Amount of Capacity Qualified to Offer

Mathangi Srinivasan Kumar
Program Lead, Market Training, NYISO

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Topics of Discussion

- UCAP – Amount of Capacity Suppliers are Qualified to Offer
  - Components of UCAP
- Deliverability
  - Capacity Resource Interconnection Service (CRIS)
- Capacity Accreditation Factor (CAF)
- Derating Factors
  - Calculating EFORd
- Calculation of UCAP for other Suppliers

Topics of Discussion, cont.

- External Capacity Resources
- Unforced Capacity Deliverability Rights (UDRs)/External-to-ROS Capacity Deliverability Rights (EDRs)
- Key Responsibilities of ICAP Supplier
    - Installed Capacity Equivalent (ICE) for ICAP Suppliers

UCAP – Amount of Capacity Suppliers are Qualified to Offer

Unforced Capacity (UCAP)

- Tariff Definition: *The measure by which Installed Capacity Suppliers will be rated, in accordance with formulae set forth in the ISO Procedures, to quantify the extent of their contribution to satisfy the NYCA Installed Capacity Requirement, and which will be used to measure the portion of that NYCA Installed Capacity Requirement for which each LSE is responsible*
- A Resource may sell Capacity equal to its maximum demonstrated output adjusted for the CRIS limit, its historic availability and its contribution to resource adequacy
- UCAP is calculated each month for Resources qualified to supply capacity

UCAP for Resources

- In general, the following are inputs to the UCAP Calculation
  - Maximum Demonstrated Output
  - Deliverability Limit
  - Capacity Accreditation Factor
  - Historic Availability

UCAP = Adjusted ICAP x (1 – Derating Factor)

↓

Adjusted ICAP = Available ICAP x Capacity Accreditation Factor

↓

Available ICAP = Min (CRIS Cap*, DMNC)

*CRIS Caps different for Summer and Winter Capability Period

Note exceptions for BTM:NG Resources identified in ICAP Manual: Section 4.15

Deliverability:
Capacity Resource Interconnection Service (CRIS)

Deliverability Limit

- Capacity Resource Interconnection Service (CRIS)
  - Is a threshold requirement for an internal Resource or an EDR or UDR facility with a terminus in a Locality to participate in the NYISO Installed Capacity market
  - Participation up to the extent of its CRIS
  - CRIS can be obtained through
    - A transfer at the same location
    - A transfer to a different location; subject to a deliverability evaluation during the Interconnection Cluster studies
    - Interconnection Cluster studies after a NYISO determination that the capacity is deliverable without a cost allocation, or after a commitment at the completion of the studies to pay certain allocated costs

Refer to OATT Attachment HH

Class Year Study and CRIS Limitations

- Deliverability Study
  - Conducted for either:
    - New resources that request CRIS in the Interconnection Process ***or***
    - Existing resources that request to increase their CRIS
  - Conducted by the NYISO to:
    - Determine the amount of capacity the new or incremental project can deliver ***and***
    - To identify any costs associated with such resource's ability to acquire such CRIS
  - ICAP of each resource is limited by the resource's CRIS
    - ICAP of a resource is the lesser of CRIS or CRIS-adjusted DMNC

Available ICAP = Minimum (CRIS MW Cap*, DMNC)

*CRIS Caps different for Summer and Winter Capability Period

Capacity Accreditation Factor*

* From Summer 2024

Capacity Accreditation Factor

- Capacity Accreditation Factor (CAF): Reflects the marginal reliability contribution of the ICAP Suppliers within each Capacity Accreditation Resource Class (CARC) toward meeting NYSRC resource adequacy requirements for the upcoming Capability Year
  - The Installed Reserve Margin and Locational Capacity Requirement studies will be used in conjunction with the concept of Marginal Reliability Improvement (MRI) to determine a resources Capacity Accreditation Factor (CAF)
  - An ICAP Supplier's assigned CAF will be used in calculating its Adjusted ICAP and, in turn, the UCAP the Supplier is qualified to offer to supply to the NYCA

ICAP Manual, Section 7.2

Capacity Accreditation Factor

- **Capacity Accreditation Resource Class (CARC):**
  - Defined sets of Resources and/or Aggregations with similar technologies and/or operating characteristics which are expected to have similar marginal reliability contributions toward meeting NYSRC resource adequacy requirements for the upcoming Capability Year
  - Example of CARCs:
    - Generators
    - Solar
    - Land-based Wind
    - Offshore Wind
    - 4 hr Energy Duration Limitation (EDL) Resources
  - Final list of CARCS for the upcoming Capability Year will be determined by NYISO and posted by November 30th on the NYISO web page
    - Final list determination considers Stakeholder feedback

ICAP Manual, Section 7.2

Capacity Accreditation Factor

- NYISO will assign each ICAP Supplier (Resource or Aggregation) the applicable CARC and the applicable CAF for its assigned CARC and capacity region, for an upcoming Capability Year
  - Based on:
    - ICAP Suppliers chosen participation model
    - Elected Energy Duration Limitation, and
    - Resource characteristics
  - Capacity Regions:
    - Rest of State
    - G-J Locality (excluding Zone J)
    - NYC Locality
    - Long Island Locality
- Capacity Accreditation Factors for the upcoming Capability Year will be posted on the NYISO Installed Capacity Market web page by March 1st

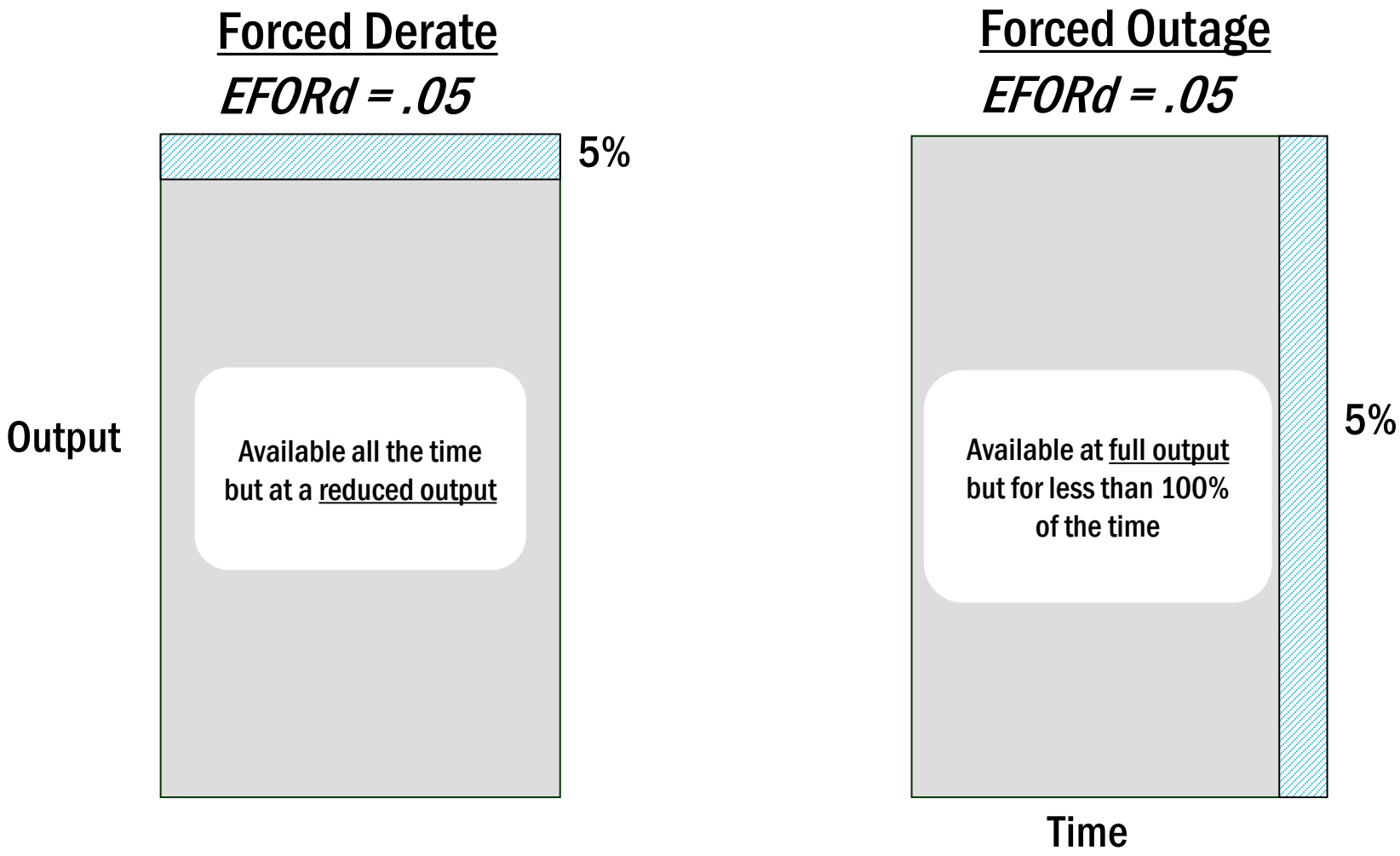
Derating Factors

UCAP for Resources

- Historical Availability
- Based on derating factors
  - Calculated using Equivalent Demand Forced Outage Rate (EFORd) or equivalent (e.g. performance factor)
- Equivalent Demand Forced Outage Rate (EFORd)
  - Represents the portion of time a unit is in demand, but is unavailable due to forced outages and forced derates
  - NYISO calculates EFORd for applicable generators based on GADS Data

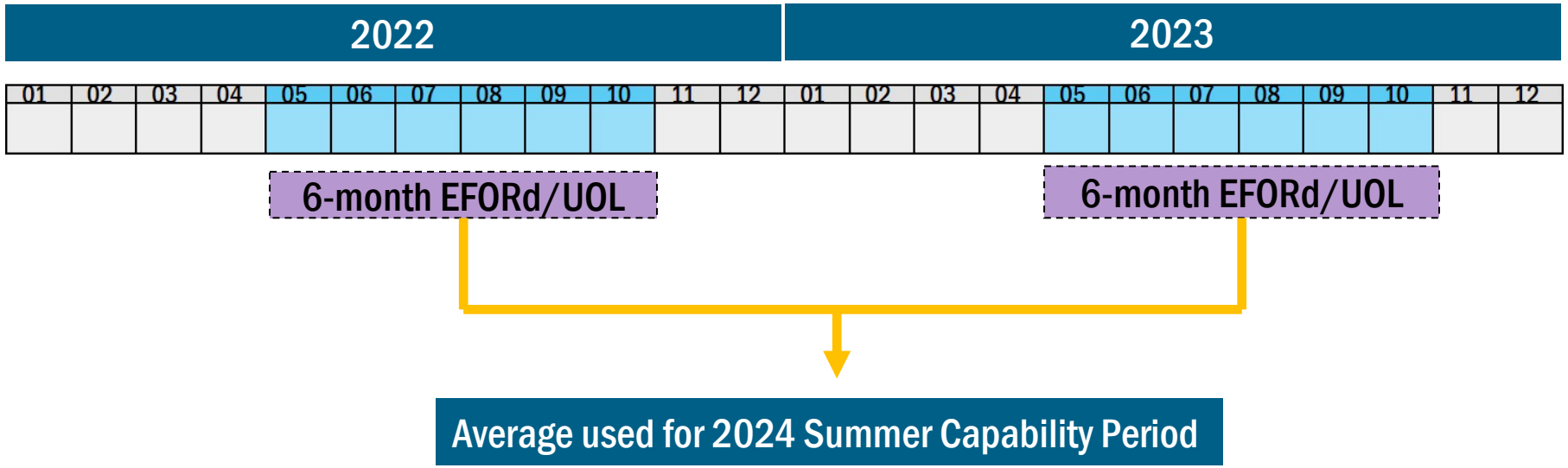
Historic Availability

Derates and Outages



Summer UCAP Calculation

NYISO will use an average of two 6-month EFORd/UOL calculations to establish a Summer ICAP to UCAP derating factor (Avg EFORd, $AEFORd_{summer}$)

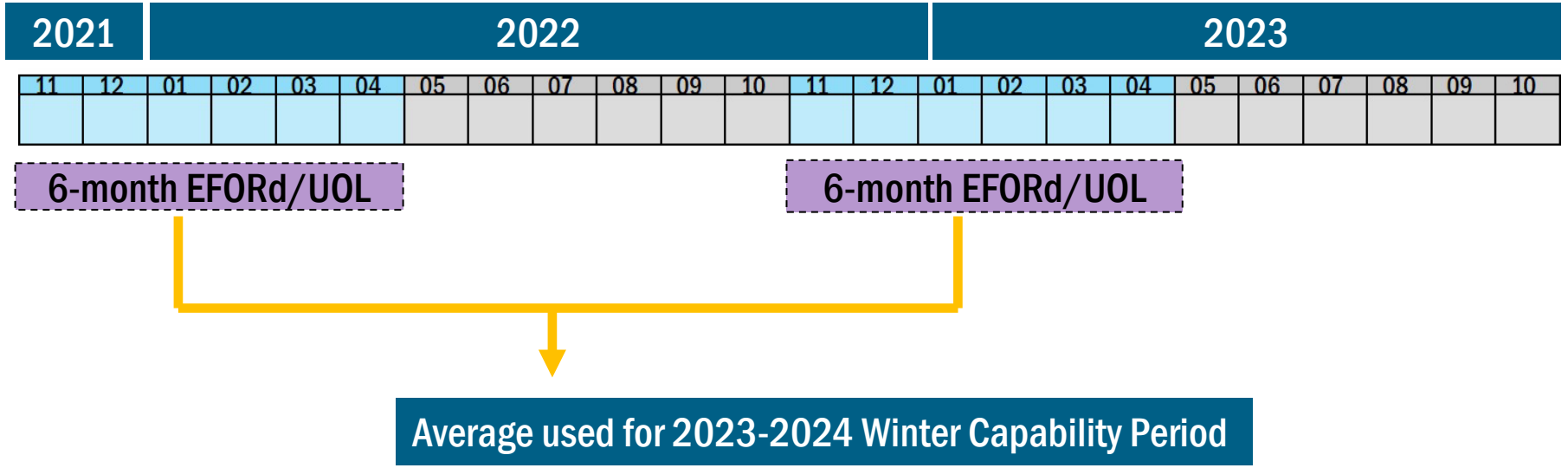


Note: Resources with an Energy Duration Limitation (EDL), which receive an EFORd derating factor, will have their EFORd calculated over the applicable Peak Load Window

*ICAP Manual, Section 4.5

Winter UCAP Calculation

NYISO will use an average of two 6-month EFORd/UOL calculations to establish a Winter ICAP to UCAP derating factor (Avg EFORd, $AEFORd_{winter}$)



Note: Resources with an Energy Duration Limitation (EDL), which receive an EFORd derating factor, will have their EFORd calculated over the applicable Peak Load Window

*ICAP Manual, Section 4.5

Derating Factors

Unit Type	Derating Factor
Conventional technology Generator, Energy Limited Resource (ELR), Capacity Limited Resource (CLR)	Equivalent Demand Forced Outage Rate (EFORd)
Special Case Resources (SCR)	Historical Performance Factor: Performance Factor value calculated with data provided outside of the NERC GADS process
Intermittent Power Resources (Wind, Solar, Landfill Gas)	Resource Specific Derating Factor (RSDF): Compares the average production of the resource to the average production assumed in the calculation of the capacity accreditation factor over the summer/winter peak load windows
Control Area System Resources	Based on Control Area Resource and Load (CARL) Data
Limited Control Run-of-River Hydro	Resource Specific Derating Factor (RSDF)
Behind the Meter Net Generation	Includes: Generator component– uses EFORd Load component– uses NYCA (“system wide”) translation factor
Energy Storage Resource (ESR)	Calculated using the Average Unavailability Factor (AUF), based on the resource’s availability to the Real Time Market System
Co-located Storage Resource (CSR)	Calculated as Derating Factor for each individual resource type (ESR and IPR), adjusted for Derating Factor for shared Point of Injection (POI)
Distributed Energy Resources (DER)	Calculated based on characteristics of DER by treating it as a single resource. Derating Factor dependent on Aggregation type

Locational Derating Factors

- Calculated for the following:
  - G-J Locality – Includes only generators in Zones G-J
  - LI – Includes only generators in Zone K
  - NYC – Includes only the generators in Zone J
  - NYCA – Includes all NYS generators

Average Derating Factors		
Location	Summer 2024	Winter 2023-2024
G-J Locality	7.03%	6.08%
Long Island	8.66%	10.66%
New York City	4.62%	4.12%
NYCA	13.21%	10.39%

Let's Review

True or False?

EFORd is calculated for every Installed Capacity Resource

True

False

Let's Review

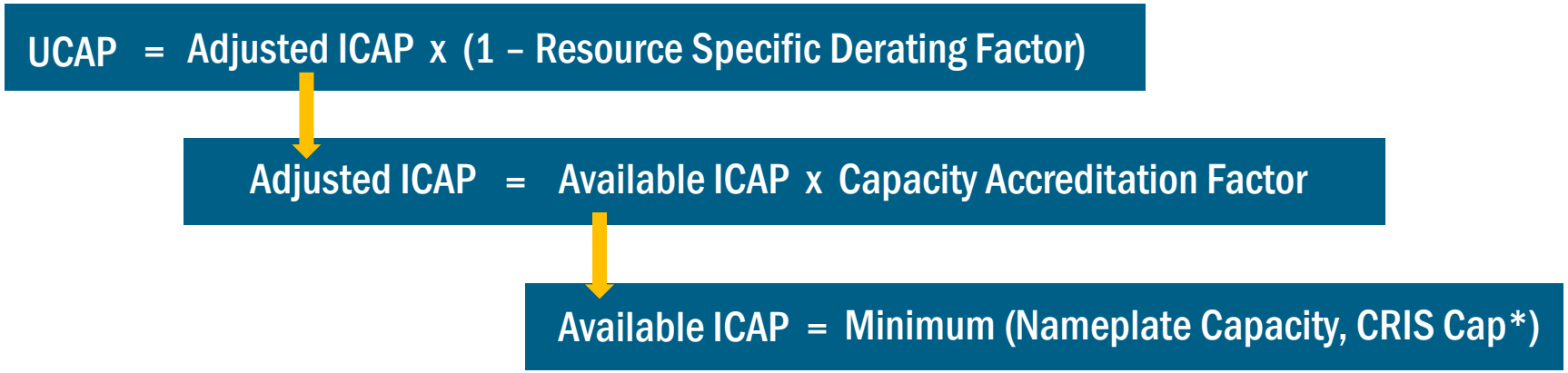
How often does NYISO calculate a Derating Factor for an individual resource?

- Annually
- Every Capability Period
- Monthly
- None of the above

UCAP Calculations for other Suppliers

UCAP for Intermittent Power Resources

- Includes Wind, Solar and Landfill Gas



- Resource Specific Derating Factor (RSDF): Compares average production of the resource to the average production assumed in the calculation of the CAF over applicable Summer and Winter Peak Load Windows
  - Reference period used in calculation of RSDF for a specified month: Two previous like capability periods
    - Example: Summer 2024 calculations will include applicable values from Summer 2023 and Summer 2022

*CRIS Caps different for Summer and Winter Capability Period

ICAP Manual Att J, Section 6.4

UCAP for Behind the Meter Net Generation (BTM:NG) Resources

- Consists of a Gen UCAP component and a Load UCAP component

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

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

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

Net-ICAP = Adjusted DMGC – Adjusted Host Load

Adjusted DMGC = Min(DMGC (or DMNC), AHL + Injection Limit, AHL + CRIS)

*ICAP Manual: Section 4.15

UCAP for Limited Control Run-of-River Hydro (LCRoR)

- Calculated separately for both Summer and Winter Capability Periods
- Calculation same as UCAP for Intermittent Power Resources

UCAP = Adjusted ICAP x (1 – Resource Specific Derating Factor)

Adjusted ICAP = Available ICAP x Capacity Accreditation Factor

Available ICAP = Minimum (Nameplate Capacity, CRIS Cap*)

- Resource Specific Derating Factor (RSDF): Compares average production of the resource to the average production assumed in the calculation of the CAF over applicable Summer and Winter Peak Load Windows
  - Reference period used in calculation of RSDF for a specified month: Two previous like capability periods
    - Example: Summer 2024 calculations will include applicable values from Summer 2023 and Summer 2022

*ICAP Manual: Att J, Section 3.4 and MST 5.12.6.1

*CRIS Caps different for Summer and Winter Capability Period

UCAP for Control Area System Resources

UCAP = Net Projected Capacity x (1 – Average Derating Factor) x Capacity Accreditation Factor

- Net projected capacity: Calculated by NYISO based on forecast data submitted by the Control Area System Resource
  - Forecast is for the Capability Period; actual monthly MW amounts are reported
  - Net projected capacity then adjusted based on Control Area Resource and Load (CARL) data
- Average derating factor for the Control Area System Resource for a given month is calculated as the average of two previous like Capability Periods

*MST 5.12.5.2; ICAP Manual: Section 4.10.3 and Att. J, Section 6.3

UCAP for Energy Storage Resources (ESR)

- For an ESR, the UCAP for a specific capability period is calculated as:

UCAP = Adjusted ICAP x (1 – Average Unavailability Factor)

Adjusted ICAP = Available ICAP x Capacity Accreditation Factor

Available ICAP = Minimum (Nameplate Capacity, CRIS Cap*)

- Where Average Unavailability Factor or the AUF
  - Based upon on the resource's availability to the Real Time Market System
- Default Derating Factors for ESRs just entering the market:
  - Until there are 3 or more ESRs, the NYISO will use the 1-year NERC reported EFORd for Pumped Storage

ICAP Manual, Attachment J Section 6.7

UCAP for Co-located Storage Resources (CSR)

- UCAP calculation methods for each CSR generator are similar to existing methods based on resource type, with small adjustments to account for shared Point of Injection (POI) availability
  - ESR: UCAP calculations will account for any derates at the POI (due to inverter limitations), along with calculation of derating factor for the resource itself
    - While the existing ESR UCAP calculation only measures availability of the ESR itself, the CSR ESR UCAP calculation multiplies the POI availability by the ESR availability
  - Wind or Solar IPR*: UCAP calculations will also be limited by the POI injection capability, by taking the minimum of POI injection capability and intermittent output when calculating the Resource Specific Derating Factor for CSR intermittent units

* Will be updated to include other qualifying non-ESR generators upon deployment of the CSR enhancements project

ICAP Manual, Attachment J Section 6.8

UCAP for Special Case Resources (SCRs)

- SCRs (Mandatory reduction: 100kW or higher)
  - Interruptible Loads
  - Qualified behind-the-meter Local Generator
  - SCR Aggregation
- Pledged amount of load reduction as increased by Transmission District loss factor (TLF) as adjusted by historical performance factor

*ICAP Manual: Section 4.12

UCAP for Special Case Resources (SCRs)

- SCR UCAP is the pledged amount of load reduction as increased by Transmission District loss factor (TLF) and adjusted by historical performance factor

SCR ICAP = Load Reduction Capability x (1 + TLF)

- Use Performance Factor rather than derating factor
  - Two successive seasonal performance factors (during event and tests)
  - 1-hour performance test within Capability Period or 1-hour mandatory event data
  - Includes best 4 hours of each mandatory event within a Capability Period

SCR UCAP = SCR ICAP x Applicable Performance Factor x Capacity Accreditation Factor

*ICAP Manual: Section 4.12

UCAP for Aggregations

- For a given month,

Aggregation UCAP = Adjusted ICAP for Aggregation * (1 – Aggregation Derating Factor)

Adjusted ICAP for Aggregation = Aggregation ICAP * Capacity Accreditation Factor for Aggregation

Aggregation ICAP = Sum of all individual DER ICAP MWs

- Aggregation's ICAP MW: Sum of all individual DER ICAP MWs for a given auction month
- Derating Factor for Aggregation:
  - Calculated consistent with type of Aggregation, and type of DER contained in the Aggregation

UCAP for Aggregations

Derating Factor Calculation for DER in an Aggregation

Aggregation Type	Derating factor calculation
DER	Availability Factor
ESR	Availability Factor
Generator	EFORd (based on GADS data)
Landfill Gas	Resource Specific Derating Factor (RSDF)
Solar	Resource Specific Derating Factor (RSDF)
Wind	Resource Specific Derating Factor (RSDF)

For Aggregations with EDL, Derating factor calculation will account for any time-stacking between the facilities of the Aggregation

Topic 6:
External Capacity Resources

External Capacity Resources

- External CRIS Rights: (ECRs)
  - One time opportunity to convert Grandfathered Rights to External CRIS Rights or awarded through the Class Year process
  - Contract or Non-Contract Commitment
  - Consequences for not offering
- Capacity associated with Existing Transmission Capacity for Native Load (“ETCNL”)
- Import Rights
  - First Come First Served Basis: Subject to Import Limits

External Installed Capacity Supplier requirements , ICAP Manual, Section 4.9

External Capacity Resources and Import Limits

- Import Limits are set to determine the amount of capacity that can be imported into NYCA using the "First Come First Serve" Process
- Limit is established <u>after considering External CRIS Rights</u>
  - Established by NYISO
  - Based on reliability studies
  - Determined annually
  - Available Import Rights are based on Import Limits
    - Calculated for each month of upcoming Capability Period

Import Limits: ICAP Manual, Section 4.9.6

External Capacity Resources: Import Limits - Maximum provided by resources outside NYCA

(Excluding Resources Using UDRs)

2024-2025 Capability Year

Amount of External ICAP Permitted to be Allocated	Total (MW)	Grandfathered (MW)	Remaining (MW)
PJM	1177	38	1139
ISO-NE	68	0	68
Ontario	37	0	37
Quebec via Chateauguay	1122	914 (Apr) 1110 (May-Oct) 914 (Nov) 0 (Dec-Feb) 20 (Mar)	208 (Apr) 12 (May –Oct) 208 (Nov) 1122 (Dec-Feb) 1102 (Mar)
Quebec via Cedars	0	0	0
Total NYCA Interfaces	2404	38	2366

***Neighboring Control Area rules must provide that the resource will not be recalled or curtailed to satisfy the Control Areas own load

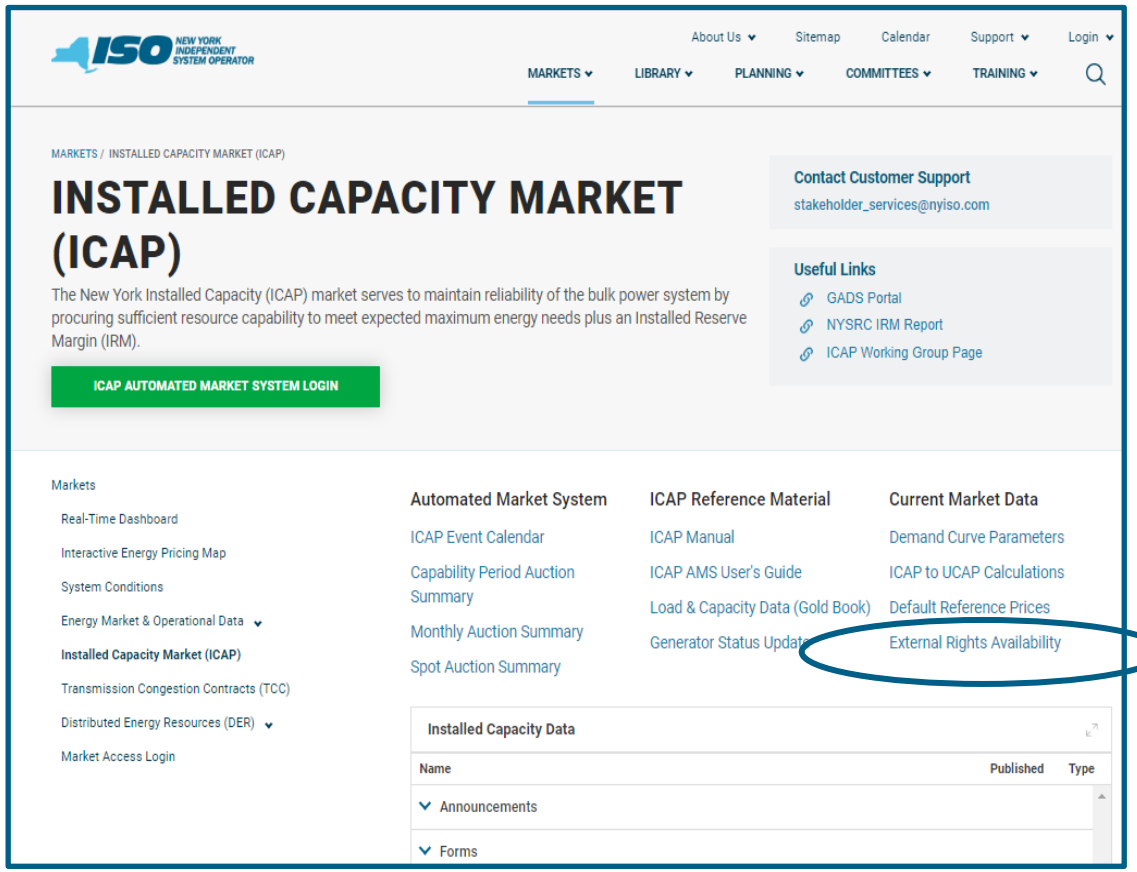
ICAP Manual, Attachment B: Locational Minimum Installed Capacity Requirements/Maximum Allowances of External Installed Capacity

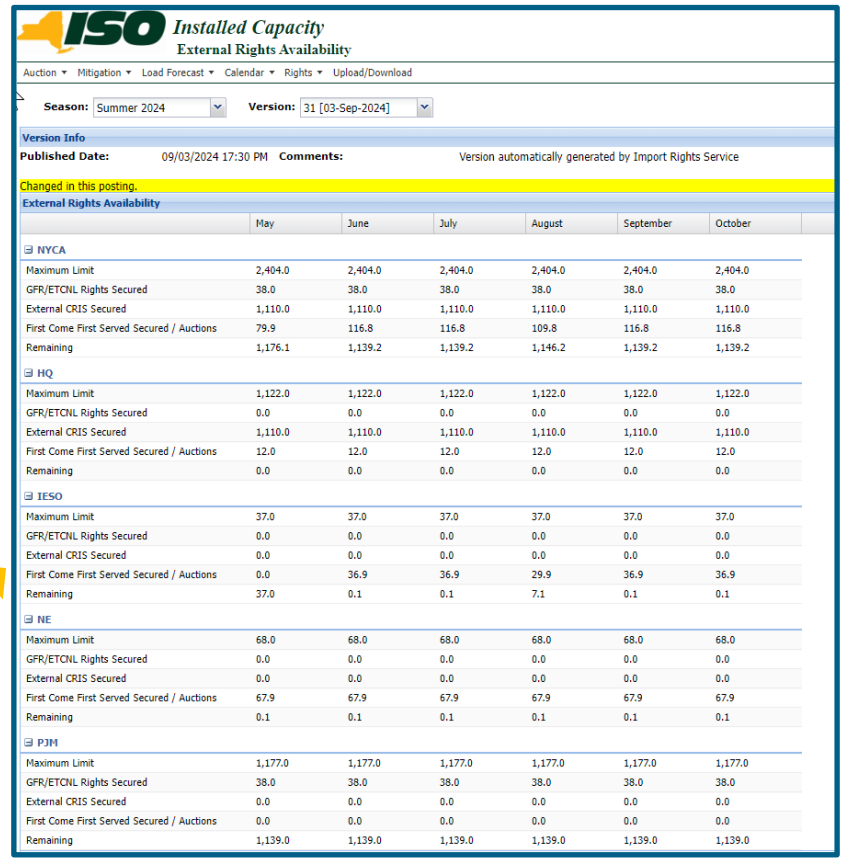
External Capacity Resources and Import Limits

- NYISO Allocates Import Rights accordingly
  - First Come First Serve (FCFS) Basis
    - Import Rights from non-fully allocated External Interface are made available on a FCFS basis
- Capacity must be deliverable to NYCA border
- Capacity imports offered must be associated with the individual point ID at the time of the offer

OATT Attachment S and ICAP Manual Section 4.9

External Rights Availability *[Import Rights]* Summer 2024 Capability Period





	May	June	July	August	September	October
NYCA						
Maximum Limit	2,404.0	2,404.0	2,404.0	2,404.0	2,404.0	2,404.0
GFR/ETCNL Rights Secured	38.0	38.0	38.0	38.0	38.0	38.0
External CRIS Secured	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0
First Come First Served Secured / Auctions	79.9	116.8	116.8	109.8	116.8	116.8
Remaining	1,176.1	1,139.2	1,139.2	1,146.2	1,139.2	1,139.2
HQ						
Maximum Limit	1,122.0	1,122.0	1,122.0	1,122.0	1,122.0	1,122.0
GFR/ETCNL Rights Secured	0.0	0.0	0.0	0.0	0.0	0.0
External CRIS Secured	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0
First Come First Served Secured / Auctions	12.0	12.0	12.0	12.0	12.0	12.0
Remaining	0.0	0.0	0.0	0.0	0.0	0.0
IESO						
Maximum Limit	37.0	37.0	37.0	37.0	37.0	37.0
GFR/ETCNL Rights Secured	0.0	0.0	0.0	0.0	0.0	0.0
External CRIS Secured	0.0	0.0	0.0	0.0	0.0	0.0
First Come First Served Secured / Auctions	0.0	36.9	36.9	29.9	36.9	36.9
Remaining	37.0	0.1	0.1	7.1	0.1	0.1
NE						
Maximum Limit	68.0	68.0	68.0	68.0	68.0	68.0
GFR/ETCNL Rights Secured	0.0	0.0	0.0	0.0	0.0	0.0
External CRIS Secured	0.0	0.0	0.0	0.0	0.0	0.0
First Come First Served Secured / Auctions	67.9	67.9	67.9	67.9	67.9	67.9
Remaining	0.1	0.1	0.1	0.1	0.1	0.1
PJM						
Maximum Limit	1,177.0	1,177.0	1,177.0	1,177.0	1,177.0	1,177.0
GFR/ETCNL Rights Secured	38.0	38.0	38.0	38.0	38.0	38.0
External CRIS Secured	0.0	0.0	0.0	0.0	0.0	0.0
First Come First Served Secured / Auctions	0.0	0.0	0.0	0.0	0.0	0.0
Remaining	1,139.0	1,139.0	1,139.0	1,139.0	1,139.0	1,139.0

Topic 7: Unforced Capacity Deliverability Rights (UDRs)/External-to-ROS Deliverability Rights (EDRs)

UDRs and EDRs

Unforced Capacity Deliverability Rights (UDRs)	External-to-ROS Deliverability Rights (EDRs)
Rights associated with a specific controllable and schedulable transmission facility with a terminus in a Locality • Either from an External Control Area or a non-constrained region in NYCA	Rights associated with incremental transfer capability on a new or existing Scheduled Line over an External Interface, with a terminus in Rest of State
Allows capacity external to the area to be treated as if it were physically located in the Locality	Allows capacity external to the area to be treated as if it were physically located in ROS
Must have CRIS	Must have CRIS

UDRs and EDRs

Current UDRs Awarded	
Cross Sound Cable (CSC) - New England to Long Island , Zone K	330 MW
Neptune Cable – PJM to Long Island, Zone K	660 MW
Linden VFT – PJM to New York City, Zone J	315 MW
Hudson Transmission Project (HTP) – PJM to New York City, Zone J	660 MW

Current EDRs Awarded	
Cedars – HQ to Rest-of-State (ROS), Zone D	80 MW

ICAP Manual – Section 4.9.6

UDRs and EDRs

- Capacity associated with UDRs and EDRs are not subject to Import Right ICAP Limits
- UDR/EDR Rights Holders can offer UCAP (must also meet the requirements to be an Installed Capacity Supplier)
- MW satisfy Locational Minimum Installed Capacity Requirement (for UDR)
- If UDR sinks in Load Zones G through J the resource is subject to a buyer-side mitigation examination and the UCAP may be subject to an Offer Floor
  - See separate capacity mitigation module

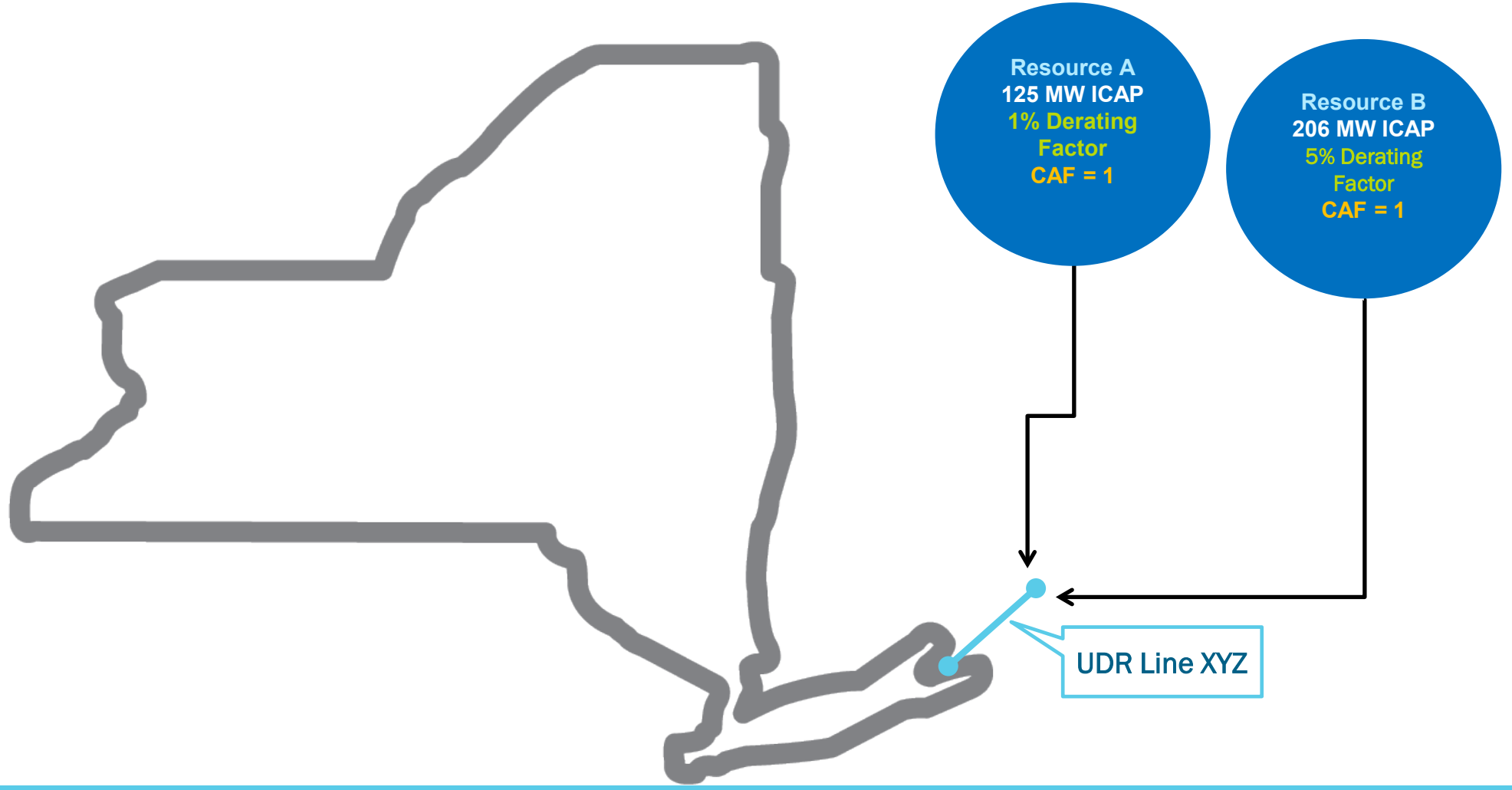
UCAP for UDR Example

- The UDR Rightsholder/ICAP Supplier designates which resources will be used to supply capacity via the UDR
- Each Rightsholder's UDRs are reduced by its share of:
  - UDR Line Losses
  - Each Resource's Derating Factor
  - UDR Line Unavailability

UCAP of UDR = ∑ of each UDR Resource's [(Resource ICAP – Resource Loss MWs) * (1- Resource Derating Factor) * (1- UDR Unavailability) * CAF]

UCAP for UDR Example

- A UDR Line XYZ from NE to LI is configured
- This UDR has Resource A and Resource B



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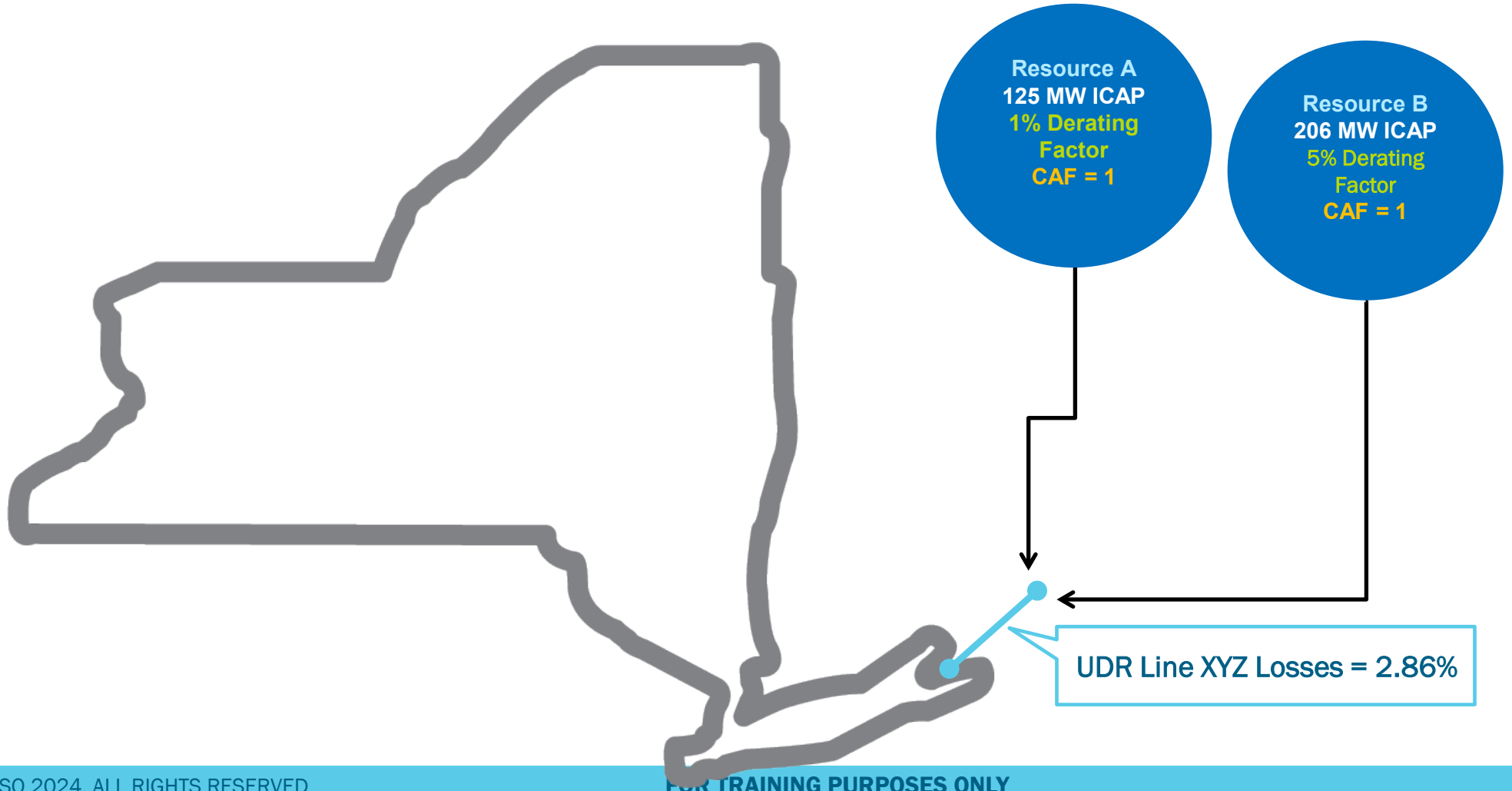

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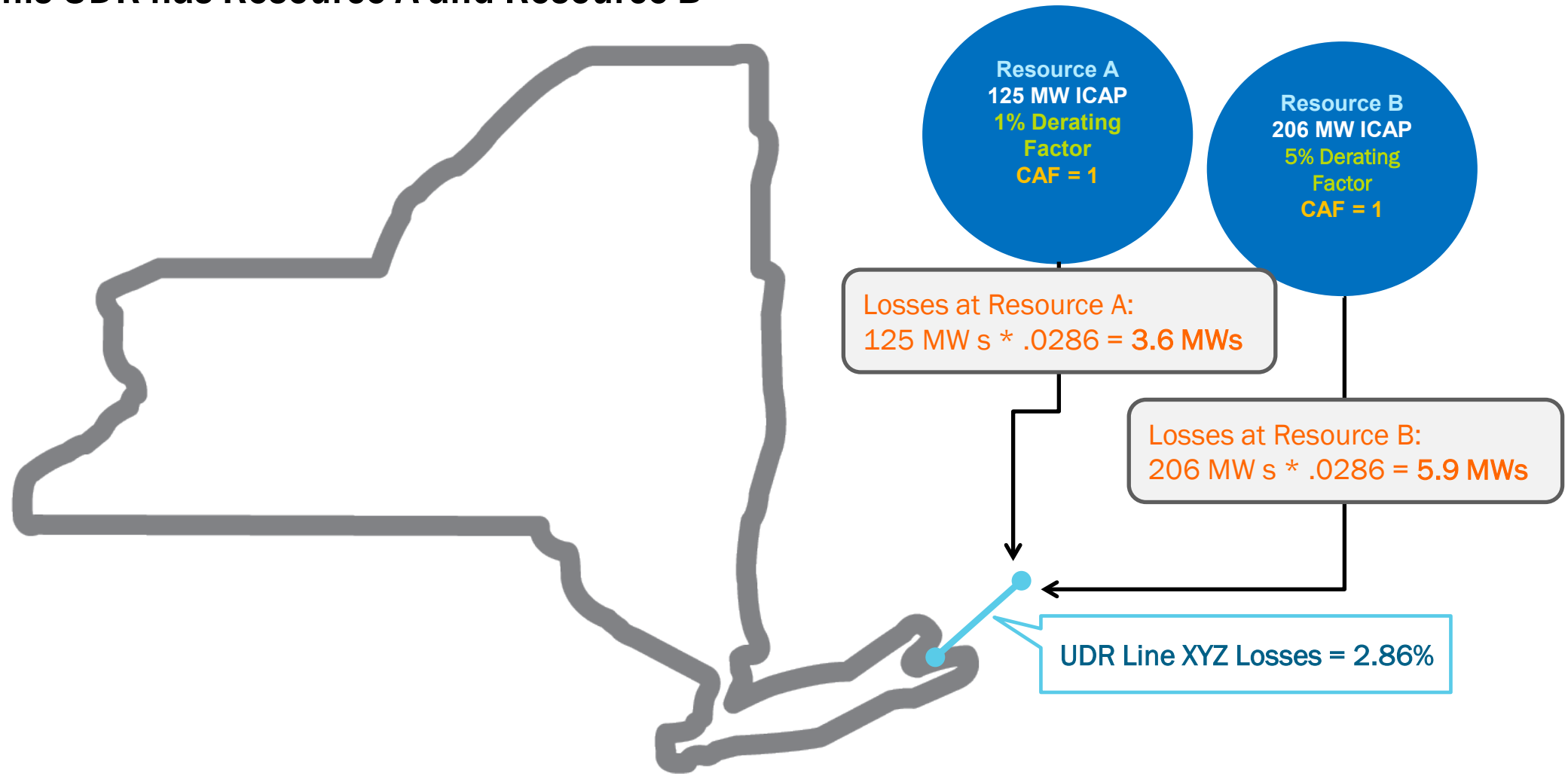

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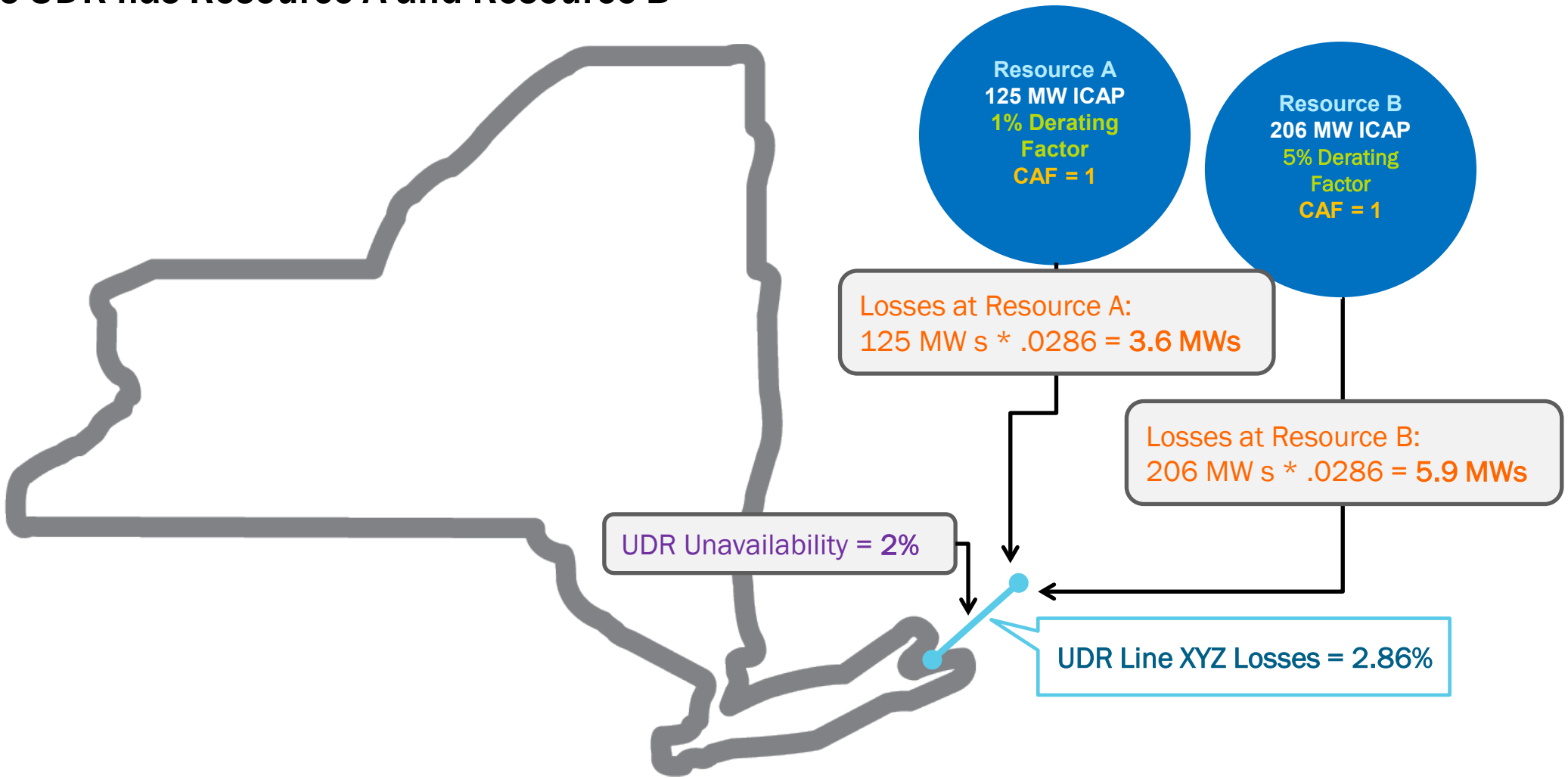


UCAP for UDR Example

- A UDR Line XYZ from NE to LI is configured
- This UDR has Resource A and Resource B

Resource A has 117.7 MWs of UCAP Available to Offer in LI

UCAP = (125 – 3.6 MW) * (1 – 0.01) * (1- 0.02) * 1

121.4 * 0.99 * 0.98 * 1 = 117.78228

Resource B has 186.2 MWs of UCAP Available to Offer in LI

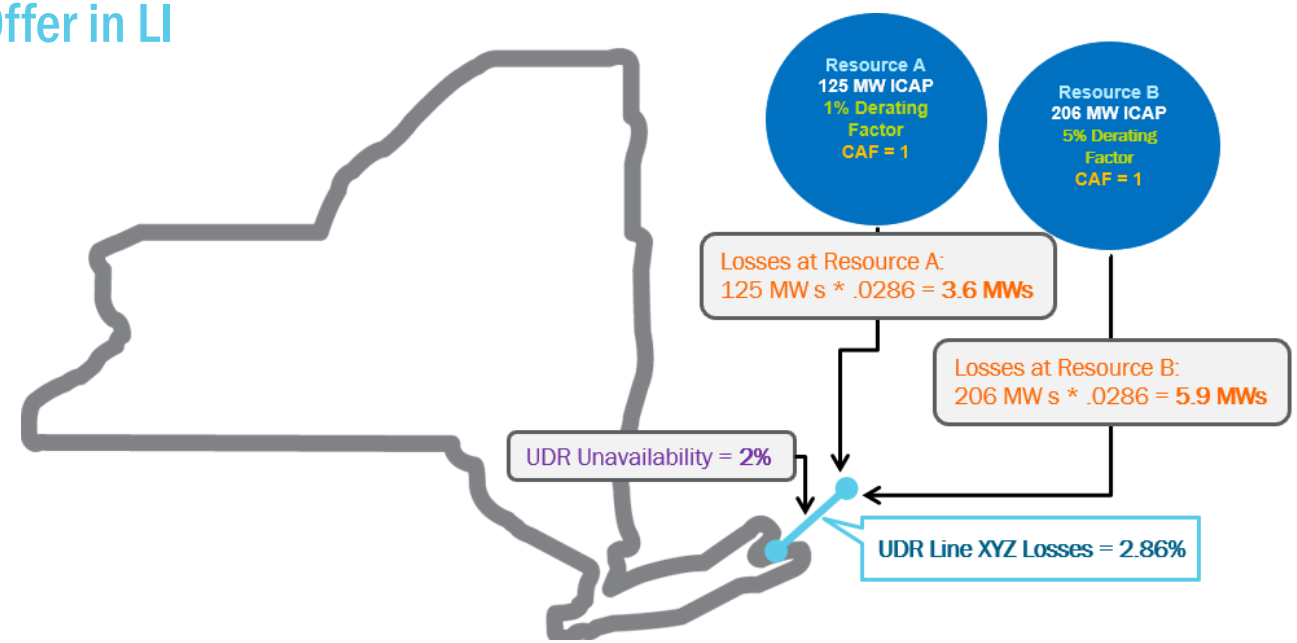
UCAP = (206 – 5.9 MW) * (1 – 0.05) * (1- 0.02) * 1

200.1 * 0.95 * 0.98 * 1 = 186.2931

UDR Total UCAP Available to Offer in LI =

117.7 + 186.2

303.9



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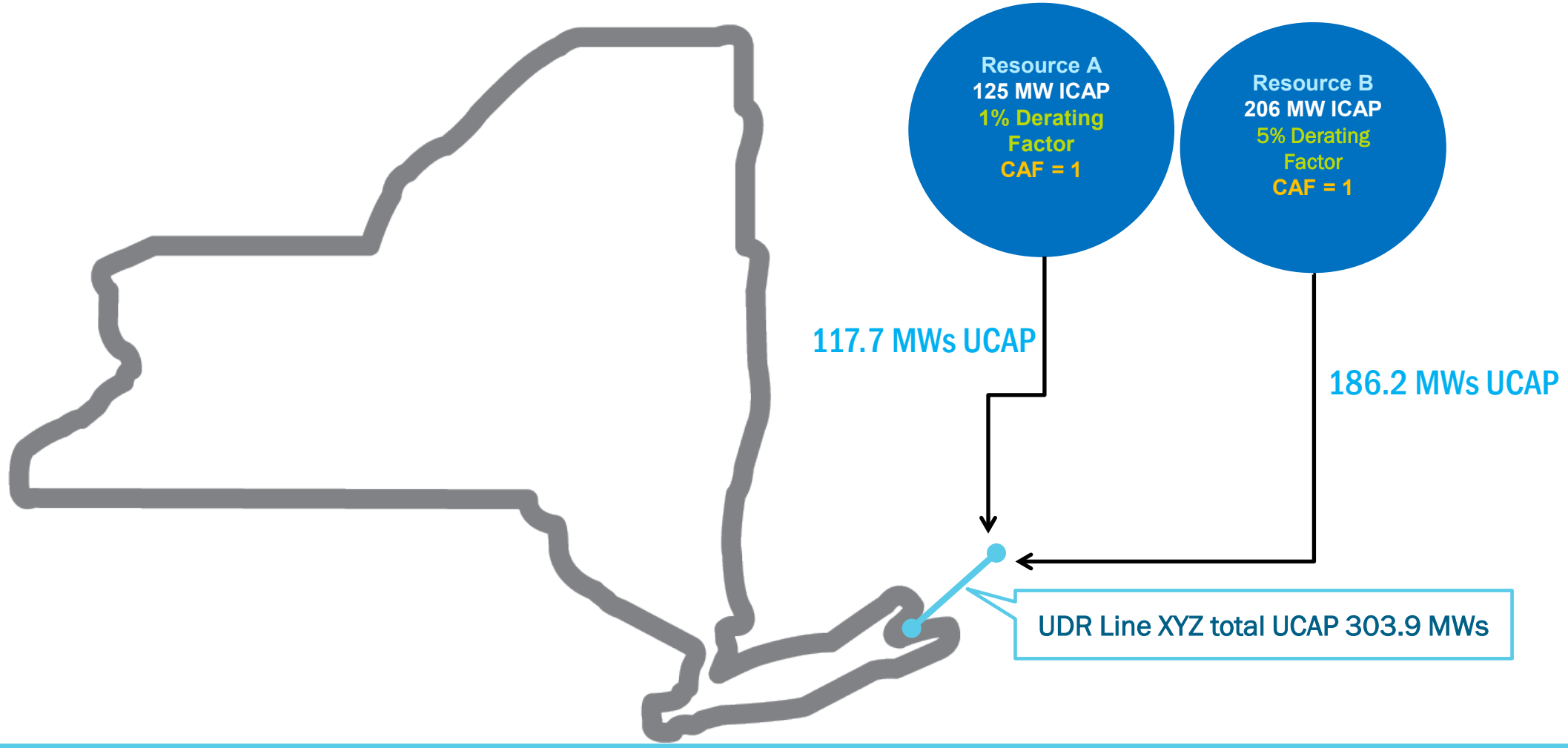


Topic 8: Key Responsibilities of an ICAP Supplier

ICAP Supplier Activities

- Conduct DMNC test (or equivalent) for each Capability Period
  - Option to provide actual data, rather than test data
- Schedule outages
  - Refer to Outage Scheduling Appendix, and manuals and procedures
- Submit monthly GADS Data, or equivalent
- Certify prior to ICAP Spot Market Auction
  - Allocate sales to specific resources (except certain externals already allocated)
  - Certify a bilateral transaction

ICAP Supplier Activities – Cont'd

- If the Resource sells capacity, it has energy obligations in the Day-Ahead Market obligations
  - Generators must "bid, schedule or notify" in Day-Ahead Market (MST - Section 5.12.7)
  - Energy Storage Resources must Bid, Schedule or Notify the full withdrawal to injection operating range of the ESR
  - Exceptions to this are SCRs, Intermittent Resources, and Municipal Utilities

Refer to MST - Section 5.12.11 and ICAP Manual - Section 4.8

“Bid, Schedule or Notify” Obligation

- “Bid” = Offer energy
  - Day Ahead Market
  - Installed Capacity Equivalent (ICE)
    - *In the ICAP Automated Market System (AMS), ICE is identified as ‘ICAP Sold for DAM’*
- Schedule a Bilateral Transaction
  - All parties must confirm the transaction
- Notify the NYISO of any outages
  - Unavailable due to:
    - Scheduled Maintenance (accepted by NYISO)
    - Forced Outage

“Bid, Schedule or Notify” Obligation

- **Bidding Installed Capacity Equivalent (ICE)**
  - ICE value is the generator’s capacity sold adjusted for availability

$$ICE = \frac{\text{UCAP Sold}}{(1 - \text{Derating Factor}) \times \text{Capacity Accreditation Factor}}$$

  - UCAP Sold includes Auction MW plus Bilaterals
  - Derating Factor (for most resource types, AEFORd)

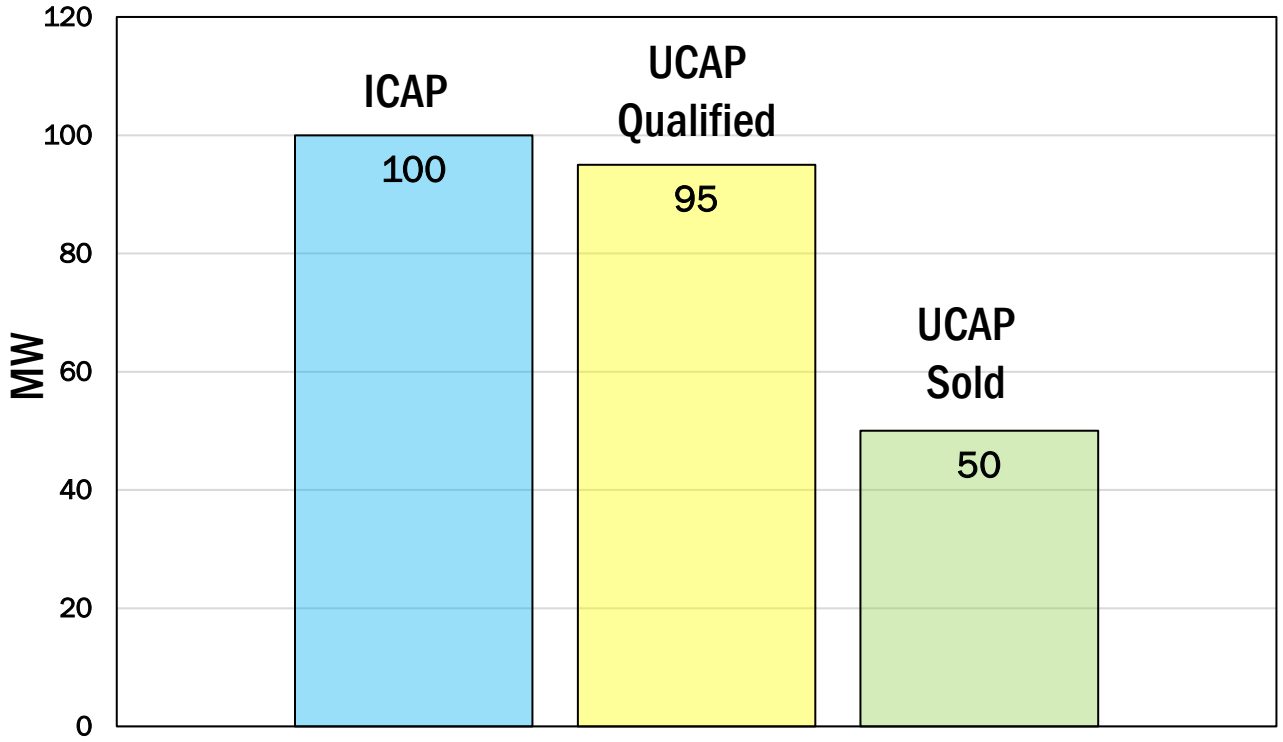
ICE Calculations for:

ELRs and CLRs refer to MST Section 5.12.11 and Section 4.8.2 of ICAP manual Attachment M

ESRs refer to MST Section 5.12.7 and Section 6.7 of ICAP Manual Attachment J

“Bid, Schedule or Notify” Obligation

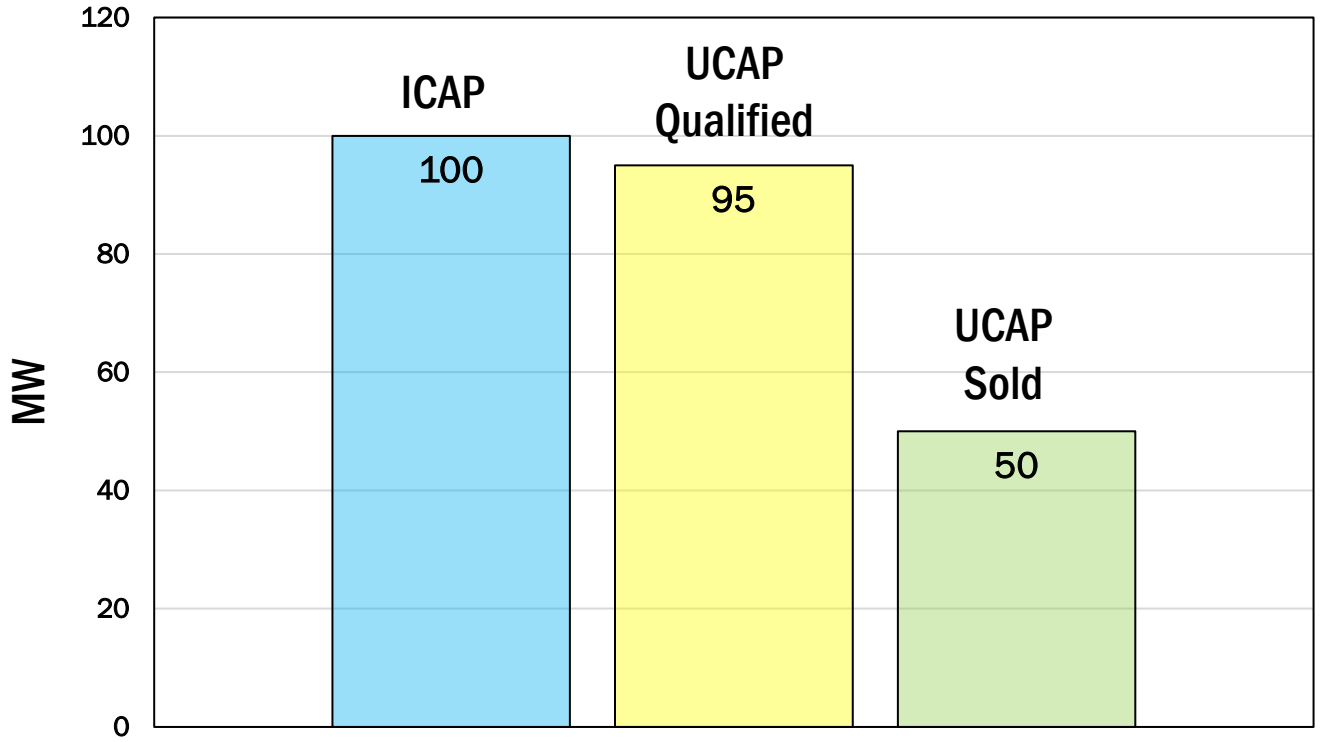
- ICAP = 100 MW
- Derating Factor = 0.05
- UCAP Qualified = 95 MW
- UCAP Sold = 50 MW
- Capacity Accreditation Factor = 1



What is the Bid/Schedule/Notify obligation for this resource?

“Bid, Schedule or Notify” Obligation

- ICAP = 100 MW
- Derating Factor = 0.05
- UCAP Qualified = 95 MW
- UCAP Sold = 50 MW
- Capacity Accreditation Factor = 1



$$ICE = \frac{UCAP\ Sold}{(1 - Derating\ Factor) \times Capacity\ Accreditation\ Factor}$$

“Bid, Schedule or Notify” Obligation

- ICAP = 100 MW
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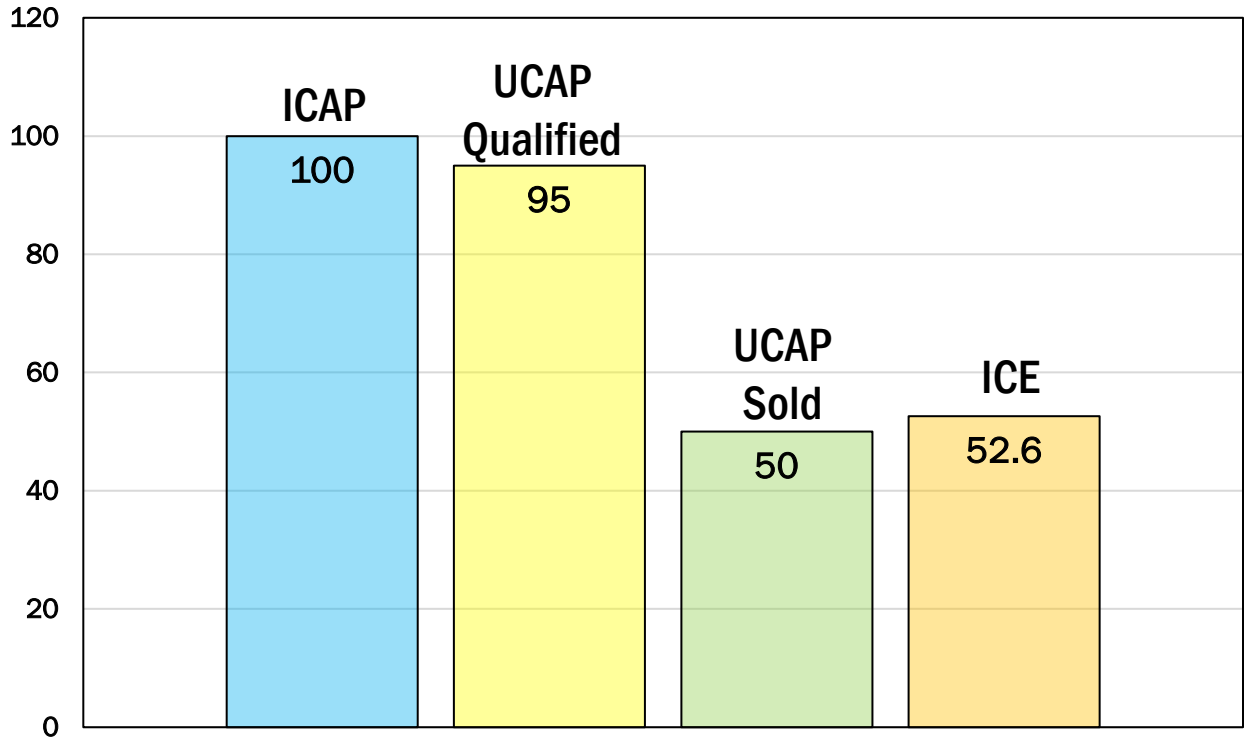

$$ICE = \frac{50}{(1-0.05) \times 1} = 52.6 \text{ MW}$$

Summary – Objectives

- Name the inputs used to calculate the UCAP value for the different capacity resource types
  - DMNC (or equivalent), CRIS, Duration Adjustment Factor, Derating factor, Capacity Accreditation Factor (CAF)
- Define CRIS and its relevance to UCAP
  - Adjusts DMNC to account for deliverability of capacity
- Describe how Capacity Accreditation Factor is used in UCAP calculations
- Explain the difference between Forced derates and Forced Outages and their significance
  - Forced Derate - reduced output over duration; Forced Outage - no output for a portion of time
- Describe the relationship between an EFORd and a derating factor
  - For certain generating types, EFORd used to determine derating factor (AEFORd)

Summary - Objectives

- Describe how Import Rights are different from UDRs/EDRs
  - UDRs/EDRs specific to Controllable and Scheduled Lines
  - Import Rights limited by Import Limits
- List the responsibilities of an ICAP Supplier
  - Resource Capability tests; GADS Data or equivalent; Certify; “bid, schedule or notify” for DAM
  - Note certain exceptions to “bid, schedule or notify” DAM obligation
- Calculate the Installed Capacity Equivalent (ICE) for an ICAP Supplier
  - ICE = UCAP Sold / (1 - Derating Factor)*CAF

References

- Market Services Tariff
- Installed Capacity Manual
  - Installed Capacity Manual, Attachment J
- Aggregation Manual
- ICAP Automated Market System User's Guide
- Market Participants User's Guide
- Market Training E-Learning Resources