Settlement Adjustments for LOLE Continuing Error

Settlements User Group

September 3, 2025

Purpose and Key takeaways

Purpose: Provide process overview and timeline for settlement adjustments related to Loss of Load Expectation (LOLE) Continuing Error

Key Takeaways:

- MISO has determined that the software error pertaining to incorrect LOLE calculations constitutes a Continuing Error under the MISO Tariff.
- Appropriate adjustments will be made to impacted entities with megawatt imbalances (long or short) in the 2025/26 PRA.
- Adjustments will be reflected through miscellaneous charge type in the settlement statements/invoices at the conclusion of each season for Planning Year 2025/26.
    - Adjustments for the summer season will be spread across 3 months beginning in September.

MISO discovered an error in the third-party software used to calculate Loss of Load Expectation (LOLE)

- MISO identified the error in June 2025 while running simulations of LOLE in preparation for the proposed definition change in the Tariff from “daily peak hour” to “all hours.”
- Instead of the software using the required daily peak hour methodology, it used an all-hours approach.
- Software documentation and user interface indicate that the software is compliant with the Tariff, both providing specific instructions for calculating LOLE based on the use of daily peak hours only.
- After MISO discovered the error, the vendor confirmed the software has never calculated LOLE based on the daily peak hour methodology since implemented in the 2018/19 Planning Resource Auction.

*The **LOLE** is a measure of power system reliability. It impacts the calculation of Planning Reserve Margins (PRM) used in the Planning Resource Auction.*

*The **PRM** is an explicit percentage of additional capacity above expected peak demand that planners require to ensure resource adequacy.*

MISO will make appropriate adjustments to the results of the 2025/26 Planning Resource Auction (PRA)

MISO recognizes the role the PRA plays in our footprint

- MISO is not rerunning or resettling the PRA, taking new bids, or establishing a new auction clearing price.
- MISO will be making appropriate adjustments to applicable settlement statements to more accurately reflect the correct LOLE and Planning Reserve Margin Requirement for the 2025/26 PRA.
- Adjustments will be made via the RT_MISC charge type after the conclusion of each season.

Approach to determine “Appropriate Adjustments”

1) Estimate adjustment to MISO PRM based on LOLE that accounts for risks only during daily peak hour

2) Estimate adjustment to LRR (for selected zones) based on LOLE that accounts for risks only during daily peak hour

3) Adjust RBDCs used for 2025 PRA (2025/26 PY) – shifted left based on percentage change in Initial PRMR

4) Run simulations to estimate financial impacts using same offers, FRAP quantity, other inputs as those used in the 2025 PRA, but with adjusted RBDCs

5) Determine Net impact for all Asset Owners based on their Net position in the PRA

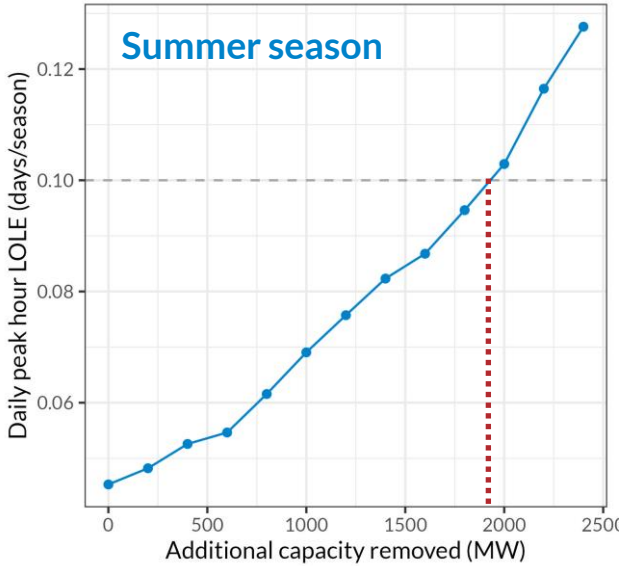
Overview of Adjustment Calculations and comparison with Annual PRA

	2025 Annual PRA	Adjustment Calculations
Reliability Requirements Calculations		
LOLE Analysis – PRM Calculations	Using software	Manually calculated using raw output from the software
LOLE Analysis – Local Reliability Requirement Calculations	Using software	Manually calculated only for selected Local Resource Zones using raw output from the software
LOLE Analysis – MRI Curves Development	Using software	Not Updated
PRA Inputs		
Reliability-Based Demand Curves	MRI to RBDC conversion as per Tariff and BPM	Systemwide RBDCs used in 2025 PRA were adjusted (shifted Left) to account for %change in PRM Subregional RBDCs adjusted based on % change in System-wide PRM
Resource Offers (Price Quantity Pairs)	Market Participant submitted Data	No change to what was used for the 2025 PRA
Fixed Resource Adequacy Plan (FRAP)	Market Participant submitted Data	No change to what was used for the 2025 PRA
Simulation	PRA Engine	No change to what was used for the 2025 PRA

MISO estimated changes to Planning Reserve Margin using output files of its LOLE software

- "Daily peak hour" LOLE was calculated based on raw output from the simulation software
- Additional capacity was removed from the model in regular increments and the solution "at criteria" was interpolated from the curve (by season)
- The additional capacity removed was translated into a reduction of the seasonal PRM

Planning Resource Margin			
Season	**2025/26 PRA**	**Estimated Revised PRM**	**Estimated change**
Summer	7.9%	6.4%	-1.5%
Fall	14.9%	13.5%	-1.4%
Winter	18.4%	17.1%	-1.3%
Spring	25.3%	24.1%	-1.2%



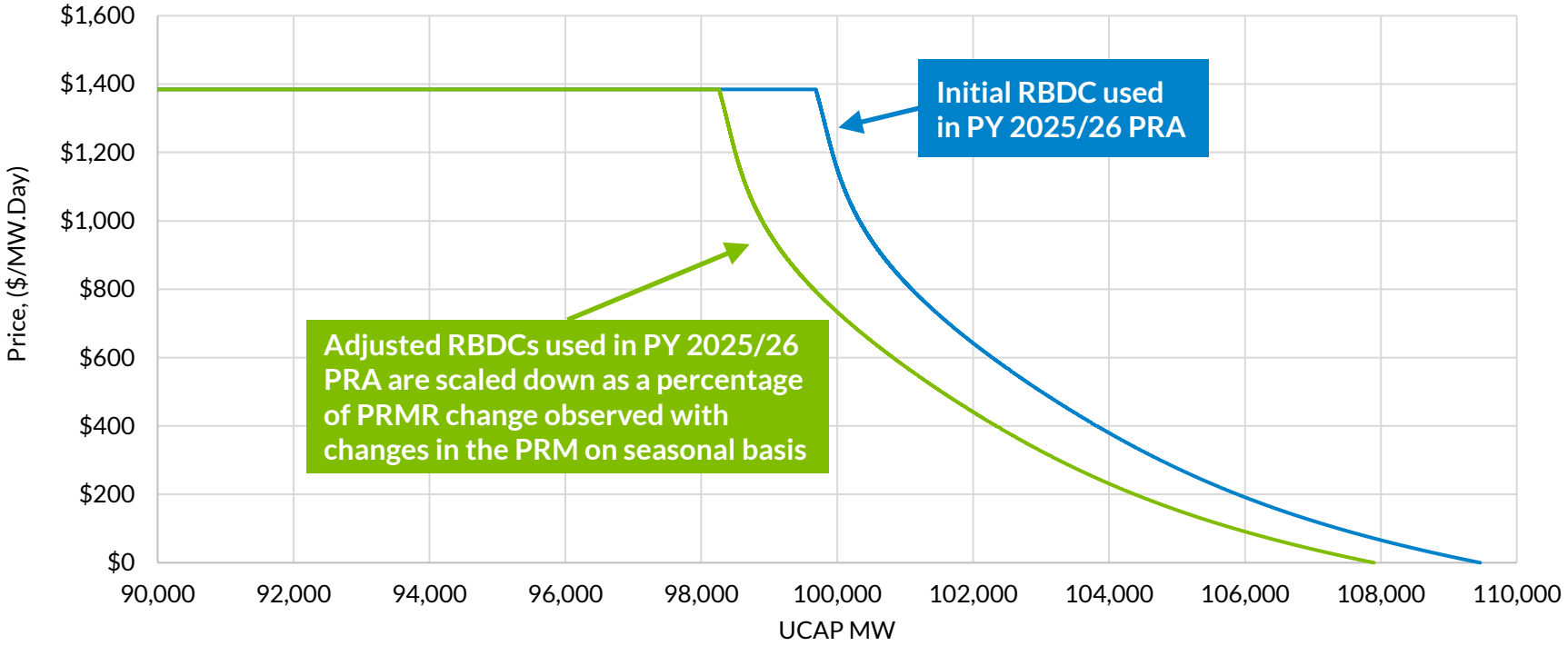
MISO estimated changes to Reliability-Based Demand Curves by shifting the curves based on estimated changes to Initial PRMR

Step 1	**Utilize existing RBDCs**	Start with RBDCs used in the Planning Year 2025/26 PRA clearing.
Step 2	**Calculate Scaling Ratio**	Determine a systemwide scaling ratio to reflect changes in the Initial PRMR quantities due to PRM value adjustments. *Refer to column [C] in Table below for details.*
Step 3	**Apply Seasonal Scaling**	On a seasonal basis, use the scaling ratio (column [C]) to adjust all three RBDCs used in the PY 2025/26 PRA. For each season, apply the same scaling ratio to both systemwide and subregional RBDCs, maintaining fixed prices in the price-quantity pairs (i.e., moving the RBDC to the left by scaling ratio).

			[A]	[B]	[C] = [B/A]
Season	**PRM**		**PRMR (MW) System**		**Scaling Ratio**
	Initial	**Updated**	**Initial**	**Updated**	
Summer	7.9%	6.4%	135,213	133,284	0.9857
Fall	14.9%	13.5%	129,578	128,033	0.9881
Winter	18.4%	17.1%	124,616	123,205	0.9887
Spring	25.3%	24.1%	129,177	127,889	0.9900

Table: Determination of seasonal RBDC scaling ratio to reflect changes in the PRM and Initial PRMR values

Graphical representation of RBDC updates made based on changes in the PRMR



MISO ran simulations to estimate financial impacts using same offers, FRAP quantity, other inputs as those used in the 2025/26 PRA, and adjusted RBDCs

Other than adjusted RBDCs, MISO used the same inputs and engine as that used for the 2025/26 PRA to estimate price impacts.

Estimated Price Delta ($/MW-Day)		
Season	**North Sub-region**	**South Sub-region**
Summer	- 207.4	- 374.3
Fall	- 26.8	- 9
Winter	- 7	
Spring	- 14.7	

Settlement Adjustments

MISO will apply adjustments based on Net PRA position of each Asset Owner by Season

Net Impact

- Most utilities self-supply or secure capacity before the auction.
- Those that were long or short on MW in the 2025/26 PRA will be impacted.
- Adjustments will be made based on entity's position at the time of the 2025/26 PRA*.
- Adjustment will be made via the RT_MISC charge type after the conclusion of each season.

Illustration of Appropriate Adjustment

- Estimated price delta based on approach to appropriate adjustment: **- $374.30/MW-day.**
- MISO will be applying adjustments based on each entity's Net Position (Net Buyer or Net Seller) in the PRA.

Entity A

100 MW obligation
80 MW resources cleared

- 20 MW Net Position (Buyer)

Estimated Adjustment:
(-20) * (- 374.3)
= $7486/MW-day Credit

Entity B

100 MW obligation
120 MW resources cleared

+ 20 MW Net Position (Seller)

Estimated Adjustment:
(20) * (- 374.3)
= $7486/MW-day Charge

Any transaction or switching of load/resource assignment post PRA will not be reflected in the adjustments

Estimated settlement schedule and corresponding invoice dates for the appropriate adjustment

- MISO will issue the appropriate adjustments via the **RT_MISC charge type** on the **S105 statement** for the following settlement dates
- MISO will post a **public notification** prior to issuing each statement containing the appropriate adjustments
  - For the summer season, adjustments will be equally spread across September, October and November
  - For fall, winter and spring, one adjustment will be made after the conclusion of each season
- There will be a description included in the RT_MISCs for each impacted Asset Owner denoting that **this is for the resolution of the LOLE Continuing Error** for accounting purposes

2025/26 Season	S105 Statement Posting Date	Operating Day on the S105 Statement	Invoice Date
Summer	9/18/2025	6/5/2025	9/23/2025
	10/16/2025	7/3/2025	10/21/2025
	11/19/2025	8/6/2025	11/25/2025
Fall	12/18/2025	9/4/2025	12/23/2025
Winter	3/18/2026	12/3/2025	3/24/2026
Spring	6/18/2026	3/5/2025	6/23/2026

Questions?

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