Markets Report

Members Committee
December 17, 2025

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- PJM Wholesale Cost is now being calculated exclusively by Monitoring Analytics. (Slide 4)
- Slides pertaining to weather conditions, in addition to slides showing average fuel prices, generation on-line fuel mixes, and System Marginal Prices have been combined into a **Market Conditions** section. (Slides 6-19)
- In November, temperatures were about average. The sum of Heating and Cooling Degree Days was equal to the historic average. (Slides 7-8)
- Energy use was slightly above its historic average for November. (Slides 7-8)
- In November, uplift exceeded $2.25M on two days. (Slide 24-25)

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- Load-weighted average LMP for 2025 is $50.28/MWh: (Slides 33-34)
  - November 2025 was $47.10/MWh, which is higher than November 2024 ($28.30/MWh) and November 2023 ($33.00/MWh).
- There were 13 5-minute intervals that experienced shortage pricing in November. (Slide 32, Report Appendix)
- FTR revenue adequacy for the month of November is 95% and the 2025-2026 Planning Year is currently funded at 100%. (Slides 50-53)
- Congestion values in 2025 thus far have been higher than those seen in 2024. (Slide 51)
- Regulation and Synchronized Reserve market costs have generally tracked with energy prices over time, with the exception of Regulation in October 2025. (Slides 67-69)

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- PJM Wholesale Cost is now being calculated and published exclusively by Monitoring Analytics (IMM).
- Annual and quarterly updates can be found in the IMM's State of the Market Reports:
  - https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2024.shtml
- Monthly updates can be found in Excel format on the IMM's website:
  - https://www.monitoringanalytics.com/data/pjm_price.shtml
- Year-to-Date updates will be presented by the IMM at the monthly MC Webinar.
- PJM will continue to monitor the IMM's Wholesale Cost calculation.

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Market Conditions

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- The weather parameter shown in the following slide is a monthly sum of daily Heating Degree Days (HDD) and Cooling Degree Days (CDD).
- Degree days represent a deviation from a baseline temperature, in this case 60 degrees for HDD and 65 degrees for CDD. As temperatures get more extreme, colder or hotter, either HDDs or CDDs, respectively, will increase.
- Typically, winter months will only record HDDs, while summer months will only record CDDs. Shoulder months may have both HDDs and CDDs.
- Degree Days are calculated using a daily load weighting that weights values from stations in each TO zone according to the zonal contribution to the RTO peak on that day.
- Average values use data from 1998 to the most recent complete year, in this case, 2024. Averages include load data for all of TO zones in the current RTO footprint.

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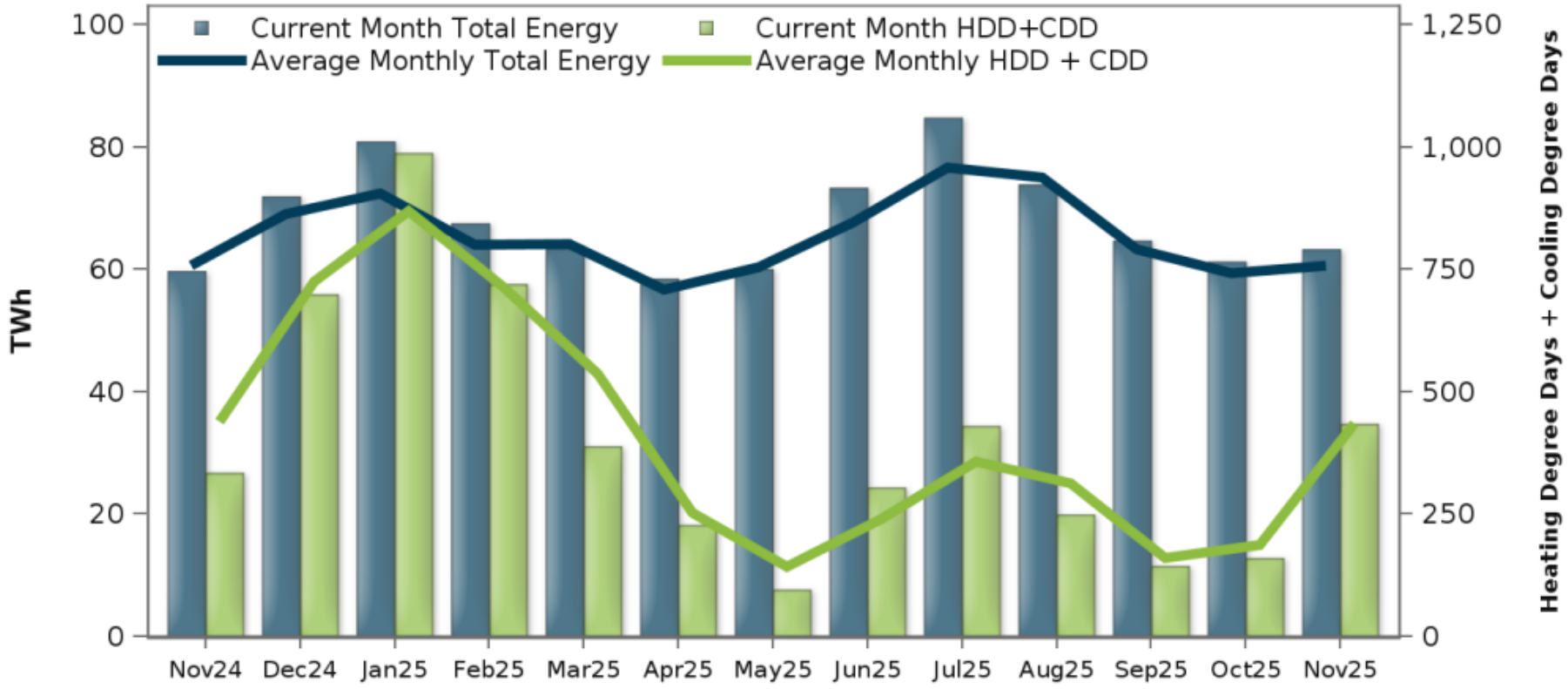
Historic Average Weather and Energy versus Current Month



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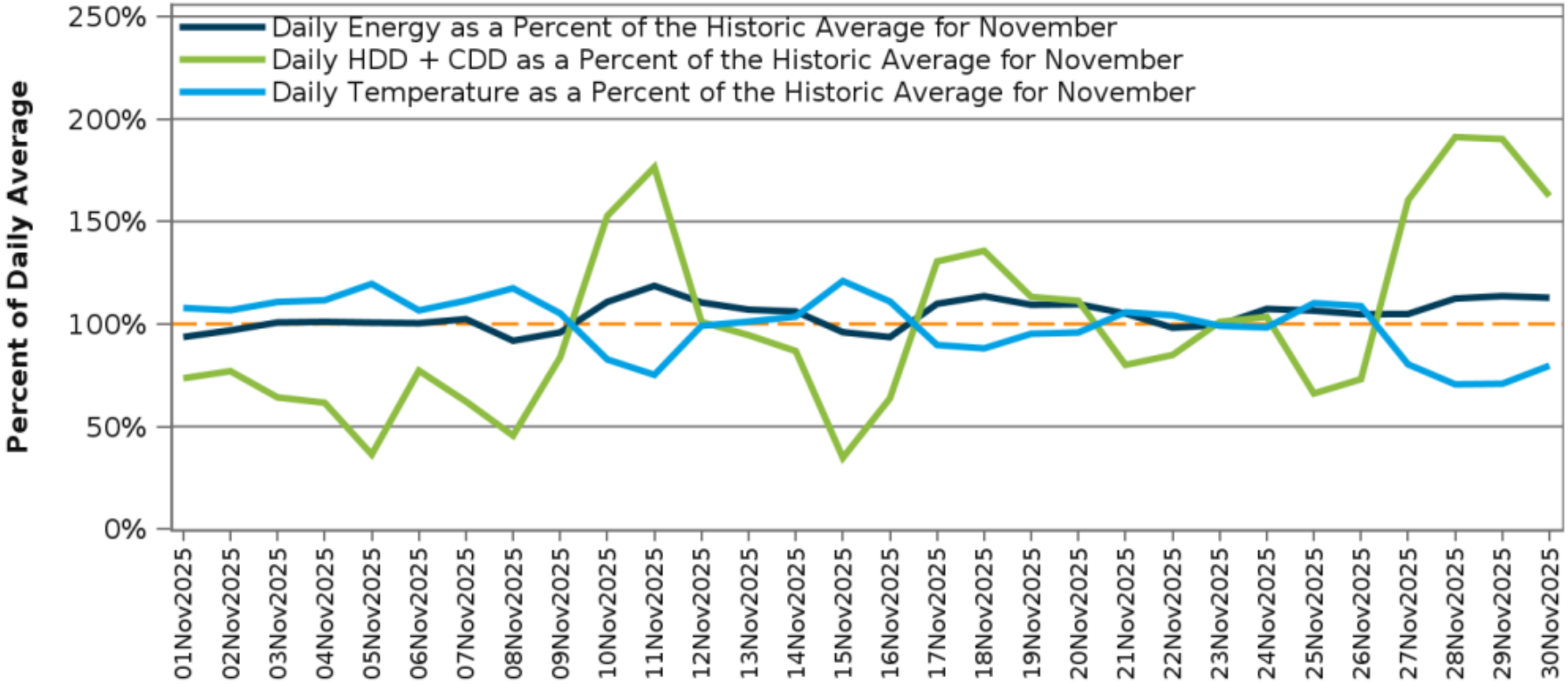
Historic Average Weather and Energy versus Current Month - Daily



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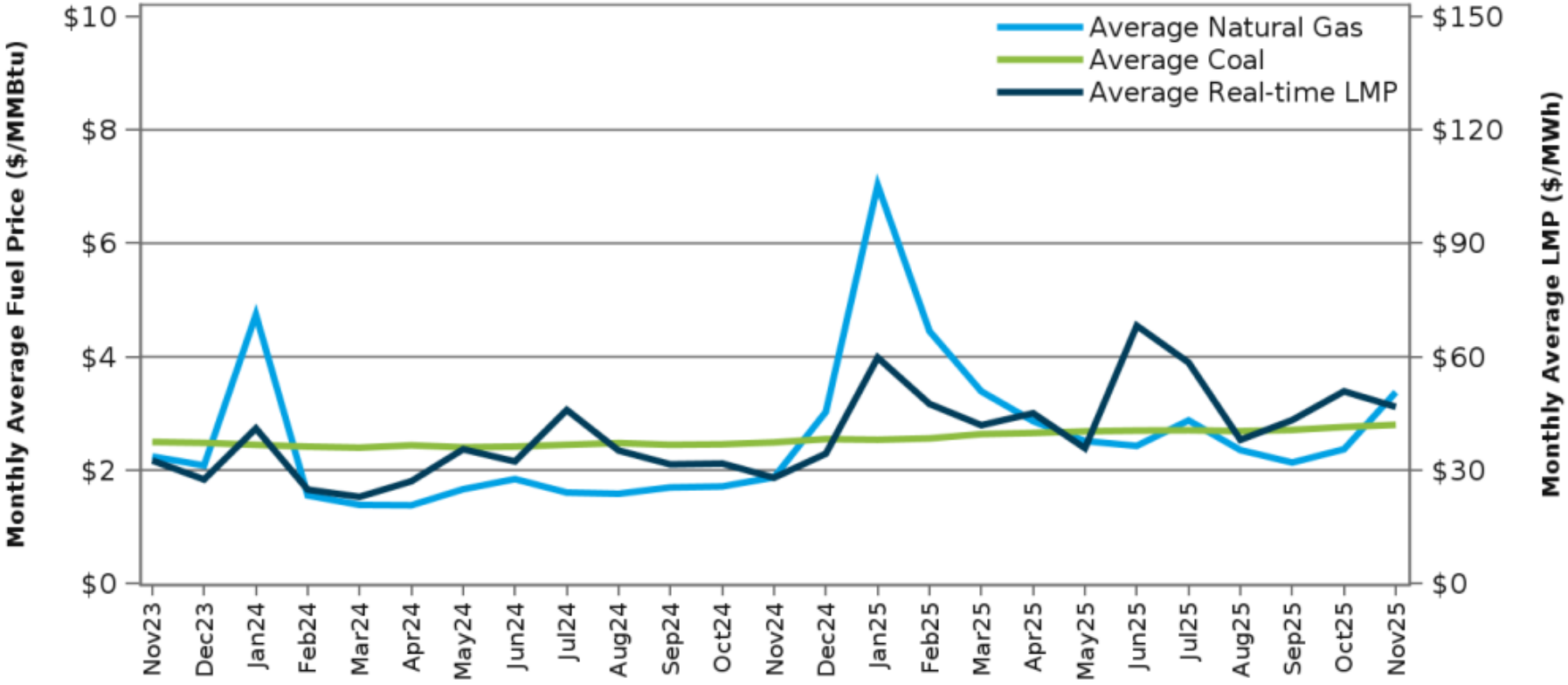
Average Fuel Prices - Monthly



Fuel Price Source: S&P Global Platts

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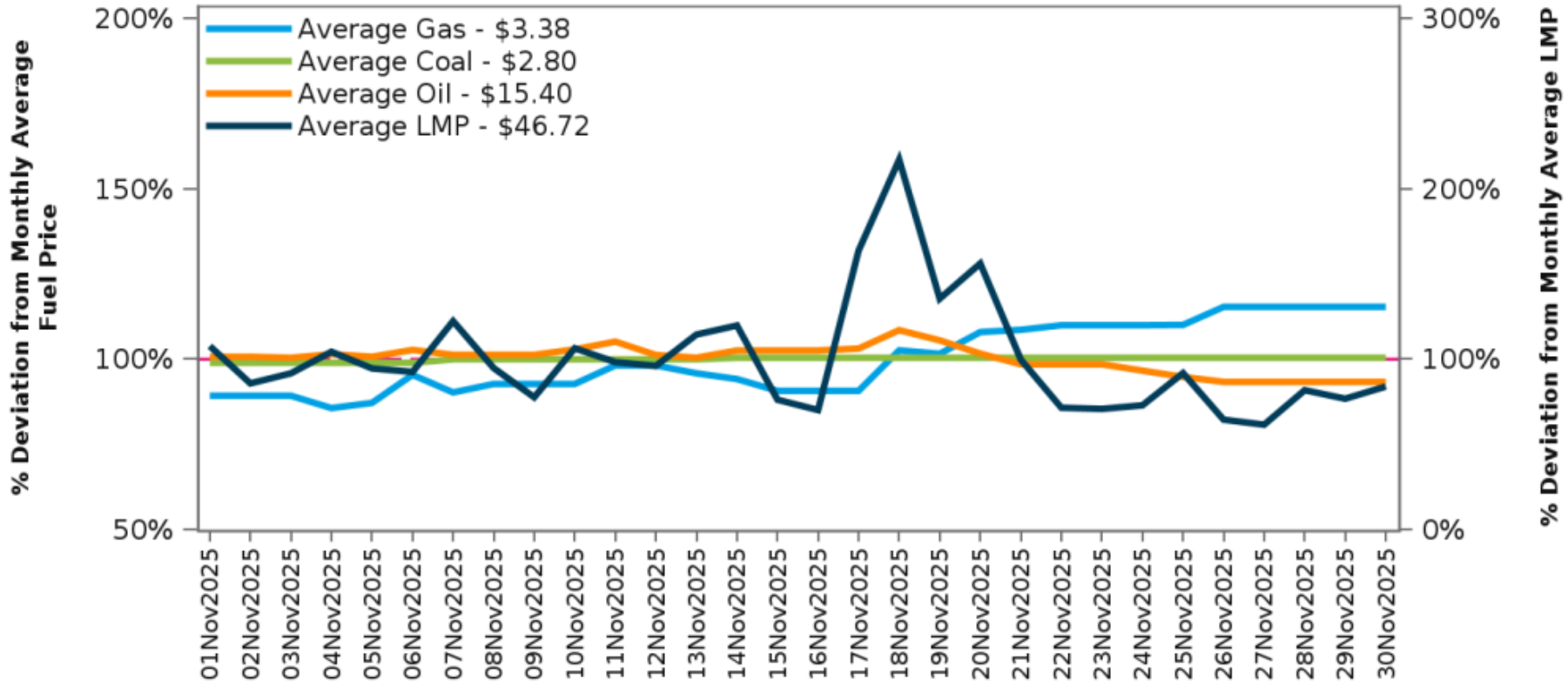
Average Fuel Prices - Daily



Fuel Price Source: S&P Global Platts

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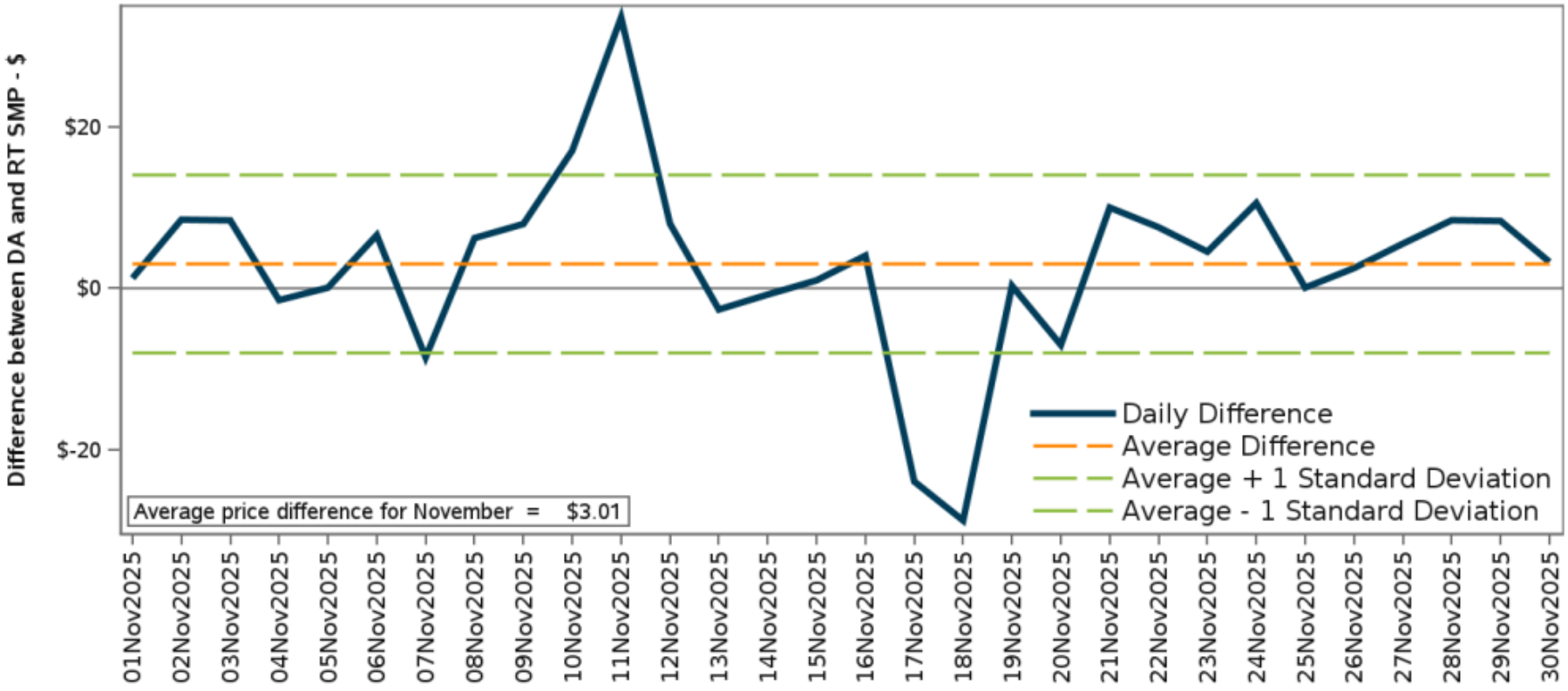
Daily Difference Between Day-Ahead and Real-Time System Marginal Prices



Positive values represent days when the DA daily average price was higher than RT. Negative values represent days when the DA price was lower.

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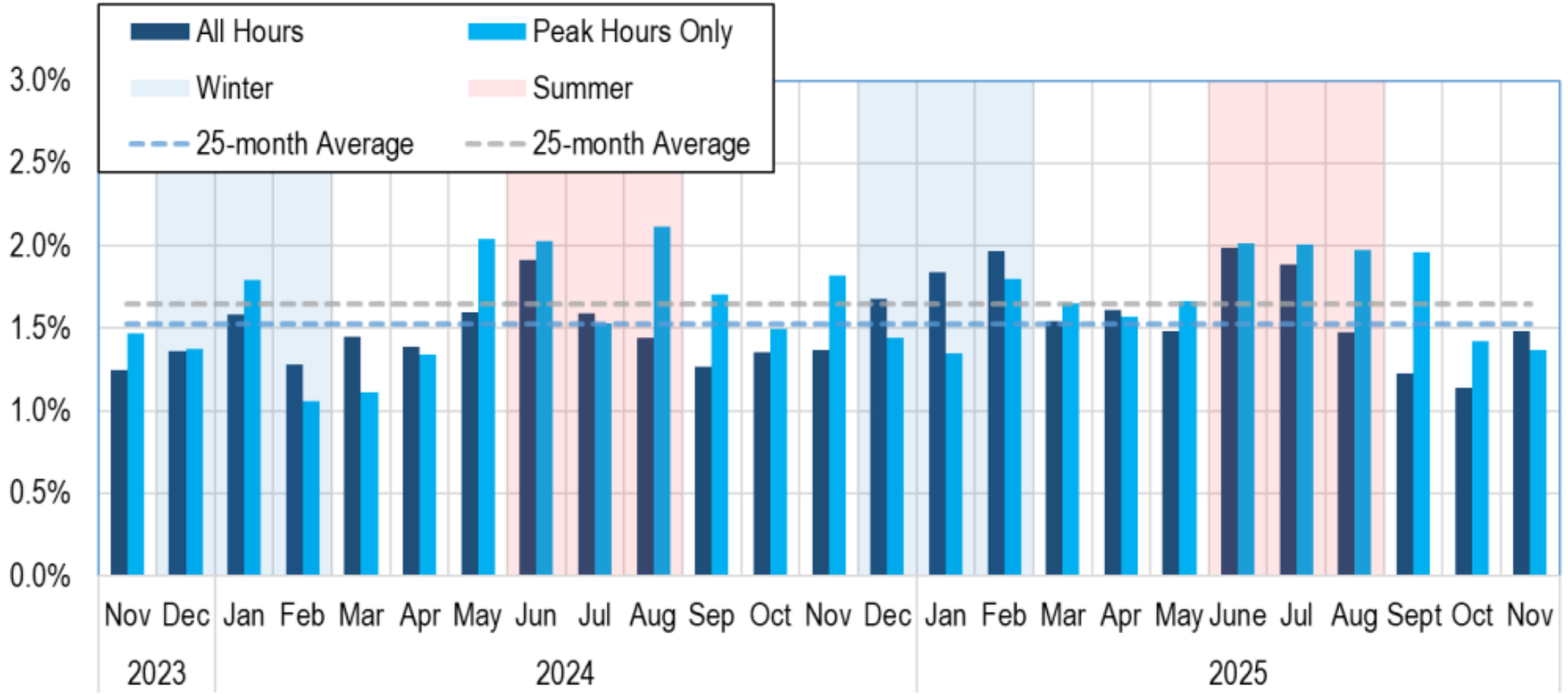
Load Forecast Error - Monthly Absolute Error, 10:00 Forecast



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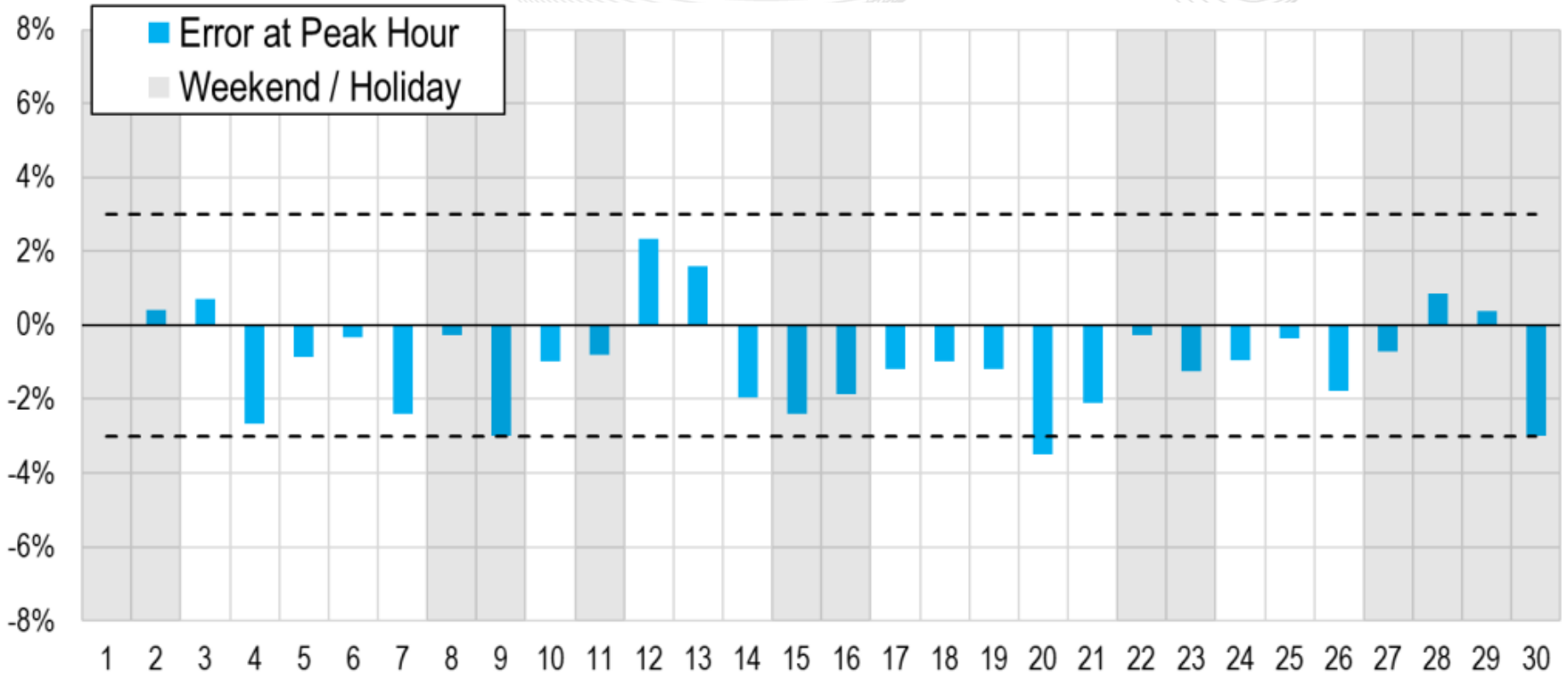
Load Forecast Error - November Daily Peaks, 10:00 Forecast



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Load Forecast Error

- PJM prepares a day-ahead load forecast at 10:00 am for use by our members.
- This forecast is not used to clear the day-ahead market and is not utilized for the reliability tools that run subsequent to the day-ahead market.

Missed day:	Reason
11/20/2025	Temperatures came in much cooler than forecasted across the footprint, leading to high loads.

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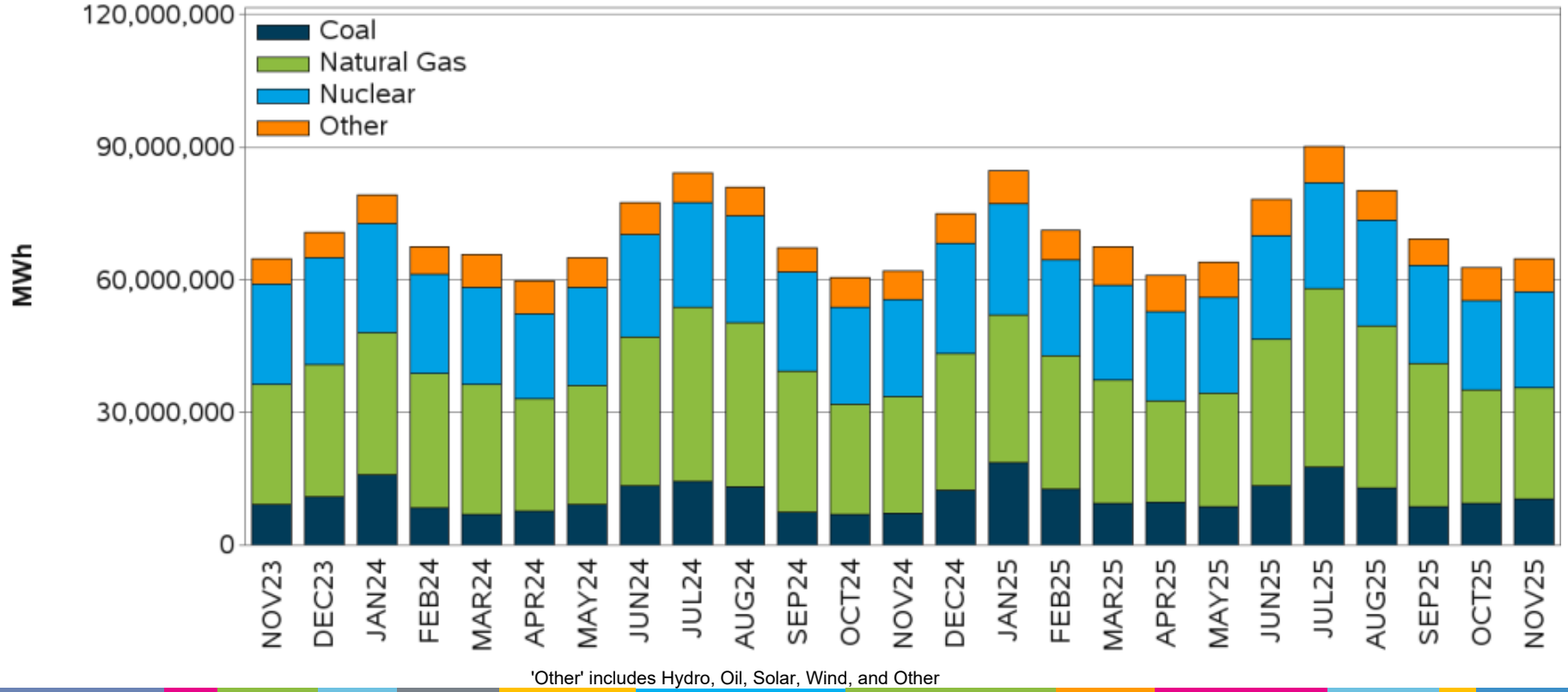
Monthly Generation by Fuel



'Other' includes Hydro, Oil, Solar, Wind, and Other

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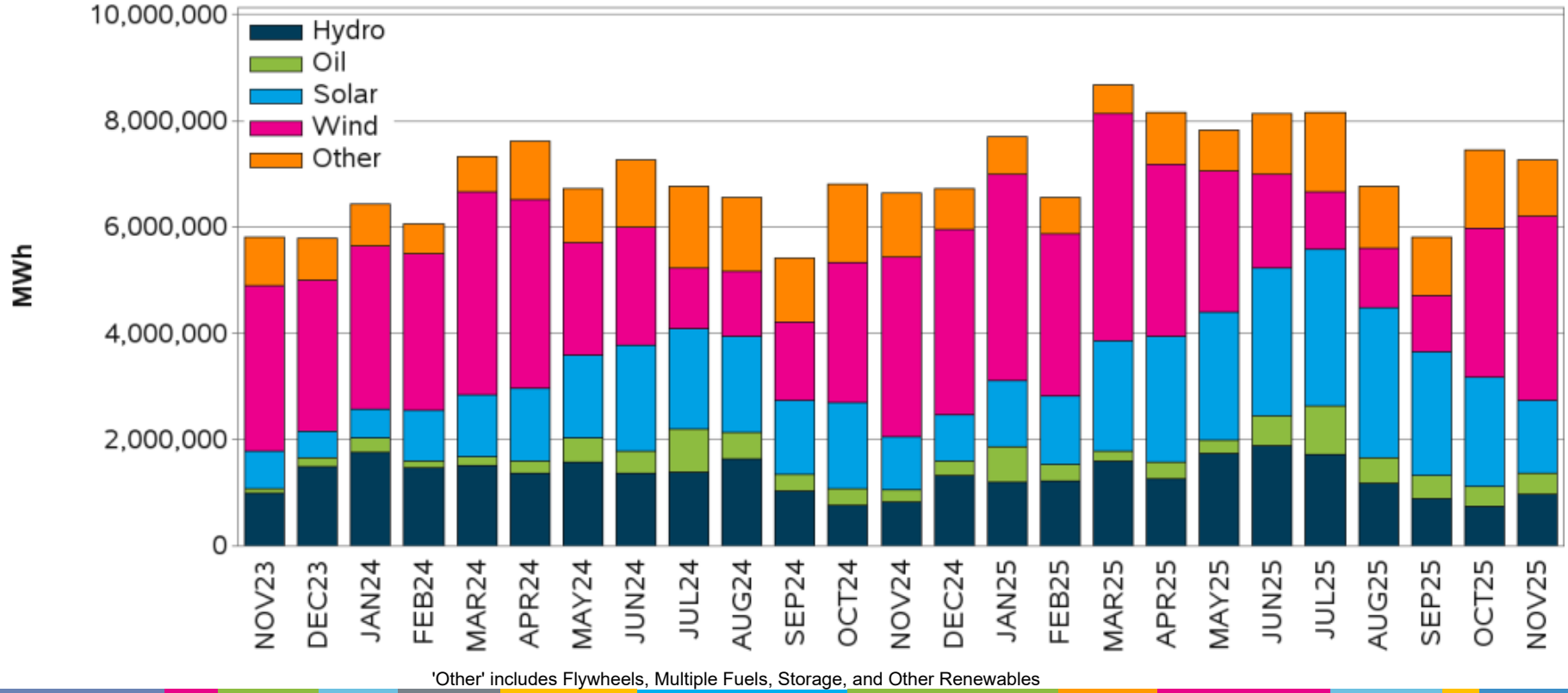
Monthly Generation by Fuel, Other



'Other' includes Flywheels, Multiple Fuels, Storage, and Other Renewables

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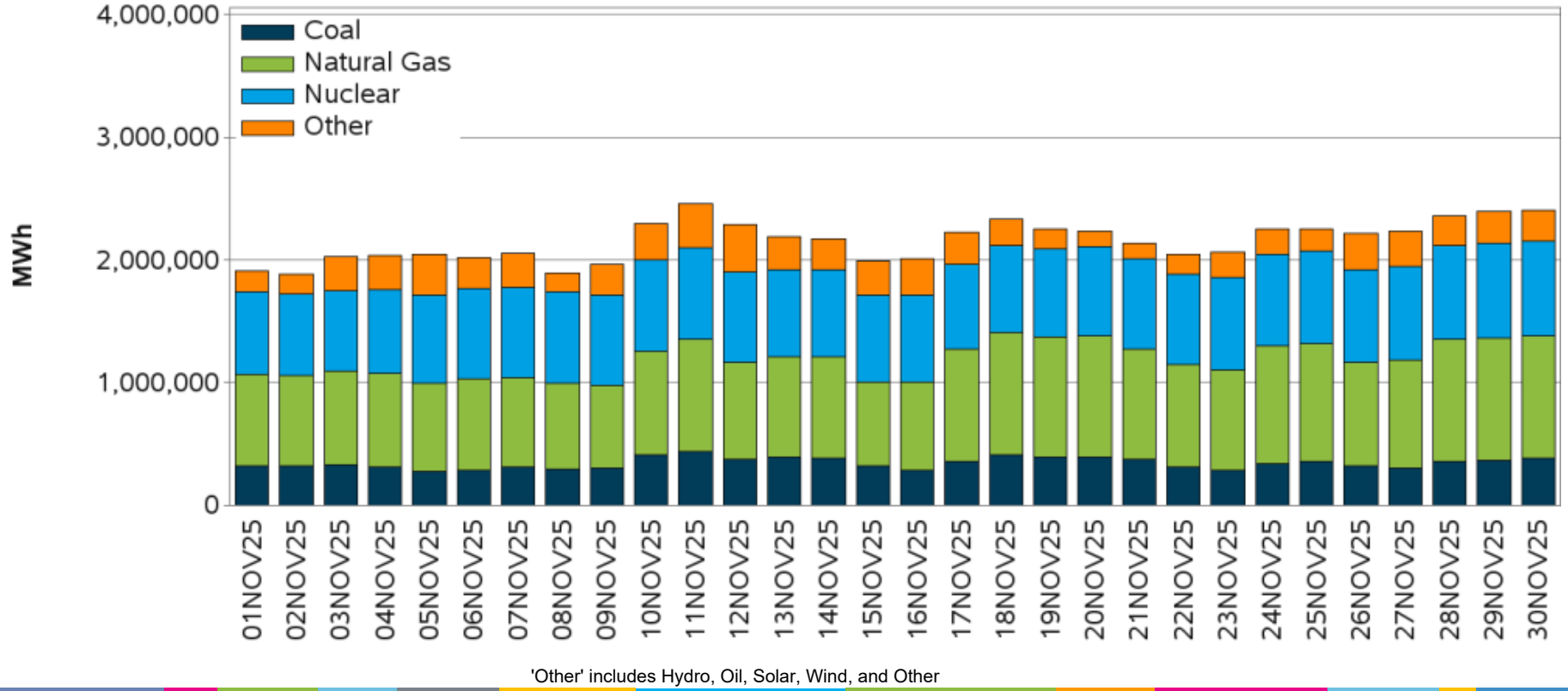
Daily Generation by Fuel - November



'Other' includes Hydro, Oil, Solar, Wind, and Other

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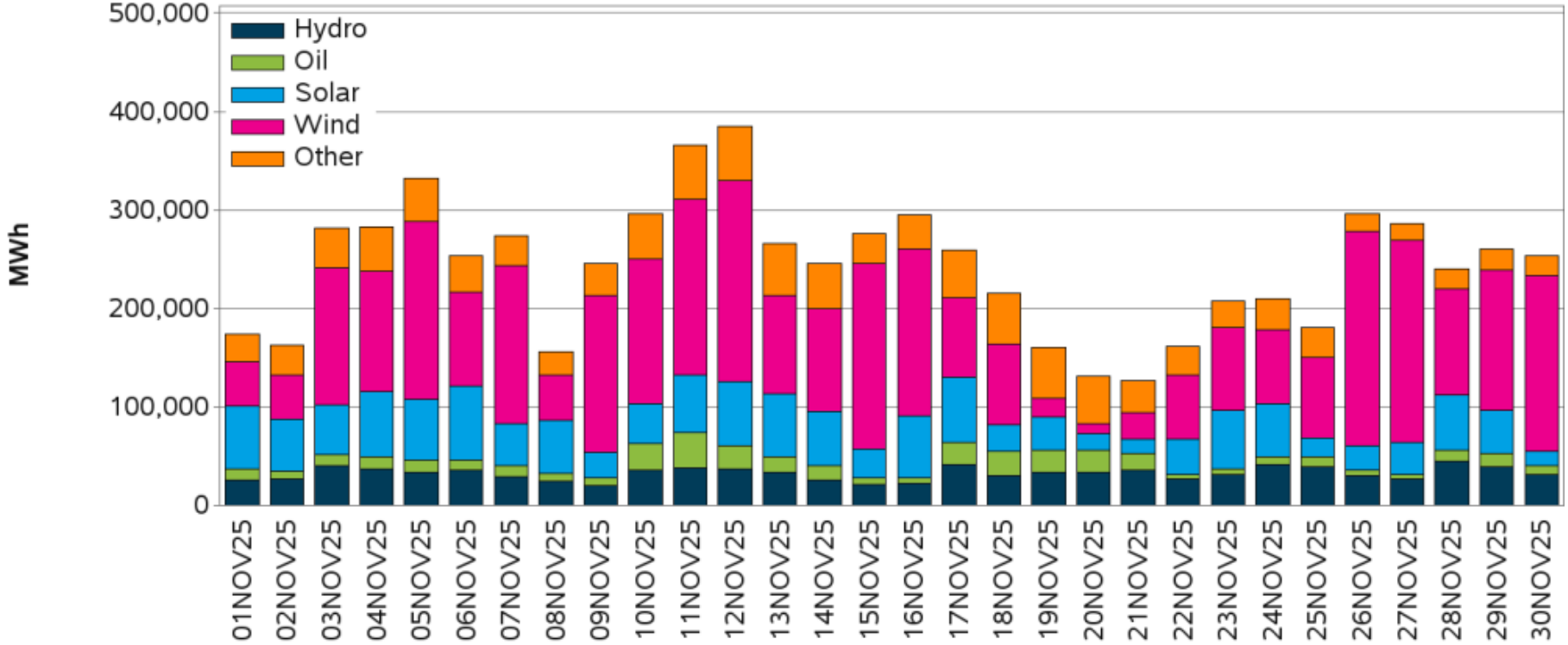
Daily Generation by Fuel, Other - November



'Other' includes Flywheels, Multiple Fuels, Storage, and Other Renewables

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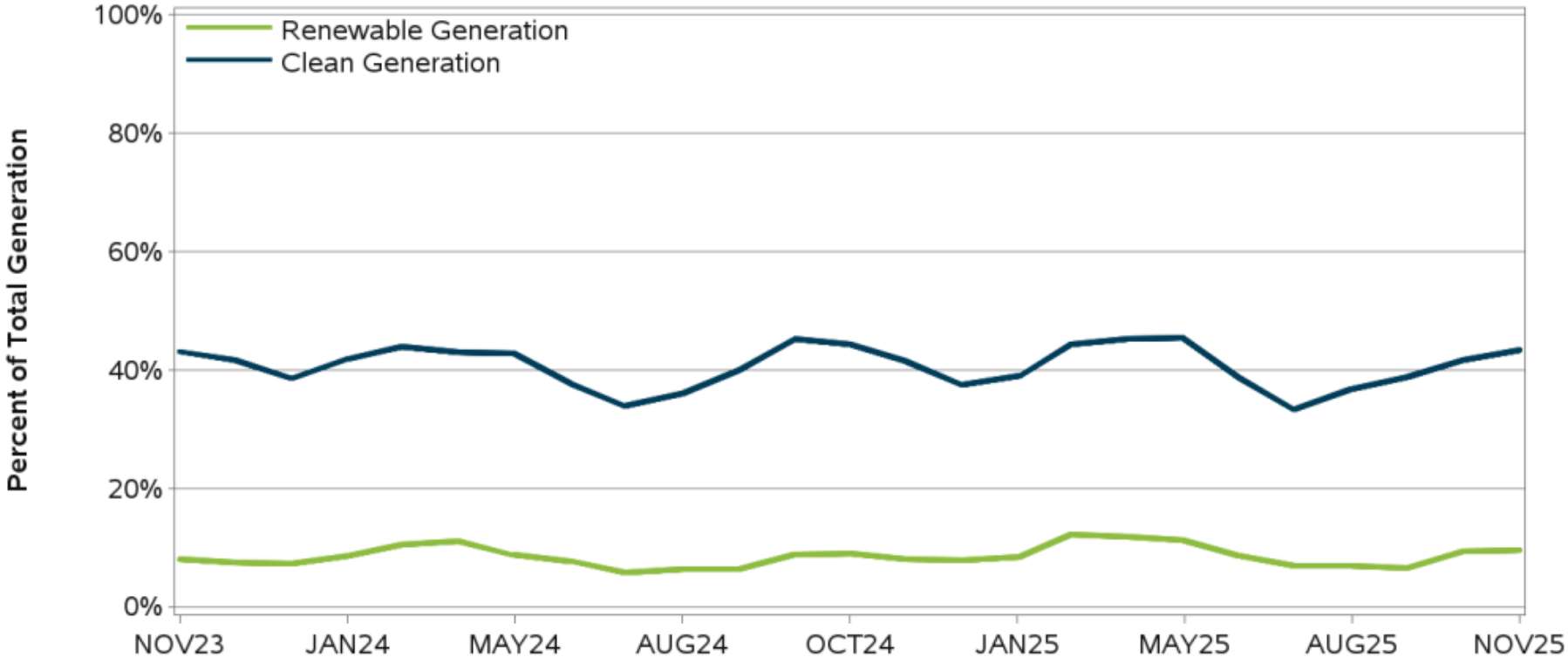
Percent of Renewable and Clean Generation



'Renewable' includes Wind, Solar, Hydro, and Other Renewables. 'Clean' includes Renewable and Nuclear.

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Operating Reserve

(Uplift)

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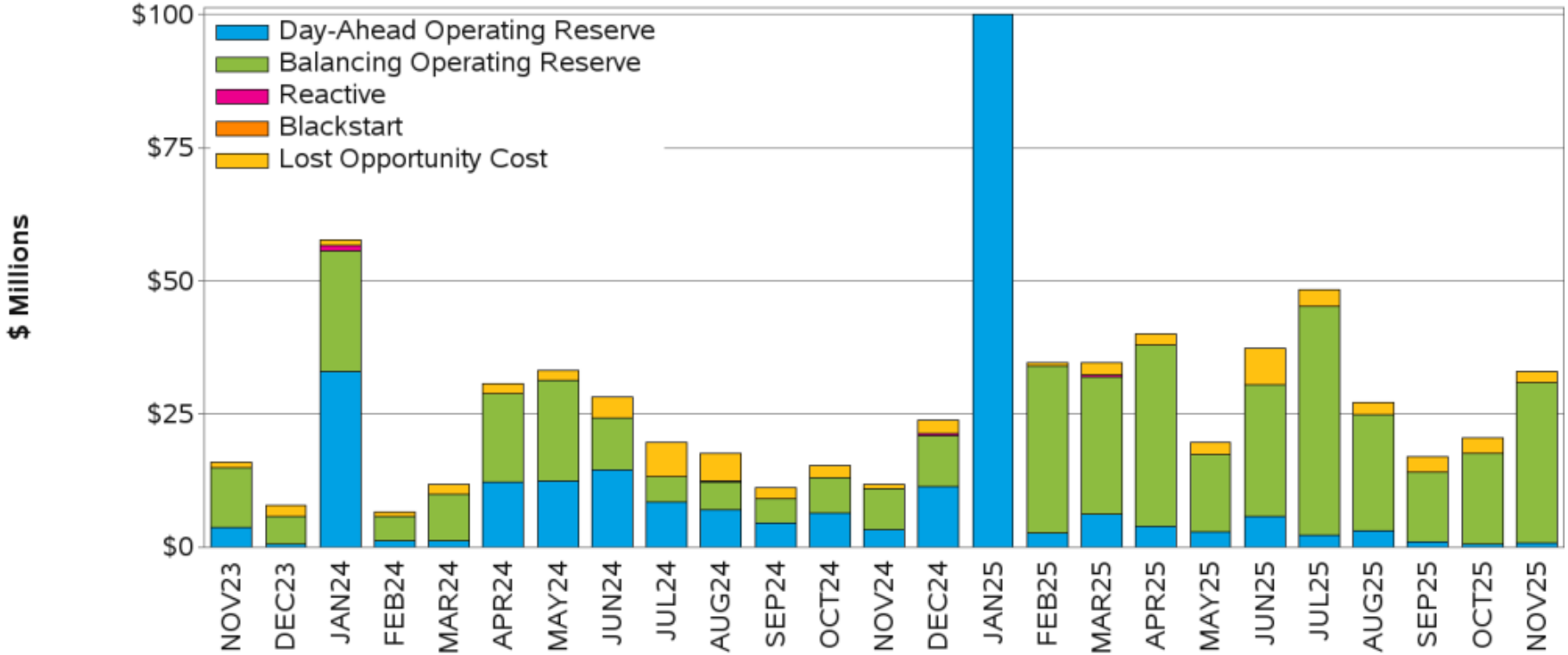
Monthly Uplift



*Uplift for January 2025 totaled nearly $400M. Please see previous reports or the report appendix for the breakout of costs.

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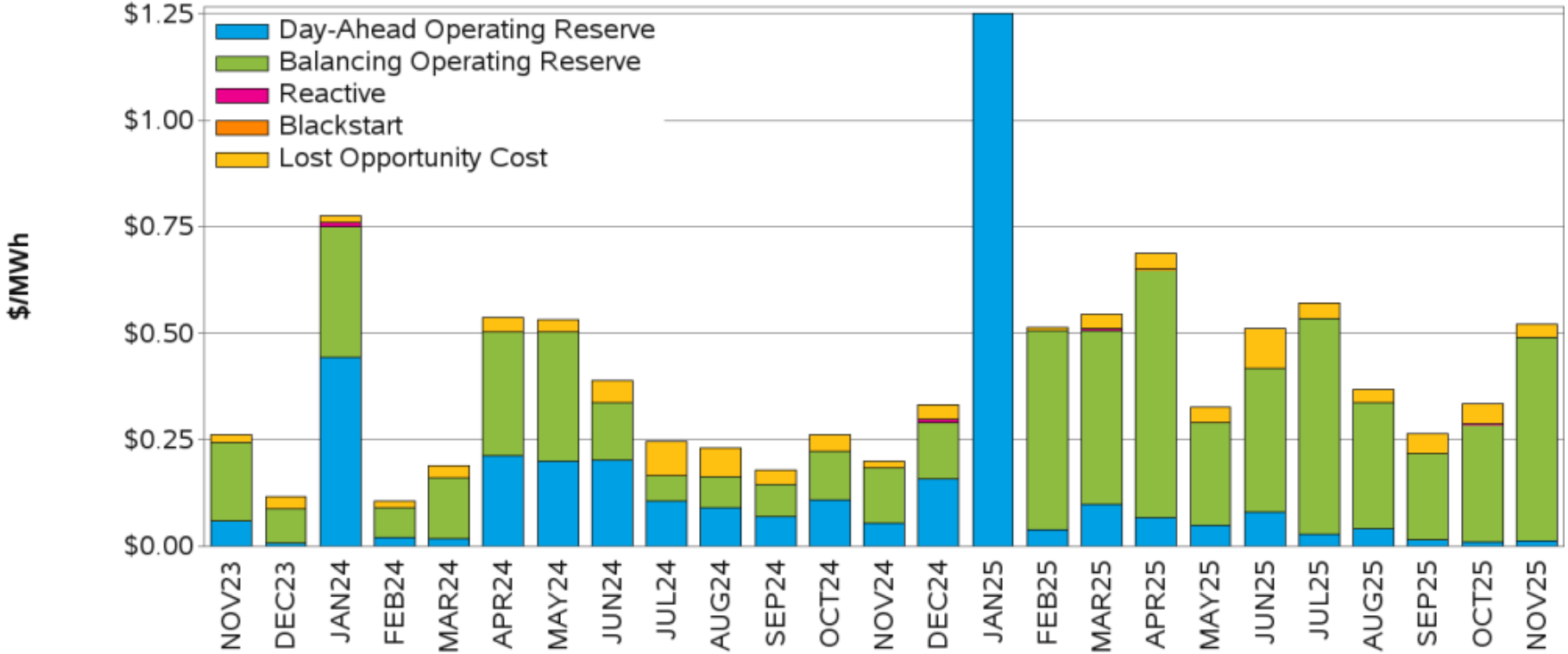
Monthly Uplift - $/MWh Load



*Uplift for January 2025 totaled nearly $5/MWh. Please see previous reports or the report appendix for the breakout of costs.

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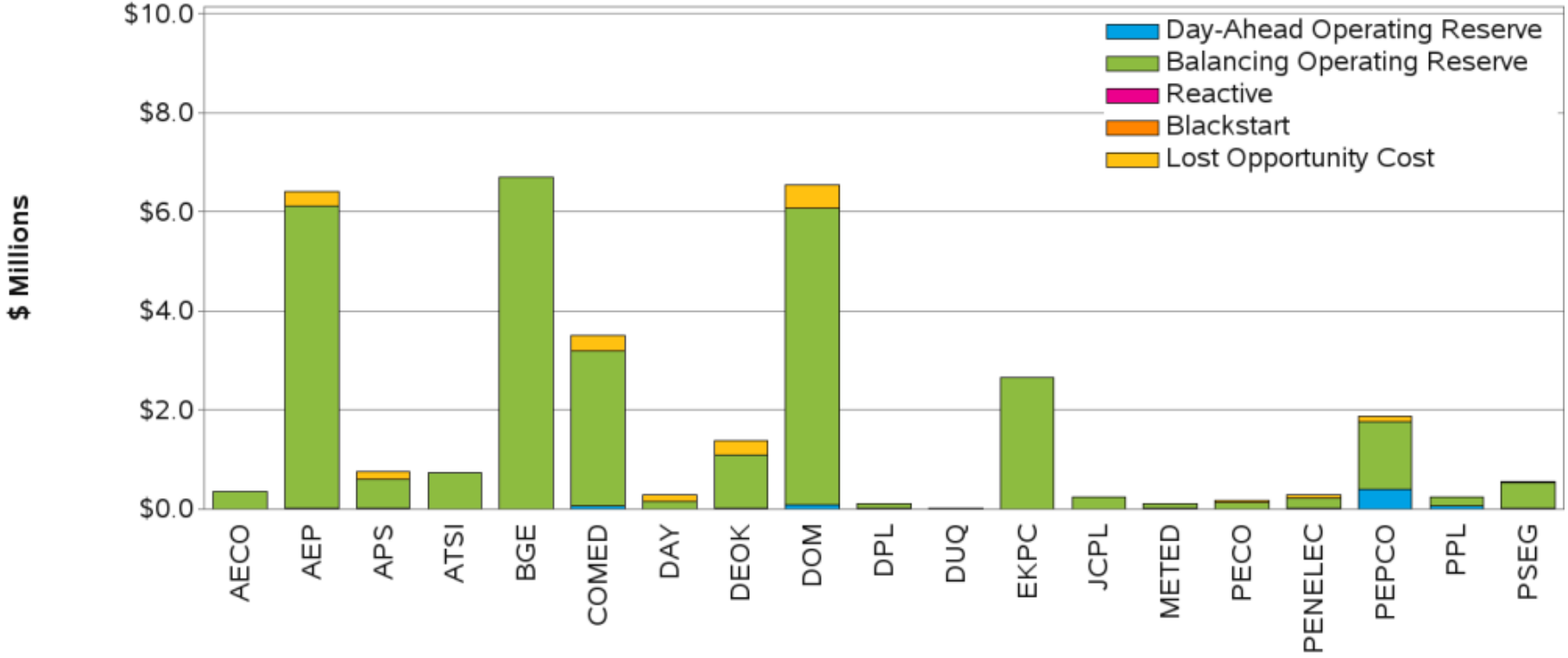
Zonal Uplift - November



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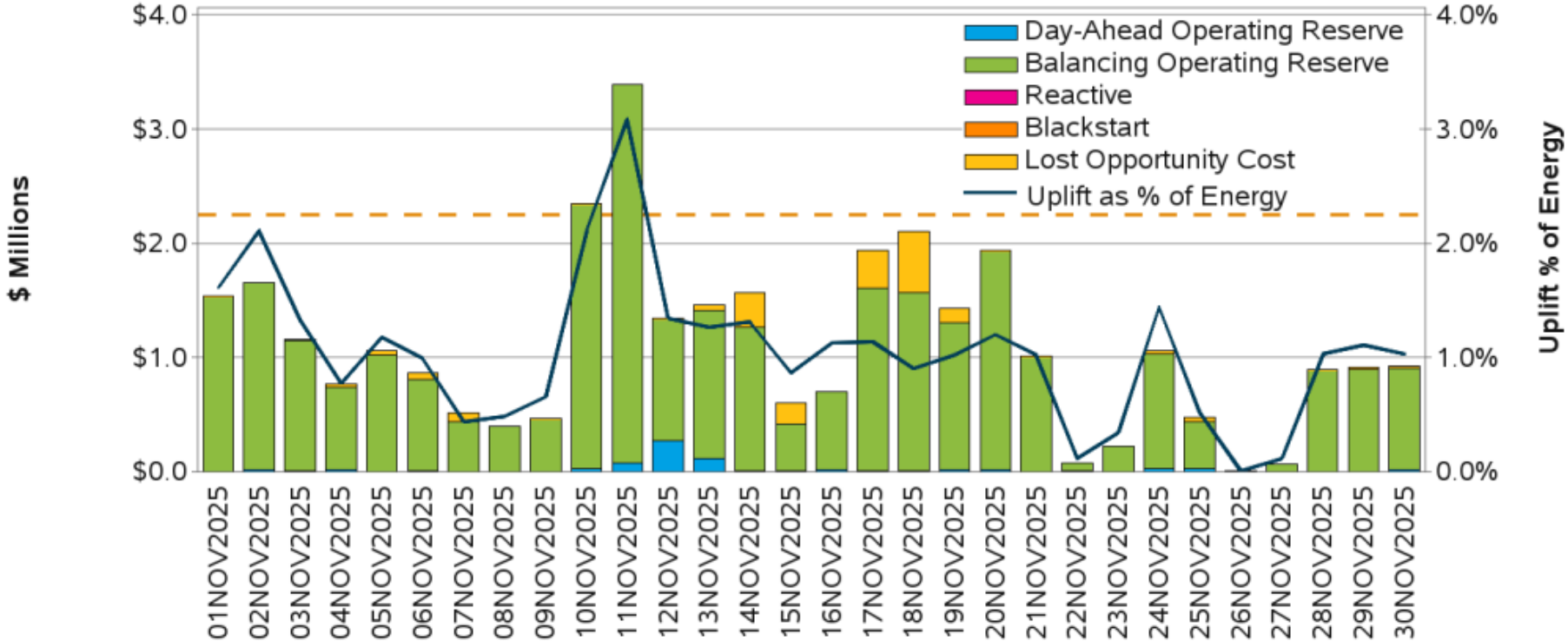
Daily Uplift - November



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- In November, uplift exceeded $2.25M on two days – 12/10 and 12/11
- Contributing factors to uplift were:
  - Transmission constraint control
- More information on Uplift can be found on the PJM website at Drivers of Uplift

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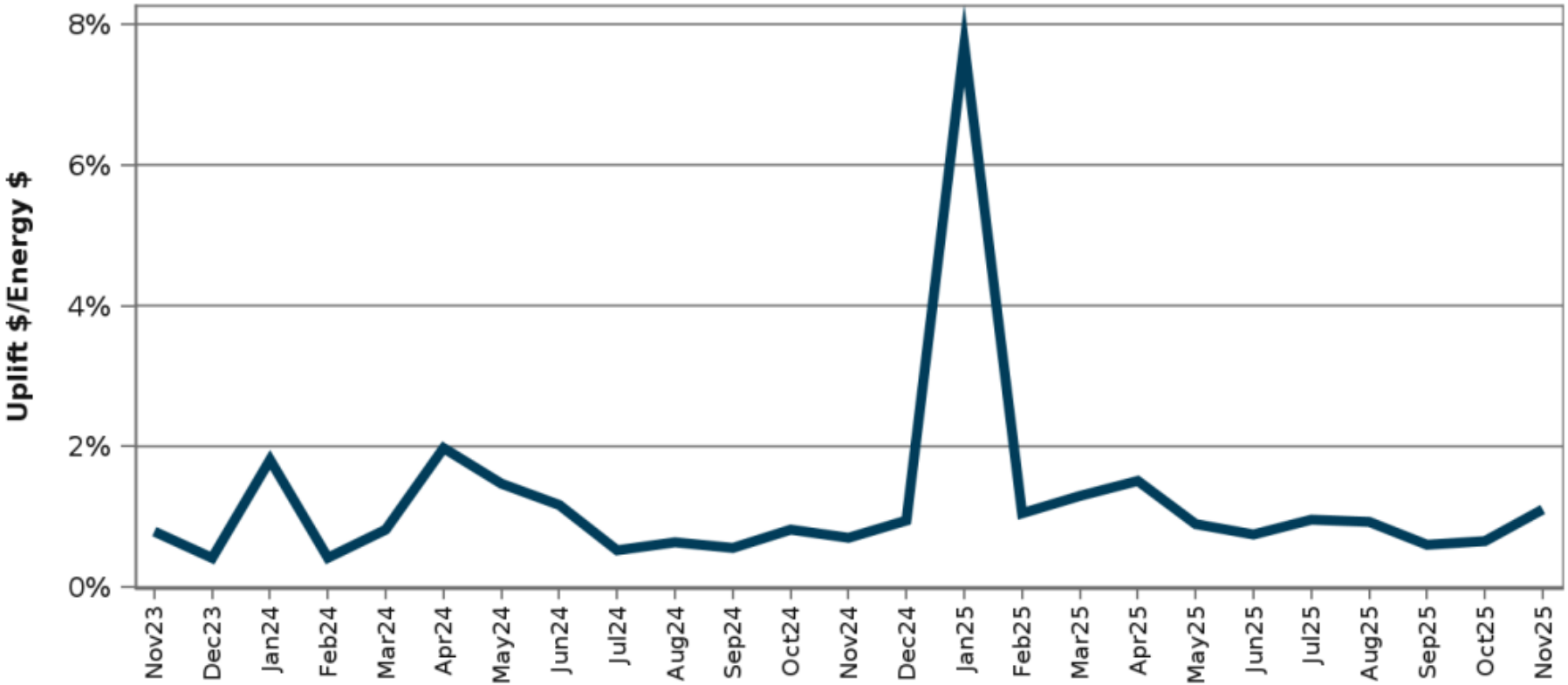
Monthly Uplift as a Percent of Energy Costs



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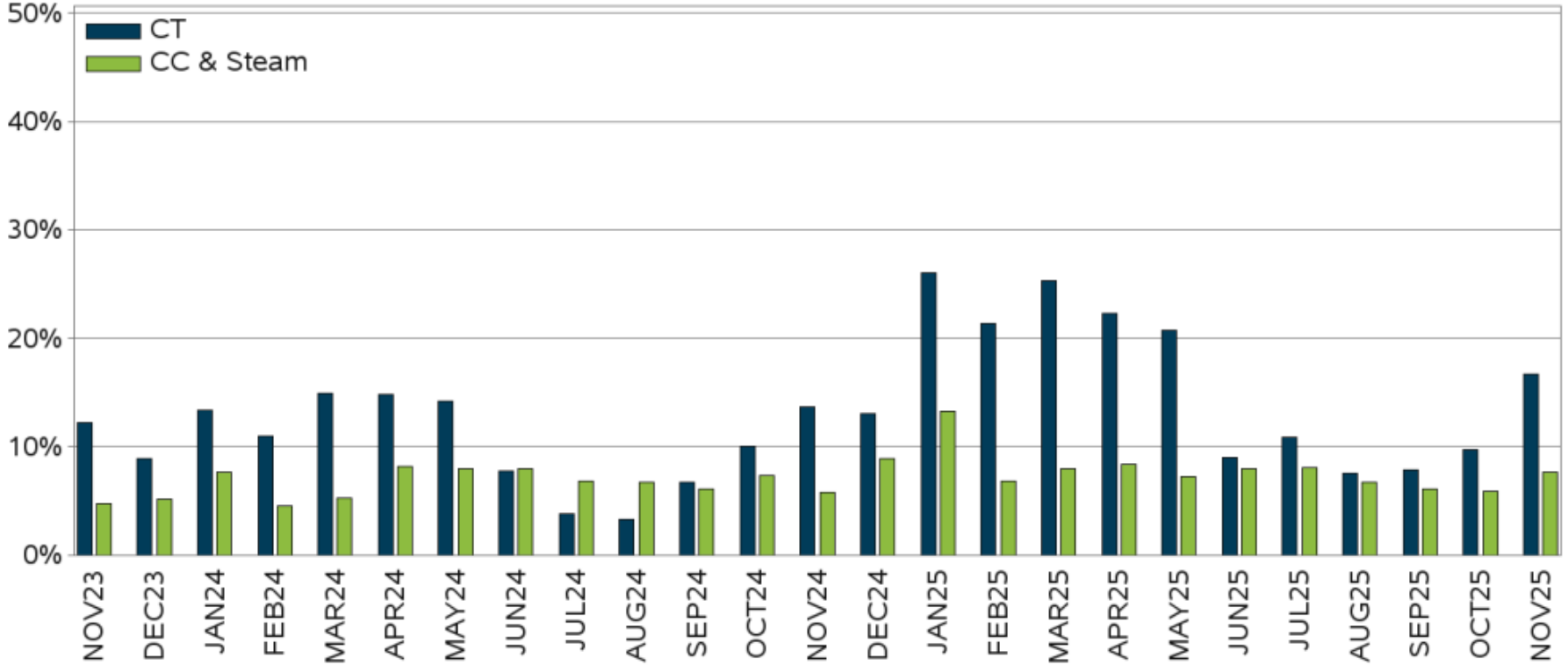
Percent of Total CT, CC and Steam Hours with LMP < Offer



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- Beginning in December 2008, the daily Balancing Operating Reserves (BOR) rate was replaced with six different BOR rates: RTO BOR for Reliability Rate, RTO BOR for Deviations Rate, East BOR for Reliability Rate, East BOR for Deviations Rate, West BOR for Reliability Rate, West BOR for Deviations Rate.

- Reliability rates are charged to all real-time load and exports, whereas deviation rates, as before, are charged only to real-time deviations. RTO rates are charged to the whole footprint, whereas East and West rate adders are charged based on location.

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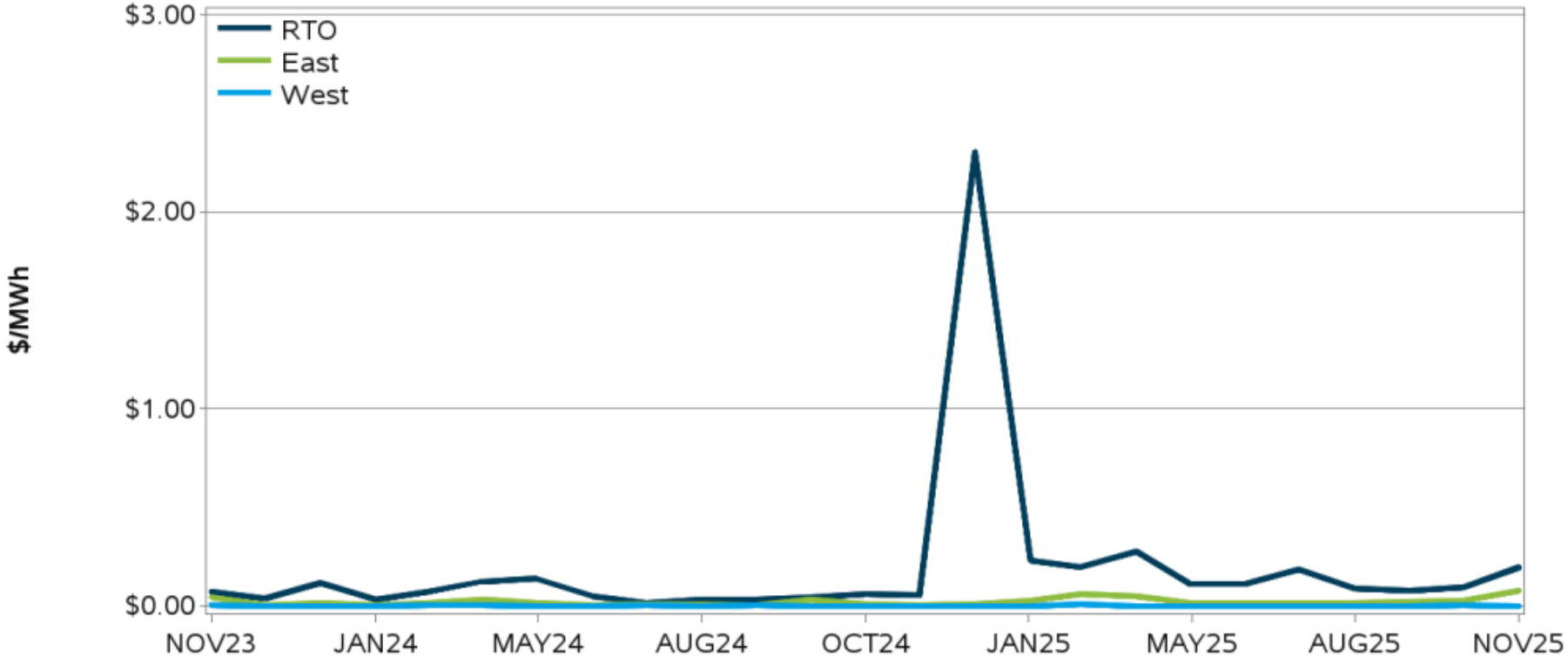
Reliability Balancing Operating Reserve Rates



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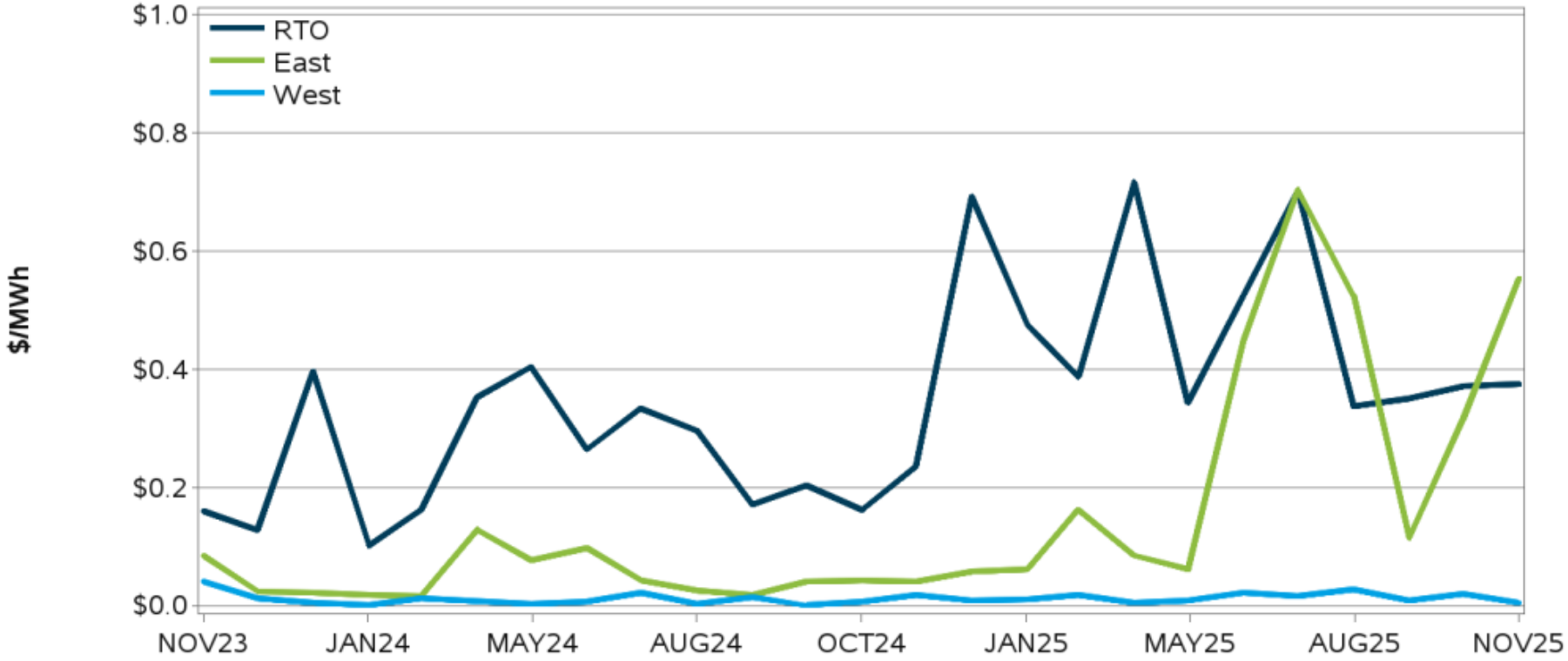
Deviations Balancing Operating Reserve Rates



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LMP Summary

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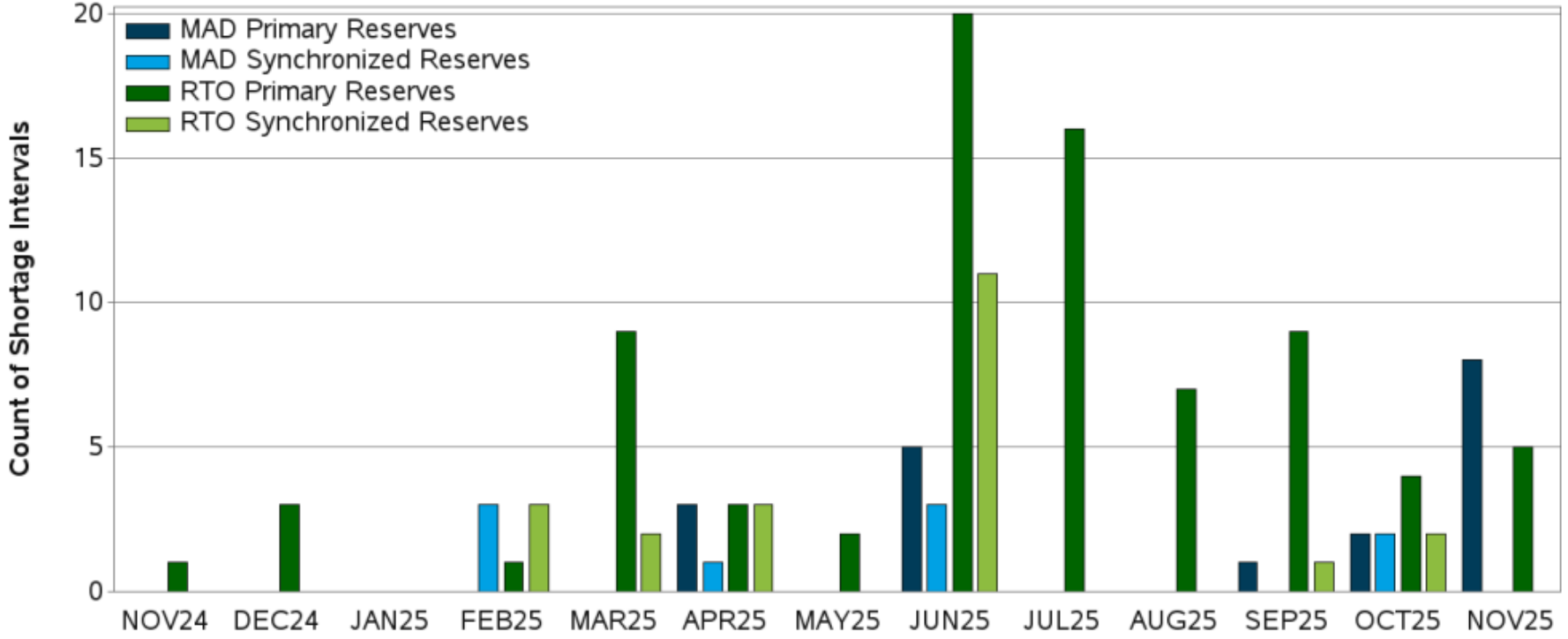
Shortage Pricing Intervals



Information on constraints and shadow prices can be found here

There were nearly 80 intervals that experienced shortage pricing for RTO Primary Reserves in January.

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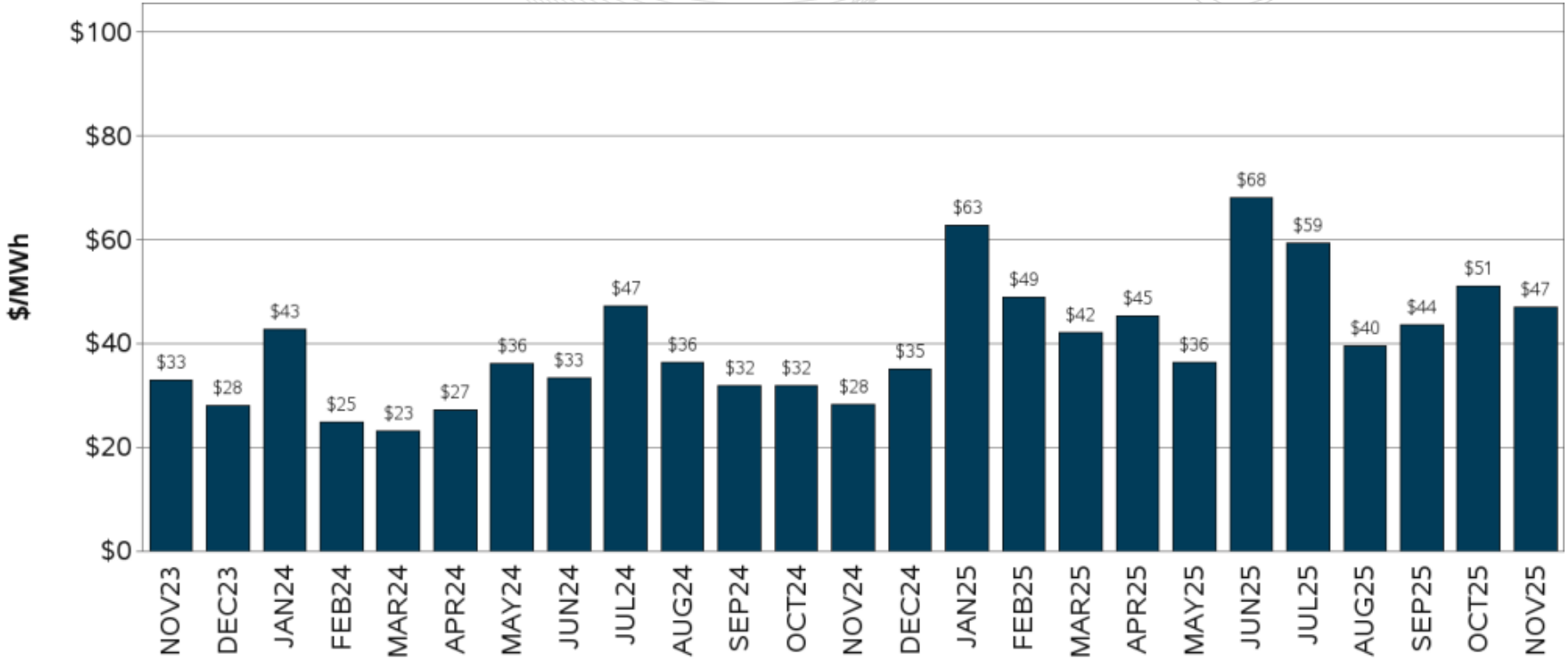
Monthly Load-Weighted Average Real-time LMP



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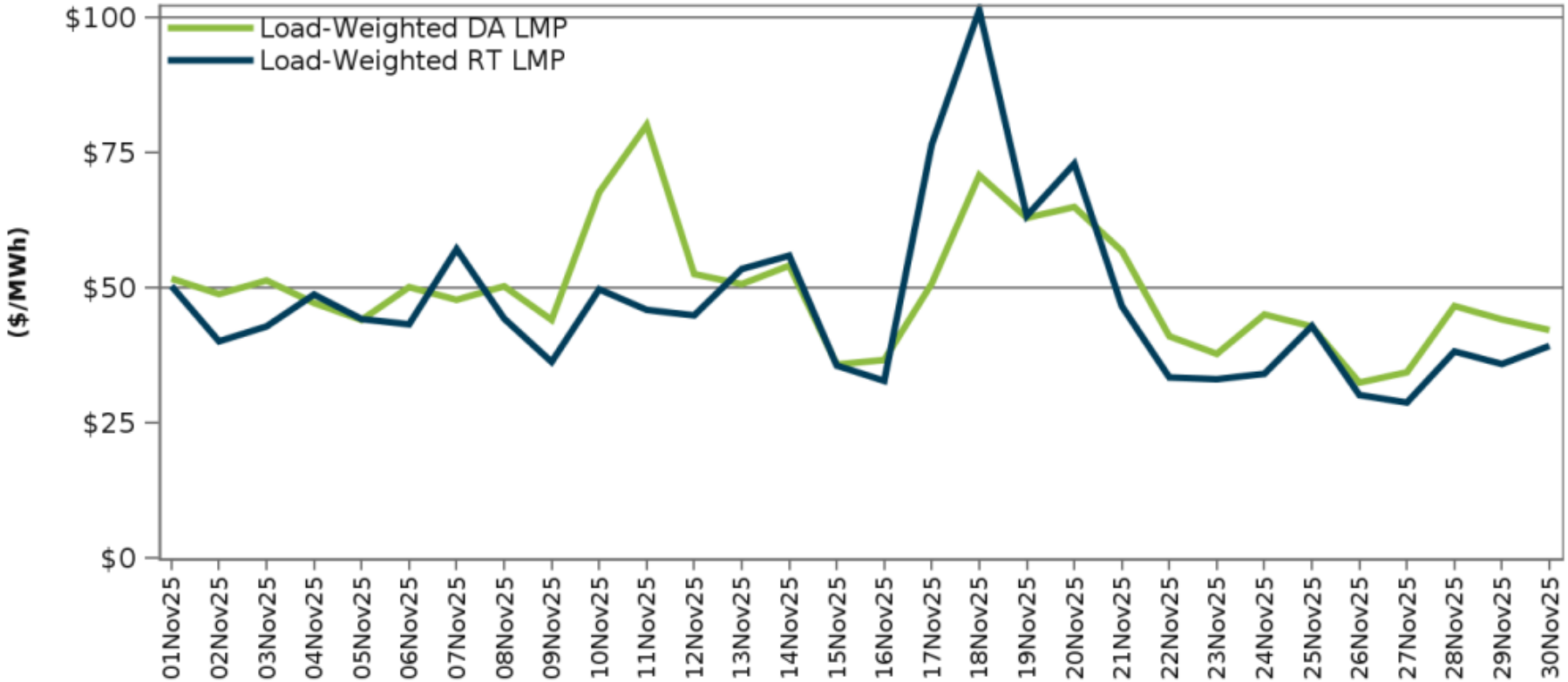
Daily Load-Weighted Average DA & RT LMP



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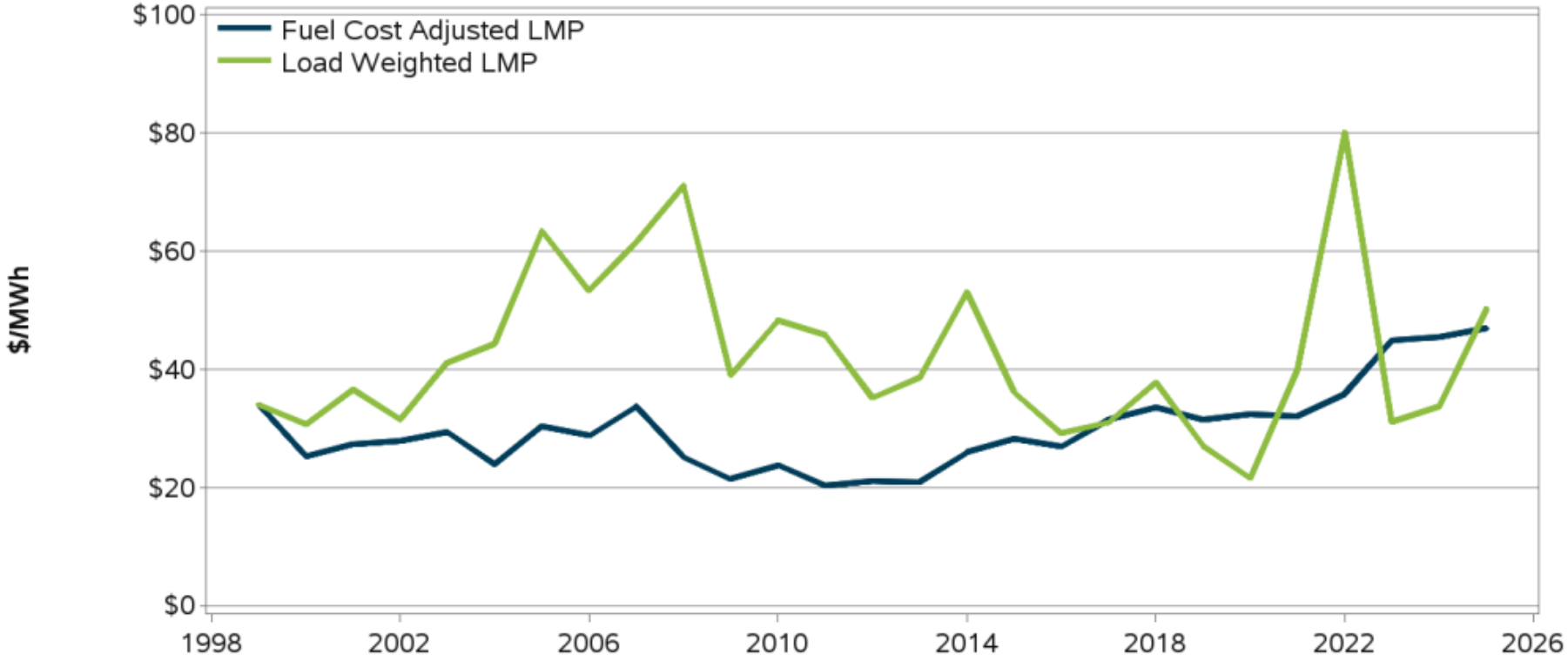
Fuel Cost Adjusted LMP (Referenced to 1999 Fuel Prices)



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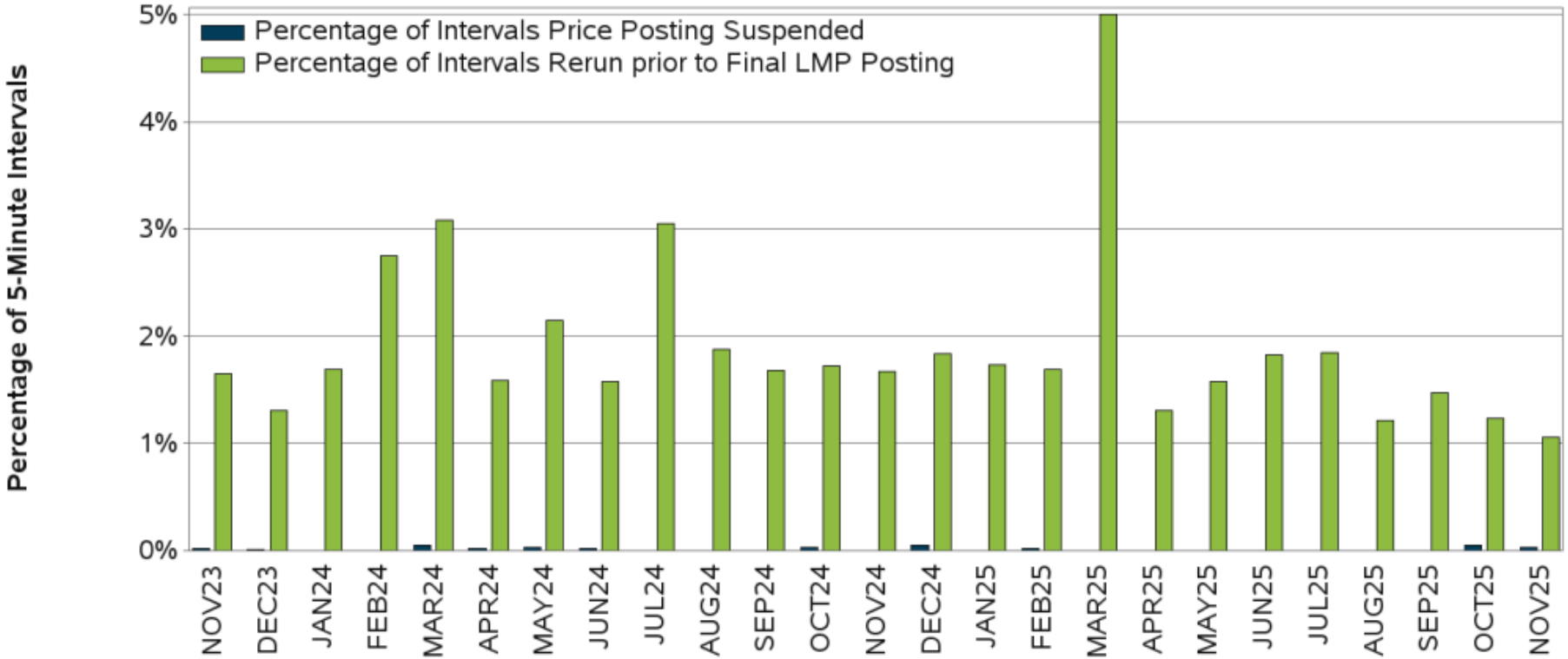
LMP Price Posting Suspensions and Reruns



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Energy Market

Demand Response Summary

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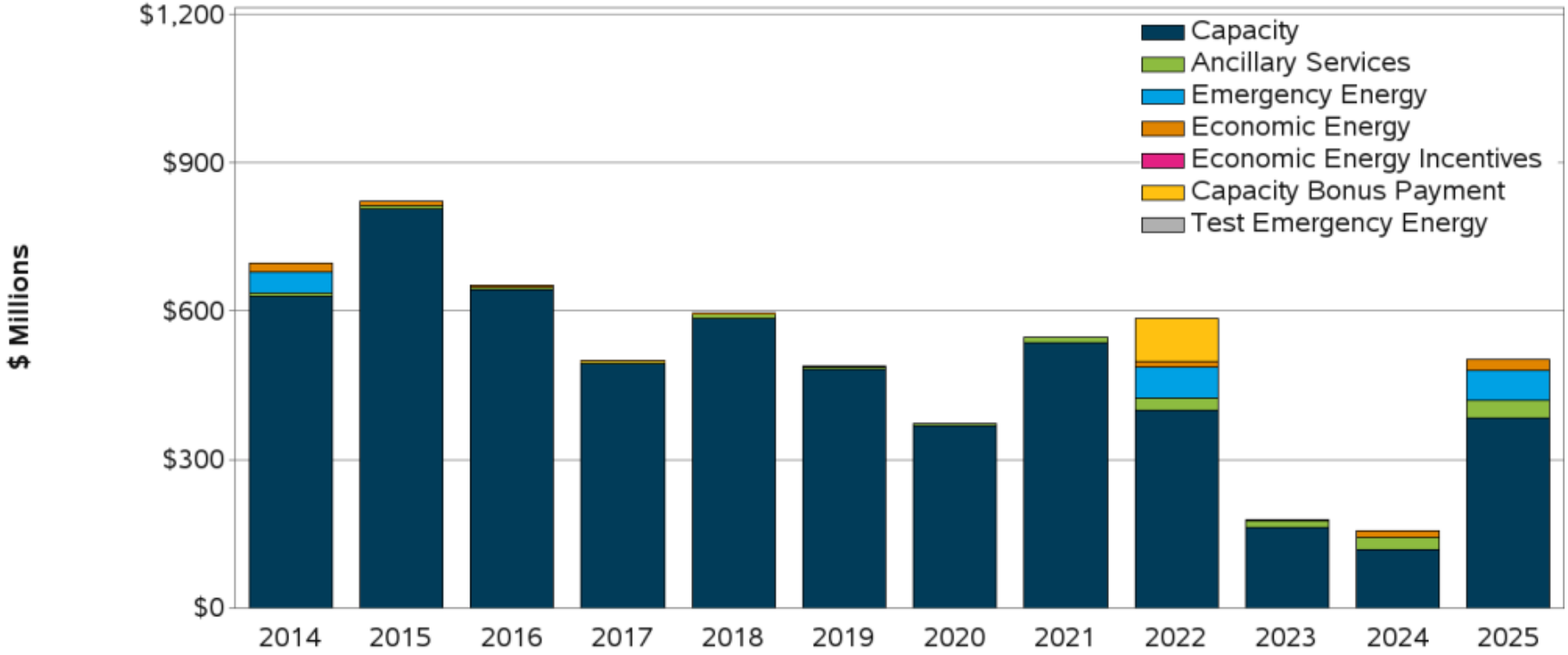
Demand Side Response Estimated Revenue



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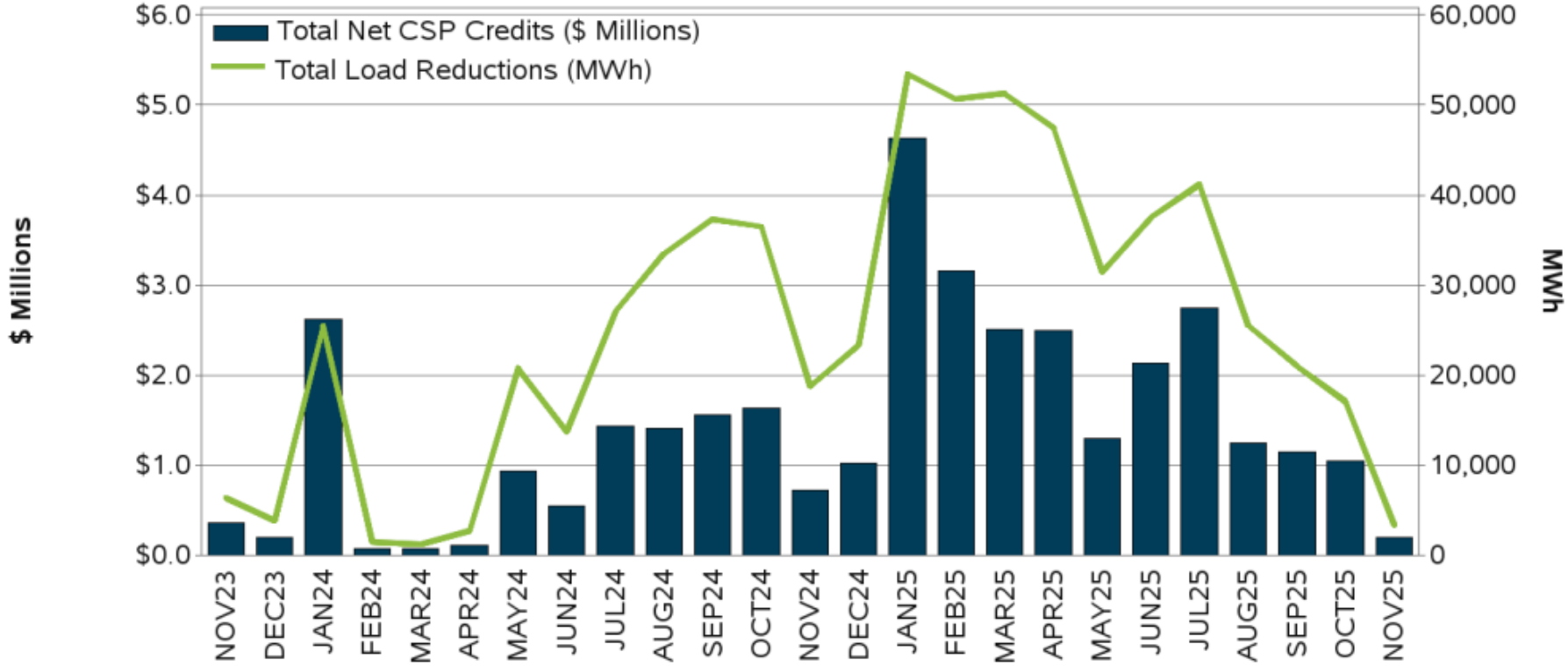
Economic Demand Response Activity



*Data for the last few months are subject to significant change due to the settlement window.

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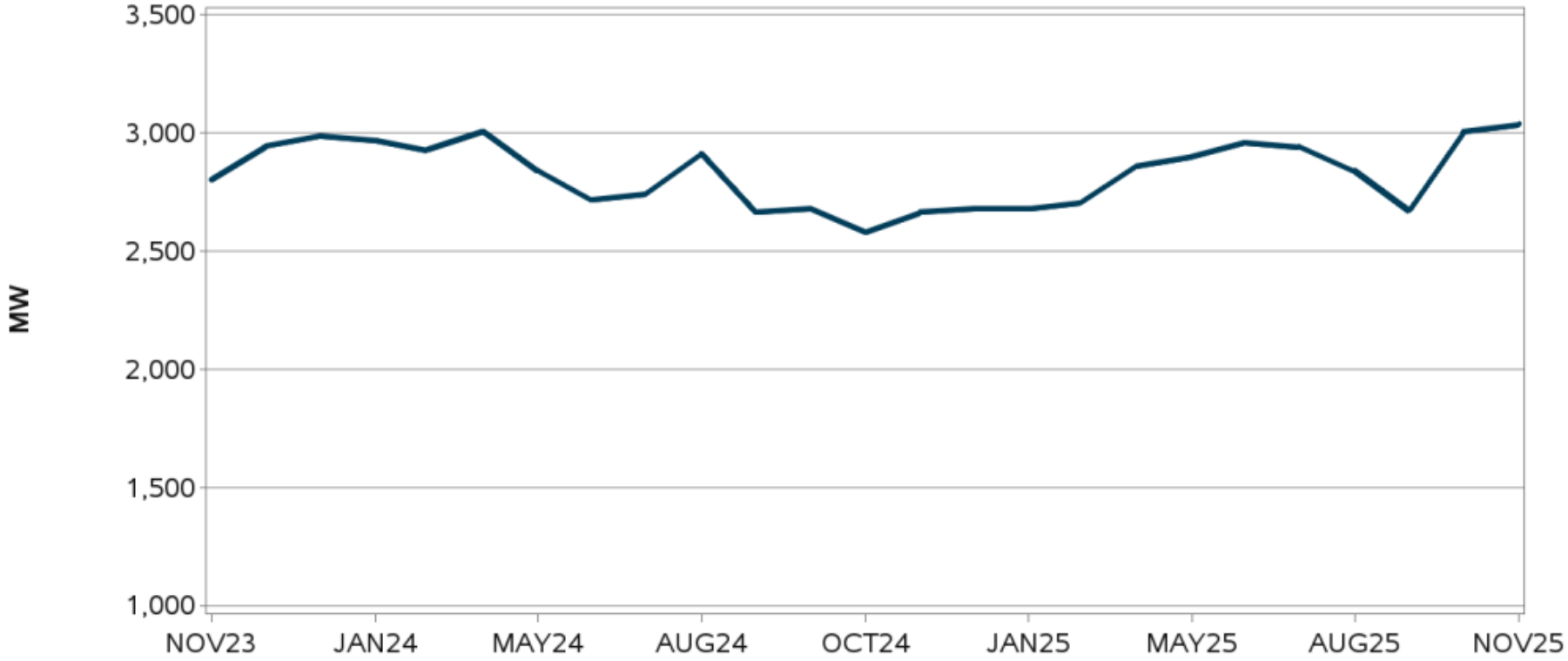
Total Registered MW in PJM's Economic Demand Response



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Energy Market

Virtual Activity Summary

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- The following six charts depict trends in submitted and cleared virtual and up-to-congestion transactions, in terms of number and volume, into the PJM Energy Market. The first two of these charts show the submitted and cleared increment and decrement bids (virtual transactions or virtuals) and they are the same as what was previously being presented in this report. The two charts after them display the trends in submitted and cleared up-to-congestion transactions into the PJM Energy Market. The last two of these six charts combine the virtual and up-to-congestion transactions and show the sum of these two categories.

- To clarify what a bid or transaction is, please consider the following example: An offer (increment, decrement or up-to-congestion) of 10 MW, valid for eight hours for a given day, is captured in the charts as eight submitted bids/transactions and 80 submitted MWh. If this offer fully clears for three of the hours it was submitted for, it shows in the charts as three cleared bids/transactions and 30 cleared MWh.

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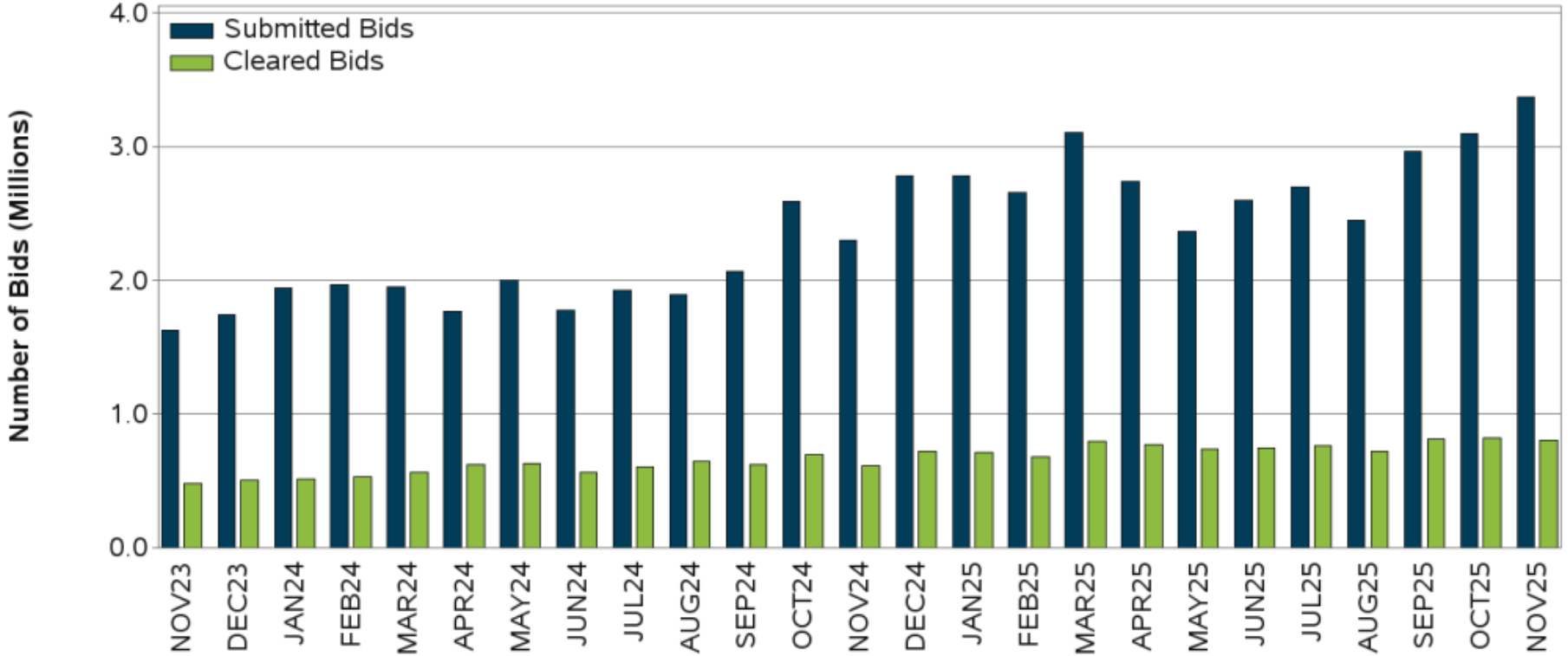
Virtual Bids (INCs & DECs) - Total Number



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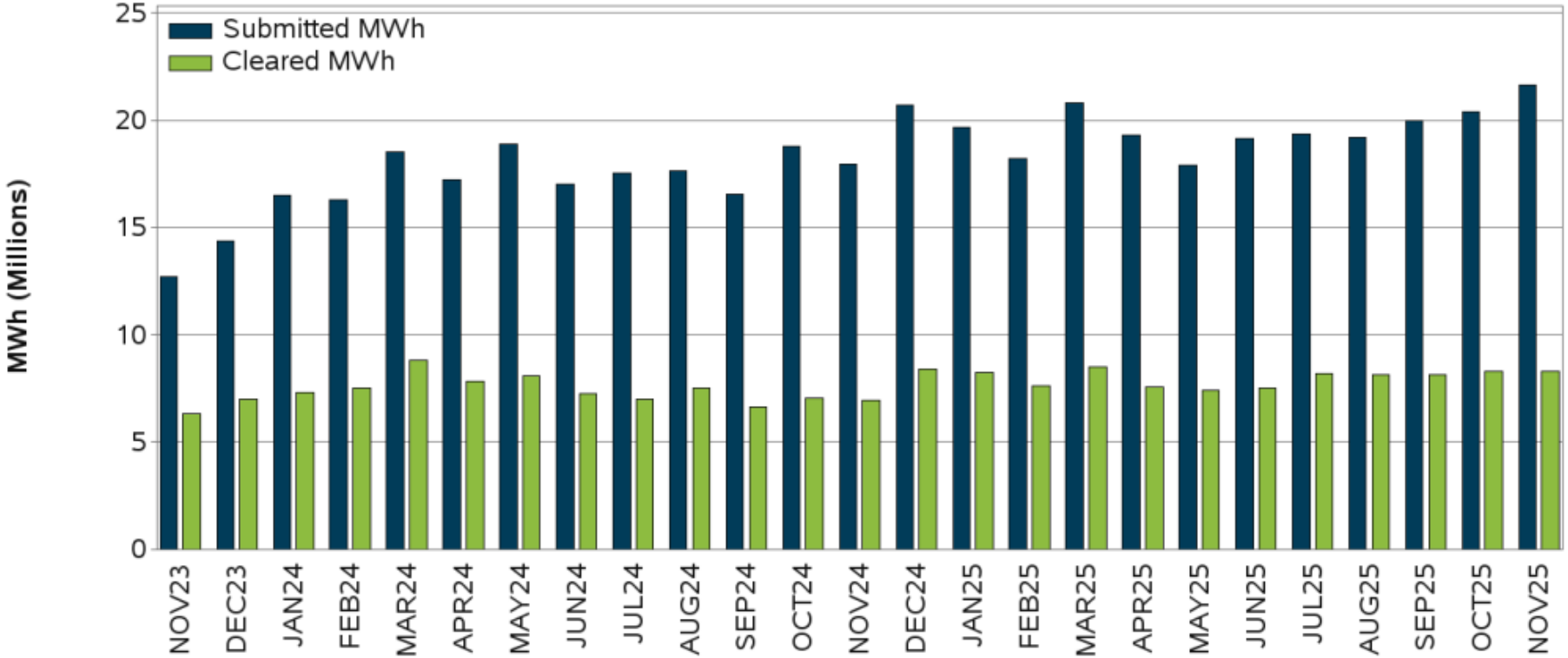
Virtual Bids (INCs & DECs) - Total Volume



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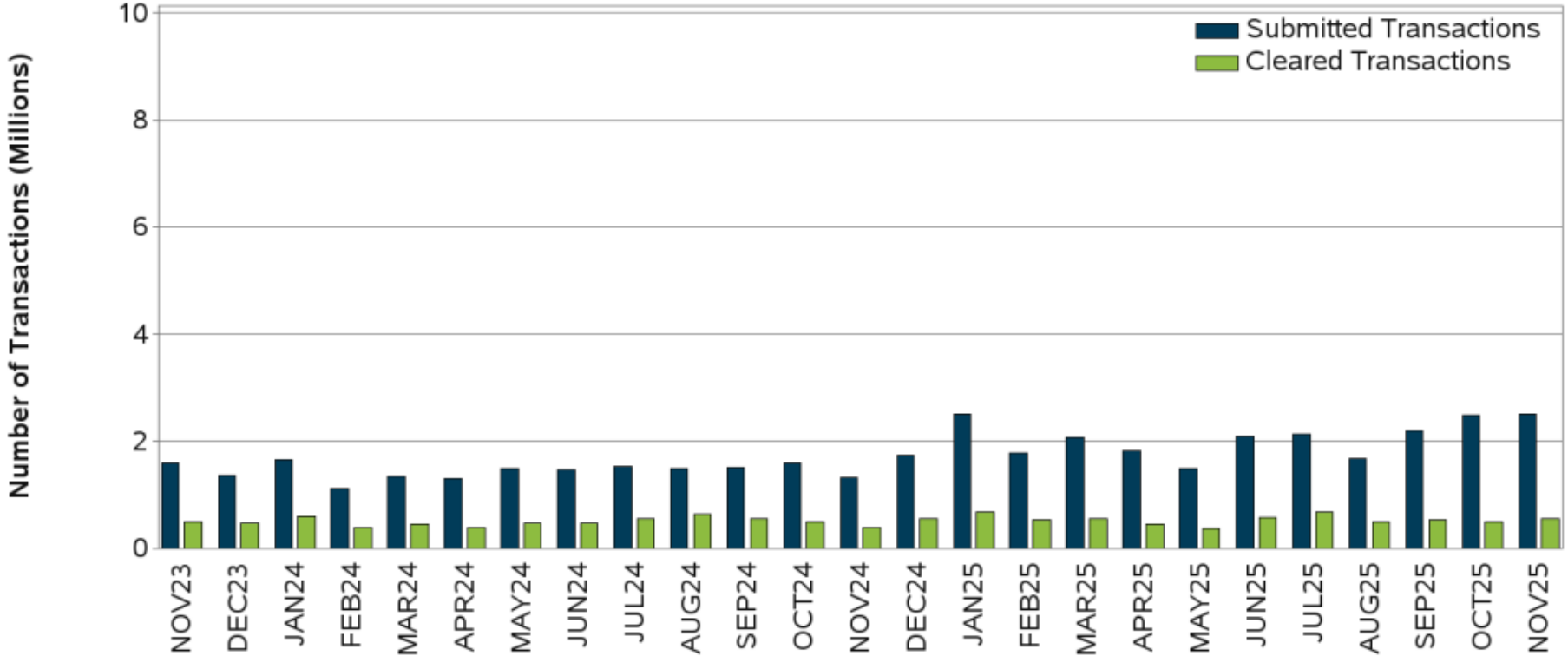
Up-To-Congestion Transactions - Total Number



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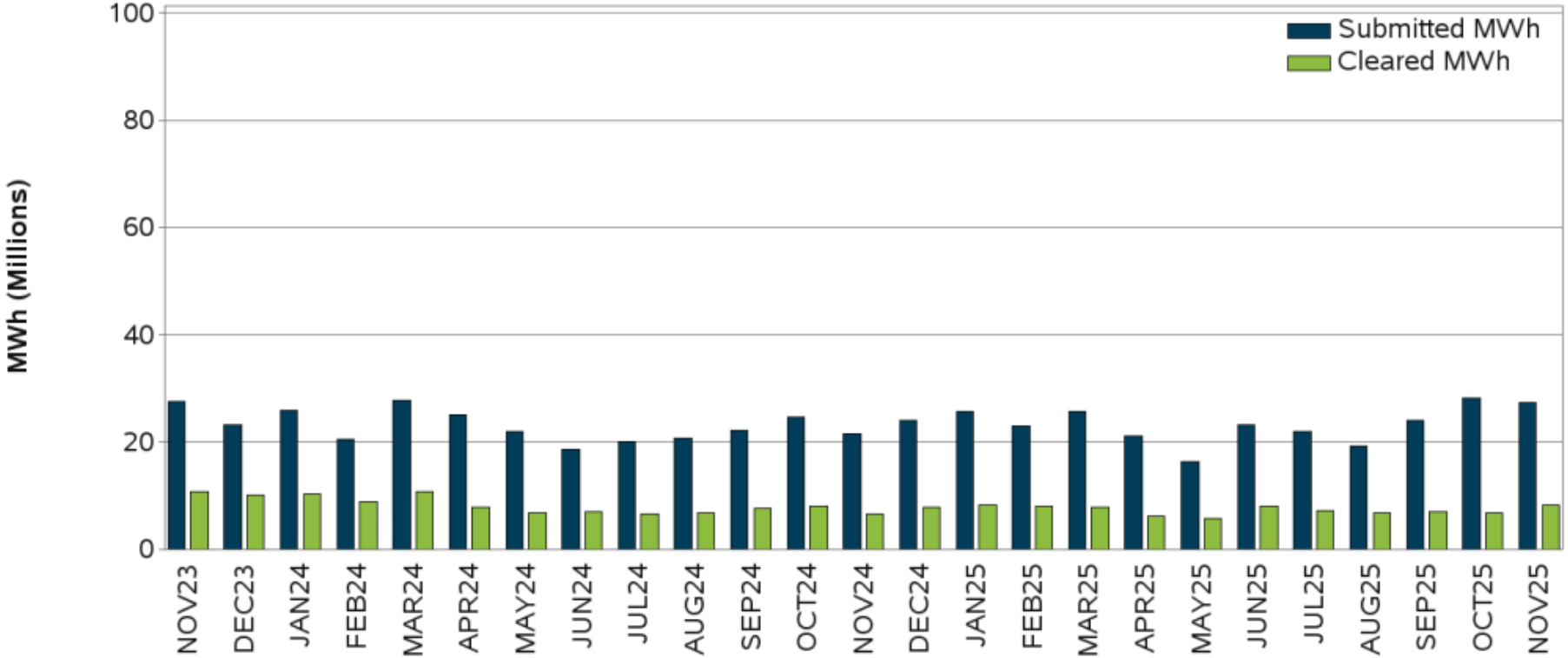
Up-To-Congestion Transactions - Total Volume



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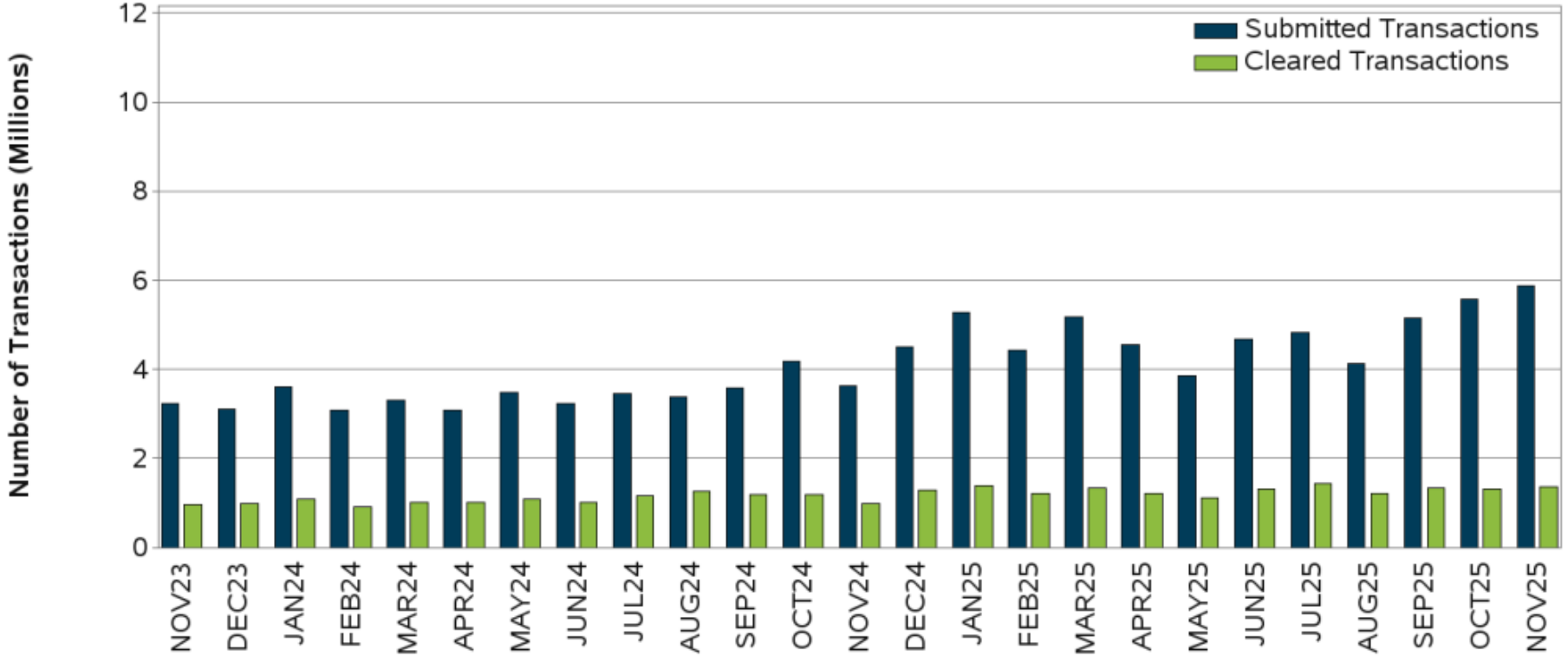
INCs, DECs and Up-To-Congestion Transactions - Total Number



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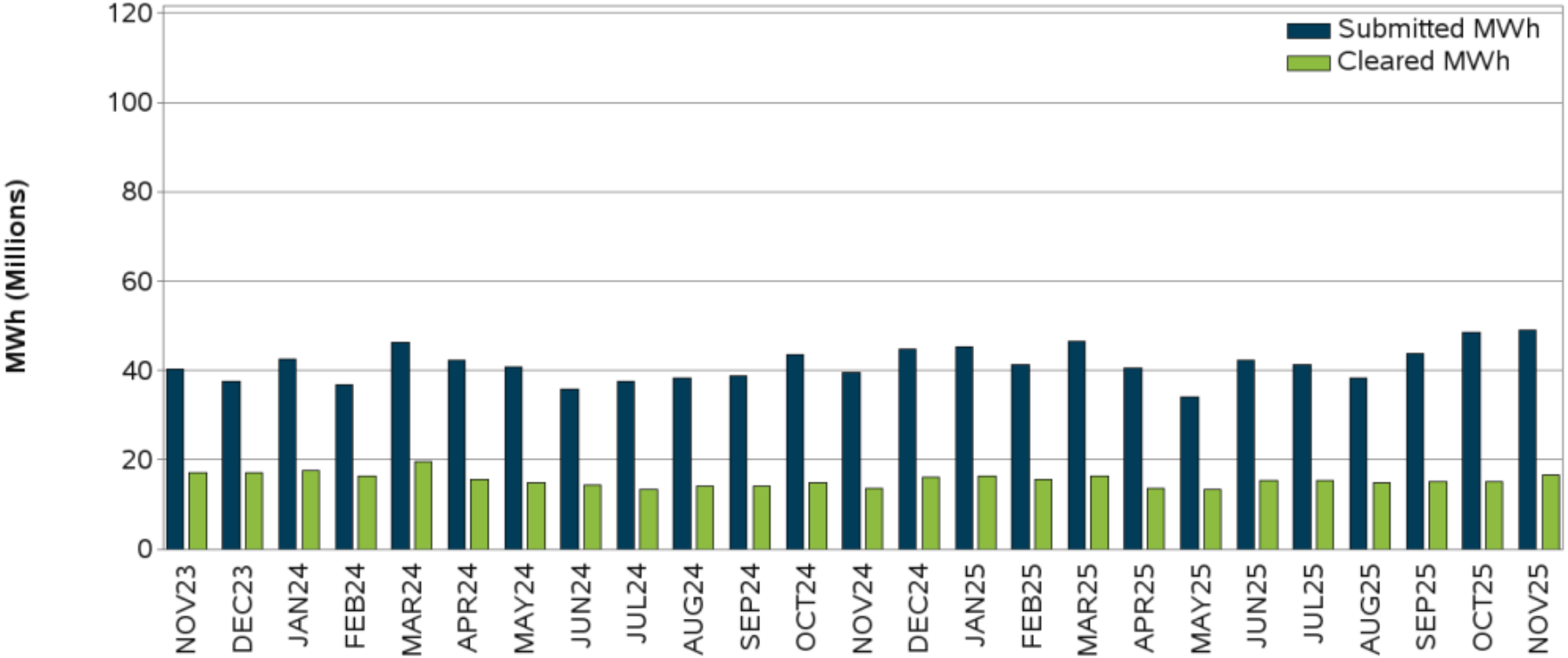
INCs, DECs and Up-To-Congestion Transactions - Total Volume



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Energy Market

Congestion and FTR Summary

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FTR Funding

Period	Surplus / Underfunding	Payout Ratio
November 2025	$-11,488,516	95%
2025	$160,806,465	100%
2025/2026	$204,876,544	100%

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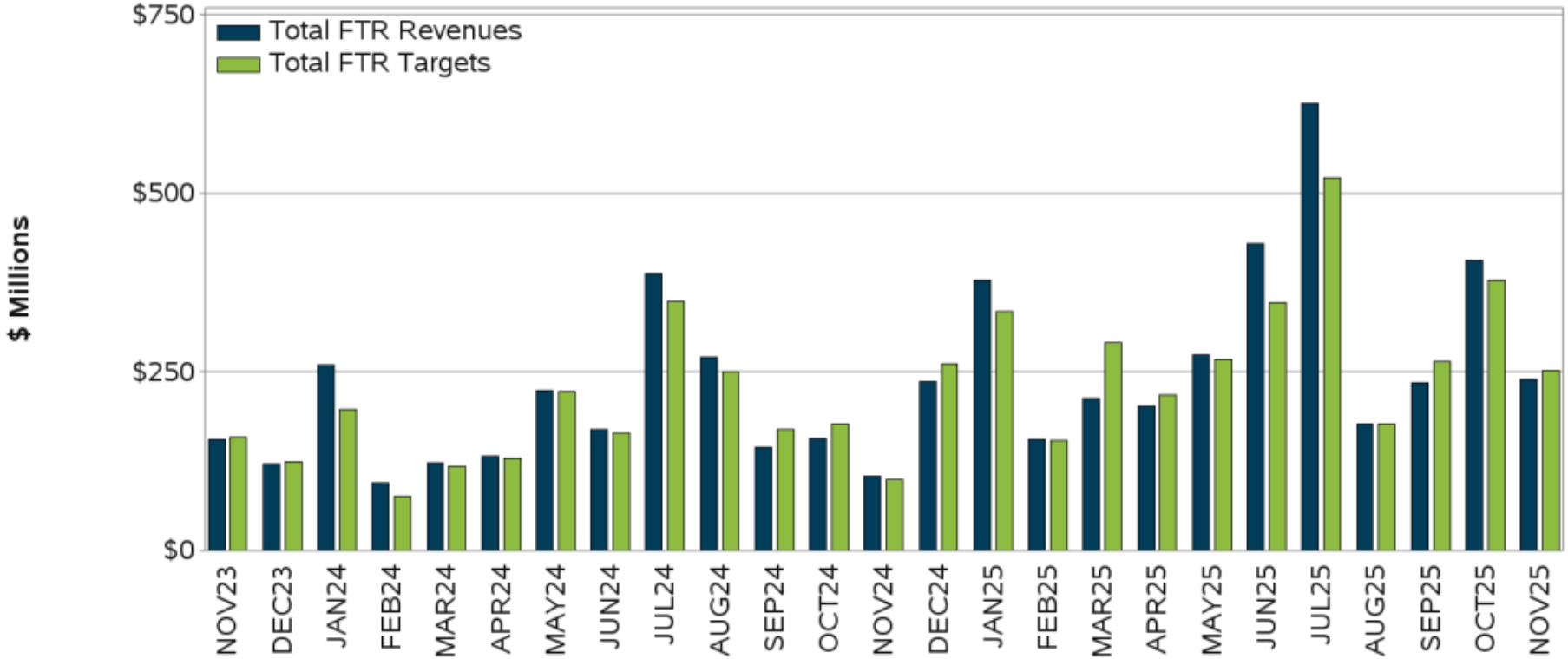
FTR Revenue vs. FTR Target Allocation



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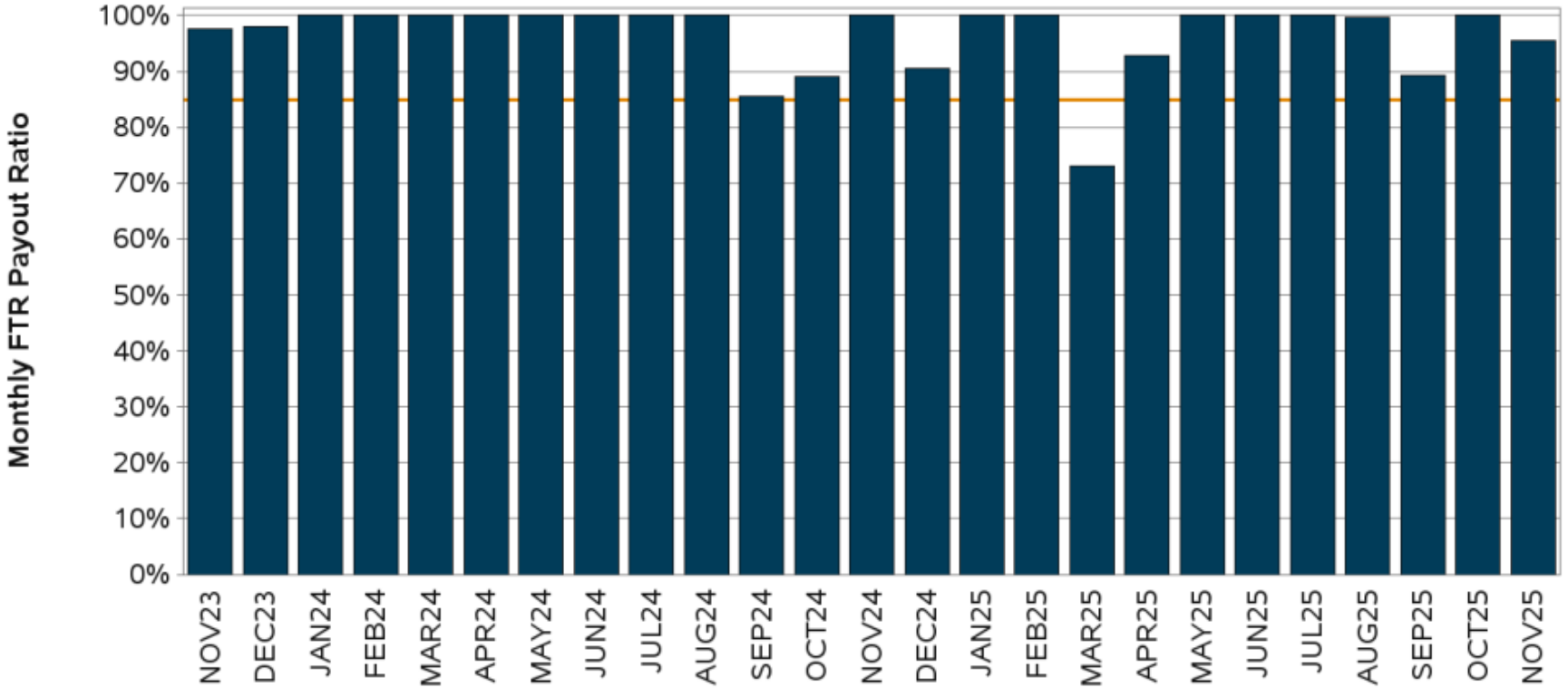
Monthly FTR Payout



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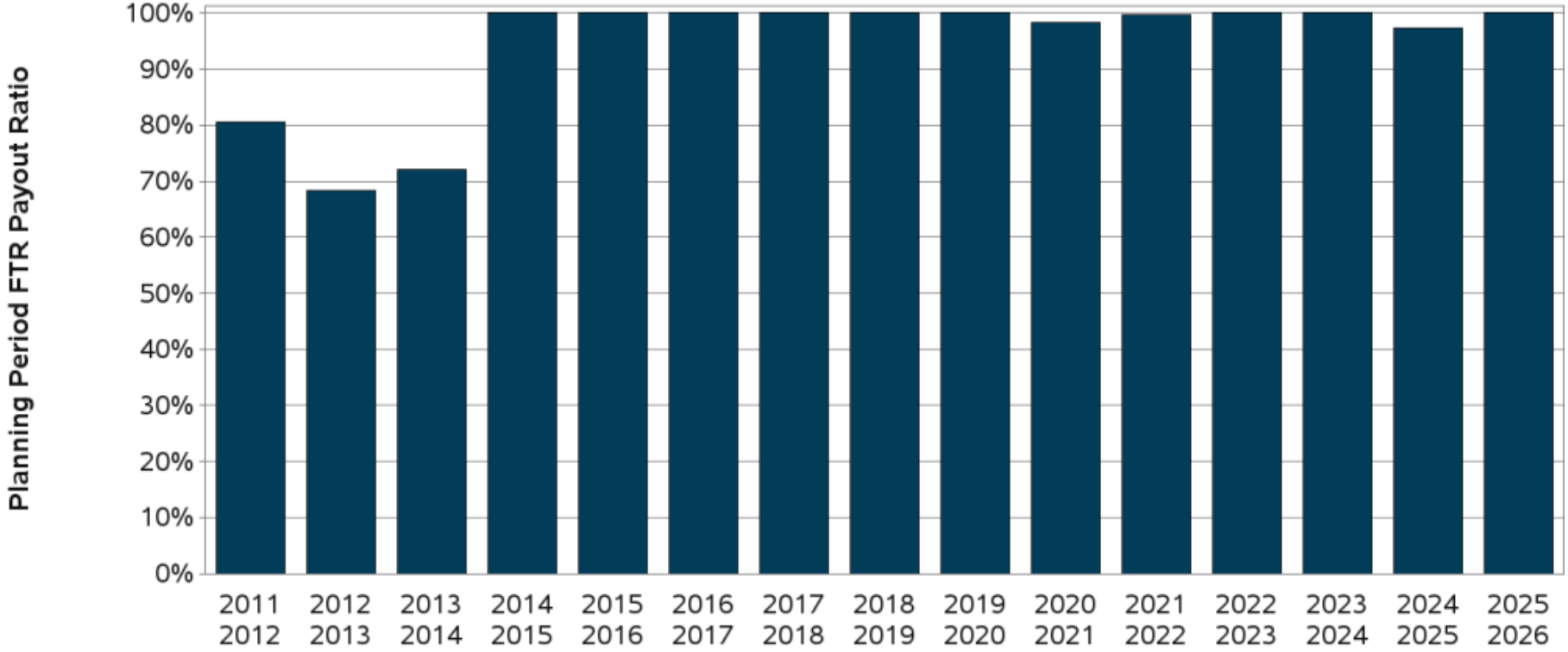
Planning Period FTR Payout



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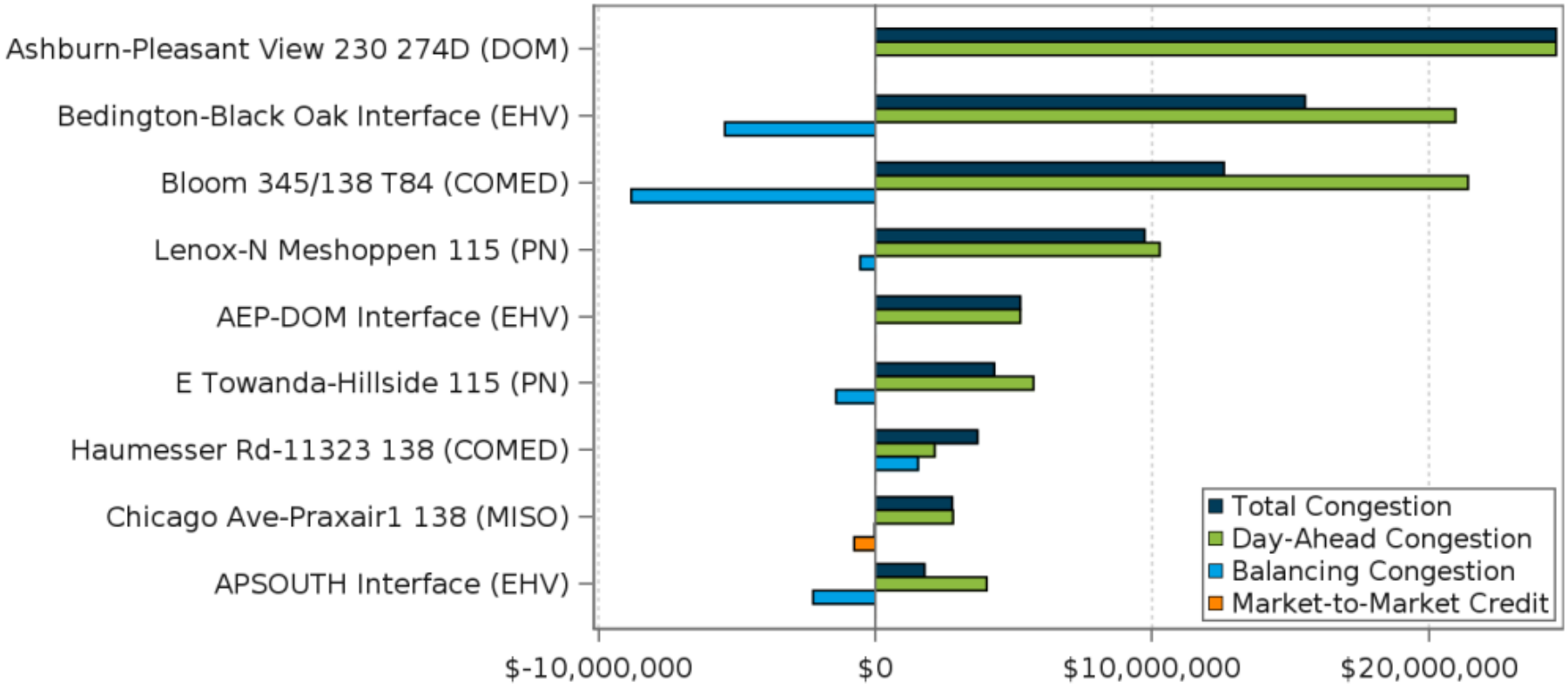
Ten Most Heavily Congested Transmission Facilities - Overall, November



The ten most heavily congested facilities account for 99% of total congestion for November.

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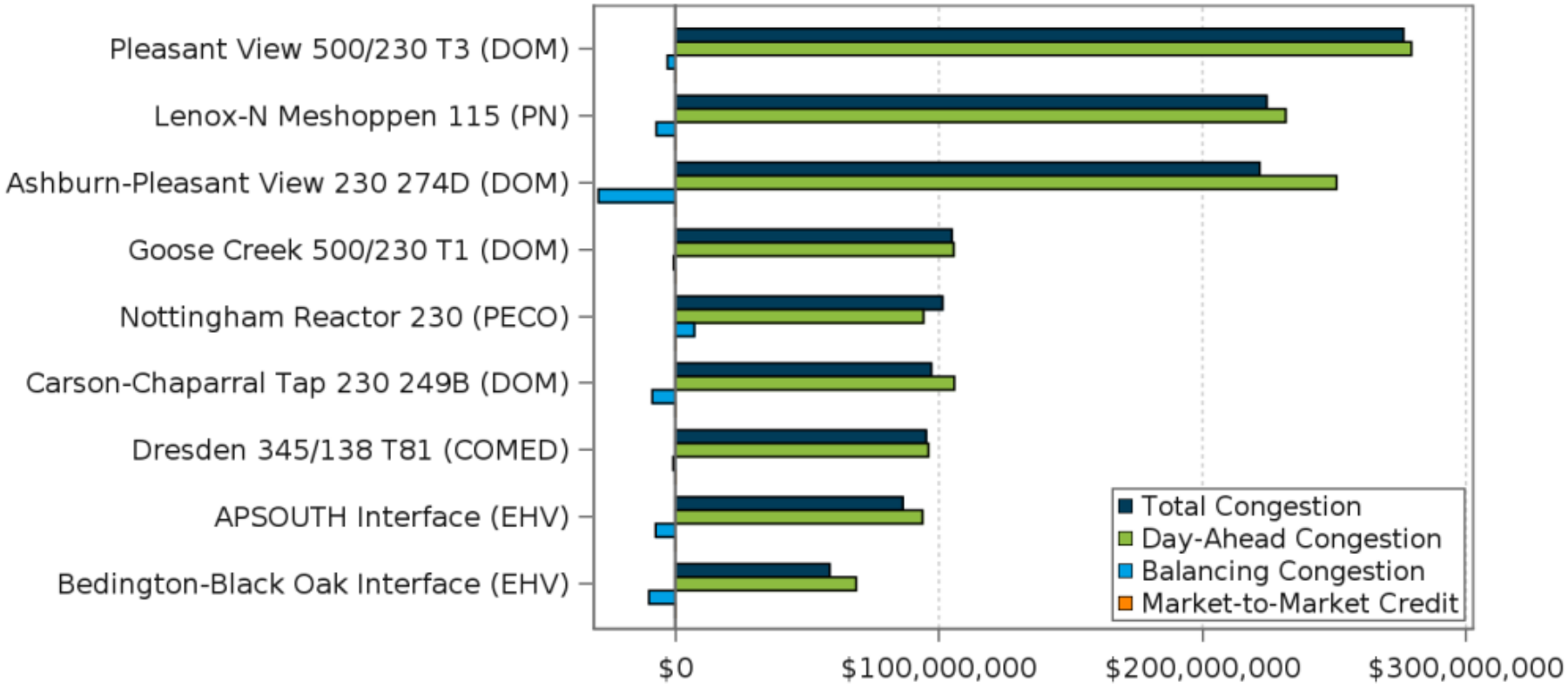
Ten Most Heavily Congested Transmission Facilities - Overall, 2025



The ten most heavily congested facilities account for 68% of total congestion for 2025.

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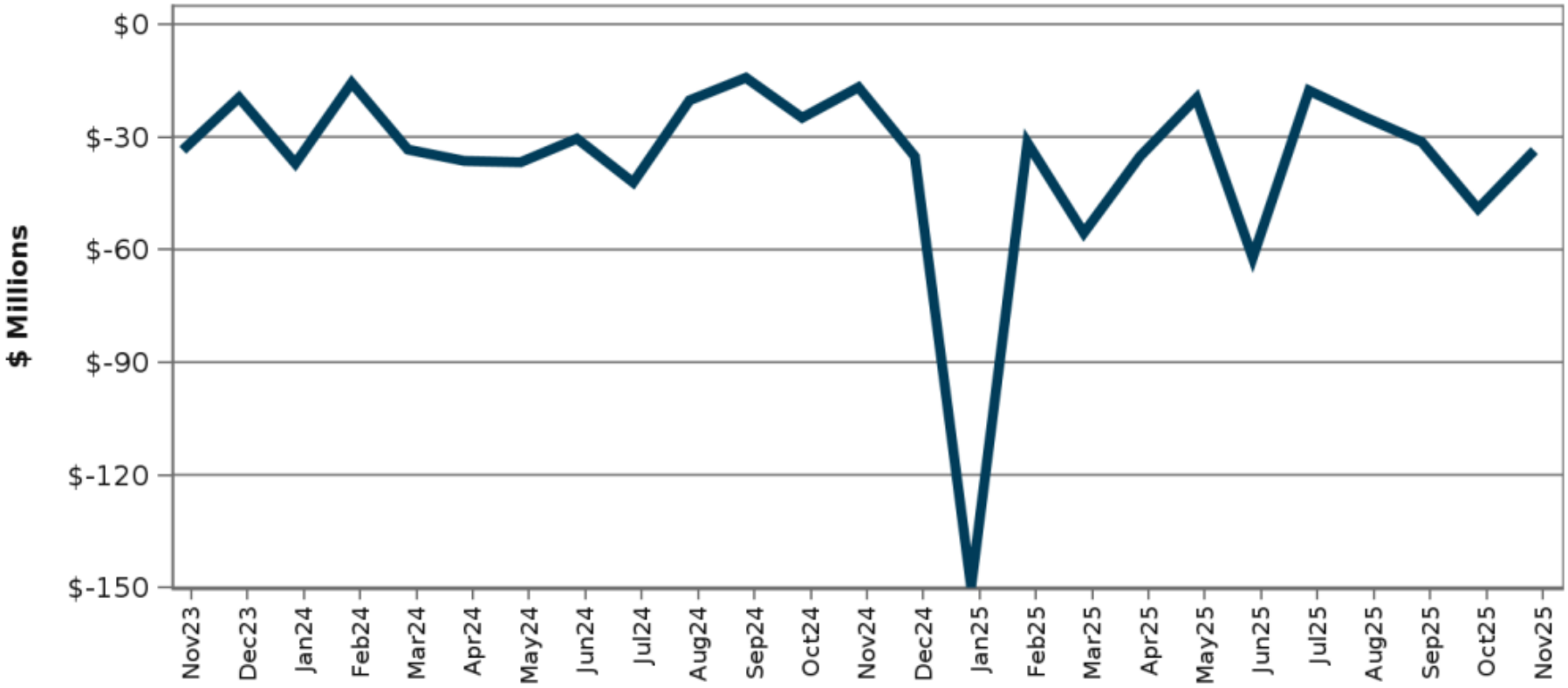
Balancing Congestion Charge Revenues (BLI 2215)



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Energy Market

Interchange/Seams Summary

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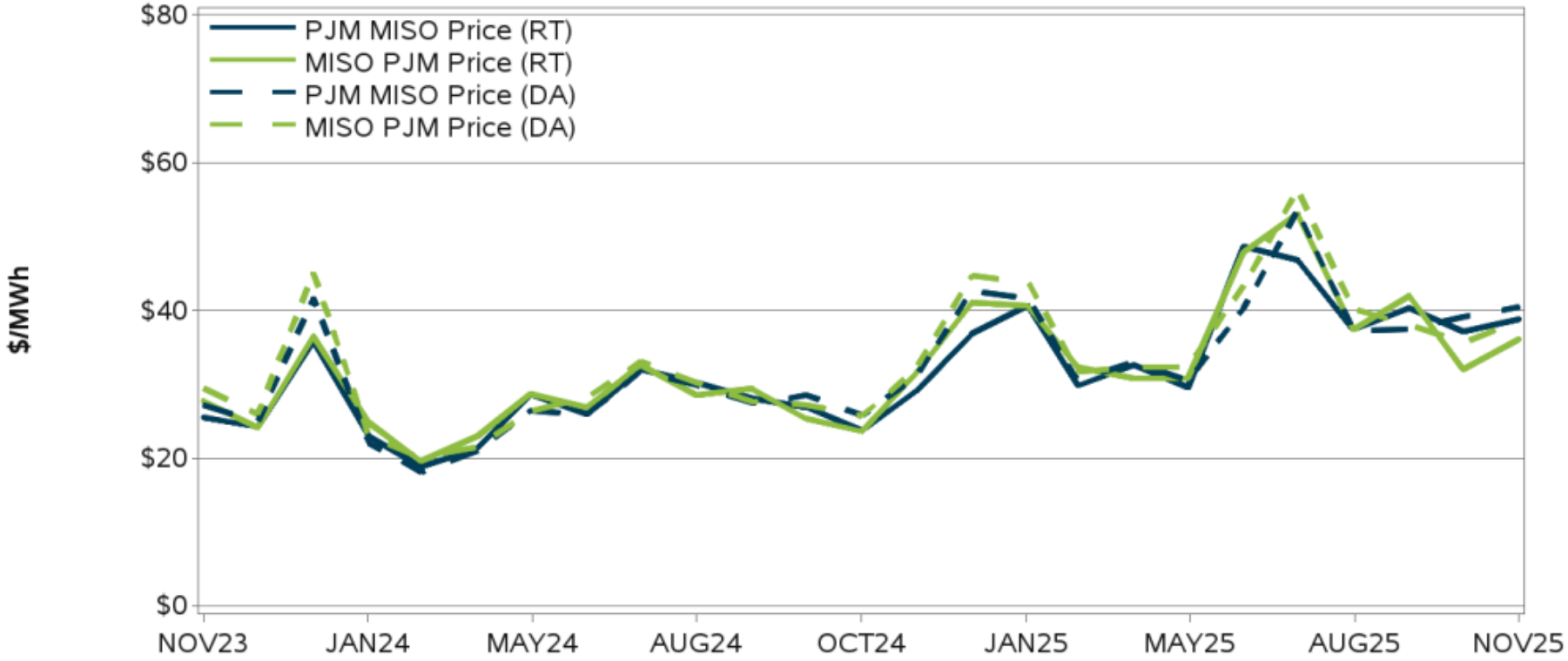
Monthly Average MISO Interface Pricing



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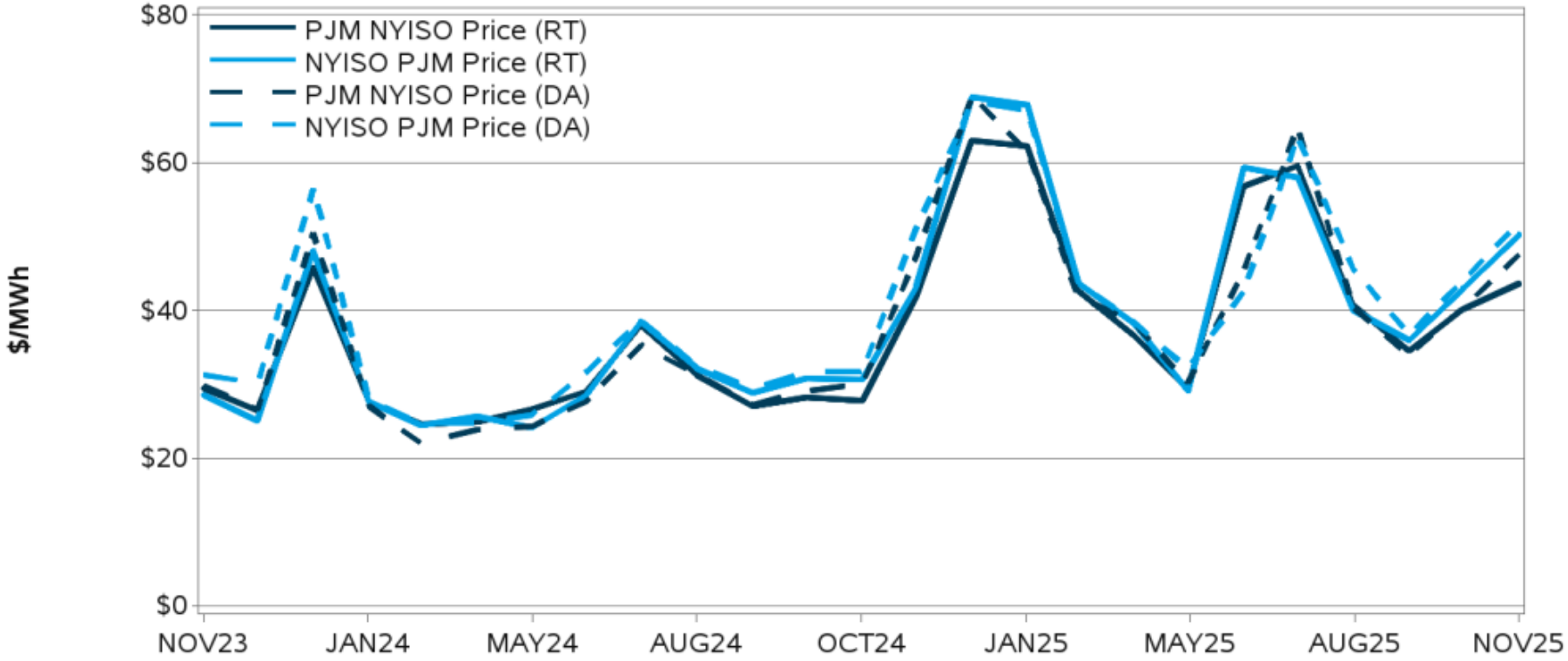
Monthly Average NYISO Interface Pricing



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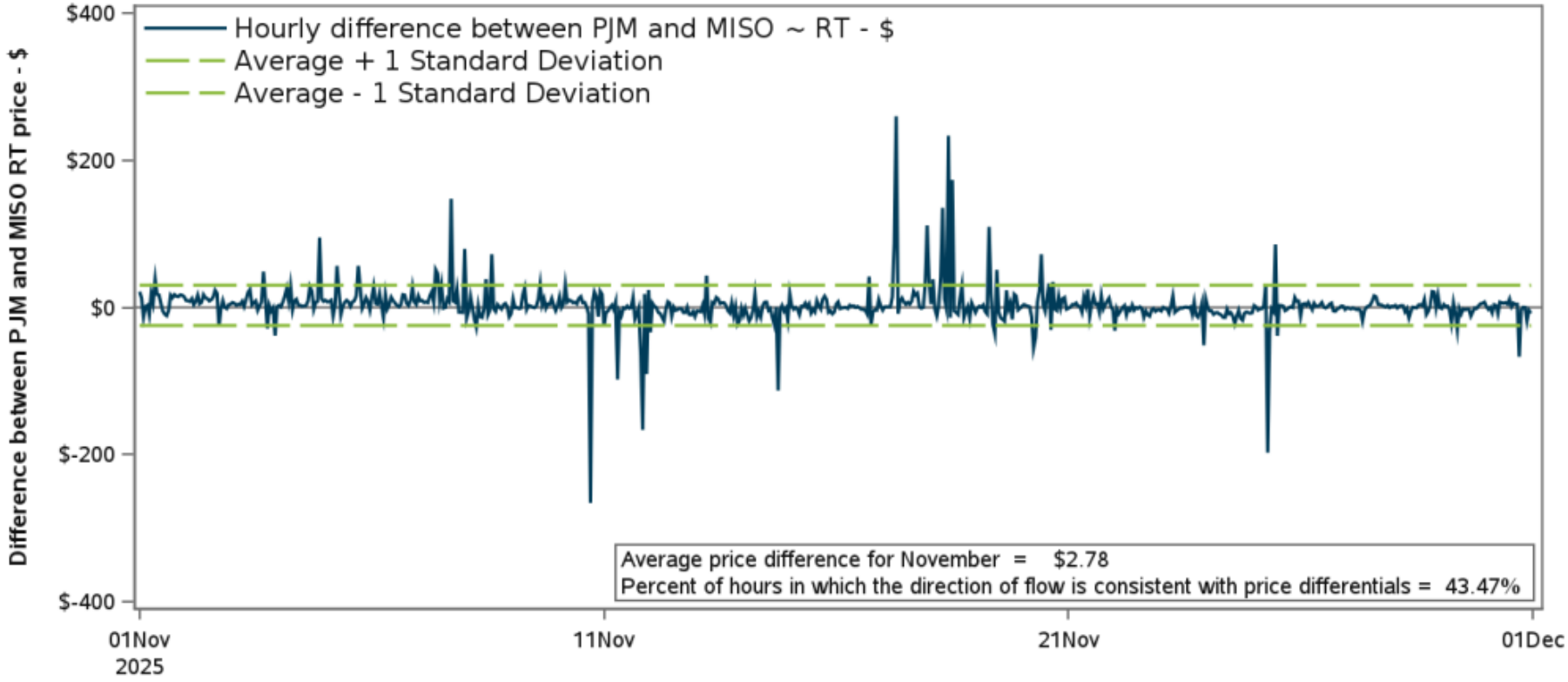
Hourly Difference Between PJM and MISO Real-Time Prices



Positive values represent hours when the PJM price was higher. Negative values represent hours when the PJM price was lower.

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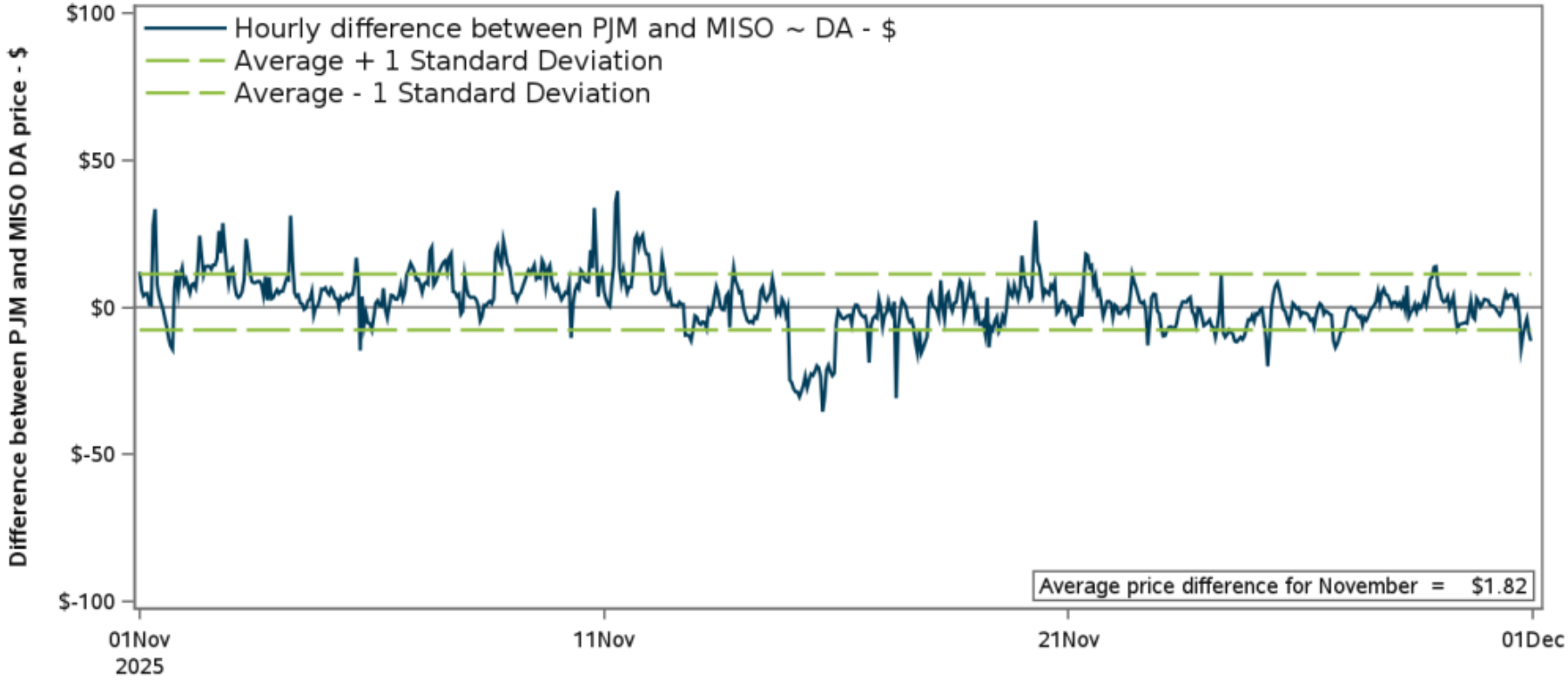
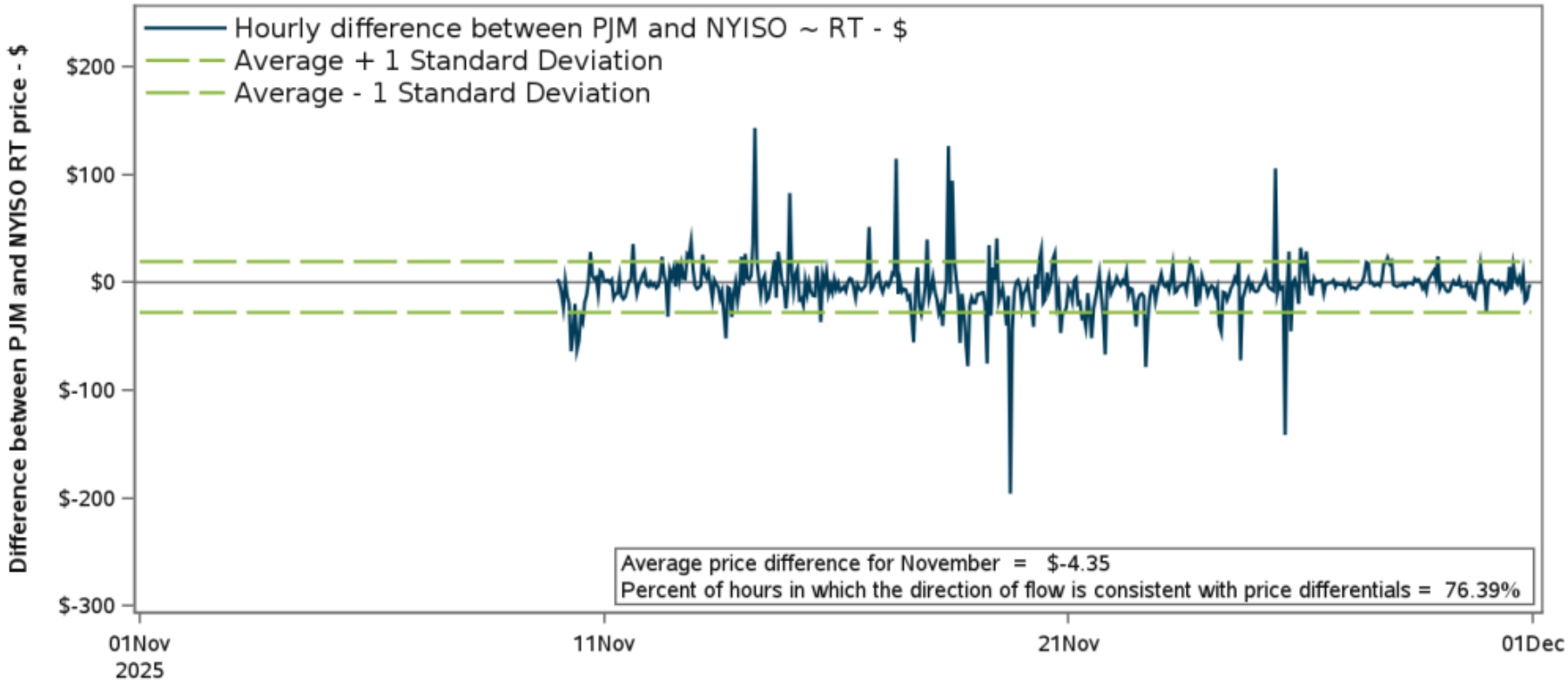
Hourly Difference Between PJM and MISO Day-Ahead Prices



Positive values represent hours when the PJM price was higher. Negative values represent hours when the PJM price was lower.

PJM © 2025

Hourly Difference Between PJM and NYISO Real-Time Prices



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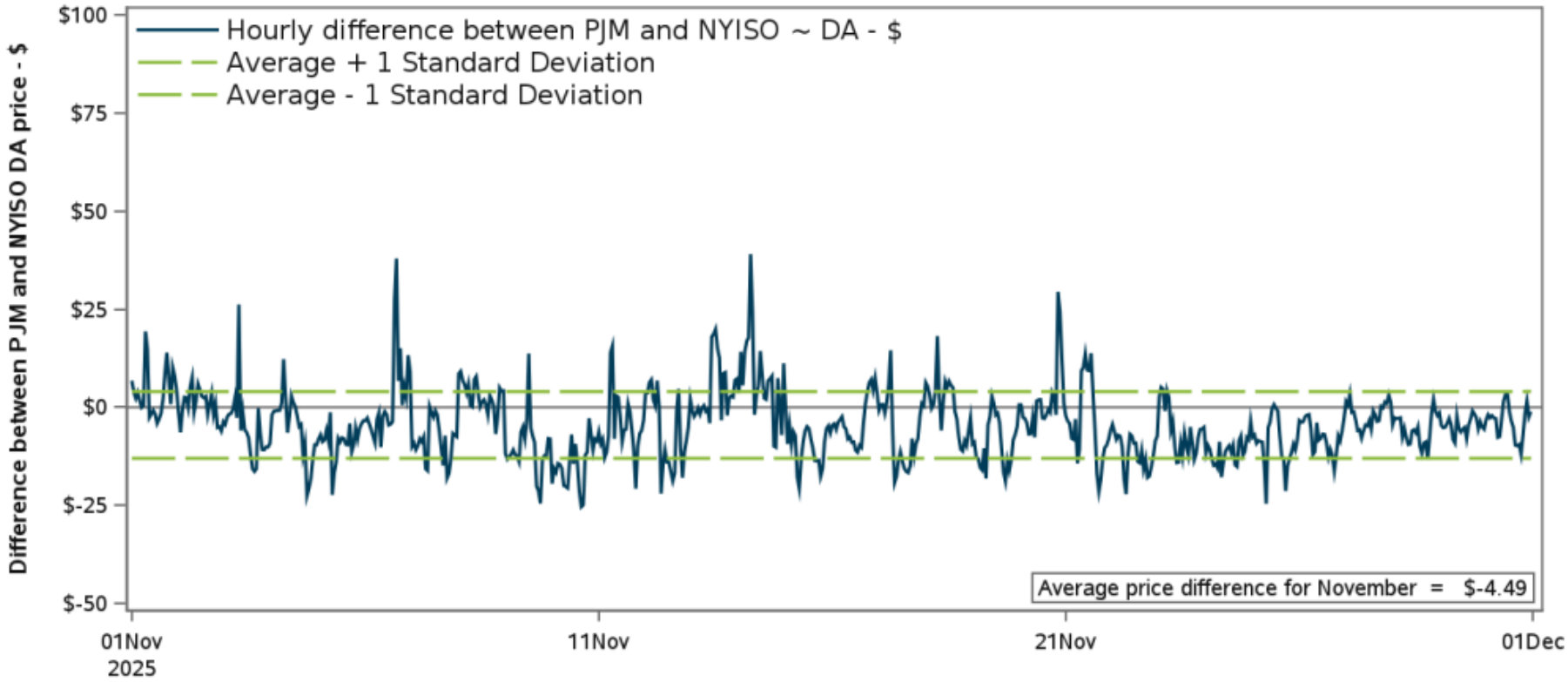
Hourly Difference Between PJM and NYISO Day-Ahead Prices



Positive values represent hours when the PJM price was higher. Negative values represent hours when the PJM price was lower.

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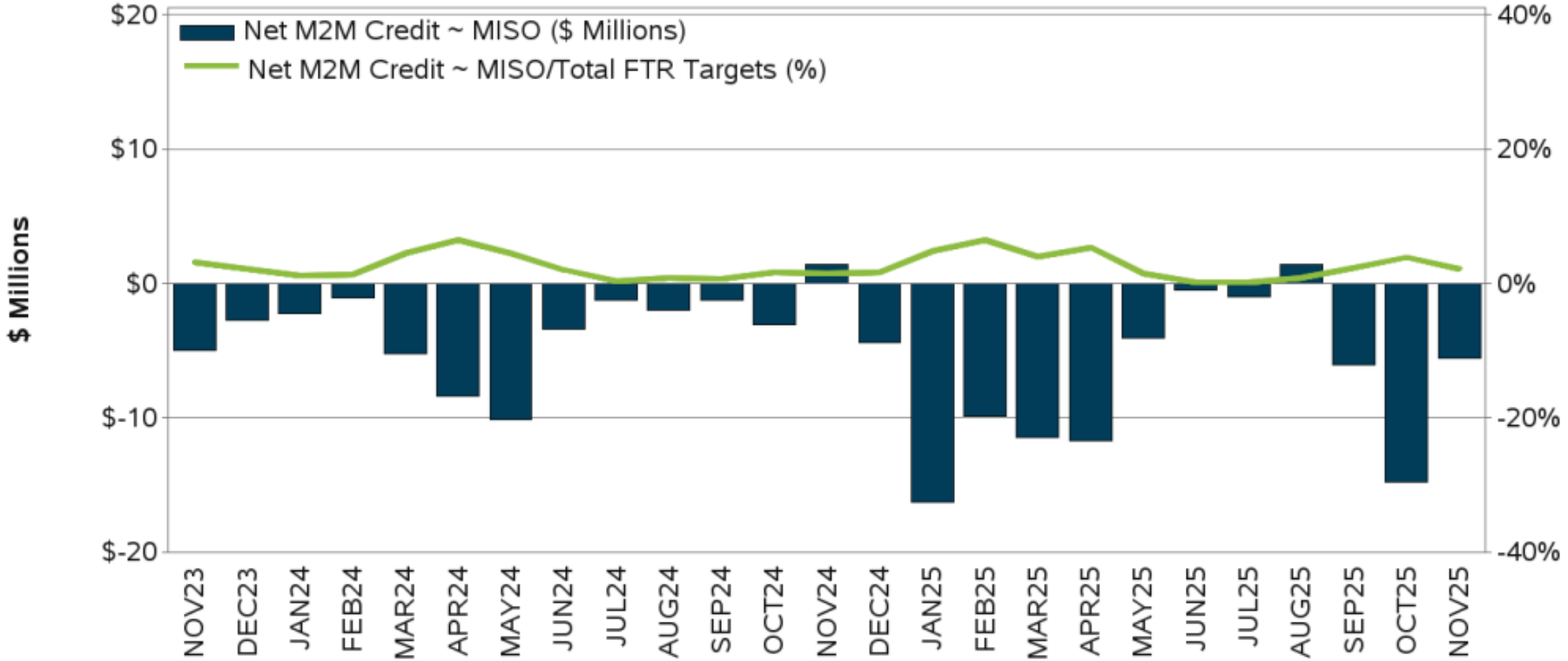
PJM-MISO Market-to-Market Coordination Settlement



Negative M2M Credit represents PJM payment to MISO

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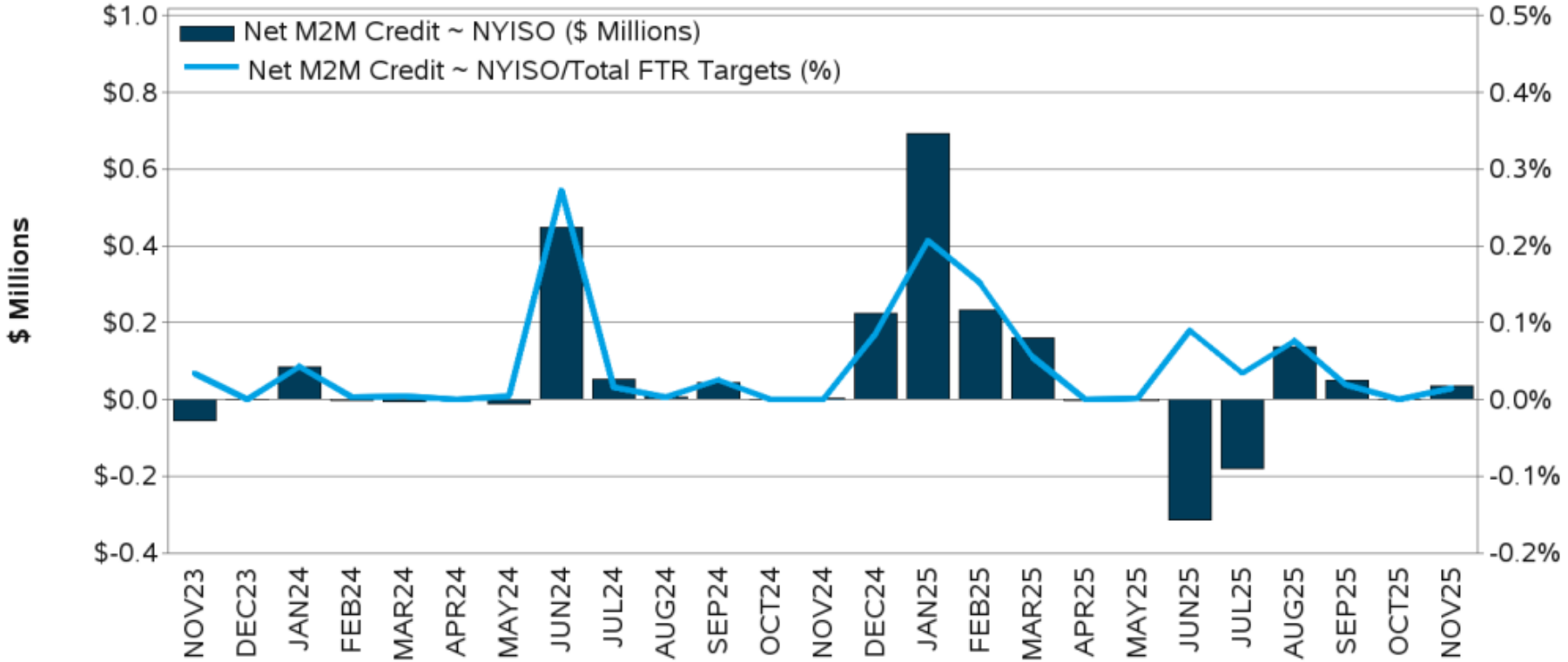
PJM-NYISO Market-to-Market Coordination Settlement



Negative M2M Credit represents PJM payment to NYISO

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Ancillary Service Market

Summary

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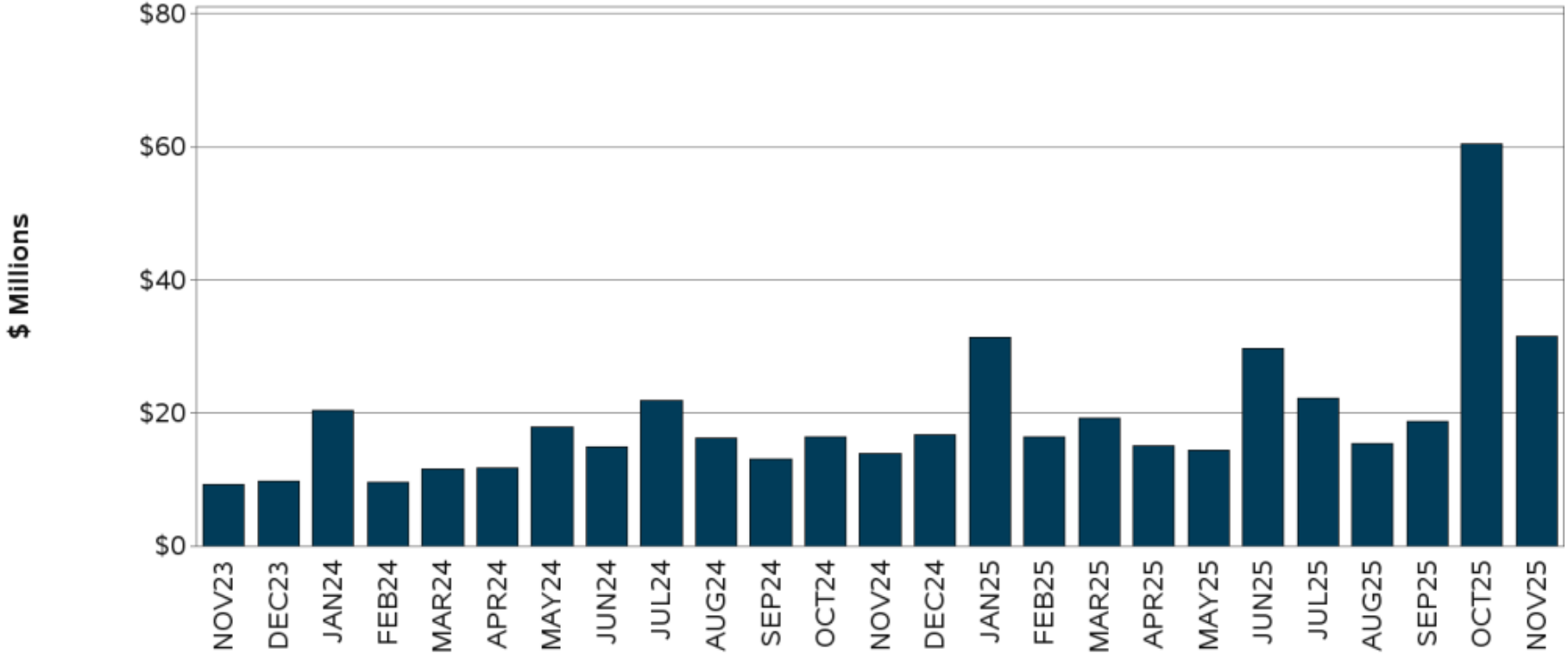
Regulation Costs



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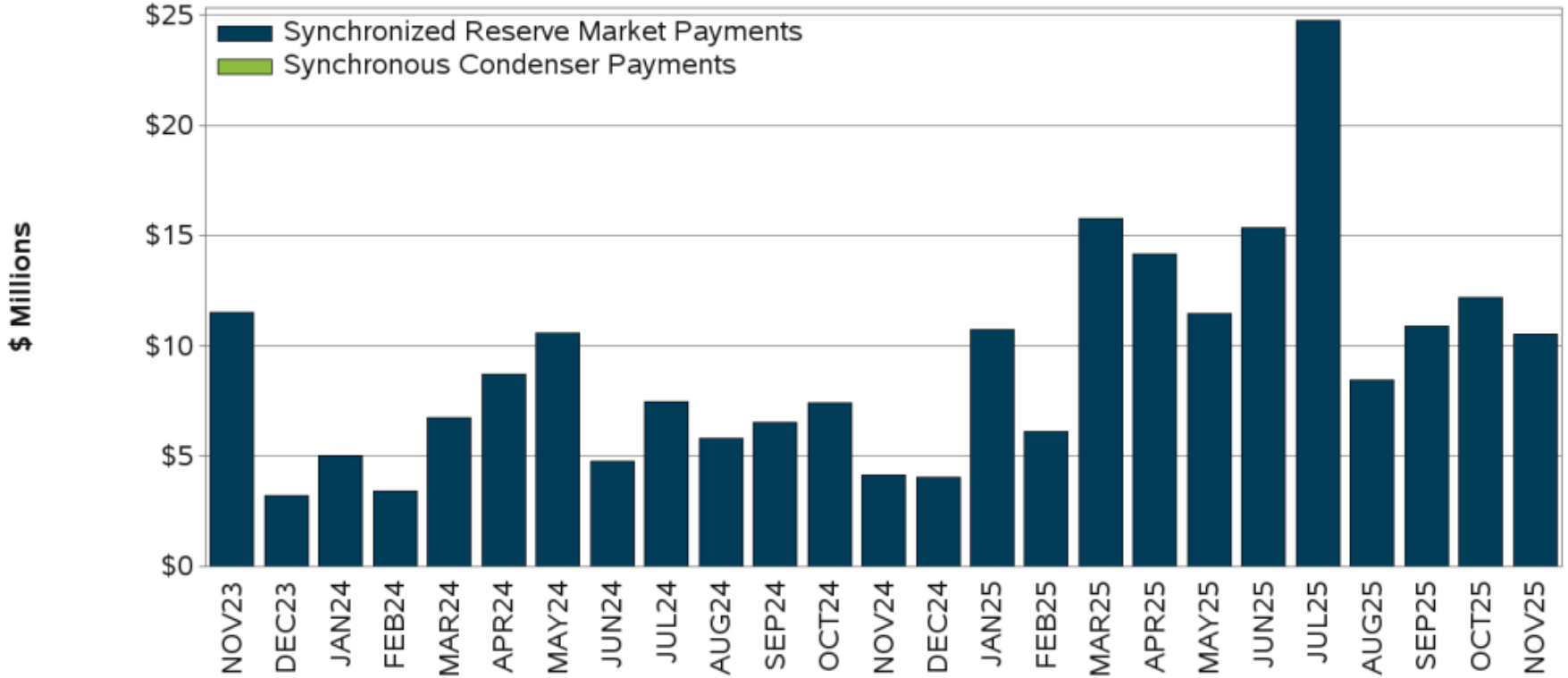
Synchronized Reserve and Synchronous Condenser Costs



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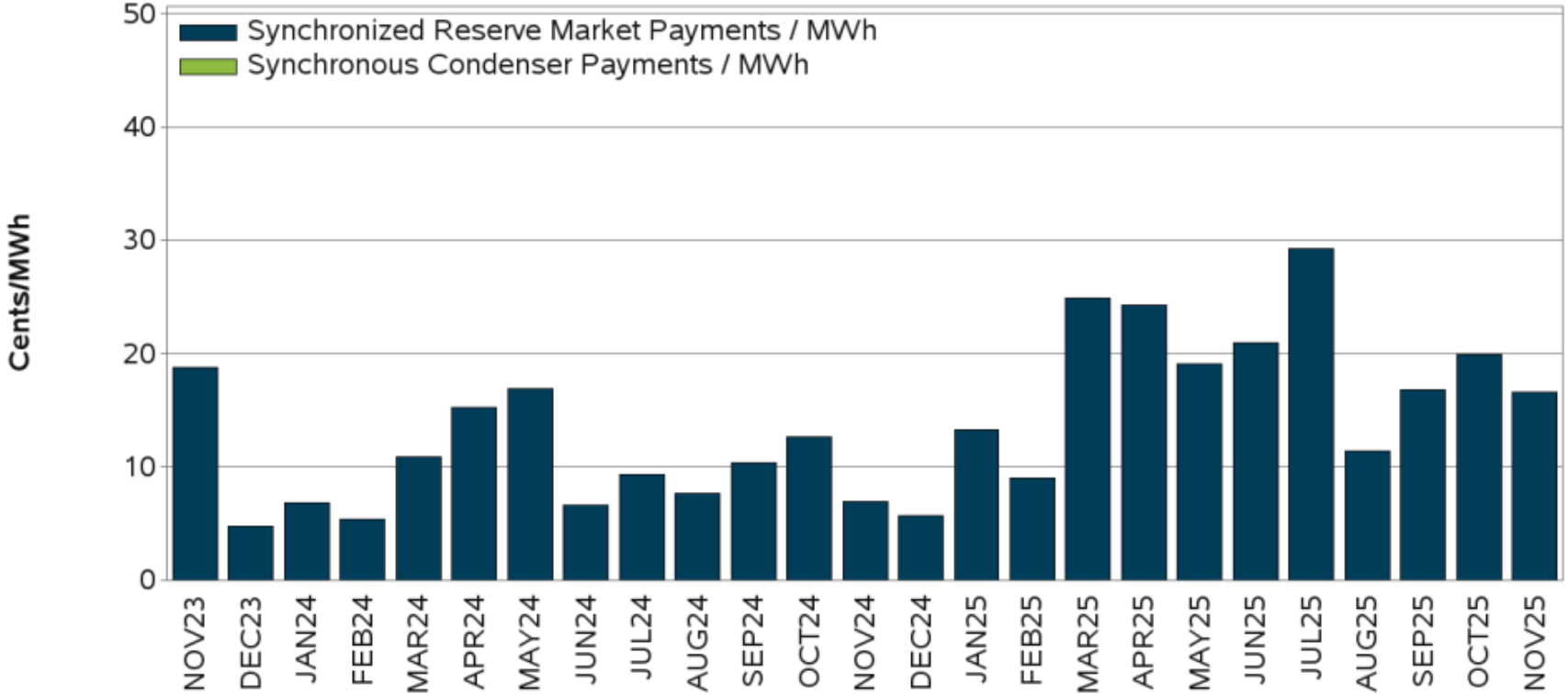
Load-Adjusted Synchronized Reserve and Synchronous Condenser Costs



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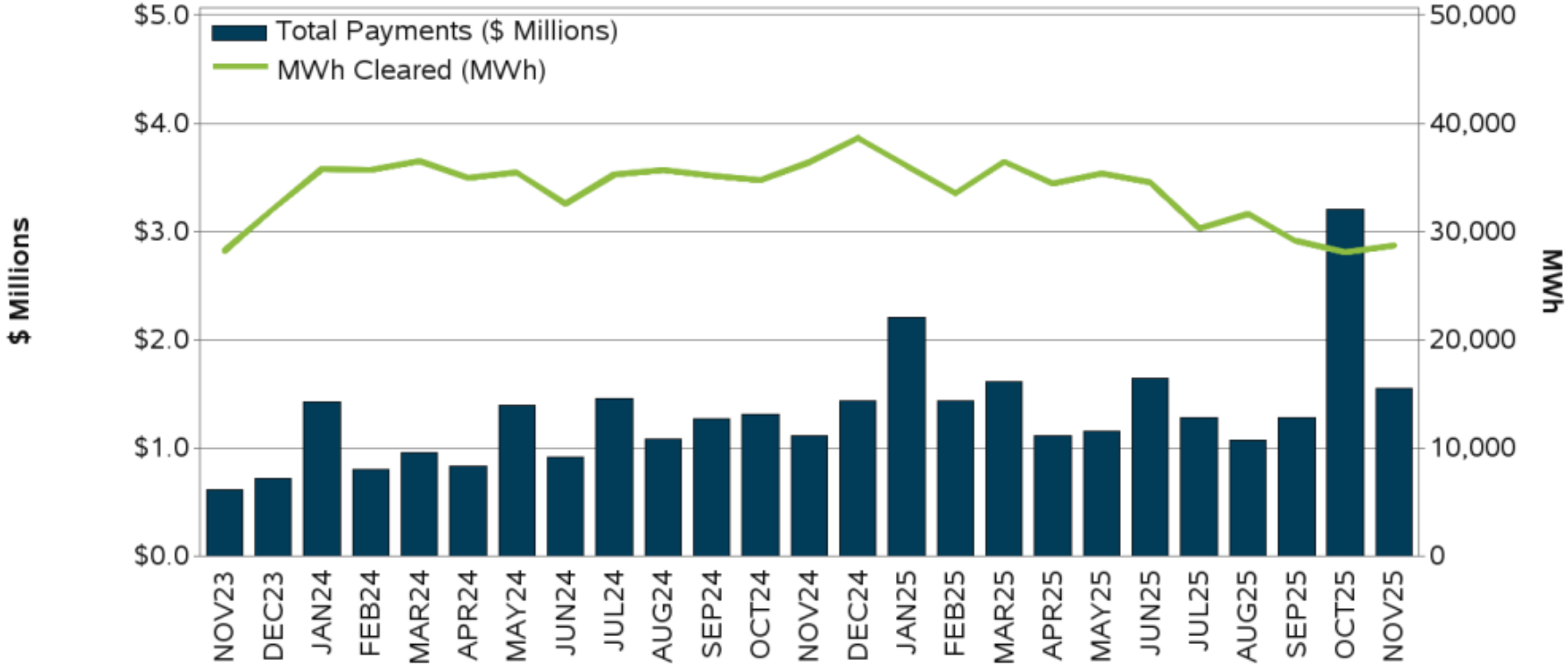
DR Participation in PJM Regulation Markets



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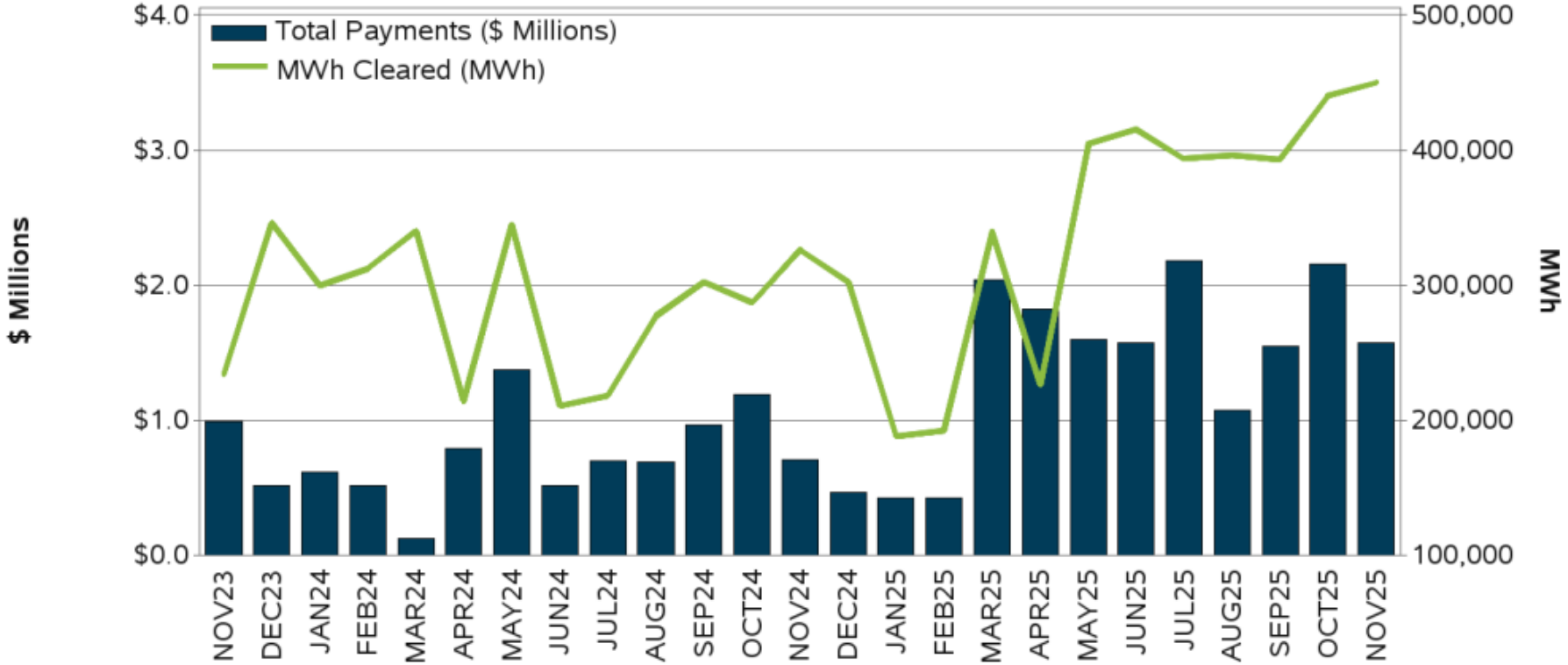
DR Participation in PJM Synchronized Reserve Markets



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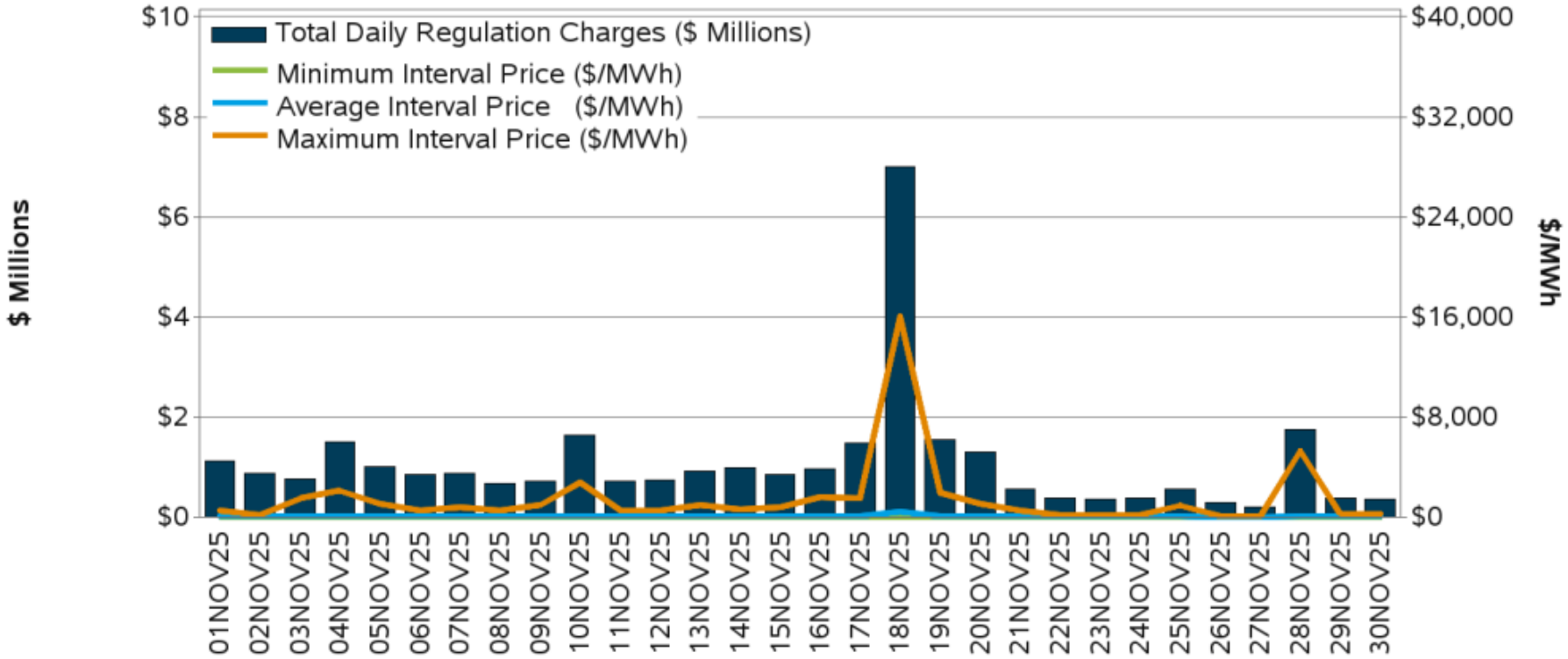
Regulation Market Daily Prices and Charges



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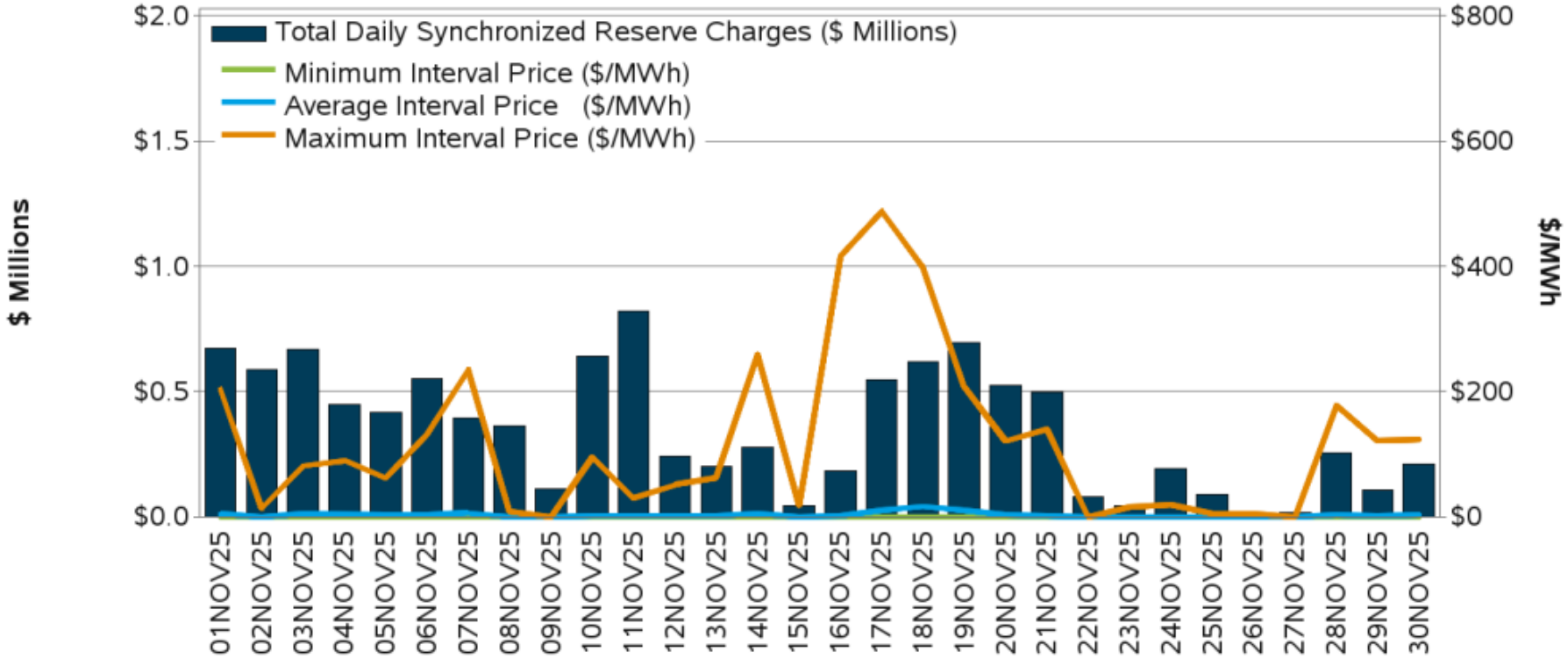
Synchronized Reserve Market Daily Prices and Charges



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