

Market Monitor Report

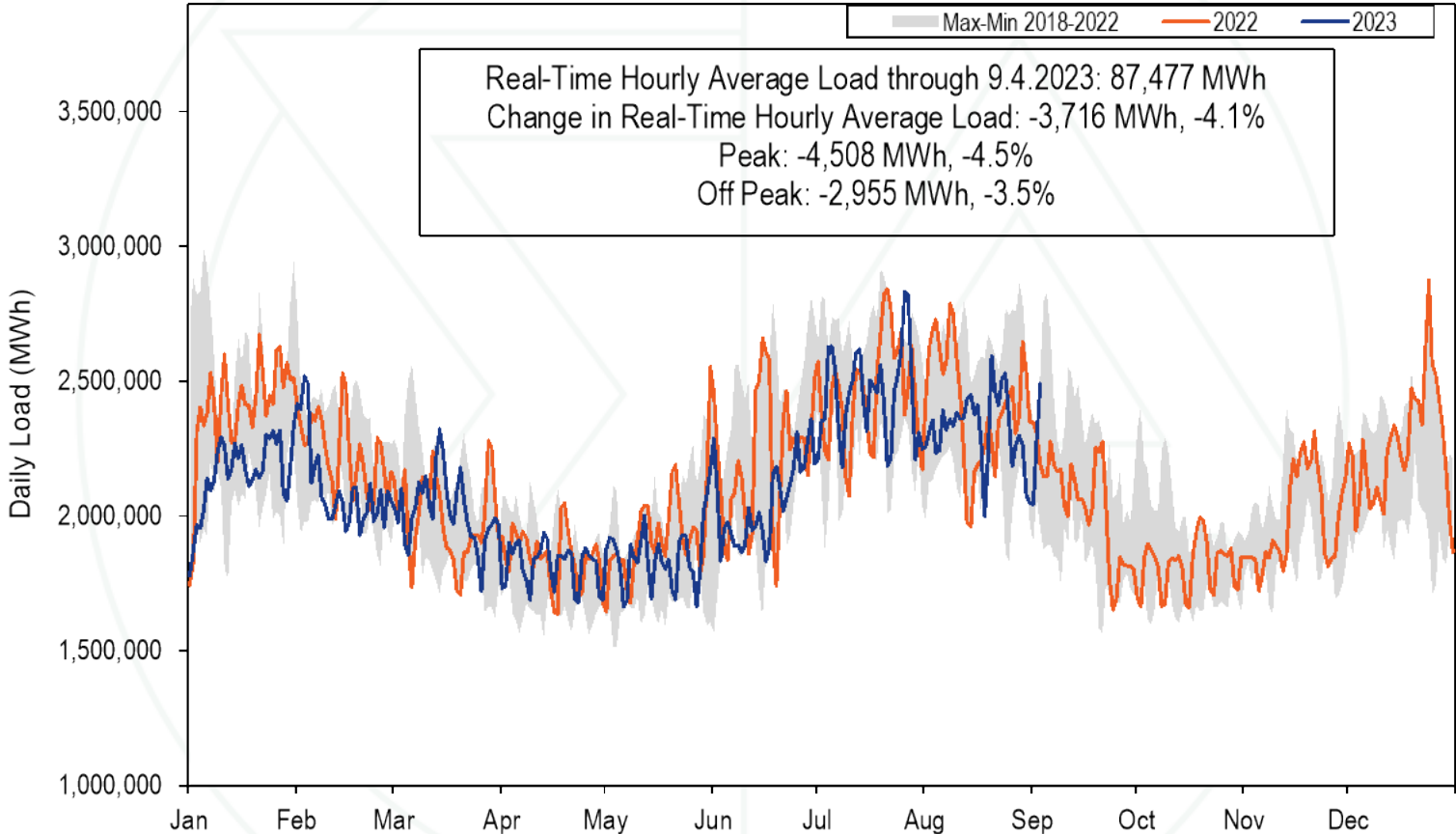
MC Webinar
9/18/2023

IMM

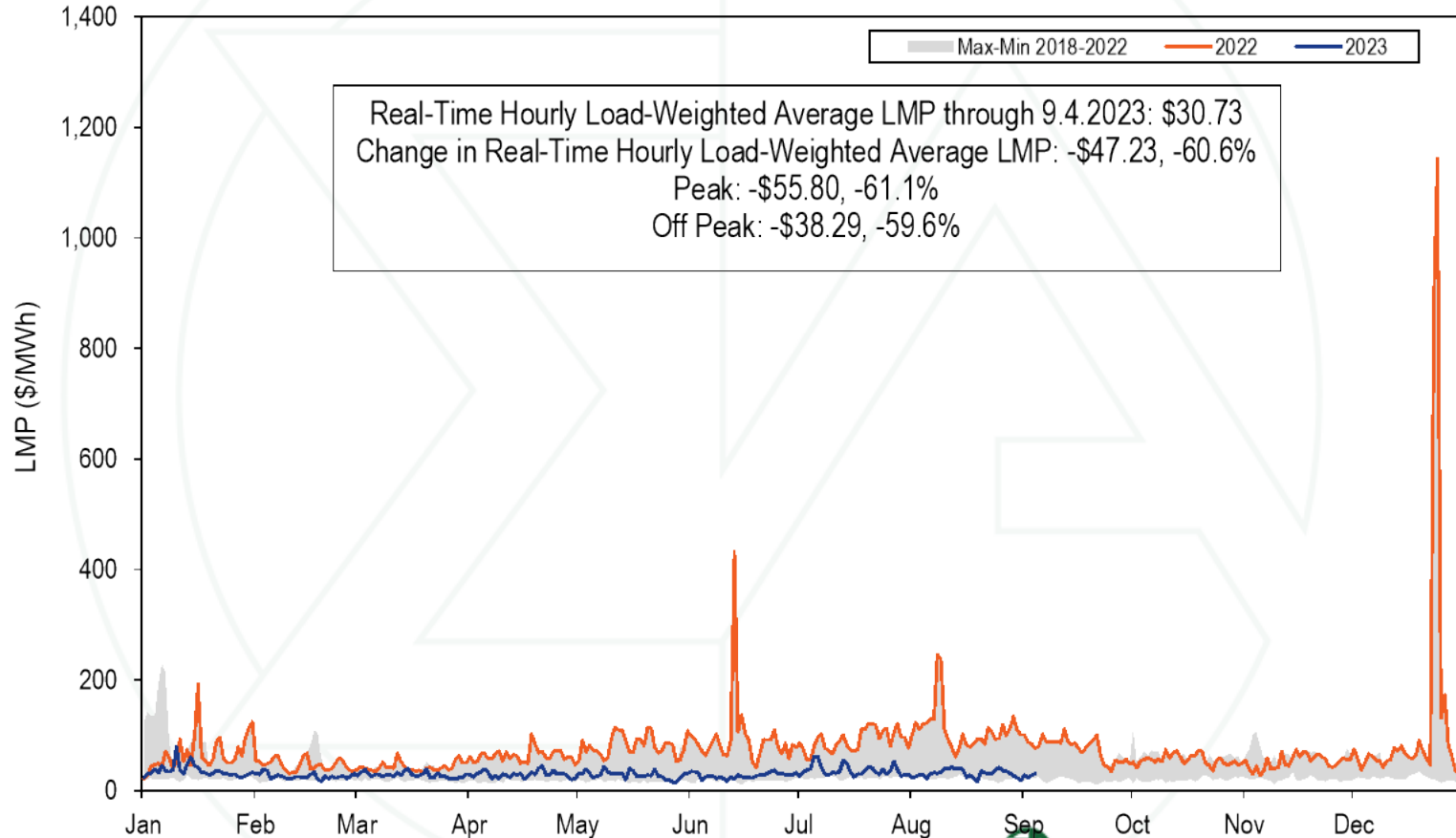


Monitoring Analytics

2023 YTD PJM Real-Time Daily Load



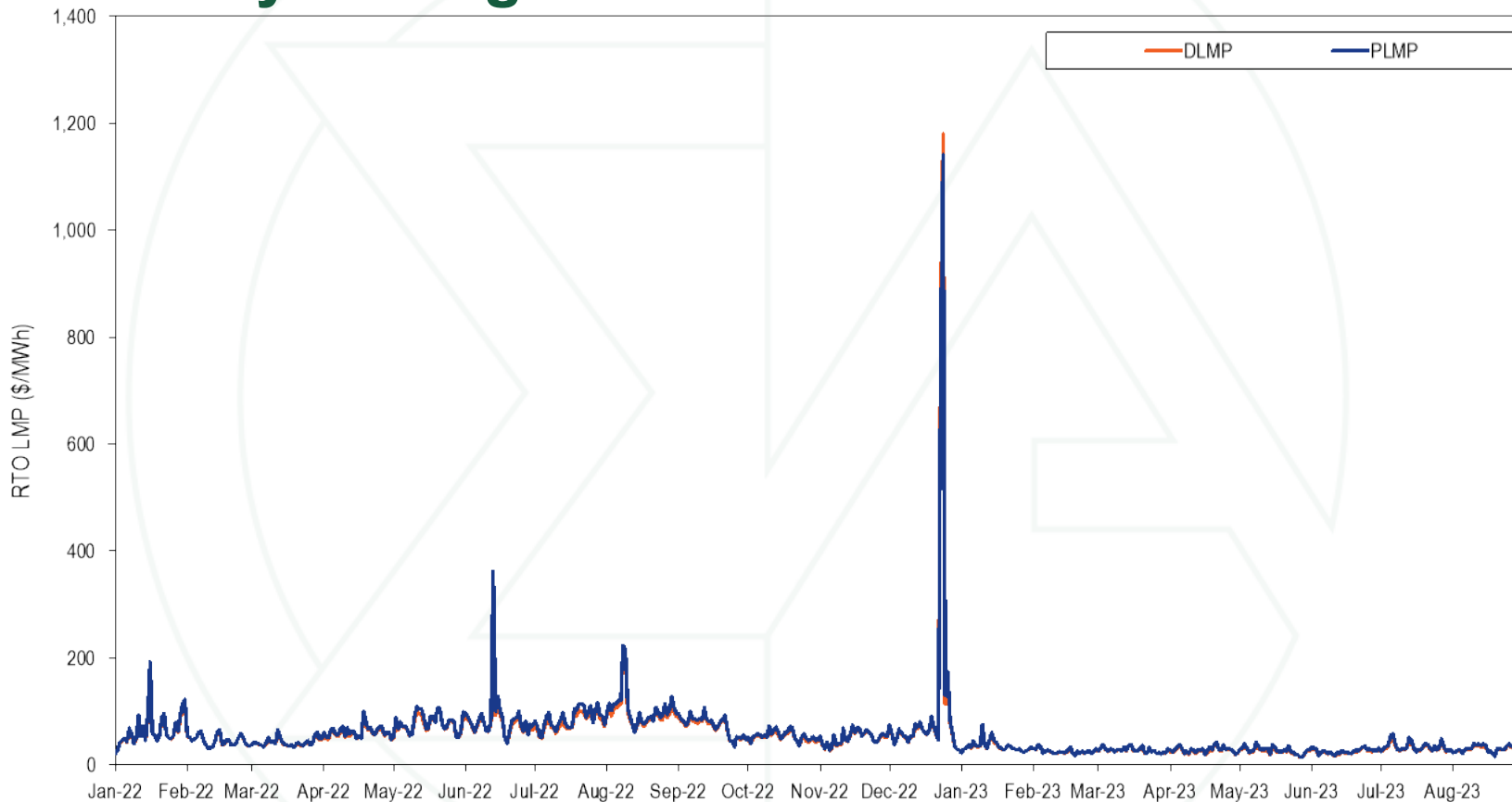
2023 YTD PJM Real-Time Daily LMP



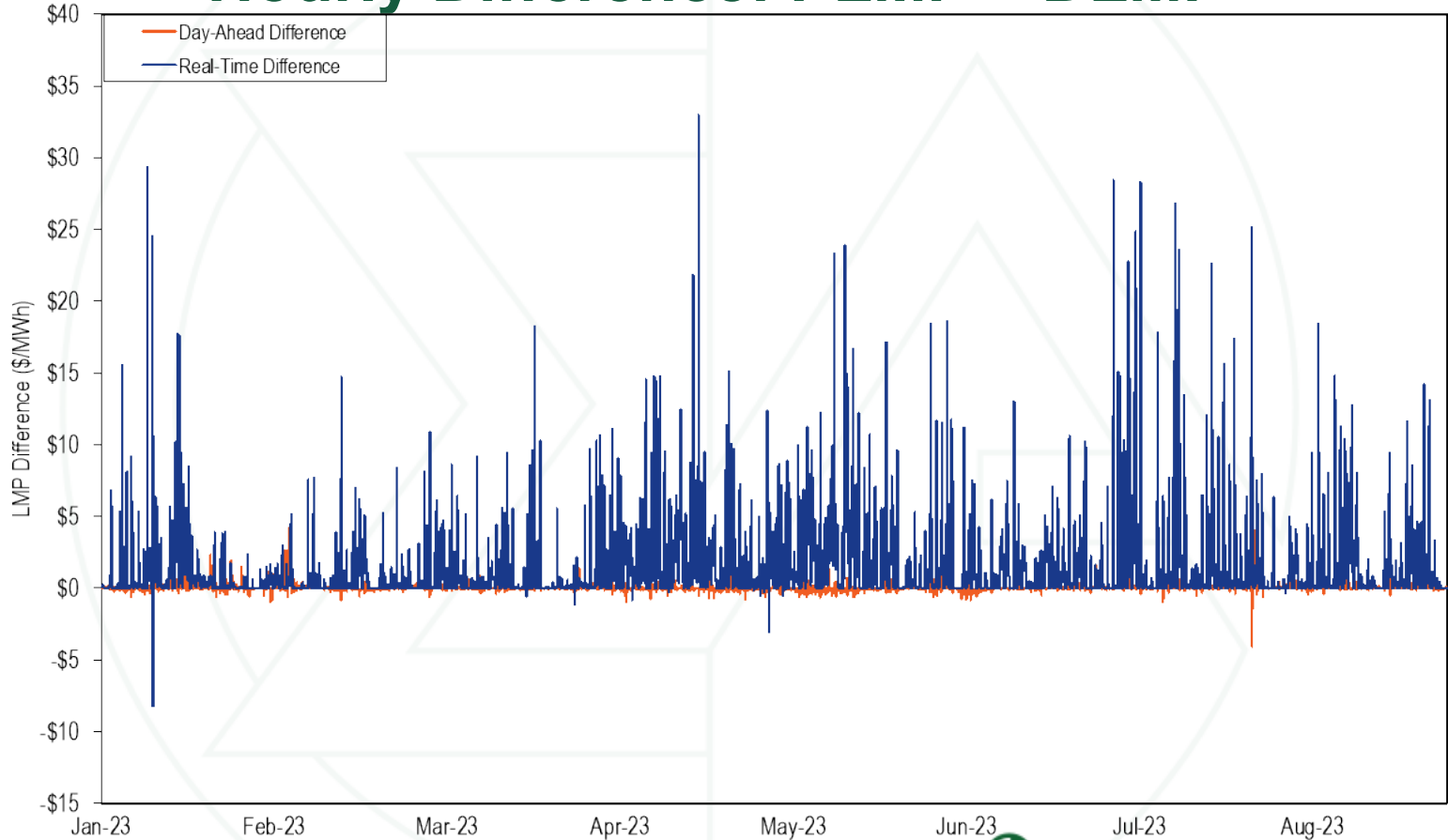
Monthly Average Load-Weighted DLMP and PLMP

Year	Month	Day-Ahead Load-Weighted Average				Real-Time Load-Weighted Average			
		DLMP	PLMP	Difference	Percent Difference	DLMP	PLMP	Difference	Percent Difference
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%
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	Jan - Aug	\$31.99	\$32.02	\$0.03	0.1%	\$29.11	\$30.79	\$1.67	5.7%

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%
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	Jan - Aug	1.2%	0.3%	0.1%	1.6%	4.6%	1.0%	0.1%	5.7%

Fast Start Impacts: Zonal Average Differences

2023 Jan - Aug								
Zone	Day-Ahead				Real-Time			
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference
ACEC	\$47.53	\$47.63	\$0.10	0.2%	\$46.87	\$48.88	\$2.01	4.3%
AEP	\$54.39	\$54.49	\$0.10	0.2%	\$52.60	\$55.18	\$2.58	4.9%
APS	\$55.23	\$55.37	\$0.14	0.3%	\$53.18	\$55.87	\$2.69	5.1%
ATSI	\$53.88	\$54.00	\$0.12	0.2%	\$51.56	\$54.11	\$2.55	4.9%
BGE	\$63.89	\$64.00	\$0.12	0.2%	\$61.53	\$64.74	\$3.21	5.2%
COMED	\$46.84	\$46.93	\$0.09	0.2%	\$44.60	\$46.92	\$2.32	5.2%
DAY	\$56.51	\$56.61	\$0.11	0.2%	\$54.43	\$57.11	\$2.69	4.9%
DUKE	\$55.51	\$55.61	\$0.10	0.2%	\$53.29	\$55.93	\$2.64	5.0%
DOM	\$64.54	\$64.21	(\$0.33)	(0.5%)	\$64.73	\$67.55	\$2.82	4.4%
DPL	\$51.31	\$51.42	\$0.11	0.2%	\$51.05	\$54.02	\$2.97	5.8%
DUQ	\$52.96	\$53.08	\$0.12	0.2%	\$50.89	\$53.41	\$2.52	5.0%
EKPC	\$54.66	\$54.75	\$0.10	0.2%	\$53.32	\$55.92	\$2.60	4.9%
JOPLC	\$48.48	\$48.59	\$0.11	0.2%	\$47.90	\$50.04	\$2.13	4.5%
MEC	\$54.78	\$54.87	\$0.10	0.2%	\$53.04	\$55.54	\$2.50	4.7%
OVEC	\$53.31	\$53.41	\$0.10	0.2%	\$51.46	\$53.99	\$2.53	4.9%
PECO	\$46.46	\$46.56	\$0.10	0.2%	\$45.84	\$47.76	\$1.93	4.2%
PE	\$52.97	\$53.08	\$0.11	0.2%	\$50.73	\$53.14	\$2.42	4.8%
PEPCO	\$61.58	\$61.69	\$0.11	0.2%	\$59.34	\$62.38	\$3.04	5.1%
PPL	\$50.63	\$50.74	\$0.10	0.2%	\$49.30	\$51.56	\$2.26	4.6%
PSEG	\$49.06	\$49.17	\$0.11	0.2%	\$48.55	\$50.70	\$2.15	4.4%
REC	\$51.08	\$51.18	\$0.11	0.2%	\$50.20	\$52.47	\$2.27	4.5%

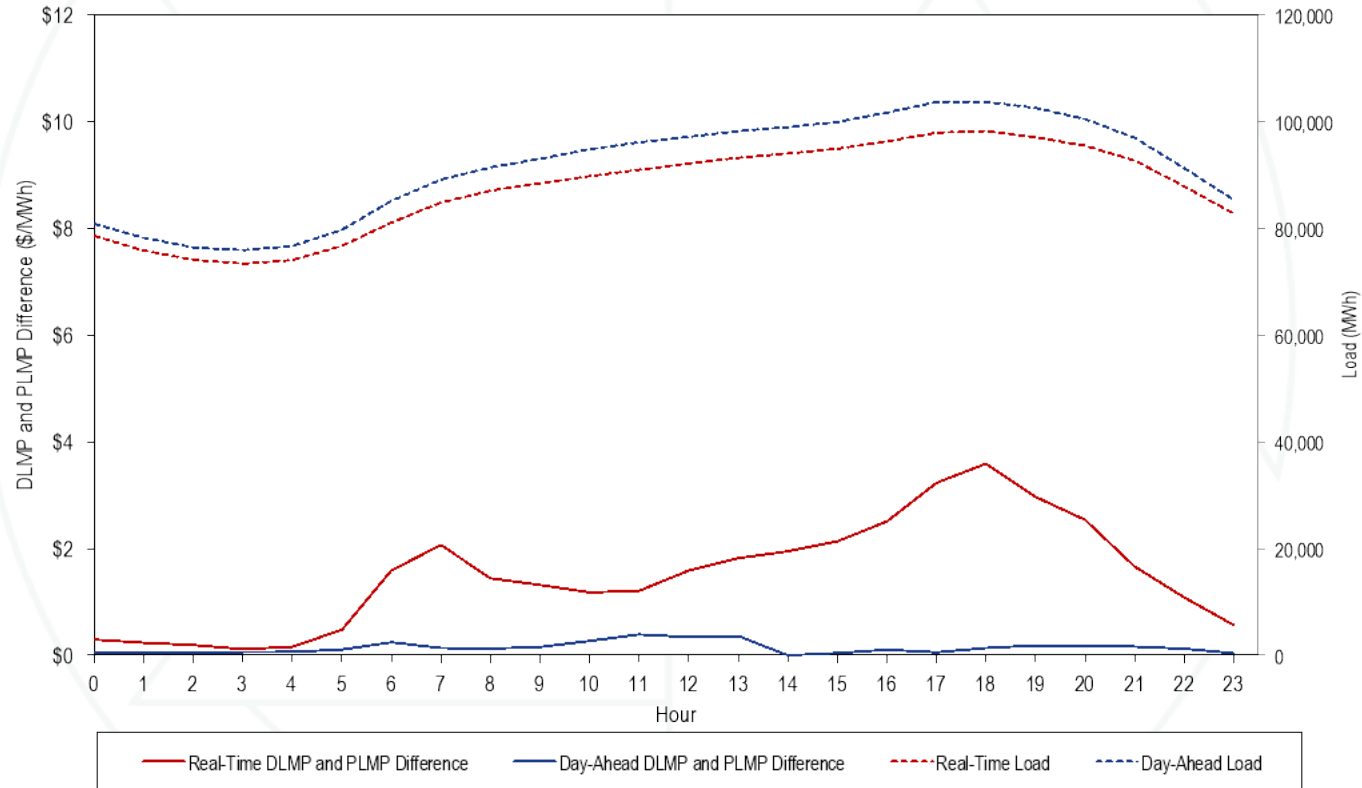
Fast Start Impacts: Hub Average Differences

2023 Jan - Aug									
Hub	Day-Ahead				Real-Time				
	Average DLMP	Average PLMP	Difference	Percent Difference	Average DLMP	Average PLMP	Difference	Percent Difference	
AEP GEN HUB	\$52.82	\$52.92	\$0.10	0.2%	\$50.73	\$53.21	\$2.47	4.9%	
AEP-DAYTON HUB	\$53.88	\$53.98	\$0.10	0.2%	\$51.75	\$54.30	\$2.55	4.9%	
ATSI GEN HUB	\$52.81	\$52.93	\$0.12	0.2%	\$50.35	\$52.84	\$2.48	4.9%	
CHICAGO GEN HUB	\$46.09	\$46.18	\$0.09	0.2%	\$43.75	\$46.05	\$2.30	5.2%	
CHICAGO HUB	\$47.04	\$47.13	\$0.09	0.2%	\$44.71	\$47.04	\$2.33	5.2%	
DOMINION HUB	\$59.23	\$59.25	\$0.03	0.0%	\$57.83	\$60.58	\$2.76	4.8%	
EASTERN HUB	\$51.43	\$51.54	\$0.11	0.2%	\$50.61	\$53.48	\$2.87	5.7%	
N ILLINOIS HUB	\$46.70	\$46.79	\$0.09	0.2%	\$44.51	\$46.82	\$2.31	5.2%	
NEW JERSEY HUB	\$48.55	\$48.66	\$0.11	0.2%	\$47.98	\$50.10	\$2.12	4.4%	
OHIO HUB	\$53.79	\$53.90	\$0.10	0.2%	\$51.64	\$54.18	\$2.55	4.9%	
WEST INT HUB	\$55.20	\$55.26	\$0.07	0.1%	\$53.07	\$55.66	\$2.59	4.9%	
WESTERN HUB	\$56.55	\$56.66	\$0.11	0.2%	\$53.97	\$56.65	\$2.68	5.0%	

Zonal PLMP-DLMP Difference Frequency

Zone	2023 Jan - Aug										
	< (\$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%	0.5%	47.5%	48.7%	2.6%	0.6%	0.0%	0.0%	0.0%	
ACEC	0.0%	0.0%	7.0%	48.1%	42.4%	2.0%	0.5%	0.0%	0.0%	0.0%	
AEP	0.0%	0.0%	0.9%	47.9%	47.7%	2.8%	0.6%	0.1%	0.0%	0.0%	
APS	0.0%	0.0%	0.7%	47.8%	48.0%	2.8%	0.6%	0.0%	0.0%	0.0%	
ATSI	0.0%	0.0%	0.8%	47.7%	48.1%	2.7%	0.6%	0.0%	0.0%	0.0%	
BGE	0.0%	0.0%	3.9%	47.4%	43.9%	3.5%	1.2%	0.1%	0.0%	0.0%	
COMED	0.0%	0.1%	2.6%	48.3%	45.9%	2.5%	0.5%	0.1%	0.0%	0.0%	
DAY	0.0%	0.0%	0.9%	47.9%	47.5%	3.0%	0.7%	0.1%	0.0%	0.0%	
DUKE	0.0%	0.0%	1.0%	47.9%	47.5%	2.9%	0.6%	0.1%	0.0%	0.0%	
DOM	0.0%	0.1%	2.2%	47.7%	45.8%	3.1%	0.9%	0.1%	0.0%	0.0%	
DPL	0.0%	0.0%	10.9%	47.9%	37.8%	1.9%	0.5%	0.2%	0.6%	0.0%	
DUQ	0.0%	0.0%	0.7%	47.7%	48.4%	2.7%	0.6%	0.0%	0.0%	0.0%	
EKPC	0.0%	0.0%	1.0%	47.9%	47.6%	2.8%	0.6%	0.1%	0.0%	0.0%	
JCPLC	0.0%	0.0%	3.2%	48.0%	46.4%	2.0%	0.4%	0.0%	0.0%	0.0%	
MEC	0.0%	0.0%	3.1%	47.5%	46.2%	2.5%	0.6%	0.1%	0.0%	0.0%	
OVEC	0.0%	0.0%	1.0%	48.0%	47.6%	2.7%	0.6%	0.0%	0.0%	0.0%	
PECO	0.0%	0.0%	9.7%	48.0%	39.8%	2.0%	0.4%	0.0%	0.0%	0.0%	
PE	0.0%	0.0%	1.2%	47.4%	48.3%	2.5%	0.5%	0.0%	0.0%	0.0%	
PEPCO	0.0%	0.0%	2.7%	47.7%	45.2%	3.3%	1.0%	0.1%	0.0%	0.0%	
PPL	0.0%	0.0%	3.4%	47.5%	46.4%	2.1%	0.5%	0.0%	0.0%	0.0%	
PSEG	0.0%	0.0%	3.1%	48.0%	46.5%	2.0%	0.4%	0.0%	0.0%	0.0%	
REC	0.0%	0.0%	2.6%	47.7%	47.1%	2.1%	0.5%	0.0%	0.0%	0.0%	

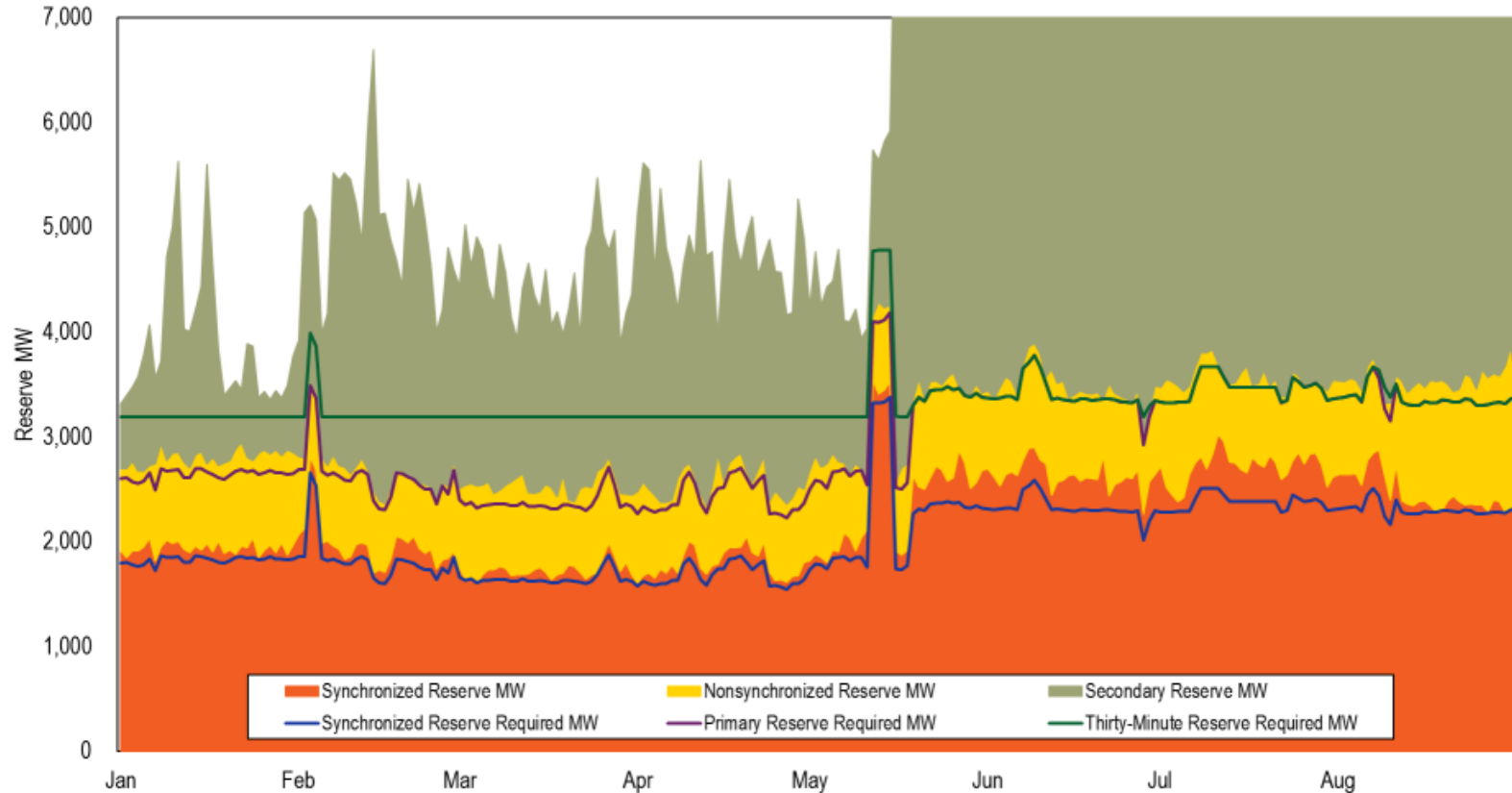
Hourly Average Load and LMP Difference: Jan through Aug 2023



Real-Time Load-Weighted Average 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%	\$23.45	\$28.67	\$5.22	22.3%
Mar	\$41.58	\$45.41	\$3.83	9.2%	\$26.96	\$29.78	\$2.82	10.5%
Apr	\$55.93	\$71.89	\$15.96	28.5%	\$24.08	\$35.00	\$10.92	45.4%
May	\$66.12	\$100.85	\$34.73	52.5%	\$22.65	\$33.84	\$11.19	49.4%
Jun	\$61.63	\$126.83	\$65.20	105.8%	\$21.64	\$32.16	\$10.52	48.6%
Jul	\$71.83	\$114.14	\$42.31	58.9%	\$26.86	\$48.04	\$21.18	78.9%
Aug	\$85.89	\$136.31	\$50.42	58.7%	\$26.60	\$35.30	\$8.70	32.7%
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%)				

Real-Time Reserves and Requirements



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
2023	Jan	1,904	1,935	1,404	861	3,309	2,796	11,941	1,100	15,249	3,895
2023	Feb	1,889	1,975	1,311	718	3,200	2,693	16,793	2,295	19,993	4,988
2023	Mar	1,682	1,722	1,179	812	2,861	2,535	15,073	1,964	17,934	4,498
2023	Apr	1,766	1,788	968	771	2,734	2,559	10,955	2,266	13,689	4,825
2023	May	2,399	2,425	1,094	804	3,493	3,229	12,489	9,635	15,983	12,864
2023	Jun	2,848	2,628	987	848	3,835	3,476	13,484	17,101	17,319	20,578
2023	Jul	2,829	2,710	971	846	3,801	3,556	13,263	15,579	17,064	19,135
2023	Aug	2,875	2,464	1,019	1,079	3,894	3,543	13,357	17,406	17,251	20,949

Day-Ahead & Real-Time MAD Reserve MW

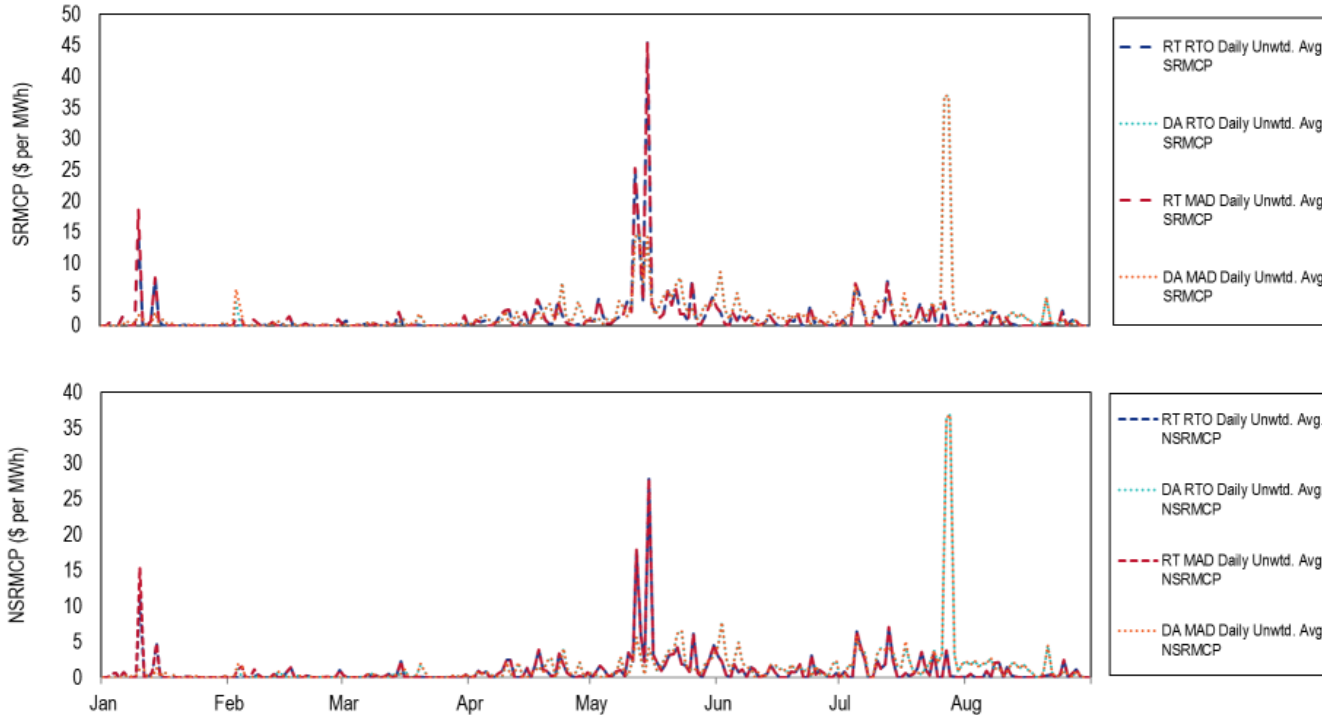
Year	Month	Synchronized Reserve MW		Nonsynchronized Reserve MW		Total Primary Reserve MW		Secondary Reserve MW		Total Thirty-Minute Reserve MW	
		DA	RT	DA	RT	DA	RT	DA	RT	DA	RT
2023	Jan	1,891	1,933	1,119	792	3,009	2,725	NA	NA	NA	NA
2023	Feb	1,874	1,955	992	673	2,866	2,628	NA	NA	NA	NA
2023	Mar	1,671	1,696	839	678	2,510	2,374	NA	NA	NA	NA
2023	Apr	1,690	1,664	684	615	2,374	2,279	NA	NA	NA	NA
2023	May	1,937	1,940	847	685	2,784	2,625	NA	NA	NA	NA
2023	Jun	2,023	1,973	817	688	2,839	2,661	NA	NA	NA	NA
2023	Jul	2,028	1,958	804	714	2,832	2,673	NA	NA	NA	NA
2023	Aug	2,099	1,966	844	764	2,943	2,729	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
2023	Jan	\$505,429	\$73,610	\$0	(\$114,061)	(\$155,466)	\$0	\$976,799	\$4,850	\$5,114
2023	Feb	\$735,351	\$72,133	\$0	\$99,577	(\$113,200)	\$0	\$493,619	\$31,094	\$34,129
2023	Mar	\$439,364	\$72,194	\$0	(\$5,106)	(\$37,214)	\$0	\$744,883	\$3,368	\$12,363
2023	Apr	\$2,088,876	\$220,075	\$0	\$55,121	(\$112,776)	\$0	\$701,874	\$59,662	\$15,125
2023	May	\$8,590,787	\$764,690	\$0	(\$1,102,233)	(\$597,158)	\$0	\$1,523,214	\$477,365	\$64,711
2023	Jun	\$4,061,466	\$648,961	\$0	(\$136,555)	(\$134,616)	\$0	\$503,423	\$48,934	\$137,270
2023	Jul	\$10,125,951	\$1,697,877	\$0	(\$209,684)	(\$227,351)	\$0	\$842,992	\$30,765	\$351,998
2023	Aug	\$2,822,099	\$422,257	\$0	(\$101,170)	(\$17,911)	\$0	\$583,173	\$1,642	\$134,975
Year	Month	Total Shortfall Charges			Total Credits					
		SR	NSR	SecR	SR	NSR	SecR			
2023	Jan	\$336,246	NA	\$0	\$1,031,922	(\$77,007)	\$5,114			
2023	Feb	\$0	NA	\$0	\$1,328,546	(\$9,973)	\$34,129			
2023	Mar	\$0	NA	\$0	\$1,179,141	\$38,348	\$12,363			
2023	Apr	\$0	NA	\$0	\$2,845,871	\$166,961	\$15,125			
2023	May	\$0	NA	\$0	\$9,011,767	\$644,897	\$64,711			
2023	Jun	\$0	NA	\$0	\$4,428,335	\$563,279	\$137,270			
2023	Jul	\$0	NA	\$0	\$10,759,259	\$1,501,292	\$351,998			
2023	Aug	\$0	NA	\$0	\$3,304,101	\$405,988	\$134,975			

- For secondary reserve, the shortfall charge is part of the balancing MCP credit. For synchronized reserve, it is separate.
- The only spin events that were 10 minutes or longer happened in January, so only January has SR shortfall charges.

Reserve Prices



- SecRMCP always \$0 per MWh, so far in 2023
- Spikes on Jan. 10th due to shortage pricing
- Spikes on Feb. 3rd & 4th due to conservative operations
- Spikes on May 12th & 15th due to increased requirements
- Spikes of DA & RT MCPs on Jul. 27th & 28th during Hot Weather Alerts on Jul. 26th – Jul. 29th.

NAESB Nomination Cycles

- Pipelines can require consumers to nominate gas per the NAESB cycles, based on reliability needs.
 - NAESB Cycles (Eastern Time):

	Timely	Evening	ID1	ID2	ID3
Nom Deadline	14:00	19:00	11:00	15:30	20:00
Confirmation Deadline	17:30	21:30	13:30	18:00	22:30
Scheduled Volumes Available	18:00	22:00	14:00	18:30	23:00
Start of Gas Flow	10:00	10:00	15:00	19:00	23:00

- Pipelines notices do not explicitly state such requirement.
- Pipelines use phrases such as balance deliveries and receipts or nominate before flowing.

Notification Time

- **When pipelines enforce these deadlines, generators cannot start per their approved notification times. PJM's proxy PLS notification times for CTs and RICE is 6 minutes.**
- **The times when pipelines enforce the NAESB nomination cycles deadlines is unclear.**
 - **In some cases, it is not clear if they apply to all consumers regardless of service acquired.**

Notification Time

- **PJM approves longer PLS notification times when more time is required to start, but no CT/RICE in PJM has a PLS notification time longer than 30 minutes.**
 - **Temporary exceptions can be requested to increase the approved limits.**
- **When pipelines enforce nomination deadlines, generators cannot begin their start sequence in 6 to 30 minutes. Instead the notification time is based on the time required by the pipelines to nominate gas.**

Notification Time

- **For example, the last nomination cycle available per NAESB is intraday 3 (ID3). The ID3 deadline is 20:00 EPT for gas that starts flowing at 23:00 (in three hours). The previous cycle, intraday 2 (ID2) deadline is at 15:30 EPT for gas that starts flowing at 19:00. A generator that has not nominated gas by ID2 cannot start until 23:00. Therefore, at 19:00, the unit has an implied time to start of four hours. Four hours is equal to 23:00 (the earliest the unit can start) minus 19:00.**

Declining Hourly Notification Time

- In order to capture the correct notification time properly, generators have to reflect the nomination deadlines and the time that gas starts flowing in each cycle.

Hour	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12
Notification Time	15	14	13	12	11	10	9	8	7	6	9	8
Time On (If Called)	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	19:00	19:00
Nearest Cycle	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID2	ID2

Hour	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Notification Time	7	6	9	8	7	6	5	20	19	18	17	16
Time On (If Called)	19:00	19:00	23:00	23:00	23:00	23:00	23:00	15:00	15:00	15:00	15:00	15:00
Nearest Cycle	ID2	ID2	ID3	ID3	ID3	ID3	ID3	ID1	ID1	ID1	ID1	ID1

Other Restrictions

- **Usually, the requirement to nominate gas per the NAESB nomination cycles coincides with the requirement to nominate gas ratably (ratable takes).**
- **When these restrictions are imposed, generators have to nominate uniform gas volumes for every hour (or within a threshold).**
- **These restrictions may require the need to increase generators' minimum run times and reduce dispatchable range.**

Minimum Run Time

- **Min Run Time**
 - **When 24 hour ratable takes are imposed, it is expected that units will request a PLS exception to increase the min run time.**
 - **After the evening cycle, the min run times should be reduced to reflect the gas that can flow on ID1, ID2, ID3.**
 - The min run time for ID1 should be 19 hours (15:00 to 10:00).
 - The min run time for ID2 should be 15 hours (19:00 to 10:00).
 - The min run time for ID3 should be 11 hours (23:00 to 10:00).

Hour	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12
Min Run Time	19	19	19	19	19	19	19	19	19	19	15	15
Nearest Cycle	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID2	ID2

Hour	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Min Run Time	15	15	11	11	11	11	11	19	19	19	19	19
Nearest Cycle	ID2	ID2	ID3	ID3	ID3	ID3	ID3	ID1	ID1	ID1	ID1	ID1

Turn Down Ratio

- **Turn Down Ratio**
 - **When ratable takes are imposed, it is expected that units will request a PLS exception to reduce their turn down ratio.**
 - **The expected turn down ratio will be a function of the flexibility allowed by the pipeline. If the pipeline does not allow any flexibility, the expected turn down ratio is one (1.0).**

Reserves

- **Longer notification times mean that units cannot provide offline reserves.**
- **Online gas units that cannot adjust output (increase or decrease) once gas is nominated cannot provide reserves either.**
- **Online gas units that cannot adjust output should not be counted towards reserves, and if this is known DA, these units should not be assigned DA reserves.**

Implications

- **These restrictions make flexible units (such as CCs and CTs) inflexible.**
 - **Long minimum run times, long notification times, block loaded.**
- **When these requirements are imposed and reflected in operating parameters, these units will not be able to provide reserves.**
- **Other units will have to:**
 - **Be held offline as reserves (e.g. oil fired CTs).**
 - **Backed down (e.g. coal, other gas units).**

PJM/IMM PLS Guidelines and RTVs

- On September 8, 2023, PJM and the IMM posted guidelines for the use of temporary exceptions when pipelines imposed restrictions.
 - [Guidelines](#)
- On September 11, 2023, PJM and the IMM filed a motion to expedite the replacement of real time values with temporary exceptions in real time by December 1, 2023.

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