New York ISO
Independent System Operator

2025 - 2026 Informational Capacity Accreditation Factors (iCAFs) Set 2

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Objective of Today's Presentation

- The NYISO presented the 2025-2026 Informational Capacity Accreditation Factors (CAFs) Set 1 on October 7, 2024[1]
- Objective of today's presentation: Review and discuss the 2025-2026 Informational CAFs Set 2
  - Review differences between 2025-2026 Informational CAFs Set 1 and Set 2 and the drivers for these differences
- Discuss next steps and plan for the 2025-2026 Final Capacity Accreditation Resource Class (CARC) and CAFs

1. 2025-2026 Informational CAFs Set 1

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2025-2026 Informational CAFs Set 2

Background on CAFs

- The CAF reflects the marginal reliability value of the representative unit over a perfect unit.
- The following informational CAFs were calculated using the marginal reliability improvement (MRI) technique
  - A 100 MW representative unit is used for each CARC, consistent with the methodology for calculating CAFs as outlined in Section 7.2.1 of the ICAP Manual
- These CAFs are for informational purposes only, utilizing information available at the time of calculation
- These informational values are not the final CAFs that will be used to determine the market revenue of ICAP Suppliers starting with the Capability Year that begins on May 1, 2025
- Final CAFs will be calculated in accordance with Section 7.2 of the ICAP Manual and posted by March 1, 2025
  - The final CAF results and the inputs to the GE Multi-Area Reliability Simulation software program (MARS) model may differ from these informational values.

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Base Case for the 2025-2026 Informational CAFs Set 2

- The 2025–2026 IRM Final Base Case (FBC) was completed with the Tan45 result at an installed reserve margin (IRM) of 24.4%
- The NYISO presented the results of a preliminary Locational Minimum Installed Capacity Requirement (LCR) case at the 11/21/2024 ICAPWG :
  - IRM: 24.4%
  - G-J Locality Preliminary LCR: 78.8%
  - Load Zone J (NYC) Locality Preliminary LCR: 78.5%
  - Load Zone K (LI) Locality Preliminary LCR: 106.5%
  - Loss of load expectation (LOLE): 0.100 event-days/year
- This preliminary LCR case forms the base case for Informational CAF Set 2

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Base Case Comparison

- The table below compares key assumptions for the base cases for the 2025-2026 Informational CAF Set 1 and Set 2:

Base Case Comparison	2025-2026 Informational CAF Set 1 (2025-2026 IRM PBC + 2024-2025 TSL floor values)	2025-2026 Informational CAF Set 2 (2025-2026 Preliminary LCRs + Final 2025-2026 TSL floor values)
IRM	23.60%	24.40%
G-J LCR	81.00%	78.80%
NYC LCR	80.40%	78.50%
LI LCR	105.30%	106.50%
LOLE	0.078	0.100

- Major study assumption updates between the two base cases include:
  - Updated Emergency Operating Procedure (EOP) capacity values, Unforced Capacity Deliverability Rights (UDR) elections, load forecast, generation inclusion and topology (See appendix for details)
  - Final 2025–2026 transmission security limit (TSL) floor values (11/4/2024 ICAPWG Presentation)

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2025 - 2026 Informational CAFs Set 2

CARCs	Rest of State	GHI Locality	NYC Locality	LI Locality
Special Case Resource (SCR)	77.21%*	76.88%*	68.31%*	74.43%*
2-Hour Energy Duration Limited	74.32%	73.97%	64.94%	52.68%
4-Hour Energy Duration Limited	78.91%	78.60%	78.53%	87.10%
6-Hour Energy Duration Limited	87.24%	87.16%	85.90%	94.59%
8-Hour Energy Duration Limited	96.77%	96.40%	96.12%	98.96%
Landfill Gas	63.95%	63.87%*	64.04%*	65.68%*
Solar	12.24%	12.33%	12.03%	10.05%
Offshore Wind	-	-	-	35.79%
Land-based Wind	16.84%	16.61%*	16.69%*	18.20%*
Limited Control Run of River	38.44%	41.44%	-	-
Large Hydro	100.00%	100.00%	100.00%	100.00%
Large Hydro with partial Pump Storage	100.00%	-	-	-
Generator	100.00%	100.00%	100.00%	100.00%

*These CARCs are new to the 2025-2026 Capability Year and are reflected in the 2025-2026 Final CARC List

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Comparison of 2025-2026 Informational CAFs Set 1 and Set 2

Differences between 2025-2026 Informational CAFs Set 1 and Set 2

CARC	Rest of State			GHI Locality			NYC Locality			LI Locality		
	ICAF 1 25-26	ICAF 2 25-26	Delta	ICAF 1 25-26	ICAF 2 25-26	Delta	ICAF 1 25-26	ICAF 2 25-26	Delta	ICAF 1 25-26	ICAF 2 25-26	Delta
Special Case Resource (SCR)	78.66%	77.21%	-1.45%	79.27%	76.88%	-2.39%	68.98%	68.31%	-0.67%	78.09%	74.43%	-3.66%
2-Hour Energy Duration Limited	76.19%	74.32%	-1.87%	75.61%	73.97%	-1.64%	64.99%	64.94%	-0.05%	59.27%	52.68%	-6.59%
4-Hour Energy Duration Limited	83.60%	78.91%	-4.69%	84.15%	78.60%	-5.55%	80.80%	78.53%	-2.27%	89.70%	87.10%	-2.60%
6-Hour Energy Duration Limited	91.53%	87.24%	-4.29%	91.81%	87.16%	-4.65%	87.00%	85.90%	-1.10%	95.60%	94.59%	-1.01%
8-Hour Energy Duration Limited	98.77%	96.77%	-2.00%	98.95%	96.40%	-2.55%	96.90%	96.12%	-0.78%	99.34%	98.96%	-0.38%
Landfill Gas	63.84%	63.95%	0.11%	64.11%	63.87%	-0.24%	63.22%	64.04%	0.82%	62.36%	65.68%	3.32%
Solar	8.64%	12.24%	3.60%	8.54%	12.33%	3.79%	11.82%	12.03%	0.21%	9.36%	10.05%	0.69%
Offshore Wind	-	-	-	-	-	-	-	-	-	38.48%	35.79%	-2.69%
Land-based Wind	21.52%	16.84%	-4.68%	21.08%	16.61%	-4.47%	19.79%	16.69%	-3.10%	19.66%	18.20%	-1.46%
Limited Control Run of River	46.21%	38.44%	-7.77%	43.38%	41.44%	-1.94%	-	-	-	-	-	-
Large Hydro	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%
Large Hydro with partial Pump Storage	100.00%	100.00%	0.00%	-	-	-	-	-	-	-	-	-
Generator	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%

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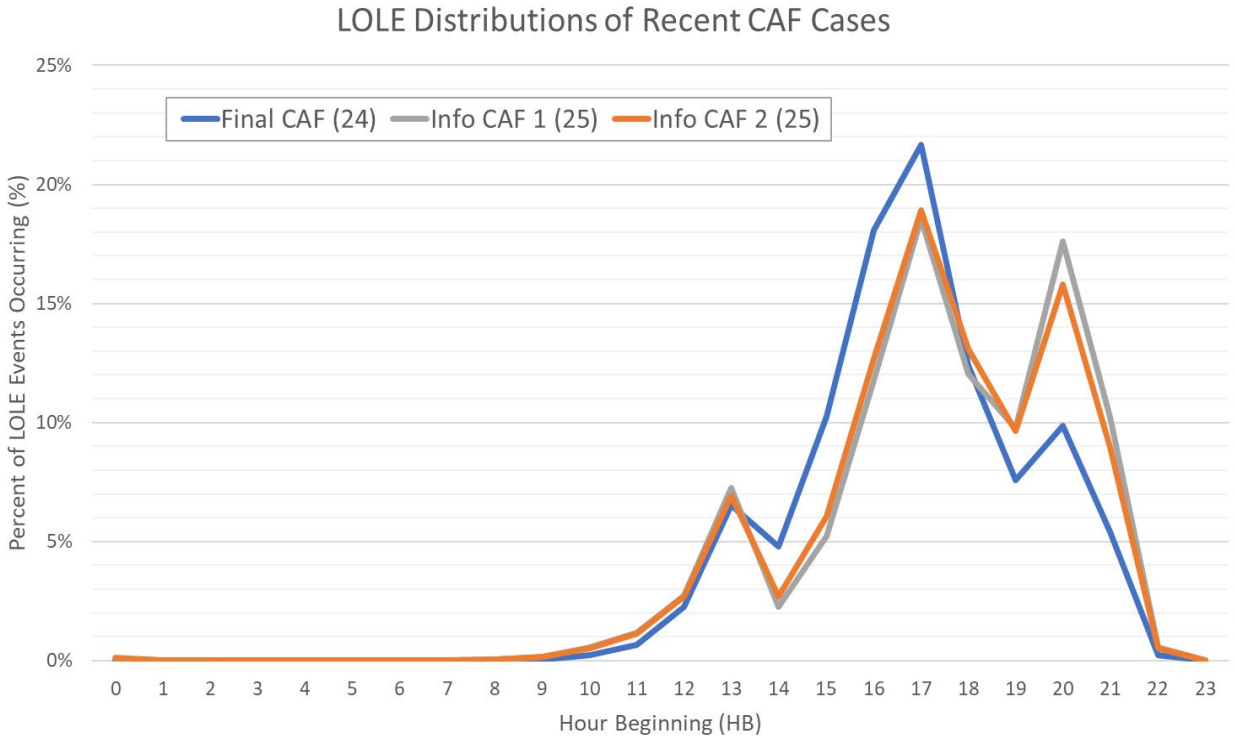
LOLE Distribution Comparison



- 2025-2026 Informational CAF Set 2 case shows the same LOLE risk profile trend as Set 1
  - Compared to Final 2024-2025 CAF case, the LOLE risk profile has 2 dominant peaks instead of 1
  - This is predominantly driven by the increased penetration of behind-the-meter solar and enhanced Special Case Resource (SCR) modeling implemented for the 2025-2026 IRM study as described in 10/7 ICAPWG
- There are only minor differences in the LOLE risk profile between the 2025-2026 Informational CAF Set 1 and 2 cases
  - Slight decrease in HB 20 risk, and slight increase in HB 15 and 18 risk

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Relationship between the LOLE Risk Profile and CAFs

- **The LOLE risk profile impacts CAF values**
  - CAF values are calculated based on how effective a resource class is at addressing LOLE risk compared to “perfect capacity”
- **As the LOLE risk profile changes, a CARC’s ability to address LOLE risk can also change, leading to changes in CAF values**
  - For example, if the LOLE risk profile shifts to later in the day, a solar resource is less effective at addressing such later occurring LOLE risk; therefore, the CAF for a solar resource is likely to be lower

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General Observation: Set 2 vs. Set 1

- **The 2025-2026 Informational CAF Set 2 values are generally slightly lower than the Set 1 informational values**
  - This general trend is predominantly attributed to the LOLE differences between the two base cases.
    - The base case LOLE is higher for the Informational CAF Set 2 than Set 1 (0.100 vs 0.078
    - With a higher starting point LOLE, any marginal unit will be more valuable in reducing reliability risk (i.e., greater LOLE improvement)
    - However, “perfect units” (denominator in the below equation and comparative for each CARC) are the most valuable, and so have the greatest LOLE improvements
      - The denominator is increased more than the numerator and therefore the resulting CAF value goes down
  - $$CAF = \frac{LOLE_{reference} - LOLE_{representative\ unit}}{LOLE_{reference} - LOLE_{perfect\ unit}}$$

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Optimal Output Window - EDLs

- **With a similar LOLE risk distribution, the optimal output window for Energy Duration Limited resources (EDLs) remains unchanged between 2025-2026 Informational CAFs Set 1 and Set 2, except for the 2-hour EDL CARC in Load Zone K**
- **The optimal hours identified were:**
  - 2-hour EDL: HB 17 and HB 20 for all locations other than Load Zone K ; and HB 17 and HB 18 for Load Zone K
  - 4-hour EDL: HB 16 – HB 18 and HB 20
  - 6-hour EDL: HB 16 – HB 21
  - 8-hour EDL: HB 13, HB 15 – HB 21

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Optimal Output Window – SCRs

- **Similarly, the optimal output window for SCRs also remains unchanged between 2025-2026 Informational CAFs Set 1 and Set 2 (HB 17, 18, 19, 20), except for Load Zone K**
  - These hours allow the SCR to capture the two highest peaks in HB 17 and HB 20
  - For Load Zone K, the optimal output window for SCRs is HB 16 – HB 19
  - These four-hour periods (i.e., HB 17 – HB 20 or HB 16 – HB 19) are within the response window of the enhanced SCR modeling construct used in the IRM study, which is between HB 14 and HB 20

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Load Zone K 2-hour EDLs and SCRs

- **Additional review of the LOLE risk profile for Load Zone K was conducted to further understand the CAF changes for the 2-hour EDL and SCR CARCs in Load Zone K (see appendix for details)**
  - Load Zone K has a relatively flatter LOLE profile compared to the rest of the system, with LOLE risk concentrated in HB 17, 18 and 20
  - In addition, between 2025-2026 Informational CAFs Set 1 and Set 2, the Load Zone K profile exhibited more loss of load events, with longer duration, between HB 16 and HB 18
    - The base case for Informational CAFs Set 2 has more 1-hour loss of load events in HB 18, 2-hour loss of load events in HB 16 and 17, and 3-hour loss of load events in HB 16 compared to the based case for Informational CAFs Set 1
    - The NYISO compared the solved loss of load events after adding a 100 MW “perfect capacity” to Load Zone K in each base case In MARS simulations, reliability risk can only be resolved when the entire loss of load event can be solved
- **2-hour resources are more valuable to address the increased loss of load events observed for Load Zone K in HB 17 and 18 within the base case for 2025-2026 Informational CAFs Set 2 because these events are of 2-hour or less in duration**
- **SCRs in Load Zone K are more valuable to address the longer loss of load events starting HB 16 for Load Zone K, in addition to addressing the increased events in HB 17 and 18 observed for Load Zone K within the base case for 2025-2026 Informational CAFs Set 2**

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Informational CAFs – Shape-Based Units

- Shape-based units: landfill gas, solar, land-based wind, and limited control run-of-river
- Limited control run-of-river in Rest of State exhibited the largest change in CAF values between 2025-2026 Informational CAF Set 1 and Set 2 (-7.77%)
  - Production shape changes based on updated data between Set 1 and Set 2 impacted certain hydro units in the Rest of State region; the resulting representative resource production shape was less effective at addressing the LOLE risk profile of the base case
- Solar CAFs increased in all locations for Set 2 in comparison to Set 1
  - The slight decrease in HB 20 risk and increase in HB 15 and HB 18 risk observed in the base case for 2025-2026 Informational CAFs Set 2 made the LOLE risk distribution more favorable for solar dispatch

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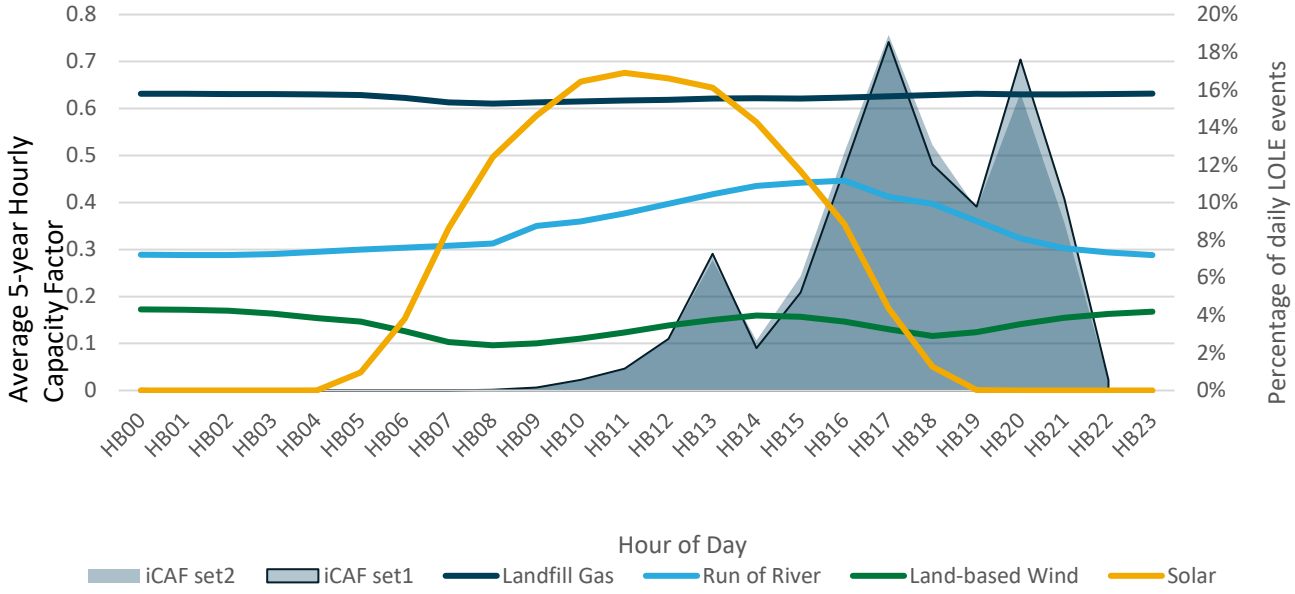
Illustration: Average Shape-Based Unit Profiles vs. LOLE Risk Profile in Rest of State (ROS) in July



- The figure is for illustrative purposes, comparing the average hourly profiles of shape-based units with hourly LOLE distribution
  - It represents an average for only July and specific circumstances during each MARs simulation may be different than this illustrative depiction
- The hourly resource profiles are based on five years of historical production data for July (July 2019–July 2023)

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Key Observations

- **The 2025-2026 Informational CAFs Set 2 values are preliminary and intended for informational purposes only**
- **The differences between the 2025-2026 Informational CAF Set 1 and Set 2 are largely driven by the changes of underlying LOLE risk profiles of the base cases for each information evaluation**
  - The higher starting point LOLE in the base case for Set 2 generally results in lower CAF values compared to Set 1
  - Similar LOLE hourly risk profiles for the base cases of each informational evaluation result in maintaining the optimal output windows for SCRs and EDLs in the Set 2 evaluation for all locations, except for Load Zone K where increased LOLE risks in HB 16, 17 and 18 are observed in the base case for the Set 2 evaluation
  - Updated production shapes and reduced LOLE risk in HB 20 also affect the informational CAFs for limited control run-of-river and solar resources in the Set 2 evaluation
- **CAF values are highly dependent on a multitude of factors that can impact the system's LOLE risk profile, making it challenging to predict future CAFs**

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Next Steps

- **The NYISO currently anticipates presenting 2025-2026 final CAFs in February 2025**
  - The NYISO currently plans to seek Operating Committee (OC) approval of final 2025-2026 LCRs at the 1/15/2025 OC meeting
  - The case for the final 2025-2026 LCRs serves as the base case for the final 2025-2026 CAFs
- **Final 2025-2026 CARCs and CAFs will be posted as described in the ICAP Manual and ICAP Event Calendar**
  - The NYISO is required to post final 2025-2026 CAFs on or before March 1, 2025

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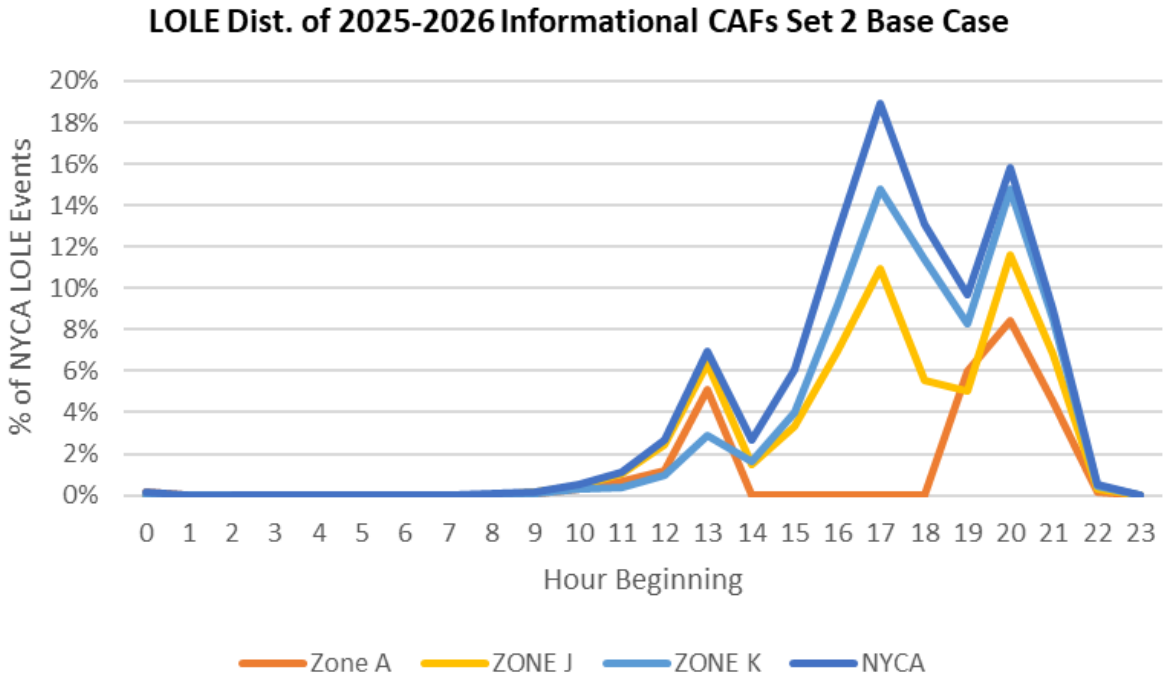
Questions?

Appendix

Zonal LOLE Distributions



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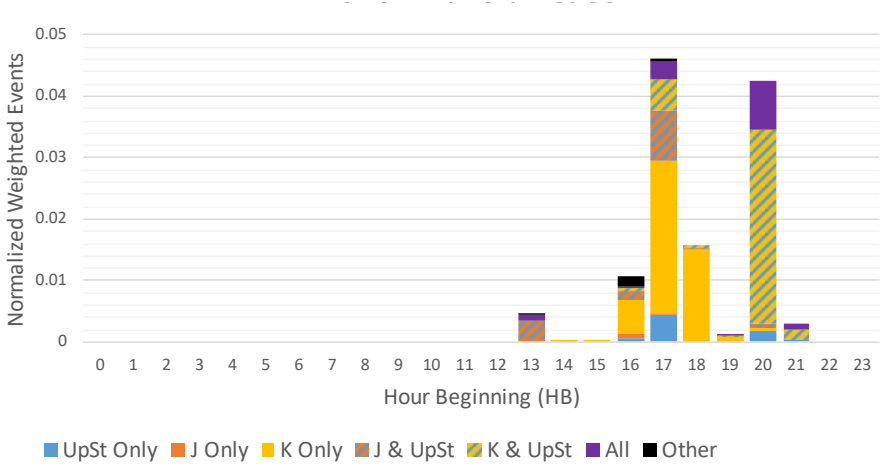
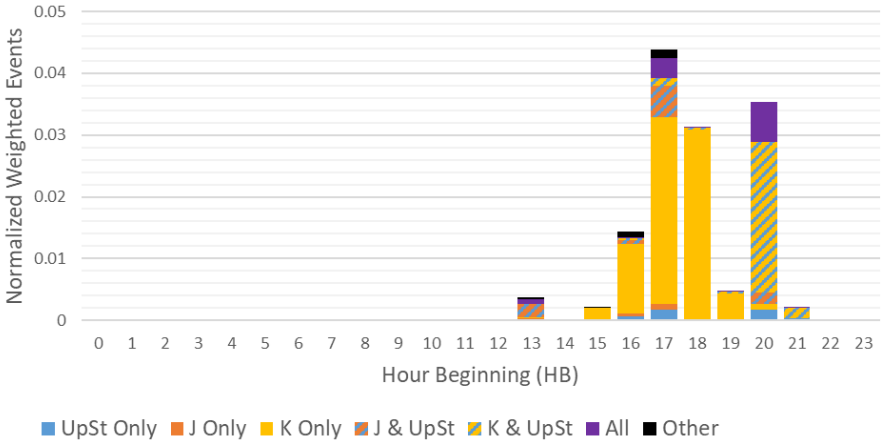
Solved 1-hr Events (100 MW Perfect Capacity Addition in Load Zone K)

2025-2026 iCAF Set 1



2025-2026 iCAF Set 2



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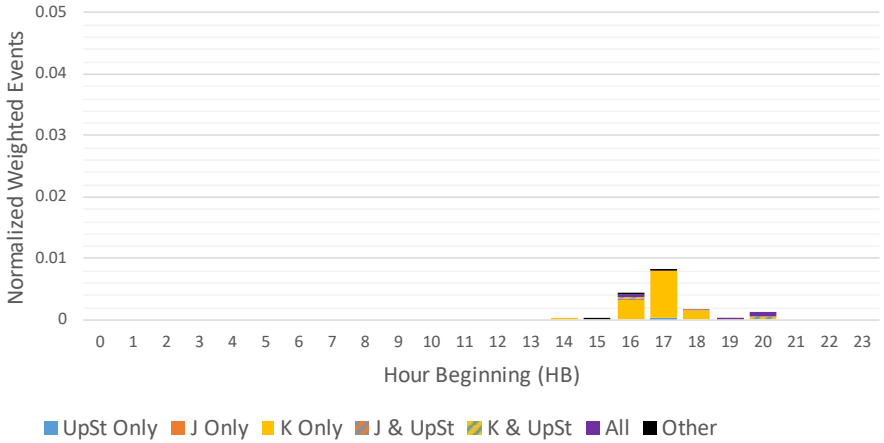
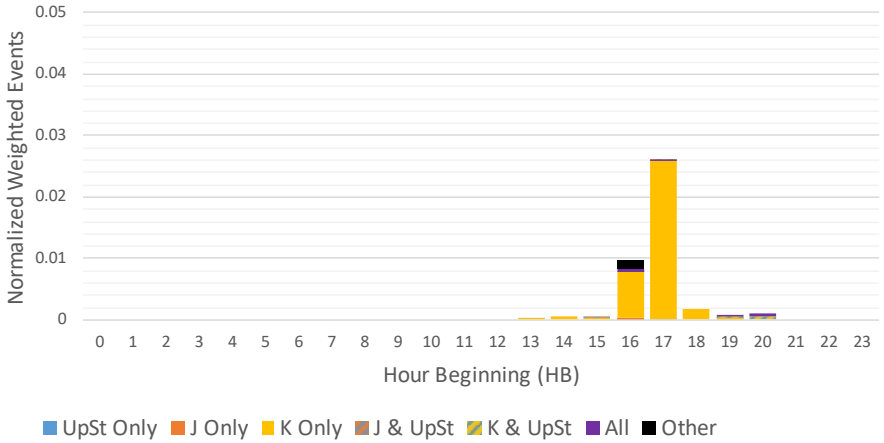
Solved 2-hr Events (100 MW Perfect Capacity in Addition Load Zone K)

2025-2026 iCAF Set 1



2025-2026 iCAF Set 2



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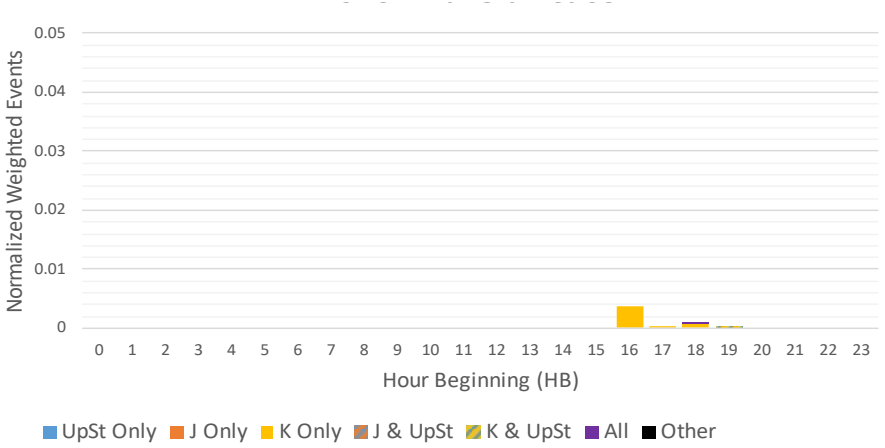
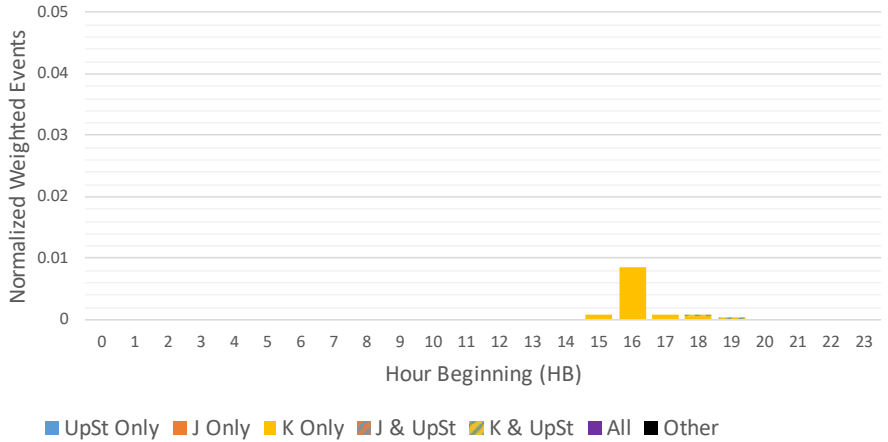
Solved 3-hr Events (100 MW Perfect Capacity in Addition Load Zone K)

2025-2026 iCAF Set 1



2025-2026 iCAF Set 2



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Key Changes from the 2025-2026 IRM Study PBC to FBC

- The base case for the 2025-2026 Informational CAFs Set 1 used the 2025-2026 IRM study preliminary base case (PBC) while the Set 2 evaluation was based on a case using the 2025-2026 IRM study FBC
- Material Changes from 2025-2026 IRM study PBC to FBC
  - SCR MW Updates
  - Updated UDR Elections
  - Topology Updates
  - Fall Load Forecast Updates
  - EOP Update: Voltage Reduction
- Non-Material Changes from 2025-2026 IRM study PBC to FBC
  - Production Shape Updates
  - EOP Update: Voluntary Curtailments and Public Appeals

Note: Details from 2025-2026 IRM study FBC Parametric Study Results

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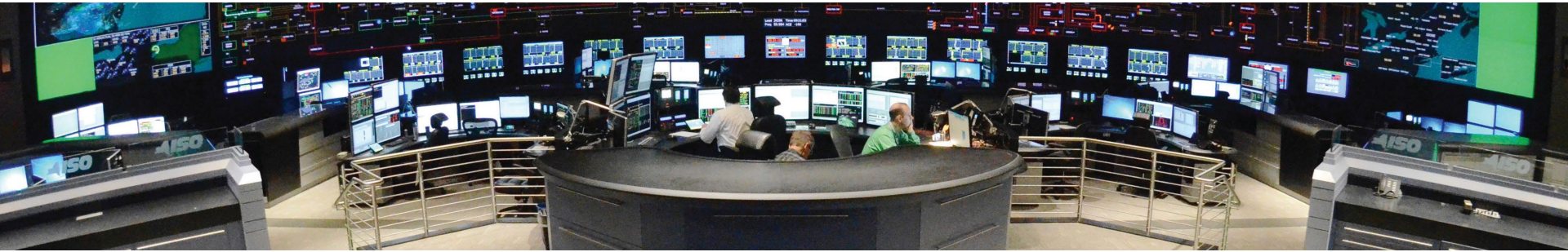
Our Mission and Vision

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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