

Market Monitor Report

MC Webinar
10.28.2024

IMM



Monitoring Analytics

Total Price of Wholesale Power

- **The total price of wholesale power is the total cost per MWh of wholesale electricity in PJM markets.**
- **Billing Line Items (BLI) are services for which PJM calculates customer credits or charges.**
- **The costs are the sum of the total charges for the individual billing line items in each category divided by real time load, even when a specific category is not charged on that basis.**
- **The charges for the individual billing line items includes after the fact billing adjustments.**
 - **Adjustments are included in the month to which they apply, not the month they are charged.**

Total Price of Wholesale Power

- **The total cost of wholesale power and the components of that cost are presented for informational purposes and should not be used to calculate the costs of any specific market activity in PJM.**
- **The revised table is consolidated into five categories:**
 - **Energy**
 - **Capacity**
 - **Transmission**
 - **Ancillary**
 - **Administration**

Total Price of Wholesale Power

- **The energy component of the total price of wholesale power calculation has been revised to include additional costs to load not captured by the real time load weighted LMP:**
 - **Day Ahead and Balancing Energy**
 - **ARR Credits**
 - **Self Scheduled FTR Credits**
 - **Balancing Congestion**
 - **Emergency Energy**
 - **Inadvertent Energy**
 - **Energy component of Load Response**
 - **Emergency Load Response**
 - **Energy Uplift**
 - **Marginal Loss Surplus Allocation**
 - **Market to Market Payments**

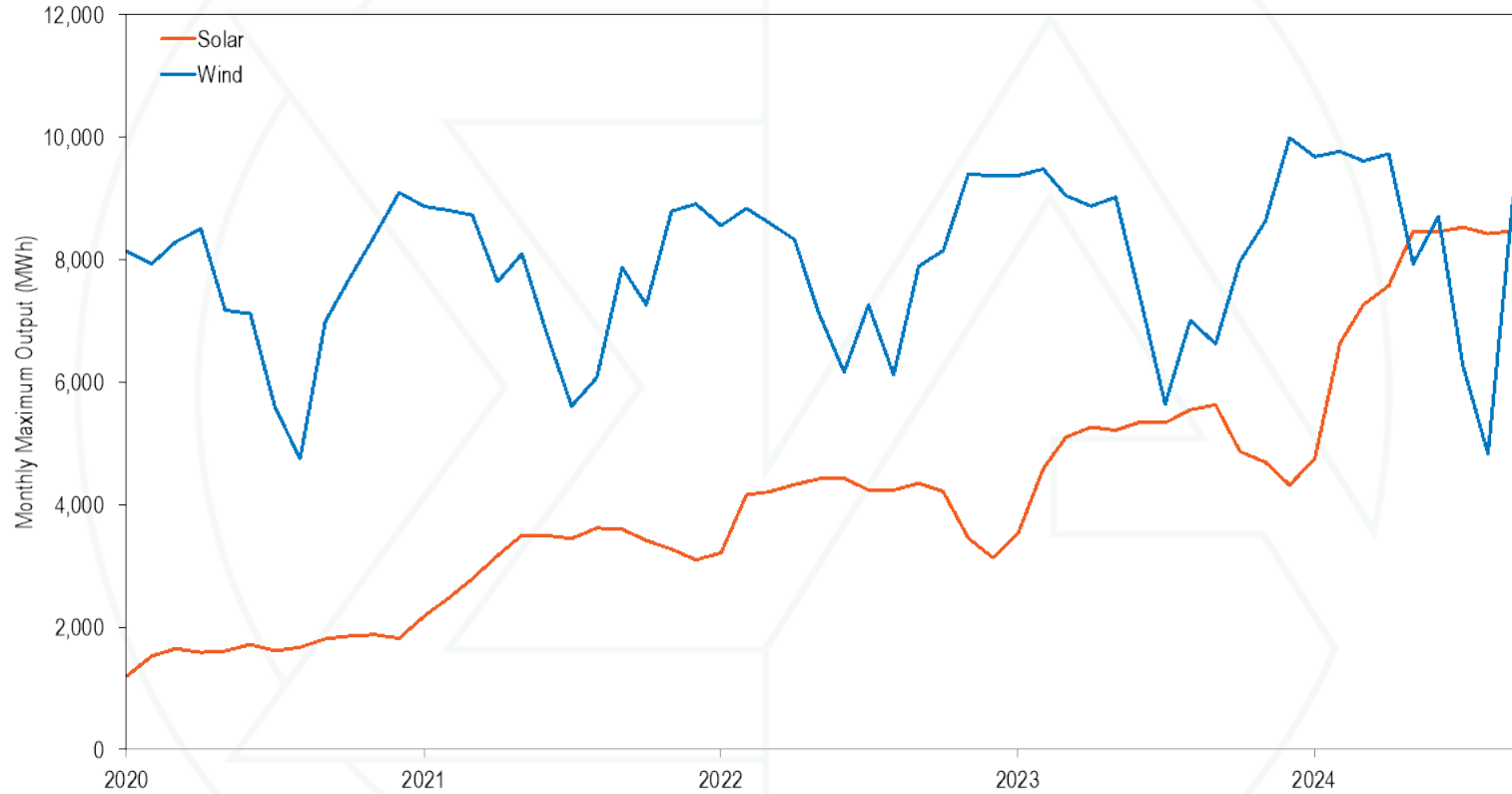
Total Price of Wholesale Power

Category	2023 (Jan-Jun)	2023 (Jan-Jun)	2023 (Jan-Jun)	2024 (Jan-Jun)	2024 (Jan-Jun)	2024 (Jan-Jun)	Percent Change
	\$/MWh	(\$ Millions)	Percent of Total	\$/MWh	(\$ Millions)	Percent of Total	
Energy	\$29.05	\$10,501	54.4%	\$30.67	\$11,754	57.0%	5.6%
Day Ahead Energy	\$30.30	\$10,954	56.8%	\$31.26	\$11,981	58.1%	3.2%
Balancing Energy	\$0.33	\$121	0.6%	\$0.62	\$239	1.2%	86.6%
ARR Credits	(\$1.65)	(\$598)	3.1%	(\$1.35)	(\$519)	(2.5)%	(18.2)%
Self Scheduled FTR Credits	(\$0.36)	(\$129)	(0.7)%	(\$0.41)	(\$159)	(0.8)%	16.2%
Balancing Congestion	\$0.39	\$143	0.7%	\$0.42	\$160	0.8%	5.9%
Emergency Energy	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Inadvertent Energy	(\$0.00)	(\$0)	0.0%	\$0.01	\$4	0.0%	(3,980.9)%
Load Response - Energy	\$0.01	\$3	0.0%	\$0.01	\$4	0.0%	11.6%
Emergency Load Response	\$0.17	\$61	0.3%	\$0.00	\$0	0.0%	(100.0)%
Energy Uplift (Operating Reserves)	\$0.15	\$54	0.3%	\$0.44	\$168	0.8%	193.0%
Marginal Loss Surplus Allocation	(\$0.41)	(\$149)	(0.8)%	(\$0.40)	(\$153)	(0.7)%	(2.8)%
Market to Market Payments	\$0.11	\$40	0.2%	\$0.07	\$28	0.1%	(33.5)%
Capacity	\$5.87	\$2,124	11.0%	\$3.58	\$1,372	6.7%	(39.0)%
Capacity (Capacity Market and FRR)	\$5.77	\$2,086	10.8%	\$3.49	\$1,336	6.5%	(39.6)%
Capacity Part V (RMR)	\$0.10	\$37	0.2%	\$0.09	\$36	0.2%	(7.6)%
Load Response - Capacity	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Transmission	\$16.97	\$6,134	31.8%	\$17.93	\$6,874	33.3%	5.7%
Transmission Service Charges	\$14.47	\$5,230	27.1%	\$15.20	\$5,826	28.3%	5.1%
Transmission Enhancement Cost Recovery	\$2.42	\$874	4.5%	\$2.64	\$1,012	4.9%	9.2%
Transmission Owner (Schedule 1A)	\$0.08	\$30	0.2%	\$0.09	\$36	0.2%	13.5%
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	\$0.86	\$311	1.6%	\$0.94	\$358	1.7%	8.6%
Reactive	\$0.54	\$193	1.0%	\$0.50	\$192	0.9%	(6.4)%
Regulation	\$0.17	\$63	0.3%	\$0.22	\$86	0.4%	28.9%
Black Start	\$0.09	\$33	0.2%	\$0.09	\$35	0.2%	0.7%
Synchronized Reserves	\$0.06	\$20	0.1%	\$0.10	\$39	0.2%	83.5%
Secondary Reserves	\$0.00	\$0	0.0%	\$0.00	\$1	0.0%	216.2%
Non-Synchronized Reserves	\$0.00	\$1	0.0%	\$0.01	\$5	0.0%	234.3%
Day Ahead Scheduling Reserve (DASR)	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Administration	\$0.61	\$222	1.1%	\$0.69	\$263	1.3%	11.8%
PJM Administrative Fees	\$0.57	\$205	1.1%	\$0.63	\$243	1.2%	11.7%
NERC/RFC	\$0.04	\$14	0.1%	\$0.04	\$16	0.1%	8.7%
RTO Startup and Expansion	\$0.00	\$0	0.0%	\$0.00	\$0	0.0%	0.0%
Other	\$0.01	\$2	0.0%	\$0.01	\$3	0.0%	41.6%
Total Price	\$53.37	\$19,291	100.0%	\$53.80	\$20,621	100.0%	0.8%
Total Day Ahead Load	359,310			378,338			5.3%
Total Balancing Load	(2,158)			(4,928)			128.3%
Total Real Time Load	361,468			383,266			6.0%
Total Cost (\$ Billions)	\$19.29			\$20.62			6.9%

Total Price of Wholesale Power

- Historical monthly data can be accessed at:
 - https://www.monitoringanalytics.com/data/pjm_price.shtml
- The calculation documentation that describes the calculation and includes the BLIs included in each category can be accessed at:
 - https://www.monitoringanalytics.com/data/docs/Total_Cost_of_Wholesale_Power_Calculation.pdf

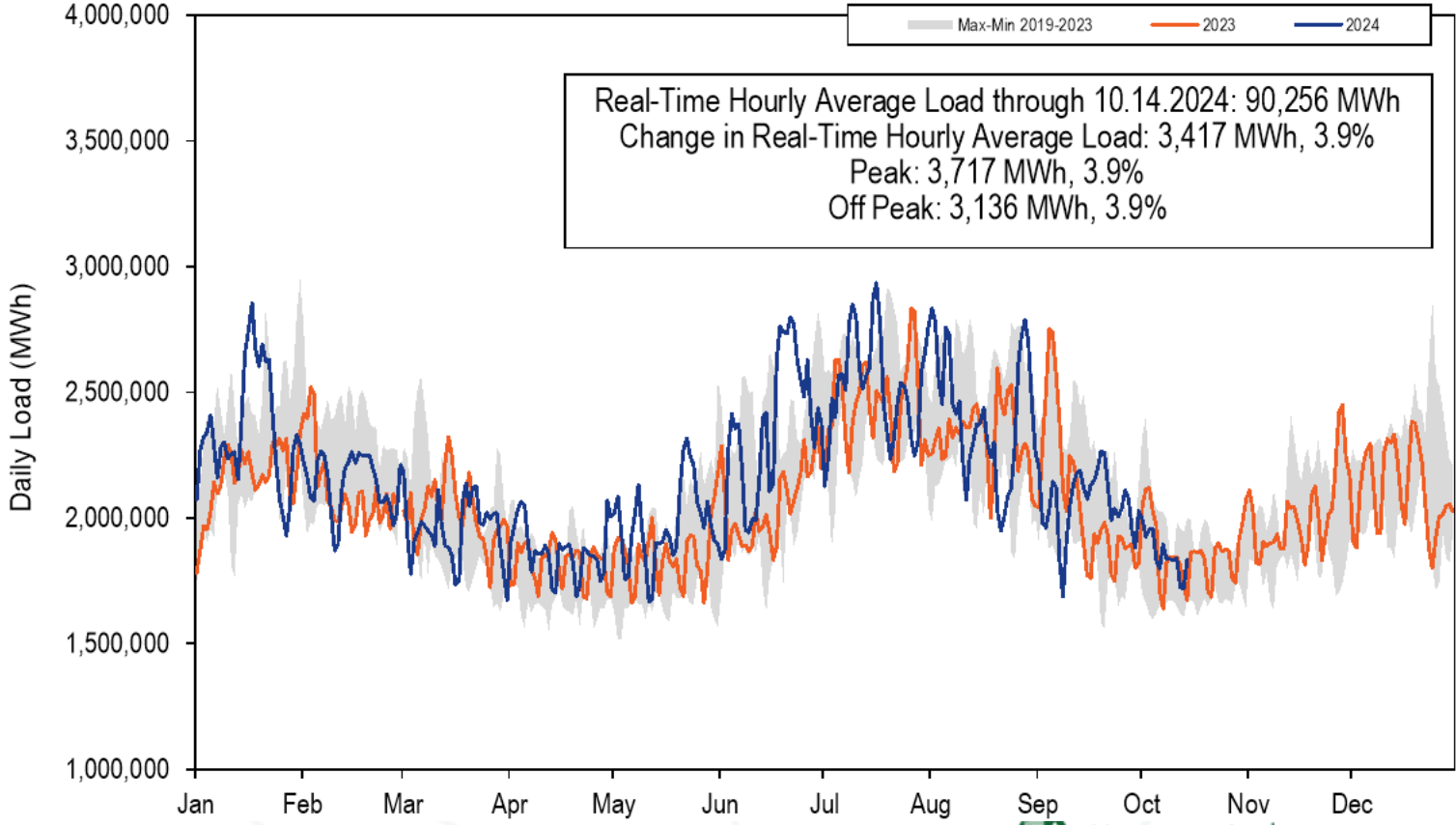
Maximum Solar and Wind Hourly Output by Month through August 2024



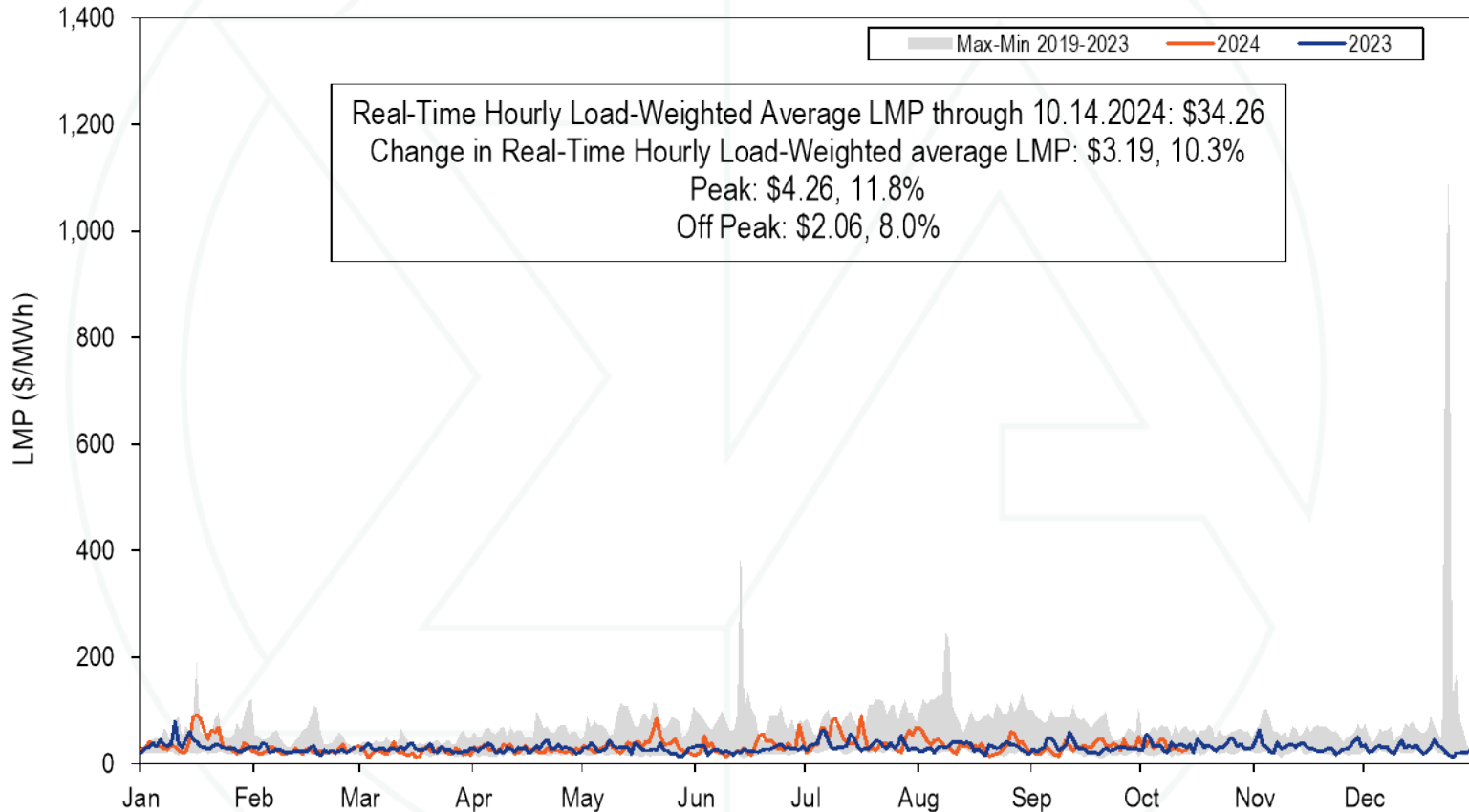
Maximum Hourly Solar and Wind Output by Year

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			2.1%	9,095			11.3%
2021	3,617	1,739	92.5%	3.0%	8,911	(184)	(2.0%)	9.2%
2022	4,429	812	22.4%	5.2%	9,402	491	5.5%	9.8%
2023	5,630	1,201	27.1%	5.9%	9,993	592	6.3%	9.9%
2024	8,532	2,901	51.5%	8.2%	9,768	(226)	(2.3%)	10.3%

2024 YTD PJM Real-Time Daily Load



2024 YTD PJM Real-Time Daily LMP



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.**

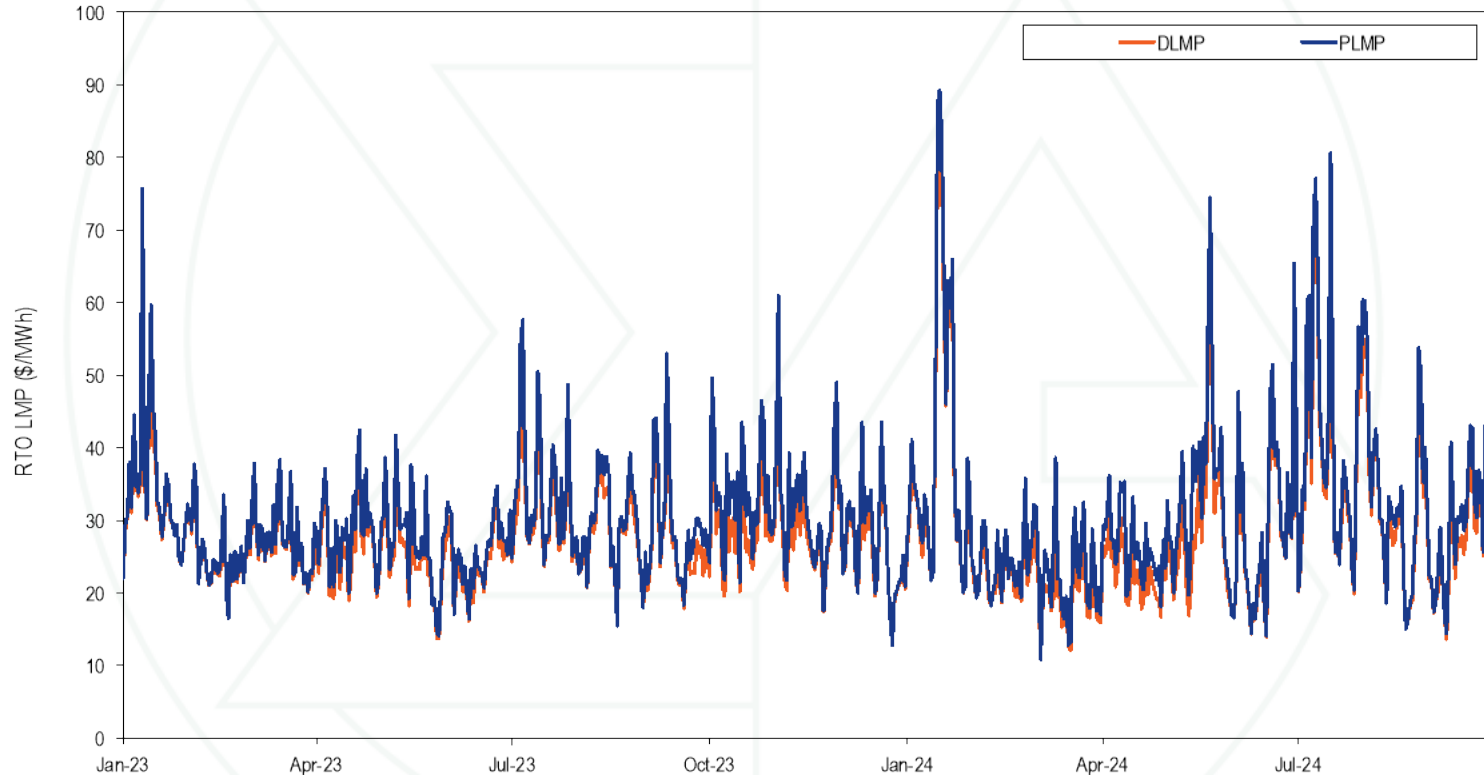
Fast Start Pricing: DLMP and PLMP

- **PJM also uses the pricing run for capping the system marginal price at \$3,700 per MWh.**
 - **This was last used during Winter Storm Elliott.**
 - **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**

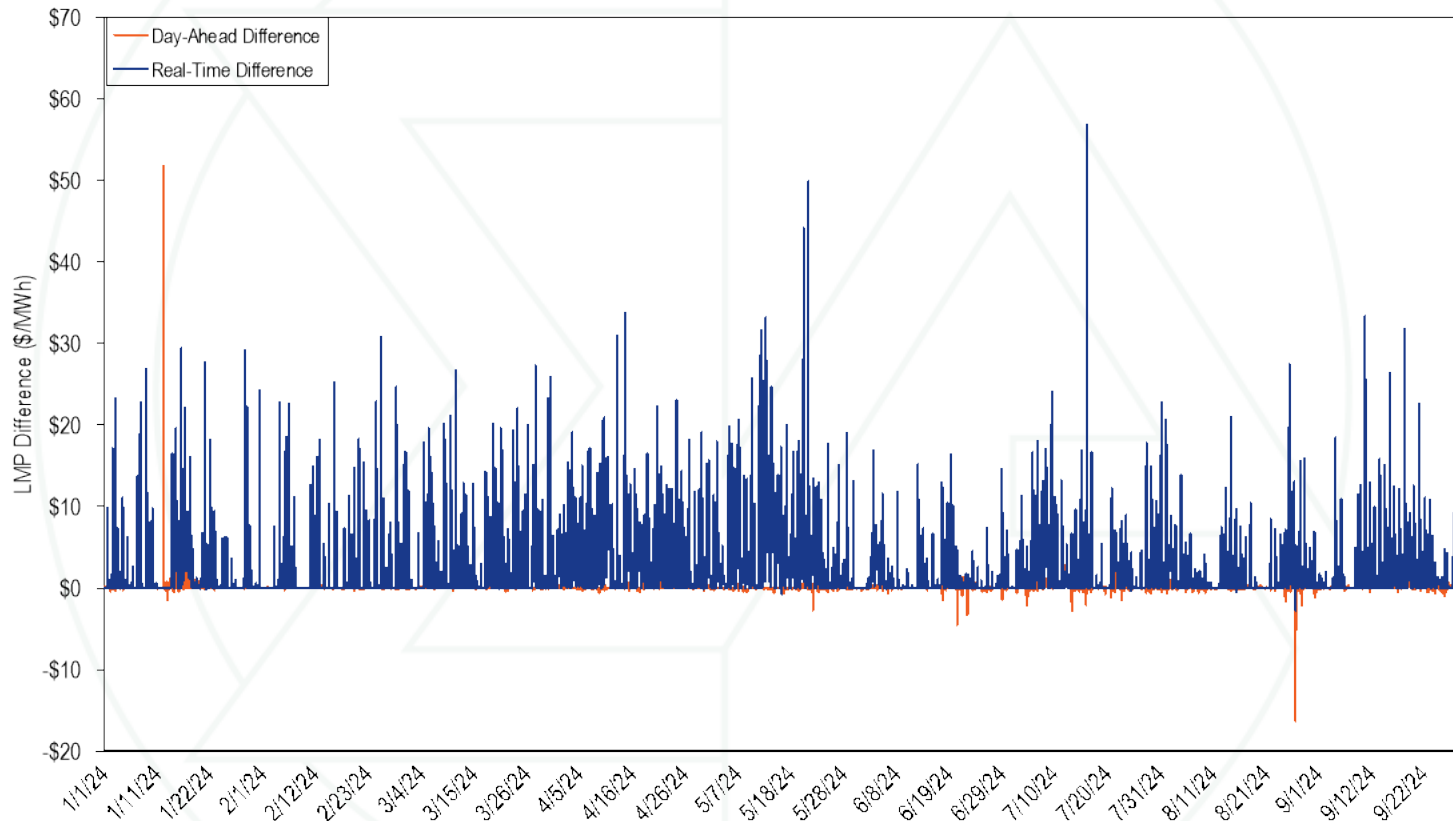
Monthly Average Load-Weighted DLMP and PLMP

Year	Month	Day-Ahead Load-Weighted Average				Real-Time Load-Weighted Average			
		DLMP	PLMP	Difference	Percent Difference	DLMP	PLMP	Difference	Percent Difference
2023	Jan	\$36.53	\$36.58	\$0.05	0.1%	\$34.66	\$35.75	\$1.09	3.1%
2023	Feb	\$31.16	\$31.22	\$0.06	0.2%	\$25.47	\$26.04	\$0.57	2.2%
2023	Mar	\$28.39	\$28.41	\$0.02	0.1%	\$27.58	\$28.42	\$0.85	3.1%
2023	Apr	\$29.81	\$29.81	(\$0.00)	(0.0%)	\$27.09	\$29.32	\$2.22	8.2%
2023	May	\$28.86	\$28.80	(\$0.05)	(0.2%)	\$25.91	\$28.44	\$2.53	9.7%
2023	Jun	\$27.82	\$27.82	(\$0.00)	(0.0%)	\$25.69	\$27.29	\$1.60	6.2%
2023	Jul	\$40.46	\$40.56	\$0.10	0.3%	\$34.34	\$37.21	\$2.87	8.4%
2023	Aug	\$30.49	\$30.54	\$0.05	0.2%	\$29.77	\$31.33	\$1.55	5.2%
2023	Sep	\$30.82	\$30.91	\$0.09	0.3%	\$29.33	\$31.55	\$2.22	7.6%
2023	Oct	\$35.03	\$35.05	\$0.02	0.1%	\$30.66	\$34.92	\$4.26	13.9%
2023	Nov	\$33.32	\$33.40	\$0.08	0.2%	\$30.00	\$32.94	\$2.94	9.8%
2023	Dec	\$29.89	\$29.94	\$0.05	0.2%	\$26.37	\$27.97	\$1.59	6.0%
2023	Jan - Sep	\$31.59	\$31.63	\$0.03	0.1%	\$28.87	\$30.59	\$1.72	6.0%
2023		\$31.89	\$31.93	\$0.04	0.1%	\$29.11	\$31.08	\$1.97	6.8%
2024	Jan	\$48.45	\$48.65	\$0.20	0.4%	\$40.82	\$42.78	\$1.95	4.8%
2024	Feb	\$23.67	\$23.70	\$0.03	0.1%	\$23.20	\$24.86	\$1.66	7.2%
2024	Mar	\$21.89	\$21.93	\$0.04	0.2%	\$20.30	\$23.15	\$2.85	14.0%
2024	Apr	\$26.73	\$26.75	\$0.02	0.1%	\$23.29	\$27.17	\$3.87	16.6%
2024	May	\$32.92	\$32.90	(\$0.02)	(0.1%)	\$31.70	\$36.16	\$4.46	14.1%
2024	Jun	\$32.59	\$32.62	\$0.03	0.1%	\$31.95	\$33.35	\$1.40	4.4%
2024	Jul	\$43.15	\$43.31	\$0.16	0.4%	\$44.12	\$47.17	\$3.04	6.9%
2024	Aug	\$36.34	\$36.31	(\$0.03)	(0.1%)	\$34.37	\$36.29	\$1.92	5.6%
2024	Sep	\$30.63	\$30.77	\$0.14	0.4%	\$29.32	\$31.81	\$2.48	8.5%
2024	Jan - Sep	\$33.78	\$33.85	\$0.07	0.2%	\$31.73	\$34.31	\$2.58	8.1%

Daily Average Real-Time DLMP and PLMP



Hourly Difference: PLMP – DLMP



Fast Start Units as a Percent of Marginal Units

Year	Month	Dispatch Run				Pricing Run			
		CT	Diesel	Wind	All Fast Start Units	CT	Diesel	Wind	All Fast Start Units
2023	Jan	1.6%	0.5%	0.1%	2.1%	6.2%	2.8%	0.0%	9.0%
2023	Feb	0.9%	0.2%	0.0%	1.1%	3.1%	0.6%	0.0%	3.7%
2023	Mar	0.8%	0.4%	0.1%	1.2%	3.0%	0.7%	0.1%	3.8%
2023	Apr	2.5%	0.4%	0.2%	3.2%	8.1%	0.8%	0.2%	9.1%
2023	May	1.0%	0.3%	0.1%	1.3%	4.8%	0.7%	0.1%	5.6%
2023	Jun	0.5%	0.2%	0.0%	0.7%	2.5%	0.5%	0.0%	3.0%
2023	Jul	1.4%	0.9%	0.0%	2.4%	8.6%	1.6%	0.0%	10.3%
2023	Aug	0.9%	1.5%	0.0%	2.4%	5.1%	2.3%	0.0%	7.4%
2023	Sep	0.4%	0.8%	0.1%	1.3%	5.1%	1.4%	0.1%	6.6%
2023	Oct	1.4%	0.3%	0.0%	1.7%	6.9%	0.8%	0.0%	7.7%
2023	Nov	4.0%	0.6%	0.0%	4.5%	11.4%	1.4%	0.0%	12.8%
2023	Dec	1.4%	0.7%	0.0%	2.2%	7.2%	2.0%	0.0%	9.3%
2023	Jan-Sep	1.1%	0.6%	0.1%	1.7%	5.2%	1.3%	0.1%	6.5%
2023		1.4%	0.6%	0.0%	2.0%	6.0%	1.3%	0.0%	7.4%
2024	Jan	0.7%	0.6%	0.0%	1.3%	3.5%	1.1%	0.0%	4.7%
2024	Feb	0.4%	0.1%	0.1%	0.5%	2.2%	0.1%	0.1%	2.4%
2024	Mar	0.7%	0.2%	1.2%	2.1%	4.1%	0.8%	1.3%	6.2%
2024	Apr	1.5%	0.2%	0.2%	1.9%	6.5%	0.7%	0.1%	7.3%
2024	May	0.6%	0.2%	0.1%	1.0%	5.1%	0.6%	0.1%	5.8%
2024	Jun	0.5%	0.3%	0.1%	0.8%	4.3%	0.7%	0.3%	5.3%
2024	Jul	0.8%	0.5%	0.0%	1.4%	7.4%	1.0%	0.0%	8.5%
2024	Aug	0.6%	0.5%	0.0%	1.1%	5.0%	1.0%	0.0%	6.0%
2024	Sep	1.0%	0.1%	0.0%	1.1%	7.1%	0.4%	0.0%	7.6%
2024	Jan-Sep	0.7%	0.3%	0.2%	1.3%	4.8%	0.8%	0.3%	5.8%

Fast Start Impacts: Zone Average Differences

Zone	2024 Jan - Sep							
	Day-Ahead				Real-Time			
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference
ACEC	\$25.24	\$25.28	\$0.04	0.2%	\$23.63	\$25.04	\$1.41	5.9%
AEP	\$30.81	\$30.85	\$0.05	0.1%	\$28.47	\$30.58	\$2.11	7.4%
APS	\$32.00	\$32.04	\$0.04	0.1%	\$29.26	\$31.46	\$2.20	7.5%
ATSI	\$30.82	\$30.83	\$0.02	0.1%	\$28.48	\$30.53	\$2.06	7.2%
BGE	\$39.04	\$39.09	\$0.05	0.1%	\$35.49	\$38.19	\$2.71	7.6%
COMED	\$26.28	\$26.34	\$0.05	0.2%	\$24.12	\$25.96	\$1.84	7.6%
DAY	\$32.19	\$32.24	\$0.05	0.2%	\$29.64	\$31.86	\$2.22	7.5%
DUKE	\$31.31	\$31.36	\$0.05	0.2%	\$28.76	\$30.89	\$2.13	7.4%
DOM	\$36.14	\$36.18	\$0.04	0.1%	\$33.67	\$36.07	\$2.40	7.1%
DPL	\$28.60	\$28.65	\$0.05	0.2%	\$26.27	\$28.74	\$2.47	9.4%
DUQ	\$30.79	\$30.83	\$0.04	0.1%	\$28.59	\$30.66	\$2.07	7.2%
EKPC	\$30.57	\$30.61	\$0.05	0.1%	\$28.49	\$30.60	\$2.11	7.4%
JCPLC	\$25.66	\$25.70	\$0.04	0.2%	\$24.08	\$25.55	\$1.48	6.1%
MEC	\$27.83	\$27.87	\$0.04	0.1%	\$25.50	\$27.27	\$1.77	6.9%
OVEC	\$29.91	\$29.96	\$0.05	0.2%	\$27.62	\$29.66	\$2.04	7.4%
PECO	\$24.52	\$24.55	\$0.04	0.2%	\$23.01	\$24.34	\$1.33	5.8%
PE	\$30.86	\$30.88	\$0.02	0.1%	\$28.42	\$30.43	\$2.02	7.1%
PEPCO	\$36.87	\$36.92	\$0.05	0.1%	\$33.36	\$35.86	\$2.50	7.5%
PPL	\$25.81	\$25.85	\$0.04	0.2%	\$23.85	\$25.44	\$1.59	6.7%
PSEG	\$25.86	\$25.90	\$0.04	0.2%	\$24.31	\$25.80	\$1.49	6.1%
REC	\$27.73	\$27.76	\$0.04	0.1%	\$25.97	\$27.55	\$1.58	6.1%

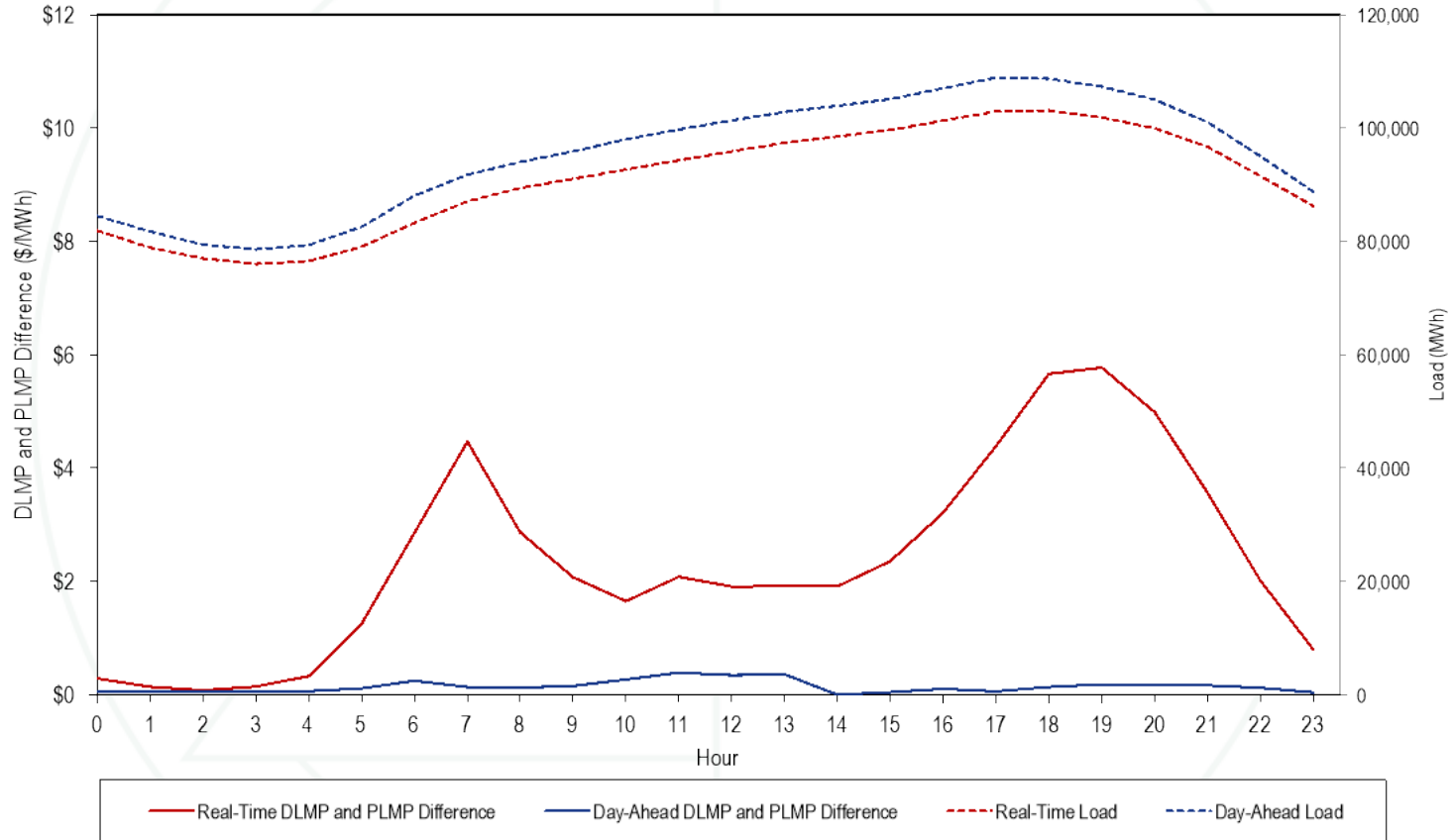
Fast Start Impacts: Hub Average Differences

Hub	2024 Jan - Sep							
	Average DLMP	Day-Ahead			Average DLMP	Real-Time		
		Average PLMP	Difference	Percent Difference		Average PLMP	Difference	Percent Difference
AEP GEN HUB	\$29.70	\$29.73	\$0.03	0.1%	\$27.39	\$29.43	\$2.05	7.5%
AEP-DAYTON HUB	\$30.49	\$30.53	\$0.03	0.1%	\$28.04	\$30.13	\$2.09	7.4%
ATSI GEN HUB	\$30.31	\$30.34	\$0.03	0.1%	\$27.83	\$29.85	\$2.02	7.3%
CHICAGO GEN HUB	\$25.74	\$25.81	\$0.06	0.2%	\$23.43	\$25.25	\$1.82	7.7%
CHICAGO HUB	\$26.47	\$26.49	\$0.02	0.1%	\$24.21	\$26.05	\$1.84	7.6%
DOMINION HUB	\$33.57	\$33.60	\$0.03	0.1%	\$30.82	\$33.11	\$2.29	7.4%
EASTERN HUB	\$28.84	\$28.87	\$0.03	0.1%	\$26.32	\$28.78	\$2.46	9.3%
N ILLINOIS HUB	\$26.19	\$26.25	\$0.07	0.3%	\$24.12	\$25.95	\$1.83	7.6%
NEW JERSEY HUB	\$25.67	\$25.70	\$0.03	0.1%	\$24.08	\$25.56	\$1.47	6.1%
OHIO HUB	\$30.46	\$30.49	\$0.03	0.1%	\$28.00	\$30.09	\$2.08	7.4%
WEST INT HUB	\$31.62	\$31.64	\$0.02	0.1%	\$29.11	\$31.25	\$2.14	7.4%
WESTERN HUB	\$33.24	\$33.26	\$0.02	0.1%	\$30.20	\$32.45	\$2.26	7.5%

Zonal Real-Time PLMP-DLMP Difference Frequency

2024 Jan - Sep											
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%	0.8%	53.3%	38.6%	4.9%	2.2%	0.1%	0.0%	0.0%	
ACEC	0.0%	0.0%	4.7%	53.6%	36.8%	3.2%	1.6%	0.1%	0.0%	0.0%	
AEP	0.0%	0.0%	1.5%	53.5%	37.3%	5.1%	2.5%	0.1%	0.0%	0.0%	
APS	0.0%	0.0%	1.1%	53.4%	37.6%	5.0%	2.7%	0.1%	0.0%	0.0%	
ATSI	0.0%	0.1%	1.9%	53.4%	37.3%	4.8%	2.4%	0.1%	0.0%	0.0%	
BGE	0.0%	0.1%	2.6%	53.3%	34.0%	5.8%	3.8%	0.4%	0.1%	0.0%	
COMED	0.0%	0.1%	3.4%	54.1%	35.9%	4.3%	2.0%	0.1%	0.0%	0.0%	
DAY	0.0%	0.0%	1.5%	53.5%	36.7%	5.3%	2.8%	0.2%	0.0%	0.0%	
DUKE	0.0%	0.0%	1.6%	53.5%	37.2%	5.0%	2.5%	0.1%	0.0%	0.0%	
DOM	0.0%	0.1%	1.8%	53.4%	35.9%	5.3%	3.1%	0.3%	0.0%	0.0%	
DPL	0.0%	0.2%	6.9%	53.6%	33.0%	3.0%	2.4%	0.5%	0.4%	0.0%	
DUQ	0.0%	0.0%	1.7%	53.4%	37.6%	4.7%	2.4%	0.1%	0.0%	0.0%	
EKPC	0.0%	0.0%	1.5%	53.5%	37.5%	5.0%	2.4%	0.1%	0.0%	0.0%	
JCPLC	0.0%	0.0%	2.3%	53.6%	39.3%	3.2%	1.6%	0.1%	0.0%	0.0%	
MEC	0.0%	0.1%	3.5%	53.4%	36.9%	4.0%	1.9%	0.1%	0.0%	0.0%	
OVEC	0.0%	0.1%	1.8%	53.5%	37.2%	4.8%	2.3%	0.1%	0.0%	0.0%	
PECO	0.0%	0.1%	6.3%	53.5%	35.2%	3.1%	1.6%	0.1%	0.0%	0.0%	
PE	0.0%	0.1%	1.5%	53.3%	38.3%	4.6%	2.1%	0.1%	0.0%	0.0%	
PEPCO	0.0%	0.1%	2.2%	53.4%	35.0%	5.6%	3.4%	0.3%	0.0%	0.0%	
PPL	0.0%	0.1%	3.1%	53.4%	38.3%	3.5%	1.6%	0.1%	0.0%	0.0%	
PSEG	0.0%	0.0%	2.2%	53.5%	39.3%	3.2%	1.6%	0.1%	0.0%	0.0%	
REC	0.0%	0.1%	2.1%	53.3%	39.3%	3.3%	1.7%	0.1%	0.0%	0.0%	

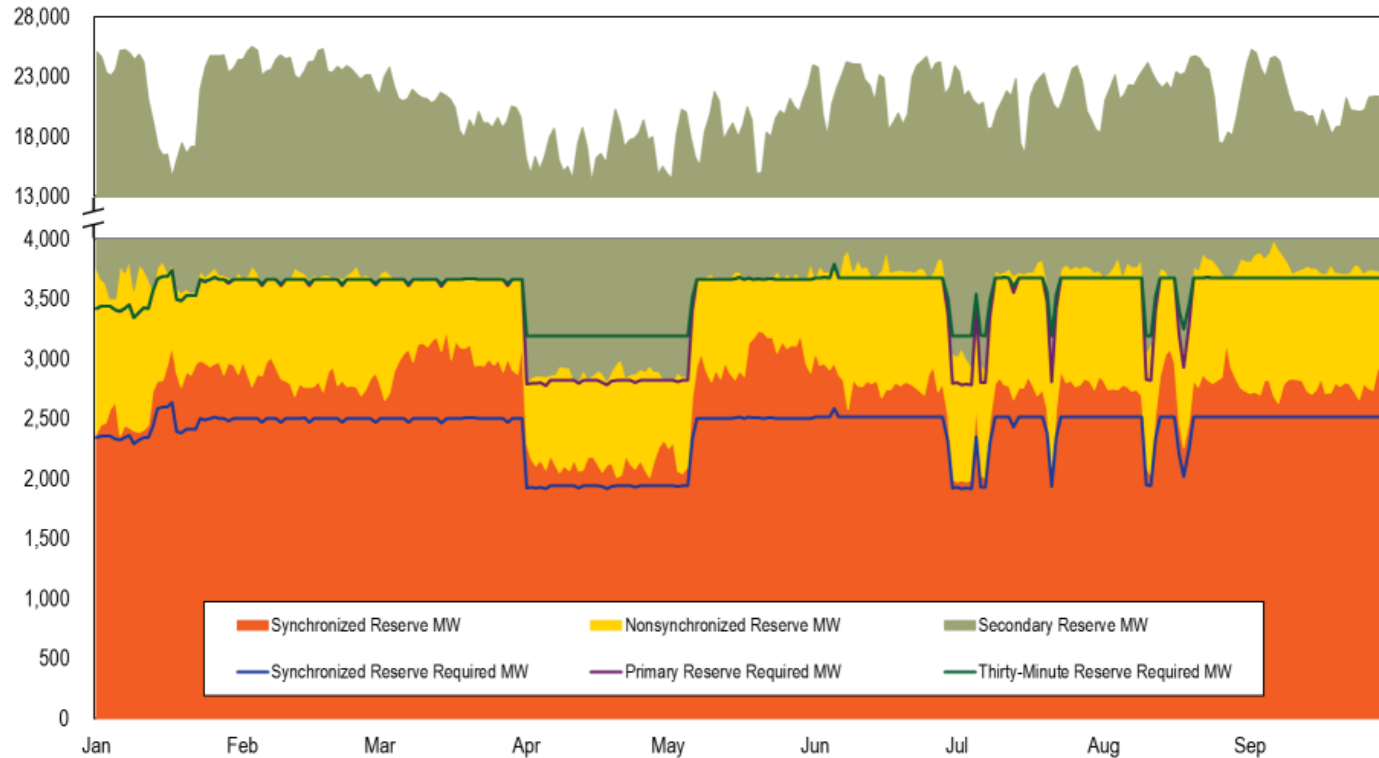
Hourly Average Load and LMP Difference



Real-Time Load-Weighted Average LMP

	2023				2024			
	Off Peak	On Peak	Difference	Percent Difference	Off Peak	On Peak	Difference	Percent Difference
Jan	\$33.20	\$38.53	\$5.32	16.0%	\$38.50	\$47.10	\$8.60	22.3%
Feb	\$23.45	\$28.67	\$5.22	22.3%	\$24.49	\$25.23	\$0.74	3.0%
Mar	\$26.96	\$29.78	\$2.82	10.5%	\$21.64	\$24.79	\$3.15	14.6%
Apr	\$24.08	\$35.00	\$10.92	45.4%	\$23.99	\$30.03	\$6.04	25.2%
May	\$22.65	\$33.84	\$11.19	49.4%	\$28.99	\$42.74	\$13.75	47.4%
Jun	\$21.64	\$32.16	\$10.52	48.6%	\$26.66	\$40.04	\$13.38	50.2%
Jul	\$26.86	\$48.04	\$21.18	78.9%	\$32.20	\$60.78	\$28.58	88.7%
Aug	\$26.60	\$35.30	\$8.70	32.7%	\$26.71	\$44.99	\$18.28	68.5%
Sep	\$24.76	\$38.65	\$13.88	56.1%	\$24.53	\$39.42	\$14.89	60.7%
Oct	\$26.41	\$42.58	\$16.17	61.2%				
Nov	\$29.45	\$36.48	\$7.02	23.9%				
Dec	\$23.70	\$32.88	\$9.18	38.7%				

Real-Time Reserves and Requirements



Decreased requirements in April, July, and August are due to a smaller unit being the contingency.

Day-Ahead & Real-Time RTO Reserve MW

Year	Month	Synchronized Reserve MW		Nonsynchronized Reserve MW		Total Primary Reserve MW		Secondary Reserve MW		Total Thirty-Minute Reserve MW	
		DA	RT	DA	RT	DA	RT	DA	RT	DA	RT
2024	Jan	2,757	2,732	1,229	950	3,987	3,682	15,051	18,087	19,038	21,769
2024	Feb	2,769	2,827	1,215	868	3,983	3,694	15,323	20,219	19,306	23,914
2024	Mar	2,913	3,007	773	663	3,686	3,669	13,423	16,852	17,108	20,521
2024	Apr	2,880	2,130	867	753	3,747	2,884	11,066	14,035	14,813	16,919
2024	May	2,974	2,874	795	674	3,769	3,549	11,877	15,238	15,645	18,787
2024	Jun	2,889	2,780	974	951	3,863	3,730	15,142	18,543	19,006	22,274
2024	Jul	2,654	2,585	910	965	3,564	3,550	13,136	17,620	16,701	21,169
2024	Aug	2,747	2,736	1,018	929	3,765	3,665	13,666	18,320	17,431	21,985
2024	Sep	2,848	2,771	1,031	1,011	3,879	3,782	12,609	17,454	16,488	21,236

Day-Ahead & Real-Time MAD Reserve MW

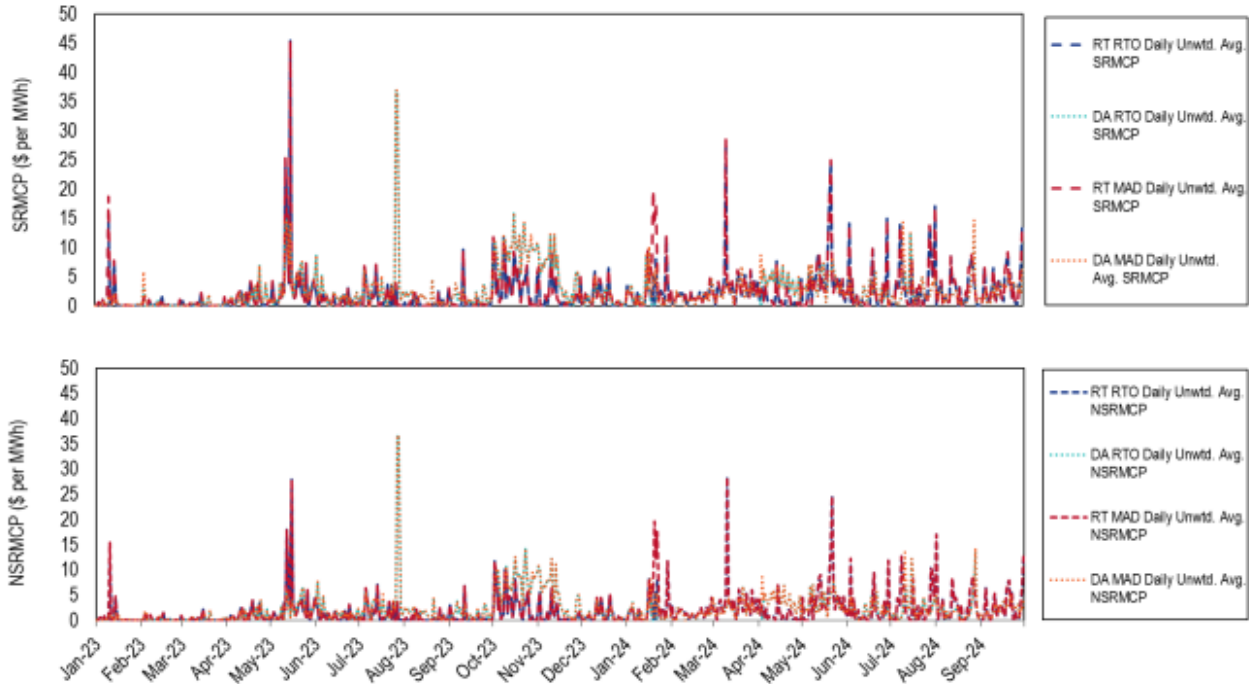
Year	Month	Synchronized Reserve MW		Nonsynchronized Reserve MW		Total Primary Reserve MW		Secondary Reserve MW		Total Thirty-Minute Reserve MW	
		DA	RT	DA	RT	DA	RT	DA	RT	DA	RT
2024	Jan	1,995	2,008	936	754	2,932	2,762	NA	NA	NA	NA
2024	Feb	1,959	1,992	932	707	2,891	2,699	NA	NA	NA	NA
2024	Mar	1,999	2,024	622	578	2,621	2,602	NA	NA	NA	NA
2024	Apr	1,770	1,724	645	633	2,414	2,357	NA	NA	NA	NA
2024	May	1,985	1,968	683	606	2,668	2,574	NA	NA	NA	NA
2024	Jun	2,070	1,891	800	782	2,870	2,674	NA	NA	NA	NA
2024	Jul	2,024	1,856	725	789	2,749	2,646	NA	NA	NA	NA
2024	Aug	2,015	1,906	798	792	2,813	2,699	NA	NA	NA	NA
2024	Sep	1,989	1,883	794	840	2,783	2,723	NA	NA	NA	NA

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
2024	Jan	\$4,327,646	\$549,761	\$0	(\$426,107)	(\$805,570)	\$0	\$1,144,741	\$246,452	\$159,892
2024	Feb	\$2,894,089	\$406,207	\$0	(\$98)	(\$224,893)	\$0	\$536,025	\$144,292	\$96,114
2024	Mar	\$5,930,989	\$907,106	\$0	(\$297,375)	(\$493,717)	\$0	\$1,079,741	\$265,668	\$130,590
2024	Apr	\$9,018,149	\$1,854,995	\$0	(\$907,004)	(\$145,771)	\$0	\$595,636	\$81,948	\$96,468
2024	May	\$9,477,497	\$1,236,498	\$0	(\$169,439)	(\$655,115)	\$0	\$1,260,078	\$575,064	\$289,740
2024	Jun	\$4,594,840	\$879,638	\$0	(\$602,073)	(\$184,008)	\$0	\$788,619	\$41,825	\$125,809
2024	Jul	\$5,994,640	\$1,271,008	\$0	\$88,604	(\$166,519)	\$0	\$1,400,675	\$42,325	\$313,370
2024	Aug	\$5,015,123	\$952,433	\$0	(\$203,403)	(\$143,830)	\$0	\$998,564	\$71,568	\$395,898
2024	Sep	\$5,792,899	\$1,072,480	\$0	(\$174,272)	(\$391,855)	\$0	\$913,531	\$267,027	\$114,300
Year	Month	Total Shortfall Charges			Total Credits					
		SR	NSR	SecR	SR	NSR	SecR			
2024	Jan	\$0	NA	\$0	\$5,046,280	(\$9,357)	\$159,892			
2024	Feb	\$19,515	NA	\$0	\$3,410,501	\$325,606	\$96,114			
2024	Mar	\$0	NA	\$0	\$6,713,356	\$679,056	\$130,590			
2024	Apr	\$0	NA	\$0	\$8,706,781	\$1,791,172	\$96,468			
2024	May	\$0	NA	\$0	\$10,568,136	\$1,156,446	\$289,740			
2024	Jun	\$0	NA	\$0	\$4,781,386	\$737,454	\$125,809			
2024	Jul	\$508,031	NA	\$0	\$6,975,888	\$1,146,814	\$313,370			
2024	Aug	\$22,877	NA	\$0	\$5,787,407	\$880,171	\$395,898			
2024	Sep	\$0	NA	\$0	\$6,532,157	\$947,653	\$114,300			



Reserve Prices: 2023 and 2024



- Higher prices in 2024 during winter storms and during intervals of shortage in March, May, June, July, and September. Higher prices in August correspond with hot weather alerts and spin events.

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