

Sensitivity Results: Impact of Merging of Cold Temperature Bins on 2025/26 Resource Adequacy Metrics

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Planning Committee
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- At the March MRC and MC meetings, PJM reviewed the updated IRM and FPR values for 2025/26
 - The committees endorsed those values with a Sector-Weighted Vote of 4.394 (MRC) and by Acclamation with 2 objections and 4 abstentions (MC)
- During the discussion at the above meetings, stakeholders raised some concerns about the impact of merging the cold temperature bins (in the step to derive performance for Unlimited and Variable resources) on the winter vs summer risk.

- For each day in the ELCC/RRS model, resource performance is drawn from days with similar RTO-wide THI (minimum daily THI for winter days, maximum daily THI for summer days)
 - Determination of “days with similar RTO-wide THI” is performed using a “binning” approach
 - Binning is performed on the minimum RTO-wide daily THI and maximum RTO-wide daily THI values since June 1st, 1993 by
 1. Using the Freedman Diaconis Estimator
 2. Merging bins with small sample size

Unmerged (output of Freedman-Diaconis Estimator)

Bin	LowerBound (THI)	UpperBound (THI)	Count Since 1993-06-01	Count Since 2012-06-01	Members Since 1993-06-01	Members Since 2012-06-01
min0	-10.60	-8.14	1	0	"1994-01-19"	
min1	-8.14	-5.69	0	0		
min2	-5.69	-3.24	1	0	"1994-01-18"	
min3	-3.24	-0.79	3	2	"1994-01-16", "2014-01-07", '2015-02-20"	"2014-01-07", '2015-02-20"
min4	-0.79	1.67	7	1	"1994-01-15", "1994-01-10" and 5 more	"2019-01-31"
min5	1.67	4.12	9	6	"1997-01-19", "2007-02-06" and 7 more	"2014-01-22" and 5 more
min6	4.12	6.57	21	13	"1995-02-06", "1996-02-03" and 19 more	"2022-12-24" and 12 more

Merged (min0, min1, min2, min3, min4 have been merged with min5)

Bin	LowerBound (THI)	UpperBound (THI)	Count Since 1993-06-01	Count Since 2012-06-01	Members Since 1993-06-01	Members Since 2012-06-01
min5	-10.60	4.12	21	9	"1994-01-19", "1994-01-18" and 19 more	"2014-01-07" and 8 more
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Minimal merging must be performed on the bins above because performance for days such as 1994-01-19 or 1994-01-18 must be drawn from a day after 2012-06-01.

Minimally Merged (min0, min1, and min2 have been merged with min3)

Bin	LowerBound (THI)	UpperBound (THI)	Count Since 1993-06-01	Count Since 2012-06-01	Members Since 1993-06-01	Members Since 2012-06-01
min3	-10.60	-0.79	5	2	"1994-01-18", "1994-01-19" and 3 more	"2014-01-07", '2015-02-20"
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Sensitivity Analysis – Minimally Merged vs Merged Cold Temperature Bins

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Sensitivity Analysis – Annual and Seasonal Metrics Results

Scenario	LOLE (days/year)	LOLE (Winter % / Summer %)	LOLH (hours/year)	LOLH (Winter % / Summer %)	EUE (MWh/year)	EUE (Winter % / Summer %)
Minimally Merged	0.1	61.4 / 38.6	0.36	78.3 / 21.7	1819.6	92.4 / 7.6
Merged	0.1	54.0 / 46.0	0.323	69.1 / 30.9	1452.6	86.9 / 13.1

In the Minimally Merged Scenario, the Winter share of the 3 metrics increases relative to the Merged Scenario

As a result, LOLH and EUE increase in the Minimally Merged Scenario

PJM used the results of the Merged scenario in the calculation of the 2025/26 planning parameters.

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An important portion of the winter risk is driven by resource performance on 2014-01-07. While the number of days since 1993-06-01 where such a performance will be modeled for increases 4.2 times (21 divided by 5) in the Merged Scenario, the chance of drawing performance from 2014-01-07 in the Merged Scenario decreases 4.5 times (1/2 divided by 1/9)

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