

Market Monitor Report

MC Webinar
November 19, 2024

IMM



Monitoring Analytics

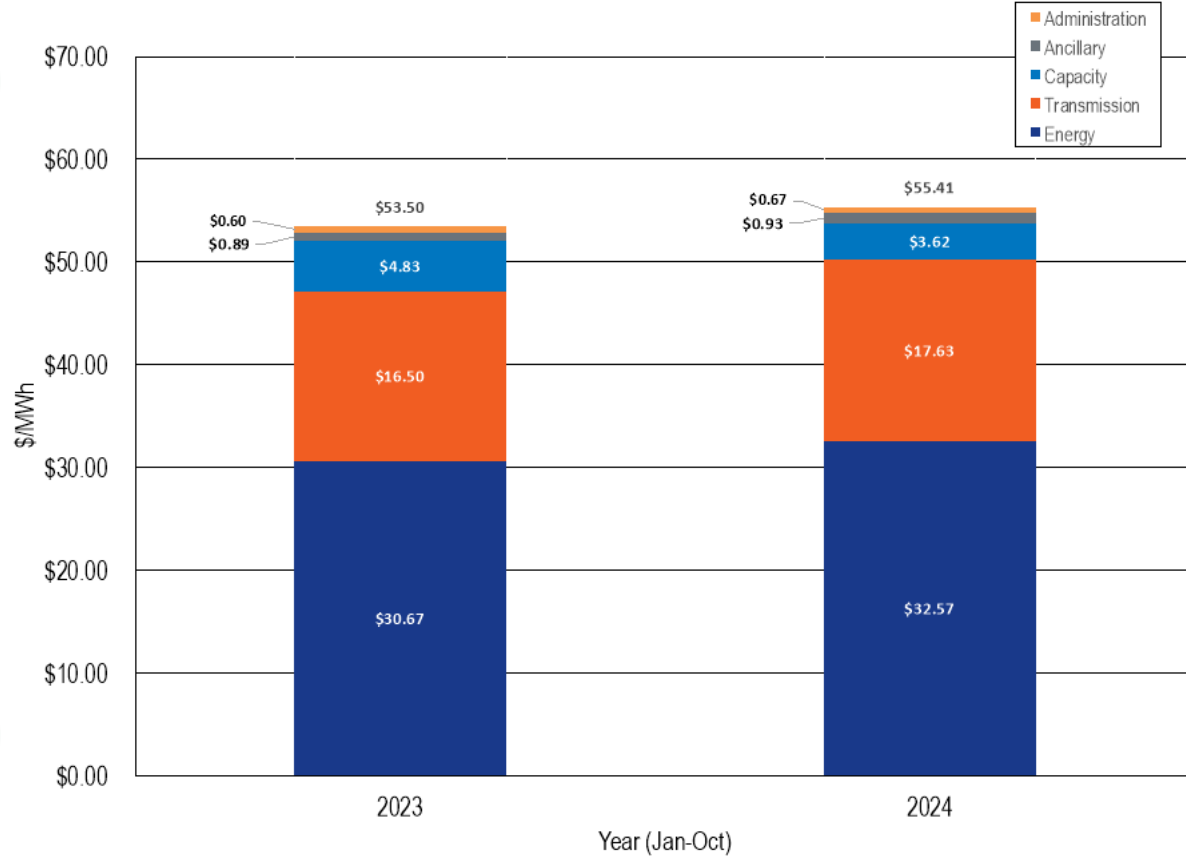
Capacity Market Analysis

- The IMM has posted three reports on capacity market design issues:
- See reports analyzing the 2025/2026 RPM Base Residual Auction, “Analysis of the 2025/2026 RPM Base Residual Auction - Part A,” (Sep. 20, 2024), “Analysis of the 2025/2026 RPM Base Residual Auction - Part B,” (Oct. 15, 2024), “Analysis of the 2025/2026 RPM Base Residual Auction - Part C,” (Nov. 6, 2024). These reports can be found at <https://www.monitoringanalytics.com/reports/Reports/2024.shtml>.

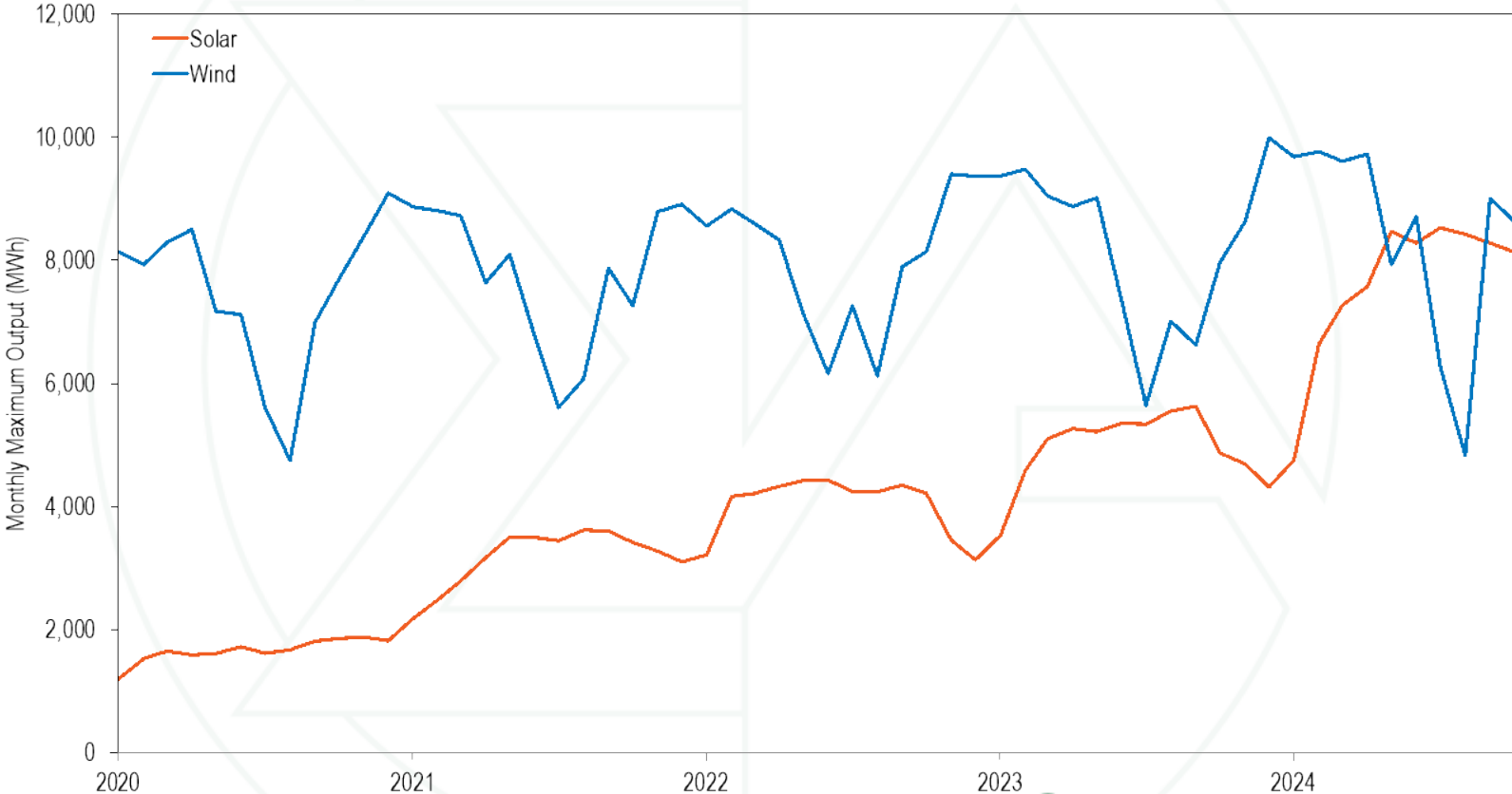
Total Cost of Wholesale Power: January through October, 2024

| Category | 2023 (Jan-Oct) | 2023 (Jan-Oct) | 2023 (Jan-Oct) | 2024 (Jan-Oct) | 2024 (Jan-Oct) | 2024 (Jan-Oct) | Percent Change |
|---|----------------|----------------|------------------|----------------|----------------|------------------|----------------|
| | \$/MWh | (\$ Millions) | Percent of Total | \$/MWh | (\$ Millions) | Percent of Total | |
| Energy | \$30.67 | \$19,298 | 57.3% | \$32.57 | \$21,349 | 58.8% | 6.2% |
| Day Ahead Energy | \$31.88 | \$20,057 | 59.6% | \$33.44 | \$21,918 | 60.3% | 4.9% |
| Balancing Energy | \$0.43 | \$271 | 0.8% | \$0.57 | \$374 | 1.0% | 32.4% |
| ARR Credits | (\$1.49) | (\$935) | (2.8)% | (\$1.28) | (\$836) | (2.3)% | (14.2)% |
| Self Scheduled FTR Credits | (\$0.41) | (\$256) | (0.8)% | (\$0.54) | (\$355) | (1.0)% | 33.2% |
| Balancing Congestion | \$0.40 | \$251 | 0.7% | \$0.39 | \$255 | 0.7% | (2.4)% |
| Emergency Energy | \$0.00 | \$0 | 0.0% | \$0.00 | \$0 | 0.0% | 0.0% |
| Inadvertent Energy | \$0.01 | \$4 | 0.0% | \$0.01 | \$10 | 0.0% | 131.6% |
| Load Response - Energy | \$0.01 | \$5 | 0.0% | \$0.01 | \$9 | 0.0% | 51.2% |
| Emergency Load Response | \$0.10 | \$61 | 0.2% | \$0.00 | \$0 | 0.0% | (100.0)% |
| Energy Uplift (Operating Reserves) | \$0.21 | \$133 | 0.4% | \$0.35 | \$232 | 0.6% | 67.5% |
| Marginal Loss Surplus Allocation | (\$0.54) | (\$342) | (1.0)% | (\$0.45) | (\$293) | (0.8)% | (17.6)% |
| Market to Market Payments | \$0.08 | \$48 | 0.1% | \$0.05 | \$35 | 0.1% | (28.4)% |
| Capacity | \$4.83 | \$3,042 | 9.0% | \$3.62 | \$2,369 | 6.5% | (25.2)% |
| Capacity (Capacity Market and FRR) | \$4.73 | \$2,976 | 8.8% | \$3.52 | \$2,309 | 6.4% | (25.5)% |
| Capacity Part V (RMR) | \$0.10 | \$66 | 0.2% | \$0.08 | \$52 | 0.1% | (23.5)% |
| Load Response - Capacity | \$0.00 | \$0 | 0.0% | \$0.01 | \$8 | 0.0% | 3,001.3% |
| Transmission | \$16.50 | \$10,395 | 30.9% | \$17.63 | \$11,557 | 31.8% | 6.8% |
| Transmission Service Charges | \$14.09 | \$8,865 | 26.3% | \$14.97 | \$9,814 | 27.0% | 6.3% |
| Transmission Enhancement Cost Recovery | \$2.33 | \$1,467 | 4.4% | \$2.57 | \$1,683 | 4.6% | 10.1% |
| Transmission Owner (Schedule 1A) | \$0.08 | \$52 | 0.2% | \$0.09 | \$60 | 0.2% | 10.9% |
| 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 | \$0.89 | \$560 | 1.7% | \$0.93 | \$610 | 1.7% | 4.5% |
| Reactive | \$0.52 | \$324 | 1.0% | \$0.48 | \$318 | 0.9% | (6.0)% |
| Regulation | \$0.18 | \$113 | 0.3% | \$0.23 | \$153 | 0.4% | 29.5% |
| Black Start | \$0.09 | \$56 | 0.2% | \$0.09 | \$62 | 0.2% | 6.2% |
| Synchronized Reserves | \$0.09 | \$59 | 0.2% | \$0.10 | \$66 | 0.2% | 8.6% |
| Secondary Reserves | \$0.00 | \$1 | 0.0% | \$0.00 | \$2 | 0.0% | 94.0% |
| Non-Synchronized Reserves | \$0.01 | \$7 | 0.0% | \$0.01 | \$9 | 0.0% | 22.3% |
| Day Ahead Scheduling Reserve (DASR) | \$0.00 | \$0 | 0.0% | \$0.00 | \$0 | 0.0% | 0.0% |
| Administration | \$0.60 | \$375 | 1.1% | \$0.67 | \$436 | 1.2% | 11.5% |
| PJM Administrative Fees | \$0.55 | \$346 | 1.0% | \$0.62 | \$404 | 1.1% | 11.9% |
| NERC/RFC | \$0.04 | \$24 | 0.1% | \$0.04 | \$28 | 0.1% | 8.8% |
| RTO Startup and Expansion | \$0.00 | \$0 | 0.0% | \$0.00 | \$0 | 0.0% | 0.0% |
| Other | \$0.01 | \$5 | 0.0% | \$0.01 | \$5 | 0.0% | (3.6)% |
| Total Price | \$53.50 | \$33,661 | 100.0% | \$55.41 | \$36,322 | 100.0% | 3.6% |
| Total Day Ahead Load | 624,368 | | | 648,775 | | | 3.9% |
| Total Balancing Load | (4,843) | | | (6,675) | | | 37.8% |
| Total Real Time Load | 629,211 | | | 655,450 | | | 4.2% |
| Total Cost (\$ Billions) | \$33.66 | | | \$36.32 | | | 7.9% |

Total Cost of Wholesale Power: January through October, 2024



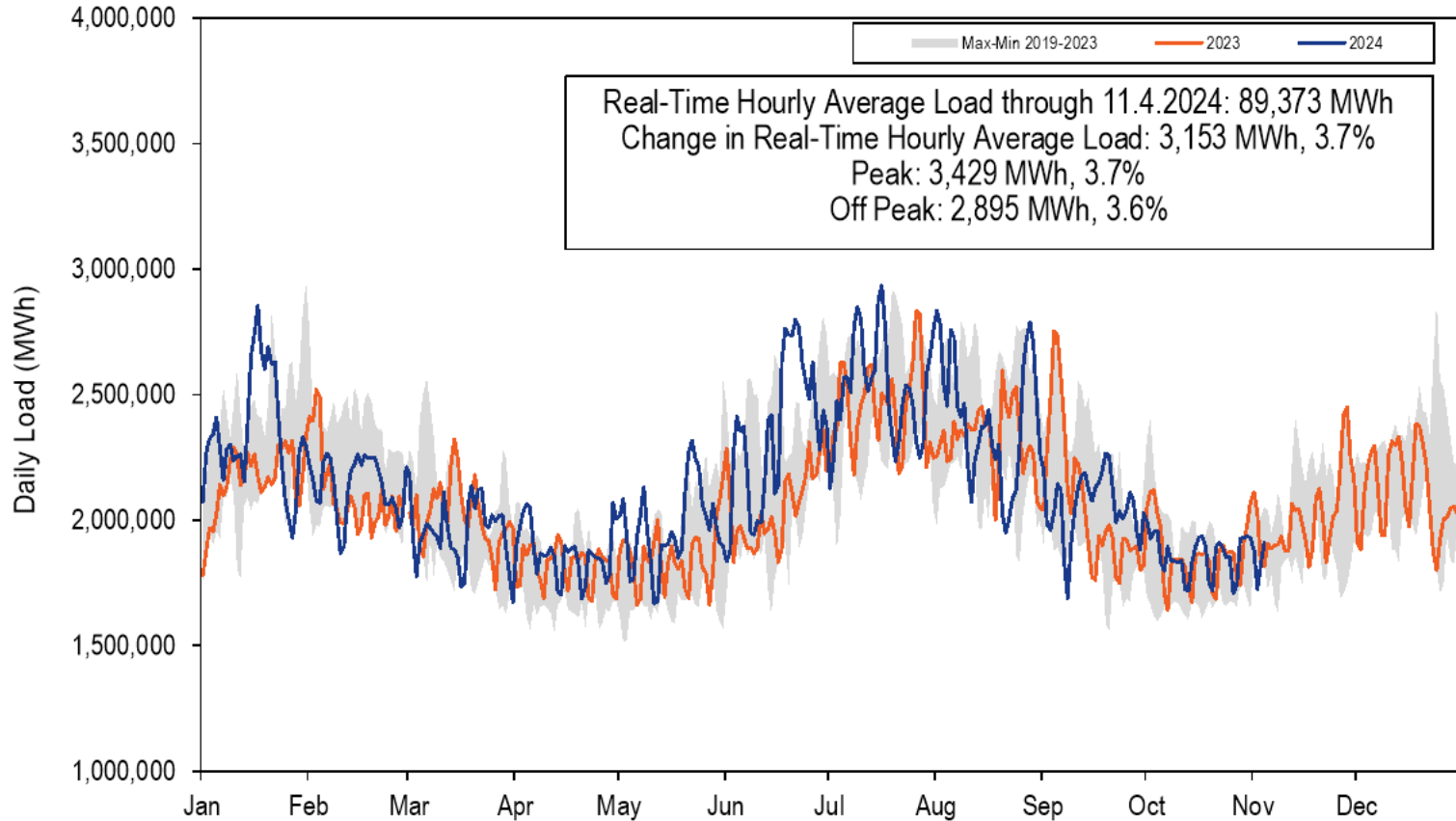
Maximum Solar and Wind Hourly Output by Month through August 2024



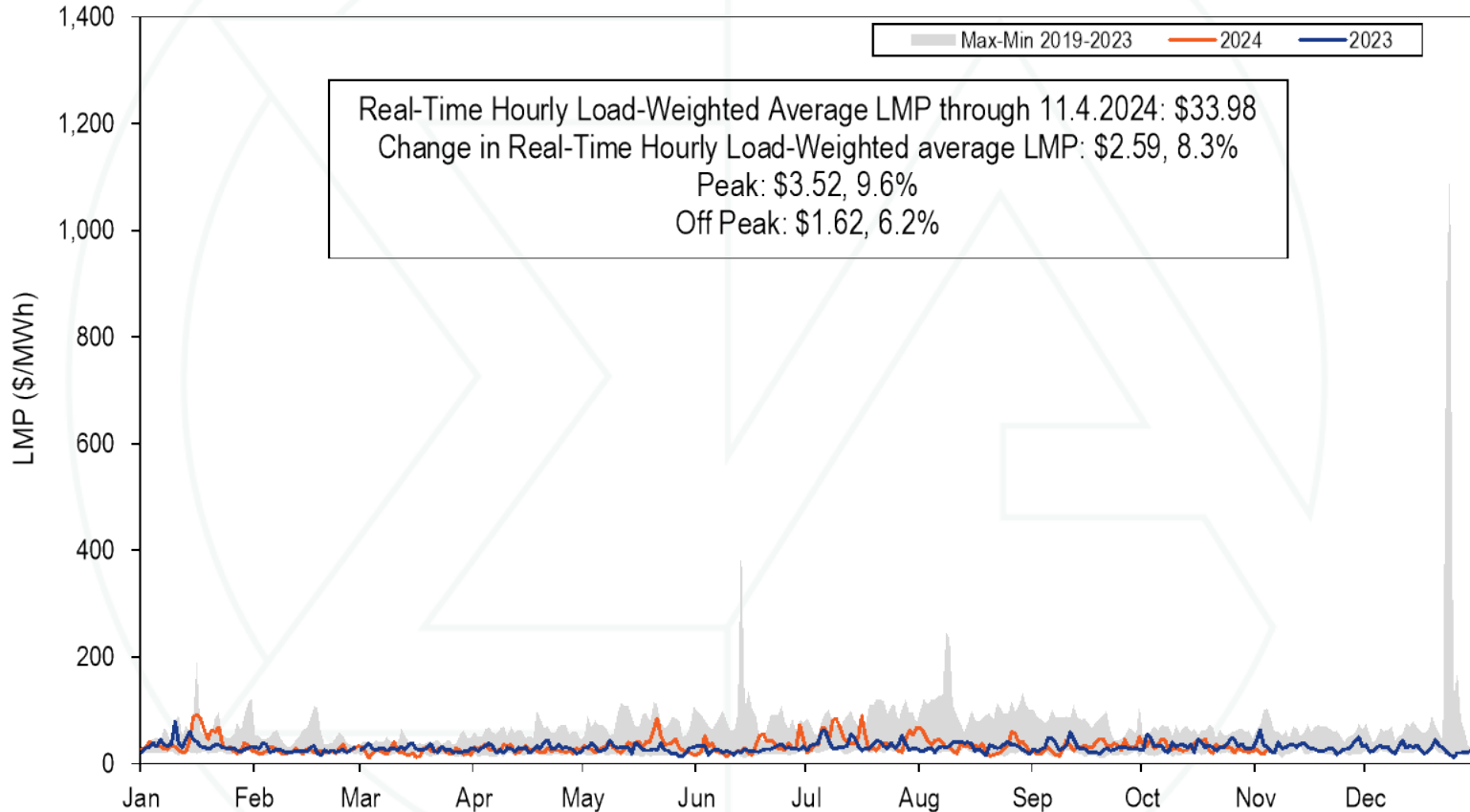
Maximum Hourly Solar and Wind Output by Year

| 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.**

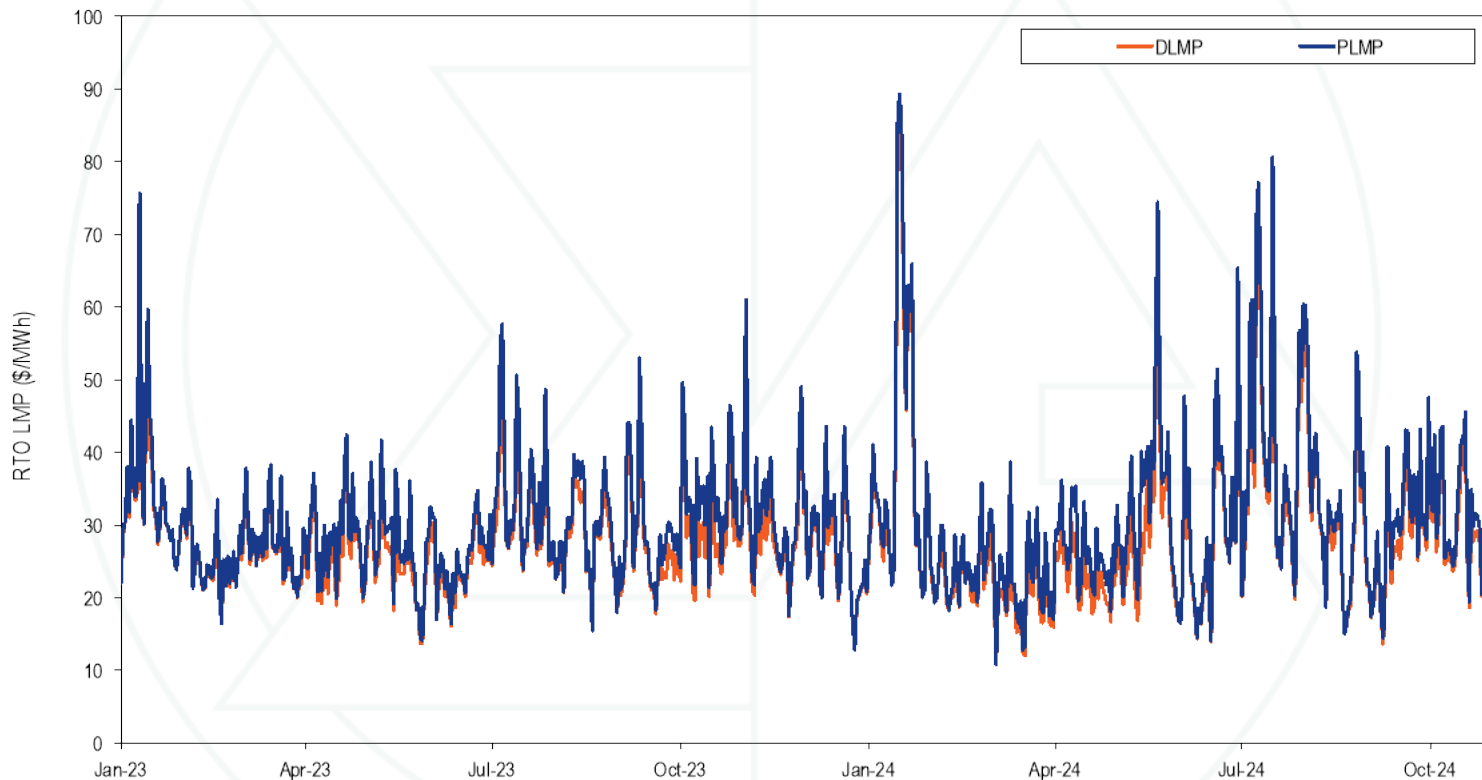
Fast Start Pricing: DLMP and PLMP

- **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**

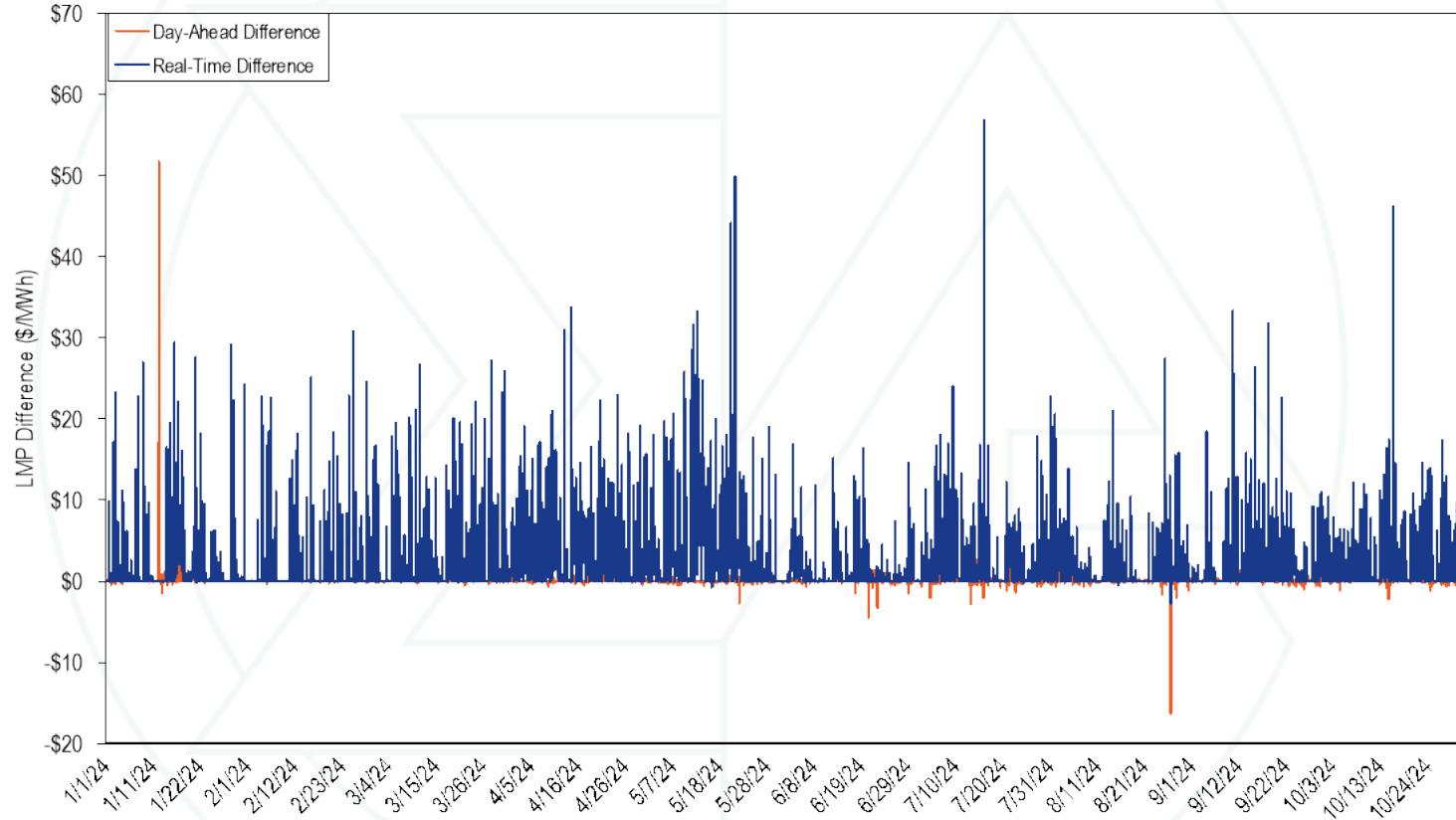
Monthly Average Load-Weighted DLMP and PLMP

| 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 - Oct | \$31.94 | \$31.97 | \$0.03 | 0.1% | \$29.05 | \$31.03 | \$1.98 | 6.8% |
| 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 | Oct | \$33.18 | \$33.26 | \$0.08 | 0.2% | \$29.85 | \$31.87 | \$2.02 | 6.8% |
| 2024 | Jan - Oct | \$33.72 | \$33.79 | \$0.07 | 0.2% | \$31.56 | \$34.09 | \$2.53 | 8.0% |

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-Oct | 1.1% | 0.5% | 0.1% | 1.7% | 5.3% | 1.2% | 0.0% | 6.6% |
| 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 | Oct | 1.2% | 0.1% | 0.0% | 1.3% | 6.4% | 1.3% | 0.0% | 7.7% |
| 2024 | Jan-Oct | 0.8% | 0.3% | 0.2% | 1.3% | 5.2% | 0.8% | 0.2% | 6.1% |

Fast Start Impacts: Zone Average Differences

| Zone | 2024 Jan - Oct | | | | | | | |
|-------|----------------|--------------|------------|--------------------|--------------|--------------|------------|--------------------|
| | Day-Ahead | | | | Real-Time | | | |
| | Average DLMP | Average PLMP | Difference | Percent Difference | Average DLMP | Average PLMP | Difference | Percent Difference |
| ACEC | \$25.23 | \$25.27 | \$0.04 | 0.2% | \$23.63 | \$25.03 | \$1.40 | 5.9% |
| AEP | \$30.93 | \$30.98 | \$0.05 | 0.2% | \$28.56 | \$30.67 | \$2.10 | 7.4% |
| APS | \$32.13 | \$32.17 | \$0.04 | 0.1% | \$29.35 | \$31.54 | \$2.19 | 7.5% |
| ATSI | \$30.94 | \$30.96 | \$0.02 | 0.1% | \$28.51 | \$30.56 | \$2.05 | 7.2% |
| BGE | \$39.22 | \$39.27 | \$0.05 | 0.1% | \$35.53 | \$38.23 | \$2.70 | 7.6% |
| COMED | \$26.26 | \$26.32 | \$0.05 | 0.2% | \$24.12 | \$25.95 | \$1.82 | 7.6% |
| DAY | \$32.30 | \$32.35 | \$0.05 | 0.2% | \$29.72 | \$31.93 | \$2.21 | 7.4% |
| DUKE | \$31.39 | \$31.44 | \$0.05 | 0.2% | \$28.82 | \$30.94 | \$2.12 | 7.4% |
| DOM | \$36.26 | \$36.31 | \$0.05 | 0.1% | \$33.66 | \$36.05 | \$2.39 | 7.1% |
| DPL | \$28.70 | \$28.75 | \$0.05 | 0.2% | \$26.30 | \$28.79 | \$2.49 | 9.5% |
| DUQ | \$30.89 | \$30.93 | \$0.04 | 0.1% | \$28.65 | \$30.71 | \$2.06 | 7.2% |
| EKPC | \$30.68 | \$30.72 | \$0.05 | 0.2% | \$28.57 | \$30.66 | \$2.10 | 7.3% |
| JCPLC | \$25.64 | \$25.68 | \$0.04 | 0.2% | \$24.07 | \$25.54 | \$1.47 | 6.1% |
| MEC | \$27.68 | \$27.72 | \$0.04 | 0.2% | \$25.38 | \$27.12 | \$1.74 | 6.9% |
| OVEC | \$30.05 | \$30.09 | \$0.05 | 0.2% | \$27.73 | \$29.76 | \$2.04 | 7.3% |
| PECO | \$24.52 | \$24.56 | \$0.04 | 0.2% | \$23.03 | \$24.35 | \$1.32 | 5.7% |
| PE | \$30.88 | \$30.91 | \$0.03 | 0.1% | \$28.39 | \$30.39 | \$2.00 | 7.1% |
| PEPCO | \$37.09 | \$37.13 | \$0.05 | 0.1% | \$33.47 | \$35.97 | \$2.50 | 7.5% |
| PPL | \$25.73 | \$25.78 | \$0.04 | 0.2% | \$23.80 | \$25.38 | \$1.58 | 6.6% |
| PSEG | \$25.85 | \$25.89 | \$0.04 | 0.2% | \$24.31 | \$25.79 | \$1.48 | 6.1% |
| REC | \$27.73 | \$27.77 | \$0.04 | 0.1% | \$25.96 | \$27.53 | \$1.57 | 6.1% |

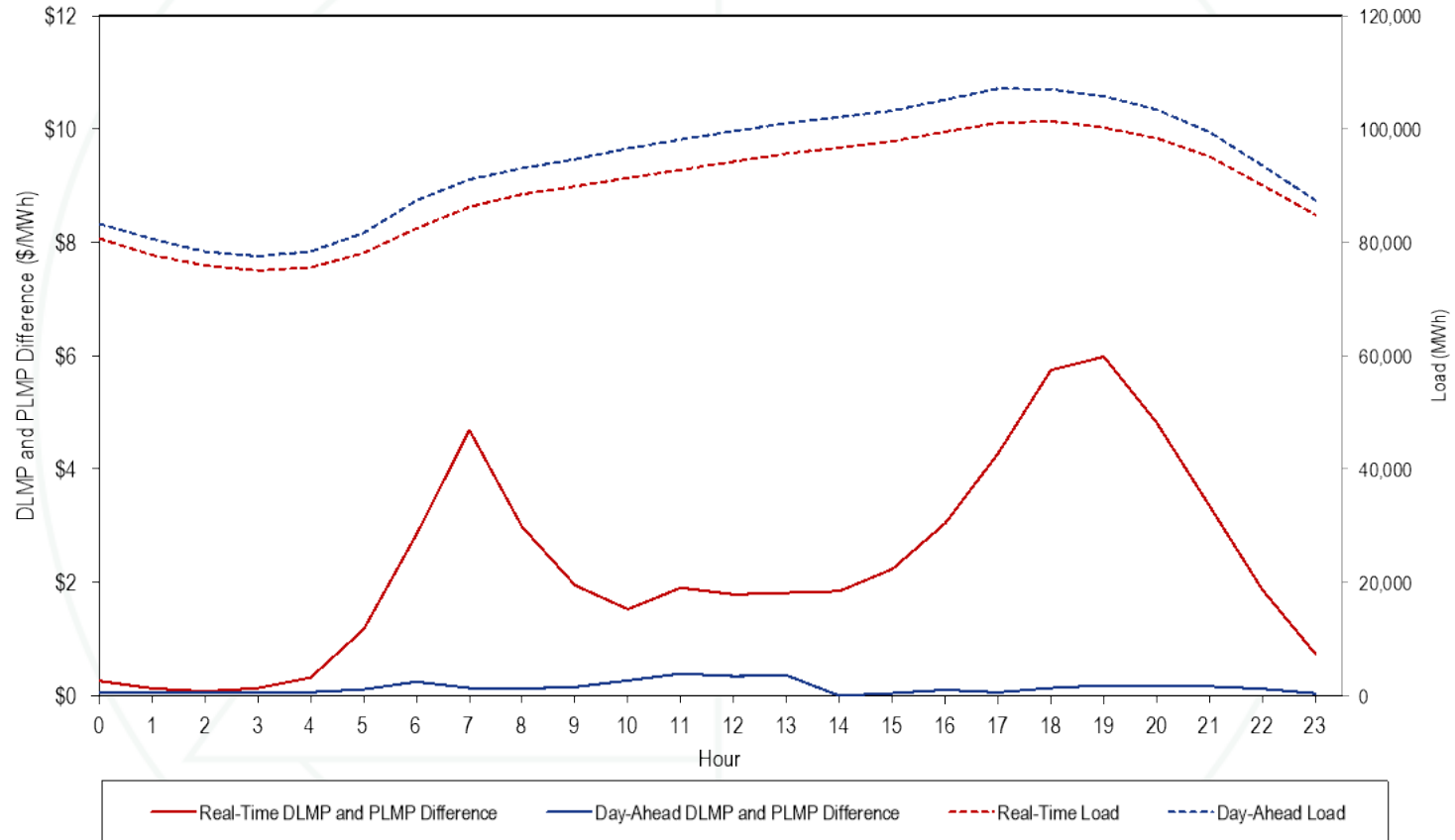
Fast Start Impacts: Hub Average Differences

| Hub | 2024 Jan - Oct | | | | | | | |
|-----------------|----------------|--------------|------------|--------------------|--------------|--------------|------------|--------------------|
| | Average DLMP | Day-Ahead | | | Average DLMP | Real-Time | | |
| | | Average PLMP | Difference | Percent Difference | | Average PLMP | Difference | Percent Difference |
| AEP GEN HUB | \$29.83 | \$29.87 | \$0.03 | 0.1% | \$27.49 | \$29.53 | \$2.04 | 7.4% |
| AEP-DAYTON HUB | \$30.61 | \$30.64 | \$0.03 | 0.1% | \$28.13 | \$30.21 | \$2.08 | 7.4% |
| ATSI GEN HUB | \$30.41 | \$30.44 | \$0.03 | 0.1% | \$27.82 | \$29.83 | \$2.01 | 7.2% |
| CHICAGO GEN HUB | \$25.73 | \$25.79 | \$0.06 | 0.2% | \$23.44 | \$25.24 | \$1.80 | 7.7% |
| CHICAGO HUB | \$26.45 | \$26.47 | \$0.02 | 0.1% | \$24.23 | \$26.05 | \$1.82 | 7.5% |
| DOMINION HUB | \$33.68 | \$33.71 | \$0.03 | 0.1% | \$30.86 | \$33.14 | \$2.28 | 7.4% |
| EASTERN HUB | \$28.95 | \$28.98 | \$0.03 | 0.1% | \$26.37 | \$28.86 | \$2.49 | 9.4% |
| N ILLINOIS HUB | \$26.17 | \$26.24 | \$0.07 | 0.3% | \$24.12 | \$25.94 | \$1.82 | 7.5% |
| NEW JERSEY HUB | \$25.66 | \$25.69 | \$0.03 | 0.1% | \$24.08 | \$25.54 | \$1.47 | 6.1% |
| OHIO HUB | \$30.57 | \$30.60 | \$0.03 | 0.1% | \$28.09 | \$30.16 | \$2.07 | 7.4% |
| WEST INT HUB | \$31.76 | \$31.78 | \$0.02 | 0.1% | \$29.18 | \$31.31 | \$2.13 | 7.3% |
| WESTERN HUB | \$33.34 | \$33.37 | \$0.02 | 0.1% | \$30.24 | \$32.49 | \$2.25 | 7.4% |

Zonal Real-Time PLMP-DLMP Difference Frequency

| 2024 Jan - Oct | | | | | | | | | | | |
|----------------|----------|------------------|---------------|-------|-------------|--------------|--------------|---------------|----------------|----------|--|
| 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% | 52.7% | 39.6% | 4.8% | 2.0% | 0.1% | 0.0% | 0.0% | |
| ACEC | 0.0% | 0.0% | 4.8% | 52.9% | 37.6% | 3.1% | 1.5% | 0.1% | 0.0% | 0.0% | |
| AEP | 0.0% | 0.0% | 1.4% | 52.8% | 38.3% | 5.0% | 2.3% | 0.1% | 0.0% | 0.0% | |
| APS | 0.0% | 0.0% | 1.1% | 52.7% | 38.5% | 4.9% | 2.5% | 0.1% | 0.0% | 0.0% | |
| ATSI | 0.0% | 0.1% | 1.8% | 52.7% | 38.3% | 4.7% | 2.3% | 0.1% | 0.0% | 0.0% | |
| BGE | 0.0% | 0.1% | 2.5% | 52.6% | 34.9% | 5.7% | 3.6% | 0.4% | 0.1% | 0.0% | |
| COMED | 0.0% | 0.1% | 3.5% | 53.5% | 36.7% | 4.2% | 1.9% | 0.1% | 0.0% | 0.0% | |
| DAY | 0.0% | 0.0% | 1.4% | 52.8% | 37.7% | 5.2% | 2.6% | 0.2% | 0.0% | 0.0% | |
| DUKE | 0.0% | 0.0% | 1.5% | 52.8% | 38.2% | 4.9% | 2.3% | 0.1% | 0.0% | 0.0% | |
| DOM | 0.0% | 0.1% | 1.8% | 52.7% | 36.9% | 5.3% | 2.9% | 0.2% | 0.0% | 0.0% | |
| DPL | 0.0% | 0.1% | 6.9% | 52.9% | 33.6% | 2.9% | 2.7% | 0.5% | 0.4% | 0.0% | |
| DUQ | 0.0% | 0.0% | 1.6% | 52.7% | 38.6% | 4.6% | 2.2% | 0.1% | 0.0% | 0.0% | |
| EKPC | 0.0% | 0.0% | 1.4% | 52.8% | 38.5% | 4.8% | 2.2% | 0.1% | 0.0% | 0.0% | |
| JCPLC | 0.0% | 0.0% | 2.4% | 53.0% | 40.0% | 3.1% | 1.5% | 0.1% | 0.0% | 0.0% | |
| MEC | 0.0% | 0.2% | 3.9% | 52.7% | 37.4% | 3.8% | 1.8% | 0.1% | 0.0% | 0.0% | |
| OVEC | 0.0% | 0.1% | 1.7% | 52.8% | 38.2% | 4.8% | 2.2% | 0.1% | 0.0% | 0.0% | |
| PECO | 0.0% | 0.1% | 6.4% | 52.9% | 36.0% | 3.0% | 1.5% | 0.1% | 0.0% | 0.0% | |
| PE | 0.0% | 0.1% | 1.5% | 52.6% | 39.2% | 4.5% | 2.0% | 0.1% | 0.0% | 0.0% | |
| PEPCO | 0.0% | 0.1% | 2.2% | 52.7% | 35.9% | 5.5% | 3.3% | 0.3% | 0.0% | 0.0% | |
| PPL | 0.0% | 0.1% | 3.3% | 52.7% | 39.0% | 3.4% | 1.5% | 0.1% | 0.0% | 0.0% | |
| PSEG | 0.0% | 0.0% | 2.3% | 52.9% | 40.1% | 3.1% | 1.5% | 0.1% | 0.0% | 0.0% | |
| REC | 0.0% | 0.1% | 2.2% | 52.7% | 40.1% | 3.3% | 1.6% | 0.1% | 0.0% | 0.0% | |

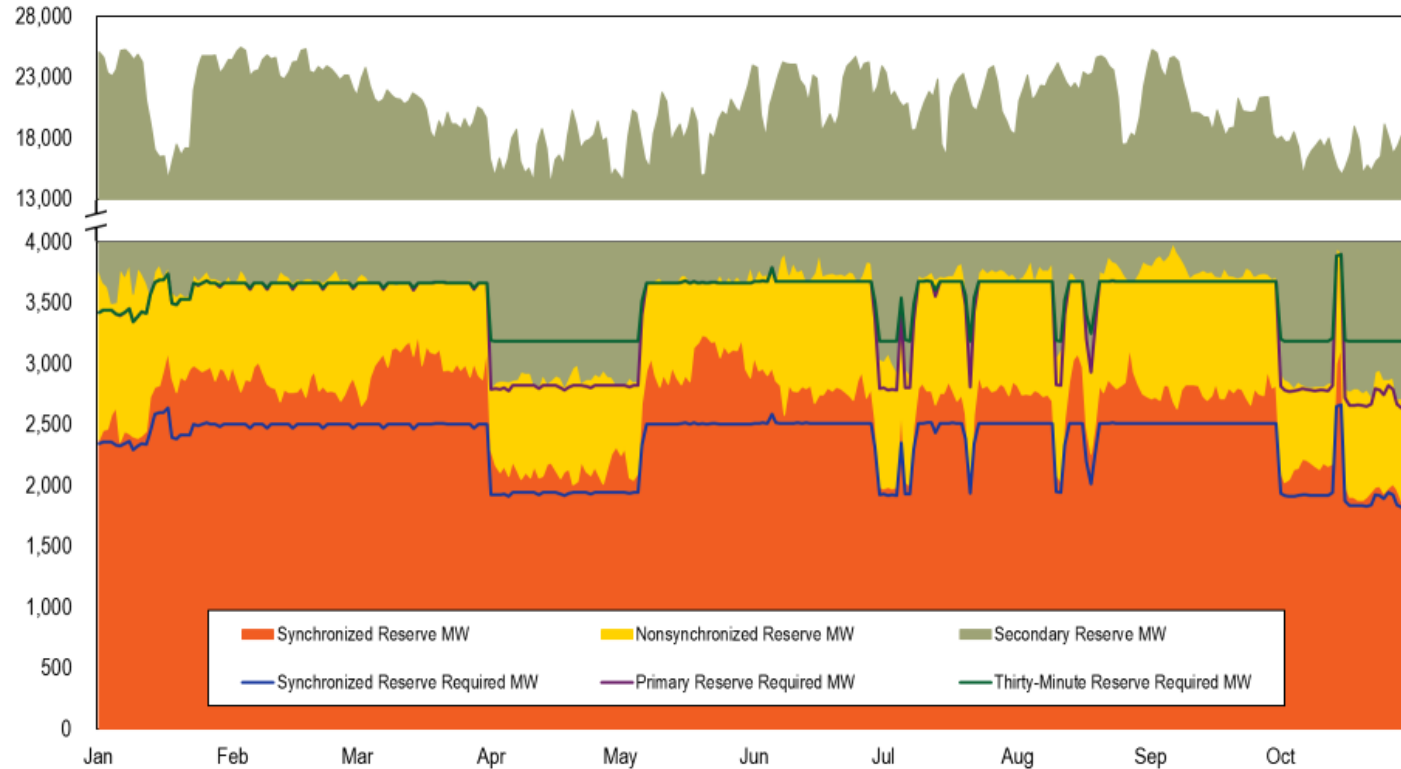
Hourly Average Load and LMP Difference



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% | \$26.60 | \$36.49 | \$9.89 | 37.2% |
| 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, August, and October are due to smaller units 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 |
| 2024 | Oct | 2,133 | 2,101 | 785 | 793 | 2,918 | 2,893 | 9,736 | 14,177 | 12,654 | 17,070 |

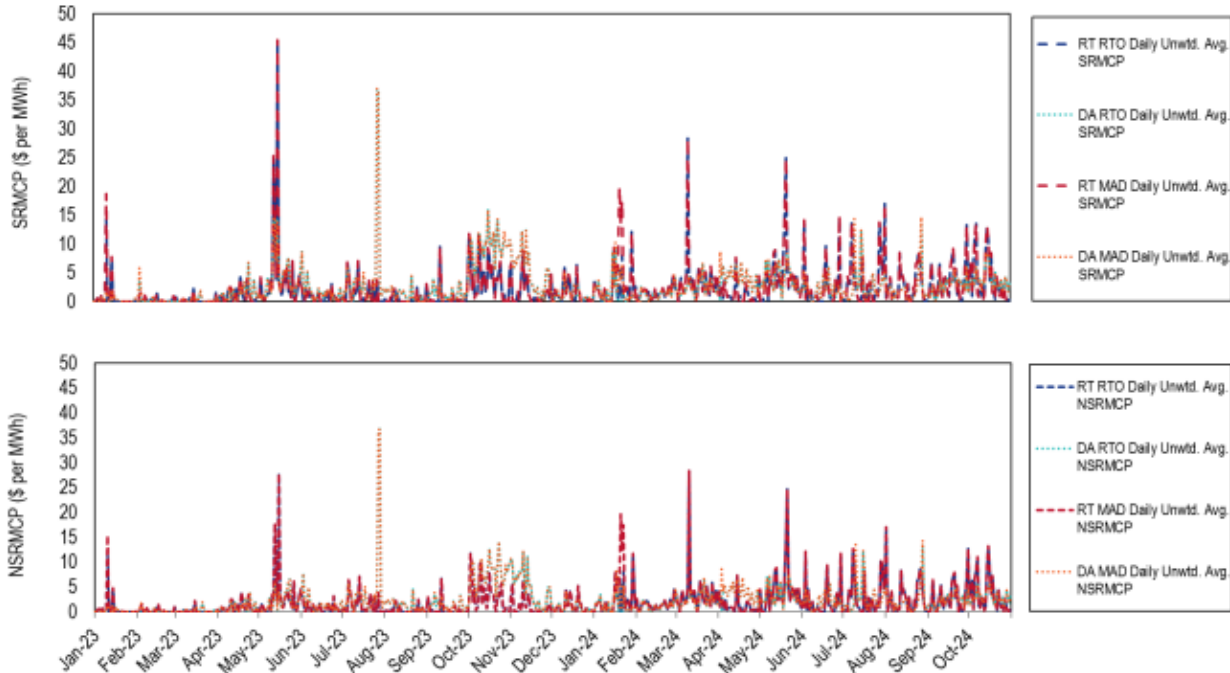
Day-Ahead & Real-Time MAD Reserve MW

| 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 |
| 2024 | Oct | 1,870 | 1,862 | 636 | 702 | 2,506 | 2,565 | 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 | \$5,398,340 | \$779,873 | \$0 | (\$323,777) | (\$388,200) | \$0 | \$1,006,853 | \$180,084 | \$109,243 |
| 2024 | Apr | \$9,018,149 | \$1,791,283 | \$0 | (\$907,004) | (\$149,935) | \$0 | \$594,273 | \$81,737 | \$89,434 |
| 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) | (\$184,066) | \$0 | \$788,610 | \$41,825 | \$123,529 |
| 2024 | Jul | \$5,994,640 | \$1,271,008 | \$0 | \$88,604 | (\$166,519) | \$0 | \$1,400,616 | \$42,317 | \$312,089 |
| 2024 | Aug | \$5,015,123 | \$952,433 | \$0 | (\$203,403) | (\$143,830) | \$0 | \$1,001,776 | \$71,568 | \$395,696 |
| 2024 | Sep | \$5,792,899 | \$1,072,480 | \$0 | (\$174,272) | (\$391,855) | \$0 | \$913,531 | \$267,027 | \$114,300 |
| 2024 | Oct | \$6,502,979 | \$1,038,044 | \$0 | (\$238,832) | (\$128,961) | \$0 | \$1,154,336 | \$157,580 | \$365,548 |
| 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 | \$6,081,416 | \$571,757 | \$109,243 | | | |
| 2024 | Apr | \$0 | NA | \$0 | \$8,705,418 | \$1,723,085 | \$89,434 | | | |
| 2024 | May | \$0 | NA | \$0 | \$10,568,136 | \$1,156,446 | \$289,740 | | | |
| 2024 | Jun | \$0 | NA | \$0 | \$4,781,377 | \$737,397 | \$123,529 | | | |
| 2024 | Jul | \$508,031 | NA | \$0 | \$6,975,829 | \$1,146,806 | \$312,089 | | | |
| 2024 | Aug | \$22,670 | NA | \$0 | \$5,790,825 | \$880,171 | \$395,696 | | | |
| 2024 | Sep | \$0 | NA | \$0 | \$6,532,157 | \$947,653 | \$114,300 | | | |
| 2024 | Oct | \$0 | NA | \$0 | \$7,418,483 | \$1,066,664 | \$365,548 | | | |

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. There was shortage pricing in October.

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