

# 2025 PRA Results & Summer Readiness

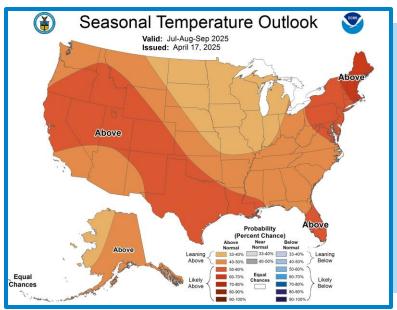
Indiana Regulatory Utility Commission Update
May 20, 2025

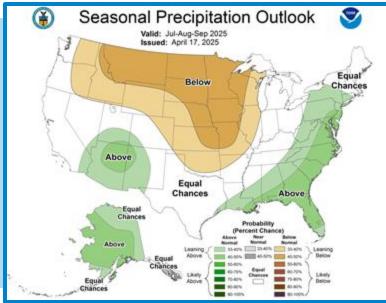
# Summer Preparedness Executive Summary

- An above-normal summer is expected for temperatures across the MISO footprint
- A dry summer over much of the MISO footprint can act to exacerbate heat waves with worsening drought impacts
- The South region will experience above normal temperatures, with precipitation closer to near-normal, especially along the Gulf Coast
- A near to slightly above normal hurricane season is expected in the Atlantic Basin

## MISO anticipates a hot summer driven by drought conditions in the West

#### **Summer 2025 Weather Projections**





Above-normal temperatures for June through August across the Continental U.S. with the core of the heat in the West

Below-normal precipitation for much of MISO this summer, with parts of the South region closer to near normal

Significant heatwaves across the US could be exacerbated by anticipated drought conditions

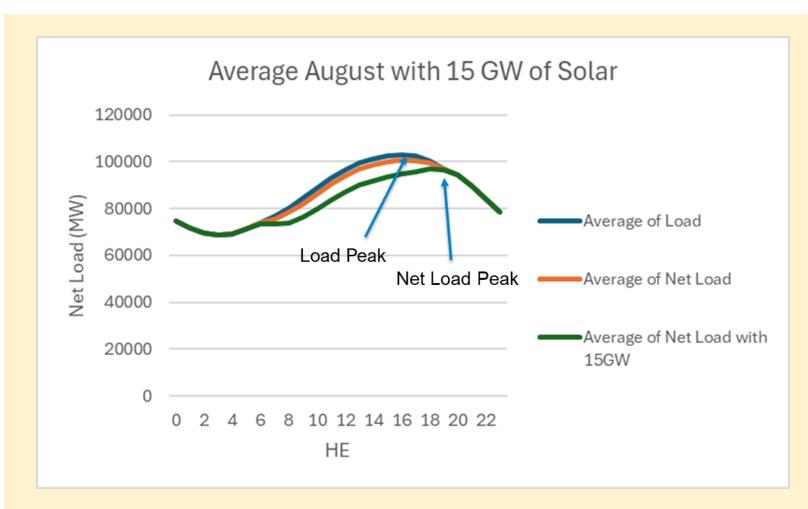
A near-normal hurricane season is expected; MISO is preparing for an early start to Hurricane Season

	2025 Atlantic Hurricane Forecast											
	Named Storms	Hurricanes	Major Hurricanes									
2025 Outlook	17	9	4									



MISO's Uncertainty Management Model and dynamic reserves will be used to reliably operate the grid this summer, helping to produce more efficient market outcomes

- In-service solar will reach15 GW by July
  - Last summer was 6 GW
- Expect significant solar ramps during sunrise and sunset
- Market products and operations processes are updated to help manage growing solar





# MISO systemwide accredited capacity compared to demand submitted by LSEs

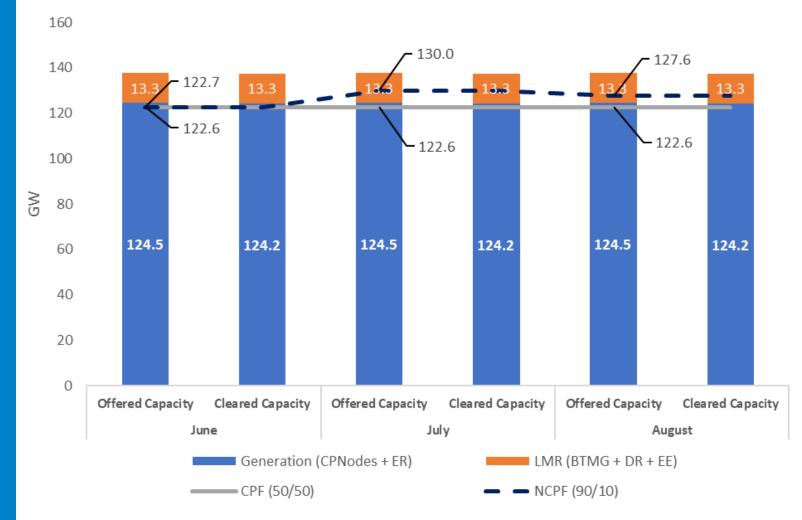
#### **Projected Summer Peak - 123 GW**

Coincident Peak Forecast is submitted by MISO LSEs relative to the MISO seasonal peak and calculated on a seasonal basis

#### High Demand Projected Peak - 130 GW

Non-Coincident Peak Forecast is the peak load submitted by each LSE per month

#### Summer 2025 Generation vs. Load - System-wide





## MISO & Member Operator Summer Readiness Training

## Market Capacity Emergency Drills

- MISO and Member roles during a capacity emergency
- Communication protocols during a capacity emergency

## **Hurricane Drills**

- Overview of 2024 Season and forecast for 2025
- MISO and Member roles before and during a hurricane
- Simulation of hurricane, islanding, and Interconnection Checklist

## MISO Operator Summer Readiness Training

## Hurricane Action Plan Tabletop

 MISO employees practice their role throughout the stages of the Hurricane Action Plan

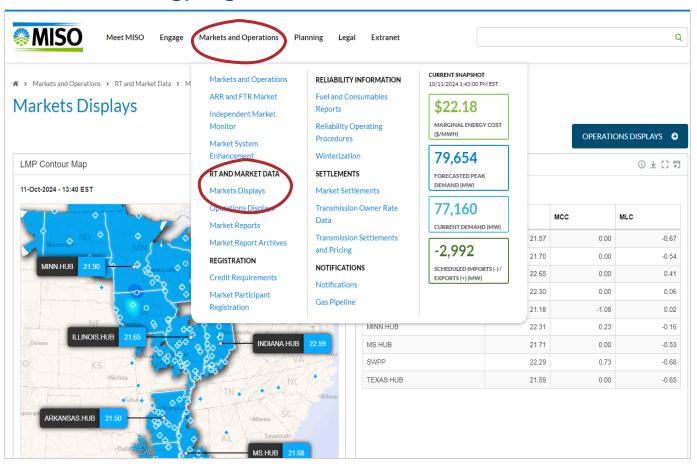
## Interconnection Reliability Operating Limit (IROL) Simulation

- Define, identify and mitigate System Operating Limits and IROL's
- Declare Transmission System Emergencies



## Real-Time Market and Operations Display is available via the MISO website and the Mobile App

#### www.misoenergy.org



#### **MISO App**





## 2025 PRA Results



## MISO met the planning year 2025/26 resource adequacy requirements for the 2025 Planning Resource Auction

**Summer** \$666.50

Fall \$91.60 (North/Central) \$74.09 (South)

**Winter** \$33.20

**Spring** \$69.88

Annualized
\$217 (North/Central)
\$212 (South)

- Pressure persists with reduced capacity surplus across the region and is reflected through improved price signals in this year's auction
- MISO's Reliability-Based Demand Curve (RBDC) improves price signals, reflecting the increased value of accredited capacity beyond the seasonal Planning Reserve Margin (PRM) target
- Summer price reflects the lowest available surplus capacity and Fall price varied slightly due to transfer limitations between the North and South
- Surplus above the target PRM dropped 43% compared to last summer, despite the slightly lower PRM target (7.9% vs. 9.0% last year)
- The results reinforce the need to increase capacity, as demand is expected to grow with new large load additions



Auction outcomes are consistent with the design intent of the Reliability-Based Demand Curve (RBDC), and MISO and its members can expect more stable and predictable capacity pricing, especially in surplus situations

#### In the 2025 PRA, the RBDC...

- Delivers competitive prices aligned with seasonal risks and tightening surplus
  - Prioritizes summer availability, the system's highest-risk season (based on 1-in-10 LOLE)
- Values incremental capacity above and below the LOLE target based on its reliability
  - Clears capacity above target Planning Reserve Margin based on its reliability value in each season
- Stabilizes prices in non-summer seasons, avoiding extreme volatility

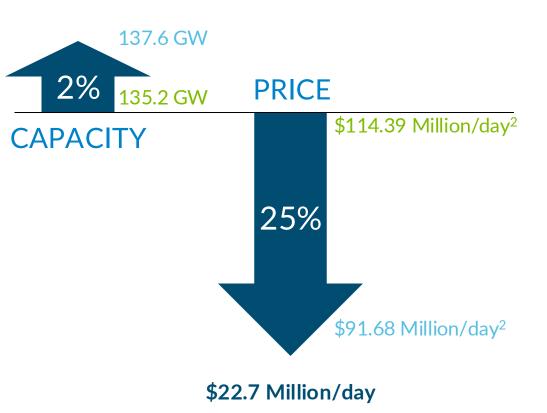
#### Why it Matters

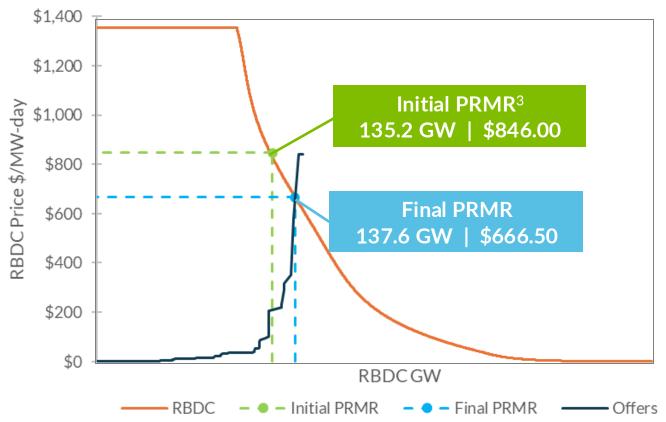
- Sends clear and stable investment signals across the system, including to external resources
- Provides transparent value for capacity that exceeds the Planning Reserve Margin target
- Reflects subregional capacity needs and clears accordingly across all seasons



## The efficiency of the Reliability-Based Demand Curve enabled MISO to secure more capacity at a significantly lower price

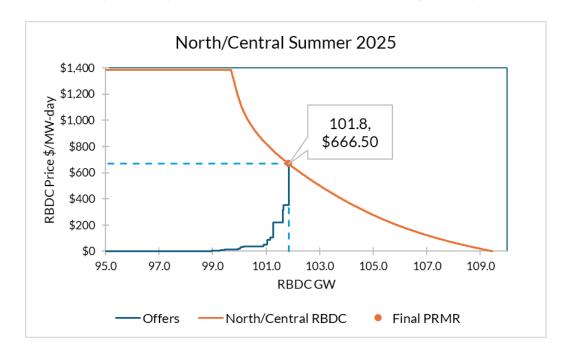
#### PLANNING RESERVE AUCTION: SUMMER 2025<sup>1</sup>

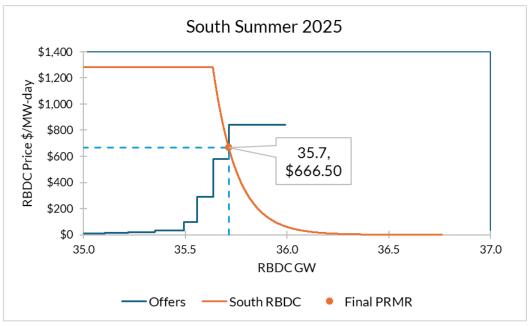






## Auction pricing outcomes with the Reliability-Based Demand Curve (RBDC) better reflect value of capacity and resource adequacy risk across seasons

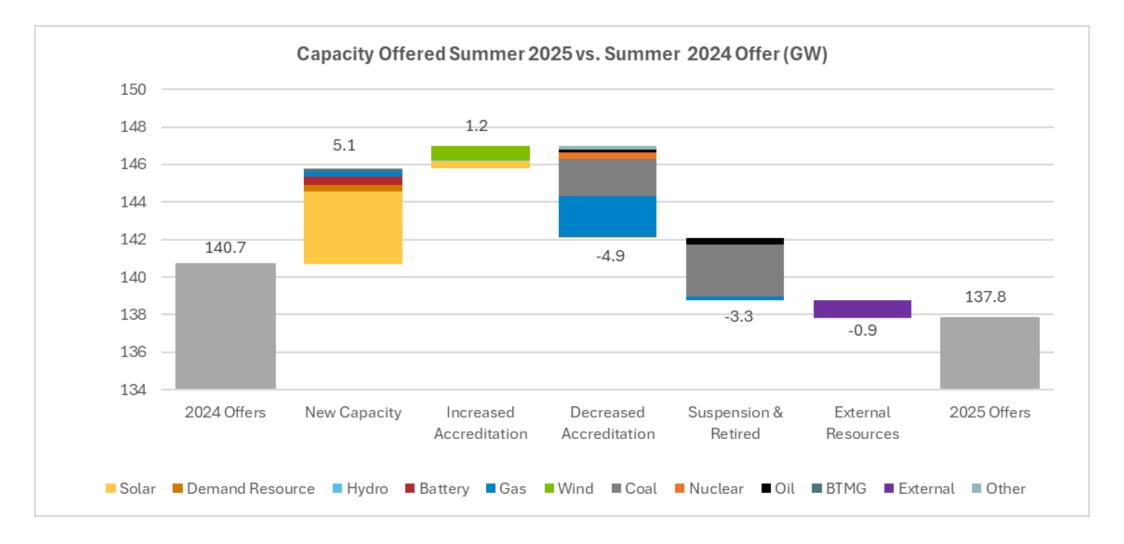




- Summer clearing of \$666.50 reflects highest reliability risk and reducing surplus capacity year-over-year
  - Surplus capacity in the summer has reduced from approximately 6.5 GW in 2023, to 4.6 GW in 2024, to 2.6 GW in 2025
- Incremental capacity cleared beyond the target Planning Reserve Margin based on the value it adds to reliability (e.g., North/Central "effective" summer margin at 10.1% and South at 8.7% vs. target 7.9%)
  - A small quantity of capacity, that was offered at a price higher than the reliability value indicated through the demand curve, did not clear



## New capacity additions did not keep pace with decreased accreditation, suspensions, retirements and external resources





## MISO has acted on many Reliability Imperative initiatives to address resource adequacy challenges, but there's more to be done

## **Ongoing Challenges**

- Accelerating demand for electricity
- Rapid pace of generation retirements continue
- Loss of accredited capacity and reliability attributes
- Intermittent nature of new resource additions
- Delays of new resource additions
- More frequent extreme weather

#### **Completed Initiatives**

- ✓ Implemented Reliability-Based Demand Curve in 2025 PRA
- ✓ Non-emergency resource accreditation (effective PY 2028/29)
- ✓ Generation interconnection queue cap
- ✓ Improved generator interconnection queue process (New application portal coming June 2025)
- ✓ Approved over \$30 billion in new transmission lines

### **Initiatives In Progress**

- Implement Direct Loss of Load (DLOL)-based accreditation
- Enhance resource adequacy risk modeling
- Reduce queue cycle times through automation
- Implement interim Expedited Resource Addition Study (ERAS) process (June 2025)
- Demand Response and Emergency Resource reforms
- Enhance allocation of resource adequacy requirements

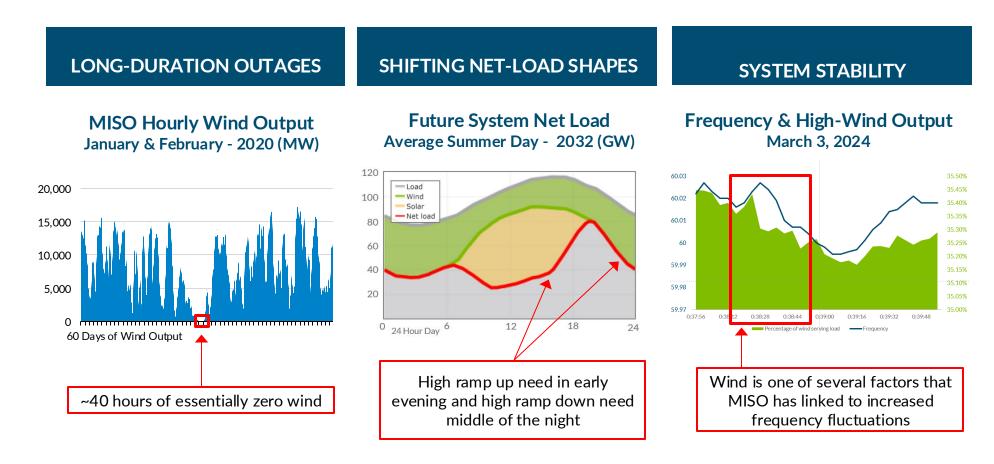




## Appendix



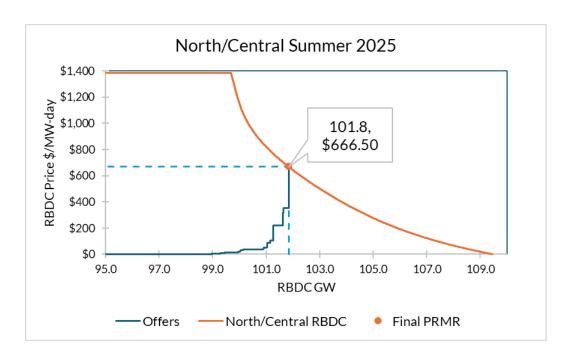
## The transition to primarily weather-dependent resources is creating new and changing operational risks and challenges

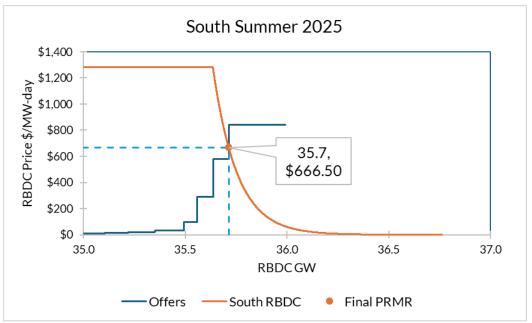


Enabling the right system attributes – energy adequacy, generation flexibility and system stability – is vital as operational challenges from the energy transition are here, and will only continue grow in complexity, frequency and



## Summer 2025 Reliability-Based Demand Curve, Offer Curves and Auction Clearing Prices

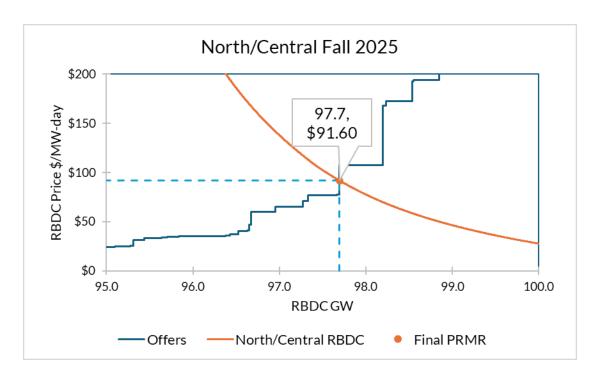


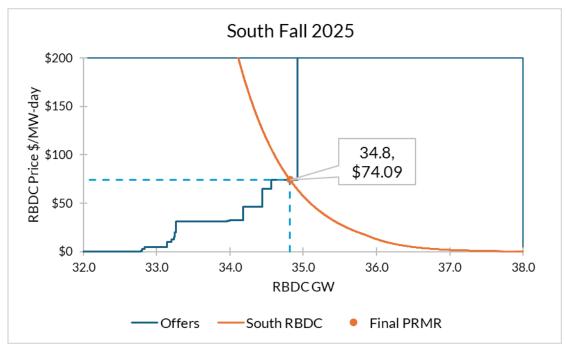


- Summer clearing of \$666.50 reflects highest reliability risk and reducing surplus capacity year-over-year
  - Surplus capacity in the summer has reduced from approximately 6.5 GW in 2023, to 4.6 GW in 2024, to 2.6 GW in 2025
- Incremental capacity cleared beyond the target Planning Reserve Margin based on the value it adds to reliability (e.g., North/Central "effective" summer margin at 10.1% and South at 8.7% vs. target 7.9%)
  - A small quantity of capacity, that was offered at a price higher than the reliability value indicated through the demand curve, did not clear



## Fall 2025 Reliability-Based Demand Curve, Offer Curves and Auction Clearing Prices

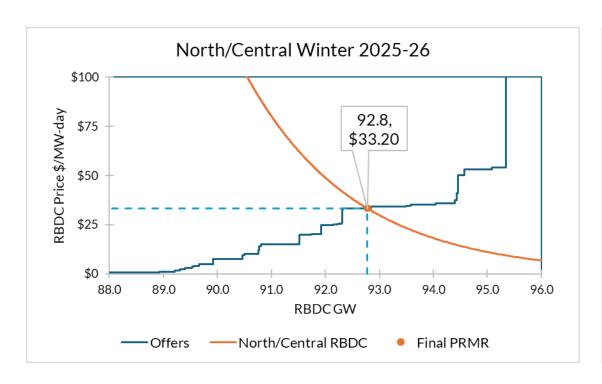


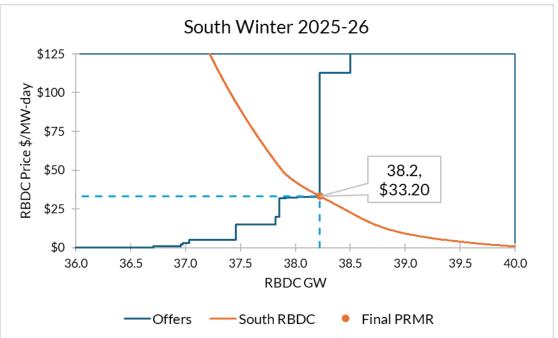


- Subregional RBDCs are determining clearing for both subregions
- Subregional Power Balance Constraint (SRPBC), South to North, is binding resulting in price separation between North/Central and South subregions in Fall season
  - ACP for North subregion is \$91.60, and \$74.09 South subregion
  - A marginal resource in the South sets the price in that subregion
- In fall season, "effective" margin for North/Central subregion is at 18.4% and 15.2% for South subregion vs. target of 14.9%



## Winter 2025/26 Reliability-Based Demand Curve, Offer Curves and Auction Clearing Prices

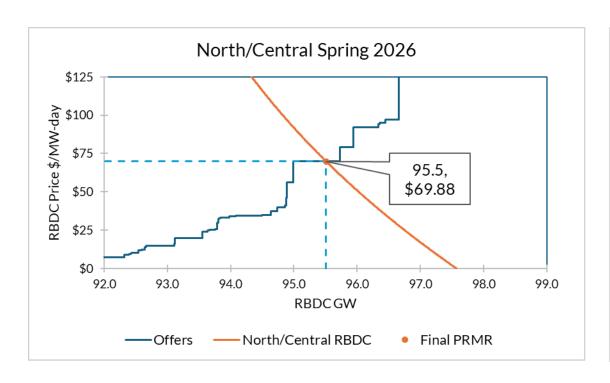


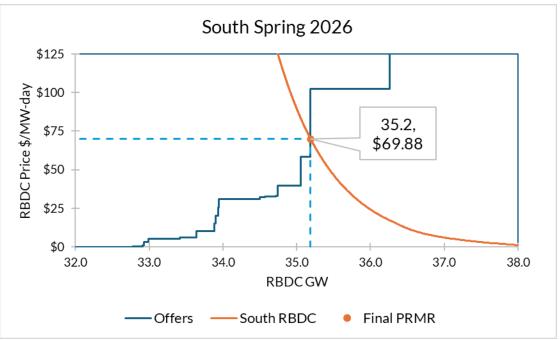


- Subregional RBDCs are determining clearing for both subregions
- No price separation between North/Central and South subregions in winter
  - ACP for both subregions is \$33.20
  - Multiple marginal resources, cleared pro rata, sets the price
- In winter, "effective" margin for North/Central subregion is at 23.3% and \$27.3% for South subregion vs. target of 18.4%



## Spring 2026 Reliability-Based Demand Curve, Offer Curves and Auction Clearing





- Subregional RBDCs are determining clearing for both subregions
- No price separation between North/Central and South subregions in spring
  - ACP for both subregions is \$69.88
  - A marginal resource sets the price
- In spring, "effective" margin for North/Central subregion is at 27.5% and 25% for South subregion vs. target of 25.3%



## Summer 2025 PRA Results by Zone

	<b>Z1</b>	<b>Z</b> 2	<b>Z</b> 3	Z4	<b>Z</b> 5	Z6	<b>Z</b> 7	<b>Z</b> 8	<b>Z</b> 9	<b>Z10</b>	ERZ	North	South	System
Initial PRMR	18,459.4	13,190.2	10,889.2	9,237.6	8,281.3	18,484.8	21,228.0	8,487.8	21,812.2	5,142.9	N/A	99,770.5	35,442.9	135,213.4
Final PRMR	18,843.5	13,464.4	11,116.0	9,430.10	8,453.5	18,868.9	21,669.2	8,552.6	21,978.8	5,182.3	N/A	101,845.6	35,713.7	137,559.3
Offer Submitted (Including FRAP)	19,732.4	14,569.7	11,321.4	9,328.1	6,737.9	16,123.6	20,883.9	11,517.3	20,498.6	5,543.3	1580.1	99,952.6	37,883.7	137,836.3
FRAP	4,619.2	10,252.6	456.9	789.4	0.0	1,080.7	541.3	494.9	157.5	1,507.7	46.8	17,779.2	2,167.8	19,947.0
RBDC Opt-Out	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0
Self Scheduled (SS)	4,985.3	3,344.1	10,450.2	7,677.2	6,647.8	11,080.3	20,305.5	10,260.6	17,870.6	3,831.3	1,358.8	65,567.6	32,244,1	97,811.7
Non-SS Offer Cleared	10,127.9	973.0	414.3	861.5	90.1	3,962.6	37.1	761.8	2,193.5	204.3	174.5	16,605.8	3,194.8	19,800.6
Committed (Offer Cleared + FRAP)	19,732.4	14,569.7	11,321.4	9,328.1	6,737.9	16,123.6	20,883.9	11,517.3	20,221.6	5,543.3	1,580.1	99,952.6	37,606.7	137,559.3
LCR	15,696.9	9,719.3	8,049.3	2,577.8	6,071.1	13,051.7	19,681.4	8,487.0	19,615.0	2,523.8	-	N/A	N/A	N/A
CIL	6,025	4,370	5,555	8,525	4,117	8,651	3,569	2,568	4,361	4,474	-	N/A	N/A	N/A
ZIA	6,023	4,370	5,460	7,757	4,117	8,366	3,569	2,358	4,361	4,474	-	N/A	N/A	N/A
Import	0.0	0.0	0.0	101.7	1,715.5	2,745.5	785.5	0.0	1,757.1	0.0	-	1,893.0	0.0	1,580.1
CEL	3,991	4,614	4,618	4,584	3,939	6,881	5,726	6,299	4,286	2,097	-	N/A	N/A	N/A
Export	8.888	1105.2	205.5	0.0	0.0	0.0	0.0	2964.7	0.0	360.9	1,580.1	0.0	1,893.0	-
ACP (\$/MW-Day)	666.50	666.50	666.50	666.50	666.50	666.50	666.50	666.50	666.50	666.50	666.50			N/A



## Fall 2025 PRA Results by Zone

	<b>Z</b> 1	<b>Z</b> 2	<b>Z</b> 3	<b>Z</b> 4	<b>Z</b> 5	Z6	<b>Z</b> 7	<b>Z8</b>	<b>Z</b> 9	<b>Z10</b>	ERZ	North	South	System
Initial PRMR	17,290.4	12,086.4	10,179.1	8,950.4	7,898.3	17,939.5	20,493.9	8,019.3	21,578.1	5,142.6	N/A	94,838.0	34,740.0	129,578.0
Final PRMR	17,811.9	12,450.7	10,486.0	9,220.4	8,136.0	18,480.2	21,111.9	8,037.4	21,627.1	5,154.2	N/A	97,697.1	34,818.7	132,515.8
Offer Submitted (Including FRAP)	18,893.1	14,291.7	13,615.9	8,887.5	6,839.6	15,518.1	19,517.6	11,000.8	21,112.5	5,516.6	1,582.1	98,835.3	37,940.2	136,775.5
FRAP	4,233.2	9,259.1	582.7	773.3	0.0	983.1	533.1	459.4	153.4	1,518.3	44.6	16,402.6	2,137.6	18,540.2
RBDC Opt-Out	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0
Self Scheduled (SS)	4,646.8	3,423.5	10,580.4	7,036.0	6,706.5	10,590.4	16,911.4	9,029.4	17,788.1	3,286.3	1,208.0	60,831.1	30,375.7	91,206.8
Non-SS Offer Cleared	9,019.0	834.8	2,452.8	1,078.2	133.1	3,728.7	1,089.1	1,512.0	2,406.6	254.9	259.6	18,563.3	4,205.5	22,768.8
Committed (Offer Cleared + FRAP)	17,899.0	13,517.4	13,615.9	8,887.5	6,839.6	15,302.2	18,533.6	11,000.8	20,348.1	5,059.5	1,512.2	95,797.1	36,718.7	132,515.8
LCR	14,691.0	6,591.1	6,331.4	2,588.7	4,857.2	11,725.4	18,196.1	5,006.3	18,963.6	2,577.6	-	N/A	N/A	N/A
CIL	5,740	6,537	7,797	7,773	4,679	8,952	5,115	5,839	4,741	4,508	-	N/A	N/A	N/A
ZIA	5,688	6,537	7,704	7,013	4,679	8,672	5,115	5,675	4,741	4,508	-	N/A	N/A	N/A
Import	0.0	0.0	0.0	332.8	1,296.8	3,178.0	2,578.2	0.0	1,278.9	94.7	-	1,900.0	0.0	1,512.2
CEL	6,115	4,259	5,831	4,309	5,816	5,191	5,168	4,055	4,173	3,164	-	N/A	N/A	N/A
Export	87.2	1,066.8	3,129.9	0.0	0.0	0.0	0.0	2,963.3	0.0	0.0	1,512.2	0.0	1,900.0	-
ACP (\$/MW-Day)	91.60	91.60	91.60	91.60	91.60	91.60	91.60	74.09	74.09	74.10	83.24- 91.60			N/A



## Winter 2025/26 PRA Results by Zone

	Z1	Z2	<b>Z</b> 3	<b>Z</b> 4	Z5	Z6	<b>Z</b> 7	Z8	<b>Z9</b>	<b>Z10</b>	ERZ	North	South	System
Initial PRMR	17,823.8	10,789.8	9,889.1	8,549.5	7,954.8	17,939.1	16,123.6	8,545.6	21,864.3	5,136.1	N/A	89,069.7	35,546.0	124,615.7
Final PRMR	18,565.8	11,238.7	10,300.9	8,905.1	8,285.9	18,685.7	16,794.7	9,189.0	23,511.0	5,522.7	N/A	92,776.8	38,222.7	130,999.5
Offer Submitted (Including FRAP)	19,750.7	13,217.2	12,059.1	7,547.1	6,339.9	14,679.5	19,957.3	10,751.9	22,273.0	5,939.7	1,746.5	94,964.8	39,297.1	134,261.9
FRAP	4,683.9	8,342.7	479.4	513.4	0.0	1,176.6	566.3	441.6	130.9	1,822.6	16.1	15,771.2	2,402.3	18,173.5
RBDC Opt-Out	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0
Self Scheduled (SS)	5,835.8	3,156.0	10,468.3	6,685.7	6,188.7	9,146.2	18,640.6	10,018.6	18,579.3	4,046.0	1,550.8	61,380.9	32,935.1	94,316.0
Non-SS Offer Cleared	7,977.9	1,062.6	1,044.5	271.5	99.9	4,008.7	397.0	291.7	3,105.5	71.1	179.6	15,007.6	3,502.4	18,510.0
Committed (Offer Cleared + FRAP)	18,497.6	12,561.3	11,992.2	7,470.6	6,288.6	14,331.5	19,603.9	10,751.9	21,815.7	5,939.7	1,746.5	92,159.7	38,839.8	130,999.5
LCR	13,462.0	5,951.6	8,008.4	1,371.4	3,644.7	11,074.8	15,500.2	8,014.7	20,593.7	3,534.1	-	N/A	N/A	N/A
CIL	6,177	6,522	5,877	7,232	4,922	7,927	4,762	3,613	4,418	3,458	-	N/A	N/A	N/A
ZIA	5,575	6,435	5,785	6,457	4,922	7,690	4,762	3,432	4,418	3,458	-	N/A	N/A	N/A
Import	68.0	0.0	0.0	1,434.8	1,997.3	4,354.1	0.0	0.0	1,695.2	0.0	-	617.1	0.0	1,746.5
CEL	2,991	4,706	7,388	4,756	4,814	1,674	5,712	3,602	3,618	2,028	-	N/A	N/A	N/A
Export	0.0	1,322.6	1,691.5	0.0	0.0	0.0	2,809.2	1,562.8	0.0	416.9	1,746.5	0.0	510.5	0.0
ACP (\$/MW-Day)	33.20	33.20	33.20	33.20	33.20	33.20	33.20	33.20	33.20	33.20	33.20			N/A



## Spring 2026 PRA Results by Zone

	<b>Z1</b>	<b>Z</b> 2	<b>Z</b> 3	<b>Z</b> 4	<b>Z</b> 5	Z6	<b>Z</b> 7	Z8	Z9	<b>Z10</b>	ERZ	North	South	System
Initial PRMR	17,866.7	12,149.2	10,152.2	8,304.0	7,707.9	17,858.6	19,853.2	7,977.8	22,139.8	5,167.9	N/A	93,891.8	35,285.5	129,177.3
Final PRMR	18,174.5	12,358.6	10,327.0	8,447.2	7,841.0	18,166.7	20,195.5	7,955.2	22,076.1	5,157.7	N/A	95,510.5	35,189.0	130,699.5
Offer Submitted (Including FRAP)	18,662.6	14,525.3	12,333.3	9,178.5	6,118.7	15,824.7	19,451.0	11,495.2	21,064.7	5,864.0	1,542.6	97,313.7	38,746.9	136,060.6
FRAP	4,560.6	9,393.4	529.5	629.6	0.0	1,212.4	512.5	475.3	142.1	1,464.3	45.9	16,877.1	2,088.5	18,965.6
RBDC Opt-Out	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0
Self Scheduled (SS)	4,600.8	3,602.8	10,816.2	7,415.0	5,968.5	9,967.6	17,621.9	8,476.0	16,778.9	4,073.9	1,260.8	60,972.6	29,609.8	90,582.4
Non-SS Offer Cleared	8,578.5	1,069.5	589.6	1,133.9	150.2	4,001.0	719.2	1,470.2	2,947.5	325.8	166.1	16,372.9	4,778.6	21,151.5
Committed (Offer Cleared + FRAP)	17,739.9	14,065.7	11,935.3	9,178.5	6,118.7	15,181.0	18,853.6	10,421.5	19,868.5	5,864.0	1,472.8	94,222.5	36,477.0	130,699.5
LCR	12,239.1	6,737.5	5,014.7	1,823.8	4,700.3	10,377.1	16,453.6	4,243.1	19,790.5	3,178.8	-	N/A	N/A	N/A
CIL	6,598	6,439	7,829	8,142	4,453	9,457	5,166	6,289	4,855	4,365	-	N/A	N/A	N/A
ZIA	6,396	6,439	7,726	7,373	4,453	9,176	5,166	6,085	4,855	4,365	-	N/A	N/A	N/A
Import	434.5	0.0	0.0	0.0	1,722.2	2,985.6	1,341.9	0.0	2,210.8	0.0	-	1,288.0	0.0	1,472.8
CEL	5,083	6,119	5,936	5,111	5,797	6,425	5,499	3,520	4,146	3,072	-	N/A	N/A	N/A
Export	0.0	1,707.2	1,608.0	731.2	0.0	0.0	0.0	2,465.6	0.0	710.3	1,472.8	0.0	1,288.0	-
ACP (\$/MW-Day)	69.88	69.88	69.88	69.88	69.88	69.88	69.88	69.88	69.88	69.88	69.88			N/A



## Acronyms

ACP: Auction Clearing Price

ARC: Aggregator of Retail Customers

BTMG: Behind the Meter Generator

CIL: Capacity Import Limit

**CEL: Capacity Export Limit** 

CONE: Cost of New Entry

**CPF:** Coincident Peak Forecast

**DLOL: Direct Loss-of-Load** 

**DR: Demand Resource** 

**ELCC: Effective Load Carrying Capability** 

**EE: Energy Efficiency** 

**ER: External Resource** 

ERAS: Expedited Resource Adequacy Study

**ERZ: External Resource Zones** 

FRAP: Fixed Resource Adequacy Plan

ICAP: Installed Capacity

IMM: Independent Market Monitor

LBA: Load Balancing Authority

LCR: Local Clearing Requirement

LOLE: Loss of Load Expectation

LMR: Load Modifying Resource

LRR: Local Reliability Requirement

LRZ: Local Resource Zone

LSE: Load Serving Entity

**OMS: Organization of MISO States** 

PO: Planned Outage

PRA: Planning Resource Auction

PRM: Planning Reserve Margin

PRMR: Planning Reserve Margin Requirement

RASC: Resource Adequacy Sub-Committee

RBDC: Reliability-Based Demand Curve

SAC: Seasonal Accredited Capacity

SREC: Sub-Regional Export Constraint

SRIC: Sub-Regional Import Constraint

SRPBC: Sub-Regional Power Balance Constraint

SS: Self Schedule

**UCAP:** Unforced Capacity

**ZIA: Zonal Import Ability** 

**ZRC:** Zonal Resource Credit

