

Market Monitor Report

MC

August 19, 2026

IMM



Monitoring Analytics

CURRENT ISSUES



GAS DATA REQUEST



Data Collection

- **Following Winter Storm Fern a data request was sent to participants with units that ran on natural gas during the period of January 24-31**
- **Records of gas transactions: times, prices, volumes, and suppliers**
- **Responses received from 86 participants**
- **Purchases: 84.8 million MMBtu (about 82 BCF)**
- **Sales: 4.2 million MMBtu (about 4 BCF)**
- **Roughly 55,000 MW per hour for eight days using an 8.0 MMBtu/MWh heat rate, using purchases minus sales**

Gas Transaction Summary

Gas Day	Purchase Volume (Million MMBtu)	Sale Volume (Million MMBtu)	Net Volume (Million MMBtu)
1/24/2026	10.2	0.4	9.7
1/25/2026	10.2	0.7	9.5
1/26/2026	11.0	0.6	10.4
1/27/2026	11.1	0.5	10.6
1/28/2026	10.5	0.5	10.1
1/29/2026	11.2	0.4	10.8
1/30/2026	10.3	0.5	9.9
1/31/2026	10.3	0.5	9.7
Total	84.8	4.2	80.6



Volume by Purchase Timing

Gas Day	Purchase Volume (Million MMBtu)	Prior to Event Share	Advanced Share	Next Day Share	Same Day Share
1/24/2026	10.2	25.2%	0.6%	70.2%	3.9%
1/25/2026	10.2	25.4%	0.6%	69.3%	4.7%
1/26/2026	11.0	23.2%	0.6%	70.4%	5.8%
1/27/2026	11.1	23.1%	2.6%	69.3%	5.0%
1/28/2026	10.5	23.8%	0.7%	69.8%	5.7%
1/29/2026	11.2	22.5%	0.7%	71.2%	5.6%
1/30/2026	10.3	24.8%	1.4%	65.5%	8.3%
1/31/2026	10.3	24.9%	1.4%	63.7%	9.9%
Total	84.8	24.1%	1.1%	68.7%	6.1%



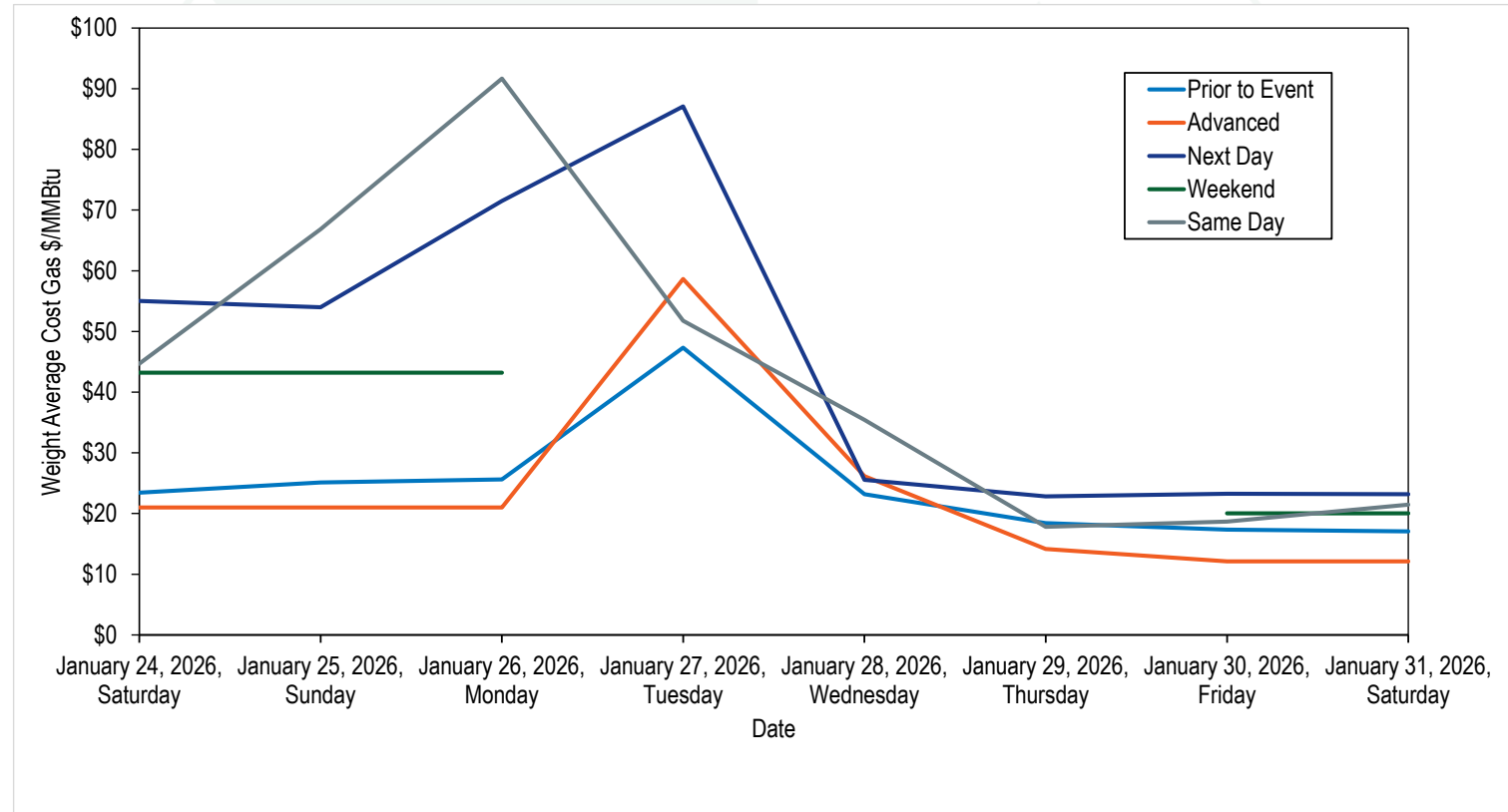
Next Day Transactions

- **Majority of weekend volume - weekend packages**
 - **Portion of weekend volume split into individual days**
 - Jan 24-26: 23.8% of weekend volume
 - Jan 30-31: 32.6% of weekend volume

Gas Day	Next Day Purchases (Million MMBtu)	Next Day Individual Share	Weekend Package Share
1/24/2026	7.1	21.7%	78.3%
1/25/2026	7.1	21.1%	78.9%
1/26/2026	7.8	28.0%	72.0%
1/27/2026	7.7	100.0%	0.0%
1/28/2026	7.4	100.0%	0.0%
1/29/2026	8.0	100.0%	0.0%
1/30/2026	6.8	33.7%	66.3%
1/31/2026	6.5	31.4%	68.6%

*Note end of month packages treated as weekend package

WAC of Purchases



DEMAND RESPONSE PERFORMANCE METRICS



Demand Response Performance Metrics

- **See attached memo addressing demand response performance metrics.**



TCPF



Transmission Constraint Penalty Factors

- **LMP may, at times, be set by a transmission constraint penalty factor.**
- **When a transmission constraint is limiting and there are no generation alternatives to resolve the constraint, system operators may allow the transmission limit to be violated.**
- **When this occurs, the shadow price of the constraint is set by transmission constraint penalty factors.**
- **The shadow price directly affects the LMP.**

Transmission Constraint Penalty Factors

- **Transmission constraint penalty factors are administratively determined and can be thought of as a form of shortage pricing.**
- **PJM reduces transmission line ratings in SCED to trigger TCPFs. The typical reduction is five percent.**
- **PJM should not reduce line limits in SCED without significant supporting analysis that addresses, among other things, real time dynamic and flow duration line ratings.**
- **The TCPFs are applied incorrectly about 94 percent of the time when they are based on PJM's reduction in ratings in SCED.**

Transmission Constraint Penalty Factors

- The TCPF was the largest contributor to the increase in LMP for the first six months of 2026.
- The default TCPF in real time is \$2,000 per MWh.

Component	2025 (Jan - Jun)	2026 (Jan - Jun)	Change in LMP	Percent of Total Change
Fuel and Consumables	\$31.77	\$39.04	\$7.26	34.9%
Emission Related	\$2.71	\$3.77	\$1.06	5.1%
Market Power Related	\$5.75	\$7.57	\$1.82	8.8%
Scarcity	\$1.90	\$0.66	(\$1.24)	(6.0%)
Transmission Constraint Penalty Factor	\$5.32	\$14.75	\$9.43	45.3%
Ancillary Service Redispatch Cost	\$1.39	\$1.87	\$0.48	2.3%
Pre-emergency Demand Response	\$1.25	\$0.10	(\$1.16)	(5.6%)
PJM Administrative Cap	(\$0.17)	(\$0.02)	\$0.16	0.7%
All Other	\$1.82	\$4.80	\$2.98	14.3%
Total Change	\$51.75	\$72.54	\$20.79	100.0%

Components of PJM Real-time LMP

Element	2025 (Jan - Jun)		2026 (Jan - Jun)		Change in
	Contribution to LMP	Percent	Contribution to LMP	Percent	Percent
Gas	\$24.35	47.1%	\$28.63	39.5%	(7.6%)
Transmission Constraint Penalty Factor	\$5.32	10.3%	\$14.75	20.3%	10.0%
Positive Markup	\$3.17	6.1%	\$6.02	8.3%	2.2%
Coal	\$3.65	7.1%	\$4.62	6.4%	(0.7%)
Oil	\$2.44	4.7%	\$4.08	5.6%	0.9%
Ten Percent Adder	\$3.16	6.1%	\$3.80	5.2%	(0.9%)
Variable Maintenance	\$3.02	5.8%	\$3.29	4.5%	(1.3%)
Market-to-Market	\$0.71	1.4%	\$2.94	4.1%	2.7%
CO ₂ Cost	\$1.93	3.7%	\$2.34	3.2%	(0.5%)
Opportunity Cost Adder	\$0.96	1.9%	\$1.95	2.7%	0.8%
Ancillary Service Redispatch Cost	\$1.39	2.7%	\$1.87	2.6%	(0.1%)
Variable Operations	\$1.24	2.4%	\$1.54	2.1%	(0.3%)
Increase Generation Differential	\$0.59	1.1%	\$0.75	1.0%	(0.1%)
Shortage Pricing (ORDCs)	\$1.90	3.7%	\$0.66	0.9%	(2.8%)
NA	\$0.34	0.7%	\$0.66	0.9%	0.2%
LPA Rounding Difference	\$0.49	0.9%	\$0.54	0.7%	(0.2%)
Landfill Gas	\$0.09	0.2%	\$0.16	0.2%	0.0%
NO _x Cost	\$0.02	0.0%	\$0.16	0.2%	0.2%
Emergency Demand Response	\$1.25	2.4%	\$0.10	0.1%	(2.3%)
Other	\$0.01	0.0%	\$0.02	0.0%	0.0%
SO ₂ Cost	\$0.00	0.0%	\$0.00	0.0%	(0.0%)
LPA-SCED Differential	(\$0.00)	(0.0%)	(\$0.00)	(0.0%)	0.0%
PJM Administrative Cap	(\$0.17)	(0.3%)	(\$0.02)	(0.0%)	0.3%
Decrease Generation Differential	(\$0.33)	(0.6%)	(\$0.11)	(0.2%)	0.5%
Renewable Energy Credits	(\$0.20)	(0.4%)	(\$0.67)	(0.9%)	(0.5%)
Negative Markup	(\$3.59)	(6.9%)	(\$5.55)	(7.6%)	(0.7%)
Total	\$51.75	100.0%	\$72.54	100.0%	0.0%

LMP Contribution to Real-Time Costs

- The results in the table are the \$/MWh contribution to LMP multiplied by the real-time load in MWh.
- The total real-time LMP cost for January through June 2026 was \$8.9 billion.
- The total LMP cost contribution of the transmission constraint penalty factors was \$3.9 billion.
- The total LMP cost contribution of the operating reserve penalty factors was \$0.3 billion.

LMP Contribution to Real-Time Costs

Element	Contribution to Real Time Cost of Load (\$Million)			
	2025 (Jan - Jun)	2026 (Jan - Jun)	Change	Percent
Gas	\$9,613.4	\$11,586.1	\$1,972.7	22.1%
Transmission Constraint Penalty Factor	\$2,102.1	\$5,969.0	\$3,867.0	43.3%
Positive Markup	\$1,250.2	\$2,436.9	\$1,186.7	13.3%
Coal	\$1,442.1	\$1,871.0	\$429.0	4.8%
Oil	\$964.6	\$1,653.1	\$688.5	7.7%
Ten Percent Adder	\$1,247.7	\$1,539.8	\$292.0	3.3%
Variable Maintenance	\$1,190.8	\$1,331.4	\$140.6	1.6%
Market-to-Market	\$280.2	\$1,190.3	\$910.1	10.2%
CO ₂ Cost	\$763.0	\$945.4	\$182.4	2.0%
Opportunity Cost Adder	\$378.2	\$788.4	\$410.2	4.6%
Ancillary Service Redispatch Cost	\$550.4	\$757.4	\$207.0	2.3%
Variable Operations	\$490.2	\$623.4	\$133.1	1.5%
Increase Generation Differential	\$233.8	\$302.9	\$69.0	0.8%
Shortage Pricing (ORDCs)	\$751.2	\$269.0	(\$482.2)	(5.4%)
NA	\$134.7	\$265.6	\$130.9	1.5%
LPA Rounding Difference	\$192.1	\$218.3	\$26.2	0.3%
Landfill Gas	\$35.3	\$64.5	\$29.2	0.3%
NO _x Cost	\$7.1	\$64.0	\$56.9	0.6%
Emergency Demand Response	\$494.5	\$38.5	(\$456.0)	(5.1%)
Other	\$4.7	\$9.4	\$4.7	0.1%
SO ₂ Cost	\$0.1	\$0.1	(\$0.0)	(0.0%)
LPA-SCED Differential	(\$0.0)	(\$0.0)	\$0.0	0.0%
PJM Administrative Cap	(\$68.0)	(\$6.8)	\$61.2	0.7%
Decrease Generation Differential	(\$128.4)	(\$45.2)	\$83.1	0.9%
Renewable Energy Credits	(\$79.3)	(\$272.1)	(\$192.7)	(2.2%)
Negative Markup	(\$1,418.8)	(\$2,244.4)	(\$825.6)	(9.3%)
Total	\$20,431.8	\$29,356.0	\$8,924.1	100.0%

Constraint Violations by Voltage

- **The TCPF has a greater effect on LMP when applied to higher voltage constraints.**
- **In the first six months of 2026, 500 kV violations increased from 1,865 to 8,920 market intervals.**
 - Primarily during Winter Storm Fern
- **For 8,509 of the 8,920 violations, 95 percent, PJM used reduced line limits in SCED to trigger the use of TCPF.**

Constraint Violations by Voltage

- **Violations of 230 kV lines in Data Center Alley occurred for several hours on May 26, 2026.**
- **For 4,754 violations of the 6,403 230 kV violations, or 74 percent, PJM used reduced line limits in SCED to trigger the use of TCPF.**

Constraint Violations by Voltage

Voltage	2025 (Jan - Jun)		2026 (Jan - Jun)	
	Frequency (Constraint Intervals)	Percent	Frequency (Constraint Intervals)	Percent
1 kV	169	1.4%	25	0.1%
69 kV	911	7.6%	406	1.8%
115 kV	4,011	33.5%	2,119	9.4%
138 kV	2,579	21.5%	3,796	16.8%
230 kV	2,312	19.3%	6,403	28.4%
345 kV	78	0.7%	816	3.6%
500 kV	1,865	15.6%	8,920	39.6%
765 kV	47	0.4%	66	0.3%
Total	11,972	100.0%	22,551	100.0%

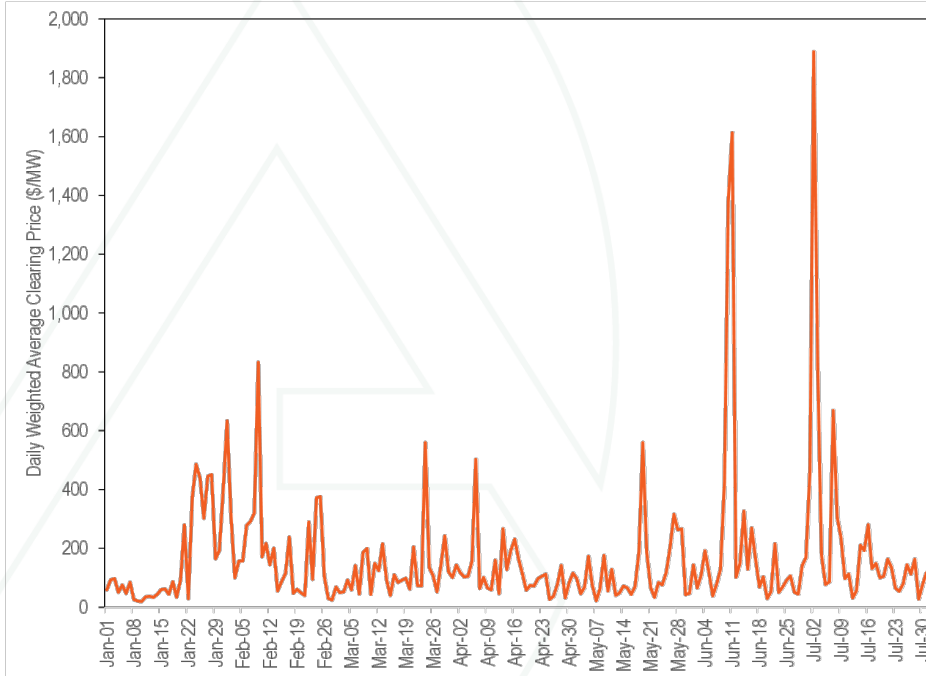
REGULATION MARKET



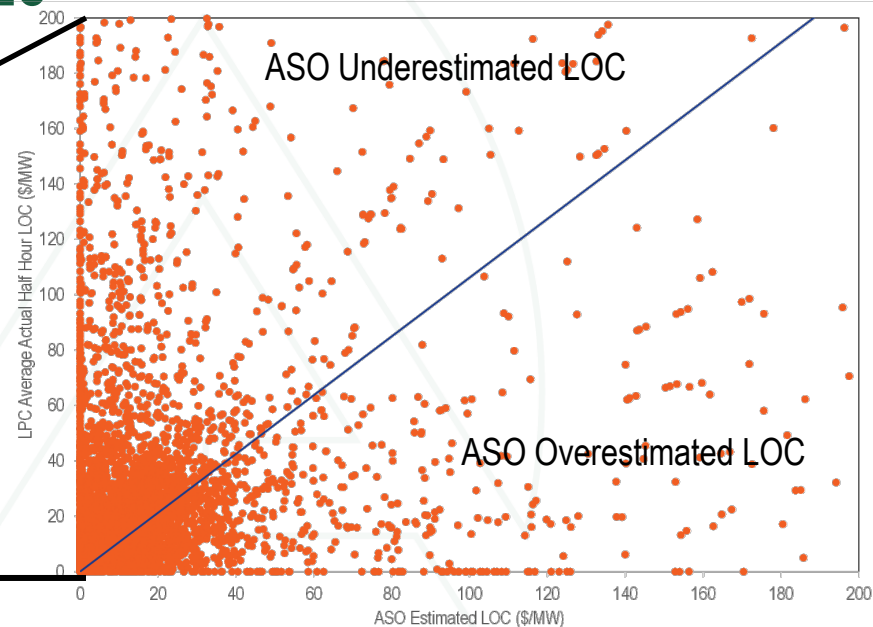
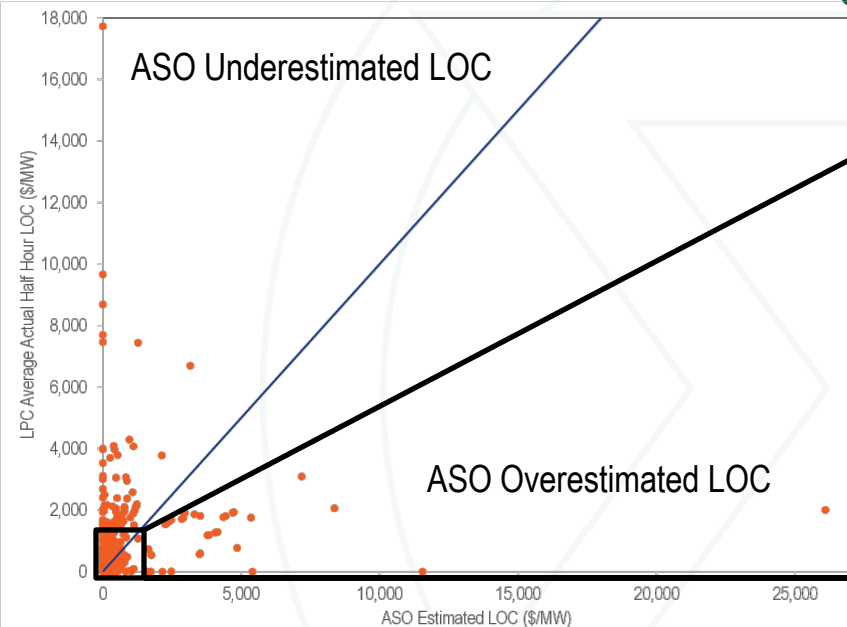
Weighted Average Regulation Clearing Price

Year	Month	Scheduled Regulation (Effective MW)	Total Regulation Charges (\$)	Weighted Average Regulation Market Price (\$/Effective MW)	Cost of Regulation (\$/Effective MW)	Price as Percent of Cost
2026	Jan	501,730.2	\$74,548,001	\$143.64	\$148.58	96.7%
	Feb	451,980.3	\$90,477,186	\$196.96	\$200.18	98.4%
	Mar	481,303.7	\$52,467,503	\$107.22	\$109.01	98.4%
	Apr	466,089.6	\$51,558,568	\$109.42	\$110.62	98.9%
	May	544,273.3	\$53,423,383	\$96.68	\$98.16	98.5%
	Jun	525,169.0	\$89,269,974	\$169.19	\$169.98	99.5%
	Jul	543,380.8	\$102,010,012	\$185.62	\$187.73	98.9%
Total		3,513,926.9	\$513,754,627	\$144.01	\$146.21	98.5%

- Continue to see large price spikes during high LMP events.
- Ongoing issues with LOC logic, combined with high LMPs, contributed to large increase in the Monthly Weighted Average Clearing Price compared to May.
 - 75% increase in June.
 - Additional 17% increase in July.



ASO Estimated LOC vs LPC Actual Average LOC for Natural Gas Units: July 2026

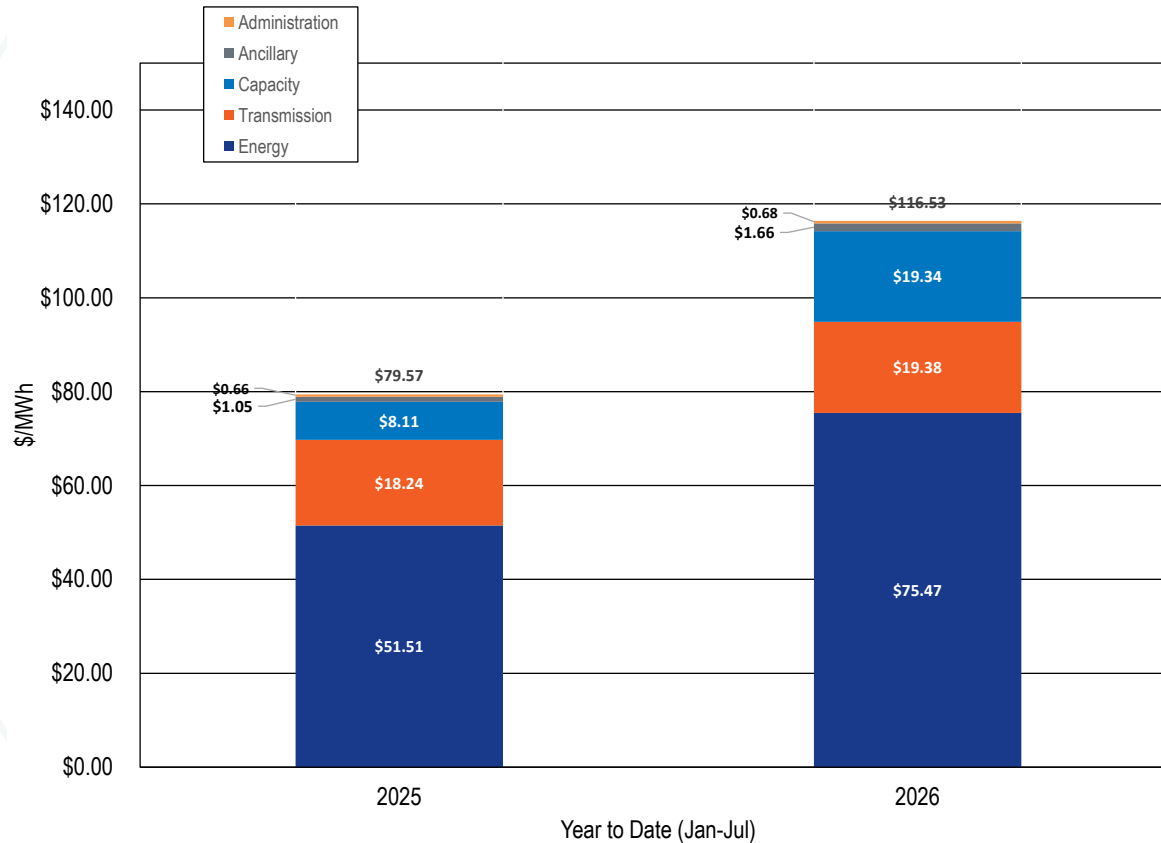


- **ASO underestimated LOC 23.1% of all instances by an average of \$101.91/MW (overestimate average was \$17.07/MW).**
- **ASO had a \$0/MW estimate 54.3% of all instances with 6.8% of those being an underestimate.**
 - The average underestimate for those 6.8% was \$184.65/MW.
 - During LMP price spikes, the ASO underestimate is leading to extremely expensive units being allowed to clear.

YEAR TO YEAR UPDATE: TOTAL COST OF WHOLESALE POWER



Total Cost of Wholesale Power – YTD 2025/2026



Total Cost of Wholesale Power – YTD 2025/2026

Category	2025 (Jan-Jul) \$/MWh	2025 (Jan-Jul) (\$ Millions)	2025 (Jan-Jul) Percent of Total	2026 (Jan-Jul) \$/MWh	2026 (Jan-Jul) (\$ Millions)	2026 (Jan-Jul) Percent of Total	Percent Change
Energy	\$51.51	\$24,612	64.7%	\$75.47	\$36,727	64.8%	46.5%
Day Ahead Energy	\$52.01	\$24,853	65.4%	\$76.88	\$37,414	66.0%	47.8%
Balancing Energy	\$1.17	\$560	1.5%	\$2.07	\$1,008	1.8%	76.7%
ARR Credits	(\$1.58)	(\$755)	(2.0%)	(\$3.25)	(\$1,583)	(2.8%)	105.9%
Self Scheduled FTR Credits	(\$1.43)	(\$684)	(1.8%)	(\$2.87)	(\$1,399)	(2.5%)	100.7%
Balancing Congestion	\$0.67	\$318	0.8%	\$0.91	\$442	0.8%	36.4%
Emergency Energy	\$0.01	\$6	0.0%	\$0.04	\$20	0.0%	247.0%
Inadvertent Energy	(\$0.01)	(\$6)	(0.0%)	\$0.02	\$12	0.0%	(296.0%)
Load Response - Energy	\$0.04	\$18	0.0%	\$0.04	\$21	0.0%	13.1%
Emergency Load Response	\$0.00	\$0	0.0%	\$0.00	\$2	0.0%	574.4%
Energy Uplift (Operating Reserves)	\$1.29	\$616	1.6%	\$2.62	\$1,277	2.3%	103.4%
Marginal Loss Surplus Allocation	(\$0.76)	(\$362)	(1.0%)	(\$1.26)	(\$615)	(1.1%)	66.8%
Market to Market Payments	\$0.10	\$48	0.1%	\$0.26	\$129	0.2%	162.4%
Capacity	\$8.11	\$3,875	10.2%	\$19.34	\$9,413	16.6%	138.5%
Capacity (Capacity Market and FRR)	\$8.04	\$3,844	10.1%	\$19.47	\$9,477	16.7%	142.1%
Capacity Part V (RMR)	\$0.07	\$32	0.1%	(\$0.13)	(\$64)	(0.1%)	(297.0%)
Load Response - Capacity	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Transmission	\$18.24	\$8,717	22.9%	\$19.38	\$9,433	16.6%	6.3%
Transmission Service Charges	\$15.46	\$7,389	19.4%	\$16.76	\$8,156	14.4%	8.4%
Transmission Enhancement Cost Recovery	\$2.69	\$1,283	3.4%	\$2.53	\$1,233	2.2%	(5.7%)
Transmission Owner (Schedule 1A)	\$0.09	\$45	0.1%	\$0.09	\$44	0.1%	(4.5%)
Transmission Seams Elimination Cost Assignment (SECA)	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Transmission Facility Charges	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Ancillary	\$1.05	\$501	1.3%	\$1.66	\$806	1.4%	57.9%
Reactive	\$0.44	\$209	0.6%	\$0.29	\$142	0.3%	(33.3%)
Regulation	\$0.31	\$149	0.4%	\$1.06	\$514	0.9%	239.5%
Black Start	\$0.07	\$32	0.1%	\$0.05	\$26	0.0%	(21.5%)
Synchronized Reserves	\$0.21	\$99	0.3%	\$0.22	\$109	0.2%	8.5%
Secondary Reserves	\$0.01	\$3	0.0%	\$0.02	\$10	0.0%	192.6%
Non-Synchronized Reserves	\$0.02	\$9	0.0%	\$0.01	\$5	0.0%	(40.6%)
Day Ahead Scheduling Reserve (DASR)	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Administration	\$0.66	\$315	0.8%	\$0.68	\$331	0.6%	3.3%
PJM Administrative Fees	\$0.61	\$292	0.8%	\$0.63	\$306	0.5%	2.9%
NERC/RFC	\$0.04	\$20	0.1%	\$0.05	\$22	0.0%	6.2%
RTO Startup and Expansion	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Other	\$0.00	\$2	0.0%	\$0.01	\$3	0.0%	30.6%
Total Cost	\$79.57	\$38,021	100.0%	\$116.53	\$56,710	100.0%	46.5%
Total Day Ahead Load (GWh)	470,359			477,490			1.5%
Total Balancing Load (GWh)	(7,497)			(9,162)			22.2%
Total Real Time Load (GWh)	477,856			486,652			1.8%
Total Cost (\$ Billions)	\$38.02			\$56.71			49.2%

Total Cost of Wholesale Power – YTD 2025/2026

- **For January through July 2026 compared to January through July 2025:**
- **Energy costs increased by 46.5 percent.**
 - **Energy costs were 64.8 percent of total in 2026.**
- **Capacity costs increased by 138.5 percent.**
 - **Capacity costs were 16.6 percent of total in 2026.**
- **Transmission costs increased by 6.3 percent.**
 - **Transmission costs were 16.6 percent of total in 2026.**
- **Total cost of wholesale power increased by 46.5 percent.**

Total Cost of Wholesale Power – YTD 2025/2026

- **Not all of the increase in capacity market costs was a result of data center load.**
- **The Market Monitor analyzed the impact of data center load on the capacity market base residual auctions:**
 - **2025/2026**
 - **2026/2027**
 - **2027/2028**
 - **2028/2029**



Total Cost of Wholesale Power – YTD 2025/2026

- **For the first seven months of 2026, the total cost of wholesale power would have been \$106.05 if not for the data center load and its impact on capacity market revenues for the 2025/2026 and 2026/2027 Delivery Years.**
- **In the first six months of 2026, the total cost per MWh of wholesale power increased by \$10.48 (9.0 percent) from \$106.05 without data center load impacts included in the total cost of wholesale power to \$116.53 when the data center load impact is included.**

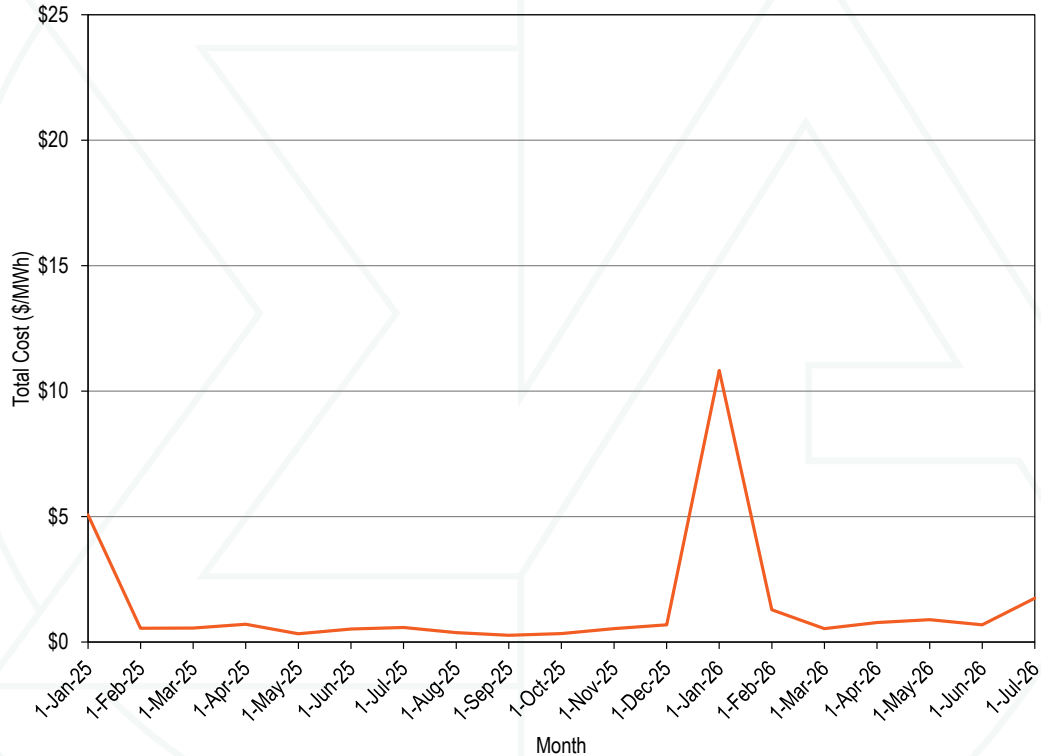
Total Cost of Wholesale Power – August 2025 through July 2026 Monthly (\$/MWh)

Category	Aug, 2025 \$/MWh	Sep, 2025 \$/MWh	Oct, 2025 \$/MWh	Nov, 2025 \$/MWh	Dec, 2025 \$/MWh	Jan, 2026 \$/MWh	Feb, 2026 \$/MWh	Mar, 2026 \$/MWh	Apr, 2026 \$/MWh	May, 2026 \$/MWh	Jun, 2026 \$/MWh	Jul, 2026 \$/MWh
Energy	\$36.89	\$38.85	\$47.23	\$47.09	\$55.61	\$155.39	\$82.05	\$40.38	\$44.02	\$45.27	\$50.49	\$86.90
Day Ahead Energy	\$39.02	\$40.74	\$50.58	\$49.45	\$57.31	\$149.09	\$82.52	\$41.80	\$45.01	\$47.30	\$56.06	\$92.82
Balancing Energy	\$0.47	\$0.87	\$0.82	\$0.72	\$1.08	\$2.31	\$2.68	\$0.99	\$1.33	\$2.60	\$2.57	\$1.88
ARR Credits	(\$2.39)	(\$2.37)	(\$2.68)	(\$2.54)	(\$2.08)	(\$2.05)	(\$2.07)	(\$2.49)	(\$2.61)	(\$2.55)	(\$4.18)	(\$6.21)
Self Scheduled FTR Credits	(\$0.44)	(\$1.18)	(\$2.28)	(\$0.90)	(\$1.26)	(\$4.28)	(\$2.66)	(\$0.65)	(\$1.12)	(\$3.69)	(\$4.19)	(\$2.96)
Balancing Congestion	\$0.36	\$0.40	\$0.57	\$0.45	\$0.59	\$1.70	\$1.47	\$0.44	\$0.74	\$1.07	\$0.20	\$0.64
Emergency Energy	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.16	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Inadvertent Energy	\$0.01	(\$0.02)	(\$0.02)	(\$0.01)	(\$0.01)	\$0.05	\$0.04	\$0.03	\$0.06	\$0.02	(\$0.06)	\$0.03
Load Response - Energy	\$0.03	\$0.03	\$0.03	\$0.01	\$0.02	\$0.02	\$0.16	\$0.06	\$0.03	\$0.01	\$0.00	\$0.03
Emergency Load Response	\$0.00	\$0.56	\$0.39	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$0.00
Energy Uplift (Operating Reserves)	\$0.37	\$0.27	\$0.34	\$0.53	\$0.68	\$10.82	\$1.28	\$0.54	\$0.78	\$0.89	\$0.69	\$1.75
Marginal Loss Surplus Allocation	(\$0.52)	(\$0.53)	(\$0.76)	(\$0.73)	(\$0.90)	(\$2.87)	(\$1.77)	(\$0.54)	(\$0.64)	(\$0.70)	(\$0.71)	(\$1.20)
Market to Market Payments	(\$0.02)	\$0.09	\$0.24	\$0.09	\$0.18	\$0.43	\$0.28	\$0.20	\$0.40	\$0.31	\$0.12	\$0.13
Capacity	\$19.07	\$20.85	\$22.87	\$21.36	\$18.04	\$15.90	\$17.00	\$21.21	\$22.46	\$22.13	\$20.22	\$18.09
Capacity (Capacity Market and FRR)	\$18.60	\$20.54	\$22.45	\$21.06	\$17.88	\$16.94	\$17.53	\$20.94	\$22.13	\$21.70	\$20.33	\$18.09
Capacity Part V (RMR)	\$0.23	\$0.31	\$0.42	\$0.30	\$0.16	(\$1.03)	(\$0.53)	\$0.27	\$0.32	\$0.42	(\$0.10)	\$0.00
Load Response - Capacity	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Transmission	\$17.71	\$19.62	\$21.26	\$20.06	\$16.78	\$17.38	\$18.18	\$21.25	\$22.60	\$22.04	\$19.01	\$16.88
Transmission Service Charges	\$15.09	\$16.65	\$18.13	\$17.03	\$14.27	\$15.07	\$15.55	\$18.42	\$19.52	\$19.12	\$16.42	\$14.64
Transmission Enhancement Cost Recovery	\$2.52	\$2.87	\$3.04	\$2.94	\$2.42	\$2.22	\$2.54	\$2.74	\$2.99	\$2.84	\$2.50	\$2.15
Transmission Owner (Schedule 1A)	\$0.10	\$0.10	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Transmission Seams Elimination Cost Assignment (SECA)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Transmission Facility Charges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ancillary	\$0.81	\$1.01	\$1.80	\$1.23	\$1.07	\$1.69	\$1.90	\$1.57	\$1.56	\$1.57	\$1.44	\$1.80
Reactive	\$0.40	\$0.46	\$0.48	\$0.46	\$0.38	\$0.36	\$0.41	\$0.43	\$0.47	\$0.48	\$0.00	\$0.00
Regulation	\$0.21	\$0.29	\$1.01	\$0.51	\$0.46	\$0.94	\$1.30	\$0.82	\$0.88	\$0.86	\$1.26	\$1.24
Black Start	\$0.05	\$0.06	\$0.06	\$0.06	\$0.05	\$0.05	\$0.06	\$0.06	\$0.06	\$0.06	\$0.05	\$0.04
Synchronized Reserves	\$0.12	\$0.17	\$0.20	\$0.17	\$0.15	\$0.33	\$0.10	\$0.23	\$0.12	\$0.14	\$0.10	\$0.47
Secondary Reserves	\$0.02	\$0.01	\$0.02	\$0.01	\$0.02	\$0.02	\$0.03	\$0.02	\$0.01	\$0.01	\$0.01	\$0.04
Non-Synchronized Reserves	\$0.01	\$0.02	\$0.03	\$0.02	\$0.02	\$0.01	\$0.00	\$0.02	\$0.01	\$0.02	\$0.02	\$0.01
Day Ahead Scheduling Reserve (DASR)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Administration	\$0.63	\$0.69	\$0.73	\$0.72	\$0.70	\$0.63	\$0.65	\$0.71	\$0.79	\$0.71	\$0.67	\$0.63
PJM Administrative Fees	\$0.58	\$0.64	\$0.69	\$0.68	\$0.62	\$0.58	\$0.60	\$0.66	\$0.74	\$0.66	\$0.62	\$0.58
NERC/RFC	\$0.04	\$0.04	\$0.04	\$0.04	\$0.07	\$0.05	\$0.05	\$0.05	\$0.05	\$0.04	\$0.05	\$0.05
RTO Startup and Expansion	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.01	\$0.00	\$0.01	\$0.01
Total Cost	\$75.11	\$81.02	\$93.90	\$90.46	\$92.21	\$191.00	\$119.77	\$85.12	\$91.42	\$91.71	\$91.84	\$124.30
Total Day Ahead Load (GWh)	72,152	62,679	59,624	61,234	74,467	78,572	67,999	63,441	57,915	60,323	69,014	80,226
Total Balancing Load (GWh)	(266)	(765)	(356)	(656)	(838)	(930)	(1,375)	(881)	(966)	(1,722)	(1,572)	(1,716)
Total Real Time Load (GWh)	72,418	63,444	59,980	61,890	75,305	79,502	69,374	64,322	58,880	62,046	70,586	81,942
Total Cost (\$ Billions)	\$5.44	\$5.14	\$5.63	\$5.60	\$6.94	\$15.18	\$8.31	\$5.47	\$5.38	\$5.69	\$6.48	\$10.19

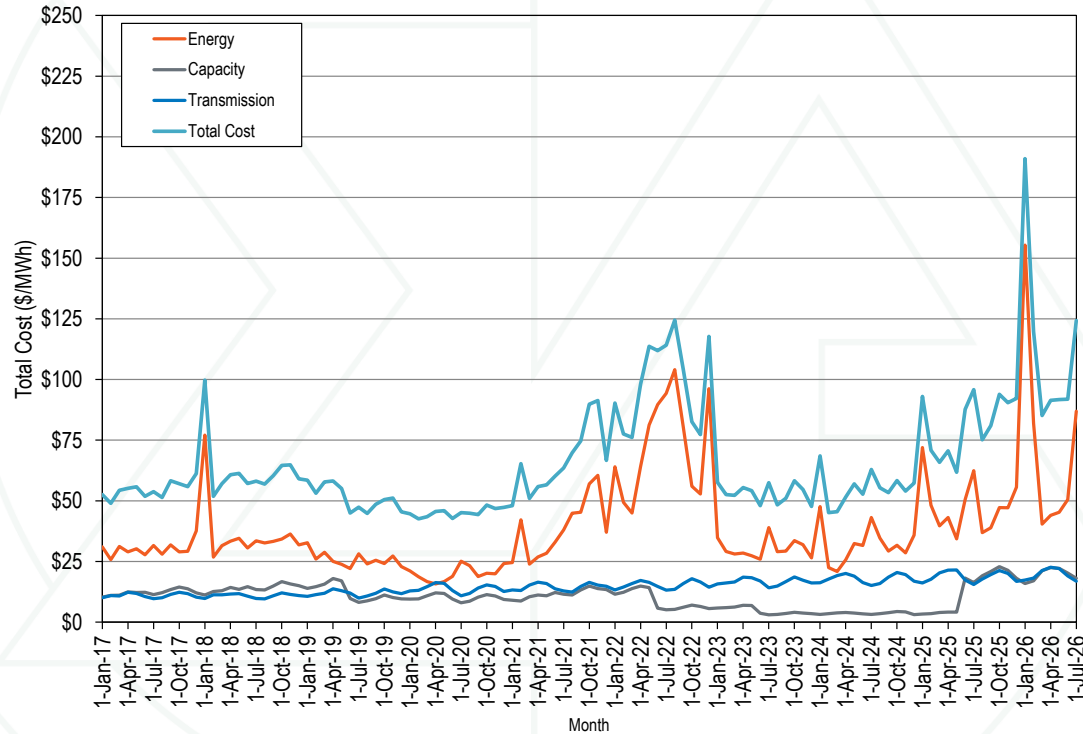
Total Cost of Wholesale Power – August 2025 through July 2026 Monthly (Percents)

Category	Aug, 2025 % of Total	Sep, 2025 % of Total	Oct, 2025 % of Total	Nov, 2025 % of Total	Dec, 2025 % of Total	Jan, 2026 % of Total	Feb, 2026 % of Total	Mar, 2026 % of Total	Apr, 2026 % of Total	May, 2026 % of Total	Jun, 2026 % of Total	Jul, 2026 % of Total
Energy	49.1%	48.0%	50.3%	52.1%	60.3%	81.4%	68.5%	47.4%	48.2%	49.4%	55.0%	69.9%
Day Ahead Energy	52.0%	50.3%	53.9%	54.7%	62.2%	78.1%	68.9%	49.1%	49.2%	51.6%	61.0%	74.7%
Balancing Energy	0.6%	1.1%	0.9%	0.8%	1.2%	1.2%	2.2%	1.2%	1.5%	2.8%	2.8%	1.5%
ARR Credits	-3.2%	-2.9%	-2.9%	-2.8%	-2.3%	-1.1%	-1.7%	-2.9%	-2.9%	-2.8%	-4.6%	-5.0%
Self Scheduled FTR Credits	-0.6%	-1.5%	-2.4%	-1.0%	-1.4%	-2.2%	-2.2%	-0.8%	-1.2%	-4.0%	-4.6%	-2.4%
Balancing Congestion	0.5%	0.5%	0.6%	0.5%	0.6%	0.9%	1.2%	0.5%	0.8%	1.2%	0.2%	0.5%
Emergency Energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Inadvertent Energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%
Load Response - Energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Emergency Load Response	0.0%	0.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Energy Uplift (Operating Reserves)	0.5%	0.3%	0.4%	0.6%	0.7%	5.7%	1.1%	0.6%	0.9%	1.0%	0.8%	1.4%
Marginal Loss Surplus Allocation	-0.7%	-0.7%	-0.8%	-0.8%	-1.0%	-1.5%	-1.5%	-0.6%	-0.7%	-0.8%	-0.8%	-1.0%
Market to Market Payments	0.0%	0.1%	0.3%	0.1%	0.2%	0.2%	0.2%	0.2%	0.4%	0.3%	0.1%	0.1%
Capacity	25.4%	25.7%	24.4%	23.6%	19.6%	8.3%	14.2%	24.9%	24.6%	24.1%	22.0%	14.6%
Capacity (Capacity Market and FRR)	24.8%	25.4%	23.9%	23.3%	19.4%	8.9%	14.6%	24.6%	24.2%	23.7%	22.1%	14.6%
Capacity Part V (RMR)	0.3%	0.4%	0.4%	0.3%	0.2%	-0.5%	-0.4%	0.3%	0.4%	0.5%	-0.1%	0.0%
Load Response - Capacity	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transmission	23.6%	24.2%	22.6%	22.2%	18.2%	9.1%	15.2%	25.0%	24.7%	24.0%	20.7%	13.6%
Transmission Service Charges	20.1%	20.6%	19.3%	18.8%	15.5%	7.9%	13.0%	21.6%	21.4%	20.8%	17.9%	11.8%
Transmission Enhancement Cost Recovery	3.4%	3.5%	3.2%	3.3%	2.6%	1.2%	2.1%	3.2%	3.3%	3.1%	2.7%	1.7%
Transmission Owner (Schedule 1A)	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Transmission Seams Elimination Cost Assignment (SECA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transmission Facility Charges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ancillary	1.1%	1.2%	1.9%	1.4%	1.2%	0.9%	1.6%	1.8%	1.7%	1.7%	1.6%	1.4%
Reactive	0.5%	0.6%	0.5%	0.5%	0.4%	0.2%	0.3%	0.5%	0.5%	0.5%	0.0%	0.0%
Regulation	0.3%	0.4%	1.1%	0.6%	0.5%	0.5%	1.1%	1.0%	1.0%	0.9%	1.4%	1.0%
Black Start	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
Synchronized Reserves	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.3%	0.1%	0.2%	0.1%	0.4%
Secondary Reserves	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non-Synchronized Reserves	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Day Ahead Scheduling Reserve (DASR)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Administration	0.8%	0.9%	0.8%	0.8%	0.8%	0.3%	0.5%	0.8%	0.9%	0.8%	0.7%	0.5%
PJM Administrative Fees	0.8%	0.8%	0.7%	0.8%	0.7%	0.3%	0.5%	0.8%	0.8%	0.7%	0.7%	0.5%
NERC/RFC	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%
RTO Startup and Expansion	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Cost	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

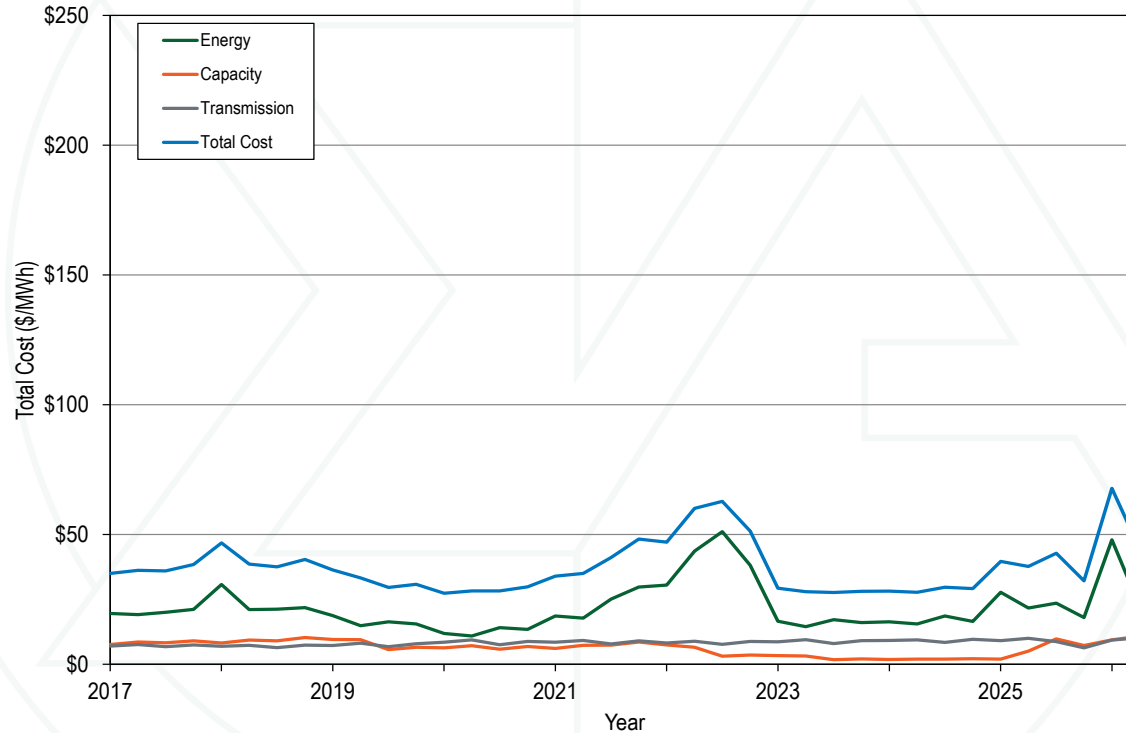
Energy Uplift Component – January 2025 through July 2026 Monthly



Total Cost of Wholesale Power – January 2017 through July 2026 Monthly



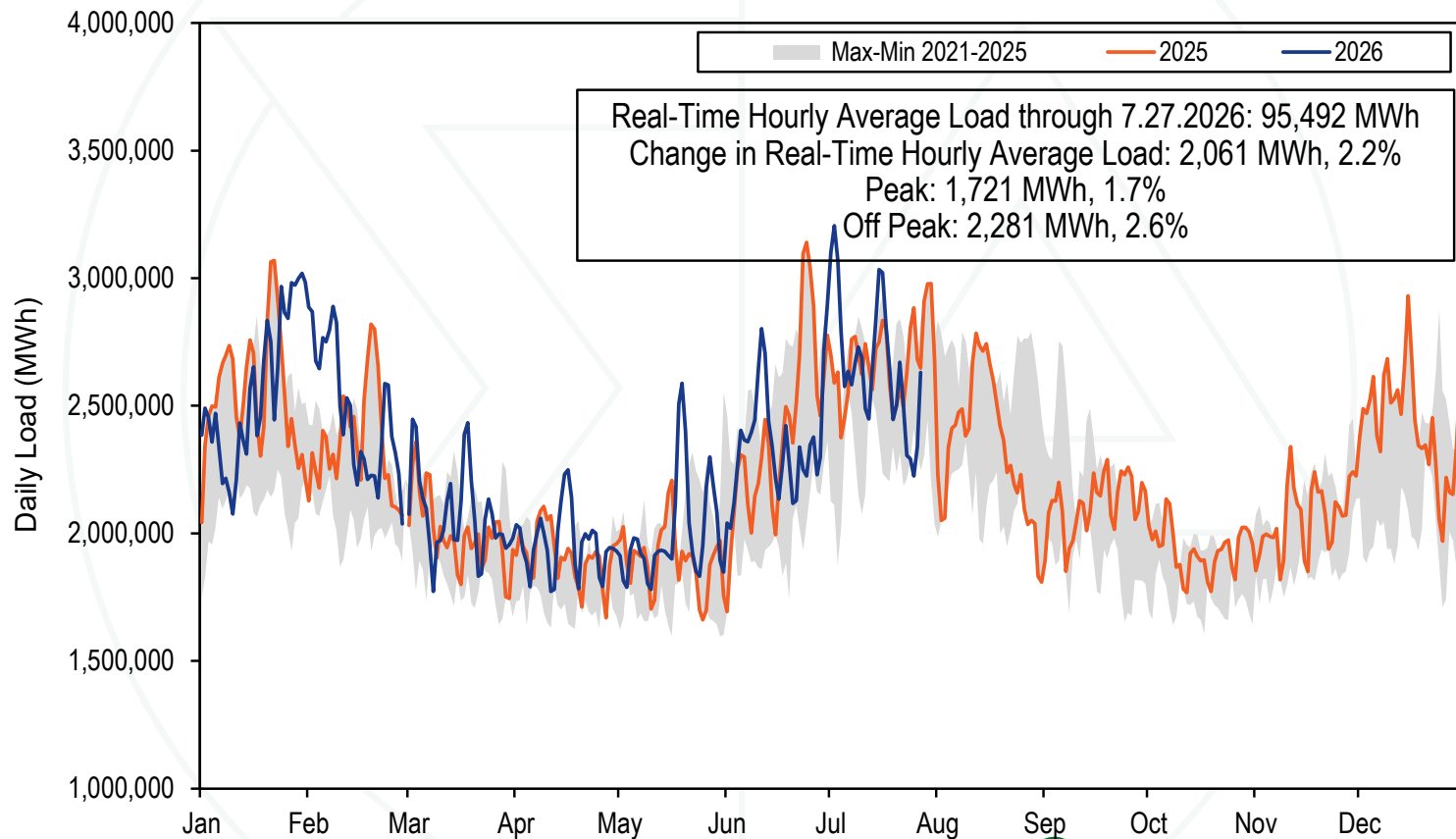
Inflation Adjusted Total Cost of Wholesale Power – Quarterly



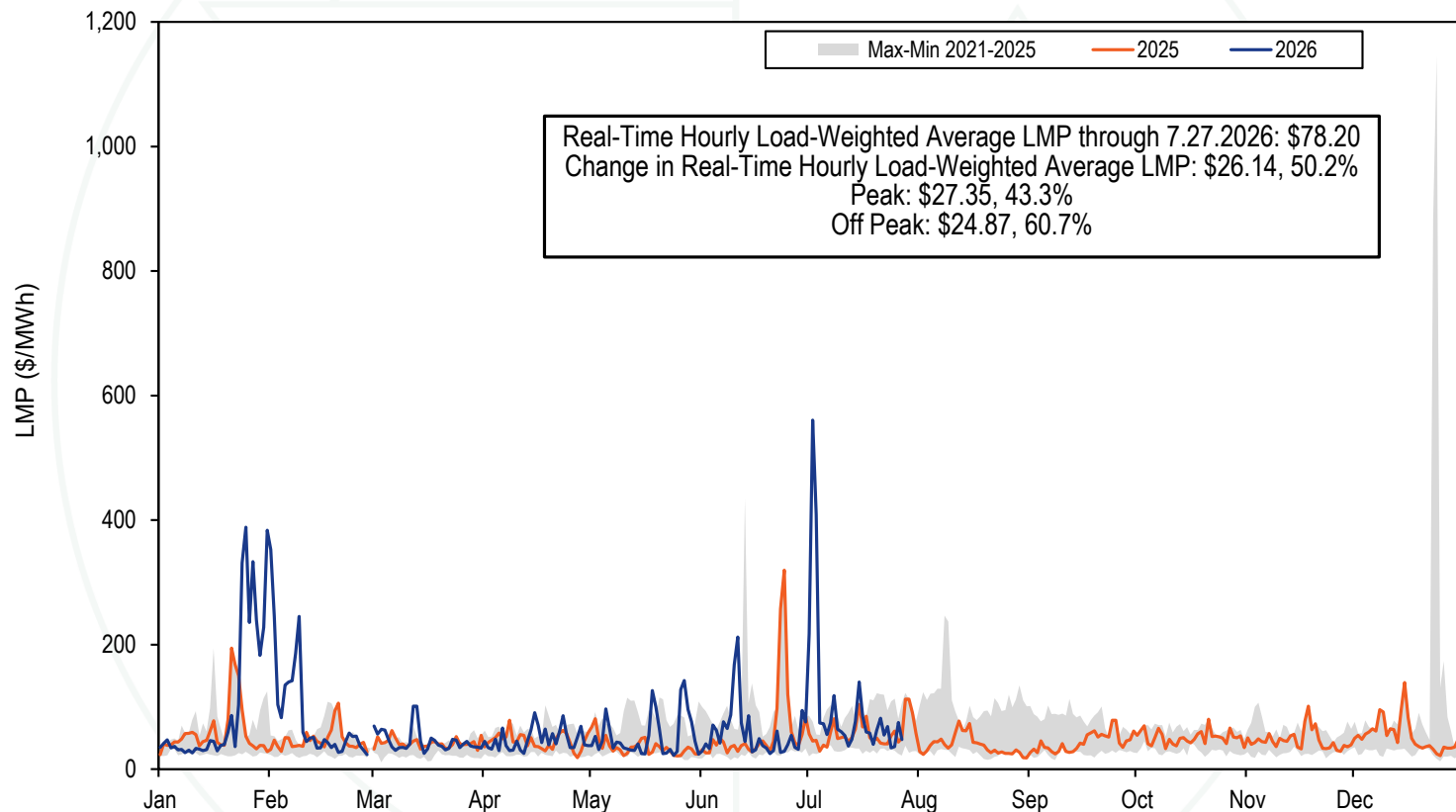
YEAR TO YEAR UPDATE



2026 YTD PJM Real-Time Daily Load



2026 YTD PJM Real-Time Daily LMP

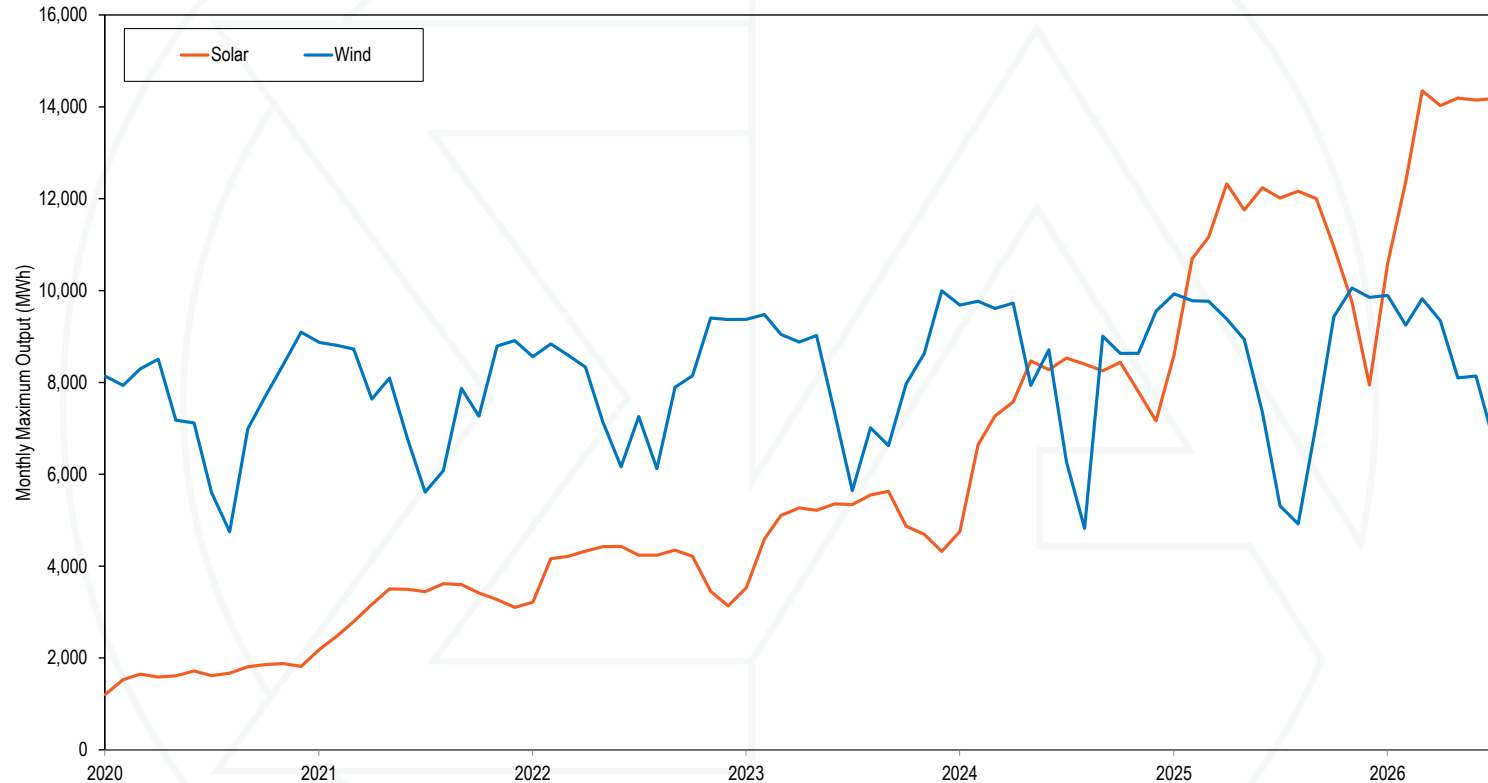


Annual Maximum Hourly Solar and Wind Output

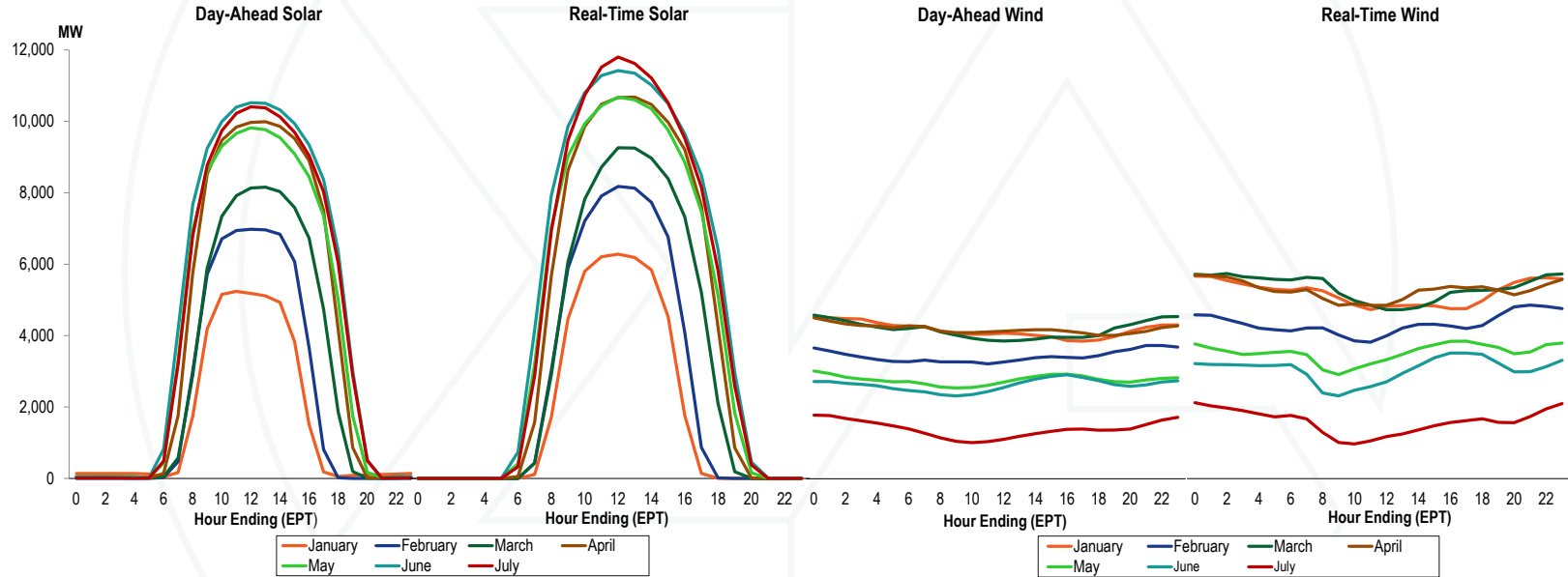
Year	Solar Maximum Hourly Output				Wind Maximum Hourly Output			
	Maximum Hourly MWh	Change	Percent Change	Solar Percent of All Generation For The Year	Maximum Hourly MWh	Change	Percent Change	Wind Percent of All Generation For The Year
2020	1,879			0.4%	9,095			3.3%
2021	3,617	1,739	92.5%	0.9%	8,911	(184)	(2.0%)	3.3%
2022	4,429	812	22.4%	1.1%	9,402	491	5.5%	3.8%
2023	5,630	1,201	27.1%	1.4%	9,993	592	6.3%	3.5%
2024	8,532	2,901	51.5%	2.1%	9,768	(226)	(2.3%)	3.7%
2025	12,325	3,794	44.5%	2.9%	10,058	290	3.0%	3.7%
2026	14,348	2,023	16.4%	3.5%	9,896	(161)	(1.6%)	4.5%



Maximum Solar and Wind Hourly Output by Month



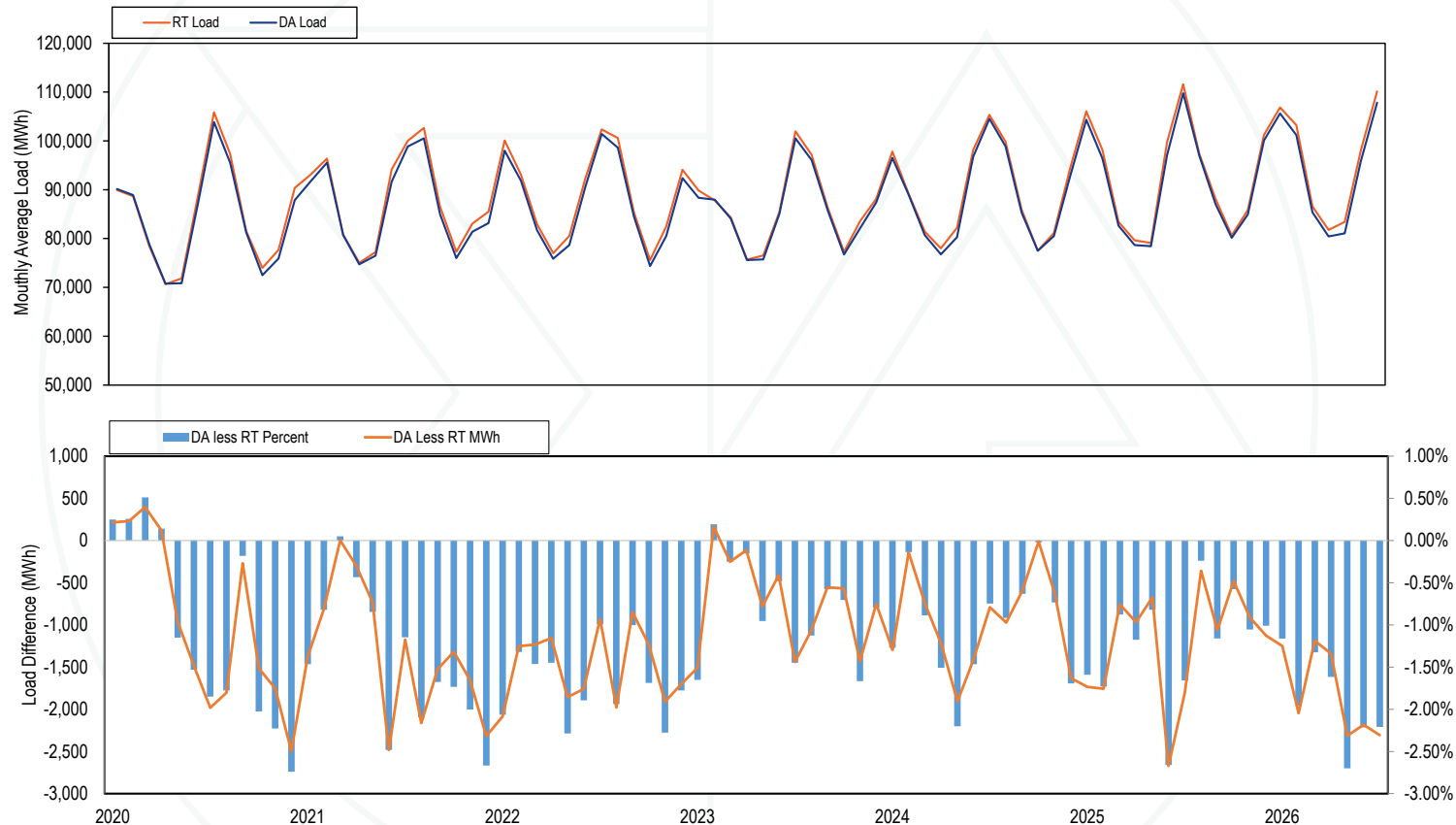
2026 Average Hourly Solar and Wind: DA and RT



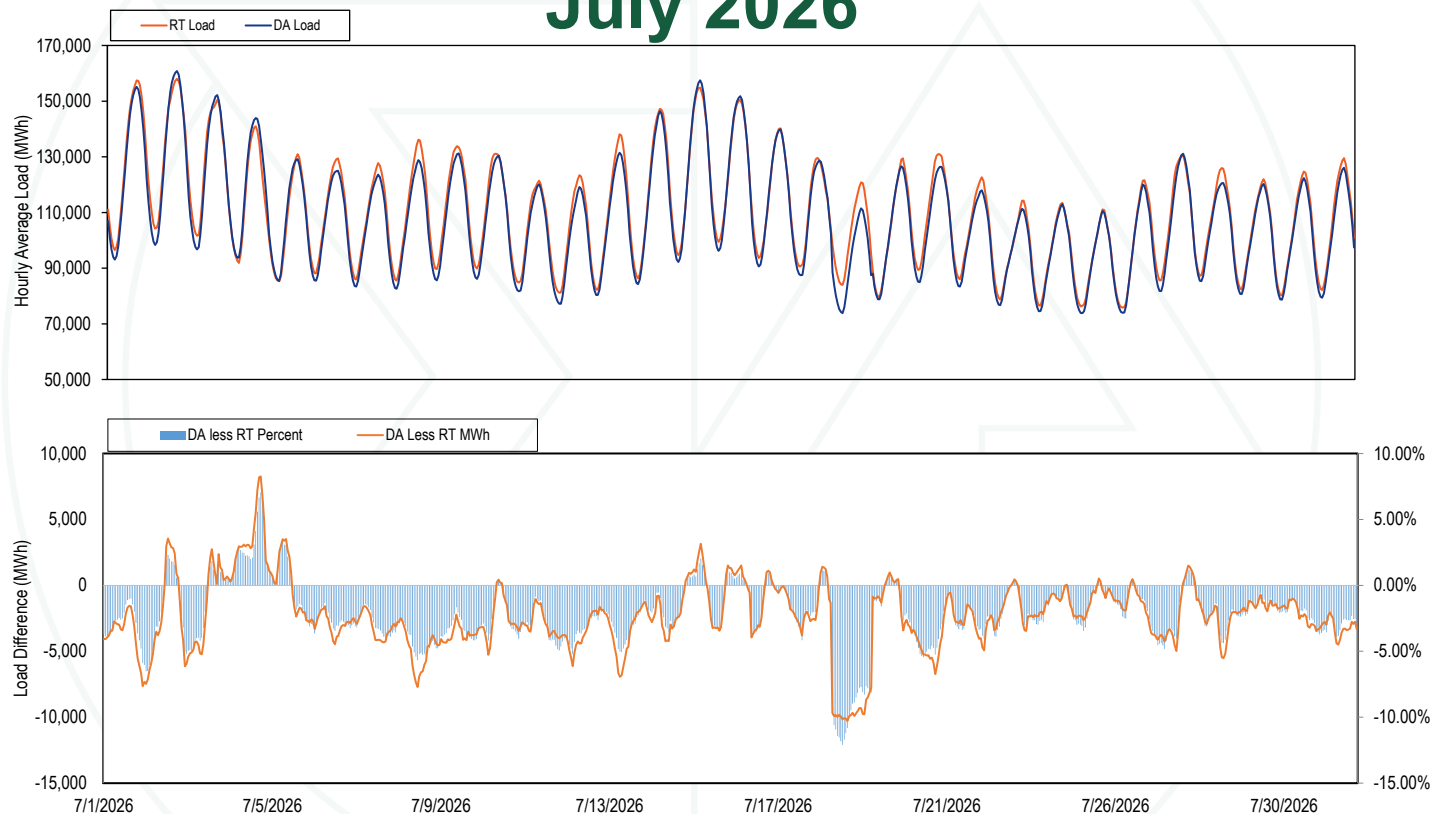
Real-Time Load-Weighted Average LMP

	2025				2026			
	Off Peak	On Peak	Difference	Percent Difference	Off Peak	On Peak	Difference	Percent Difference
Jan	\$55.29	\$70.54	\$15.25	27.6%	\$127.59	\$102.73	(\$24.86)	(19.5%)
Feb	\$43.75	\$54.12	\$10.37	23.7%	\$106.39	\$79.83	(\$26.56)	(25.0%)
Mar	\$38.89	\$45.68	\$6.79	17.5%	\$38.30	\$53.85	\$15.55	40.6%
Apr	\$38.15	\$52.08	\$13.93	36.5%	\$38.77	\$57.19	\$18.42	47.5%
May	\$27.32	\$45.53	\$18.21	66.7%	\$37.27	\$77.10	\$39.83	106.9%
Jun	\$39.62	\$94.51	\$54.89	138.5%	\$38.86	\$81.82	\$42.96	110.5%
Jul	\$39.08	\$77.77	\$38.68	99.0%	\$47.27	\$147.73	\$100.46	212.5%
Aug	\$29.15	\$49.92	\$20.77	71.2%				
Sep	\$34.41	\$52.55	\$18.14	52.7%				
Oct	\$41.55	\$59.43	\$17.88	43.0%				
Nov	\$40.52	\$55.12	\$14.59	36.0%				
Dec	\$49.92	\$60.68	\$10.76	21.6%				

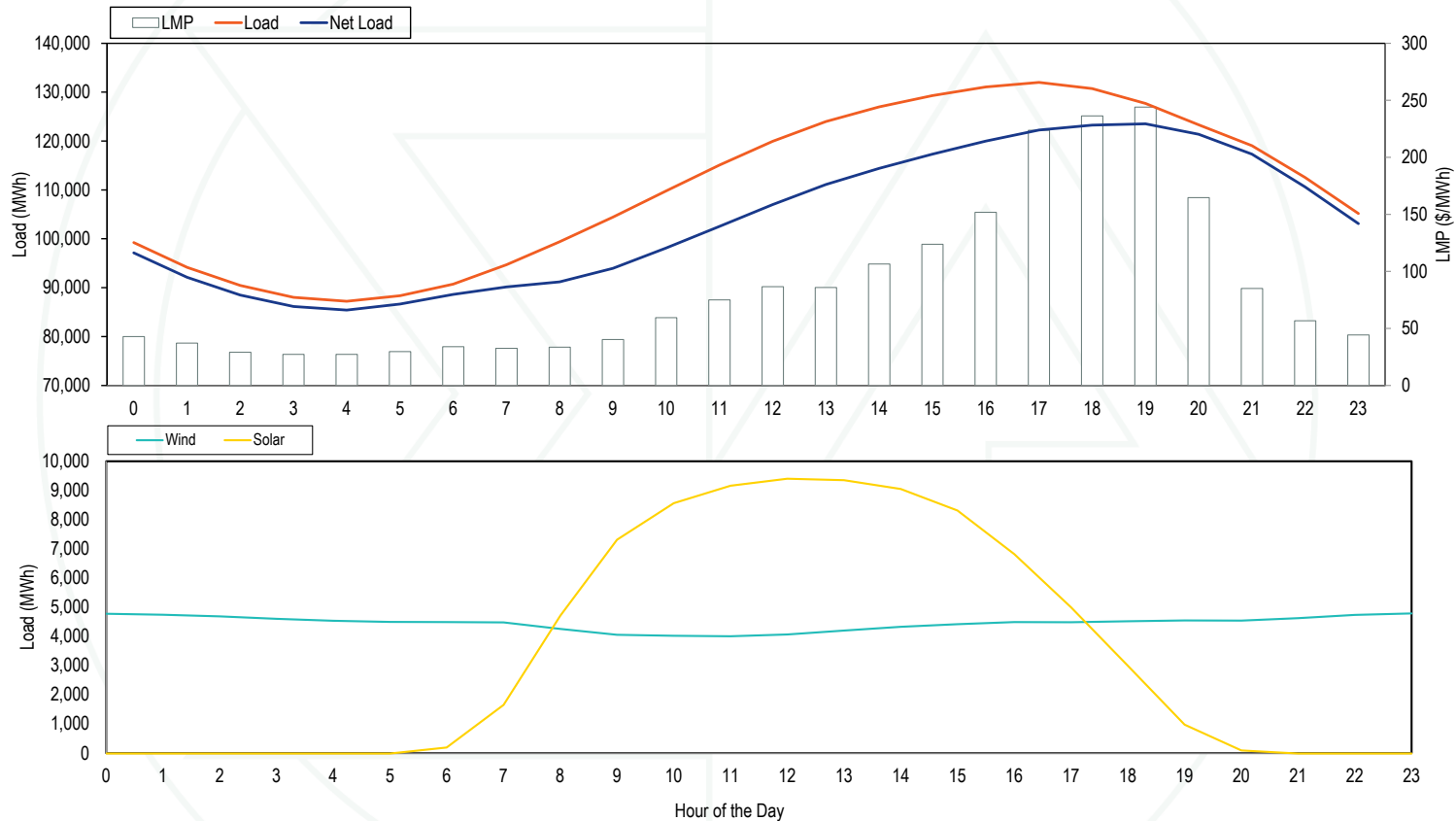
DA vs RT Load Bidding Difference History



DA vs RT Hourly Load Bidding Difference, July 2026



Hourly Average Net Load July 2026



FAST START



Fast Start Pricing: DLMP and PLMP

- **PJM implemented fast start pricing in both the day-ahead and real-time markets on September 1, 2021.**
- **The goal of fast start pricing is to allow inflexible resources to set prices based on the sum of their commitment costs per MWh and their marginal costs.**
- **The pricing run LMP (PLMP) is now the official settlement LMP in PJM, replacing the dispatch run LMP (DLMP).**

Fast Start Pricing: DLMP and PLMP

- **Fast start pricing employs a new LMP calculation called the pricing run.**
- **The pricing run calculates LMP using the same optimal power flow algorithm as the dispatch run while simultaneously reducing (“relaxing” or ignoring) the economic minimum and maximum output MW constraints for all eligible fast start units.**

Fast Start Pricing: DLMP and PLMP

- The price signal no longer equals the short run marginal cost and therefore no longer provides the correct signal for efficient behavior for market participants making decisions on the margin.
- The differences between the actual LMP (DLMP) and the fast start LMP (PLMP) distort the incentive for market participants to behave competitively and to follow PJM's dispatch instructions.

Fast Start Pricing: DLMP and PLMP

- **PJM also uses the pricing run for capping the system marginal price at \$3,700 per MWh.**
 - **The cap applies to the marginal energy component of LMP, but the congestion and loss components of LMP can exceed the cap.**
- **PJM uses a lower default transmission constraint penalty factor in the pricing run in the day-ahead market.**
 - **\$30,000 per MWh in the dispatch run**
 - **\$2,000 per MWh in the pricing run**

Monthly Average Load-Weighted DLMP and PLMP

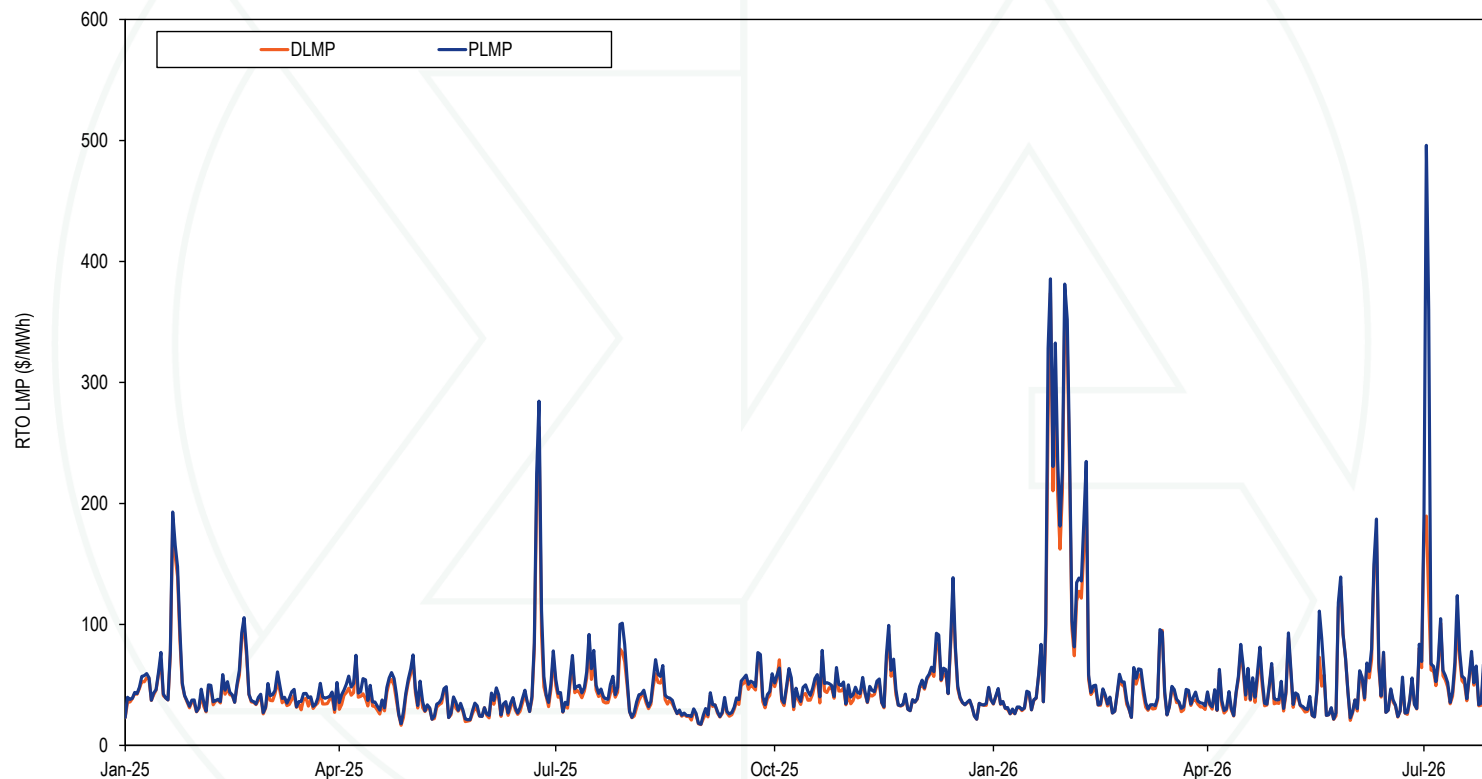
Year	Month	Day-Ahead Load-Weighted Average				Real-Time Load-Weighted Average			
		DLMP	PLMP	Difference	Percent Difference	DLMP	PLMP	Difference	Percent Difference
2025	Jan	\$67.53	\$67.74	\$0.21	0.3%	\$59.93	\$62.87	\$2.94	4.9%
2025	Feb	\$48.85	\$49.02	\$0.16	0.3%	\$46.27	\$48.90	\$2.62	5.7%
2025	Mar	\$40.76	\$40.74	(\$0.03)	(0.1%)	\$37.82	\$42.11	\$4.30	11.4%
2025	Apr	\$44.36	\$44.35	(\$0.01)	(0.0%)	\$40.07	\$45.42	\$5.35	13.4%
2025	May	\$37.56	\$37.40	(\$0.16)	(0.4%)	\$33.98	\$36.34	\$2.36	6.9%
2025	Jun	\$53.01	\$53.14	\$0.13	0.2%	\$62.53	\$68.13	\$5.60	9.0%
2025	Jul	\$66.56	\$66.76	\$0.20	0.3%	\$52.41	\$59.38	\$6.97	13.3%
2025	Aug	\$39.24	\$39.27	\$0.03	0.1%	\$35.97	\$39.52	\$3.55	9.9%
2025	Sep	\$41.26	\$41.24	(\$0.02)	(0.0%)	\$40.49	\$43.71	\$3.22	7.9%
2025	Oct	\$50.56	\$50.73	\$0.17	0.3%	\$47.32	\$51.01	\$3.69	7.8%
2025	Nov	\$49.70	\$49.85	\$0.15	0.3%	\$43.82	\$47.08	\$3.26	7.4%
2025	Dec	\$57.97	\$58.08	\$0.11	0.2%	\$52.55	\$55.29	\$2.74	5.2%
2025	Jan-Jul	\$52.60	\$52.68	\$0.09	0.2%	\$48.68	\$53.07	\$4.39	9.0%
2025		\$50.61	\$50.70	\$0.09	0.2%	\$46.79	\$50.73	\$3.93	8.4%
2026	Jan	\$163.50	\$148.80	(\$14.70)	(9.0%)	\$106.94	\$115.98	\$9.04	8.5%
2026	Feb	\$83.61	\$83.95	\$0.34	0.4%	\$86.43	\$93.41	\$6.98	8.1%
2026	Mar	\$42.07	\$42.21	\$0.14	0.3%	\$43.35	\$46.14	\$2.79	6.4%
2026	Apr	\$45.70	\$45.95	\$0.24	0.5%	\$45.41	\$48.46	\$3.05	6.7%
2026	May	\$48.75	\$48.67	(\$0.08)	(0.2%)	\$50.09	\$56.00	\$5.91	11.8%
2026	Jun	\$56.92	\$57.14	\$0.22	0.4%	\$58.59	\$61.76	\$3.17	5.4%
2026	Jul	\$94.44	\$94.57	\$0.13	0.1%	\$72.82	\$102.03	\$29.21	40.1%
2026	Jan-Jul	\$79.91	\$77.66	(\$2.25)	(2.8%)	\$68.16	\$77.50	\$9.34	13.7%

Real-Time Fast Start Impact

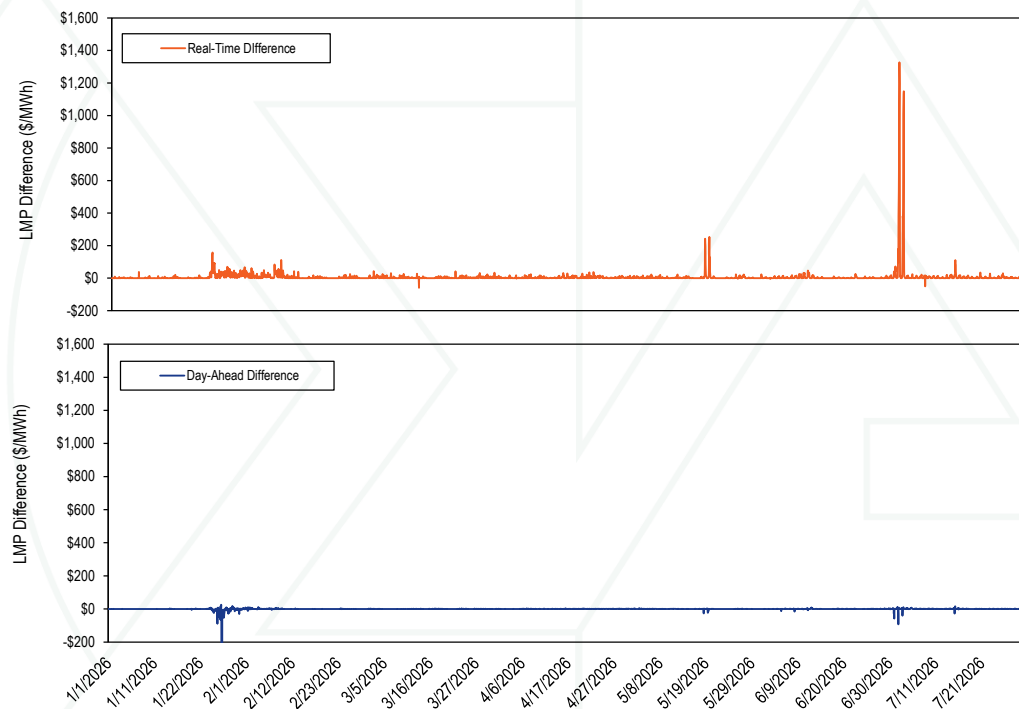
Month	2023 (In Millions)	2024 (In Millions)	2025 (In Millions)	2026 (In Millions)
Jan	\$72.89	\$142.06	\$232.11	\$719.05
Feb	\$33.74	\$103.17	\$173.03	\$483.95
Mar	\$53.11	\$172.59	\$266.16	\$179.45
Apr	\$121.28	\$217.50	\$306.90	\$179.42
May	\$143.80	\$272.73	\$138.96	\$366.86
Jun	\$98.31	\$98.74	\$402.22	\$223.59
Jul	\$217.56	\$238.39	\$578.75	\$2,393.42
Aug	\$112.21	\$142.81	\$257.33	
Sep	\$137.94	\$153.65	\$95.35	
Oct	\$239.25	\$116.28	\$221.30	
Nov	\$152.91	\$149.38	\$201.99	
Dec	\$104.53	\$95.35	\$206.05	
Total	\$1,487.52	\$1,902.66	\$3,080.15	



Daily Average Real-Time DLMP and PLMP



Hourly Difference: PLMP – DLMP



This figure truncates a negative DA DLMP/PLMP difference of -\$5,060 per MWh on 1/27/2026 at 0700.

Fast Start Units as a Percent of Marginal Units

Dispatch Run							Pricing Run				
Year	Month	CT	Diesel	Wind	Solar	All Fast Start Units	CT	Diesel	Wind	Solar	All Fast Start Units
2025	Jan	0.8%	0.6%	0.1%	0.0%	1.5%	4.5%	2.1%	0.1%	0.0%	6.8%
2025	Feb	1.5%	0.1%	0.4%	0.0%	2.0%	3.7%	0.6%	0.3%	0.0%	4.6%
2025	Mar	0.5%	4.5%	0.1%	0.2%	5.2%	3.4%	5.0%	0.1%	0.2%	8.6%
2025	Apr	1.9%	1.8%	0.3%	0.1%	4.1%	7.1%	2.2%	0.3%	0.1%	9.7%
2025	May	0.6%	0.3%	0.0%	0.0%	1.0%	3.9%	1.5%	0.0%	0.0%	5.4%
2025	Jun	1.4%	0.2%	0.0%	0.0%	1.6%	6.2%	0.8%	0.0%	0.0%	7.0%
2025	Jul	2.6%	0.6%	0.0%	0.0%	3.2%	11.2%	1.5%	0.0%	0.0%	12.8%
2025	Aug	2.2%	0.5%	0.0%	0.0%	2.7%	7.8%	1.1%	0.0%	0.0%	8.9%
2025	Sep	1.2%	0.4%	0.0%	0.0%	1.6%	5.7%	1.2%	0.0%	0.0%	6.9%
2025	Oct	1.4%	0.3%	0.2%	0.0%	1.8%	4.8%	0.6%	0.2%	0.0%	5.6%
2025	Nov	0.7%	0.5%	0.6%	0.0%	1.8%	3.8%	1.3%	0.5%	0.0%	5.7%
2025	Dec	1.8%	0.1%	0.1%	0.0%	1.9%	6.1%	0.6%	0.1%	0.0%	6.7%
2025	Jan-Jul	1.3%	1.2%	0.1%	0.0%	2.7%	5.7%	2.0%	0.1%	0.0%	7.8%
2025		1.4%	0.8%	0.2%	0.0%	2.4%	5.7%	1.5%	0.1%	0.0%	7.4%
2026	Jan	1.0%	0.2%	0.3%	0.0%	1.6%	5.9%	0.7%	0.2%	0.0%	6.8%
2026	Feb	1.5%	0.6%	0.9%	0.0%	3.0%	6.3%	1.3%	0.8%	0.0%	8.5%
2026	Mar	0.7%	0.4%	0.2%	0.1%	1.4%	3.0%	0.6%	0.1%	0.1%	3.8%
2026	Apr	1.1%	0.5%	0.5%	0.0%	2.2%	4.2%	1.2%	0.4%	0.0%	5.8%
2026	May	0.9%	0.5%	0.4%	0.1%	1.9%	4.2%	1.2%	0.4%	0.1%	6.0%
2026	Jun	1.0%	0.4%	0.2%	0.2%	1.9%	3.6%	0.9%	0.2%	0.2%	4.9%
2026	Jul	2.1%	0.6%	0.1%	0.5%	3.3%	8.9%	1.1%	0.1%	0.4%	10.6%
2026	Jan-Jul	1.2%	0.5%	0.4%	0.1%	2.2%	5.2%	1.0%	0.3%	0.1%	6.6%



Fast Start Impacts: Zone Average Differences

Zone	2026 Jan - Jul							
	Day-Ahead				Real-Time			
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference
ACEC	\$58.68	\$58.74	\$0.06	0.1%	\$49.79	\$56.80	\$7.01	14.1%
AEP	\$61.04	\$60.95	(\$0.09)	(0.2%)	\$53.88	\$60.27	\$6.39	11.9%
APS	\$78.34	\$75.19	(\$3.15)	(4.0%)	\$67.13	\$74.54	\$7.40	11.0%
ATSI	\$58.17	\$58.49	\$0.32	0.6%	\$49.97	\$56.48	\$6.51	13.0%
BGE	\$109.12	\$98.93	(\$10.19)	(9.3%)	\$86.37	\$95.07	\$8.70	10.1%
COMED	\$43.69	\$44.14	\$0.45	1.0%	\$32.57	\$37.68	\$5.10	15.7%
DAY	\$63.23	\$63.25	\$0.01	0.0%	\$54.34	\$60.92	\$6.58	12.1%
DUKE	\$63.57	\$63.64	\$0.07	0.1%	\$55.14	\$61.80	\$6.67	12.1%
DOM	\$96.00	\$92.54	(\$3.46)	(3.6%)	\$92.02	\$99.79	\$7.77	8.4%
DPL	\$64.56	\$64.70	\$0.14	0.2%	\$54.64	\$63.13	\$8.49	15.5%
DUQ	\$56.28	\$56.83	\$0.55	1.0%	\$48.78	\$55.36	\$6.58	13.5%
EKPC	\$59.37	\$59.31	(\$0.06)	(0.1%)	\$51.21	\$57.42	\$6.21	12.1%
JCPLC	\$59.50	\$59.41	(\$0.09)	(0.1%)	\$50.39	\$57.40	\$7.01	13.9%
MEC	\$58.32	\$57.94	(\$0.38)	(0.7%)	\$48.96	\$55.96	\$7.01	14.3%
OVEC	\$58.97	\$59.08	\$0.11	0.2%	\$49.77	\$55.98	\$6.21	12.5%
PECO	\$57.57	\$57.62	\$0.06	0.1%	\$48.92	\$55.79	\$6.86	14.0%
PE	\$61.75	\$61.52	(\$0.23)	(0.4%)	\$51.20	\$58.14	\$6.94	13.6%
PEPCO	\$106.28	\$96.12	(\$10.15)	(9.6%)	\$85.49	\$94.03	\$8.54	10.0%
PPL	\$56.90	\$56.62	(\$0.27)	(0.5%)	\$47.69	\$54.49	\$6.80	14.3%
PSEG	\$60.09	\$60.07	(\$0.02)	(0.0%)	\$51.42	\$58.41	\$6.99	13.6%
REC	\$61.63	\$61.69	\$0.06	0.1%	\$53.80	\$60.78	\$6.98	13.0%

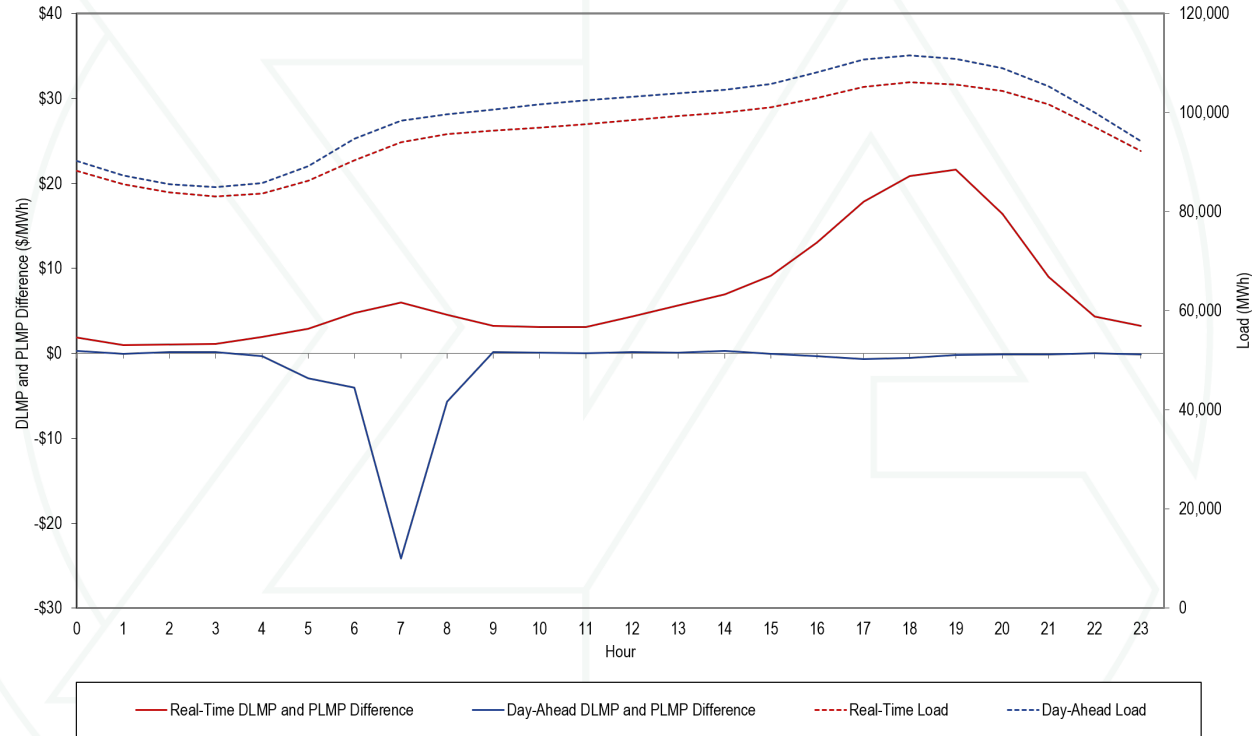
Fast Start Impacts: Hub Average Differences

Hub	2026 Jan - Jul							
	Average DLMP	Day-Ahead		Percent Difference	Average DLMP	Real-Time		Percent Difference
		Average PLMP	Difference			Average PLMP	Difference	
AEP GEN HUB	\$48.07	\$48.20	\$0.12	0.3%	\$42.14	\$46.36	\$4.22	10.0%
AEP-DAYTON HUB	\$50.24	\$50.30	\$0.06	0.1%	\$44.26	\$48.69	\$4.43	10.0%
ATSI GEN HUB	\$49.31	\$49.47	\$0.16	0.3%	\$43.19	\$47.64	\$4.45	10.3%
CHICAGO GEN HUB	\$38.46	\$38.68	\$0.22	0.6%	\$32.26	\$35.93	\$3.67	11.4%
CHICAGO HUB	\$39.30	\$39.51	\$0.22	0.5%	\$32.90	\$36.59	\$3.69	11.2%
DOMINION HUB	\$60.46	\$59.61	(\$0.85)	(1.4%)	\$55.78	\$60.66	\$4.88	8.7%
EASTERN HUB	\$52.17	\$52.31	\$0.13	0.3%	\$46.30	\$51.76	\$5.46	11.8%
N ILLINOIS HUB	\$39.13	\$39.35	\$0.22	0.6%	\$32.91	\$36.60	\$3.69	11.2%
NEW JERSEY HUB	\$48.48	\$48.52	\$0.05	0.1%	\$43.27	\$47.67	\$4.41	10.2%
OHIO HUB	\$50.21	\$50.29	\$0.08	0.2%	\$44.29	\$48.72	\$4.43	10.0%
WEST INT HUB	\$54.28	\$54.06	(\$0.22)	(0.4%)	\$48.73	\$53.36	\$4.63	9.5%
WESTERN HUB	\$61.51	\$59.91	(\$1.60)	(2.6%)	\$53.19	\$58.30	\$5.11	9.6%

Zonal Real-Time PLMP-DLMP Difference Frequency

2026 Jan - Jul										
Zone	< (\$50)	(\$50) to (\$10)	(\$10) to \$0	\$0	\$0 to \$10	\$10 to \$20	\$20 to \$50	\$50 to \$100	\$100 to \$200	>= \$200
PJM-RTO	0.0%	0.0%	0.7%	49.8%	37.1%	6.2%	4.3%	1.2%	0.3%	0.4%
ACEC	0.0%	0.1%	3.9%	50.2%	35.4%	4.2%	4.1%	1.3%	0.5%	0.4%
AEP	0.0%	0.0%	1.6%	50.0%	36.2%	6.4%	4.1%	1.1%	0.3%	0.3%
APS	0.0%	0.1%	1.2%	49.9%	35.7%	6.4%	4.5%	1.4%	0.4%	0.4%
ATSI	0.0%	0.0%	1.5%	49.8%	36.7%	6.3%	4.0%	1.1%	0.3%	0.3%
BGE	0.1%	0.4%	3.4%	49.8%	31.7%	6.5%	5.4%	1.6%	0.6%	0.5%
COMED	0.0%	0.2%	4.9%	50.7%	35.3%	4.9%	2.8%	0.7%	0.2%	0.3%
DAY	0.0%	0.1%	1.5%	50.0%	36.0%	6.6%	4.1%	1.2%	0.3%	0.3%
DUKE	0.0%	0.1%	1.6%	50.1%	35.6%	6.7%	4.2%	1.1%	0.3%	0.3%
DOM	0.1%	0.2%	2.4%	49.9%	33.9%	6.6%	4.4%	1.5%	0.5%	0.5%
DPL	0.0%	0.1%	4.8%	50.1%	33.7%	4.0%	3.8%	1.8%	1.2%	0.4%
DUQ	0.0%	0.1%	1.4%	49.9%	36.5%	6.3%	4.1%	1.1%	0.3%	0.3%
EKPC	0.0%	0.1%	1.6%	50.0%	36.3%	6.4%	4.1%	1.0%	0.3%	0.3%
JCPLC	0.0%	0.0%	2.8%	50.1%	36.6%	4.3%	4.1%	1.3%	0.5%	0.4%
MEC	0.0%	0.3%	5.6%	49.9%	33.8%	4.2%	4.0%	1.3%	0.5%	0.4%
OVEC	0.0%	0.1%	1.6%	50.1%	36.2%	6.4%	4.0%	1.0%	0.3%	0.3%
PECO	0.0%	0.1%	4.5%	50.1%	34.9%	4.2%	4.1%	1.3%	0.5%	0.4%
PE	0.0%	0.1%	1.1%	49.8%	37.5%	5.3%	4.2%	1.3%	0.4%	0.3%
PEPCO	0.1%	0.3%	3.0%	49.9%	32.6%	6.6%	4.9%	1.6%	0.5%	0.5%
PPL	0.0%	0.2%	5.1%	49.9%	34.6%	4.1%	3.9%	1.3%	0.5%	0.4%
PSEG	0.0%	0.0%	2.5%	50.1%	36.7%	4.3%	4.2%	1.3%	0.5%	0.4%
REC	0.0%	0.1%	2.2%	49.9%	36.9%	4.6%	4.3%	1.3%	0.5%	0.4%

Hourly Average Load and PLMP – DLMP Delta Jan – Jul 2026

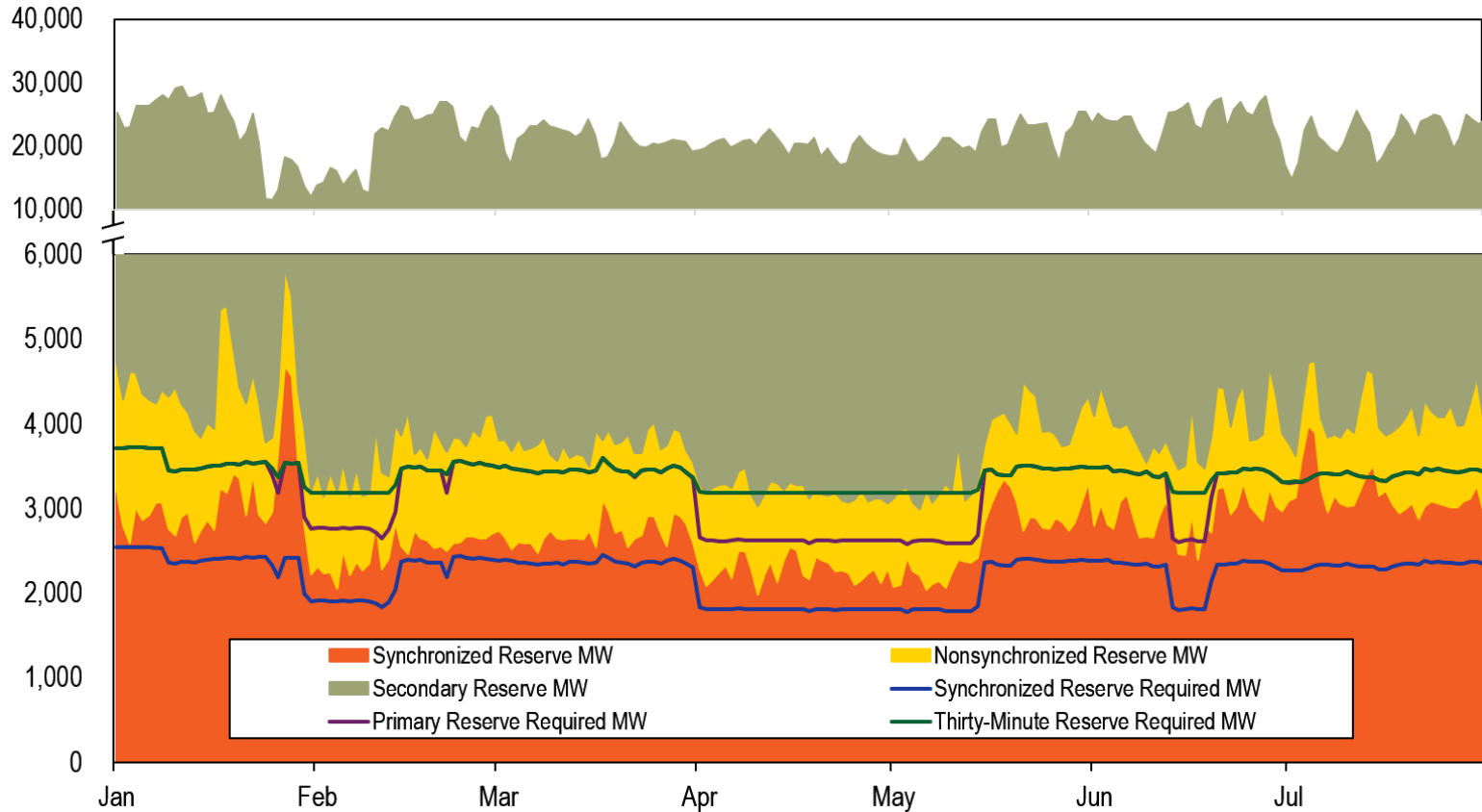


The negative DA DLMP/DA PLMP spread occurred on 1/27/2026 at 0700.

RESERVES



Real-Time Daily RTO Average Cleared Reserves and Requirements



Day-Ahead & Real-Time RTO Average Reserve MW

Year	Month	Average Synchronized Reserve MW		Average Nonsynchronized Reserve MW		Average Total Primary Reserve MW		Average Secondary Reserve MW		Average Total Thirty-Minute Reserve MW	
		DA	RT	DA	RT	DA	RT	DA	RT	DA	RT
2026	Jan	2,612	3,081	1,418	1,322	4,030	4,403	10,210	18,364	14,240	22,768
2026	Feb	2,329	2,503	1,111	1,147	3,440	3,649	10,764	17,510	14,204	21,160
2026	Mar	2,641	2,706	1,008	1,049	3,649	3,754	11,646	17,539	15,295	21,293
2026	Apr	1,998	2,275	889	934	2,888	3,209	9,738	16,787	12,626	19,996
2026	May	2,380	2,636	914	1,036	3,294	3,672	11,082	17,556	14,376	21,228
2026	Jun	2,521	2,900	901	1,053	3,422	3,953	13,419	20,349	16,841	24,301
2026	Jul	2,792	3,169	802	945	3,594	4,114	11,501	17,589	15,094	21,703

Day-Ahead & Real-Time MAD Average Reserve MW

Year	Month	Average Synchronized Reserve MW		Average Nonsynchronized Reserve MW		Average Total Primary Reserve MW		Average Secondary Reserve MW		Average Total Thirty-Minute Reserve MW	
		DA	RT	DA	RT	DA	RT	DA	RT	DA	RT
2026	Jan	1,991	2,048	1,077	960	3,069	3,008	NA	NA	NA	NA
2026	Feb	1,990	1,983	888	879	2,878	2,862	NA	NA	NA	NA
2026	Mar	1,956	1,963	783	790	2,739	2,753	NA	NA	NA	NA
2026	Apr	1,735	1,691	676	702	2,411	2,393	NA	NA	NA	NA
2026	May	1,810	1,766	729	805	2,539	2,571	NA	NA	NA	NA
2026	Jun	1,989	1,943	740	816	2,728	2,759	NA	NA	NA	NA
2026	Jul	2,001	2,020	684	765	2,686	2,785	NA	NA	NA	NA

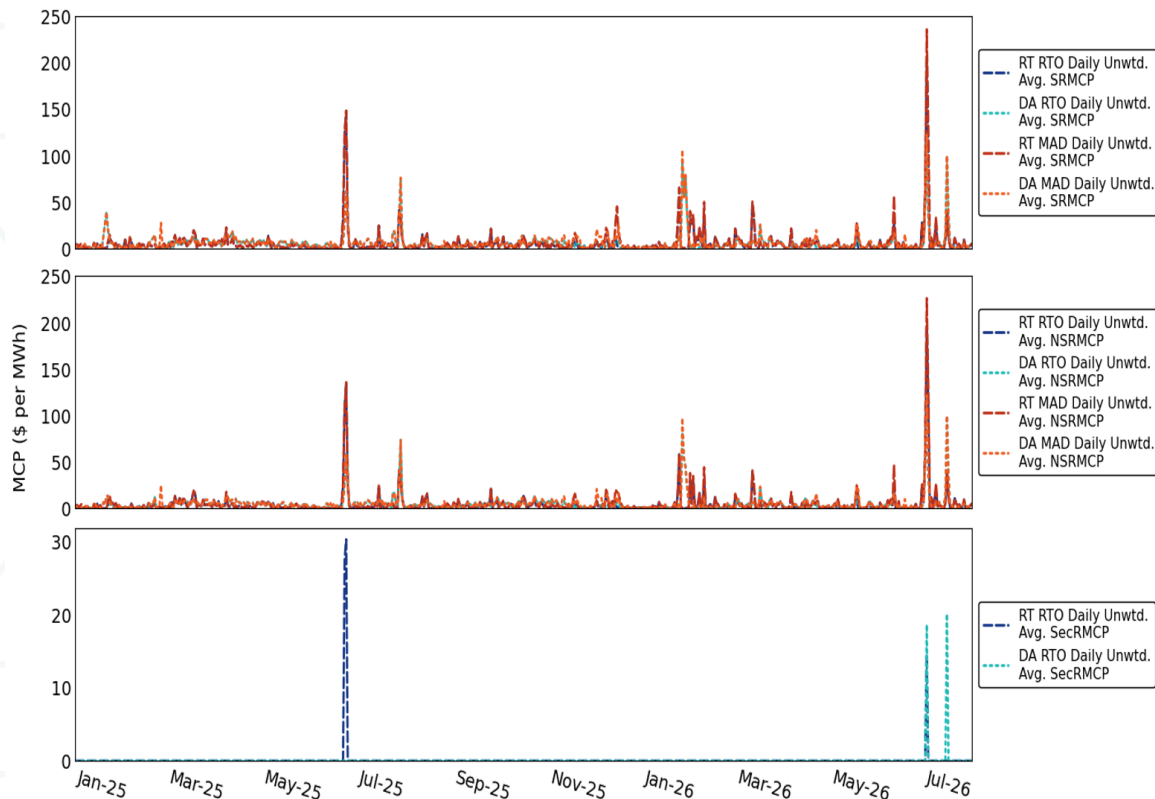
Total Reserve Settlements by Month

Year	Month	Total Day-Ahead Credits			Total Balancing MCP Credits			Total LOC Credits		
		SR	NSR	SecR	SR	NSR	SecR	SR	NSR	SecR
2026	Jan	\$23,153,558	\$2,369,695	\$0	(\$231,344)	(\$2,046,579)	\$0	\$2,989,203	\$118,988	\$1,635,470
2026	Feb	\$4,348,346	\$585,493	\$0	(\$1,100,363)	(\$729,174)	\$0	\$3,675,183	\$135,868	\$1,821,211
2026	Mar	\$13,523,239	\$2,041,630	\$0	(\$1,974,988)	(\$775,305)	\$0	\$3,046,572	\$158,641	\$978,339
2026	Apr	\$5,949,493	\$811,720	\$0	(\$407,185)	(\$171,224)	\$0	\$1,704,647	\$84,875	\$855,028
2026	May	\$7,207,222	\$1,013,798	\$0	(\$391,748)	\$57,566	\$0	\$1,812,657	\$46,700	\$655,207
2026	Jun	\$6,372,683	\$1,034,841	\$0	(\$1,142,562)	\$81,885	\$0	\$2,135,778	\$27,060	\$583,407
2026	Jul	\$29,308,496	\$3,580,495	\$181,607	(\$2,172,677)	(\$3,000,470)	\$87,456	\$11,077,376	\$60,493	\$2,799,722
Year	Month	Total Shortfall Charges			Total Credits					
		SR	NSR	SecR	SR	NSR	SecR			
2026	Jan	\$0	NA	\$0	\$25,911,417	\$442,104	\$1,635,470			
2026	Feb	\$0	NA	\$0	\$6,923,165	(\$7,814)	\$1,821,211			
2026	Mar	\$299,649	NA	\$0	\$14,295,174	\$1,424,966	\$978,339			
2026	Apr	\$0	NA	\$0	\$7,246,955	\$725,371	\$855,028			
2026	May	\$0	NA	\$0	\$8,628,132	\$1,118,064	\$655,207			
2026	Jun	\$0	NA	\$0	\$7,365,900	\$1,143,786	\$583,407			
2026	Jul	\$0	NA	\$0	\$38,213,194	\$640,518	\$3,068,786			

- High day-ahead synchronized reserve (SR) credits during Winter Storm Fern and during hot weather in July.
- Only March saw an SR event at least 10 minutes long, so only March has SR shortfall charges.

Reserve Prices: January 2025 through June 2026

- **SecRMCP spiked in June 2025 hot weather event.**
- **Spikes due to intervals of shortage pricing during Winter Storm Fern in January 2026.**
- **Spikes on February 9th, March 13th, May 18th, and June 29th, 2026, due to shortage pricing.**
- **RT SecRMCP spiked on July 2nd, 2026, but 30-minute Reserve was not short in RT SCED.**
- **DA SecRMCP spiked on July 2nd and 15th. The cleared DA 30-minute Reserve equaled the requirement.**



Monitoring Analytics, LLC

2621 Van Buren Avenue

Suite 160

Eagleville, PA

19403

(610) 271-8050

MA@monitoringanalytics.com

www.MonitoringAnalytics.com





DATE: August 19, 2026
TO: MC/MC Webinar
FROM: IMM
SUBJECT: January 25, 2026, Pre-Emergency Load Management Performance FAQ

The June 24, 2026, Market Monitor Report to the Members Committee included information about the performance of demand resources during the cold weather events in January 2026.¹ The report explained why PJM's performance metric significantly overstated the performance of demand resources. The IMM concluded that the DR performance was about 50 percent while PJM concluded that the DR performance was about 100 percent.

The IMM prepared this memo to further explain the reasons for the different results. A goal of understanding the DR performance metrics to improve DR performance measurement so that PJM does not rely on resources that do not and cannot perform at expected levels when PJM calls on them in emergency conditions.

Demand Response Concepts

The discussions of DR performance rely on basic concepts, captured in acronyms:

- **PLC:** Peak Load Contribution. This is the load level that the DR customer pays for as a result of the capacity market cost allocation, typically based on five coincident peaks.
- **FSL:** Firm Service Level. This is the load level that the DR customer agrees to reduce to when called to perform, regardless of the customer's load prior to dispatch.
- **(PLC – FSL):** This is the reduction in load that the DR customer sells in the capacity market as capacity.
- **CBL:** Customer Baseline. The CBL for a customer is an estimate of what load would have been if the customer had not responded when called to perform and reduced load.
- **(CBL – FSL):** This is the reduction from the existing load of a DR customer that the DR customer agreed to provide when it sold DR in the capacity market.
- **Metered Load:** This is the actual load of the DR customer, including the actual load when the DR customer is called.
- **(CBL – Metered Load):** This is the best estimate of the actual load reduction that the DR customer achieved when called. $(CBL - \text{Metered Load}) / (CBL - FSL)$: The actual load reduction compared to the load reduction that the customer agreed to provide when selling DR in the capacity market.

¹ See Monitoring Analytics, LLC, "Market Monitor Report," MC, (June 24, 2026) <https://www.monitoringanalytics.com/reports/Presentations/2026/IMM_MC_Market_Monitor_Report_20260624.pdf>.

If all DR customers responded fully when called, all DR customers would reduce their load to FSL. Not all DR customers respond fully. A performance metric is needed that compares the actual reduction of DR customers to the reduction that DR customers agreed to provide when they sold capacity in the PJM market.

The best measure of performance is the actual load reduction compared to the actual load reduction that the customer agreed to provide when selling DR in the capacity market:

- $(\text{CBL} - \text{Metered Load})/(\text{CBL} - \text{FSL})$.

PJM's measure of performance is the amount of capacity paid for minus the metered load compared to the level of response that the customer sold as DR in the capacity market:

- $(\text{PLC} - \text{Metered Load})/(\text{PLC} - \text{FSL})$.²

The January 25, 2026, Pre-Emergency Load Management Event

The January 25, 2026, Pre-Emergency Load Management event occurred between the hours of 14:30 and 19:00 in the BGE, DOM, and PEPCO Zones. All Pre-Emergency Load Response resources with lead times of 120 minutes, 60 minutes, and 30 minutes were dispatched.

1. Question: Given that Demand Resources did not reduce to their FSL during the January 25, 2026, Pre-Emergency Load Management event, how did PJM's performance metric of $(\text{PLC} - \text{Metered Load})/(\text{PLC} - \text{FSL})$ calculate 100 percent performance?

Answer: In PJM's implementation of its performance metric, both within and across curtailment service providers (CSPs), PJM simply zeroes out negative performers. If a registration's metered load is higher than their PLC, PJM calculates their performance as 0. If a registration's metered load is below their firm service level (FSL), PJM calculates their performance as in excess of the target and therefore as overperformers. If a registration is below their FSL for the period of the demand response (DR) dispatch for any reason, PJM's performance calculation credits them with overperformance. For example, a store that is closed on Sundays, and thus below its FSL, would be an overperformer if there were a DR dispatch even though no actions were taken to curtail load.

² The recommended performance metric and the PJM performance metric are slightly simplified here. The metrics defined in this memo are for the summer. There are performance metrics modified for the winter. For a more complete explanation, see the Demand Response section of the *2026 Quarterly State of the Market Report for PJM: January through June*.

The combination of these two elements of PJM's performance metric can make a negative performance look positive.³ For example, assume that performance is assessed across two DR registrations within a CSP. Both registrations have a PLC of 15 MW, an FSL of 0 MW, and a CBL of 15 MW for the duration of the event. In aggregate, because the PLC and CBL are the same in this example, the registrations have an expected reduction of 30 MW under both the PJM and IMM metrics.

During the event, the first registration's load is 5 MW below its PLC and the second registration's load is 10 MW above its PLC. Under PJM's performance metric, the first registration's performance would be calculated as a 5 MW reduction and the second registration's negative performance would be calculated as a zero response.

The PJM performance metric would value their performance as a demand decrease of 5 MW with a performance of positive 17 percent.

The calculations for the PJM metrics:

$$\begin{aligned}
 \text{PJM Performance Metric} &= \frac{\text{Max}[(15 \text{ MW} - 10 \text{ MW}), 0] + \text{Max}[(15 \text{ MW} - 25 \text{ MW}), 0]}{(15 \text{ MW} - 0 \text{ MW}) + (15 \text{ MW} - 0 \text{ MW})} \\
 &= \frac{5 \text{ MW} + 0 \text{ MW}}{30 \text{ MW}} \\
 &= \frac{5 \text{ MW}}{30 \text{ MW}} \\
 &= 0.17
 \end{aligned}$$

Where

Registration 1 reduction = $\text{Max}[(15 \text{ MW} - 10 \text{ MW}), 0] = 5 \text{ MW}$. This is PLC – metered load, cannot be negative.

Registration 2 reduction = $\text{Max}[(15 \text{ MW} - 25 \text{ MW}), 0] = 0 \text{ MW}$. This is PLC – metered load, cannot be negative.

Registration 1 ICAP = $15 \text{ MW} - 0 \text{ MW} = 15 \text{ MW}$. This is PLC - FSL

Registration 2 ICAP = $15 \text{ MW} - 0 \text{ MW} = 15 \text{ MW}$. This is PLC – FSL.

³ See Monitoring Analytics, LLC, "PJM vs IM Performance Metric Example," MIC. (March 11, 2026) <https://www.monitoringanalytics.com/reports/Presentations/2026/IMM_MIC_PJM_vs_IMM_Performance_Metric_Example_20260311.pdf>.

The calculations for the IMM metric:

The IMM performance metric recognizes that the two registrations in aggregate have a demand 5 MW above their PLC with a performance of negative 17 percent.

$$\begin{aligned} \text{IMM Performance Metric} &= \frac{(15 \text{ MW} - 10 \text{ MW}) + (15 \text{ MW} - 25 \text{ MW})}{(15 \text{ MW} - 0 \text{ MW}) + (15 \text{ MW} - 0 \text{ MW})} \\ &= \frac{5 \text{ MW} + (-10 \text{ MW})}{30 \text{ MW}} \\ &= \frac{-5 \text{ MW}}{30 \text{ MW}} \\ &= -0.17 \end{aligned}$$

Where

Registration 1 actual reduction = (15 MW – 10 MW) = 5 MW. This is CBL – metered load, (PLC = CBL in this example)

Registration 2 actual reduction = (15 MW – 25 MW) = - 10 MW. This is CBL – metered load, (PLC = CBL in this example). This is a negative number.

Registration 1 expected reduction = (15 MW – 0 MW) = 15 MW. This is CBL – FSL

Registration 2 expected reduction = (15 MW – 0 MW) = 15 MW. This is CBL - FSL

In the January event, the graph on slide 6 of the Market Monitor Report shows the group's load for the full day of the event.⁴ The high performance calculated by PJM's metric and the group's relatively low load in aggregate indicates that many individual registrations may have had a load below their FSL before dispatch and would be considered overperformers in the PJM metric. When combined with the zeroed out performance values for registrations whose loads were above their PLCs, the result is an inflated performance for the dispatched group.

2. Question: Why did registrations not reduce to their FSL during the January event?

The IMM initiates communications with CSPs after Pre-Emergency and Emergency Load Management events to discuss performance and event specific matters. Some entities chose not to comply with dispatch instructions. In addition, it appears that many entities are fundamentally unable to comply with dispatch instructions in extreme cold weather

⁴ See Monitoring Analytics, LLC, "Market Monitor Report," MC (June 24, 2026) <https://www.monitoringanalytics.com/reports/Presentations/2026/IMM_MC_Market_Monitor_Report_20260624.pdf>.

conditions, which are the types of conditions that are likely to trigger the dispatch of DR. The January 2026 event in particular illustrates that CSPs have committed to curtailments that they are unable to consistently provide. A combination of reasons resulted in the group's low performance score (58 percent) calculated using the IMM metric.

3. Question: Under the new non-PAI penalty structure that was filed by PJM, approved by FERC on June 26, 2026, and will be effective on June 1, 2028, how are penalties calculated and would any have been assessed for this event?

Answer: Under the existing penalty structure, no penalties were assessed for underperformance. Under the new penalty structure, penalties are triggered when a Demand Resource is dispatched during a non Performance Assessment Interval (non-PAI) event and fails to achieve its defined load reduction obligation.⁵ The new penalty structure continues to use incorrect performance metrics which means that the new penalty structure cannot be accurate or provide good incentives. Performance is measured by comparing the resource's load reduction, defined as PLC minus metered load, to its assigned obligation during the event, defined as PLC minus FSL. If a registration's metered load is higher than their PLC, PJM calculates their performance as 0. If a registration's metered load increases rather than reduces after being dispatched, but remains below their PLC, PJM credits them with positive performance calculated as PLC minus metered load. If a registration's metered load is below their firm service level (FSL), PJM calculates their performance as in excess of the target and therefore as overperformers. If a registration is below their FSL for the period of the demand response (DR) dispatch for any reason, including if not in response to PJM's dispatch instruction, PJM's performance calculation credits them with overperformance. Resources that underperform are assessed a nonperformance charge, while resources that exceed their obligation receive an over performance bonus credit.

The nonperformance charge is calculated using the same performance assessment method applied during Performance Assessment Intervals, but at a rate equal to 50 percent of the existing PAI nonperformance penalty rate. Penalty revenues are first used to fund payments to overperforming resources, with any remaining excess allocated pro-rata to load.

The IMM agrees that DR resources should be subject to a nonperformance charge when dispatched during non-PAI events. DR resources are economic resources and should be required to perform whenever called. PJM fails to provide any analytical support for the use of the 50 percent penalty for nonperformance during a non-PAI event. PJM fails to explain why a penalty equal to 50 percent of the PAI rate will effectively induce performance. PJM fails to address the fact that under the new penalty structure, a DR customer could fail to respond to

⁵ The effective date for these changes, approved by FERC on June 26, 2026, is June 27, 2026, ahead of the 2028/2029 BRA and, while they would have resulted in penalties being levied, were not in effect for the January 2026 event. 195 FERC ¶ 61,253 (2026).

any call by PJM, pay the defined penalties and still be profitable. The resulting incentive is inconsistent with the obligations of a capacity resource.

The IMM's recommendation is that the appropriate penalty is to not pay daily capacity payments to demand resources in proportion to the correctly measured performance shortfall until the resource demonstrates successful performance or a successful test. All penalty revenues should be returned to the load that pays for capacity resources and should not be paid as bonus credit to demand resources who are already fully compensated.⁶

⁶ See "DR Nonperformance Penalties," IMM presentation to Market Implementation Committee. <https://www.monitoringanalytics.com/reports/Presentations/2026/IMM_MIC_DR_Nonperformance_Penalties_20260120.pdf> (January 20, 2026).