

Peak Shaving Plan: Performance Rating

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- Details for the calculation of the performance rating can be found in Manual 19: Attachment D (page 37)



The peak shaving performance rating is used to correct the impact of approved peak shaving programs in the load forecast to be consistent with how the programs have performed when required to reduce load.

For each hour of a required peak shaving event, a shortfall value is calculated as the aggregated metered load of all participants minus their aggregated Customer Baseline (CBL):

$$\text{Shortfall}_{\text{hour}} = (\text{Metered Load} * \text{Line Losses}) - ((\text{CBL} * \text{Line Losses}) - \text{Total Participating MW})$$

For the event, the performance rating is one minus the average shortfall divided by the Total Participating MW:

$$\text{Event Performance Rating} = 1 - (\text{Avg Shortfall MW} / \text{Total Participating MW})$$

For the year, the performance rating is the average of the event performance ratings. PJM will apply a three-year rolling average of the annual peak shaving performance ratings to the program's total participating MWs in order to determine its peak shaving adjustment. For programs with less than three years of experience, a one- or two-year average will be used.

- The calculation for Shortfall MW is incorrect in the manual (as demonstrated in table below)

						A	B	C	D	
Event	Year	Hour Ending	THI	Plan	Resource	Line Loss	CBL (MW)	Metered Load (MW)	Total Participating MW	Shortfall MW (by Manual)*
E12020	2020	13	81.0	P1	1234	1.03	5	4.993	0.1485	5.28429
E12020	2020	14	81.0	P1	1234	1.03	5	4.829	0.22275	5.02562
E12020	2020	15	81.0	P1	1234	1.03	5	4.653	0.29106	4.73665
E12020	2020	16	81.0	P1	1234	1.03	5	4.756	0.28809	4.94277

$$\text{Shortfall MW} = (C * A) - ((B * A) - D)$$

- PJM is proposing that we update the Shortfall MW calculation and performance rating calculation in Manual 19.

Peak Shaving Performance Rating

The peak shaving performance rating is used to correct the impact of approved peak shaving programs in the load forecast to be consistent with how the programs have performed when required to reduce load.

For each hour of a required peak shaving event, a shortfall value is calculated as the ~~aggregated resource's metered load~~ total participating MW minus the difference of their Customer Baseline (CBL) of all participants minus their aggregated Customer Baseline (CBL) metered load adjusted for line losses, capped at zero:

$$\text{Shortfall}_{\text{hour}} = (\text{Metered Load} * \text{Line Losses}) - ((\text{CBL} * \text{Line Losses}) - \text{Total Participating MW})$$

$$\text{Shortfall}_{\text{hour}} = \text{Max}(\text{Total Participating MW} - ((\text{CBL} - \text{Metered Load}) * \text{Line Losses}), 0)$$

For the ~~event year~~, the performance rating is one minus the ~~average~~ sum of all shortfall mw divided by the sum of Total Participating MW:

$$\text{Yearly Event Performance Rating} = 1 - (\text{Avg Total Shortfall MW} / \text{Total Participating MW})$$

~~For the year, the performance rating is the average of the event performance ratings.~~ PJM will apply a three-year rolling average of the annual peak shaving performance ratings to the program's total participating MWs in order to determine its peak shaving adjustment. For programs with less than three years of experience, a one- or two-year average will be used.

Proposed Calculation for Shortfall MW

- The proposed calculation from PJM will calculate the actual shortfall MWs and also cap over performance at zero

						A	B	C	D	
Event	Year	Hour Ending	THI	Plan	Resource	Line Loss	CBL (MW)	Metered Load (MW)	Total Participating MW	Shortfall MW (Proposed) **
E12020	2020	13	81.0P1		1234	1.03	5	4.993	0.1485	0.14129
E12020	2020	14	81.0P1		1234	1.03	5	4.829	0.22275	0.04662
E12020	2020	15	81.0P1		1234	1.03	5	4.653	0.29106	0
E12020	2020	16	81.0P1		1234	1.03	5	4.756	0.28809	0.03677

$$Shortfall\ MW = Max(D - ((B - C) * A), 0)$$

- To simplify the calculation of the Performance Rating of Peak Shaving Plans, PJM is proposing the following changes.
 - Instead of calculating a performance rating by event, we calculated a yearly total performance rating.
 - This will eliminate PJM calculating an average yearly Performance Rating. Instead the total yearly performance rating will be used to calculate the Rolling average performance.

Annual Performance Calculation

Event	Year	Hour Ending	THI	Plan	Resource	Line Loss	CBL (MW)	Metered Load (MW)	Total Participating MW	Shortfall MW (Proposed) **
E12020	2020	13	81.0P1		1234	1.03	5	4.993	0.1485	0.14129
E12020	2020	14	81.0P1		1234	1.03	5	4.829	0.22275	0.04662
E12020	2020	15	81.0P1		1234	1.03	5	4.653	0.29106	0
E12020	2020	16	81.0P1		1234	1.03	5	4.756	0.28809	0.03677
E12020	2020	17	76.5P1		1234	1.03	5	4.689	0	0
E12020	2020	18	76.5P1		1234	1.03	5	4.59	0	0
E12020	2020	19	76.5P1		1234	1.03	5	3.921	0	0
E22020	2020	13	83.5P1		1234	1.03	5	4.763	0.1485	0
E22020	2020	14	83.5P1		1234	1.03	5	4.892	0.22275	0.11151
E22020	2020	15	83.5P1		1234	1.03	5	4.721	0.29106	0.00369
E22020	2020	16	84.0P1		1234	1.03	5	4.743	0.28809	0.02338
E22020	2020	17	84.0P1		1234	1.03	5	4.699	0.297	0
E22020	2020	18	83.0P1		1234	1.03	5	4.712	0.22572	0
E22020	2020	19	83.0P1		1234	1.03	5	4.998	0.19602	0.19396
E32020	2020	13	81.5P1		1234	1.03	5	4.923	0.1485	0.06919
E32020	2020	14	81.5P1		1234	1.03	5	4.832	0.22275	0.04971
E32020	2020	15	81.5P1		1234	1.03	5	4.719	0.29106	0.00163
E32020	2020	16	78.0P1		1234	1.03	5	4.729	0.07425	0
E32020	2020	17	78.0P1		1234	1.03	5	4.892	0.07425	0
E32020	2020	18	78.0P1		1234	1.03	5	4.728	0.07425	0
E32020	2020	19	78.0P1		1234	1.03	5	4.642	0.07425	0
									3.57885	0.67775

Annual Performance Calculation

Year	Plan	Total Shortfall MW	Total Participating MW	Annual Performance Rating
2020	P1	0.67775	3.57885	81%

Rolling Average Performance Rating

Year	Annual Performance Rating	Rolling Average
2020	81%	81% Only 1 year Available
2021	83%	82% Only 2 years Available
2022	78%	81% 3 Year Rolling Average (2020-2022)
2023	87%	83% 3 Year Rolling Average (2021-2023)

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