor)**
  - Where:
    - The Average Unavailability Factor is the average of the two previous like-Capability Period Unavailability Factors
    - The Duration Adjustment Factor is dependent on the EDL elected
      - If no EDL is elected, the Duration Adjustment Factor is 100%

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Intermittent Power Resources

- Production factors for Intermittent Power Resources (IPRs) are based on actual performance over a specified peak period, and are calculated by dividing the output performance by the nameplate capacity of the resource
  - IPRs include wind, solar, and landfill gas resources
- Current rules for IPR performance factors weight the hourly production data across the 6 or 8-hour PLW, and are calculated based off data from the respective peak months of the previous like-Capability Period
  - Summer Peak Months: June, July, and August
  - Winter Peak Months: December, January, and February
  - Refer to Section 4.5 of the ICAP Manual and Section 3.4 of Attachment J to the ICAP Manual for further details

HB	Summer Peak Load Window		Winter Peak Load Window	
	6 Hour	8 Hour	6 Hour	8 Hour
12		5.0%		
13	12.5%	10.0%		
14	18.75%	17.5%		5.00%
15	18.75%	17.5%		5.00%
16	18.75%	17.5%	18.75%	17.50%
17	18.75%	17.5%	18.75%	17.50%
18	12.5%	10.0%	18.75%	17.50%
19		5.0%	18.75%	17.50%
20			12.5%	10.0%
21			12.5%	10.0%

Top 4 Hours	75%	70%	75%	70%

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Intermittent Power Resources

- **ICAP = Minimum (CRIS, Nameplate Capacity)**

- **Adjusted ICAP = ICAP * Duration Adjustment Factor**

- **UCAP = Adjusted ICAP * Applicable Production Factor**
  - Where:
    - The applicable production factor is the sum of the hourly weighted production data divided by the nameplate capacity (see Attachment J of the ICAP Manual)
    - The Duration Adjustment Factor is 100%, as IPRs can't have a duration limitation

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Co-located Storage Resources

■ The UCAP calculation methods for each unit within a Co-located Storage Resource (CSR) is similar to the calculation methods for a standalone unit of each resource type. The calculation methods for CSR units include an additional derate to reflect the availability of the shared Point of Injection (POI)

- The POI derate reflects the impact of a derate (e.g., if the inverter is limited) of the shared POI injection capability
- Refer to Section 4.5 of the ICAP Manual and Section 3.8 of Attachment J to the ICAP Manual for more details

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Co-located Storage Resources

- **CSR ESR Unit**
  - ICAP = Minimum (CRIS, DMNC)
  - Adjusted ICAP = ICAP * Duration Adjustment Factor
  - UCAP= Adjusted ICAP * (1 – Average Unavailability Factor) * (1 - Average Injection Limit Unavailability Factor)

- **CSR Intermittent Unit**
  - ICAP = Minimum (CRIS, Nameplate Capacity)
  - Adjusted ICAP = ICAP * Duration Adjustment Factor
  - UCAP = Adjusted ICAP * Applicable Production Factor
    - Where:
      - The applicable production factor is the sum of the hourly weighted averages of the minimum of 1) the CSR Intermittent Unit output and 2) CSR Injection Limit divided by the minimum of 1) the CSR Intermittent Unit nameplate and 2) CSR Injection Limit for each interval of the IPR performance measurement window
      - The Duration Adjustment Factor is 100%, as IPRs can't have a duration limitation

*Blue font designates additional calculation components for CSR units

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Special Case Resources

- **The current performance factor for performance-based ICAP Suppliers is based on actual performance over peak periods**
  - The UCAP MW from Special Case Resource (SCR) aggregations is generally based on actual performance of individual SCR facilities within the aggregation during events and tests
    - Performance from the Prior Equivalent Capability Period and the Capability Period preceding the Prior Equivalent Capability Period are used
    - For mandatory events longer than 4 hours, the best 4 consecutive hours are used; mandatory events less than or equal to 4 hours use all hours
    - All resources are required to perform a 1-hour performance test
  - Performance factors are calculated using data from both mandatory events and required performance tests
  - All SCRs are considered to have a 4-hour EDL and use the corresponding DAF to calculate their Adjusted ICAP
  - Refer to Section 4.5 of the ICAP Manual for more details

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Special Case Resources

- ICAP = Declared Value * (1 + Transmission Loss Factor)

- Adjusted ICAP = ICAP * Duration Adjustment Factor

- UCAP = Adjusted ICAP * Applicable Performance Factor
  - Where:
    - The Duration Adjustment Factor is the applicable percentage for the 4-hour EDL

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Limited Control ROR Hydro

- **The current UCAP calculation for Limited Control ROR Hydro units uses a rolling average of the hourly net energy provided by the resource**
  - Values are calculated separately for both Summer and Winter Capability Periods
  - Data looks at the 20 highest NYCA real-time peak load hours in each of the previous 5 Summer or Winter Capability Periods (for a total of 100 hours)
  - Performance factors are calculated to translate the ICAP of a Limited Control ROR Hydro to the appropriate UCAP value
  - Refer to Section 4.5 of the ICAP Manual for more details

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Limited Control ROR Hydro

- ICAP = Minimum (CRIS, Nameplate Capacity)

- Adjusted ICAP = ICAP * Duration Adjustment Factor

- UCAP = Rolling average of the net energy provided by the resource during the top load 20 hours of the previous 5 like-Capability Periods
  - Where:
    - The Duration Adjustment Factor is 100%, as Limited Control ROR Hydro can't have a duration limitation

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Energy Limited Resources

- Energy Limited Resources (ELRs) are capacity resources that, due to environmental restrictions, cyclical requirements, or other non-economic reasons, are unable to operate continuously on a daily basis
  - These operating restrictions must be justified to the NYISO upon registration
  - ELRs must elect an EDL of at least four hours
  - These resources are not subject to the rules of Energy Storage Resources
- The derating factor calculation for ELRs is based on actual availability during the PLW for the hours that correspond to its elected EDL
  - ELR resources use an EFORd calculation
  - Additionally, the calculation uses data from the previous two like-Capability Periods
  - Refer to Section 4.5 of the ICAP Manual for more details

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Energy Limited Resources

- ICAP = Minimum (CRIS, DMNC)

- Adjusted ICAP = ICAP * Duration Adjustment Factor

- UCAP= Adjusted ICAP * (1 – AEFORd)
  - Where:
    - The AEFORd is the average of the previous two like-Capability Period EFORds over the applicable PLW
    - The Duration Adjustment Factor is dependent on the Energy Duration Limitation elected
      - ELRs must elect a duration of at least 4 hours

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Control Area System Resources

- The UCAP calculation for Control Area System Resources is based on the Control Area System Resource's Net Projected Capacity (NPC) and average derating factor (ACAF)

  - Prior to the Capability Period, the Control Area submits forecasted data for each month in the Capability Period. The NYISO uses the forecasted data to calculate the NPC for each month of the Capability Period

  - The ACAF is calculated based on Control Area Resource and Load (CARL) data for the two previous like-Capability Periods

  - Refer to Sections 4.4.3 and 4.11.3 of the ICAP Manual and Section 3.3 of Attachment J of the ICAP Manual for further details

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Control Area System Resources

- **ICAP = Net Projected Capacity (NPC)**

- **Adjusted ICAP = ICAP * DAF**

- **UCAP = Adjusted ICAP * (1 – ACAF)**
  - Where:
    - The ACAF is calculated based on the CARL data for the two previous like-Capability Periods
    - Refer to Section 3.3 of Attachment J of the ICAP Manual for more details

Behind-the-Meter Net Generation (BTM:NG) Resources

- The amount of UCAP that each BTM:NG Resource is authorized to supply in the NYCA is its Net-UCAP. A BTM:NG's Net-UCAP is the minimum of its 1) Net-ICAP and 2) Gen UCAP component minus Load UCAP component. The UCAP of a BTM:NG cannot be less than 0

  - Net-UCAP = Max (Min ([Gen UCAP] – [Load UCAP], Net-ICAP), 0)

  - Where:

    - Net-ICAP = Adjusted DMGC – Adjusted Host Load

    - Gen UCAP = Adjusted DMGC x (1-EFORd)

    - Load UCAP = Adjusted Host Load x (1 -NYCA translation factor)

    - Adjusted DMGC = Min(DMGC (or DMNC), Adjusted Host Load + Injection Limit, Adjusted Host Load + CRIS)

  - Refer to Section 4.15 of the ICAP Manual for additional details

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Imports

- **External Installed Capacity Suppliers may participate in the NYISO's ICAP Market, subject to deliverability to the New York Control Area (NYCA) border and availability of Import Rights**

  - At present, IPR, ESR, Limited Control Run-of-River (ROR) Hydro and resources with EDLs are unable to qualify as external capacity suppliers

  - Resources that do qualify as external capacity suppliers will use the derating factor methodology that corresponds to their technology type

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EDRs and UDRs

■ **Alternative to Imports, external capacity suppliers may deliver their capacity using External-to-ROS Deliverability Rights (EDRs) or External Unforced Capacity Deliverability Rights (External UDRs)**

- EDRs are increases in transfer capability over an existing external transmission interface, with a terminus in Rest of State

- External UDRs are controllable lines that originate outside of the NYCA and sink into a constrained Locality

- EDRs and External UDRs are considered supply resources as they must be backed by specific, identified generation resources

- The derating factor calculation for EDRs and External UDRs reflects the ICAP of the interface or controllable line, the availability of the resources supplying energy over the interface or controllable line, the outage rate of the interface or controllable line, as well as energy losses over the interface or controllable line

- Refer to Section 4.14 of the ICAP Manual and Sections 3.5 and 3.6 of the ICAP Manual for more details

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EDRs and UDRs

- ICAP = Minimum (CRIS, DMNC)

- UCAP = (ICAP – Line Losses) * (1 – weighted average of EFORds) * (1 – Interface Outage Rate) * Duration Adjustment Factor

  - Where:
    - The weighted average of EFORds is calculated for the resources used to supply ICAP over the EDR or UDR facility
    - The interface outage rate includes the interface (or controllable line for UDRs) and converter station unavailability
    - The Duration Adjustment Factor is 100%, as the resources used to supply ICAP over an EDR or UDR can't have a duration limitation

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Areas of Needed Change

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Areas of Needed Change

- The existing resource-specific derating factor calculations of some participation models include the impact of unavailability that will also likely be captured by CAFs, including but not limited to:
  - Intermittent Power Resources
  - Limited Control RoR Hydro

- In order to avoid double counting of unavailability (while also accounting for resource-specific differences in availability), the NYISO will need to adopt new resource-specific derating factor calculations for affected participation models

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Areas of Needed Change

- **Example:**
  - The existing resource-specific derating factor calculation for an onshore wind IPR captures the resource's unavailability due to low summer wind speeds
  - The onshore wind generation profile used to develop an onshore wind CAF would also include unavailability due to low summer wind speeds
  - Therefore, applying the existing resource-specific derating factor in addition to an onshore wind CAF would double count the unavailability of the IPR

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Areas of Needed Change

- **Adjustments to resource-specific derating factor calculations will depend on the chosen MARS modeling characteristics of the representative unit for each CARC**

  - Example: The production profile chosen for a representative onshore wind unit will inform what unavailability is captured by the CAF versus what unavailability is resource-specific (e.g., unavailability due to faulty, aging, or inefficient equipment)

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Areas of Needed Change

- It has been brought to the NYISO's attention that the current tariff process for translating ICAP requirements to UCAP requirements may result in market inefficiencies upon CAF implementation

- The following slides detail the current translation process and the potential need for revisions to the process upon CAF implementation

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Areas of Needed Change

- **The current process for translating the NYCA ICAP requirement to a UCAP requirement is detailed in MST 5.10:**

  - "For each Capability Period, the NYCA Minimum Unforced Capacity Requirement shall equal the product of the NYCA Minimum Installed Capacity Requirement and the ratio of (1) the total amount of Unforced Capacity that the specified Resources are qualified to provide during such Capability Period, as of the time the NYCA Minimum Unforced Capacity Requirement is determined as specified in ISO Procedures, to (2) the sum of the <u>Adjusted Installed Capacity</u> values used to determine the Unforced Capacities of such Resources for such Capability Period."

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Areas of Needed Change

- The current process for translating the Locality ICAP requirements to UCAP requirements is detailed in MST 5.11.5:
  - "The Locational Minimum Unforced Capacity Requirement for each Locality shall equal the product of the Locational Minimum Installed Capacity Requirement for a given Locality ... and the ratio of (1) the total amount of Unforced Capacity that the specified Resources are qualified to provide ... during each month in the Capability Period, as of the time the Locational Minimum Unforced Capacity Requirement is determined as specified in ISO Procedures, to (2) the sum of the <u>Adjusted Installed Capacity</u> values used to determine the Unforced Capacities of such Resources for such Capability Period"

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Areas of Needed Change

- MST 5.12.14.2 currently defines Adjusted Installed Capacity as:
  - "The Adjusted Installed Capacity is equal to a Resource's Installed Capacity multiplied by the Duration Adjustment Factor."
- The CMR Filing sunsets the above definition upon CAF implementation and redefines Adjusted Installed Capacity as:
  - "The ICAP Supplier's Adjusted Installed Capacity is equal to its Installed Capacity multiplied by its applicable Capacity Accreditation Factor."
- Continuing to use Adjusted Installed Capacity to translate ICAP requirements to UCAP requirements may lead to over procurement of UCAP upon CAF implementation

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Areas of Needed Change

- **Example:**

	Current Method	Current Method upon CAF Implementation	Alternative Method
Translation Denominator	Adjusted ICAP	Adjusted ICAP	Total ICAP
NYCA Total ICAP (MW)	40,000	40,000	40,000
ICAP of Resources with EDLs (MW)	1,000	1,000	1,000
NYCA Adjusted ICAP (MW)	39,700	37,000	37,000
NYCA Total UCAP (MW)	36,000	36,000	36,000
Translation Factor	91%	97%	90%
ICAP Requirement	39,000	39,000	39,000
UCAP Requirement	**35,365**	**37,946**	**35,100**

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Areas of Needed Change

- The NYISO proposes to utilize total Installed Capacity instead of Adjusted Installed Capacity in the ICAP to UCAP requirement translation upon CAF implementation

- The NYISO is evaluating the appropriate timeline and process for the filing of this tariff revision

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Next Steps

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Next Steps

- The NYISO plans to return to the March 31st ICAPWG to discuss modeling characteristics of the representative units for CARCs and return to the April 19th ICAPWG to discuss potential adjusted resource-specific derating factor calculations

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Questions?

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Appendix

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Duration Adjustment Factors

- **DAFs are currently used to account for the capacity value of a resource with an EDL as compared to a 24hr capacity supplier**
  - Resources without an EDL use a DAF of 100%

- **Any resource with a limited run-time that satisfies the EDL requirements may qualify to participate as an Installed Capacity Supplier**

- **DAFs will be replaced by CAFs upon CAF implementation**

	Incremental Penetration of Resources with EDLs	
	Less than 1000 MW	1000 MW and greater
Energy Duration Limitation (hours)	Duration Adjustment Factor (%)	Duration Adjustment Factor (%)
2	45	37.5
4	90	75
6	100	90
8	100	100

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Peak Load Window

- **The respective 6 and 8-hour PLW for both the Summer and Winter Capability Periods capture the hours with the highest risk of reliability events**

- **The appropriate PLWs are applicable to IPRs and resources with EDLs**

  - Resources subject to the PLW are evaluated for availability or performance only during those hours

6- hour Peak Load Window	
Summer Capability Period	**Winter Capability Period**
HB 13 through HB 18	HB 16 through HB 21

8- hour Peak Load Window	
Summer Capability Period	**Winter Capability Period**
HB 12 through HB 19	HB 14 through HB 21

Reference Documents

- **NYISO ICAP Manual:**
  https://www.nyiso.com/documents/20142/2923301/icap_mnl.pdf/234db95c-9a91-66fe-7306-2900ef905338

- **NYISO ICAP Manual Attachments:**
  https://www.nyiso.com/documents/20142/2923635/app_a_attach_icapmnl.pdf/503354b6-0607-9a12-f2d4-f866c25eac65

- **NYISO Intermediate ICAP Course Material:**
  https://www.nyiso.com/documents/20142/3036383/Amount-of-Capacity-Suppliers-are-Qualified-to-Offer.pdf/57f56a99-3293-d795-8584-21a70c495a5a

New York ISO

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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