

Market Monitor Report

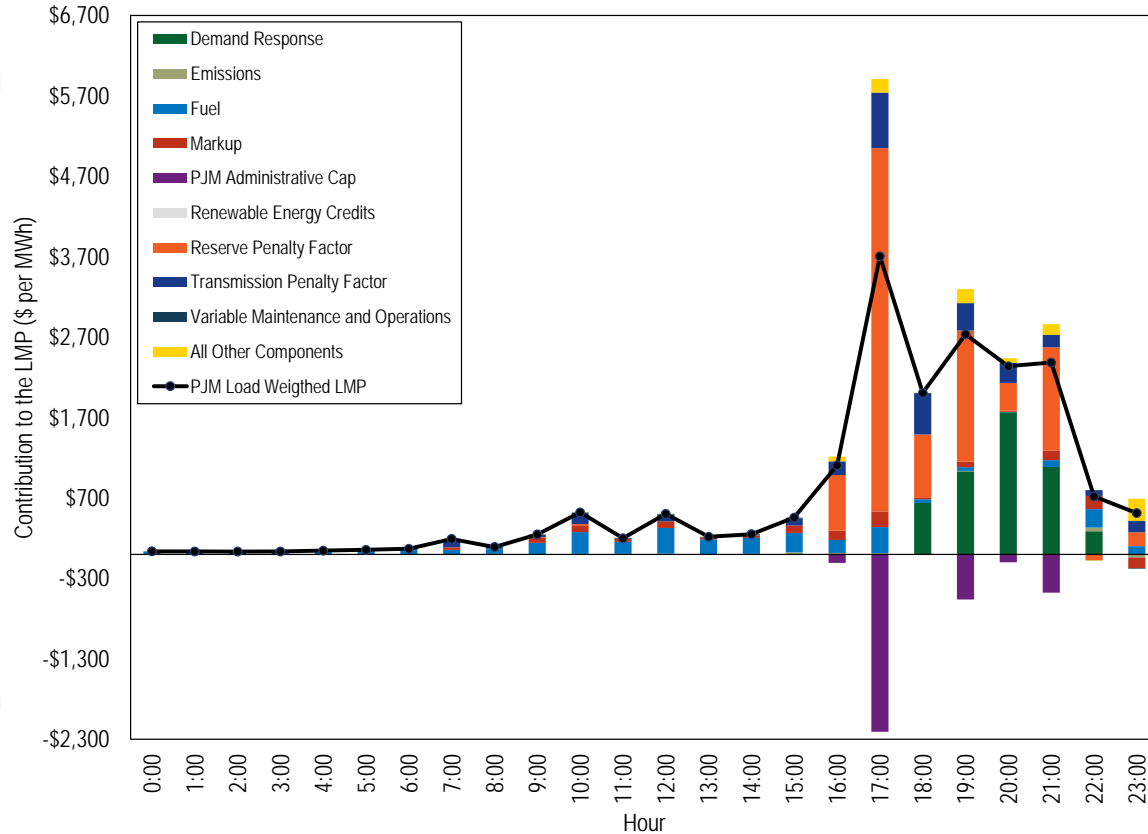
MC Webinar
2/21/2023

IMM

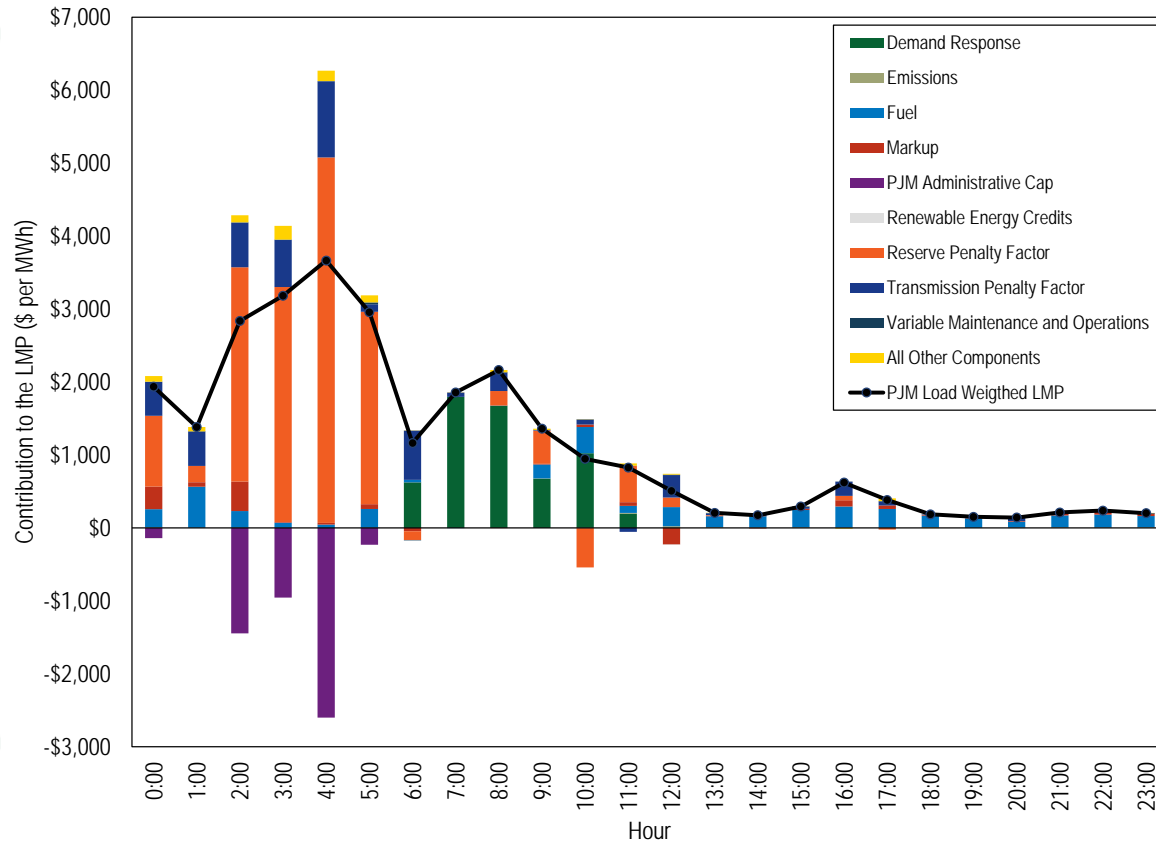


Monitoring Analytics

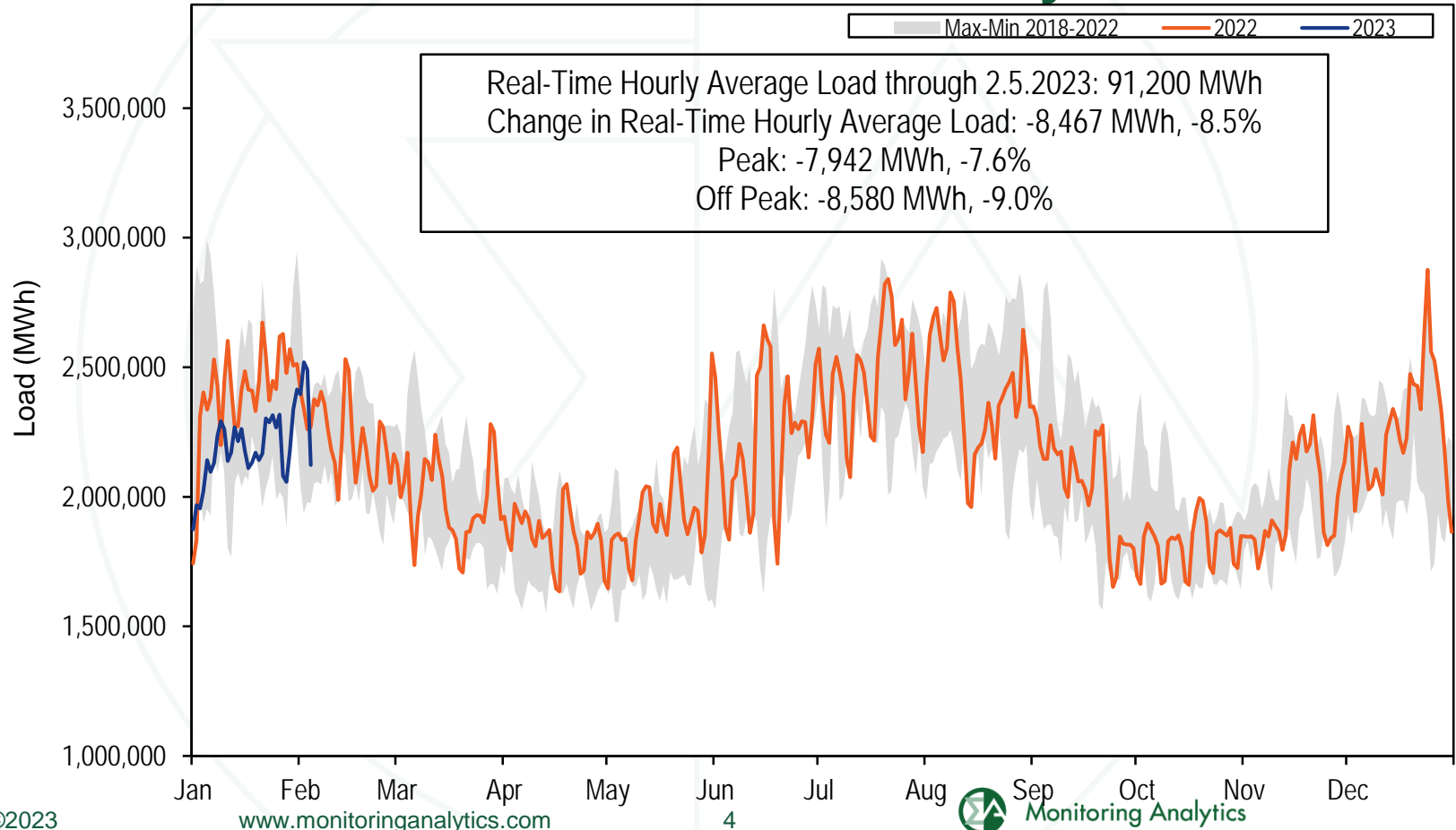
Components of Real Time LMP December 23



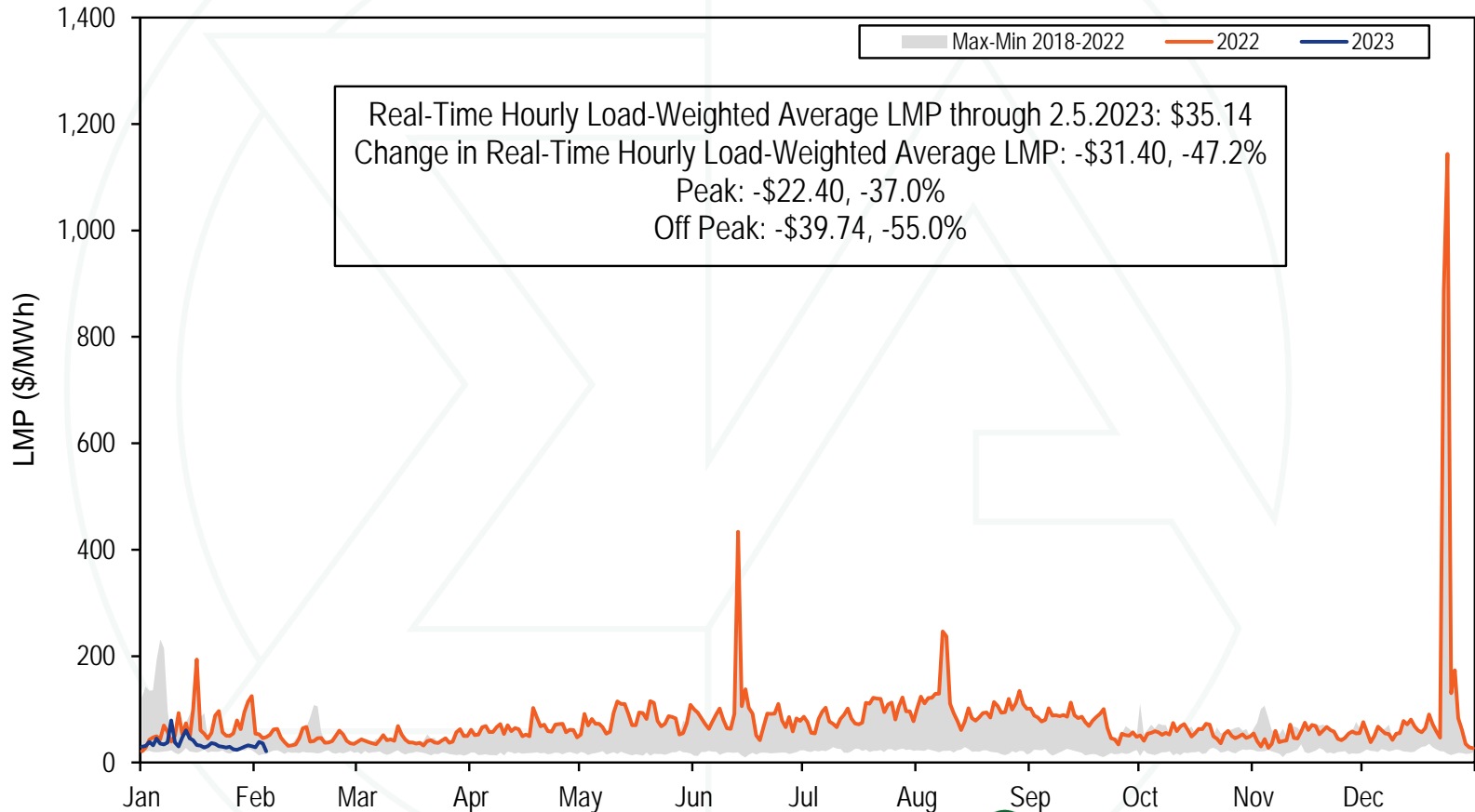
Components of Real Time LMP December 24



2023 YTD PJM Real-Time Daily Load



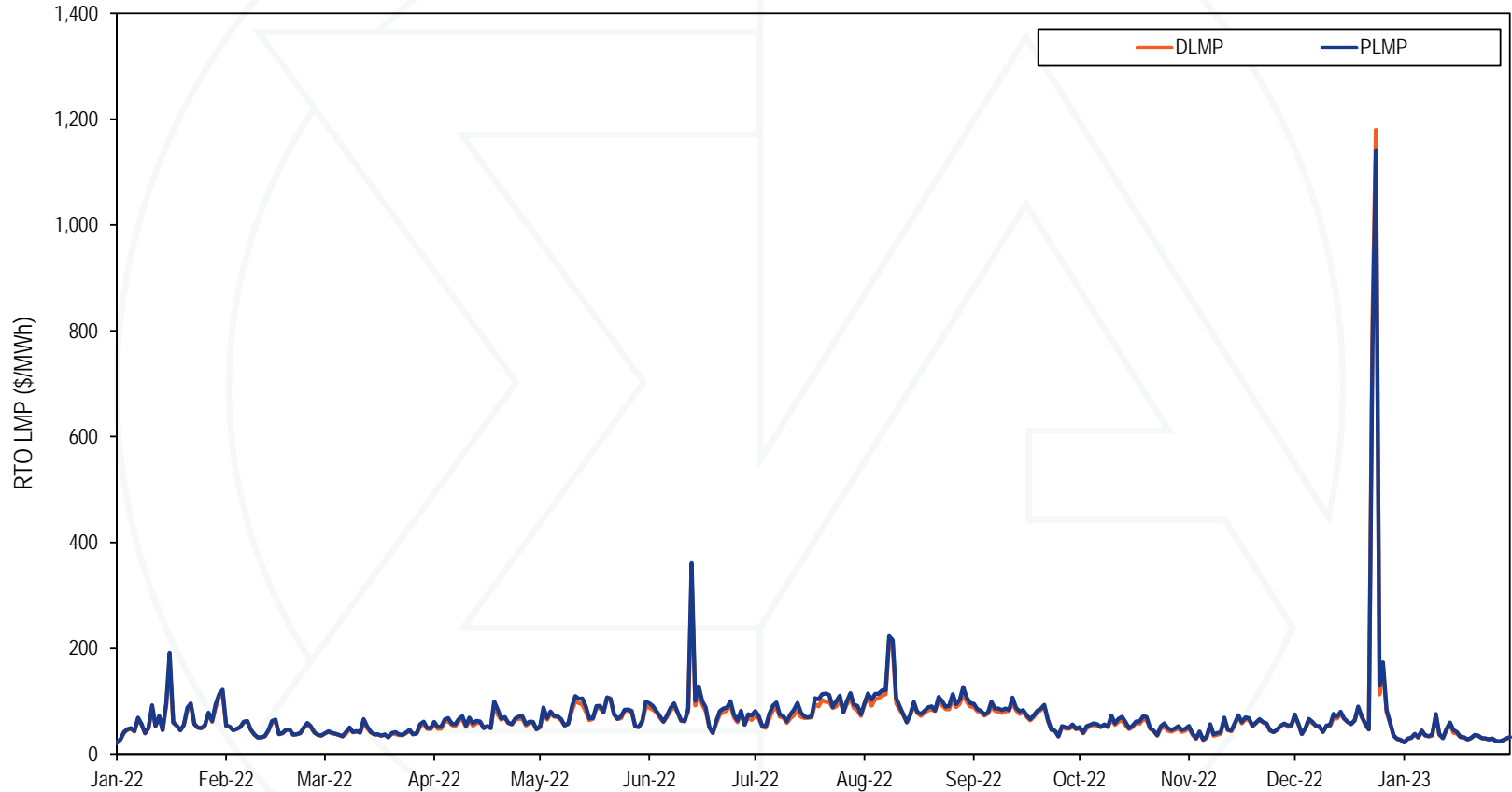
2023 YTD PJM Real-Time Daily LMP



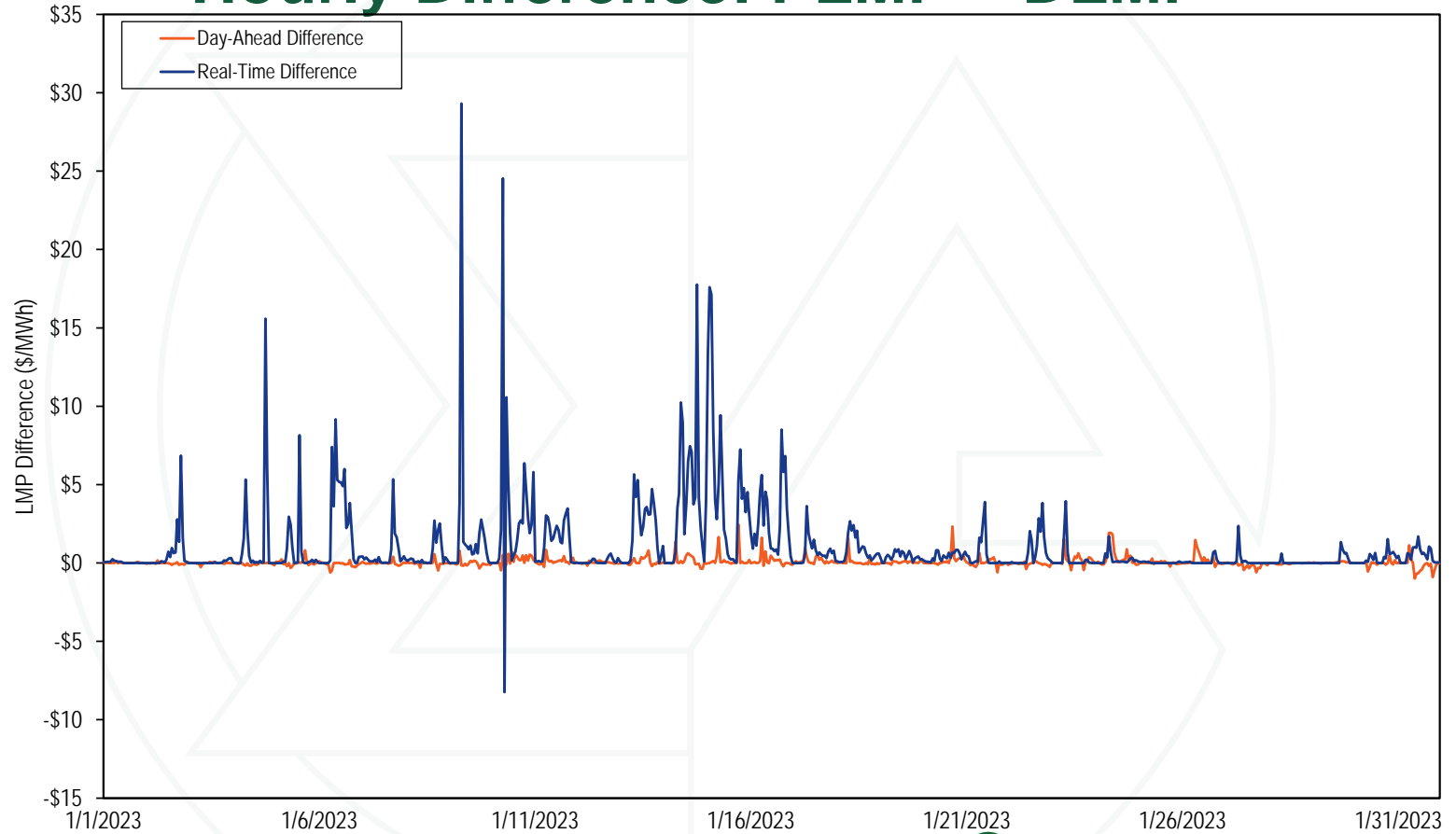
Monthly Average Load-Weighted DLMP and PLMP

Year	Month	2022				2023			
		DLMP	PLMP	Difference	Percent Difference	DLMP	PLMP	Difference	Percent Difference
2022	Jan	\$64.57	\$64.80	\$0.22	0.3%	\$66.43	\$69.06	\$2.64	4.0%
2022	Feb	\$49.96	\$50.35	\$0.39	0.8%	\$45.93	\$46.76	\$0.83	1.8%
2022	Mar	\$45.25	\$45.50	\$0.25	0.6%	\$41.83	\$43.56	\$1.73	4.1%
2022	Apr	\$64.10	\$64.18	\$0.08	0.1%	\$60.38	\$63.91	\$3.52	5.8%
2022	May	\$83.17	\$83.24	\$0.06	0.1%	\$79.04	\$83.16	\$4.12	5.2%
2022	Jun	\$90.24	\$90.54	\$0.29	0.3%	\$91.44	\$97.89	\$6.46	7.1%
2022	Jul	\$96.07	\$96.38	\$0.32	0.3%	\$84.03	\$92.48	\$8.45	10.1%
2022	Aug	\$106.18	\$106.07	(\$0.10)	(0.1%)	\$105.68	\$113.74	\$8.06	7.6%
2022	Sep	\$82.86	\$82.80	(\$0.06)	(0.1%)	\$74.08	\$78.29	\$4.22	5.7%
2022	Oct	\$58.30	\$58.37	\$0.07	0.1%	\$52.27	\$55.90	\$3.63	6.9%
2022	Nov	\$56.29	\$55.24	(\$1.05)	(1.9%)	\$50.86	\$52.93	\$2.07	4.1%
2022	Dec	\$93.02	\$93.39	\$0.37	0.4%	\$143.65	\$142.22	(\$1.42)	(1.0%)
2022	Jan - Dec	\$75.35	\$75.44	\$0.08	0.1%	\$76.34	\$80.14	\$3.80	5.0%
2023	Jan	\$36.53	\$36.58	\$0.05	0.1%	\$34.66	\$35.75	\$1.09	3.1%

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
2022	Jan	1.3%	0.3%	0.2%	1.8%	4.9%	0.9%	0.2%	6.2%
2022	Feb	0.6%	0.2%	0.3%	1.1%	3.2%	0.5%	0.3%	4.0%
2022	Mar	0.5%	0.2%	0.4%	1.1%	3.4%	0.5%	0.4%	4.4%
2022	Apr	0.8%	0.1%	0.1%	1.2%	4.4%	0.3%	0.1%	5.0%
2022	May	1.4%	0.7%	0.1%	2.4%	6.6%	1.2%	0.1%	8.1%
2022	Jun	2.3%	0.3%	0.1%	2.6%	9.3%	0.8%	0.1%	10.2%
2022	Jul	2.7%	0.6%	0.1%	3.3%	16.3%	1.4%	0.0%	17.7%
2022	Aug	2.0%	0.4%	0.0%	2.4%	12.0%	1.3%	0.0%	13.3%
2022	Sep	0.8%	0.3%	0.1%	1.2%	5.6%	1.0%	0.1%	6.7%
2022	Oct	2.2%	0.2%	0.3%	2.6%	6.6%	0.9%	0.2%	7.7%
2022	Nov	1.3%	0.2%	0.2%	1.7%	5.1%	0.9%	0.2%	6.1%
2022	Dec	1.3%	0.7%	0.2%	2.2%	6.3%	1.5%	0.2%	8.0%
2022	Jan - Dec	1.4%	0.3%	0.2%	2.0%	7.0%	0.9%	0.1%	8.1%
2023	Jan	1.6%	0.5%	0.1%	2.1%	6.2%	2.8%	0.0%	9.0%



Fast Start Impacts: Zonal Average Differences

2023 Jan								
Zone	Day-Ahead				Real-Time			
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference
ACEC	\$31.11	\$31.16	\$0.05	0.2%	\$31.01	\$31.84	\$0.83	2.7%
AEP	\$36.64	\$36.69	\$0.05	0.1%	\$34.56	\$35.61	\$1.05	3.0%
APS	\$38.21	\$38.26	\$0.05	0.1%	\$35.72	\$36.90	\$1.19	3.3%
ATSI	\$37.09	\$37.15	\$0.05	0.1%	\$34.44	\$35.49	\$1.06	3.1%
BGE	\$41.70	\$41.75	\$0.05	0.1%	\$37.36	\$38.48	\$1.12	3.0%
COMED	\$32.58	\$32.63	\$0.05	0.1%	\$31.52	\$32.48	\$0.95	3.0%
DAY	\$38.17	\$38.22	\$0.05	0.1%	\$35.71	\$36.79	\$1.08	3.0%
DUKE	\$37.03	\$37.08	\$0.05	0.1%	\$34.76	\$35.81	\$1.05	3.0%
DOM	\$39.13	\$39.18	\$0.05	0.1%	\$36.36	\$37.51	\$1.16	3.2%
DPL	\$31.13	\$31.17	\$0.04	0.1%	\$30.71	\$31.57	\$0.86	2.8%
DUQ	\$36.46	\$36.51	\$0.05	0.1%	\$34.33	\$35.37	\$1.04	3.0%
EKPC	\$36.52	\$36.57	\$0.05	0.1%	\$34.56	\$35.60	\$1.04	3.0%
JCPLC	\$31.68	\$31.72	\$0.05	0.1%	\$31.20	\$32.02	\$0.82	2.6%
MEC	\$36.70	\$36.76	\$0.05	0.1%	\$35.13	\$36.47	\$1.34	3.8%
OVEC	\$36.14	\$36.19	\$0.05	0.1%	\$34.14	\$35.17	\$1.03	3.0%
PECO	\$29.57	\$29.61	\$0.04	0.1%	\$29.86	\$30.62	\$0.76	2.5%
PE	\$37.02	\$37.08	\$0.06	0.2%	\$34.31	\$35.44	\$1.12	3.3%
PEPCO	\$40.43	\$40.48	\$0.05	0.1%	\$36.96	\$38.12	\$1.16	3.2%
PPL	\$32.50	\$32.56	\$0.05	0.2%	\$31.46	\$32.28	\$0.81	2.6%
PSEG	\$32.25	\$32.30	\$0.05	0.2%	\$31.43	\$32.27	\$0.83	2.6%
REC	\$34.45	\$34.50	\$0.05	0.1%	\$32.79	\$33.68	\$0.89	2.7%

Fast Start Impacts: Hub Average Differences

Hub	2023 Jan							
	Day-Ahead				Real-Time			
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference
AEP GEN HUB	\$35.93	\$35.98	\$0.05	0.1%	\$33.82	\$34.84	\$1.02	3.0%
AEP-DAYTON HUB	\$36.17	\$36.22	\$0.05	0.1%	\$34.22	\$35.25	\$1.03	3.0%
ATSI GEN HUB	\$36.25	\$36.30	\$0.06	0.2%	\$33.55	\$34.60	\$1.05	3.1%
CHICAGO GEN HUB	\$32.23	\$32.28	\$0.05	0.1%	\$31.13	\$32.07	\$0.94	3.0%
CHICAGO HUB	\$32.66	\$32.71	\$0.05	0.1%	\$31.60	\$32.55	\$0.95	3.0%
DOMINION HUB	\$38.28	\$38.33	\$0.05	0.1%	\$35.74	\$36.87	\$1.13	3.2%
EASTERN HUB	\$31.74	\$31.78	\$0.04	0.1%	\$31.01	\$31.89	\$0.88	2.9%
N ILLINOIS HUB	\$32.48	\$32.53	\$0.05	0.1%	\$31.41	\$32.36	\$0.95	3.0%
NEW JERSEY HUB	\$31.83	\$31.88	\$0.05	0.2%	\$31.26	\$32.09	\$0.83	2.6%
OHIO HUB	\$35.99	\$36.04	\$0.05	0.1%	\$34.09	\$35.12	\$1.02	3.0%
WEST INT HUB	\$37.21	\$37.26	\$0.05	0.1%	\$34.60	\$35.67	\$1.07	3.1%
WESTERN HUB	\$38.07	\$38.12	\$0.05	0.1%	\$34.96	\$36.01	\$1.05	3.0%

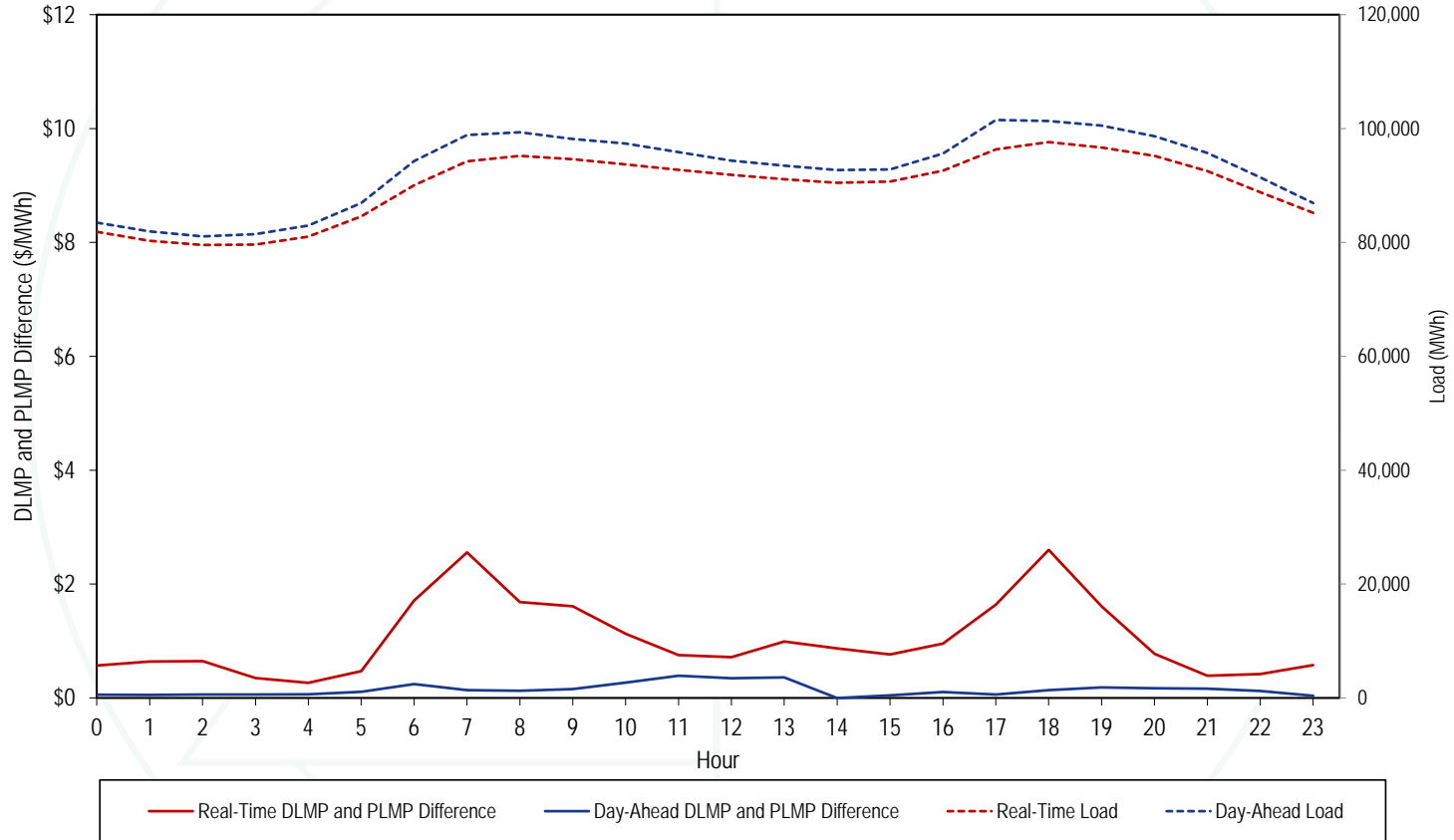
Zonal PLMP-DLMP Difference Frequency

2023 Jan

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%	0.4%	48.2%	49.6%	1.3%	0.4%	0.1%	0.0%	0.0%
ACEC	0.0%	0.0%	6.8%	48.5%	42.8%	1.3%	0.4%	0.1%	0.0%	0.0%
AEP	0.0%	0.0%	0.6%	48.6%	48.8%	1.4%	0.5%	0.1%	0.0%	0.0%
APS	0.0%	0.0%	0.9%	48.5%	48.3%	1.7%	0.5%	0.1%	0.0%	0.0%
ATSI	0.0%	0.0%	0.6%	48.2%	49.3%	1.4%	0.4%	0.1%	0.0%	0.0%
BGE	0.0%	0.0%	5.6%	48.1%	44.0%	1.6%	0.6%	0.1%	0.0%	0.0%
COMED	0.0%	0.0%	1.0%	48.6%	48.7%	1.2%	0.4%	0.0%	0.0%	0.0%
DAY	0.0%	0.0%	0.4%	48.4%	49.2%	1.4%	0.5%	0.1%	0.0%	0.0%
DUKE	0.0%	0.0%	0.4%	48.6%	49.1%	1.4%	0.5%	0.1%	0.0%	0.0%
DOM	0.0%	0.0%	1.9%	48.4%	47.5%	1.6%	0.5%	0.1%	0.0%	0.0%
DPL	0.0%	0.0%	8.3%	48.4%	41.4%	1.2%	0.5%	0.1%	0.0%	0.0%
DUQ	0.0%	0.0%	0.9%	48.2%	49.1%	1.4%	0.4%	0.1%	0.0%	0.0%
EKPC	0.0%	0.0%	0.5%	48.6%	49.0%	1.4%	0.5%	0.1%	0.0%	0.0%
JCPLC	0.0%	0.0%	6.2%	48.5%	43.6%	1.2%	0.4%	0.0%	0.0%	0.0%
MEC	0.0%	0.1%	2.7%	47.9%	46.1%	2.4%	0.7%	0.1%	0.0%	0.0%
OVEC	0.0%	0.0%	0.7%	48.6%	48.9%	1.4%	0.5%	0.1%	0.0%	0.0%
PECO	0.0%	0.0%	8.4%	48.3%	41.7%	1.1%	0.4%	0.0%	0.0%	0.0%
PE	0.0%	0.0%	0.7%	48.0%	49.1%	1.7%	0.5%	0.1%	0.0%	0.0%
PEPCO	0.0%	0.0%	2.8%	48.4%	46.5%	1.6%	0.6%	0.1%	0.0%	0.0%
PPL	0.0%	0.0%	7.2%	48.1%	43.0%	1.2%	0.4%	0.0%	0.0%	0.0%
PSEG	0.0%	0.0%	5.4%	48.6%	44.3%	1.3%	0.4%	0.0%	0.0%	0.0%
REC	0.0%	0.0%	5.0%	48.3%	44.9%	1.3%	0.4%	0.1%	0.0%	0.0%



Hourly Average Load and LMP Difference: Jan 2023



Real-Time Average Load-Weighted LMP

	2022				2023			
	Off Peak	On Peak	Difference	Percent Difference	Off Peak	On Peak	Difference	Percent Difference
Jan	\$74.99	\$62.54	(\$12.46)	(16.6%)	\$33.20	\$38.53	\$5.32	16.0%
Feb	\$45.70	\$47.86	\$2.16	4.7%				
Mar	\$41.58	\$45.41	\$3.83	9.2%				
Apr	\$55.93	\$71.89	\$15.96	28.5%				
May	\$66.12	\$100.85	\$34.73	52.5%				
Jun	\$61.63	\$126.83	\$65.20	105.8%				
Jul	\$71.83	\$114.14	\$42.31	58.9%				
Aug	\$85.89	\$136.31	\$50.42	58.7%				
Sep	\$66.36	\$89.76	\$23.40	35.3%				
Oct	\$47.61	\$64.50	\$16.90	35.5%				
Nov	\$45.48	\$60.50	\$15.01	33.0%				
Dec	\$153.54	\$129.51	(\$24.03)	(15.7%)				

RTO Reserve MW

- Real-time market clearing**

Year	Month	Synchronized Reserve MW	Nonsynchronized Reserve MW	Total Primary Reserve MW	Secondary Reserve MW	Total Thirty-Minute Reserve MW
2022	Oct	1,832	955	2,787	1,843	4,630
2022	Nov	1,822	1,012	2,834	1,331	4,165
2022	Dec	1,900	965	2,865	1,131	3,996
2023	Jan	1,935	861	2,796	1,100	3,895

- Day-ahead market clearing**

Year	Month	Synchronized Reserve MW	Nonsynchronized Reserve MW	Total Primary Reserve MW	Secondary Reserve MW	Total Thirty-Minute Reserve MW
2022	Oct	2,078	1,650	3,728	8,264	11,992
2022	Nov	2,128	1,080	3,207	8,867	12,075
2022	Dec	1,993	1,324	3,317	10,425	13,742
2023	Jan	1,904	1,404	3,309	11,941	15,249

MAD Reserve MW

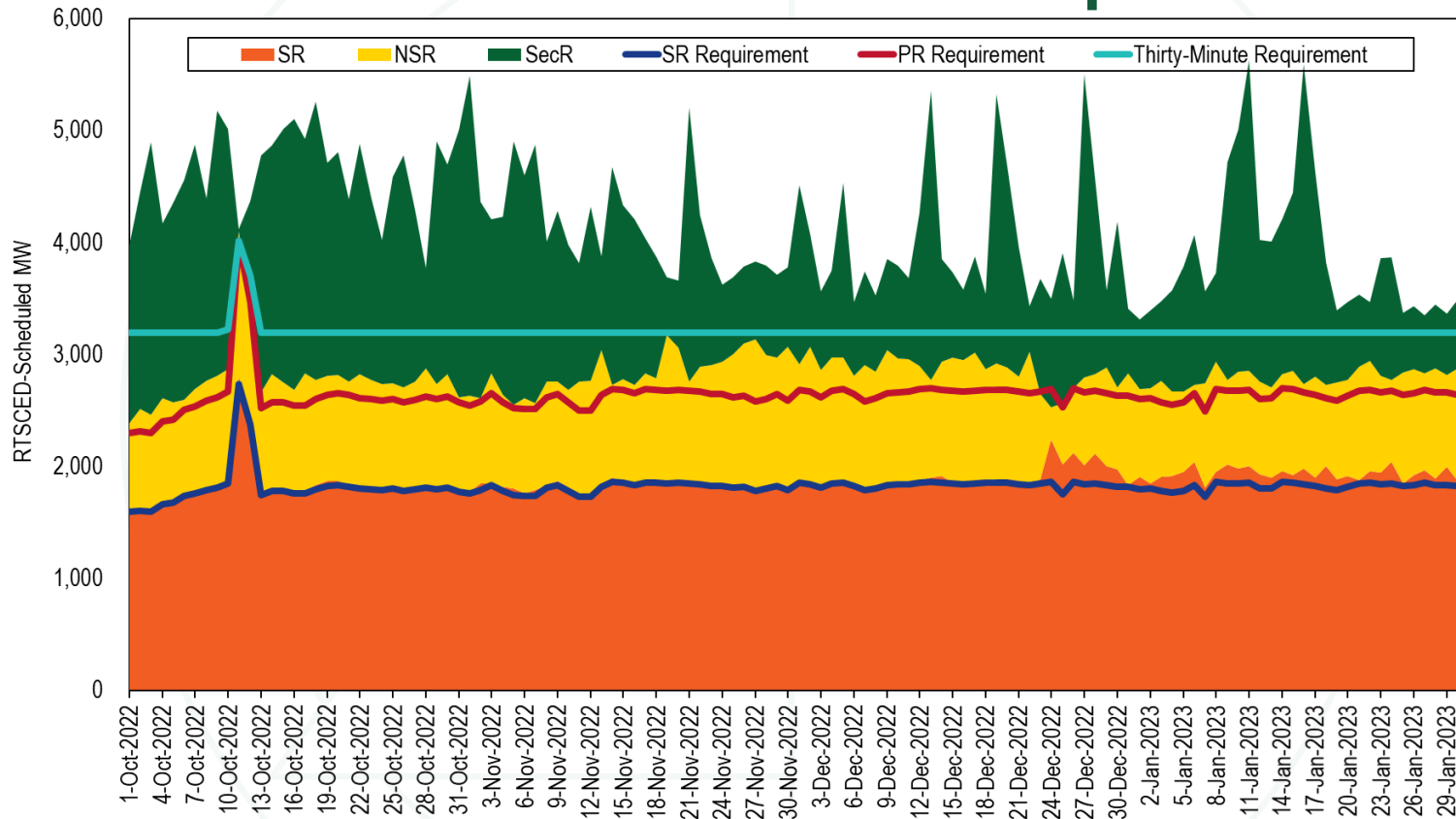
- **Real-time market clearing**

Year	Month	Synchronized Reserve MW	Nonsynchronized Reserve MW	Total Primary Reserve MW	Secondary Reserve MW	Total Thirty-Minute Reserve MW
2022	Oct	1,831	810	2,641	NA	NA
2022	Nov	1,820	857	2,677	NA	NA
2022	Dec	1,896	823	2,719	NA	NA
2023	Jan	1,933	792	2,725	NA	NA

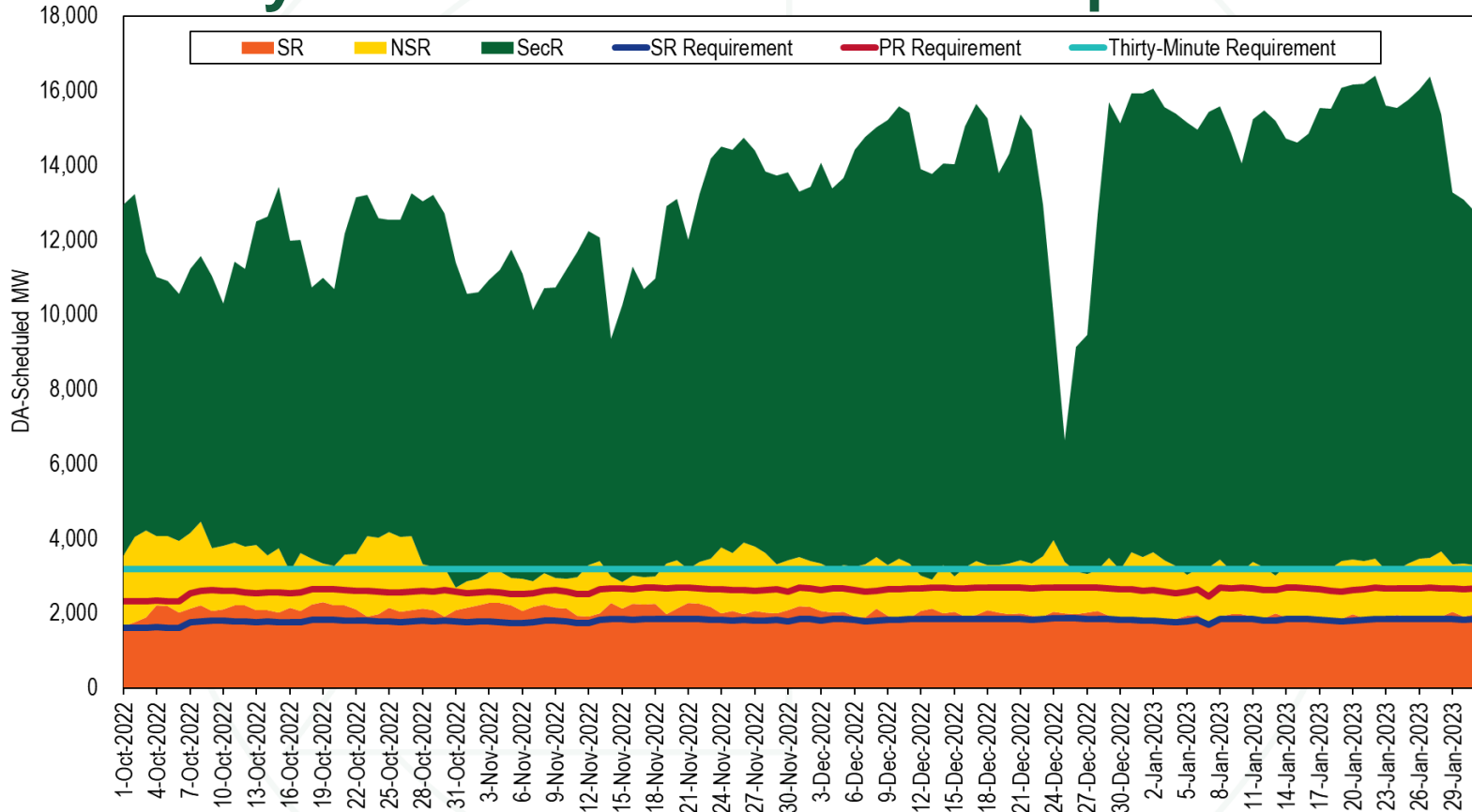
- **Day-ahead market clearing**

Year	Month	Synchronized Reserve MW	Nonsynchronized Reserve MW	Total Primary Reserve MW	Secondary Reserve MW	Total Thirty-Minute Reserve MW
2022	Oct	1,926	815	2,740	NA	NA
2022	Nov	1,994	930	2,924	NA	NA
2022	Dec	1,941	1,062	3,004	NA	NA
2023	Jan	1,891	1,119	3,009	NA	NA

Real-Time Reserves and Requirements



Day-Ahead Reserves and Requirements



Reserve Settlements by Month

Product	Year	Month	Total Day-Ahead Credits	Total Balancing MCP Credits	Total LOC Credits	Total Shortfall Charge	Total Credits
Synchronized Reserve	2022	Oct	676,211	(67,992)	1,711,285	19,273	2,300,231
	2022	Nov	2,275,752	(121,388)	1,357,764	14,882	3,497,246
	2022	Dec	4,874,437	(12,713,479)	14,118,985	14,636,427	(8,356,484)
	2023	Jan	505,419	(114,061)	990,498	293,093	1,088,764
Nonsynchronized Reserve	2022	Oct	137,051	(13,639)	1,051	NA	124,464
	2022	Nov	395,965	1,731	0	NA	397,696
	2022	Dec	292,838	(24,666,147)	608,585	NA	(23,764,724)
	2023	Jan	73,610	(155,466)	4,850	NA	(77,007)
Secondary Reserve	2022	Oct	0	0	61,173	0	61,173
	2022	Nov	0	0	10,667	0	10,667
	2022	Dec	0	(3,780,478)	4,451,194	0	670,716
	2023	Jan	0	0	5,150	0	5,150

For secondary reserve, the shortfall charge is part of the balancing MCP credit. For synchronized reserve, it is separate.

Monitoring Analytics, LLC

2621 Van Buren Avenue

Suite 160

Eagleville, PA

19403

(610) 271-8050

MA@monitoringanalytics.com

www.MonitoringAnalytics.com

