

Demand Response: 2027-2028 IRM Study Final Base Case Values

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Revisions: Addition of Slide 5 with more information on years and number of event hours used in the SCR response rate calculations. Note added to Slides 13 and 17 about the July and January Max Modeled Capacity values.

Agenda

- Background
- Final Special Case Resource (SCR) Values for 2027-2028 IRM Study
- Distributed Energy Resource (DER) Aggregation Enrollments
- Appendix I – Description of ICS Adjustment Factors
- Appendix II – Analysis of Data Set Range

Background

Overview of the SCR zonal response rate methodology

Background – Data Set Overview

- **The NYISO calculates zonal SCR response rates by hour of event based on historical SCR performance. The data set includes:**
 - All event hours, by zone, for each mandatory event from the most recent five years in which a mandatory event was initiated by the NYISO
 - The hourly response rates for each hour simulate the aggregated performance and staggered responses of individual SCRs during mandatory events and reflect the percentage of obligated SCR MW that responded during that hour across all mandatory events in the relevant zone(s)
- **The NYISO additionally calculates “translation factors” (see Appendix for further details). The data set includes:**
 - All event hours, by zone, for each mandatory event from the most recent five years in which a mandatory event was initiated by the NYISO
 - All performance test hours that occur between the first Capability Period in the above timeframe and the most recent Summer Capability Period. This year, the NYISO has additionally included all performance test hours in Winter 2025-2026.

*The historical occurrence of mandatory events varies by zone, but the NYISO limits the consideration of such information to mandatory events since 2012.

Background – Data Set Overview (cont.)

- The table below summarizes the years of SCR mandatory events, along with number of event hours, used in the calculation of zonal SCR response rates for the 2027-2028 IRM FBC.

SCR Mandatory Event Years Incorporated into FBC Response Rates for the 2027-2028 IRM Study								
Zone	2012	2013	2016	2018	2021	2022	2024	2025
A	5	10	5				27	104
B	5	10	5				27	104
C	9	10	5				27	104
D	5	10	5				27	104
E	5	10	5				27	104
F	5	10	5			13	27	104
G	14	27	5				27	111
H	14	27	5				27	111
I	14	27	5				27	111
J	19	27	5	13			27	117
K	10	27	5		40		27	117

Background – Data Set Overview (cont.)

- Based on feedback received during the April 28, 2026 ICS meeting, the NYISO assessed potential changes to its SCR performance calculations for the IRM study to use more recent data in calculating the SCR Response Rates and ACL-to-CBL Translation Factors.
- The current inclusion rule is as follows:
 - All event hours, by zone, for each mandatory event from the most recent five years in which a mandatory event was initiated by the NYISO. These five years may be non-continuous.
- The NYISO recommends retaining the current inclusion rule, which will result in Summer 2012 being excluded from the data set starting next year.
 - Using a revised inclusion rule (e.g., limiting the historical dataset to the most recent 10 years) would result in less than 5 years of mandatory event data for the 2027-2028 IRM study.

SCR Response Rates – Duration Limit

- The current SCR modeling approach for the IRM study utilizes energy limited resource (ELR) functionality to model SCRs as duration limited resources with hourly response rates
 - The duration limits reflect the expected maximum mandatory SCR event length based on historically observed activations. Activations have historically ranged from 1-7 hours
 - The duration limit of the zonal SCR resources can vary by load zone based on the maximum historical call length that has occurred in each zone since 2012. The table below provides the duration limits modeled for the 2027 – 2028 IRM study.

SCR Activation Duration Limit by Zone (hours)				
	A-E	F	G-J	K
Duration Limit	7	7	7	7

- Because SCR performance is captured in the hourly response rates in the SCR modeling approach, the maximum modeled SCR capacities are calculated based solely on July zonal SCR enrollment and the zonal Average Coincident Load (ACL) to Customer Baseline Load (CBL) factors

$$\text{July Max Modeled Capacity (MW)} = \text{SCR ICAP MW} * \text{ACL to CBL Translation Factor}$$

2027-2028 IRM Study: Final Base Case SCR Values

*Based on July 2026 enrollments

Inputs for 2027-2028 IRM Final Base Case (FBC)

- **Additional data inputs since 2026-2027 IRM FBC**
 - Winter 2024-2025 and Summer 2025 SCR performance test hours – total of 2 hours
 - Winter 2025-2026 performance test hours – total of 1 hour
 - Summer 2025 SCR event hours – total of 62 hours
 - Winter 2025-2026 SCR event hours – total of 55 hours
- **The additional data inputs consist of**
 - All event hours, by zone, from mandatory events from Summer 2012 through Winter 2025-2026
 - Range from 151 event hours for Load Zone A to 226 event hours for Load Zone K
 - Used in calculating the zonal response rates and ACL to CBL translation factors
 - All performance test hours from Summer 2012 through Winter 2025-2026
 - 28 performance test hours
 - Used in calculating the ACL to CBL translation factors
- **The inclusion of the additional data inputs leads to updates to the SCR activation hourly response rate and maximum modeled capacity compared to the modeling assumptions used for this year's Preliminary base Case (PBC) (see Slides 11 and 14). Comparison of the SCR modeling assumptions from last year's FBC are provided on Slides 12 and 15.**

2027-2028 IRM FBC: SCR Response Rates

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	80.10%	81.88%	82.19%	79.84%	75.66%	75.39%	72.38%
F	67.35%	72.68%	75.33%	76.08%	75.25%	67.77%	63.18%
G-I	59.62%	68.22%	72.04%	73.67%	73.38%	70.14%	67.15%
J	54.95%	59.70%	64.62%	69.61%	70.67%	67.83%	66.25%
K	51.75%	58.25%	62.71%	65.18%	64.86%	64.31%	61.02%

Comparison of SCR Response Rates: 2027-2028 IRM PBC vs 2027-2028 IRM FBC

For 2027-2028 IRM FBC – Final Response Rates (Up to Winter 2025–2026 Events)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	80.10%	81.88%	82.19%	79.84%	75.66%	75.39%	72.38%
F	67.35%	72.68%	75.33%	76.08%	75.25%	67.77%	63.18%
G-I	59.62%	68.22%	72.04%	73.67%	73.38%	70.14%	67.15%
J	54.95%	59.70%	64.62%	69.61%	70.67%	67.83%	66.25%
K	51.75%	58.25%	62.71%	65.18%	64.86%	64.31%	61.02%

For 2027-2028 IRM PBC - Preliminary Response Rates (Up to Summer 2025 Events)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	82.50%	84.55%	84.83%	82.15%	77.58%	79.46%	75.89%
F	68.95%	75.10%	78.20%	78.63%	77.88%	69.13%	62.41%
G-I	60.49%	70.24%	74.20%	75.29%	75.58%	73.31%	70.39%
J	56.70%	62.05%	66.96%	71.17%	72.28%	69.33%	67.97%
K	51.08%	57.77%	62.40%	64.91%	64.59%	63.62%	59.46%

Difference in Response Rates (2027 FBC vs 2027 PBC)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	-2.40%	-2.67%	-2.64%	-2.31%	-1.92%	-4.07%	-3.51%
F	-1.60%	-2.42%	-2.87%	-2.55%	-2.63%	-1.36%	+0.77%
G-I	-0.87%	-2.02%	-2.16%	-1.62%	-2.20%	-3.17%	-3.24%
J	-1.75%	-2.35%	-2.34%	-1.56%	-1.61%	-1.50%	-1.72%
K	+0.67%	+0.48%	+0.31%	+0.27%	+0.27%	+0.69%	+1.56%

Comparison of SCR Response Rates: 2027-2028 IRM FBC vs 2026-2027 IRM FBC

For 2027-2028 IRM FBC – Final Response Rates (Up to Winter 2025–2026 Events)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	80.10%	81.88%	82.19%	79.84%	75.66%	75.39%	72.38%
F	67.35%	72.68%	75.33%	76.08%	75.25%	67.77%	63.18%
G-I	59.62%	68.22%	72.04%	73.67%	73.38%	70.14%	67.15%
J	54.95%	59.70%	64.62%	69.61%	70.67%	67.83%	66.25%
K	51.75%	58.25%	62.71%	65.18%	64.86%	64.31%	61.02%

For 2026-2027 IRM FBC - Final Response Rates (Up to Summer 2024 Events)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	82.33%	85.85%	85.54%	79.20%	75.61%	0% (No data)	0% (No data)
F	72.95%	79.54%	82.43%	83.29%	83.40%	70.40%	66.99%
G-I	61.08%	69.85%	72.12%	73.52%	74.47%	71.50%	0% (No data)
J	57.53%	62.61%	66.97%	70.70%	72.29%	66.09%	0% (No data)
K	51.20%	57.99%	63.12%	65.49%	64.82%	63.35%	52.63%

Difference in Response Rates (2027-2028 IRM FBC vs 2026-2027 IRM FBC)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	-2.23%	-3.97%	-3.35%	+0.64%	+0.05%	N/A	N/A
F	-5.60%	-6.86%	-7.10%	-7.21%	-8.15%	-2.63%	-3.81%
G-I	-1.46%	-1.63%	-0.08%	+0.15%	-1.09%	-1.36%	N/A
J	-2.58%	-2.91%	-2.35%	-1.09%	-1.62%	+1.74%	N/A
K	+0.55%	+0.26%	-0.41%	-0.31%	+0.04%	+0.96%	+8.39%

2027-2028 IRM FBC: SCR July Max Modeled Capacity (MW)

Capacity Region	SCR ICAP MW based on July 2026	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	212.5	88.3%	187.6
F	58.0	80.3%	46.6
G-I	65.0	72.7%	47.3
J	468.4	58.7%	275.0
K	25.6	70.4%	18.0

Note: the Max Modeled Capacity values in the table above differ from the values stated in the 2027-2028 IRM FBC Assumptions Matrix due to a difference in calculation of superzonal ACL-to-CBL Translation Factors. The assumptions matrix provides the values used in the IRM study.

Comparison of July Max Modeled Capacity (MW): 2027-2028 IRM PBC vs 2027-2028 IRM FBC

For 2027-2028 IRM FBC – Max SCR Modeled Capacity

Capacity Region	SCR ICAP MW based on July 2026	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	212.5	88.3%	187.6
F	58.0	80.3%	46.6
G-I	65.0	72.7%	47.3
J	468.4	58.7%	275.0
K	25.6	70.4%	18.0

For 2027-2028 IRM PBC – Max SCR Modeled Capacity

Capacity Region	SCR ICAP MW based on July 2025	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	289.6	90.3%	261.5
F	87.8	79.1%	69.4
G-I	73.9	74.9%	55.4
J	453.0	61.2%	277.2
K	22.9	70.3%	16.1

Difference in Max Modeled Capacity (2027 FBC vs 2027 PBC)

Capacity Region	SCR ICAP MW based on July 2025	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	-77.1	-2.0%	-73.9
F	-29.8	+1.2%	-22.8
G-I	-8.9	-2.2%	-8.1
J	+15.4	-2.5%	-2.2
K	+2.7	+0.1%	+1.9

Comparison of July Max Modeled Capacity (MW): 2026-2027 IRM FBC vs 2027-2028 IRM FBC

For 2027-2028 IRM FBC – Max SCR Modeled Capacity

Capacity Region	SCR ICAP MW based on July 2026	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	212.5	88.3%	187.6
F	58.0	80.3%	46.6
G-I	65.0	72.7%	47.3
J	468.4	58.7%	275.0
K	25.6	70.4%	18.0

For 2026-2027 IRM FBC – Max SCR Modeled Capacity

Capacity Region	SCR ICAP MW based on July 2025	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	260.5	91.9%	239.3
F	87.8	89.2%	78.3
G-I	73.9	83.5%	61.7
J	453.0	72.9%	330.3
K	23.1	75.1%	17.4

Difference in Max Modeled Capacity (2027-2028 IRM FBC vs 2026-2027 IRM FBC)

Capacity Region	SCR ICAP MW based on July 2025	ACL to CBL Factor	July Max Modeled Capacity (MW)
A-E	-48.0	-3.6%	-51.7
F	-29.8	+8.9%	-31.7
G-I	-8.9	-10.8%	-14.4
J	+15.4	-14.2%	-55.3
K	+2.5	-4.7%	+0.6

2027-2028 IRM FBC: January SCR ICAP Value

- To calculate the January SCR ICAP, the ICAP MW based on July 2026 enrollments is multiplied by the January SCR Multiplier.

Capacity Region	SCR ICAP MW based on July 2026	January SCR Multiplier	January SCR ICAP Value
A-E	212.5	0.6037	128.2
F	58.0	0.6037	35.0
G-I	65.0	0.6037	39.2
J	468.4	0.6037	282.7
K	25.6	0.6037	15.4

- The January SCR Multiplier is calculated using the following ratio

$$\text{January SCR Multiplier} = \text{SCR ICAP kW Equivalent Sold in January 2026} / \text{SCR ICAP kW Equivalent Sold in July 2026}$$

2027-2028 IRM FBC: SCR January Max Modeled Capacity (MW)

Capacity Region	January SCR ICAP Value	ACL to CBL Factor	January Max Modeled Capacity (MW)
A-E	128.2	88.3%	113.2
F	35.0	80.3%	28.1
G-I	39.2	72.7%	28.4
J	282.7	58.7%	165.9
K	15.4	70.4%	10.8

Note: the Max Modeled Capacity values in the table above differ from the values stated in the 2027-2028 IRM FBC Assumptions Matrix due to a difference in calculation of superzonal ACL-to-CBL Translation Factors. The assumptions matrix provides the values used in the IRM study.

2027-2028 IRM Study: Final Base Case DER Aggregation Enrollments

DER Aggregations

- **Consistent with the PBC, the NYISO recommends modeling the enrolled DERs in the 2027-2028 IRM FBC, consistent with the modeling framework identified in the Phase 1 “DER Whitepaper”**
 - Phase 1 DER Whitepaper is available at: <https://www.nysrc.org/wp-content/uploads/2025/03/DER-Modeling-Whitepaper-Phase1-ICS04022025.pdf>
 - For Demand Side Resource (DSR) Aggregations, the Phase 1 DER Whitepaper recommended modeling DERs as ELRs, aggregated by Load Zone and duration
 - For example, all DSR Aggregations in Load Zone A subject to the same duration limit (e.g., 4 hours) would be modeled as a single ELR with the applicable duration limit
- **Consistent with the PBC, the NYISO recommends applying the NYCA translation factor to DER Aggregations modeled in the 2027-2028 IRM FBC**

DER Aggregations

- The DER participation model for the NYISO markets became available on April 16, 2024 and allows certain resources to aggregate and sell energy, capacity and/or ancillary services
- The NYISO recommends including DER in the 2027-2028 IRM FBC that have been submitted for enrollment prior to this presentation.
- The NYISO recommends the DER in the table below be included, which reflects DER Aggregations that are enrolled as of August 2026.

Capacity Region	DER Aggregation ICAP (MW)	Technology Type
A-E	340.0	Demand Side Resource (DSR)
F	0	-
G-I	0	-
J	0.5	Demand Side Resource (DSR)
K	0	-

Comparison of DER Aggregation ICAP (MW): 2027-2028 IRM PBC vs 2027-2028 IRM FBC

For 2027-2028 IRM FBC – DER Aggregation ICAP Values

Capacity Region	DER Aggregation ICAP (MW)
A-E	340.0
F	0
G-I	0
J	0.5
K	0

For 2027-2028 IRM PBC – DER Aggregation ICAP Values

Capacity Region	DER Aggregation ICAP (MW)
A-E	426.0
F	0
G-I	0
J	0.5
K	0

Difference in DER Aggregation ICAP Values (2027-2028 IRM FBC vs 2027-2028 IRM PBC)

Capacity Region	DER Aggregation ICAP (MW)
A-E	-86.0
F	0
G-I	0
J	0
K	0

Comparison of DER Aggregation ICAP (MW): 2027-2028 IRM FBC vs 2026-2027 IRM FBC

For 2027-2028 IRM FBC – DER Aggregation ICAP Values

Capacity Region	DER Aggregation ICAP (MW)
A-E	340.0
F	0
G-I	0
J	0.5
K	0

For 2026-2027 IRM FBC – DER Aggregation ICAP Values

Capacity Region	DER Aggregation ICAP (MW)
A-E	480.4
F	0
G-I	0.1
J	0
K	0

Difference in DER Aggregation ICAP Values (2027-2028 IRM FBC vs 2026-2027 IRM FBC)

Capacity Region	DER Aggregation ICAP (MW)
A-E	-140.4
F	0
G-I	-0.1
J	+0.5
K	0

Appendix I – Description of SCR Adjustment Factors

SCR Baselines

■ Average Coincident Load (ACL):

- Capacity baseline for resources participating in the SCR program
- Required for all resources participating in the SCR program
- Used for capacity market participation

■ Customer Baseline Load (CBL):

- Energy baseline for resources participating the SCR program
- Optional submission following a NYISO-called SCR program test or event
- Used for energy payments

ACL to CBL Translation Factor

2027-2028 IRM FBC vs 2026-2027 IRM FBC

Program	Zone	2027-2028 IRM FBC	2026-2027 IRM FBC	Difference
SCR	A-E	88.3%	91.9%	-3.6%
SCR	F	80.3%	89.2%	-8.9%
SCR	G-I	72.7%	83.5%	-10.8%
SCR	J	58.7%	72.9%	-14.2%
SCR	K	70.4%	75.1%	-4.7%

SCR Adjustment Factors used in IRM Studies

■ Translation Factor (ACL to CBL)

- The translation factor is used to adjust performance based on the ACL baseline to a CBL equivalent
- Translation factors have been calculated annually since the 2019-2020 IRM study
- Calculated value from:
 - All event hours, by zone, for each mandatory event from the most recent five years in which a mandatory event was initiated by the NYISO (but not older than summer 2012)
 - All performance test hours accumulated during the above timeframe even when there were no mandatory events
 - Data set for the 2027-2028 IRM FBC includes all event hours from mandatory events and performance tests from Summer 2012 through Winter 2025-2026
- Only uses responses from resources reporting CBL data

Appendix II – Analysis of Data Set Range

Comparison of SCR Response Rates: 2027-2028 IRM FBC vs Alternative Response Rates

For 2027-2028 IRM FBC – Alternative Response Rates (Prior 10 Years: Summer 2016 – Winter 2025-2026)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	81.01%	81.80%	82.68%	83.26%	78.04%	75.35%	72.34%
F	66.75%	71.15%	73.53%	74.20%	73.12%	67.77%	63.18%
G-I	60.78%	69.36%	73.65%	75.26%	73.85%	69.94%	67.15%
J	54.77%	59.18%	64.56%	70.41%	70.97%	68.04%	66.25%
K	55.05%	60.54%	65.06%	66.58%	63.41%	63.38%	61.02%

For 2027-2028 IRM FBC - Final Response Rates (Current Methodology: Summer 2012 – Winter 2025-2026)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	80.10%	81.88%	82.19%	79.84%	75.66%	75.39%	72.38%
F	67.35%	72.68%	75.33%	76.08%	75.25%	67.77%	63.18%
G-I	59.62%	68.22%	72.04%	73.67%	73.38%	70.14%	67.15%
J	54.95%	59.70%	64.62%	69.61%	70.67%	67.83%	66.25%
K	51.75%	58.25%	62.71%	65.18%	64.86%	64.31%	61.02%

Difference in Response Rates (2027-2028 Alternative Methodology vs 2027-2028 IRM FBC)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	+0.91%	-0.08%	+0.49%	+3.42%	+2.38%	-0.04%	-0.04%
F	-0.60%	-1.53%	-1.80%	-1.88%	-2.13%	0.00%	0.00%
G-I	+1.16%	+1.14%	+1.61%	+1.59%	+0.47%	-0.20%	0.00%
J	-0.18%	-0.52%	-0.06%	+0.80%	+0.30%	+0.21%	0.00%
K	+3.30%	+2.29%	+2.35%	+1.40%	-1.45%	-0.93%	0.00%

Comparison of SCR Response Rates: 2026 -2027 IRM FBC vs Alternative Response Rates

For 2027-2028 IRM FBC – Modified Response Rates (Summer 2016 – Winter 2025-2026)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	81.01%	81.80%	82.68%	83.26%	78.04%	75.35%	72.34%
F	66.75%	71.15%	73.53%	74.20%	73.12%	67.77%	63.18%
G-I	60.78%	69.36%	73.65%	75.26%	73.85%	69.94%	67.15%
J	54.77%	59.18%	64.56%	70.41%	70.97%	68.04%	66.25%
K	55.05%	60.54%	65.06%	66.58%	63.41%	63.38%	61.02%

For 2026-2027 IRM FBC - Final Response Rates (Up to Summer 2024 Events)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	82.33%	85.85%	85.54%	79.20%	75.61%	0% (No data)	0% (No data)
F	72.95%	79.54%	82.43%	83.29%	83.40%	70.40%	66.99%
G-I	61.08%	69.85%	72.12%	73.52%	74.47%	71.50%	0% (No data)
J	57.53%	62.61%	66.97%	70.70%	72.29%	66.09%	0% (No data)
K	51.20%	57.99%	63.12%	65.49%	64.82%	63.35%	52.63%

Difference in Response Rates (2027 Modified FBC vs 2026 FBC)

Zones	Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7
A-E	-1.32%	-4.05%	-2.86%	+4.06%	+2.43%	N/A	N/A
F	-6.20%	-8.39%	-8.90%	-9.09%	-10.28%	-2.63%	-3.81%
G-I	-0.30%	-0.49%	+1.53%	+1.74%	-0.62%	-1.56%	N/A
J	-2.76%	-3.43%	-2.41%	-0.29%	-1.32%	+1.95%	N/A
K	+3.85%	+2.55%	+1.94%	+1.09%	-1.41%	+0.03%	+8.39%

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