

LFU Phase 3 Whitepaper - Impact on IRM

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Background

- **As a part of LFU Phase 3 whitepaper, two potential options for different LFU multipliers are tested:**
 - **Monthly LFU:** A new set of LFU multipliers are assigned for each month, for each zone.
 - **Hourly LFU (8760 variable scaling):** Each bin is assigned with a unique adjusted net load shapes. Used in conjunction with the existing seasonal LFU multipliers
- **2023-2024 IRM Final Base Case (FBC) final Tan45 result was used as the base of the testing**
 - New load shapes adopted last year are part of the testing

IRM Testing Results

	Parametric Results					Tan45 Results			
	Base	01	Δ Base	02	Δ Base	01	Δ Base	02	Δ Base
Seasonal LFUs	x			x				x	
Monthly LFUs		x				x			
DFA Pre-Scaling				x				x	
IRM	19.90%	19.68%	-0.22%	19.03%	-0.87%	19.82%	-0.08%	18.65%	-1.25%
J LCR	78.20%	78.05%	-0.15%	77.60%	-0.60%	77.93%	-0.27%	77.92%	-0.28%
K LCR	107.40%	107.18%	-0.22%	106.53%	-0.87%	106.96%	-0.44%	106.72%	-0.68%
GRP G-J	88.55%	88.38%	-0.17%	87.89%	-0.66%	88.35%	-0.20%	88.34%	-0.21%

- The Monthly LFU effectively has no impact on the IRM
- The Hourly LFU lowers the IRM significantly (-1.25%)

Top Loads and Hourly LOLE Distribution

- In comparison, top loads decrease with faster rate from the peak load with the Hourly LFU treatment

- Neither treatment has significant impact on the Hourly LOLE distribution

FBC23 (NYCA after LFU multiplier adjustment)											
Bin	Pr	Top 1	Top 2	Top 3	Top 4	Top 5	Top 6	Top 7	Top 8	Top 9	Top 10
1	0.01	36067.5	36001.2	35791.1	35642.7	35514.1	35334.0	35219.9	35182.1	35136.5	35097.6
2	0.06	34864.1	34801.0	34597.9	34453.2	34327.5	34156.2	34045.1	34007.8	33963.5	33925.2
3	0.24	33464.9	33346.0	32935.4	32902.4	32753.6	32493.2	32435.9	32426.5	32266.0	32227.5
4	0.38	31953.6	31840.8	31446.8	31416.6	31273.7	31026.6	30971.8	30965.2	30809.2	30772.3
5	0.24	30320.7	29766.0	29481.3	29202.0	29124.9	29082.2	29072.6	29013.2	28902.0	28900.5
6	0.06	28561.0	28038.3	27771.8	27503.2	27431.1	27397.5	27384.7	27330.2	27225.8	27219.9
7	0.01	26738.6	26249.2	26001.9	25742.8	25677.9	25652.0	25635.7	25585.0	25489.3	25478.2

Monthly LFU (NYCA after LFU multiplier adjustment) - Delta											
Bin	Pr	Top 1	Top 2	Top 3	Top 4	Top 5	Top 6	Top 7	Top 8	Top 9	Top 10
1	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.24	-172.0	-170.7	-169.4	-168.7	-168.6	-166.2	-165.6	-216.4	-165.5	-161.4
4	0.38	40.9	41.4	40.4	40.7	40.0	61.4	95.3	47.3	39.7	39.3
5	0.24	0.0	0.0	218.8	291.4	356.4	266.5	268.9	188.7	270.1	257.0
6	0.06	79.3	522.6	669.6	797.7	701.6	720.6	727.2	708.1	667.1	595.3
7	0.01	804.8	1103.7	1215.0	1314.5	1365.1	1384.8	1117.5	1159.1	1253.7	1114.5

Hourly LFU (NYCA after LFU multiplier adjustment) - Delta											
Bin	Pr	Top 1	Top 2	Top 3	Top 4	Top 5	Top 6	Top 7	Top 8	Top 9	Top 10
1	0.01	0.0	-122.2	-173.7	-146.0	-131.4	-257.6	-208.7	-180.4	-264.3	-233.4
2	0.06	0.0	-89.7	-126.4	-108.5	-95.4	-191.8	-153.3	-133.4	-202.4	-164.3
3	0.24	0.0	-42.8	-76.9	-74.2	-68.9	-123.4	-128.1	-125.5	-88.7	-106.8
4	0.38	0.0	0.0	1.0	0.8	2.4	1.1	1.1	2.3	2.4	4.7
5	0.24	0.0	38.6	21.2	150.6	86.4	119.1	66.4	125.8	178.1	109.2
6	0.06	0.0	190.3	414.5	270.6	291.8	189.4	200.6	182.3	218.9	200.0
7	0.01	0.0	254.9	496.3	345.2	347.1	319.4	274.4	241.3	335.4	323.3

HB	2023 IRM FBC	Monthly LFU	Hourly LFU
0	0%	0%	0%
1	0%	0%	0%
2	0%	0%	0%
3	0%	0%	0%
4	0%	0%	0%
5	0%	0%	0%
6	0%	0%	0%
7	0%	0%	0%
8	0%	0%	0%
9	0%	0%	0%
10	0%	0%	0%
11	1%	1%	1%
12	4%	4%	3%
13	5%	6%	5%
14	7%	8%	7%
15	14%	14%	14%
16	22%	22%	23%
17	24%	23%	25%
18	12%	12%	12%
19	7%	7%	7%
20	2%	3%	2%
21	1%	1%	1%
22	0%	0%	0%
23	0%	0%	0%

Additional Results

Tan 45 Results	2023 FBC	Monthly LFU	Hourly LFU
IRM	19.90%	19.82% (-0.08%)	18.65% (-1.25%)
J_LCR	78.20%	77.93%	77.92%
K_LCR	107.40%	106.96%	106.72%
NYBA EOP	24.6	24.1	27.2
LOLH and Normalized EUE Statistics			
LOLH (hrs/yr)	0.358	0.369	0.341
Normalized EUE* (ppm) [Simple Method]	1.264	1.318	1.207
Normalized EUE* (ppm) [Bin Method]	1.102	1.176	1.105

* The calculation of Normalized EUEs follows the methodologies that are required by NYSRC (ppm = parts per million)
<https://www.nysrc.org/PDF/MeetingMaterial/RCMSMeetingMaterial/RCMS%20Agenda%20273/NormalizedEUECalculationMethods-v1forMarch30RCMS.pdf>

- The expected number of days of EOP calls are similar between the cases, but hourly LFU treatment has the highest number of days.

Next Steps

- **The NYISO recommends further analysis of the LFU Phase 3 calculation methodologies and impact assessments on IRM, LCR and CAFs before adoption can be considered.**

Questions?

Our Mission & Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation