California ISO

Market Performance and Planning Forum

Q2

April 27, 2026

Housekeeping

This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO's permission.

The meeting is structured to stimulate dialogue and engage different perspectives.

Please engage in a respectful and professional manner.

Please keep comments brief and avoid repeating points already made so we can manage time and ensure everyone has an opportunity to participate.

You can access Closed Captioning and the Transparency Viewer using the controls located at the bottom of the Webex screen.

Instructions for Raising Your Hand to Ask a Question

If you are connected to audio through your computer or used the ‘call me’ option, select the raise hand icon located on the bottom of your screen.

If you are connected on the phone line only and not the Webex dial *3 to be added to the raise hand queue.

Please remember to state your name and affiliation before making your comment.

You may also send question via chat to all panelists.

If you need technical assistance during the meeting, please send a chat to the event producer at Intellor Events.

Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2026-2027 release plans, resulting from stakeholders inputs

Market Performance and Planning Forum

Agenda – Apr 27, 2026
9 a.m. – 12 p.m. Pacific Time (PST)

Time:	Topic:	Presenter:
09:00 – 09:05	Introduction, Agenda	Brenda Marquez, Stakeholder Affairs
09:05 – 11:00	Market Quality and Performance Update	Market Performance and Advanced Analytics Short Term Forecasting
11:00-11:20	Market Design Update	Market Policy Development
11:20-11:45	Release Update	Release Management
11:45-12:00	Next Steps and Energy Blog Matters	Brenda Marquez, Stakeholder Affairs

Market Performance Update

Agenda for Market Performance Update

Updates

1. Default Variable Operations and Maintenance Adders
2. Market quality and Performance of Extended Day-Ahead Market
3. Data Quality Procedure and Forecasting Forum

Market Performance

1. Executive summary
2. Storage resource performance
3. Load conformance
4. Renewables and curtailments
5. Congestion revenue rights
6. Gas and power index prices, and market costs
7. WEIM RSE performance

8. Appendix. General metrics

UPDATES

Default Variable Operations and Maintenance Costs Triennial Review

Market Performance and Advanced Analytics

The ISO reviews the default values for variable operations and maintenance (VO&M) adders every three years

- Scheduling coordinators (SCs) use VOM adders to reflect their cost of operations and in CAISO markets
- The default VO&M values are defined in the Tariff
- The most recent update to the default VOM adders was completed in 2023

Technology Type	Default VOM-EN Adder *($/MWh)*	Default VOM-ML Adder *($/run-hour/MW)*	Default VOM-SU Adder *($/start/MW)*
Coal	3.19	-	-
Steam turbines	0.39	-	-
Natural gas-fired combined-cycle	0.70	2.07	-
Frame combustion turbines	1.15	-	61.89
Aeroderivative combustion turbines	2.55	5.20	-
Reciprocating internal combustion engines	1.31	-	-
Nuclear	1.28	-	-
Biomass	1.96	-	-
Geothermal	1.38	-	-
Landfill gas	1.44	-	-
Hydroelectric	-	0.77	-
Solar	-	-	-
Wind	0.33	-	-

The ISO reviews the default values for variable operations and maintenance adders every three years

- VOM adders are set at default values or can be negotiated if the default values are insufficient
- The triennial review is scheduled again for 2026
- CAISO is planning to initiate a stakeholder process in early June to review the default VO&M
- If Default VO&M are updated as part of this review, it will require a Tariff update

Market Quality and Performance of Extended Day-ahead Market

Market Performance and Advanced Analytics

The ISO will continue to report on the market quality and performance of the day-ahead market

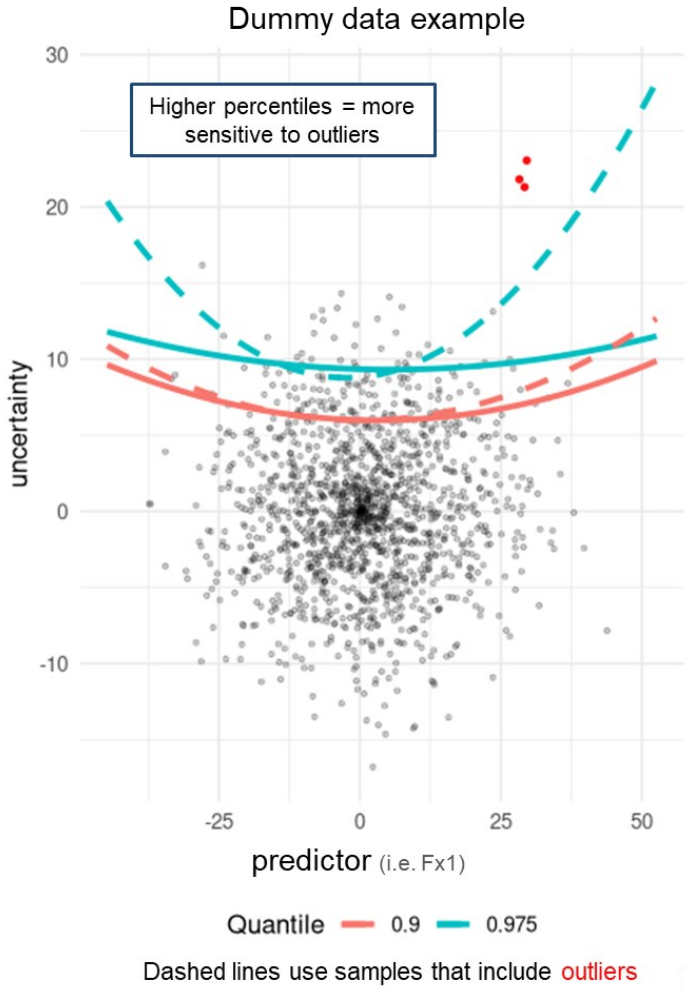
- The ISO is implementing the extended day-ahead market (EDAM) and day-ahead market enhancements (DAME)
- As part of the overall day-ahead market performance assessment, the ISO will continue to evaluate the impact of key DAME parameters
- The ISO will
  - adjust the daily market watch to include EDAM performance
  - expand the upcoming bi-weekly market update calls to cover EDAM
  - publish monthly reports about the day-ahead market performance
  - hold monthly public calls to discuss assessment and findings
  - the monthly calls will be held around the third week of the following month; for example, the call to report on May results will take place around the third week of June
  - the July's MPPF market update will be focused on reporting results for June's performance

Data Quality Procedure and Forecasting Forum

Short Term Forecasting

Recording on data quality procedure for operational requirements is available

- Short Term Forecasting presented on data quality procedure and management
  - Described data quality challenges particular to operational requirements (imbalance reserve and flexible ramp product)
  - Outlined approach to identifying and classifying anomalous data, before implementing discard ranges
- Recording and materials posted to [Meetings | Forecasting Forum | California ISO]



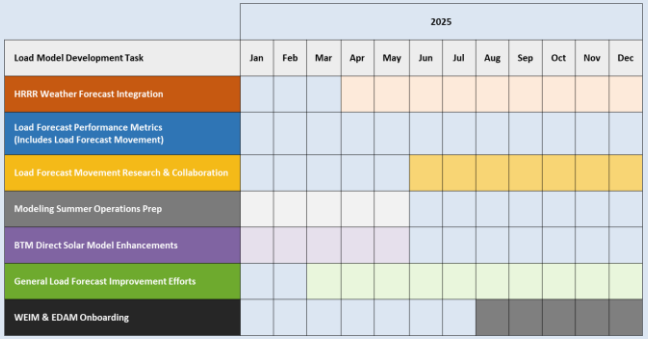
Upcoming Forecasting Forum series

Short Term Forecasting is starting a quarterly Forecasting Forum series to cover forecasting issues, topics, and metrics to greater technical depth than can be provided through MPPF.

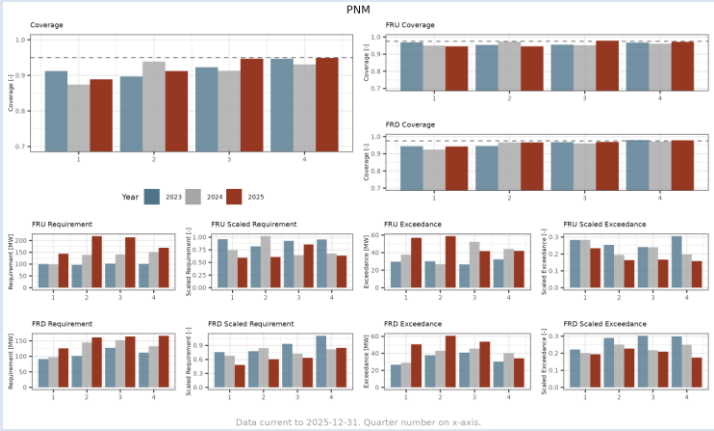
- Forecasting performance metrics in MPPF slides will move to Forecasting Forum slides
- Follow for updates: caiso.com/meetings-events/topics/forecasting-forum
- Target first meeting **July 2026**

Example content in Forecasting Forum

Roadmaps and updates



Forecast performance metrics



MARKET PERFORMANCE

Executive Summary

Market performance in winter months has been relatively quiet, given atypical weather events

- Market prices were low and declined across the quarter, despite winter storm Fern and a mid-March heat wave
- Storage resources were dispatched over 12,000 MW for evening peaks
- The ISO continued the pilot program to minimize load conformance in the real-time market through early March
- Load conformance was minimal in January and February (used less than 1 percent of the time), with averages of 50MW during peak hours, down from 1,400MW in 2025
- The ISO expanded the application of global derates to contingency constraints in the CRR process in the March monthly process

Market performance in winter months has been relatively quiet

- March saw a revenue adequacy surplus of $1.6 million. CRR auction efficiency was over 100 percent from November 2025 through February 2026
- Winter Storm Fern caused high gas prices in January for various hubs in the West
- Seven WEIM entities opted in for the assistance energy program in the first quarter of 2026, with a total surcharge assessed of $726K

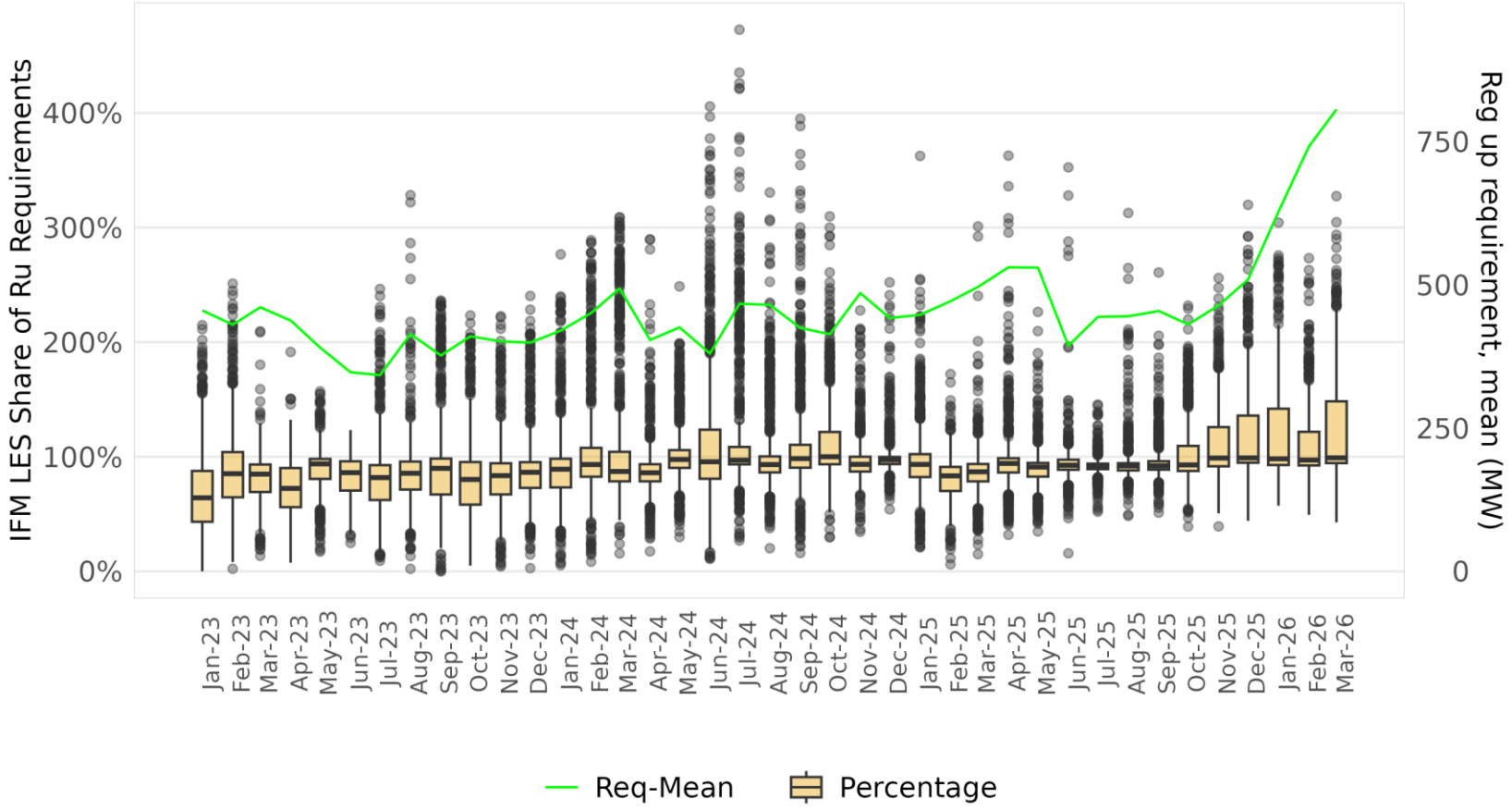
Energy Storage Performance

Market Performance and Advanced Analytics

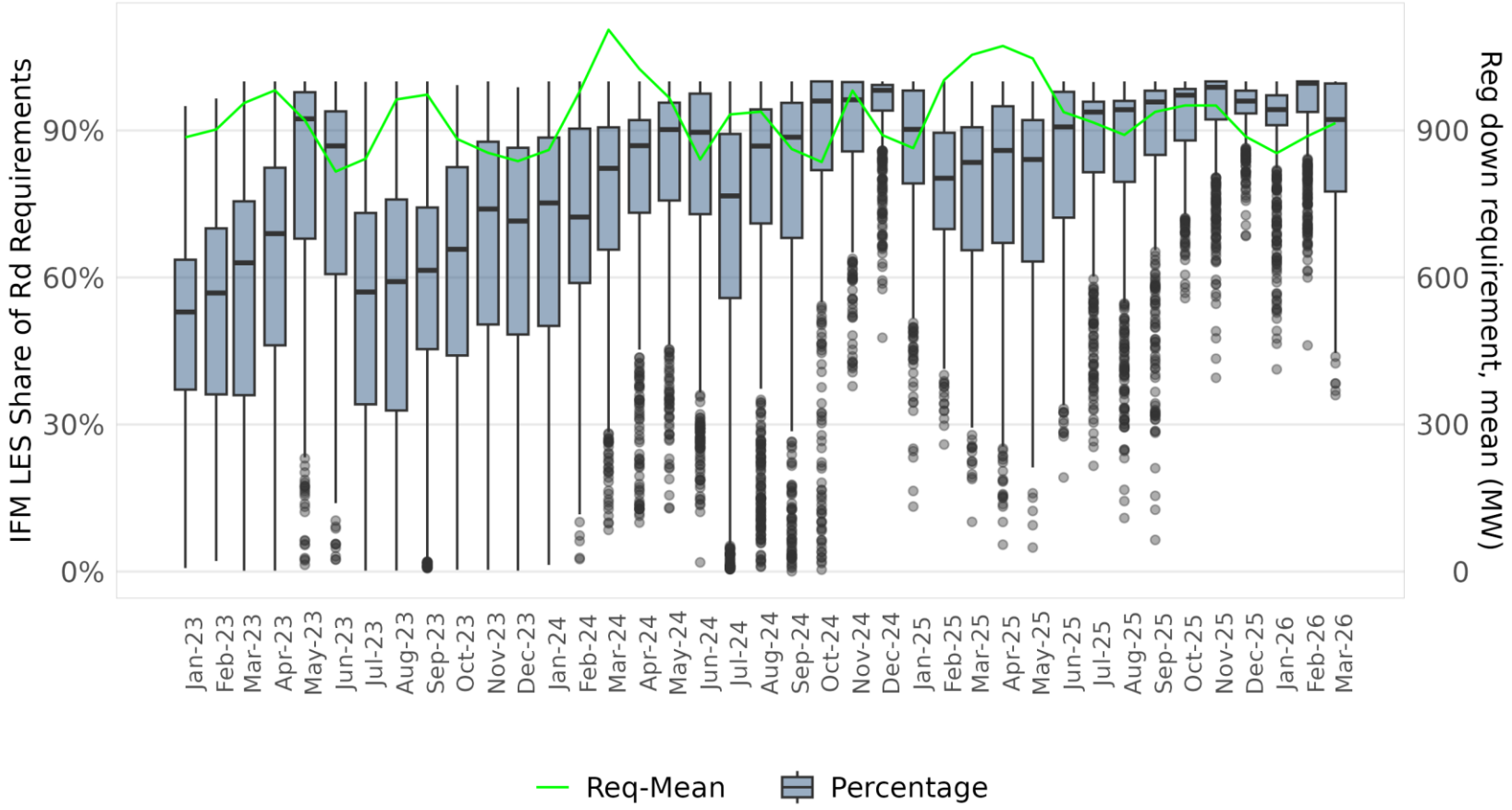
Storage resource performance - Summary

- Storage resources have saturated the regulation market by procuring over 100% of requirements
- The charging of storage resources in midday hours have led to the daily peak to happen earlier in the day
- Storage resources are dispatched to meet both morning and evening peaks, and exceed 12,000MW of discharge for evening peaks

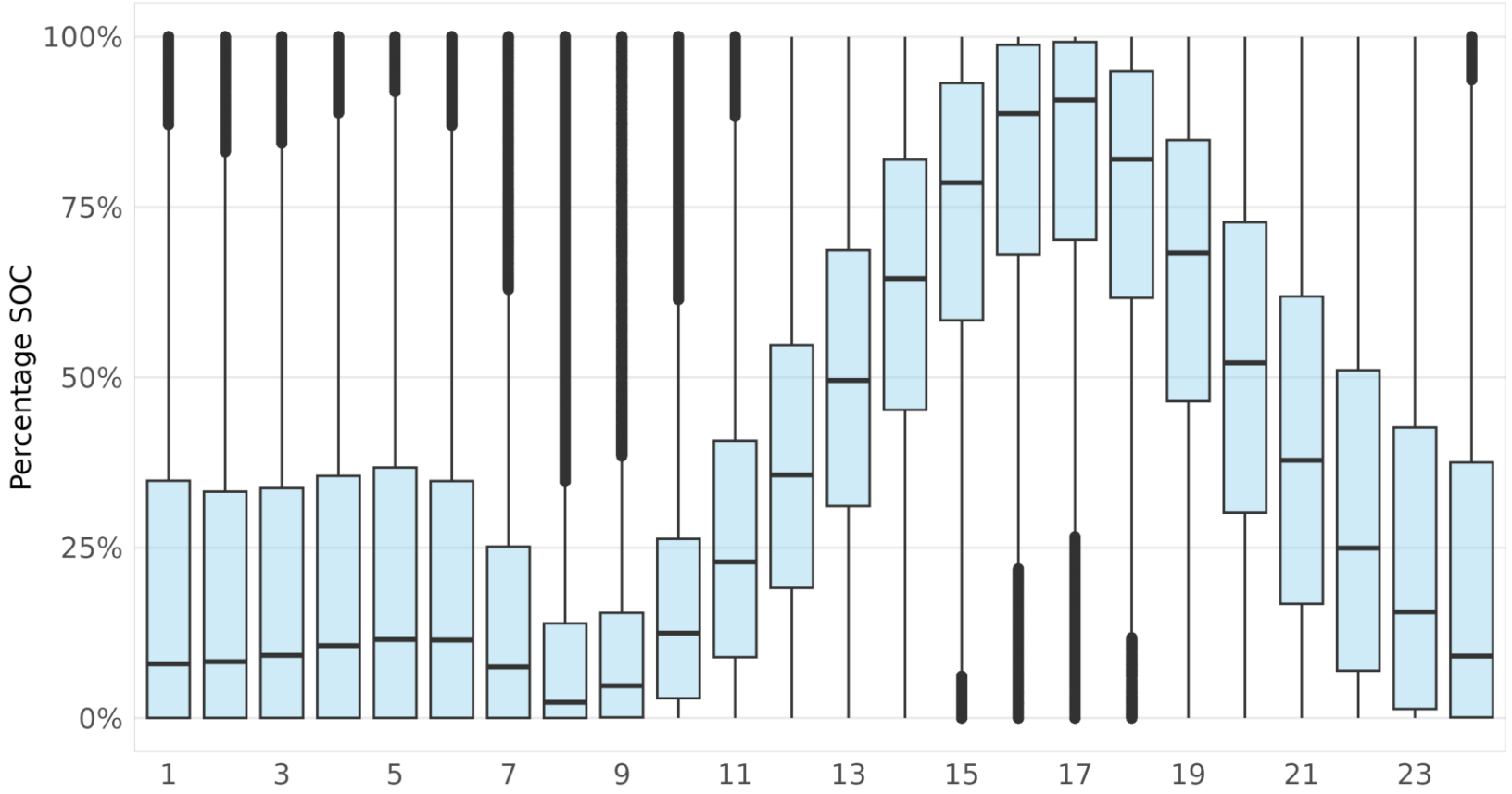
The market for upward regulation market continue to be saturated by storage resources which were dispatched over 100 percent of the requirements



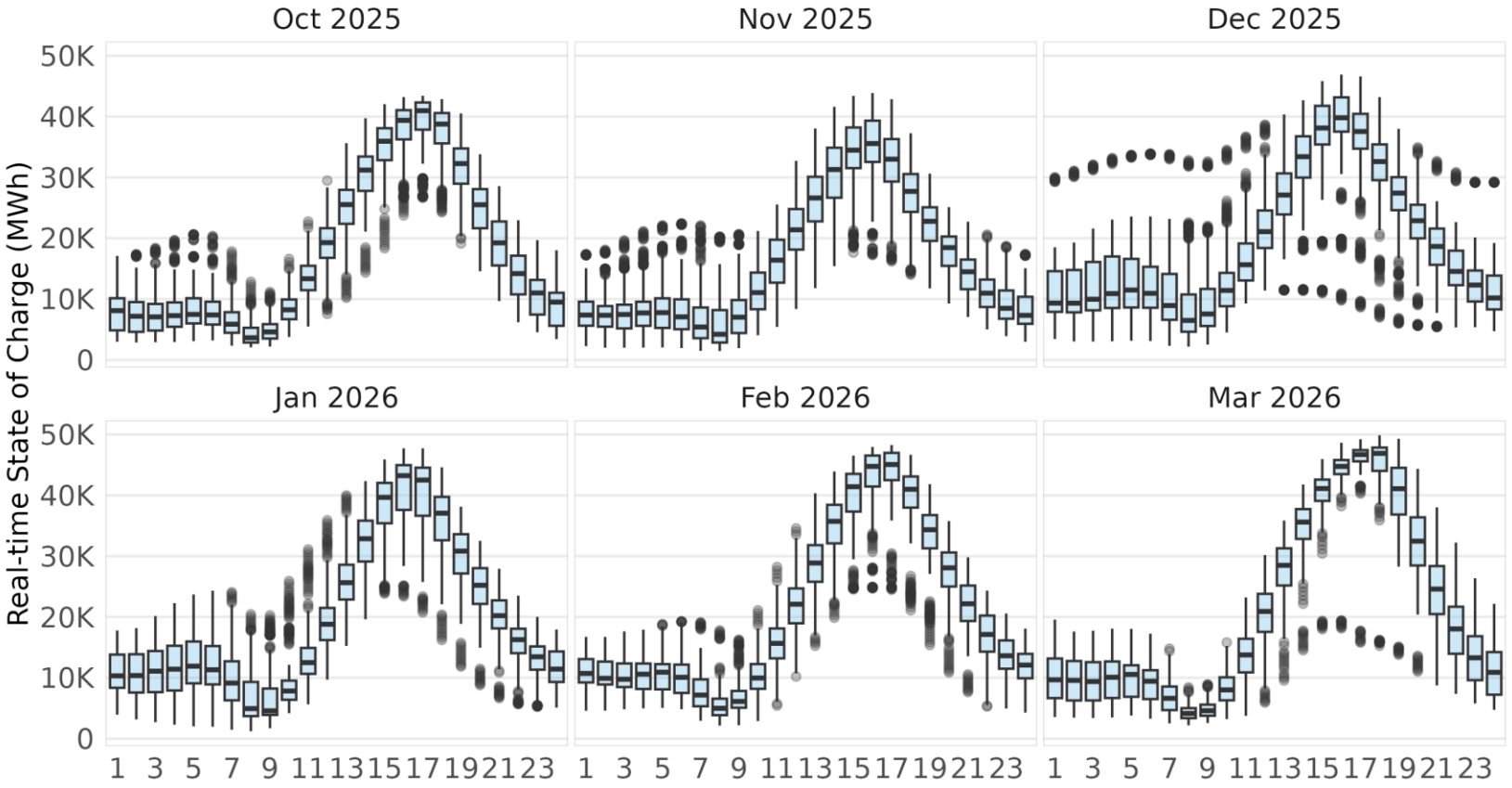
Procurement of regulation down continue to be dominated by storage resources



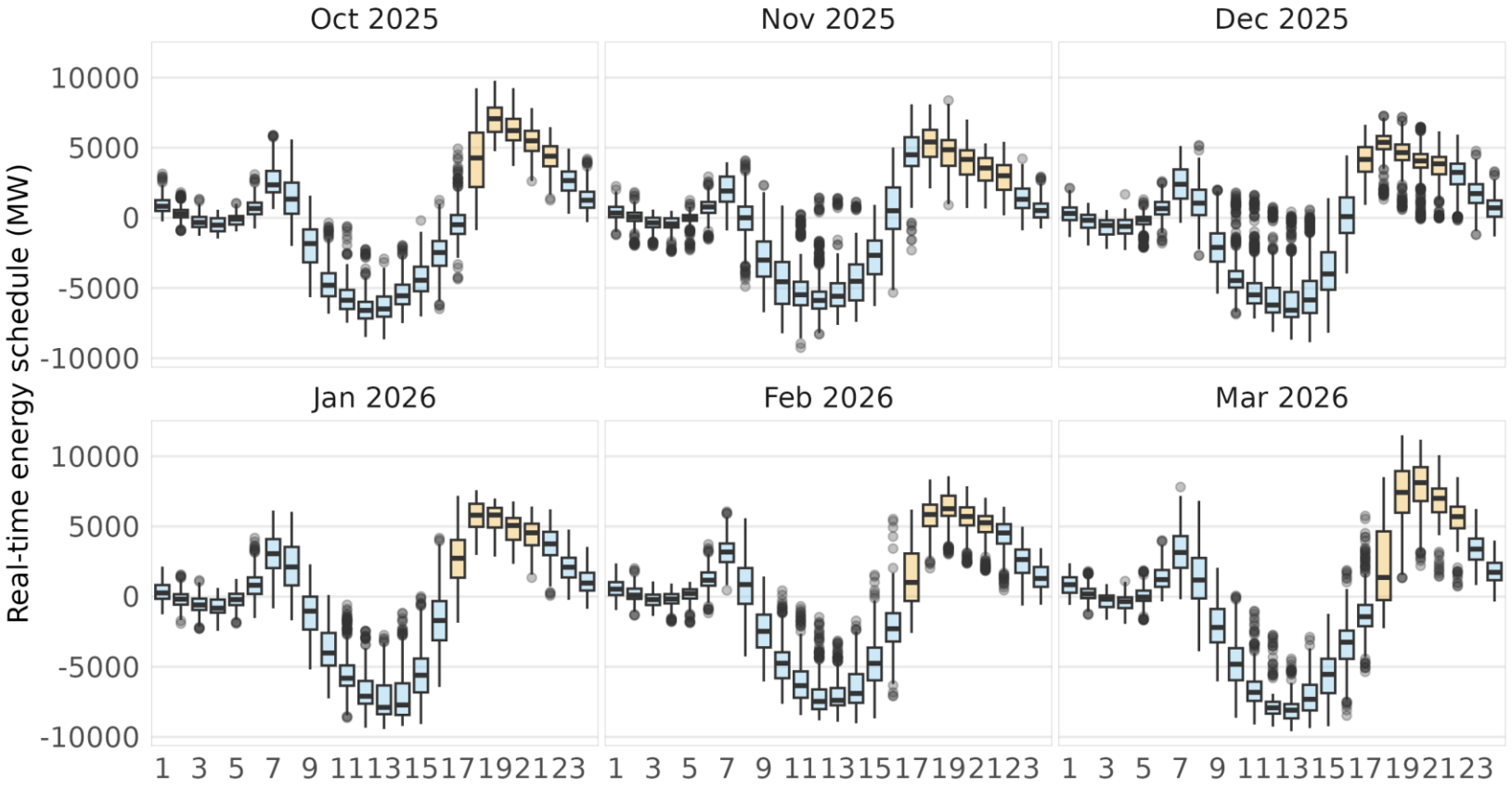
Most of the time storage resources have SOC below full capacity for months in Q1 2026



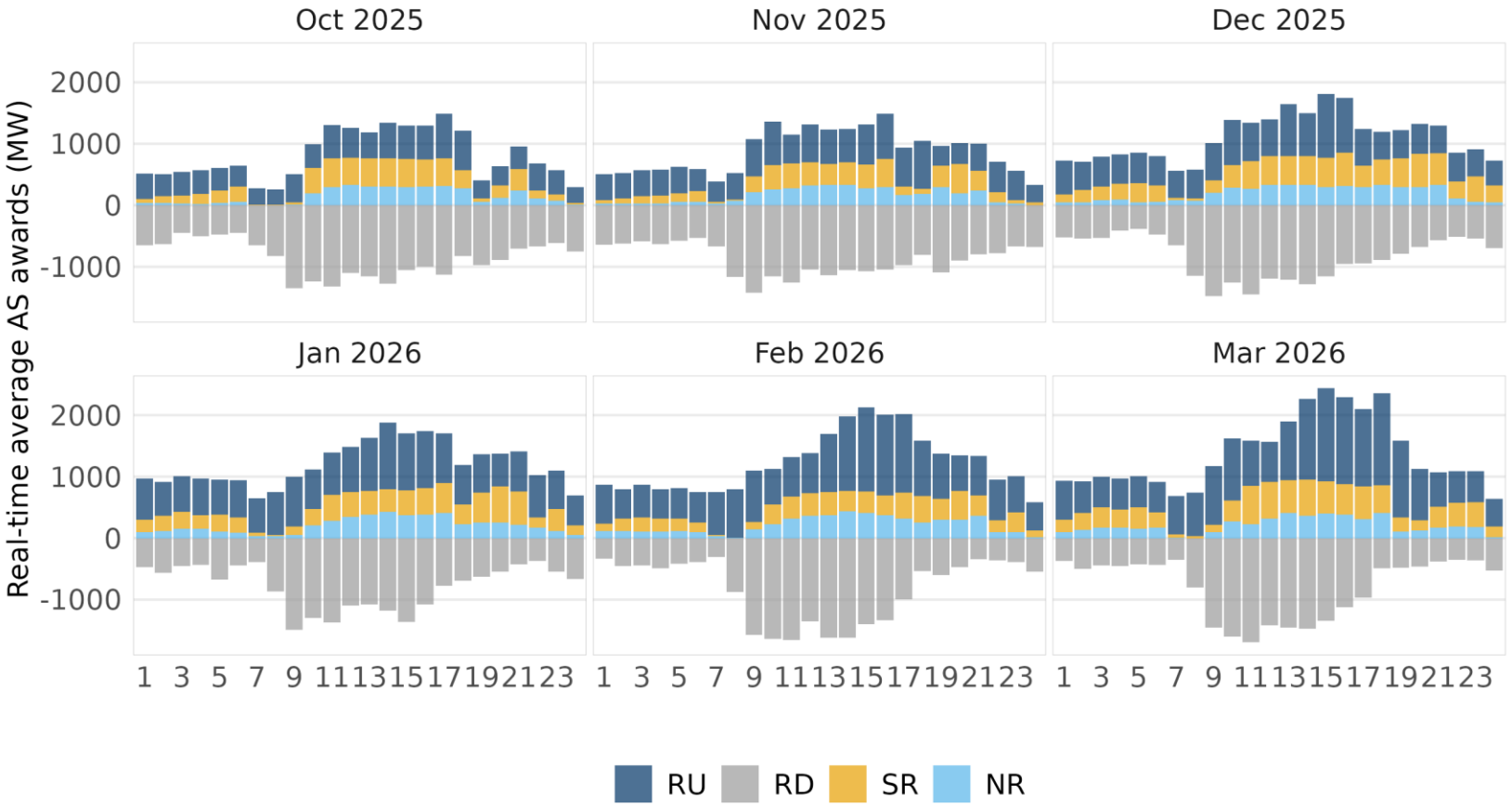
Real-Time state of charge for storage resources was in line with the day-ahead state of charge



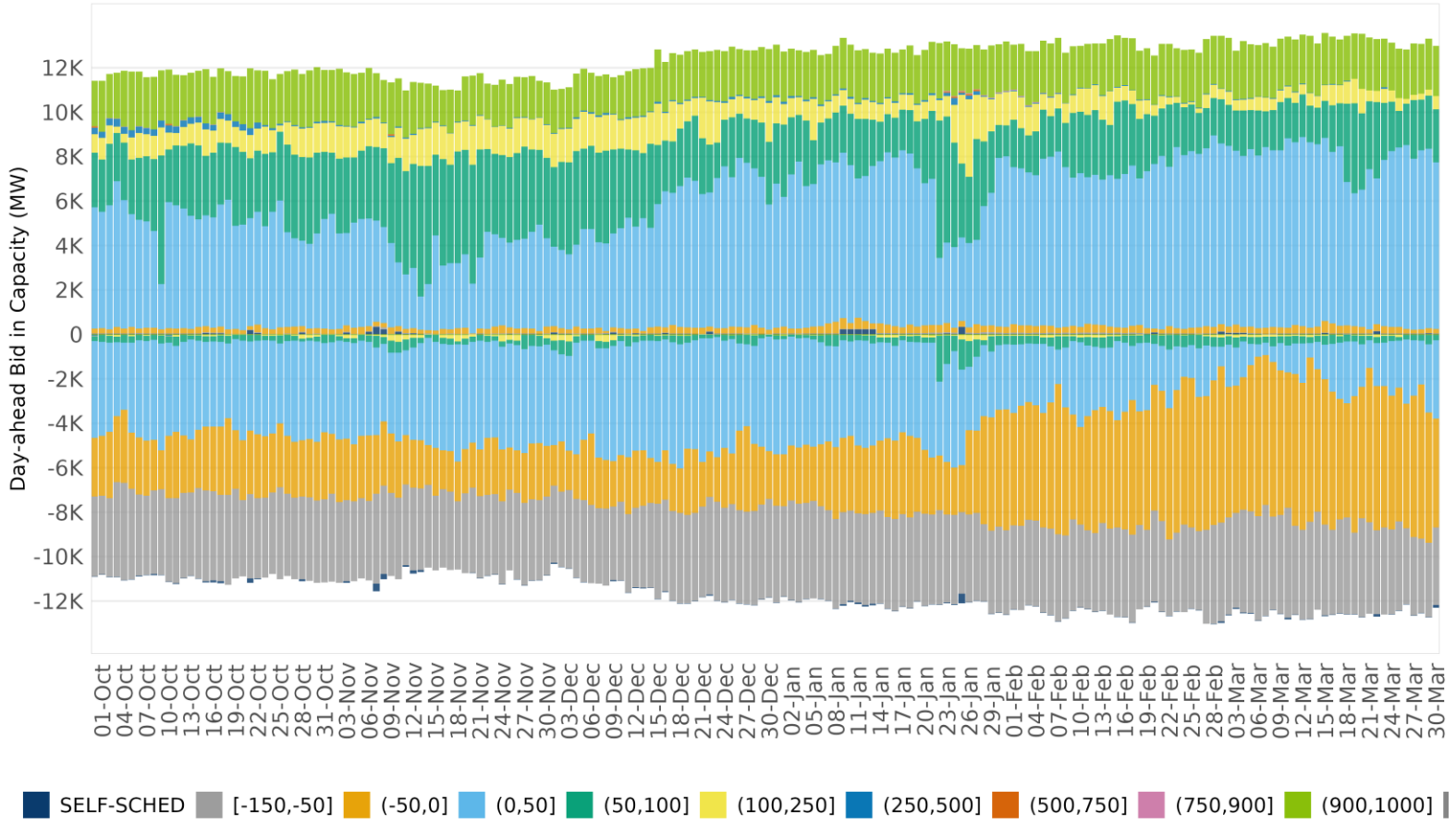
Storage resources were consistently charging during solar hours and discharging during net load peaks. Real-time



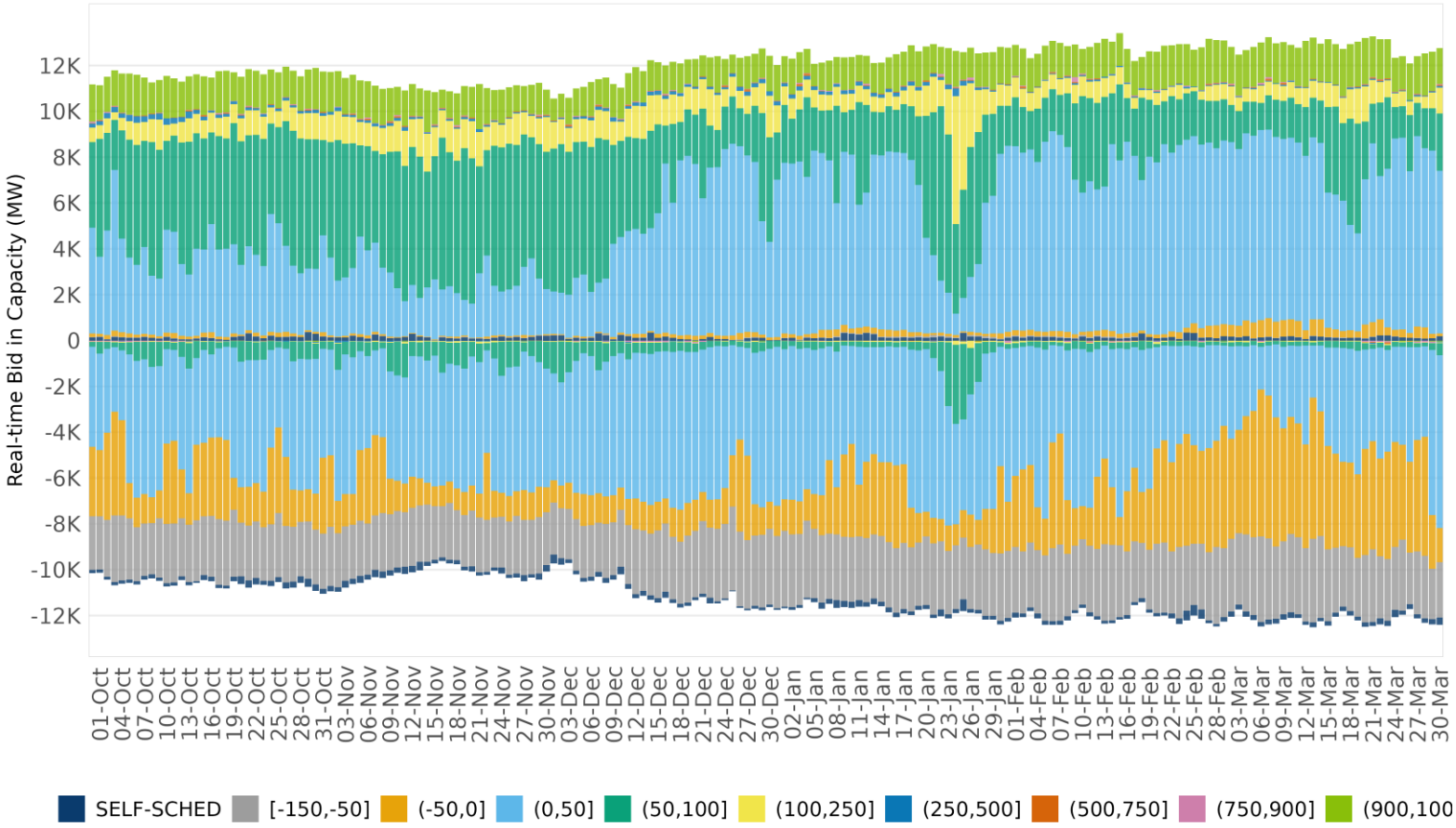
Among ancillary services, storage resources get awarded mainly regulation. Real-time



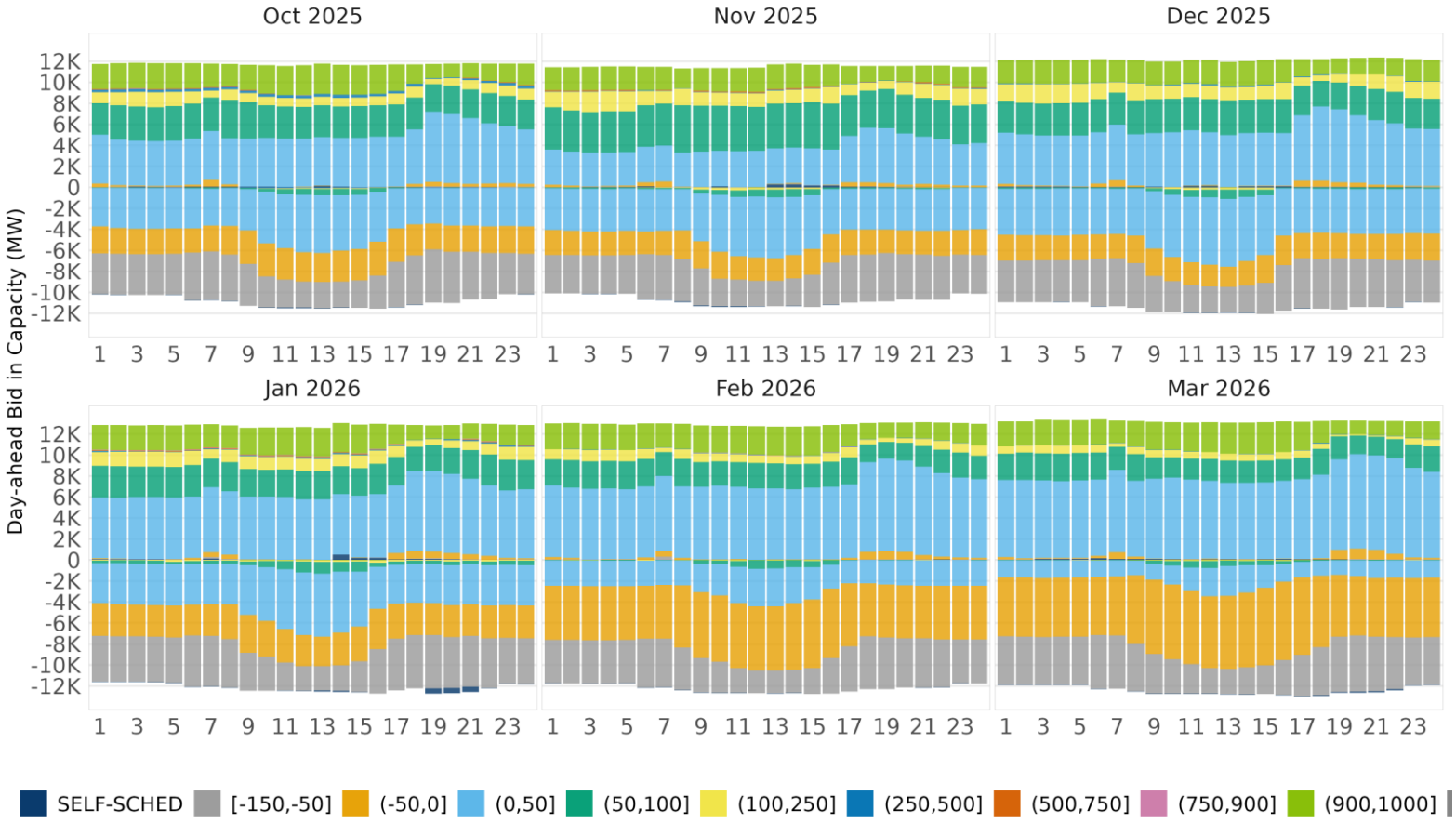
Battery bid in capacity shows steady increase in second half of 2025 – Day ahead



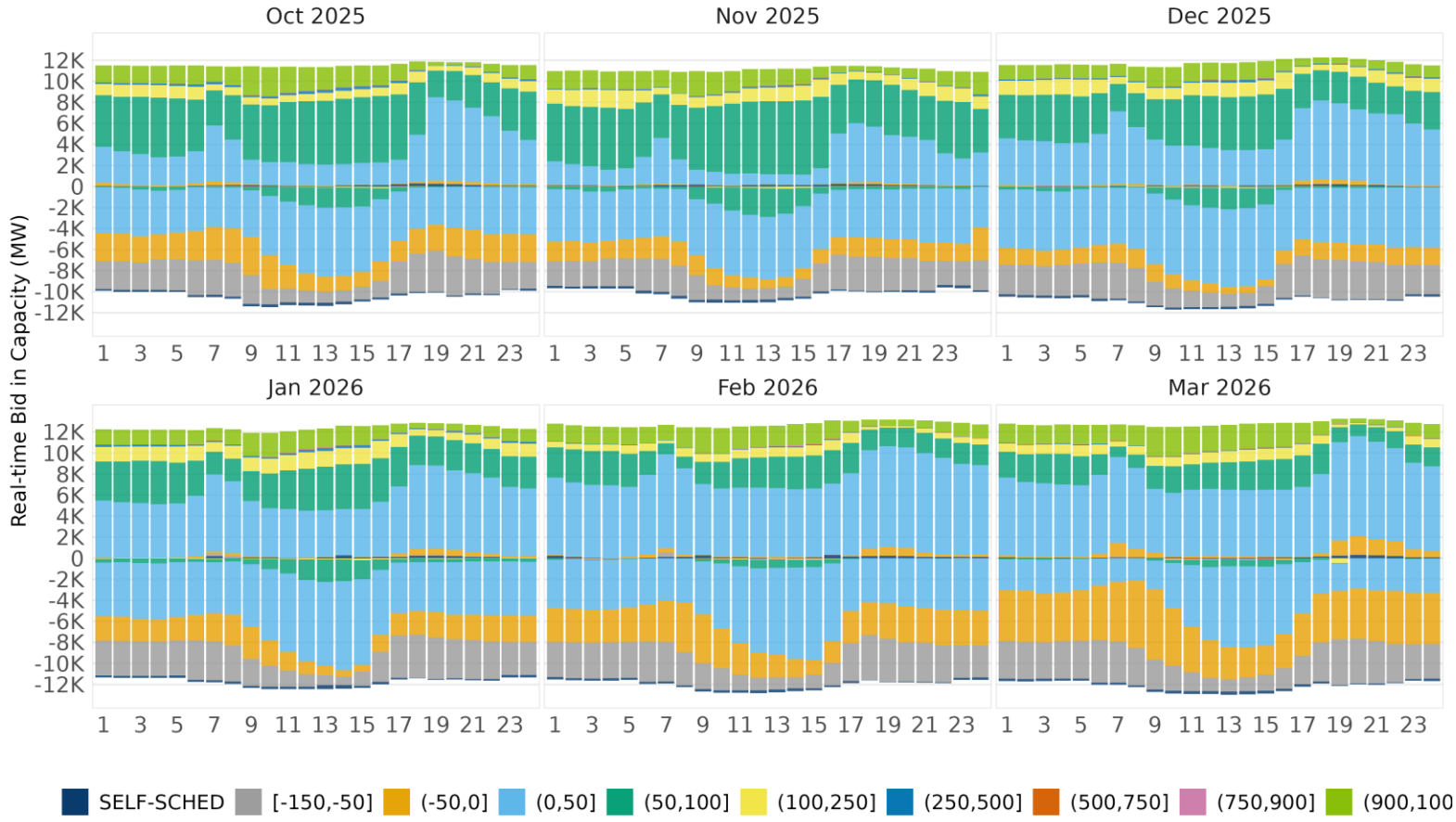
Battery bid in capacity shows steady increase in second half of 2025 – Real time



Batteries generally bid to charge during solar hours and discharge during the afternoon peak hours in Day-ahead.



Real-time bids broadly align with the Day-ahead set, while showing stronger positioning



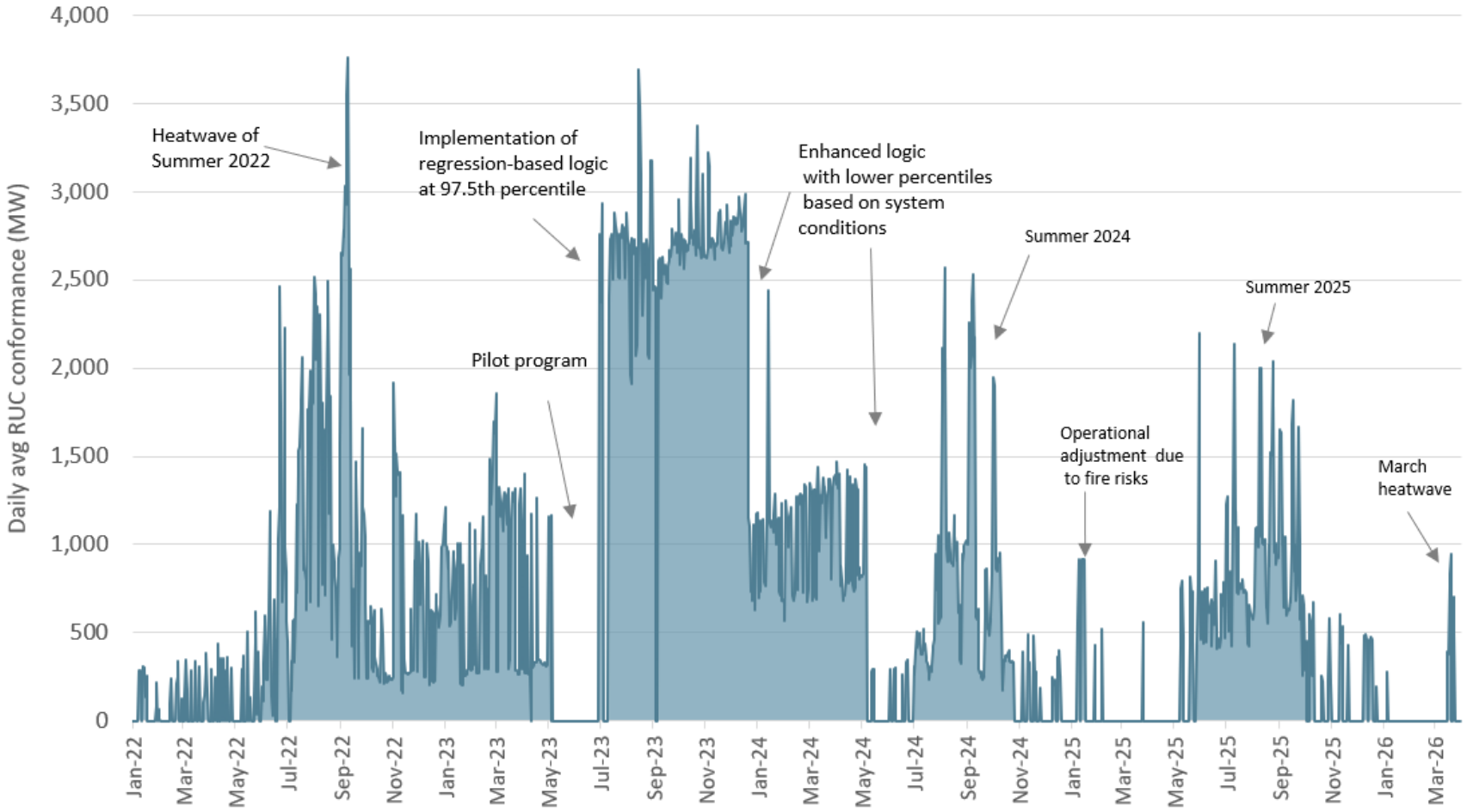
Load Conformance

Market Performance and Advanced Analytics

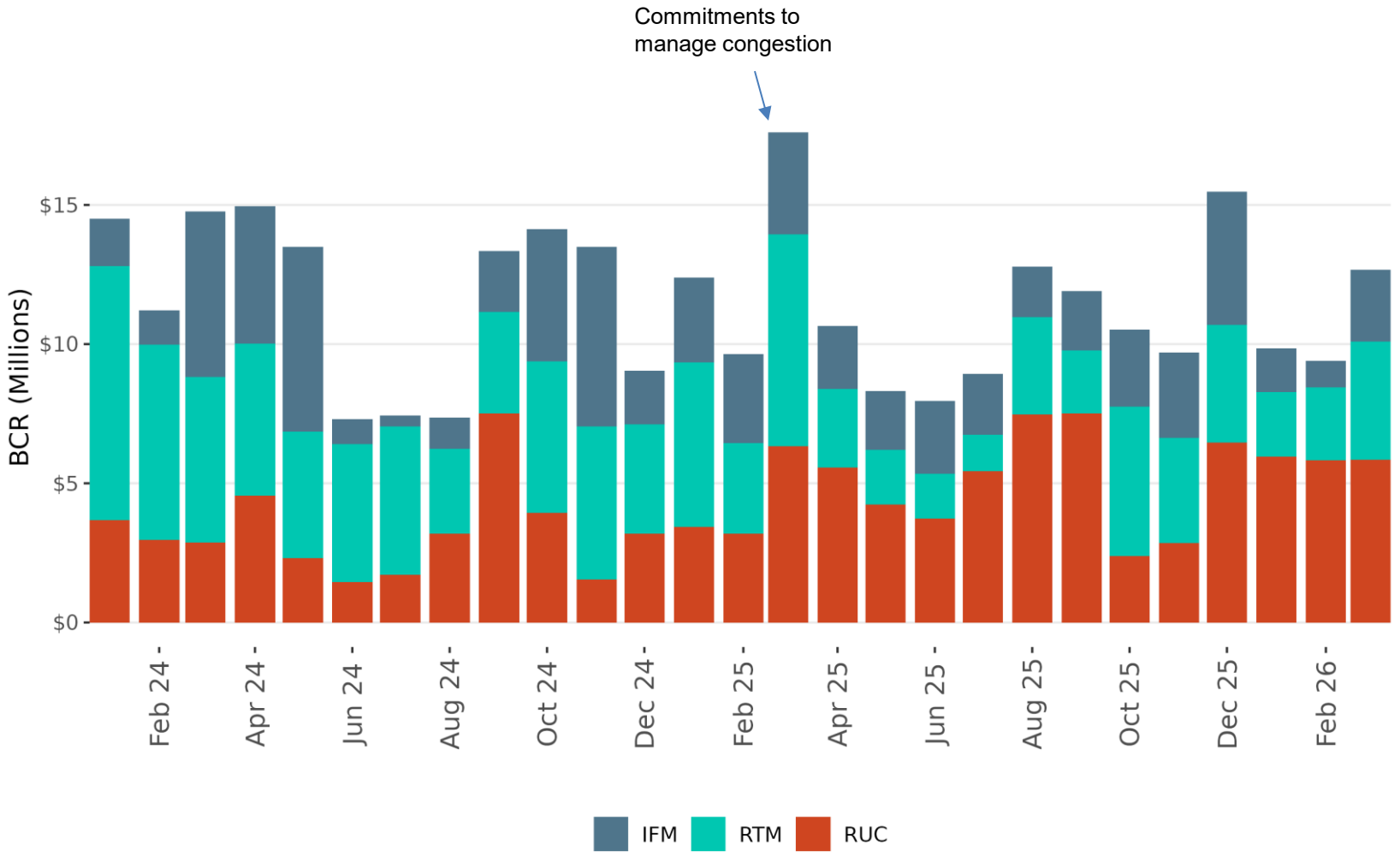
Load conformance - Summary

- Load conformance in the day-ahead market has been minimal. It was used mainly during the mid March heatwave.
- The ISO continued the pilot program to minimize load conformance in the real-time market through early March
  - January and February saw averages of 50MW during peak hours, down from 1,400MW in 2025
  - Use of load conformance in the hour ahead process was about 1 percent in January and February
  - The lower use of load conformance in real-time resulted in better alignment of transfers between FMM and RTD

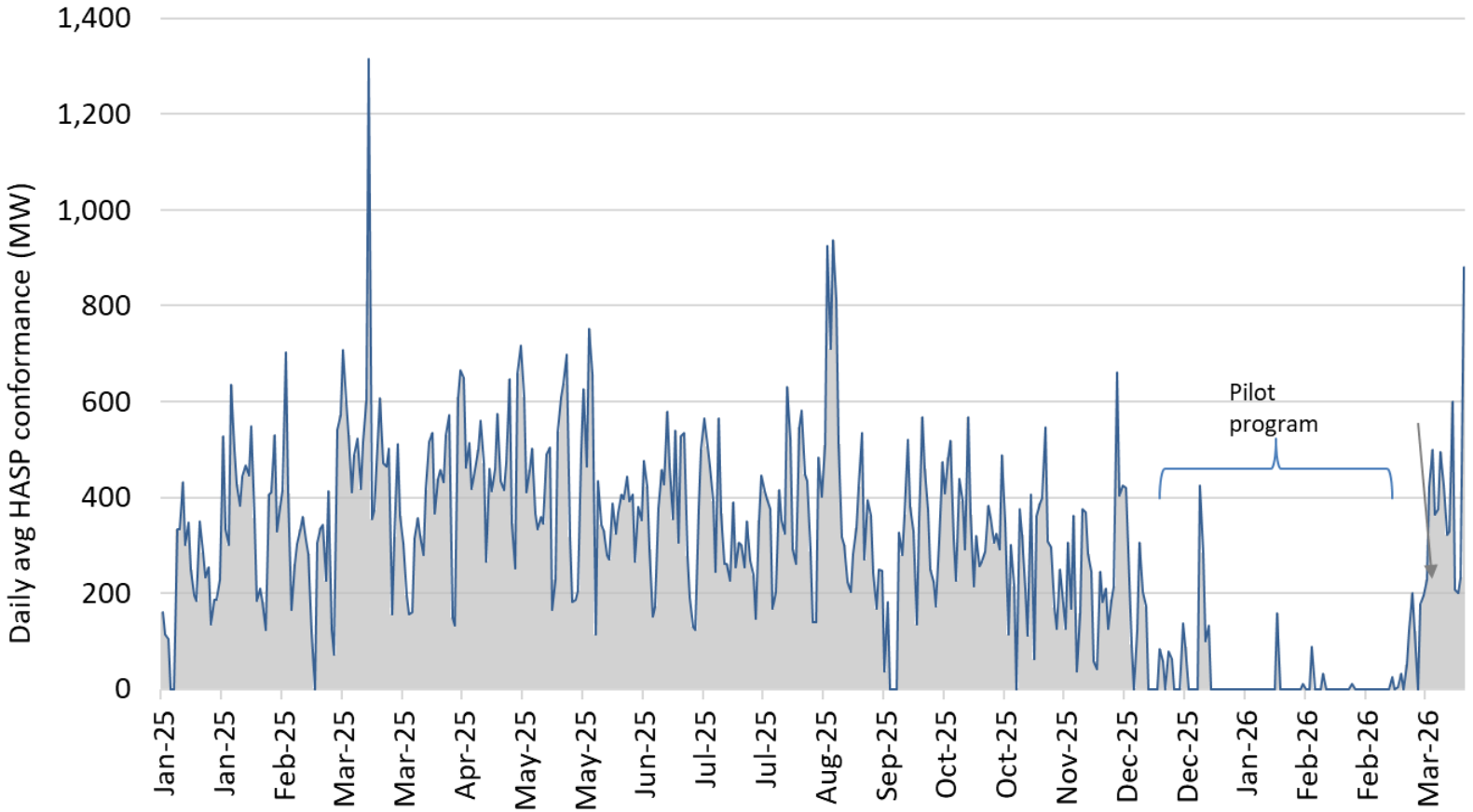
Between October 2025 and January 2026 RUC adjustments were minimal



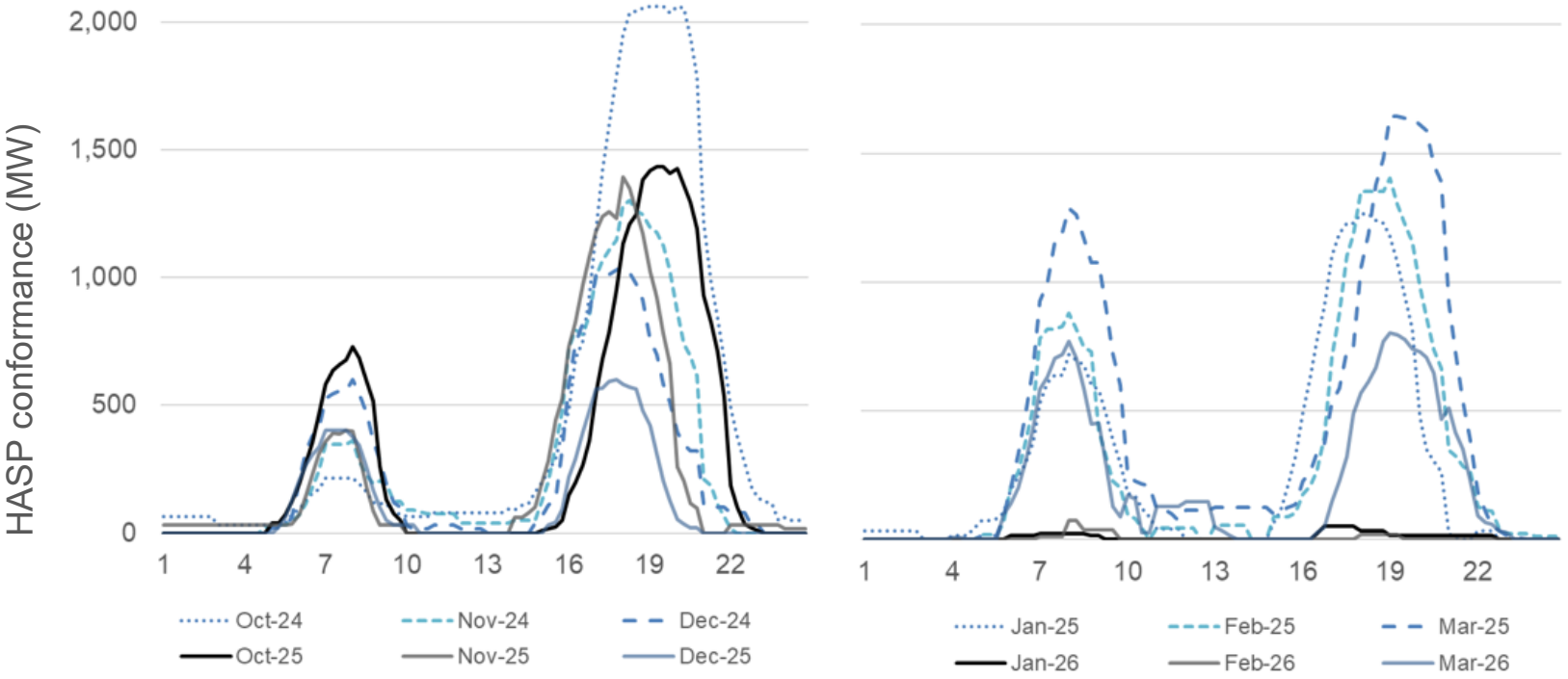
Bid cost recovery in all three markets has remained within typical ranges since January 2024



ISO has been running a pilot program in December and January to tackle root causes for load conformance in real time



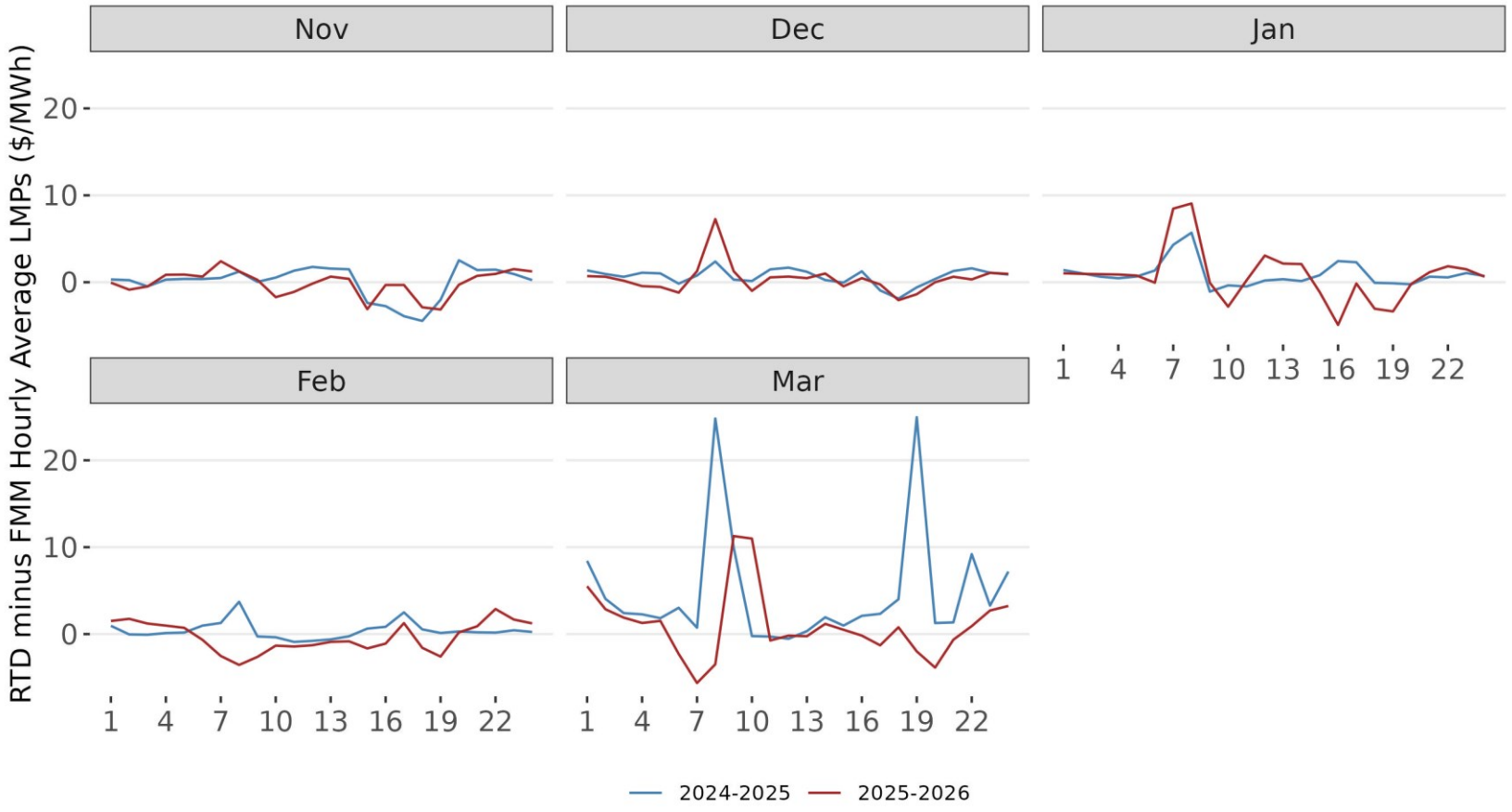
Load conformance in HASP showed a significant reduction during the pilot trial



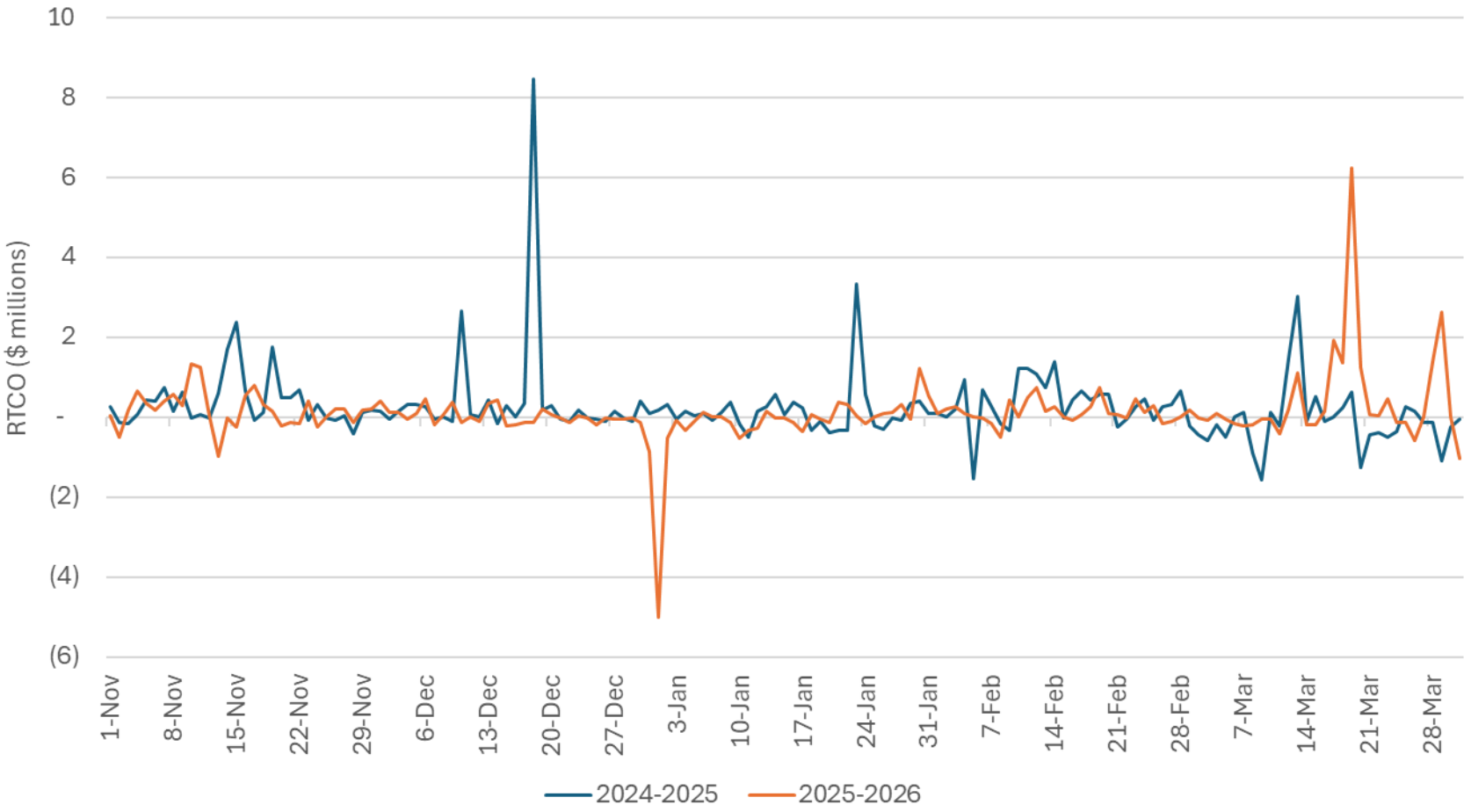
January and February of 2026 saw an average conformance of 50 MW in peak hours, down from averages of 1,400 MW in the same months of 2025

Load conformance was used in 1.3 percent and 0.5 percent of the time in January and February, respectively.

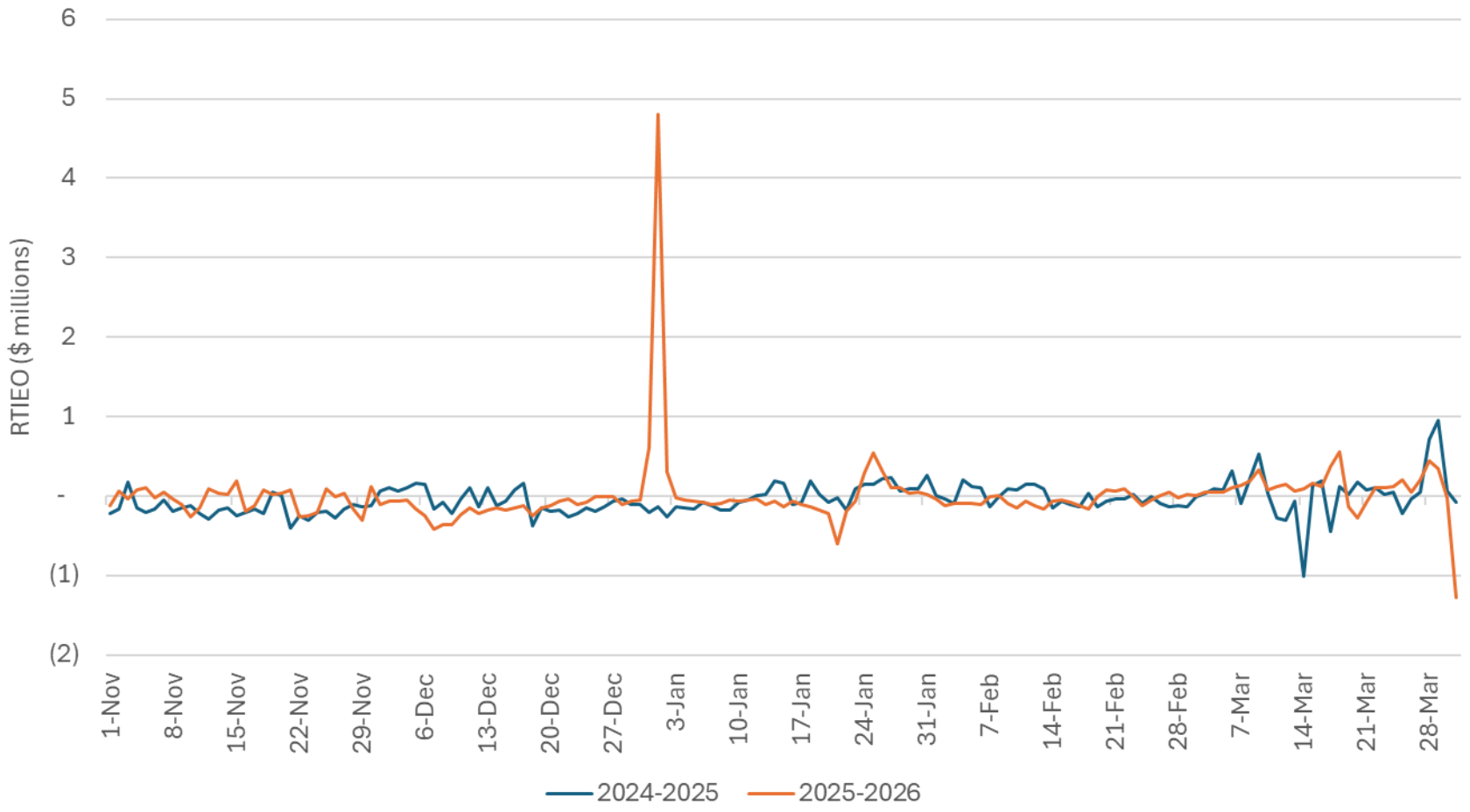
RTD minus FMM Daily Average DLAP LMPs for peak hours



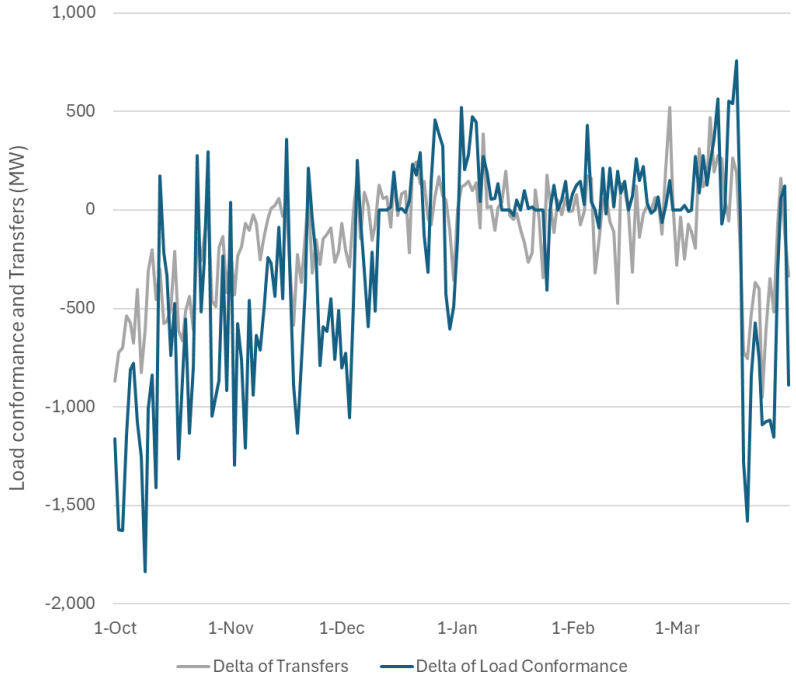
Real time congestion offset was generally lower for 2025-2026 from November to March

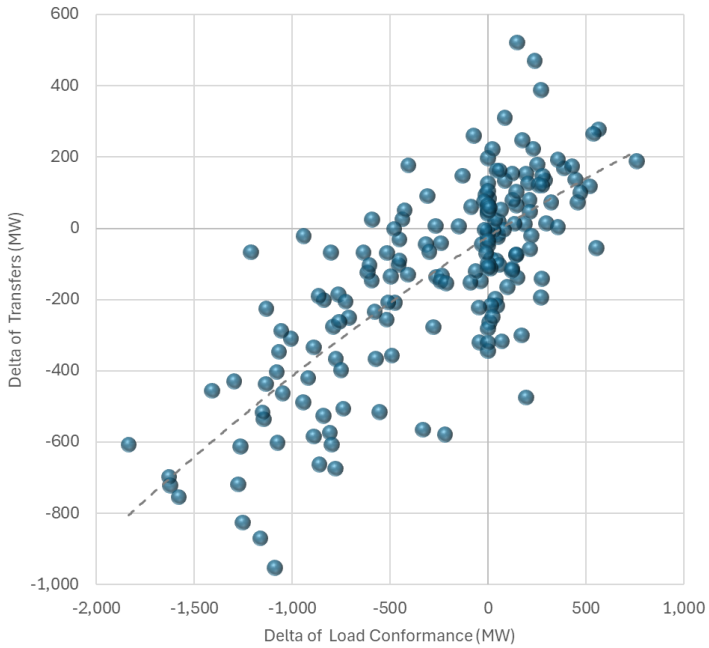


Real time imbalance energy offset was comparable between the two seasons except one outlier event



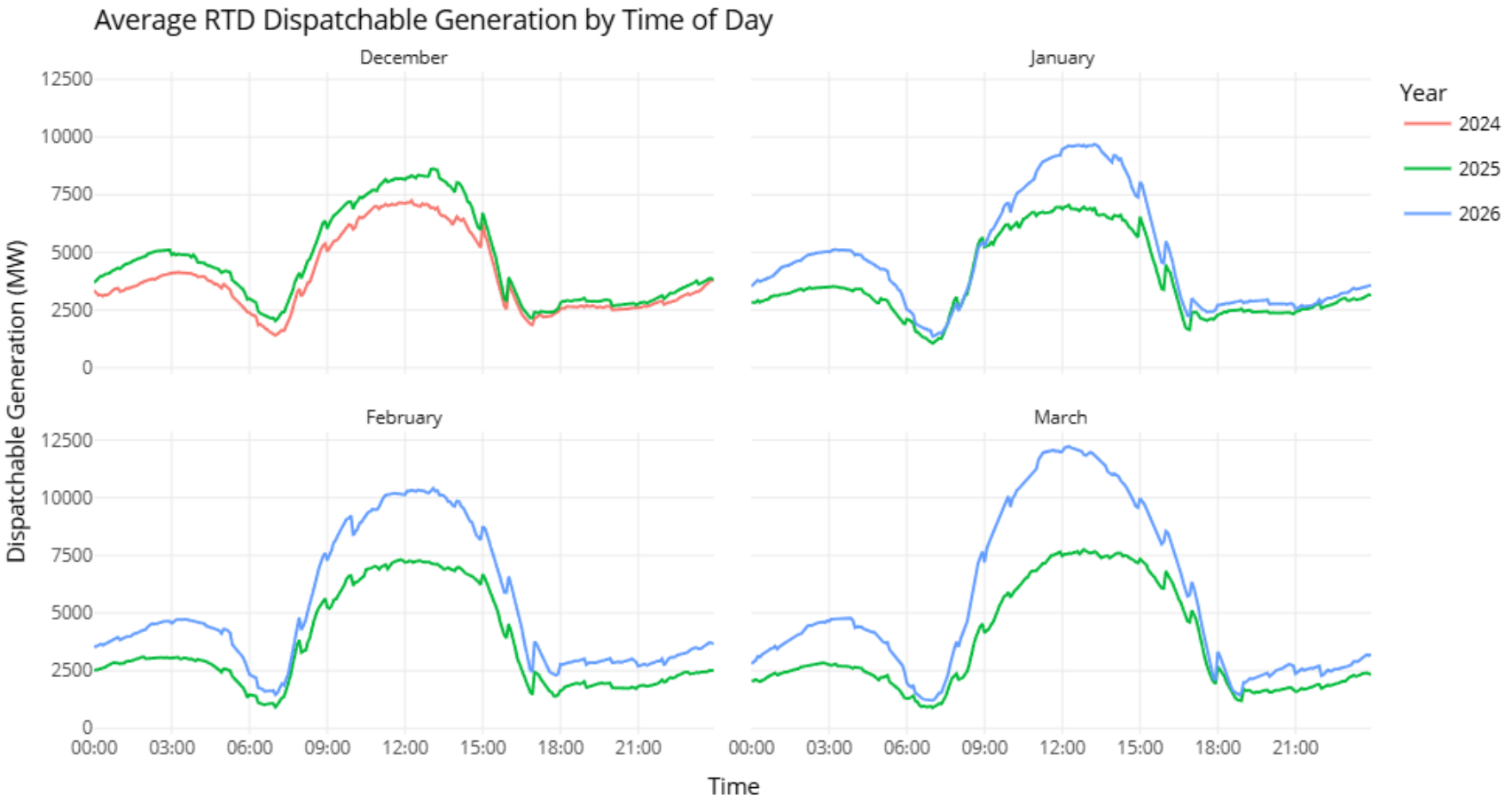
The reduction of load conformance differences between FMM and RTD resulted in better alignment of FMM and RTD transfers





The lower conformance in FMM has resulted in better convergence of FMM to RTD

The average dispatchable generation was higher in most RTD intervals in 2026

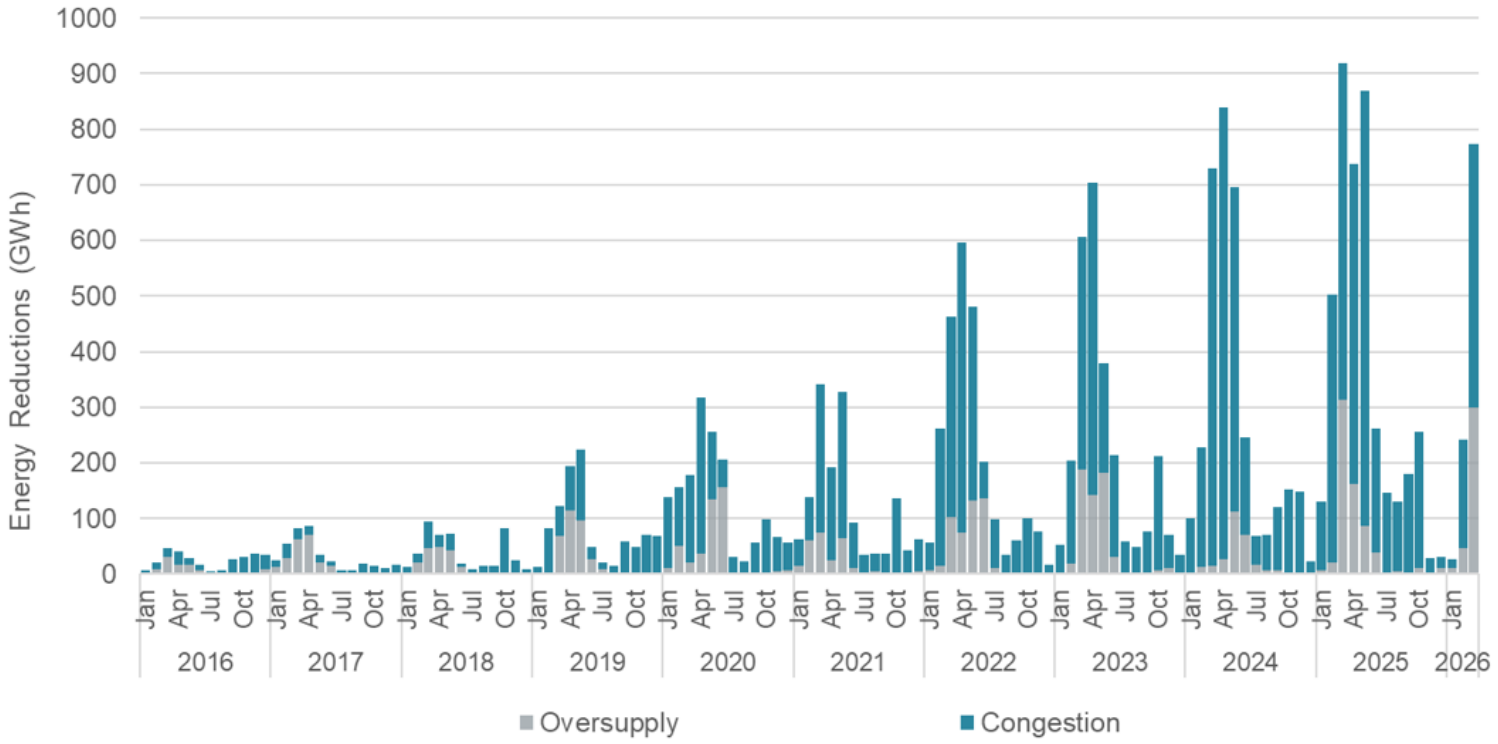


This is ramp-able capacity that is available for next binding interval; midday hours values are largely driven by availability of storage resources

Renewable and Curtailment

Market Performance and Advanced Analytics

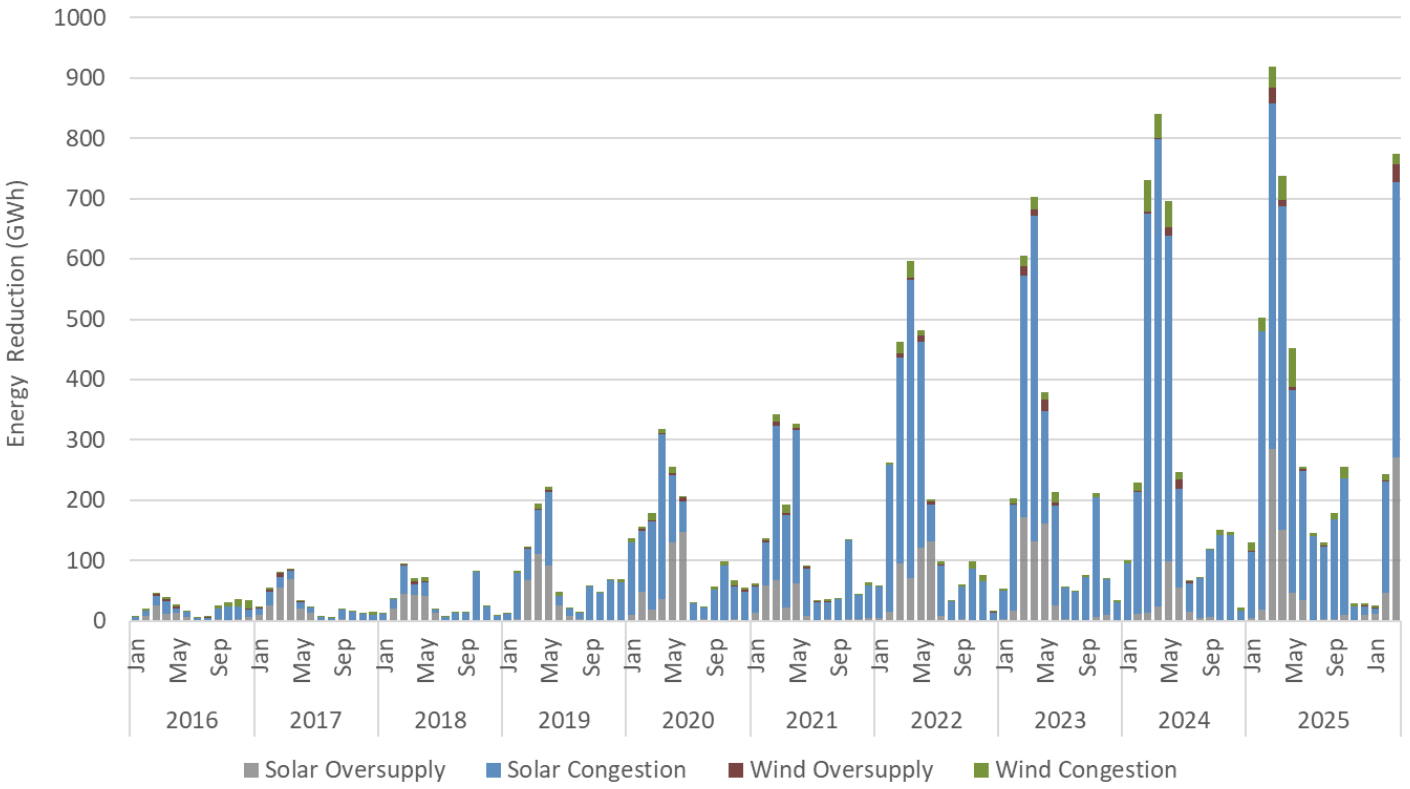
The volume of renewable energy reduced through the market has been steadily increasing over the years



The highest levels of energy reduction occur between March and May, when demand is moderate and renewable and hydro generation increase.

The annual volume of energy reductions in 2025 was about 4.5 percent of total renewable production.

About 94% of all energy reduction is from solar resources



The classification between congestion and system is relative to the formation of the resource's price; while any energy reduction for instances with negative marginal congestion component is classified as congestion, energy reduction may be the result of both congestion and oversupply

Congestion and Congestion revenue rights

Market Performance and Advanced Analytics

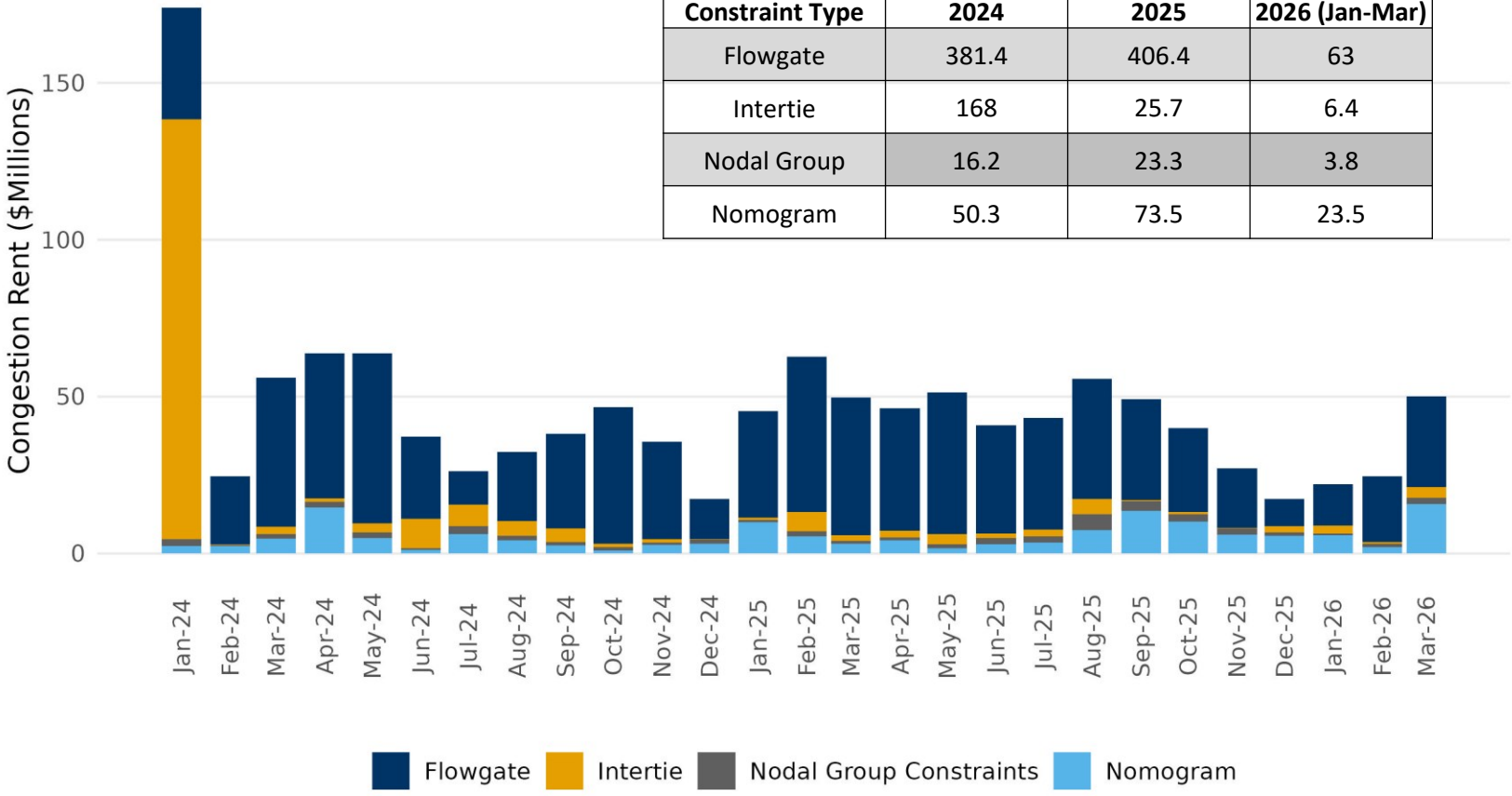
Congestion and CRRs -Summary

- Q1 2026 congestion rents are lower than previous years quarter
- Majority of congestion accrued during peak solar hours, however the overall magnitude during those hours is down from previous years
- The ISO adjusted the CRR process to expand the application of global derates to contingency constraints effective with March monthly process
- March saw a revenue adequacy surplus of $1.6 million; this is the first month observing a surplus in the last three years
- CRR auction efficiency was over 100 percent from November 2025 through February

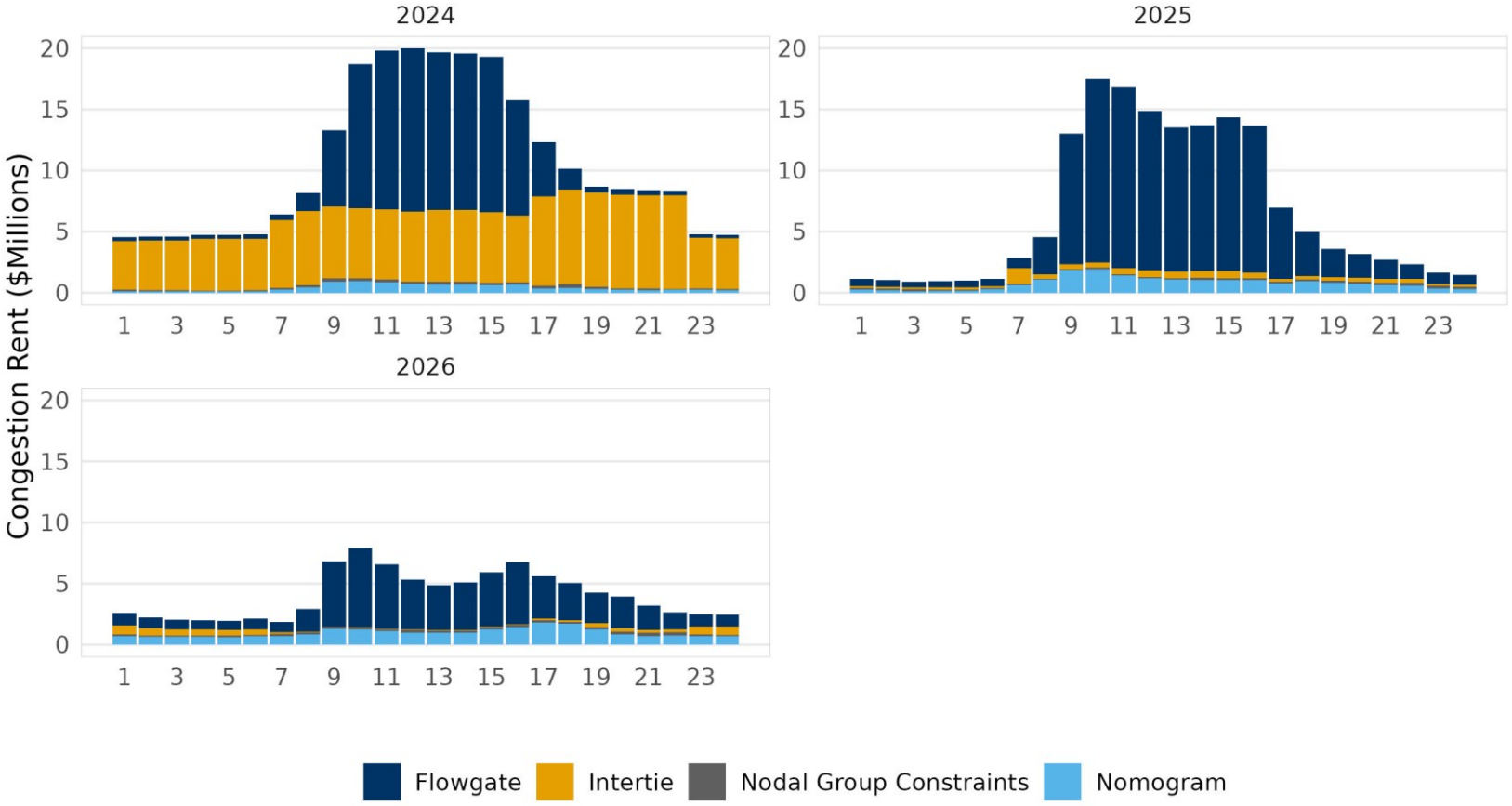
Winter months saw relatively lower amounts of congestion in comparison to previous Winters

Congestion rents in $ millions

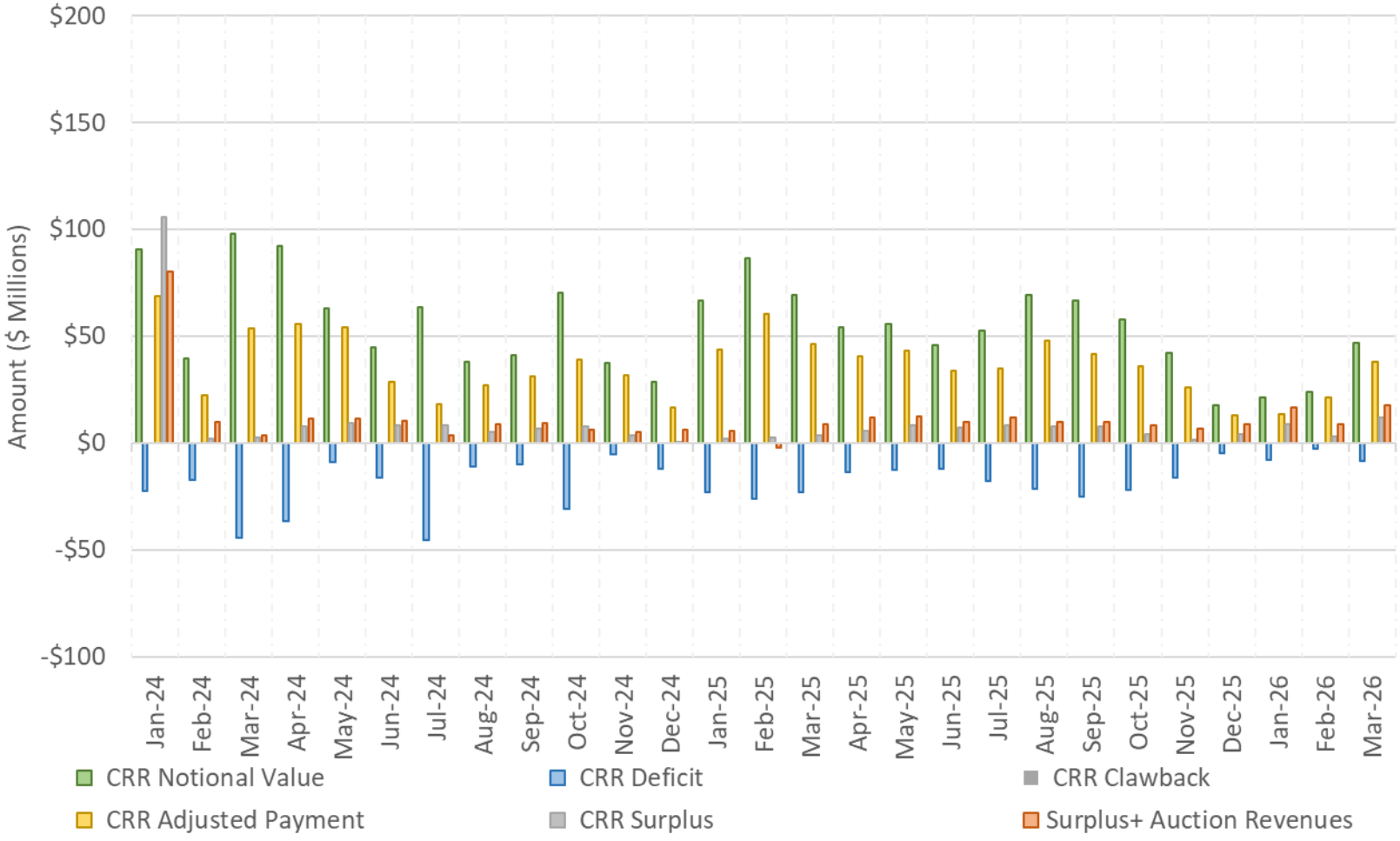
Constraint Type	2024	2025	2026 (Jan-Mar)
Flowgate	381.4	406.4	63
Intertie	168	25.7	6.4
Nodal Group	16.2	23.3	3.8
Nomogram	50.3	73.5	23.5



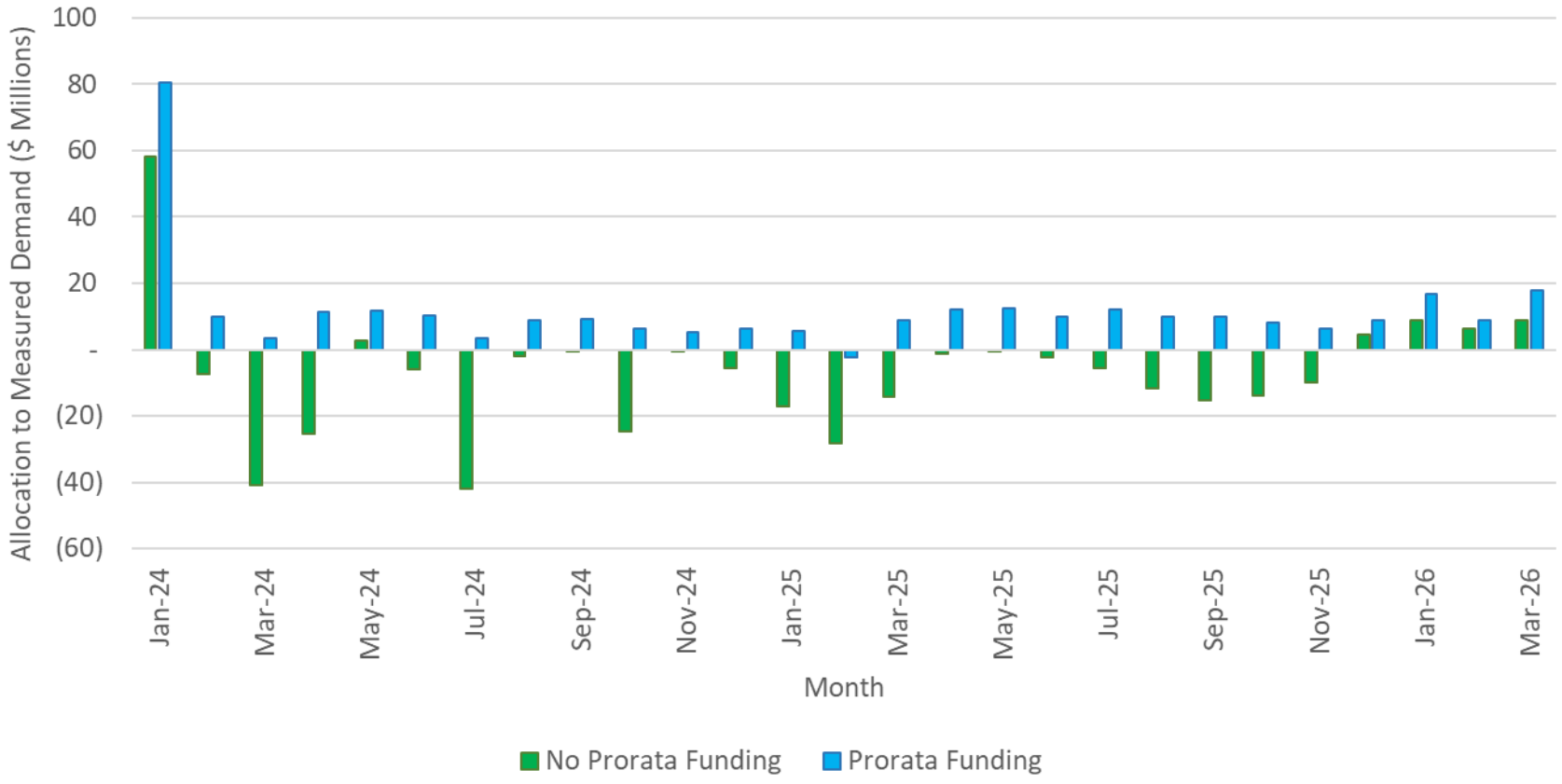
Congestions rents still are most concentrated around solar hours; however, the magnitude across those hours is significantly down from previous Q1 seasons



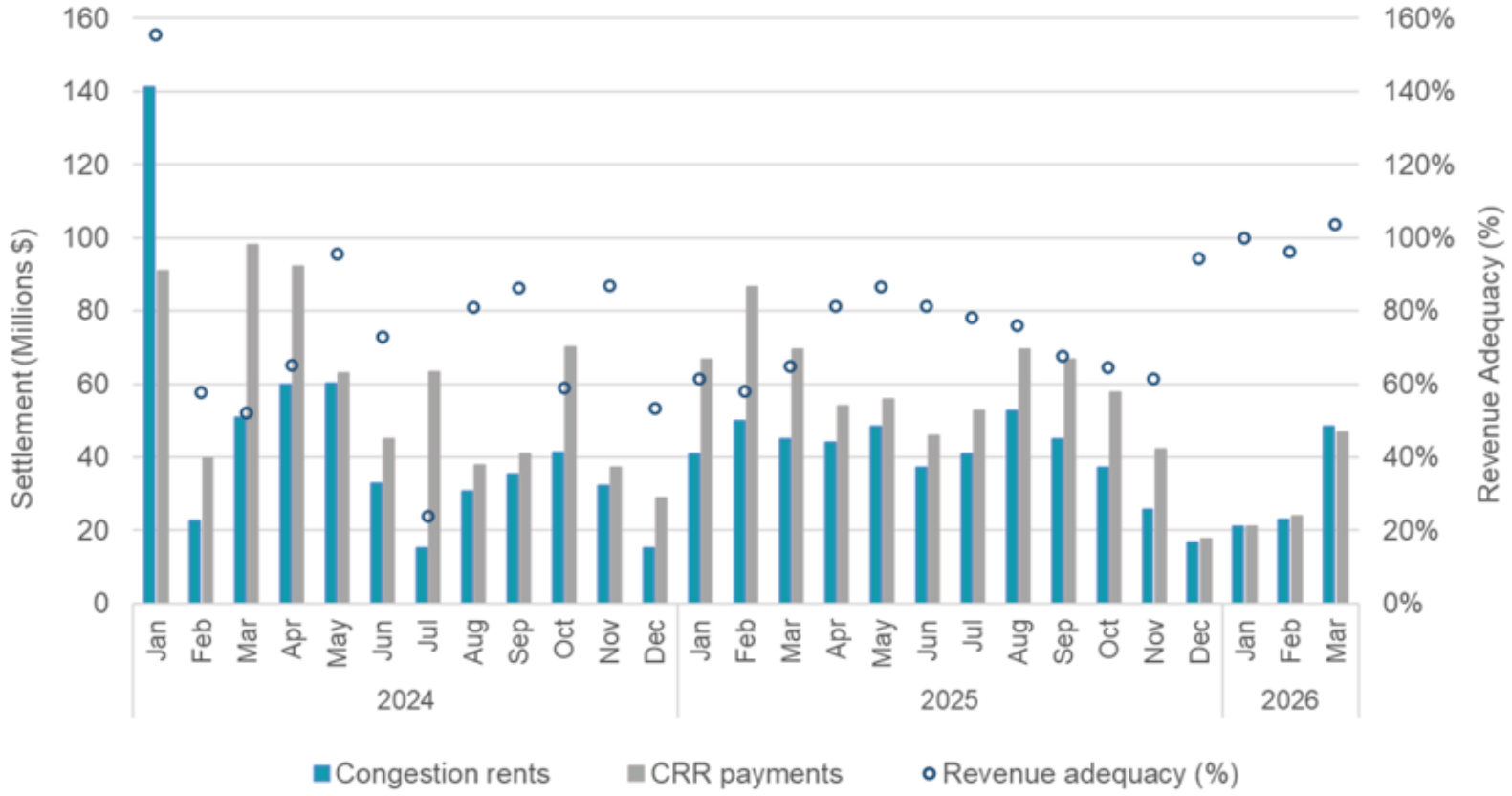
Winter CRR settlements reflect the lower congestion levels



Pro-rata funding continues to provide surplus to load consistently

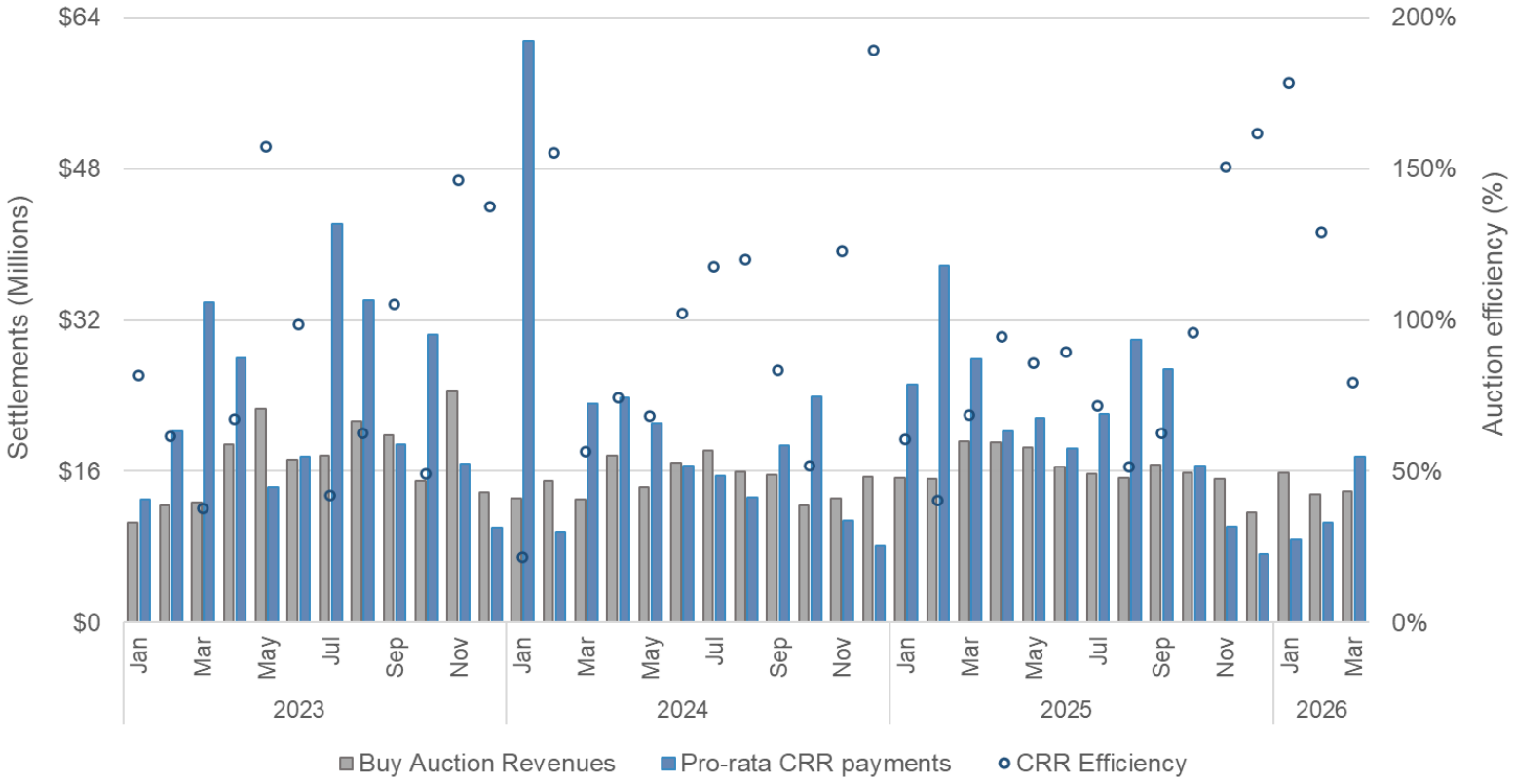


Congestion revenue rights were revenue-adequate with a $1.6 million surplus in March 2026



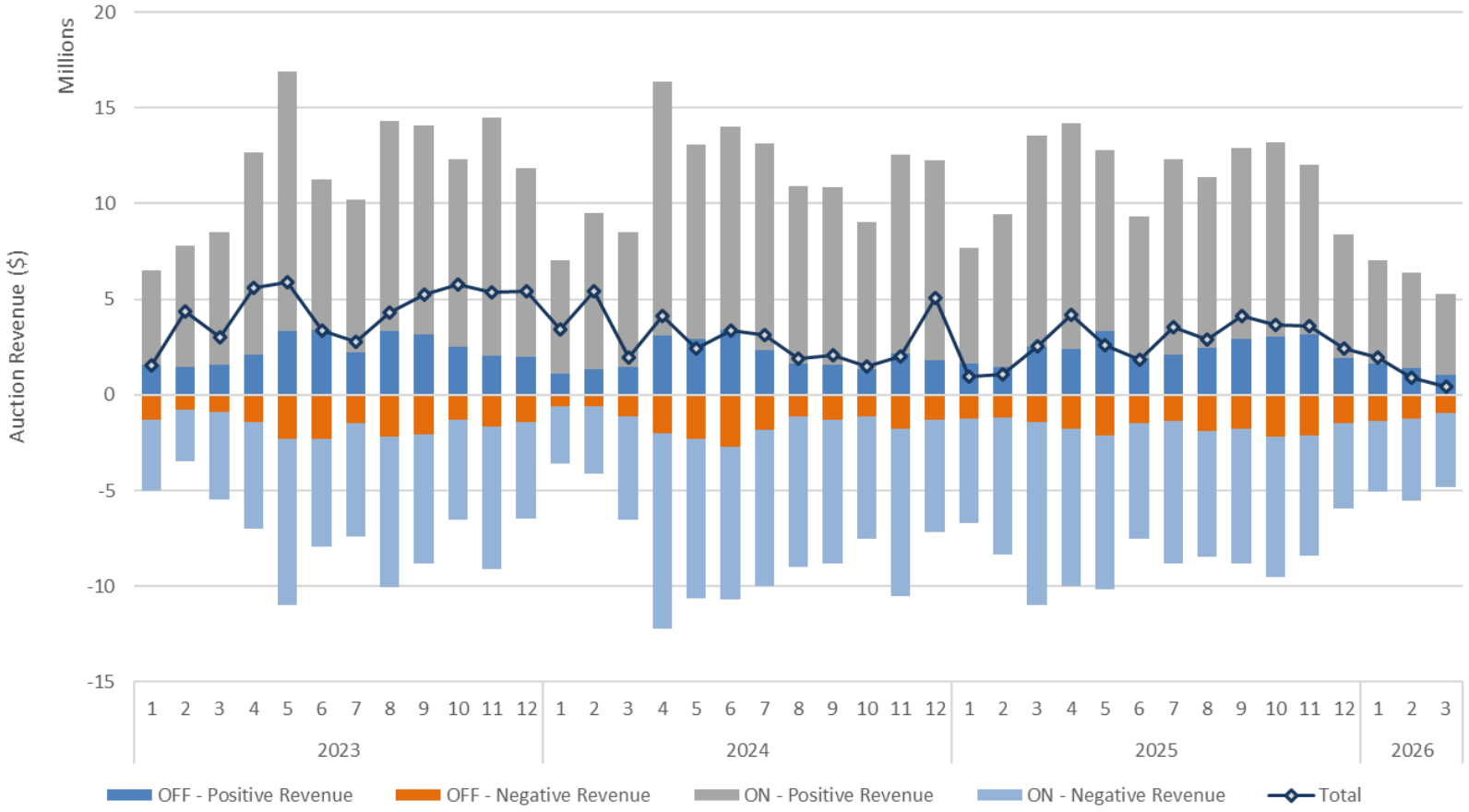
The global derating factor was applied to contingency-type constraints for congestion revenue rights in March 2026

From January 2023 through March 2026, auction efficiency has been greater than 100 percent in 14 months

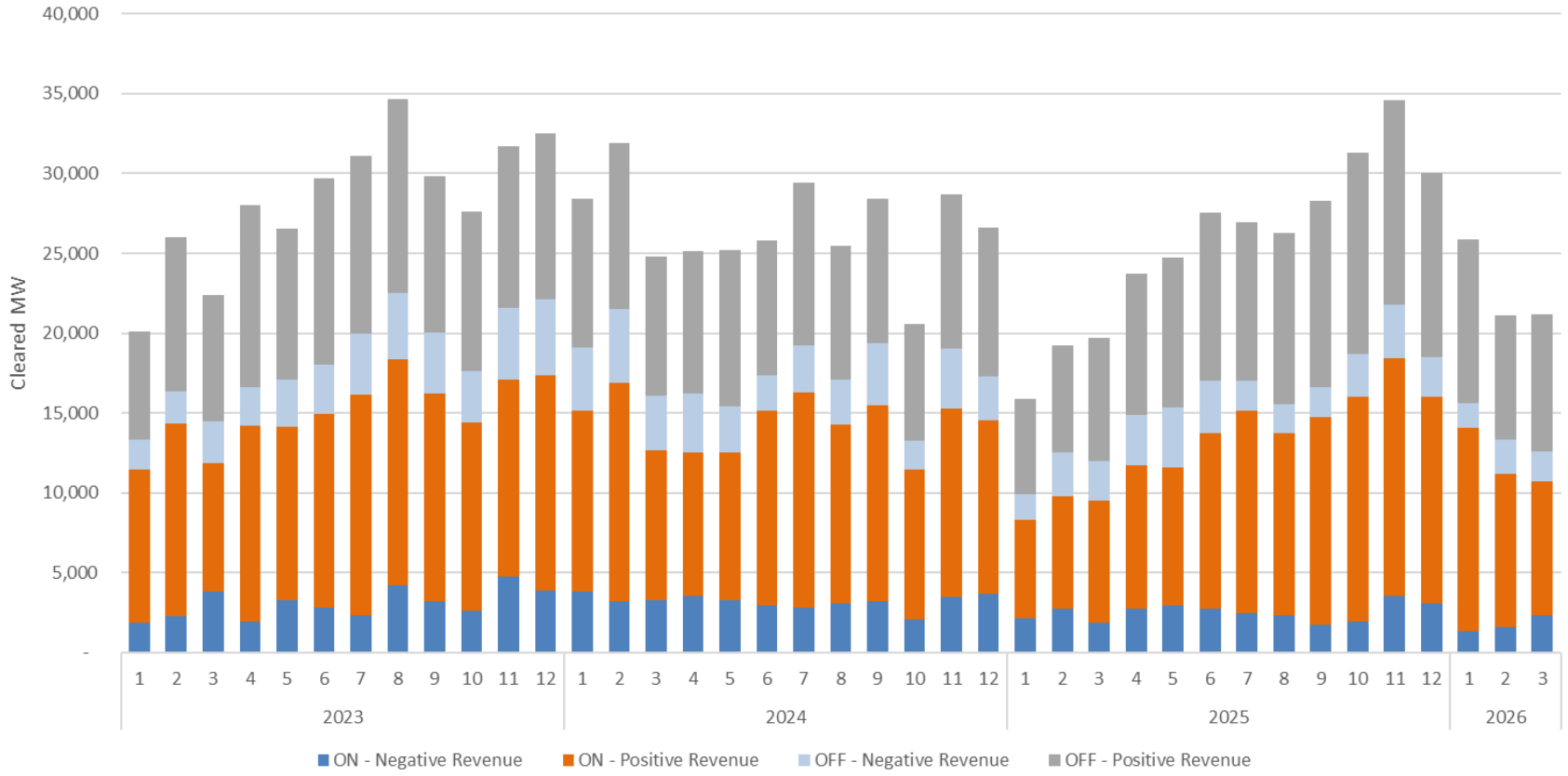


During winter months, congestion rents tend to be lower due to milder conditions while auction revenues remain relatively stable. This tends to lead to higher auction efficiency

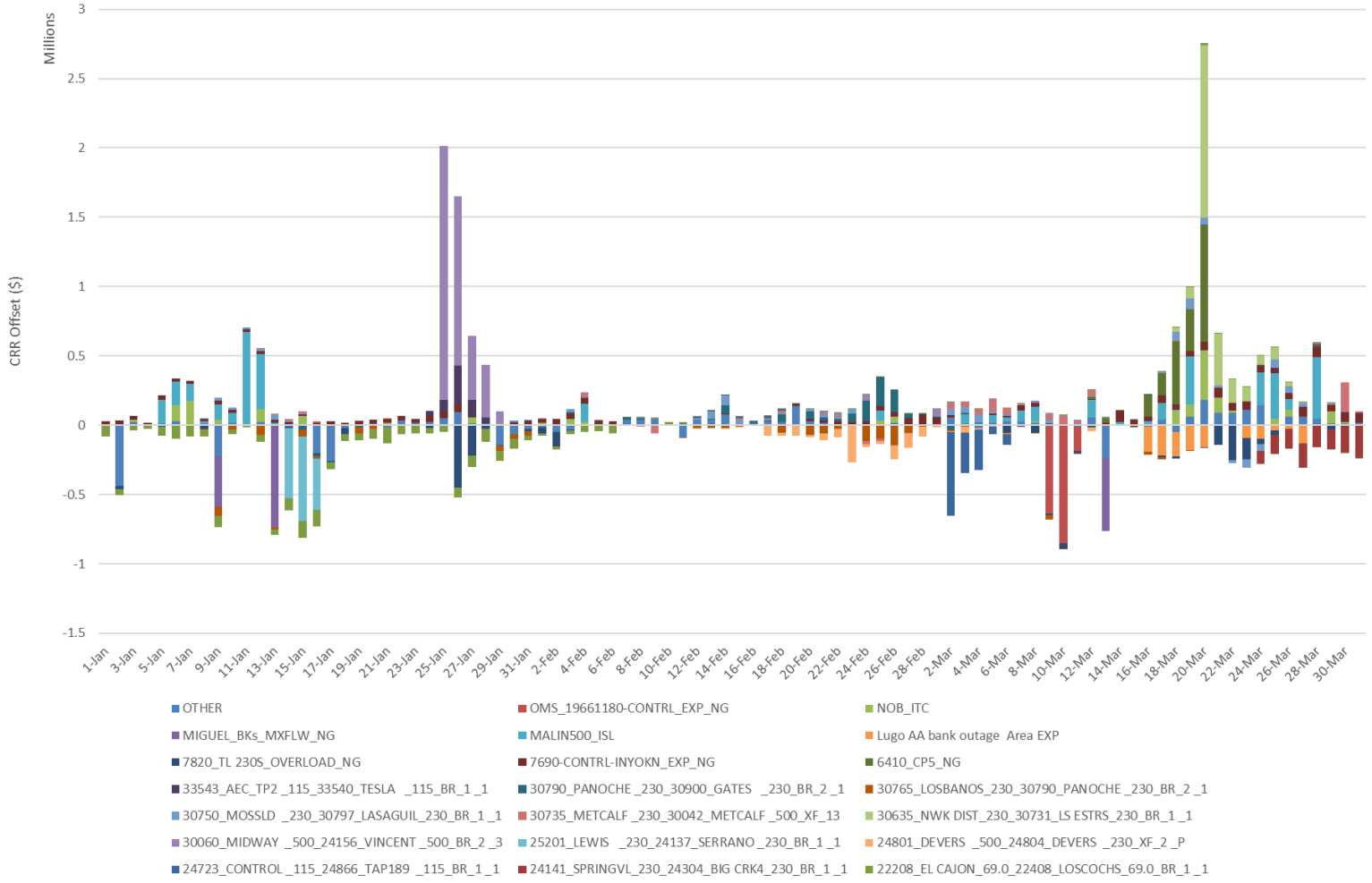
Auction revenues for March continues a declining trend from previous months



Total monthly auction cleared MW post-GDF change shows no significant impact to CRR volume



Daily CRR offset for top 20 largest offset constraints shows mixed results among constraints



Top 15 highest offset constraints for Q1

Constraint	January Revenue Adequacy %	February Revenue Adequacy %	March Revenue Adequacy %	Q1 Total Offset
22208_EL CAJON_69.0_22408_LOSCOCHS_69.0_BR_1 _1	47.7	78.8	108.6	(2,049,984)
7820_TL 230S_OVERLOAD_NG	26.4	22.9	25.2	(1,948,648)
OMS_19661180-CONTRL_EXP_NG			31.9	(1,654,488)
MIGUEL_BKs_MXFLW_NG	38.0		48.4	(1,615,077)
25201_LEWIS _230_24137_SERRANO _230_BR_1 _1	61.7			(1,482,166)
Lugo AA bank outage Area EXP			57.8	(1,300,031)
24141_SPRINGVL_230_24304_BIG CRK4_230_BR_1 _1			58.4	(1,270,345)
24723_CONTROL _115_24866_TAP189 _115_BR_1 _1		134.3	34.4	(1,237,641)
30765_LOSBANOS_230_30790_PANOCHE _230_BR_2 _1	43.6	65.7	87.2	(1,233,431)
24801_DEVERS _500_24804_DEVERS _230_XF_2 _P		81.8	83.9	(1,003,617)
35618_SN JSE A_115_35620_EL PATIO_115_BR_1 _1	8.4		117.1	(529,747)
OMS IV-SX OUTAGE_NG	49.0		43.5	(490,048)
22886_SUNCREST_230_22885_SUNCREST_500_XF_2 _P	62.3	77.3		(477,955)
HUMBOLDT_IMP_NG	(100.4)	(101.2)	(168.1)	(382,632)
33020_MORAGA _115_35101_SN LNDRO_115_BR_2 _1	(28.9)	(100.6)		(298,169)

Gas and Power index prices, and market costs

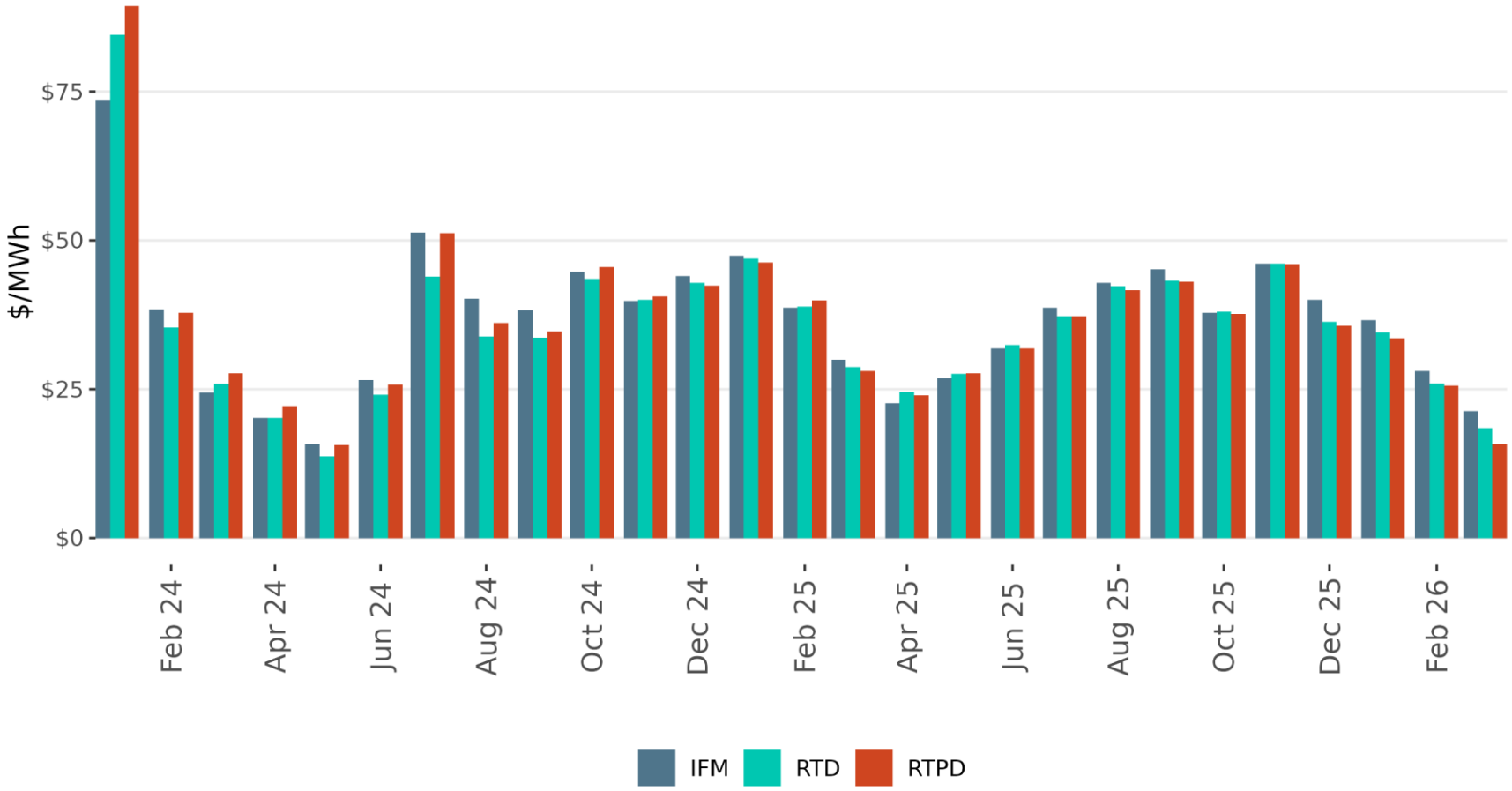
Market Performance and Advanced Analytics

Gas and Power index prices, and market costs

Summary:

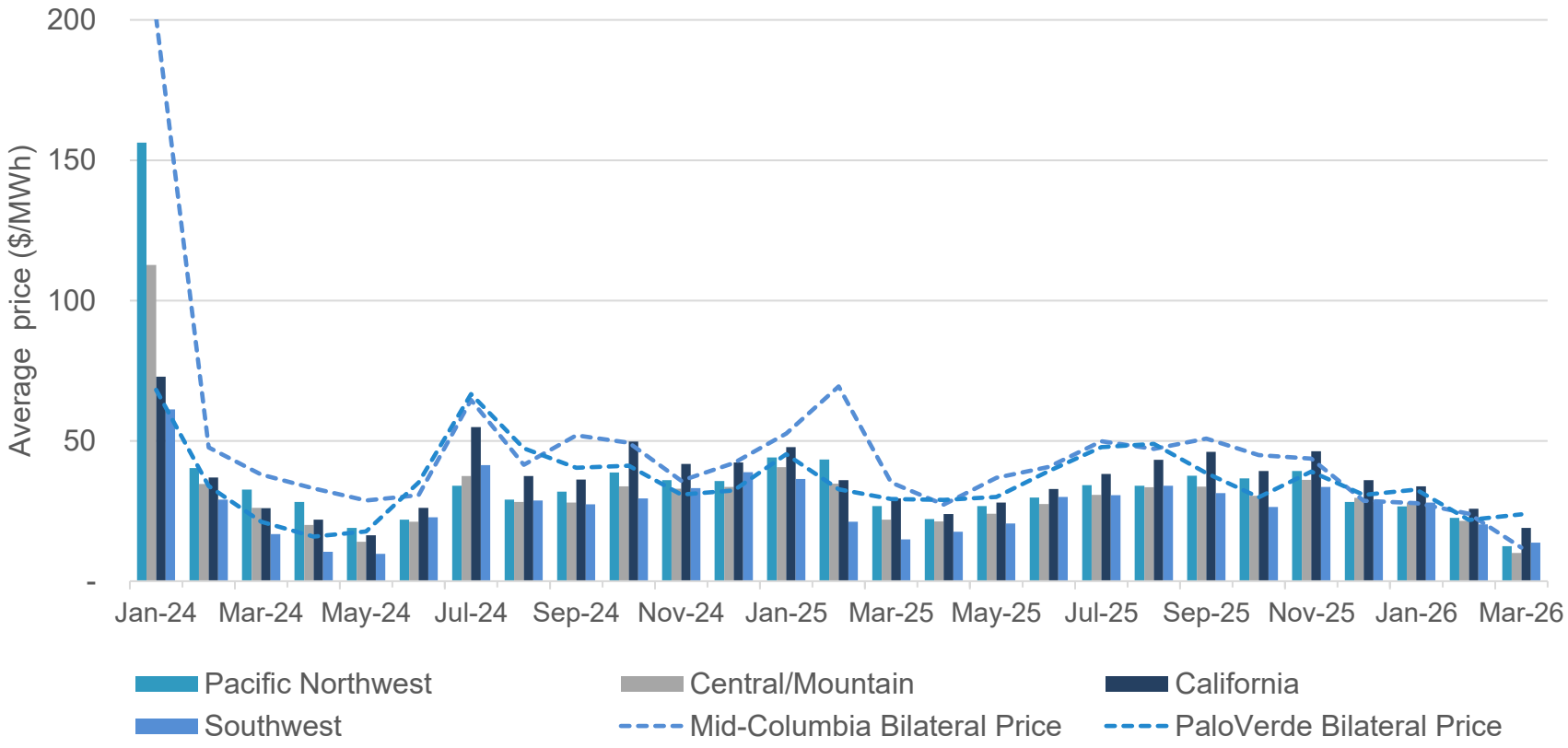
- Winter Storm Fern at the end of January caused price spikes in gas that cascaded into both bilateral electricity and CAISO market prices.
- Outside of that window, prices remained relatively low and stable.
- The price spikes were not significant enough to cause noticeable impacts to monthly or average market costs.

Monthly average prices for Q1 2026 show a steady decline from winter months

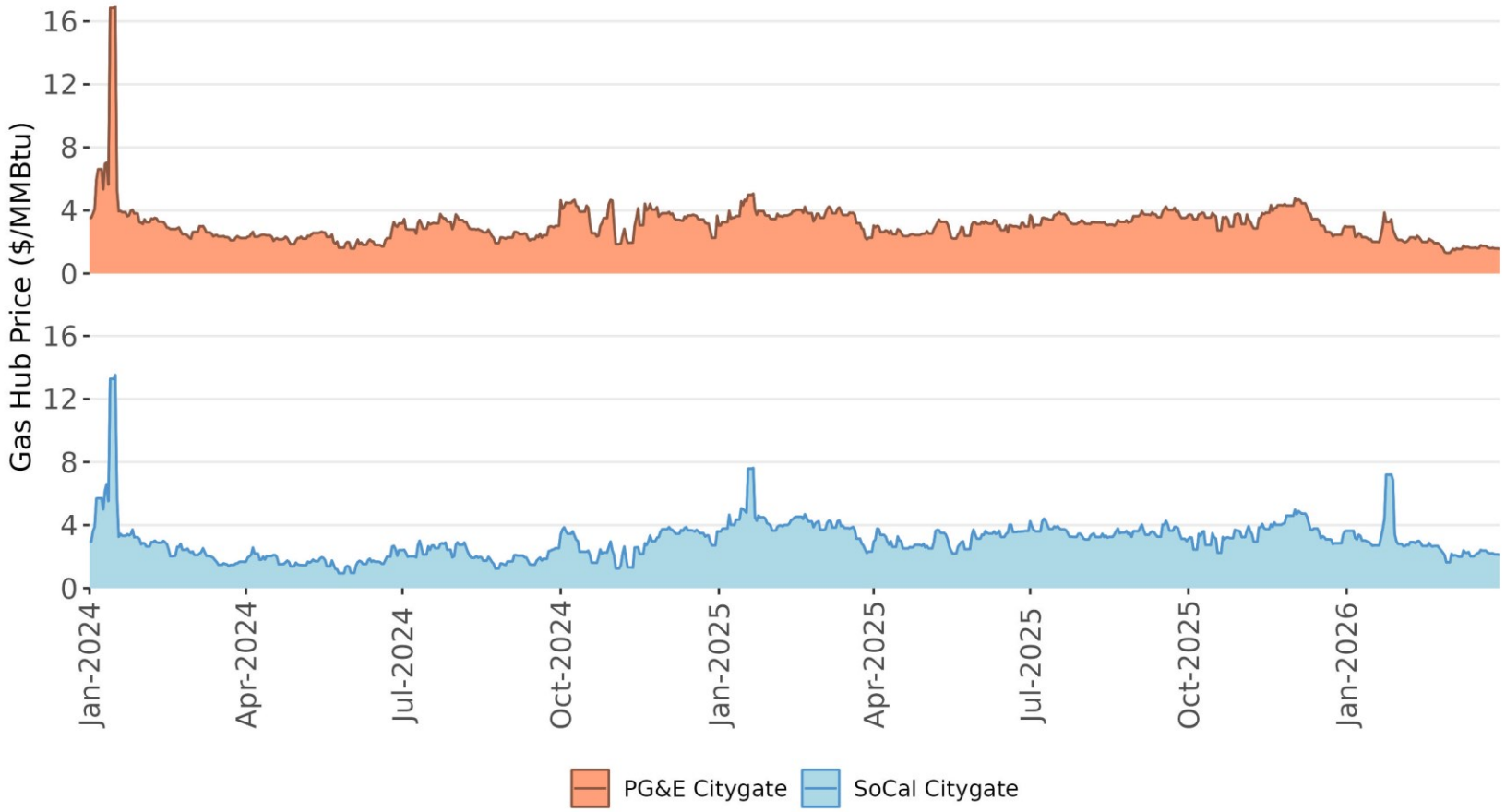


Note: Metric Based on System Marginal Energy Component (SMEC)

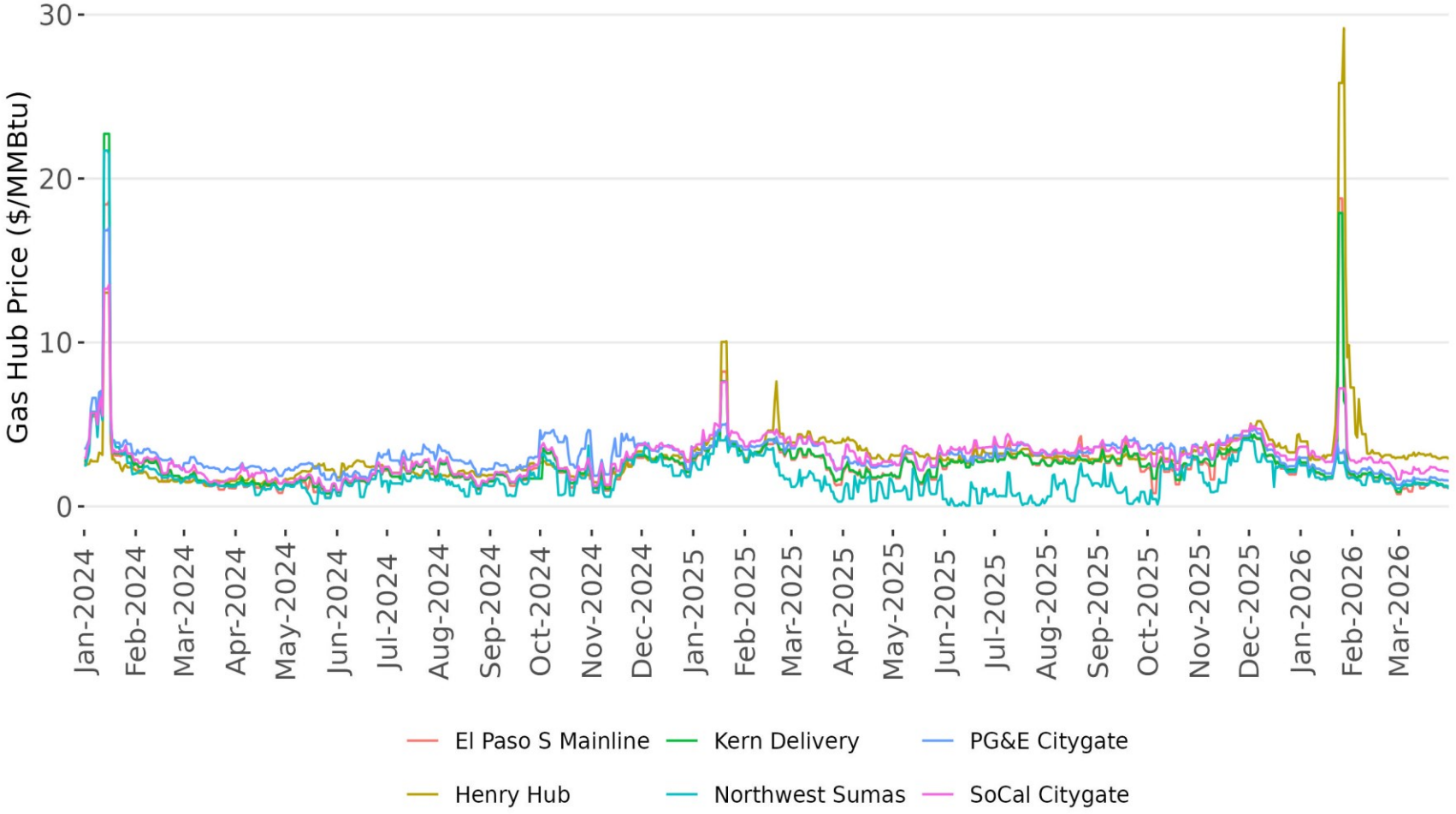
Real-time prices in the western energy imbalance market remain stable



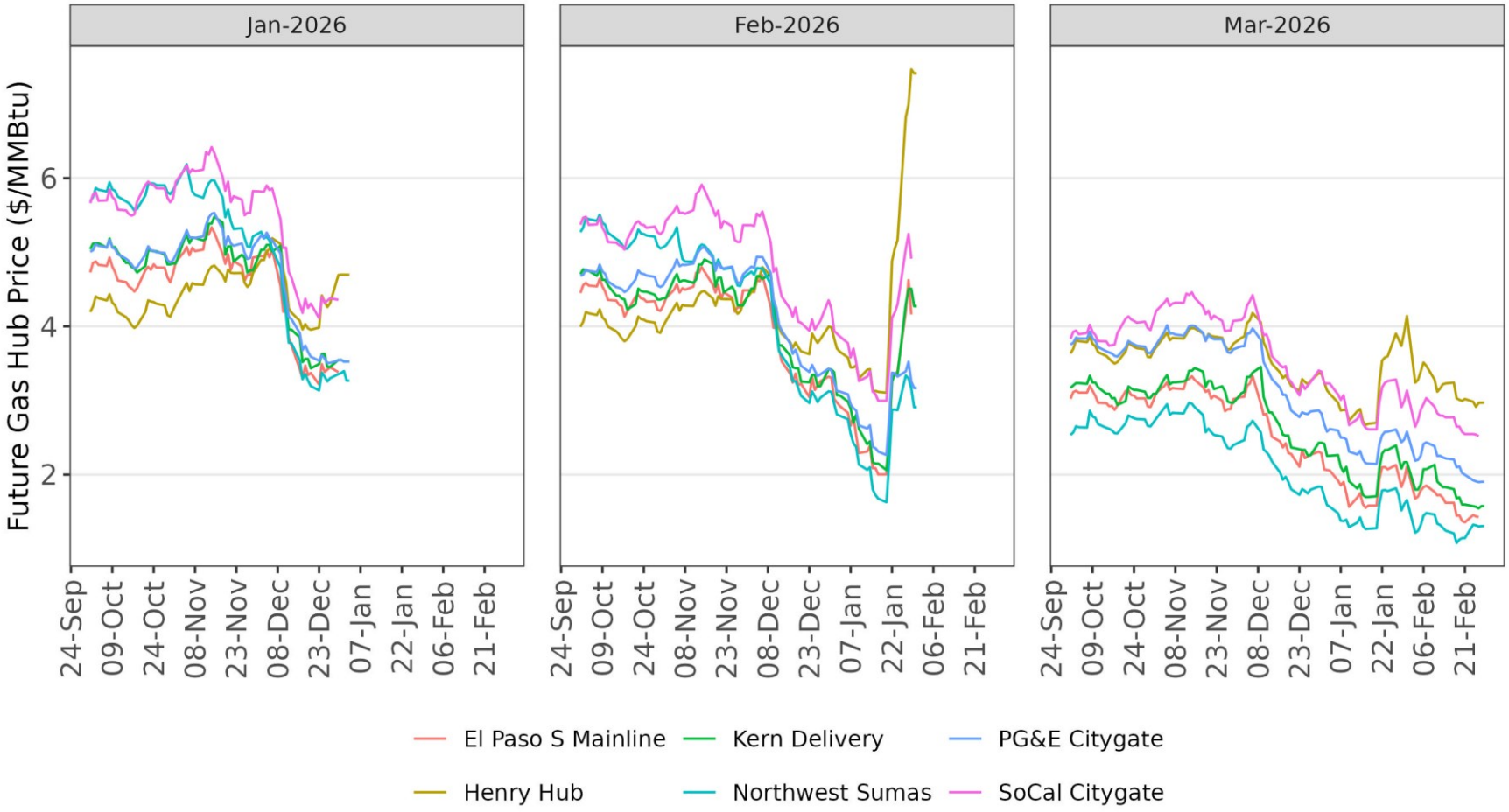
California next-day gas prices have been relatively low and stable in 2026 with a small spike in January



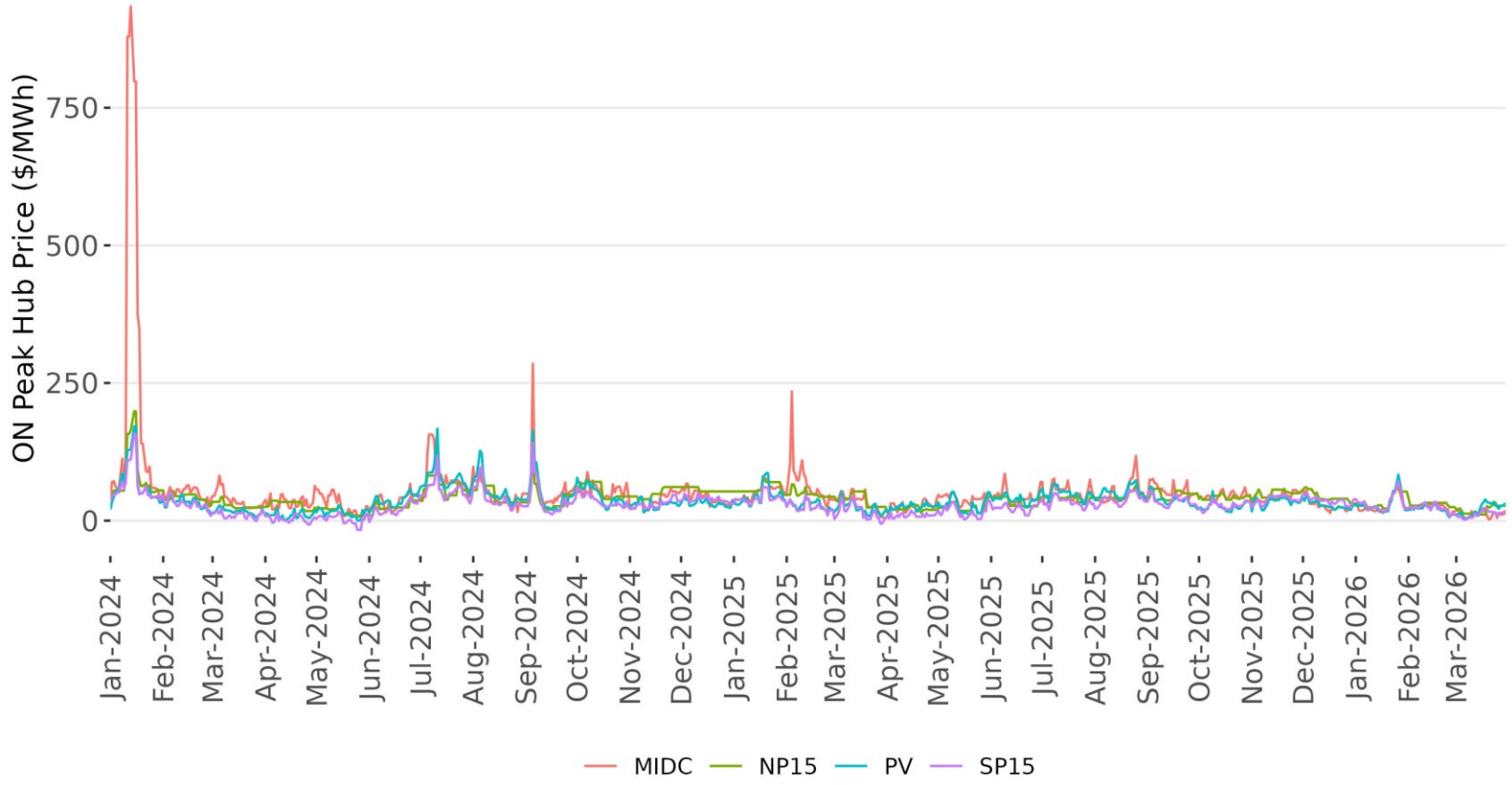
Winter Storm Fern caused high gas prices in January



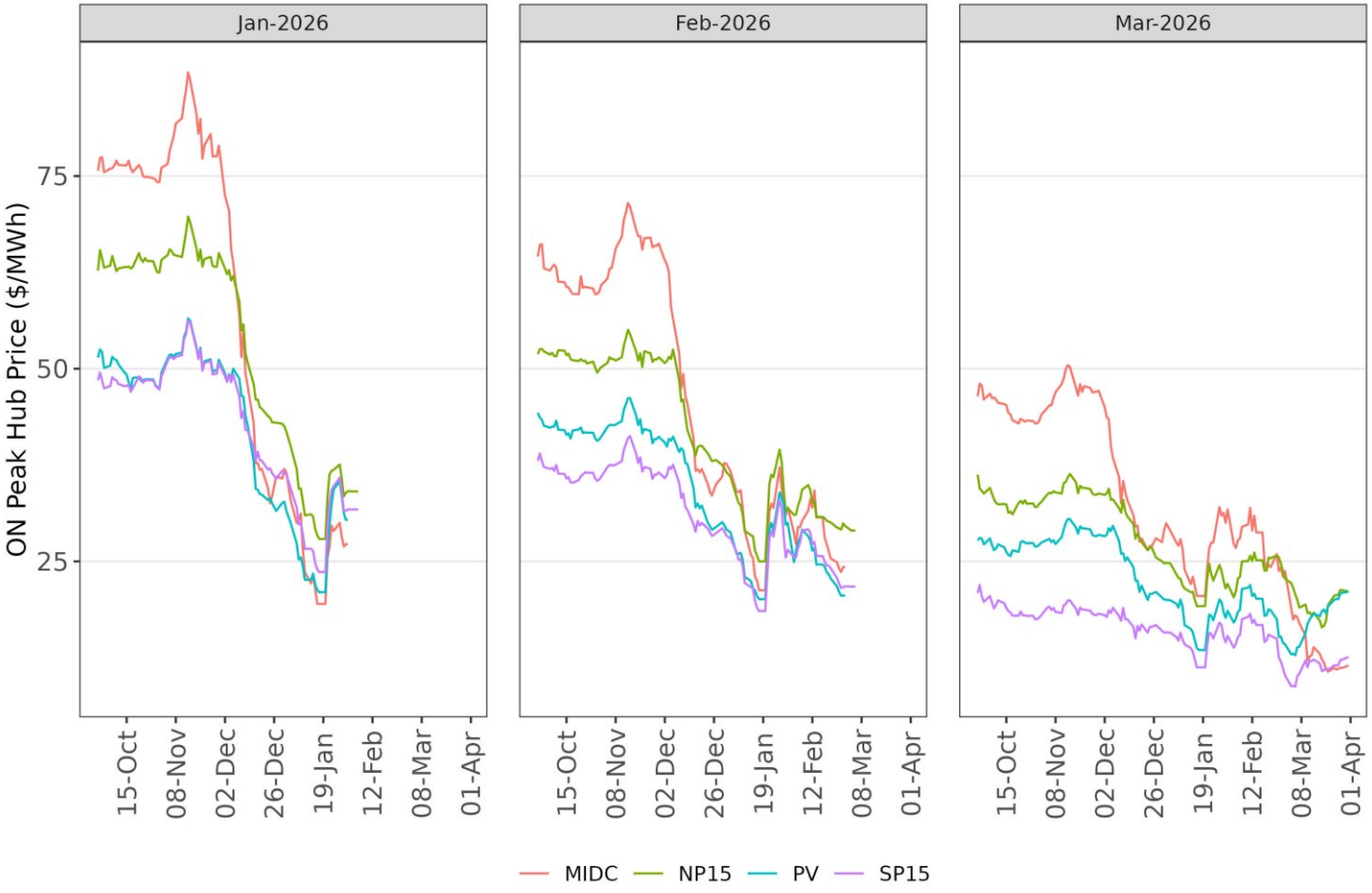
Winter Storm Fern also impacted futures prices, a sharp increase in February prices, and a smaller and temporary but significant increase in March prices



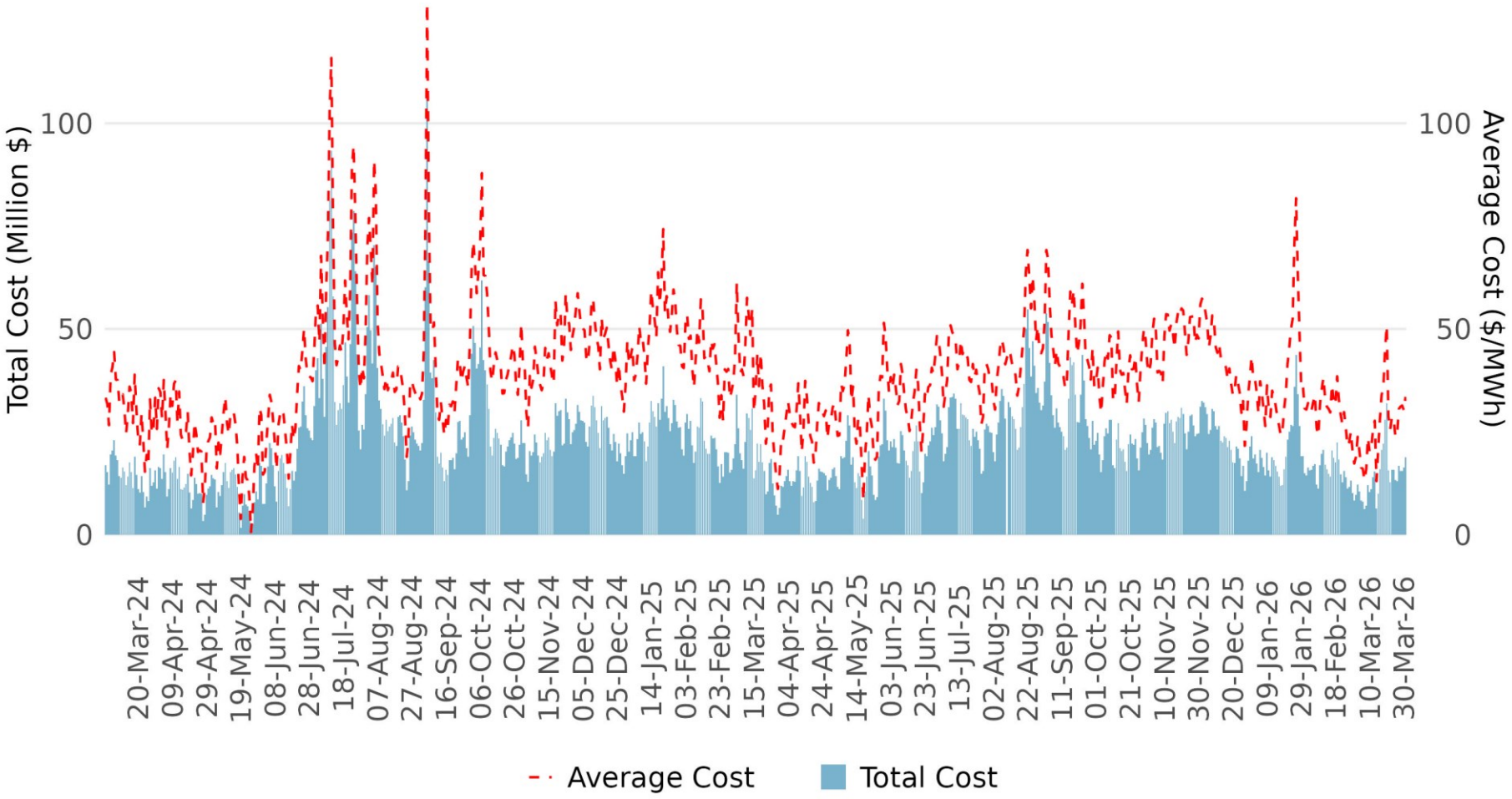
Next-day on-peak bilateral power prices remained below $50/MWh for January through March, except during the period of high gas prices caused by Winter Storm Fern



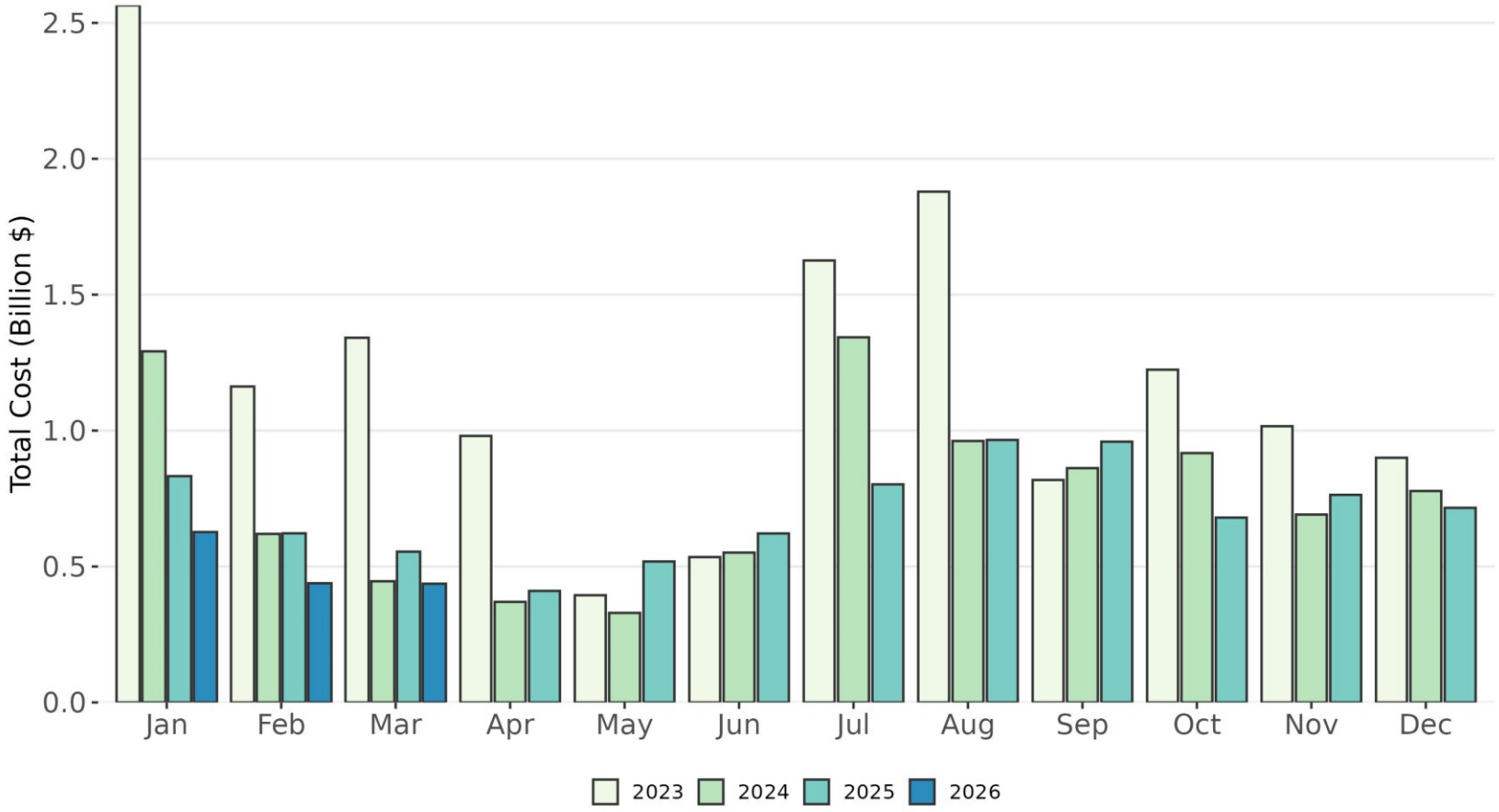
Future on-peak power prices for delivery in January, February, and March showed price separation that diminished as the delivery dates approached.



Daily market costs reached the highest level so far in 2026 on January 26

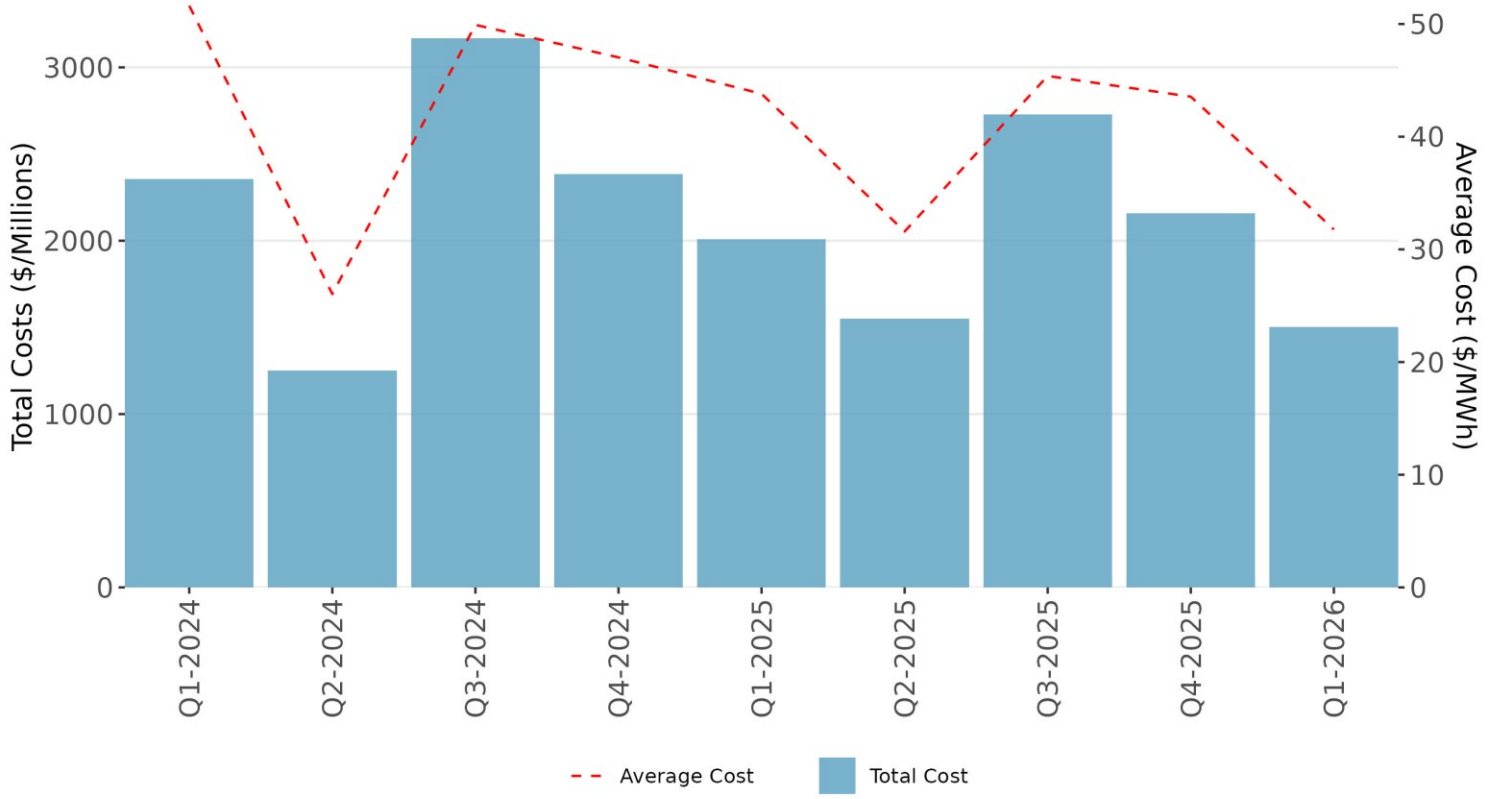


Monthly totals for January, February, and March 2026 were lower than the previous three years

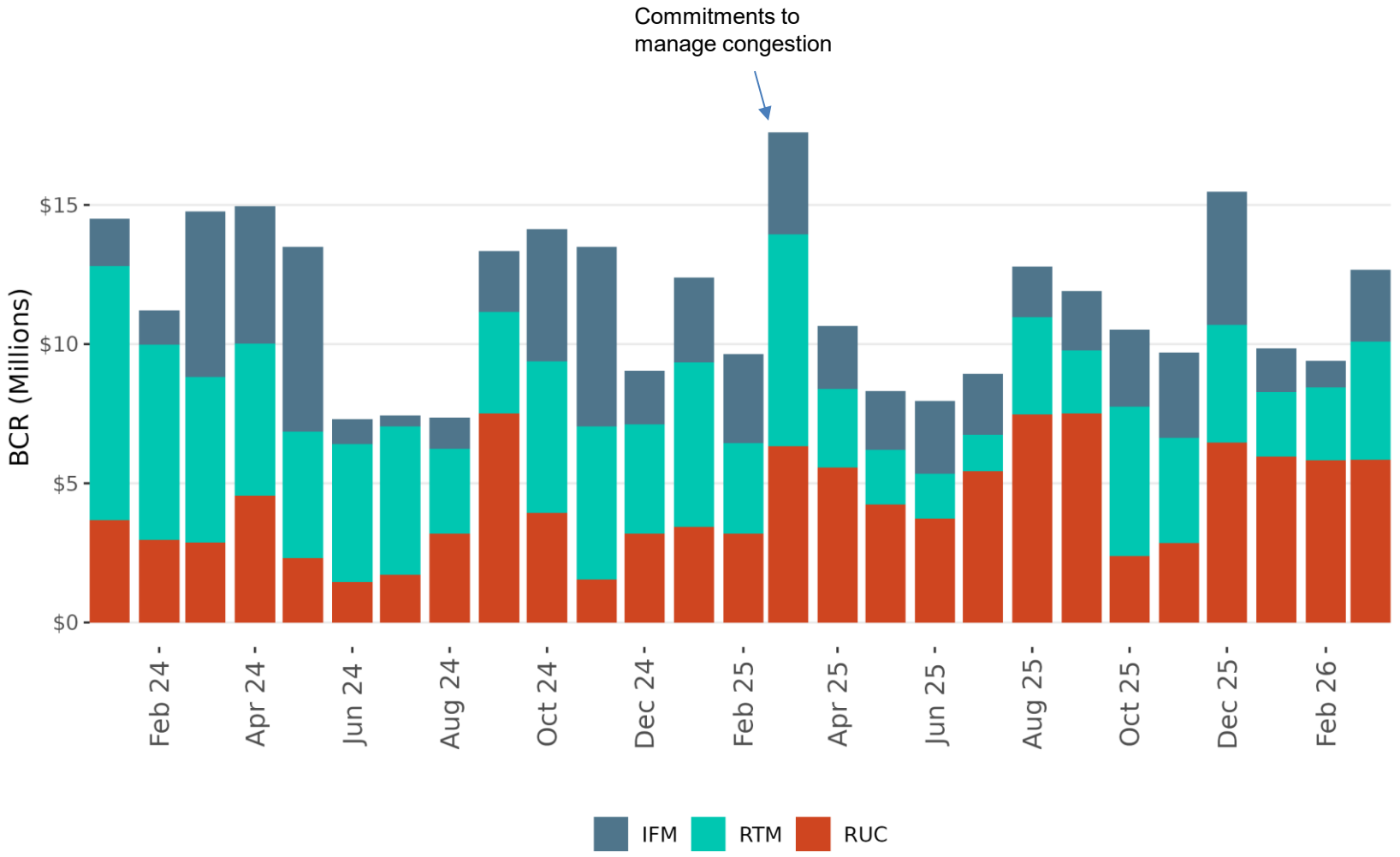


Total and Average costs in Q1 of 2026 were similar to those in Q1 of 2025

Costs	2022	2023	2024	2025	2026 (Jan-Mar)
Total Wholesale Electricity ($billions)	21.67	14.48	9.15	8.46	1.50
Average per MWh ($/MWh)	98.09	69.08	42.57	40.52	31.49

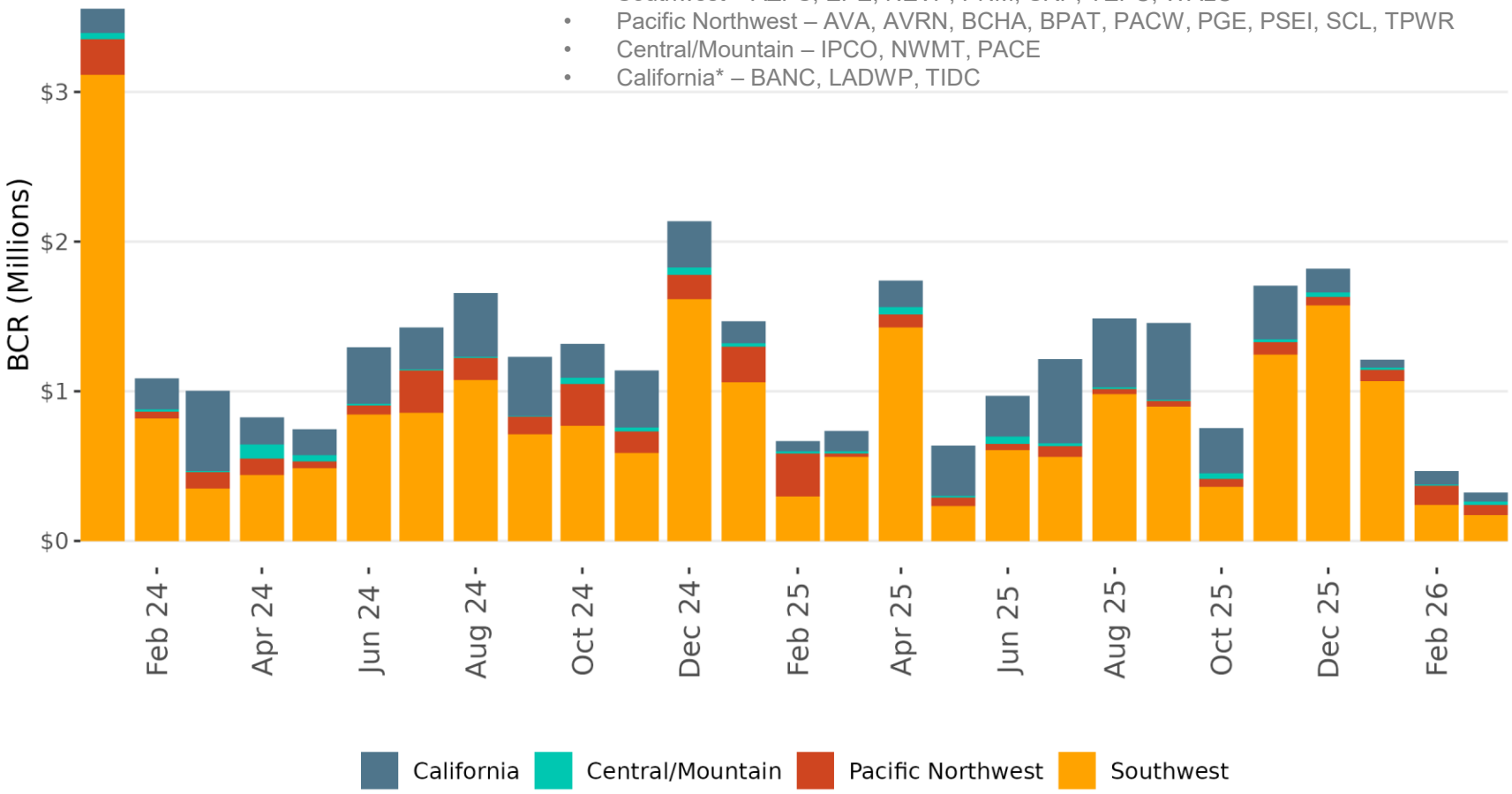


Bid cost recovery in all three markets remains within typical ranges since January 2024



Southwest WEIM entities have accrued about 74% of total Bid Cost Recovery to all WEIM entities in 2026

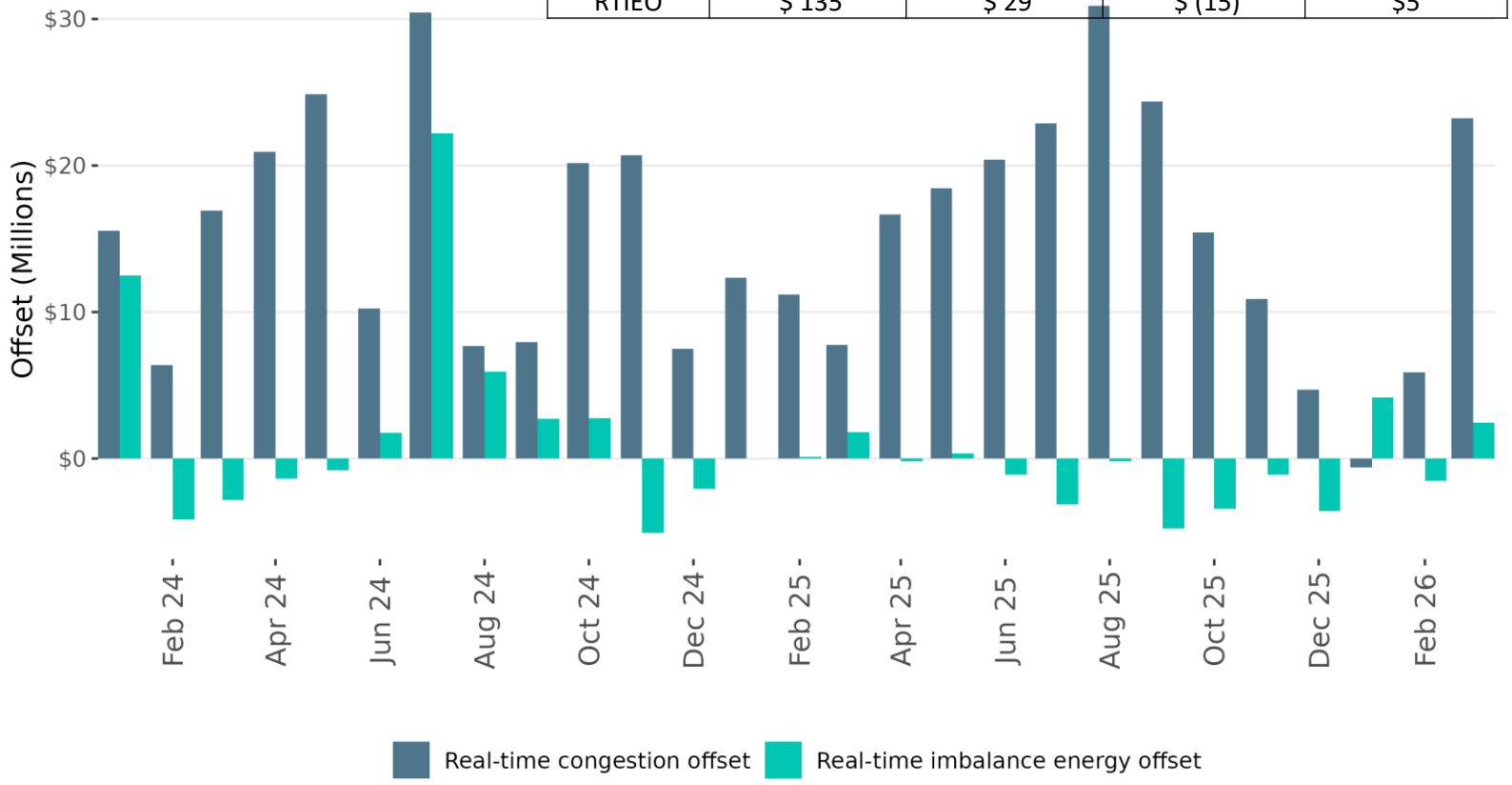
- Southwest – AZPS, EPE, NEVP, PNM, SRP, TEPC, WALC
- Pacific Northwest – AVA, AVRN, BCHA, BPAT, PACW, PGE, PSEI, SCL, TPWR
- Central/Mountain – IPCO, NWMT, PACE
- California* – BANC, LADWP, TIDC



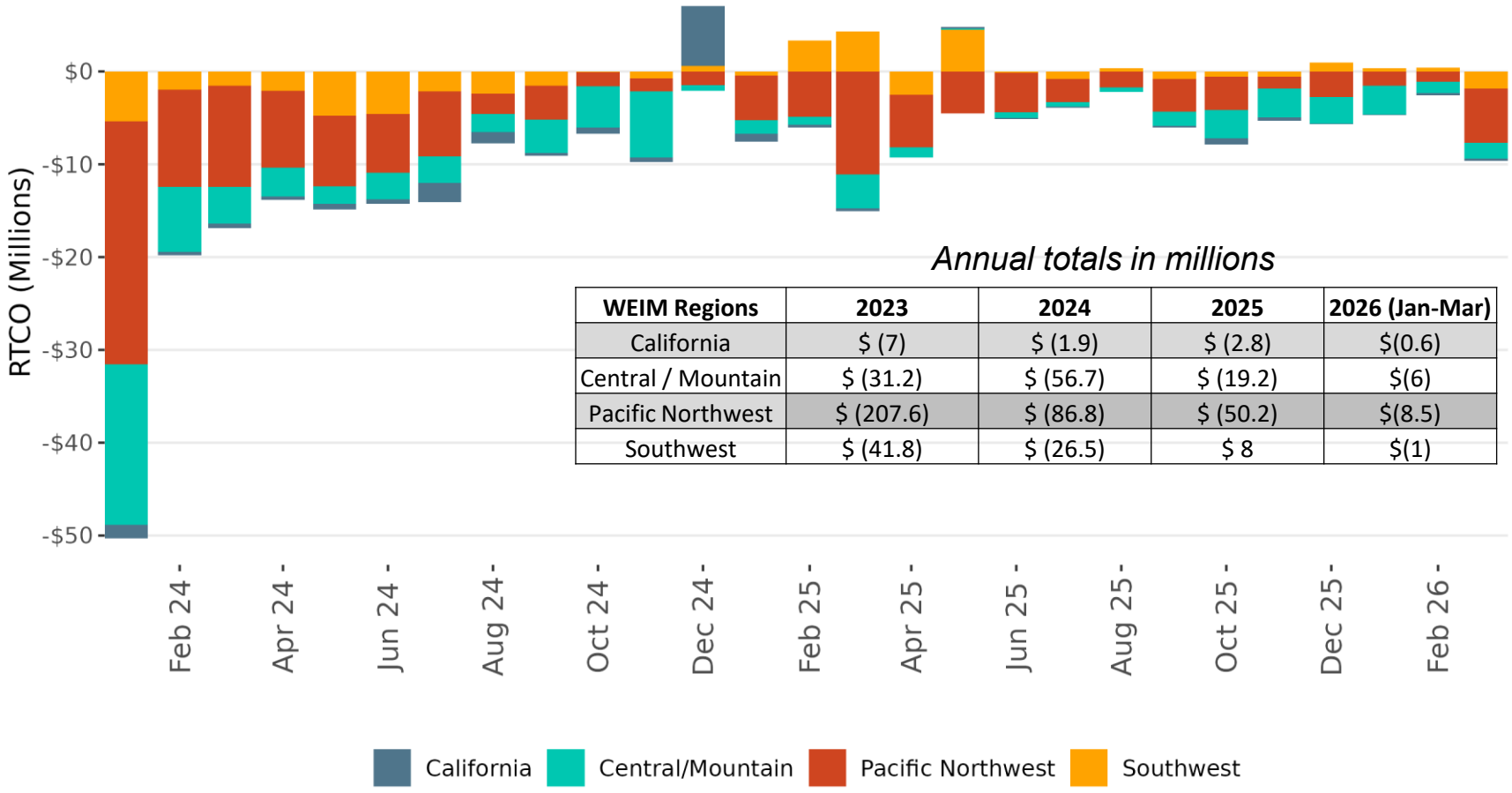
Real-time imbalance energy offsets have remained relatively small in 2026 so far; Real-time congestion offset rose in March

Annual totals in millions

Costs	2023	2024	2025	2026 (Jan-Mar)
RTCO	$ 199	$ 192	$ 197	$29
RTIEO	$ 135	$ 29	$ (15)	$5



Pacific Northwest allocated approximately 53% of total net Real-Time Congestion Offset for all WEIM entities



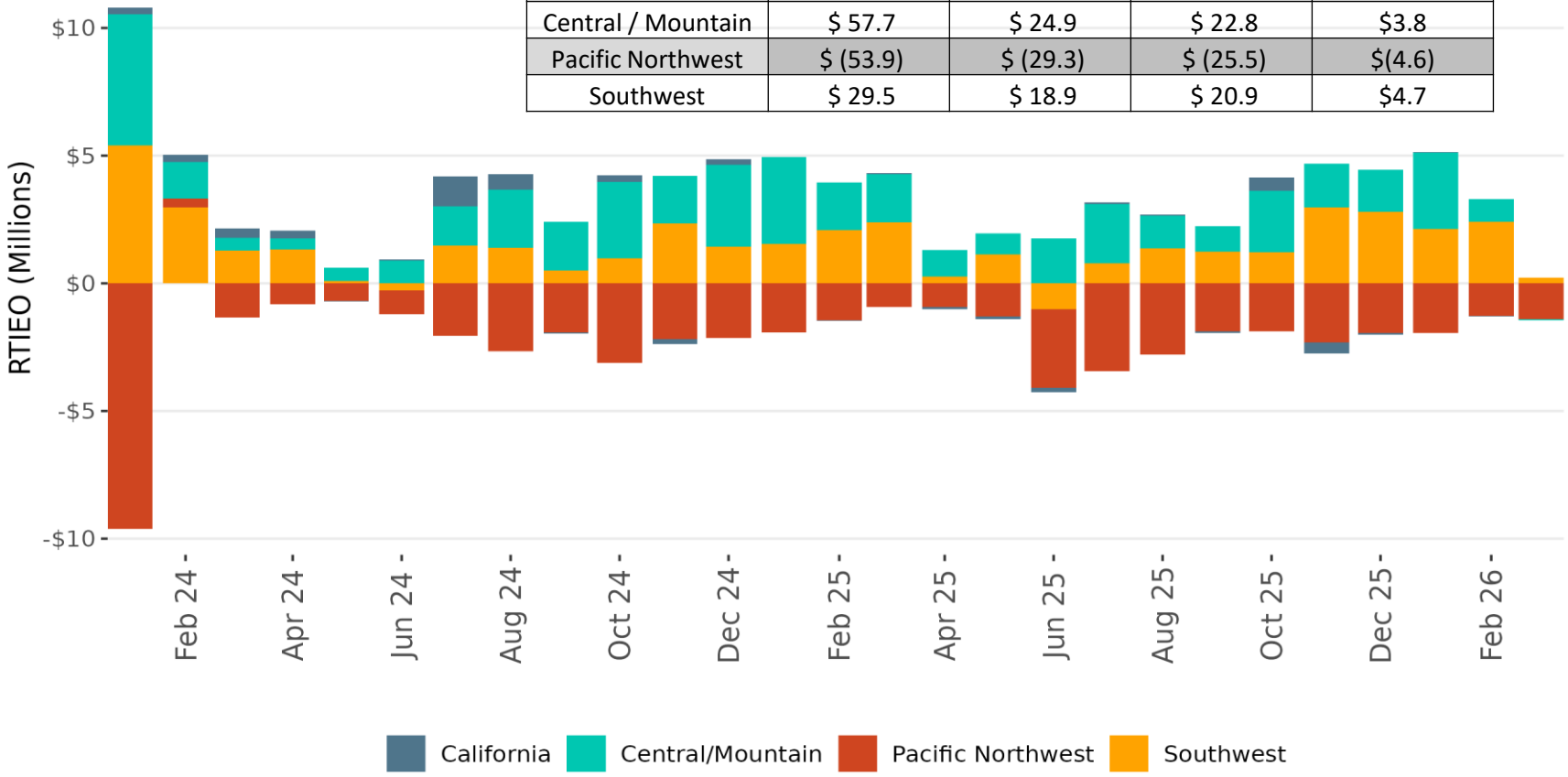
Annual totals in millions

WEIM Regions	2023	2024	2025	2026 (Jan-Mar)
California	$ (7)	$ (1.9)	$ (2.8)	$(0.6)
Central / Mountain	$ (31.2)	$ (56.7)	$ (19.2)	$(6)
Pacific Northwest	$ (207.6)	$ (86.8)	$ (50.2)	$(8.5)
Southwest	$ (41.8)	$ (26.5)	$ 8	$(1)

Real time imbalance energy offset has been low since January 2024

Annual totals in millions

WEIM Regions	2023	2024	2025	2026 (Jan-Mar)
California	$ 3	$ 3.2	$ 0.14	$0
Central / Mountain	$ 57.7	$ 24.9	$ 22.8	$3.8
Pacific Northwest	$ (53.9)	$ (29.3)	$ (25.5)	$(4.6)
Southwest	$ 29.5	$ 18.9	$ 20.9	$4.7



* Does not include CAISO

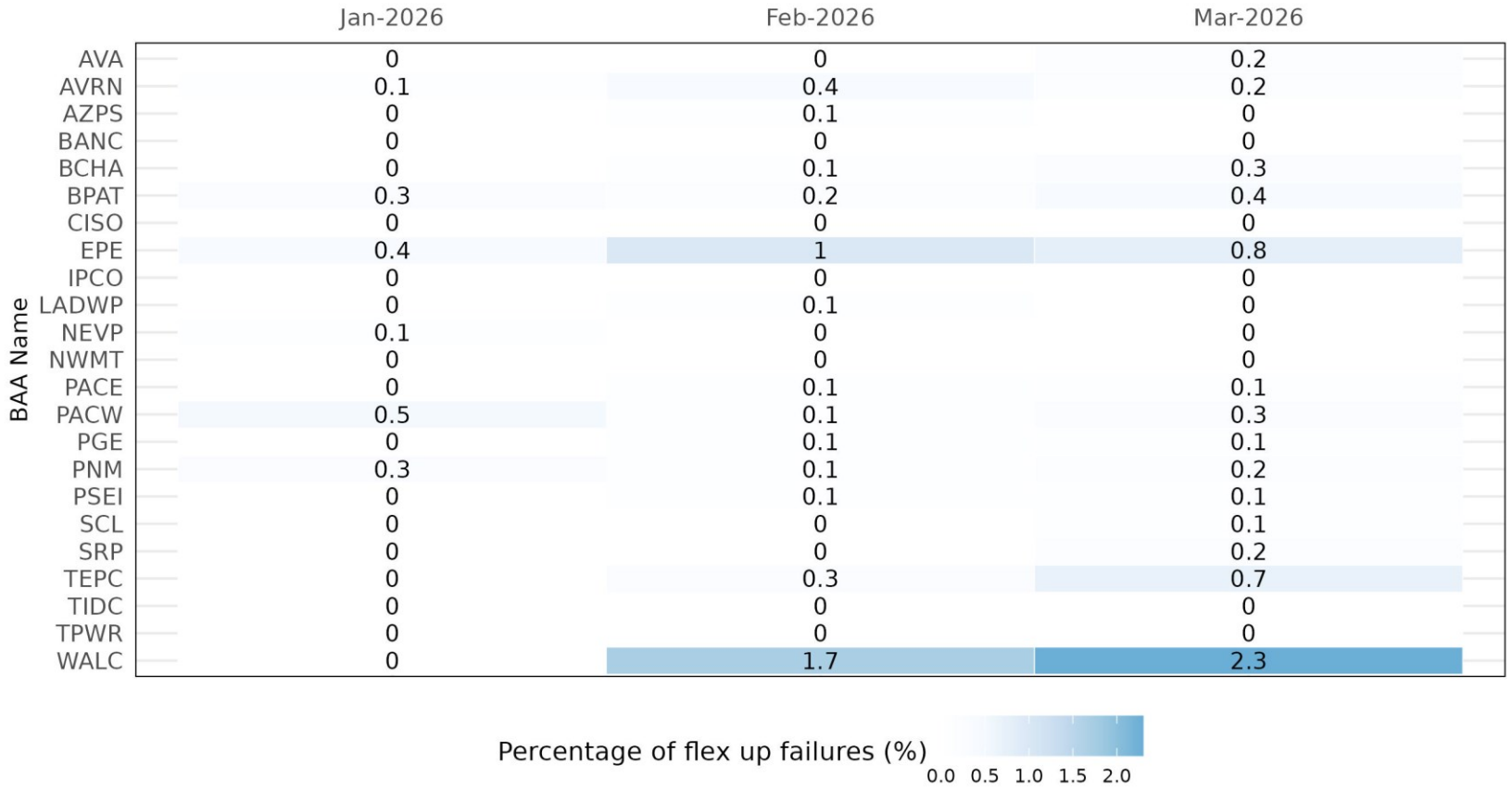
WEIM Resource Sufficiency evaluation performance

Market Performance and Advanced Analytics

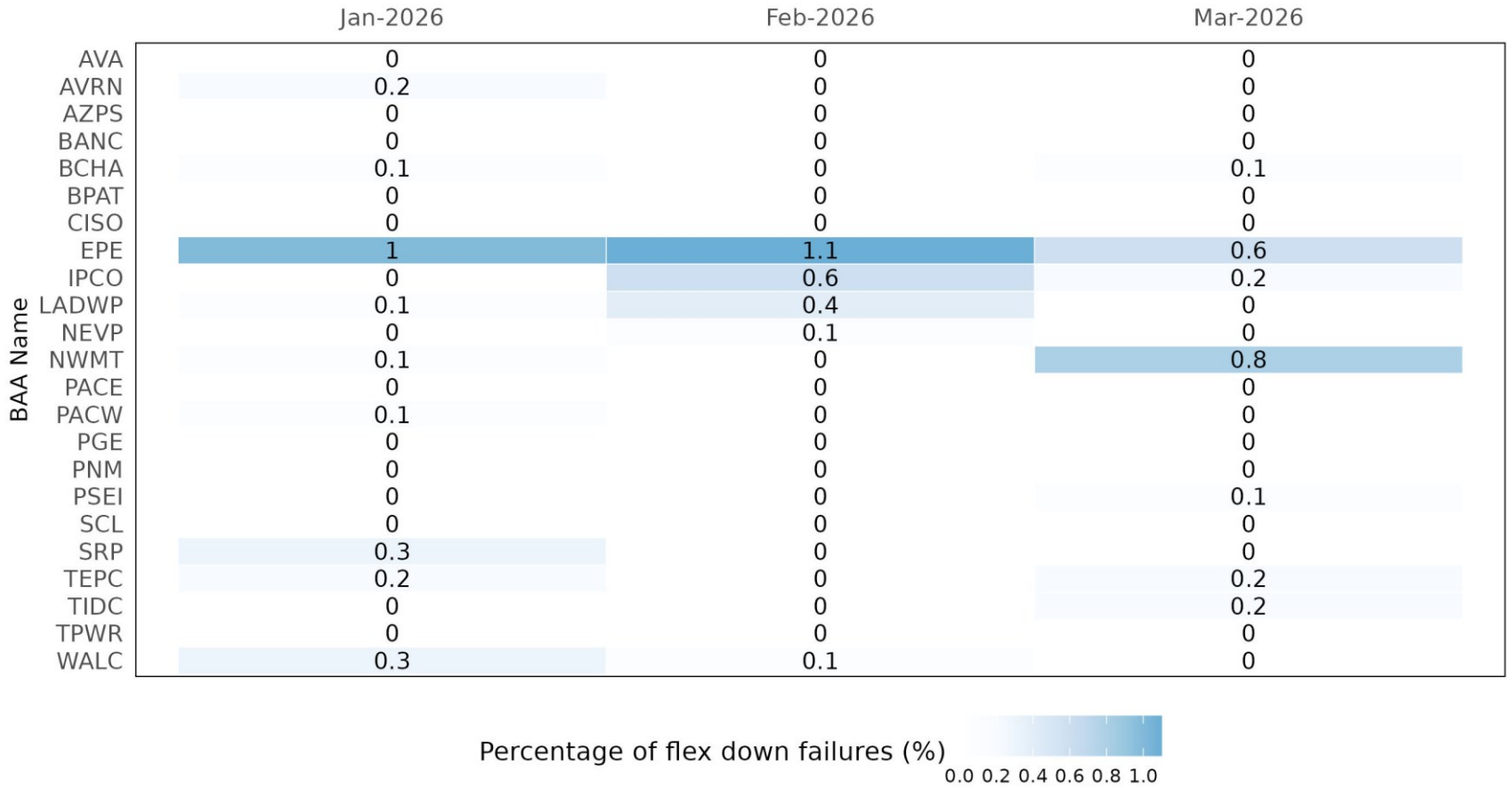
Resource sufficiency evaluation -Summary

- All WEIM entities were able to pass the flexibly ramping test over 99 percent of the time
- In Q1 2026, seven WEIM entities opted in for the assistance energy transfer (AET) program
- The total surcharge AET assessed in Q1 2026 was $726K, comparable to cost of previous quarter

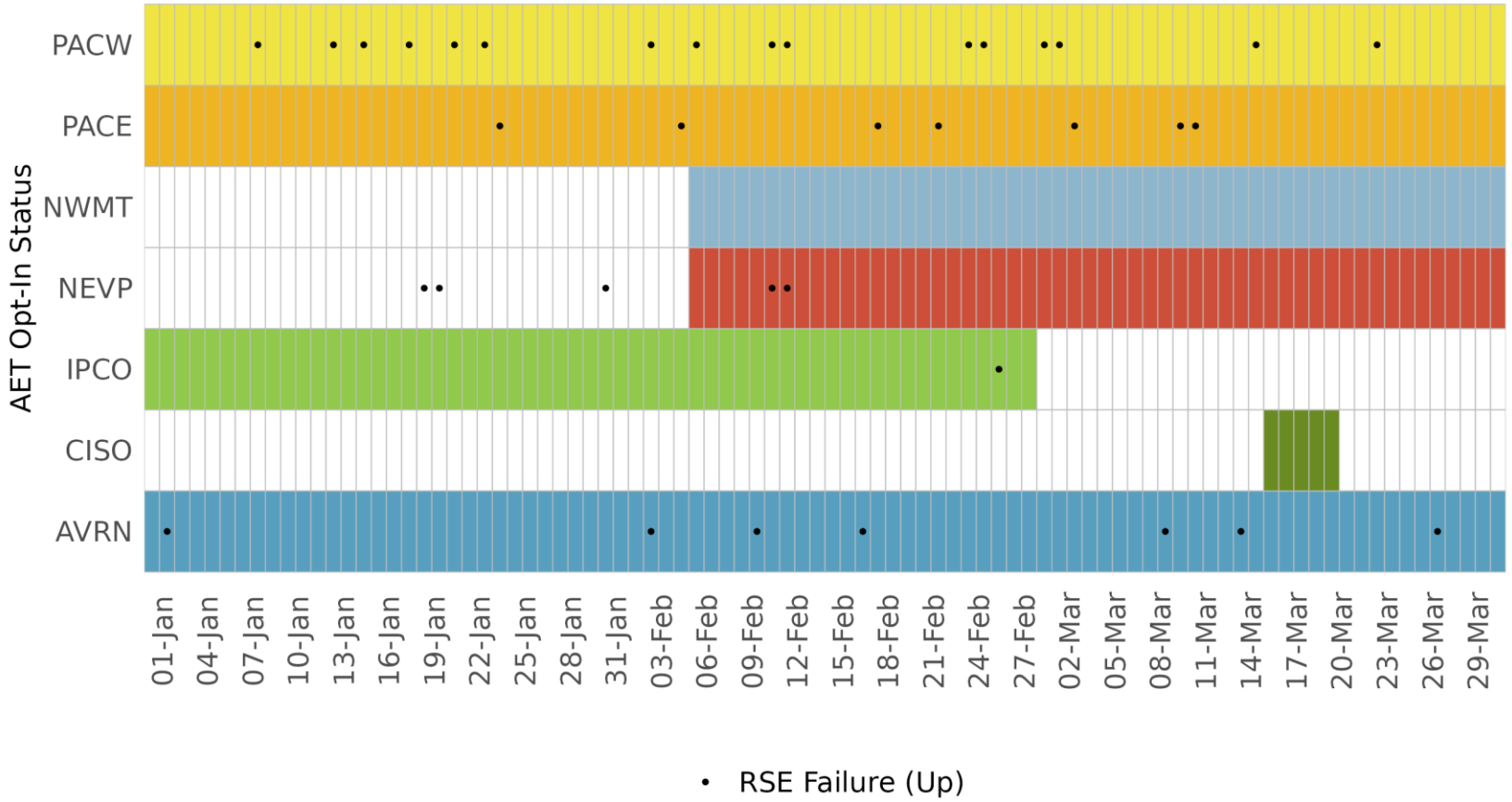
Flexible ramp up failures for the Q1 2026 are low, with the highest value at 2.3%



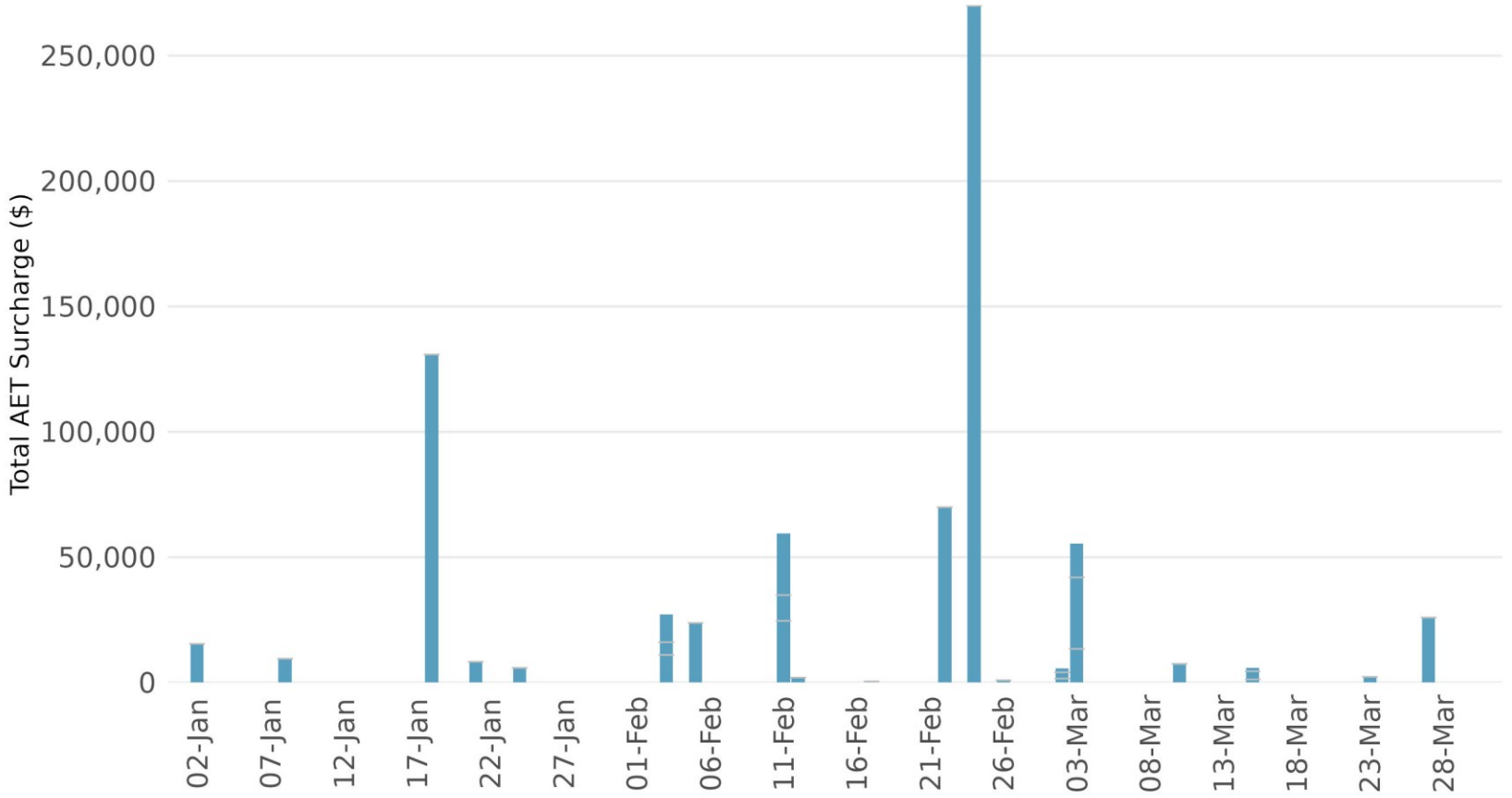
Flexible ramp down failures for Q1 2026 are low, with the highest value at 1.1%



Seven WEIM balancing areas opted–in for the assistance energy transfer (AET) for Q1 2026



The total AET surcharge assessed in Q1 2026 was $726K, comparable to previous quarter of $748K



Market Design Update

Market Policy Development

Commitment cost bidding flexibility

- The *commitment cost and default energy bid design* was approved in 2018 but part of the design changes – the section on commitment costs bidding flexibility and mitigation – were not filed with FERC or implemented.
- These market design changes expanded the ability for resources to bid in their commitment costs, paired with a new test for market power associated with those offers.
- The ISO is working with stakeholders in 2026 to discuss either:
  - How the approved design will be implemented, or
  - Identify any changes that may be necessary to implement the intent of the design.
- Proposed decisional classification: TBD.

Demand and distributed energy market integration

- Key areas of design focus in 2026:
  - Recognize customer exports within an aggregation so long as the aggregated resource does not net export.
  - Update market models for demand flexibility to better reflect regional market participation, including the consideration of a new reliability-triggered demand response product.
  - Explore supply-side and demand-side participation pathways for large loads.
  - Future working group: Explore real time demand and pumped load bidding with stakeholders.
- Issue paper and straw proposal posted in March.
- Proposed decisional classification: primary authority of the WEM Governing Body.

Extended day-ahead market congestion revenue allocation

- Phase 2 of the initiative focuses on development of a long-term durable congestion revenue allocation design and potential near-term enhancements.
- This phase of the initiative began in December 2025.
- Working group has established broad consensus on design principles as reflected in stakeholder comments.
- Next phase starting in April focuses on identification and evaluation of design alternatives.
- Continued development of analysis based on market simulation and parallel operations data evaluating impacts of phase 1 of the congestion revenue allocation design.
- Proposed decisional classification: TBD.

Intertie schedule modeling

- The ISO filed tariff clarifications on February 6 regarding intertie schedule modeling on ISO interties supporting EDAM launch.
  - Established a transitional design.
  - FERC accepted these changes on April 8.
- The ISO launched stakeholder workshops to consider evolution of the design for modeling intertie schedules for the CAISO balancing area.
- Kickoff meeting was held on March 18th focused on an educational session for the current and future modeling designs.
- Proposed decisional classification: TBD.

Storage design and modeling

- Scope of the initiative:
  - Outage management
  - Uplift, mitigation, and default energy bids
  - State-of-charge management
  - Mixed-fuel and distribution-level resources
- Issue paper and straw proposal on mixed-fuel resources posted March 2026.
  - Includes straw proposals to increase flexibility for co-located variable energy resources and provide guidance on how variable energy resources calculate generation capability.
  - Discusses the issues related to the interplay between hybrid modeling tools and commitments for providing grid stability services, and the development of cost estimate methodologies for hybrid resources.
- Forthcoming straw proposal on outage management.
- Proposed decisional classification: TBD.

Price formation enhancements

- Price Formation Enhancements is operating under a two-track framework.
  - Track 1 (near-term): proceed with balancing authority area-level market power mitigation and incremental scarcity rules identified in the existing straw proposal.
  - Track 2 (longer-term): working group discussions dedicated to a comprehensive scarcity pricing design.
- On March 3, 2026, the WEM Governing Body general session included a spotlight briefing on scarcity pricing.
  - Stakeholders delivered presentations debating the timing of reforms.
- Near term efforts will focus on advancing the Track 1 changes, which were widely supported in stakeholder comments, while navigating the timing of Track 2.

Financial planning initiative, including start-up funding for the Regional Organization for Western Energy (ROWE)

- Cost-of-service study extension
  - Extension enables use of 2026–2027 EDAM data.
- Grid management charge revenue requirement cap increase
  - Cap increase avoids out-of-cycle filings for increased requirements in 2027-2028.
- Regional Organization start-up funding
  - ISO-backed funding bridges funding gap through early 2028.
- Decisional classification:
  - A commitment to guarantee a loan or line of credit requires approval by the ISO Board of Governors only.
  - A tariff amendment to charge market participants the ROWE start-up debt financing rate falls within the primary authority of the WEM Governing Body.

Resource adequacy design development

- Track 1 and Track 3A filed at FERC.
- Track 2 straw proposal in development.

Track 1: Modeling & Default Rules

- Loss of load expectation modeling.
- Updated default planning reserve margin and default counting rules.

Track 2: Outage and Substitution & Availability and Performance Incentives

- Updating outage and substitution processes.
- Reforming availability and performance incentives.

Track 3: Visibility and Backstop Reform

- Increase the ISO's visibility into available backstop capacity (3A).
- Increase transparency to stakeholders on backstop decision making.
- Update the current backstop product.
- Create longer-term solutions for the ISO balancing authority area around curing deficiencies and assigning costs related to the EDAM resource sufficiency evaluation.

Decisional classification: ISO Board of Governors

Congestion revenue rights (CRR) enhancements

- The design development is focusing on key challenges:
  - Improving revenue adequacy and auction efficiency.
    - A late April stakeholder meeting explored various design elements.
  - Updating how CRR products are defined to better align with evolving hedging needs.
    - Breaking existing on-peak period into more granular “time of use” periods.
    - Allowing storage locations as a sink to hedge storage charging.
- Recent initiative activity:
  - December 12: Published issue paper and straw proposal on CRR product definition.
  - January 14: Published issue paper on revenue adequacy and auction efficiency enhancements.
  - May 6: Comments due for Apr 22 stakeholder meeting discusssion
- Proposed decisional classification on initial straw proposal: ISO Board of Governors.

2026 market policy catalog & roadmap

- ✓ **January-February:** Stakeholders submitted proposals for new market policy initiatives
- ✓ **March & April**: Stakeholder prioritization workshops for catalog submissions + RIF roundtable
- ❑ **April & May**: Stakeholders submit prioritization rankings
- ❑ **June**: 2026 market policy catalog and updated 2026 market policy roadmap released

2026 market design roadmap

		2026		
		Q2	Q3	Q4
Commitment Cost Bidding Flexibility		Public dialogue: next steps		
Congestion Revenue Rights Enhancements		Policy development		Decision
Demand and Distributed Energy Market Integration		Policy development	Decision	
EDAM Congestion Revenue Allocation		Policy development		Decision
EDAM Enhancements				
Finance Enhancements		Policy development		
Gas Resource Management			Impleme	
Greenhouse Gas Coordination			Impleme	
Price Formation Enhancements				
	Scarcity pricing & market power mitigation	Policy development		Decision
	Fast start pricing	Postponed		

Implementation dates are considered "no sooner than"

2026 market design roadmap

		2026		
		Q2	Q3	Q4
Resource Adequacy Modeling and Program Design				
	Track 1: Modeling and default rules	**Implementation**		
	Track 2: Outage & substitution and availability and incentive mechanisms	**Policy development**	**Decision**	
	Track 3a: Resource visibility			
	Track 3b: Backstop reform and long-term EDAM RSE solutions			
Storage Design and Modeling				
	Topic group 1: Outage management enhancements	**Policy development**	**Implementation**	
	Topic group 2: Uplift & default energy bids	**Policy development**	**Decision**	
	Topic group 3: State-of-charge management	**Policy development**		
	Topic group 4: Mixed-fuel & distribution-level resources	**Policy development**		
WEIM Resource Sufficiency Evaluation Enhancements		**Postponed**		

Implementation dates are considered "no sooner than"

Market design initiative process

Learn more in the Stakeholder Process Guide.

For an overarching view of where each initiative is in the development process, view the Policy Initiatives Timeline (updated weekly).

Release Update

Release Management

Release Overview

Spring 2026
Day-Ahead Market Enhancements (DAME)
Extended Day-Ahead Market Enhancements (EDAM)
EDAM ISO BAA Participation Rules
EDAM - PacifiCorp
WEIM - Power Watch
WEIM - Black Hills Energy

Fall 2026
EDAM - PGE

2026
FERC 881 Track 2
FERC 881 Track 3
Transmission Service & Market Scheduling Priorities - Phase 2
FERC Order 2023 Generator Interconnection Life Cycle
Subscriber PTO Model
Transmission Exchange Agreement Renegotiation

Spring 2026

- DAME + EDAM + EDAM ISO BAA PR + EDAM PAC
  - Market Simulation in MAP-Stage now thru 1/30/26
    - DAME Configurable Parameters Analysis
  - Parallel Operations in Stage starts 2/2/26 for TD 2/3/26 thru 4/30/26
    - DAME Configurable Parameters Analysis
  - Production Activation TD 5/1/26

- WEIM Power Watch + WEIM Black Hills Energy
  - Market Simulation in MAP-Stage now thru 1/30/26
  - Parallel Operations starts TD 2/18/26
  - Production Activation TD 5/6/26

Release Activation Review
DAME & EDAM

Trang Vo
tvo@caiso.com

April 23, 2026

Releases for Activation TD 5/1/26

- Day-Ahead Market Enhancements
- Extended Day-Ahead Market
- Extended Day-Ahead Market ISO BAA Participation Rules
- EDAM Onboarding of Pacificorp

Overview

- Deployments
- DAM for TD 5/1
- SIBR Activation
- RTM Transition
- Customer Support
- EDAM / DAME Production Case Process
- Post-Activation Support & Analysis
- Reference: Configurable Parameters

DAM for TD 5/1

- Market Results Publication Timing: Publication of the May 1 market results may occur post-13:00, enabling comprehensive validation across all market run stages and ensuring certainty and integrity of the results.

- The SIBR RTM for TD 5/1 will open once TD 5/1 DAM publishes

Deployments

Date	System	Comments
04/15/26	ALFS	✓
04/16/26	Master File	✓
04/20/26	webOMS	✓
04/20/26	RTSI	✓
04/23/26	SIBR	✓
04/23/26	CMRI	✓
04/23/26	CIRA	✓
04/23/26	OASIS	✓
04/23/26	RIMS	✓
04/23/26	ADS	✓
04/29/26	Settlements	

SIBR Transition

Activity	Date	Time	Comments
SIBR Deployment	4/23	15:00 PT to 16:00 PT	UI changes visible & API services available, but DAME/EDAM inactive until 4/30 03:00 PT so no DAME/EDAM data yet
SIBR DAM open to start including TD 5/1	4/24	03:00 PT	DA bids can be submitted for TDs 4/25 thru 5/1* *Bids submitted for TD 5/1 should NOT include the new DAME/EDAM elements yet (IRU/IRD/RCU/RCD/TSR/GHG)
SIBR DA bid submission prior to DAME/EDAM Activation	4/24 thru 4/30 03:00 PT	4/24 thru 4/30 03:00 PT	DA bids submitted thru 7 days out for TDs 5/1-5/7 can continue and should NOT include the new DAME/EDAM elements yet (IRU/IRD/RCU/RCD/TSR/GHG) even for TDs 5/1+
SIBR DAME/EDAM Activation for TD 5/1	4/30	03:00 PT	SIBR receives MF data for TD 5/1 for DAME/EDAM
Begin Submission of DA bids for DAME/EDAM for TD 5/1+	4/30	03:00 PT to DAM Closure ~10:00 PT*	DA bids for TD 5/1+ can now include the new DAME/EDAM elements (IRU/IRD/RCU/RCD/TSR/GHG) DA bids can be submitted for TDs 5/1 thru 5/7 These will be the first submission of DAME/EDAM DA bids that will become financially binding upon the TD 5/1 DAM Closure
TD 5/1 DAM Closure	4/30	~10:00 PT*	This will make the first financially binding DAME/EDAM DA bids for bids with new DAME/EDAM elements submitted from 4/30 03:00 PT
TD 5/1 DAM Publication	4/30	~13:00 PT*	
TD 5/1 SIBR RTM opens	4/30	~13:00 PT*	Dependent on TD 5/1 DAM Publication
First TD 5/1 RTM Closure – HE01	4/30	22:45	This will make the first financially binding DAME/EDAM RT bids for bids with new DAME/EDAM elements submitted from 4/30 ~13:00 PT

SIBR – DAM

- 04/24 thru 4/30 03:00 PT: DAM horizon includes TDs 05/01+, but DA bids should not include new DAME/EDAM data
- 04/30 03:00 PT: DAM bids can now include new DAME/EDAM data
- 04/30 ~10:00 PT: TD 5/1 DAM Closure*
- 04/30 ~13:00 PT: TD 5/1 DAM Publication*
- 04/30 after DAM Publication: TD 5/1 RTM Opens

	Market	Date	Closure	D1 TD	D2 TD	D3 TD	D4 TD	D5 TD	D6 TD	D7 TD
SIBR	DAM	04/23/26	10:00	04/24/26	04/25/26	04/26/26	04/27/26	04/28/26	04/29/26	04/30/26
SIBR	DAM	04/24/26	10:00	04/25/26	04/26/26	04/27/26	04/28/26	04/29/26	04/30/26	05/01/26
SIBR	DAM	04/25/26	10:00	04/26/26	04/27/26	04/28/26	04/29/26	04/30/26	05/01/26	05/02/26
SIBR	DAM	04/26/26	10:00	04/27/26	04/28/26	04/29/26	04/30/26	05/01/26	05/02/26	05/03/26
SIBR	DAM	04/27/26	10:00	04/28/26	04/29/26	04/30/26	05/01/26	05/02/26	05/03/26	05/04/26
SIBR	DAM	04/28/26	10:00	04/29/26	04/30/26	05/01/26	05/02/26	05/03/26	05/04/26	05/05/26
SIBR	DAM	04/29/26	10:00	04/30/26	05/01/26	05/02/26	05/03/26	05/04/26	05/05/26	05/06/26
SIBR	DAM	04/30/26	03:00	05/01/26	05/02/26	05/03/26	05/04/26	05/05/26	05/06/26	05/07/26
SIBR	DAM	04/30/26	10:00	05/01/26	05/02/26	05/03/26	05/04/26	05/05/26	05/06/26	05/07/26
SIBR	DAM	05/01/26	10:00	05/02/26	05/03/26	05/04/26	05/05/26	05/06/26	05/07/26	05/08/26
SIBR	DAM	05/02/26	10:00	05/03/26	05/04/26	05/05/26	05/06/26	05/07/26	05/08/26	05/09/26
SIBR	DAM	05/03/26	10:00	05/04/26	05/05/26	05/06/26	05/07/26	05/08/26	05/09/26	05/10/26
SIBR	DAM	05/04/26	10:00	05/05/26	05/06/26	05/07/26	05/08/26	05/09/26	05/10/26	05/11/26
SIBR	DAM	05/05/26	10:00	05/06/26	05/07/26	05/08/26	05/09/26	05/10/26	05/11/26	05/12/26

SIBR – RTM

- 04/30 ~13:00 PT: TD 5/1 DAM Publication*
- 04/30 after DAM Publication: TD 5/1 RTM Opens for HE01-24
- 04/30 22:45: First TD 5/1 RTM Closure, TD 5/1 HE01
- 05/01 21:45: Last TD 5/1 RTM Closure, TD 5/1 HE24

Market	Date	Closure	TD	HE	RT Submission Thru TD (HE01-HE24)
RTM	04/30/26	12:45	04/30/26	15	04/30/26
RTM	**04/30/26 ~1300**		**05/01/26**	**01-24**	**05/01/26**
RTM	04/30/26	13:45	04/30/26	16	05/01/26
RTM	04/30/26	14:45	04/30/26	17	05/01/26
RTM	04/30/26	15:45	04/30/26	18	05/01/26
RTM	04/30/26	16:45	04/30/26	19	05/01/26
RTM	04/30/26	17:45	04/30/26	20	05/01/26
RTM	04/30/26	18:45	04/30/26	21	05/01/26
RTM	04/30/26	19:45	04/30/26	22	05/01/26
RTM	04/30/26	20:45	04/30/26	23	05/01/26
RTM	04/30/26	21:45	04/30/26	24	05/01/26
RTM	**04/30/26**	**22:45**	**05/01/26**	**01**	**05/01/26**
RTM	05/01/26	23:45	05/01/26	02	05/01/26
RTM	05/01/26	00:45	05/01/26	03	05/01/26
RTM	05/01/26	01:45	05/01/26	04	05/01/26
RTM	05/01/26	02:45	05/01/26	05	05/01/26
RTM	05/01/26	03:45	05/01/26	06	05/01/26
RTM	05/01/26	04:45	05/01/26	07	05/01/26
RTM	05/01/26	05:45	05/01/26	08	05/01/26
RTM	05/01/26	06:45	05/01/26	09	05/01/26
RTM	05/01/26	07:45	05/01/26	10	05/01/26
RTM	05/01/26	08:45	05/01/26	11	05/01/26
RTM	05/01/26	09:45	05/01/26	12	05/01/26
RTM	05/01/26	10:45	05/01/26	13	05/01/26
RTM	05/01/26	11:45	05/01/26	14	05/01/26
RTM	05/01/26	12:45	05/01/26	15	05/01/26
RTM	**05/01/26 ~1300**		**05/02/26**	**01-24**	**05/02/26**
RTM	05/01/26	13:45	05/01/26	16	05/02/26
RTM	05/01/26	14:45	05/01/26	17	05/01/26
RTM	05/01/26	15:45	05/01/26	18	05/01/26
RTM	05/01/26	16:45	05/01/26	19	05/01/26
RTM	05/01/26	17:45	05/01/26	20	05/01/26
RTM	05/01/26	18:45	05/01/26	21	05/01/26
RTM	05/01/26	19:45	05/01/26	22	05/01/26
RTM	05/01/26	20:45	05/01/26	23	05/01/26
RTM	**05/01/26**	**21:45**	**05/01/26**	**24**	**05/01/26**
RTM	05/01/26	22:45	05/02/26	01	05/02/26
RTM	05/01/26	23:45	05/02/26	02	05/02/26
RTM	05/01/26	00:45	05/02/26	03	05/02/26
RTM	05/01/26	01:45	05/02/26	04	05/02/26
RTM	05/01/26	02:45	05/02/26	05	05/02/26
RTM	05/01/26	03:45	05/02/26	06	05/02/26

SIBR APIs

- https://developer.caiso.com
- DAME/EDAM Services
  - SubmitRawBidSet
  - RetrieveCleanBidSet
  - RetrieveCurrentBidResults
  - **Use V5 Minor Version Revision for DAME/EDAM**
  - **The DAME/EDAM V5 Minor Version is backwards-compatible prior to SIBR activation 4/30 03:00 PT as long as new elements aren't populated (IRU/IRD/RCU/RCD/TSR/GHG); so customers can cutover APIs earlier than SIBR activation**

- No DAME/EDAM Modifications:
  - SubmitCBRawBidSet
  - RetrieveCBCleanBidSet
  - RetrieveCBCurrentBidResults
  - SubmitRawTradeSet
  - RetrieveTradeResults
  - RetrieveFinalTradeSet

RTM Transition

- For the April 30 to May 1 real-time transition, and consistent with ETSR Management procedures, real-time market operators will lock ETSRs for the midnight cutover and subsequently coordinate the orderly reopening of transfers.
- WEIM entities: Please limit ED or Commitment overrides or FG activation or conformances updates for transition over to 5/1
- There will be a loss of 1 STUC, 1 RTPD and 1 RTD

- BAAOP UI Activation
  - Outage of 5-7 minutes 4/30 23:47-23:55
  - **Action: Log out of BAAOP UI & Log back in after 23:55**

- Lock ETSRs 4/30
  - STUC @ 22:00
  - RTPD @ 22:10
  - RTD @ IE 22:50

- First DAME/EDAM RTM runs
  - RTBS @ 22:46
  - HASP @ 22:52
  - STUC @ 23:08
  - RTPD @ 23:36
  - RTD @ 23:52

REFERENCE:

CONFIGURABLE PARAMETERS PLAN FOR GO-LIVE

Configurable Parameters - Action plan for Go-live

- With uncertainties that cannot be quantified due to the lack of sufficient and reliable data prior to Go-Live, the ISO proposes a two-phased approach:

First phase. Go-live with a conservative setup to limit potential unintended and unexpected outcomes

Second phase. Adjust the set-up of parameters as needed based on assessment with actual operational data at any time after go-live

- The ISO will closely assess the market performance and the parameters impacts using actual data

- Like other implementation efforts, this two-phase implementation strategy allows for a phased-in learning/transitional period

Configurable Parameters - Two-phase plan for go-live

	Two-Phase Plan	
Parameter	First phase (Go-live, May 2026)	Second Phase (Flexible)
Set of enforced constraints for imbalance reserves	Enforce only flowgates and nomograms	Assess if all constraints can be enforced
Bid cap at $55	Value at $55 per tariff	Based on first phase, adjust as needed (Requires Tariff changes)
Default bid at $55	Value at $55 per tariff	Based on first phase, adjust as needed (Requires Tariff changes)
Deployment factor	Value at 45%	Based on first phase, adjust as needed
Envelope multiplier	Value at 45% for imbalance reserves, Value at 100% for reliability capacity	Based on first phase, adjust as needed
Imbalance reserve requirements	Value at $90^{th}/10^{th}$	Based on first phase, adjust as needed

Configurable Parameters - Plan to move into the second phase

Based on all factors to consider and participants' feedback, the ISO revised the approach to use a more flexible and adaptive schedule for entering the second phase.

- Any decision will be driven by evidence from market performance.
- Rather than expecting a fixed schedule to change all parameters at once, use a more flexible schedule based on identified need and evidence.
- The ISO commits to ongoing assessment of parameters and hold regular check points to propose and discuss any changes.
- Maintain the flexibility to adjust parameters if market outcomes warrant the need for it at any time after go-live.

Questions

Fall 2026

- EDAM PGE
  - Market Simulation in MAP-Stage now thru 5/31/26
  - Parallel Operations in Stage starts 6/1/26 thru 9/15/26
  - Production Activation TD 10/1/26

2026

FERC 881 Track 2

FERC 881 Track 3

Transmission Service & Market Scheduling Priorities - Phase 2

FERC Order 2023 Generator Interconnection Life Cycle

Subscriber PTO Model

Transmission Exchange Agreement Renegotiation

Next Forum:

July 30, 2026

**Tentative until confirmed though a in the ISO's Daily Briefing*

For reference

Visit user group webpage for more information: https://www.caiso.com/meetings-events/topics/market-performance-and-planning-forum

If you have any questions, please contact Brenda Marquez at bmarquez@caiso.com or isostakeholderaffairs@caiso.com

Energy Matters blog provides timely insights into ISO grid and market operations as well as other industry-related news.

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Story | Leadership, Inside the California ISO

Stakeholder Symposium Registration and Sponsorship Opportunities Opening in May

By Joanne Serina

04/15/2026

Story | Inside the California ISO, Markets

Frequency Band, a new podcast keeping the beat at 60 Hertz

By ISO Staff

03/30/2026

Story | Summer conditions, Markets

Summer readiness activities are well underway

03/17/2026

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Appendix
General Metrics

BPM change management: Definitions and Acronyms BPM Declassified as BPM

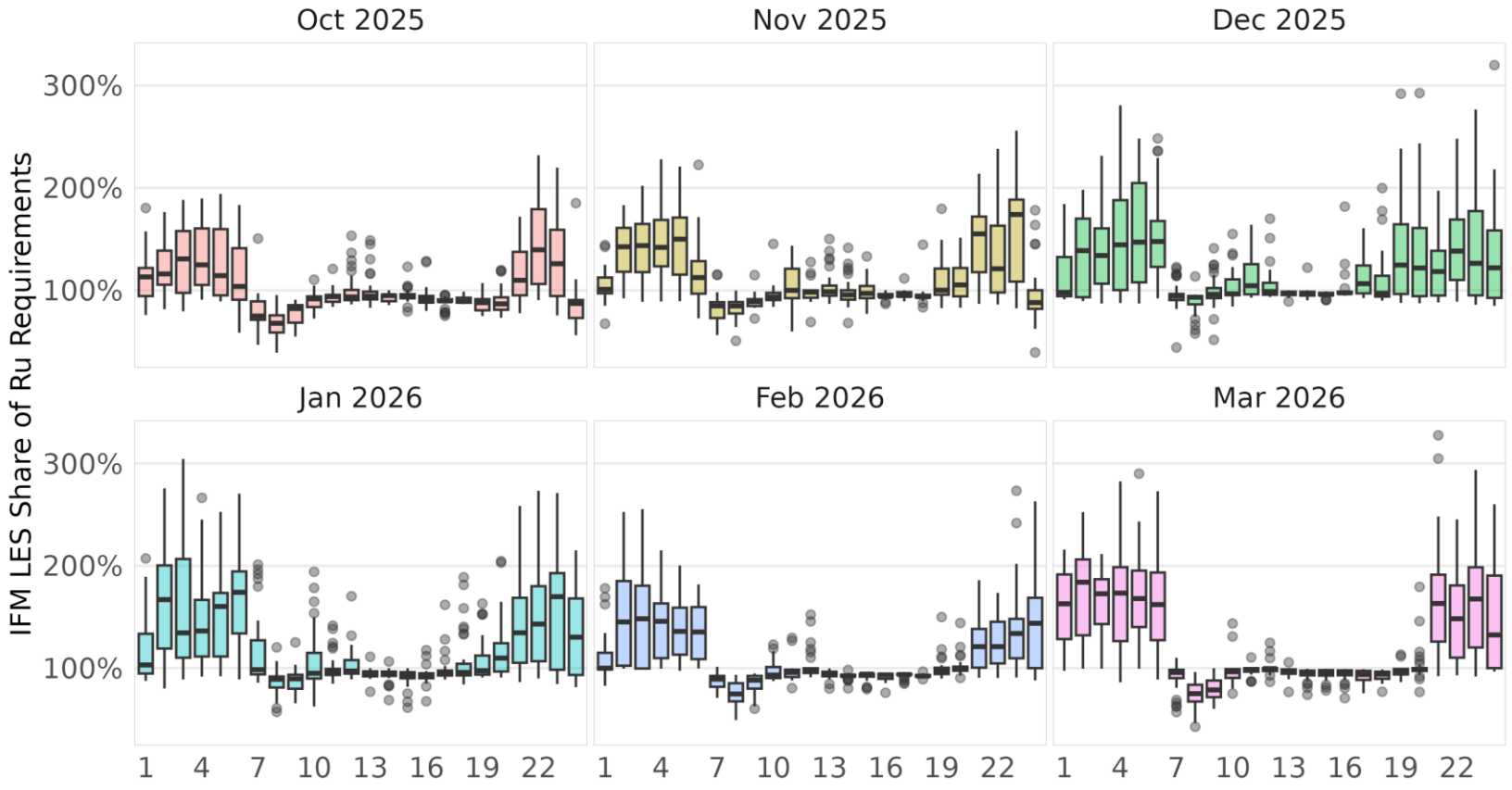
- The California ISO announces the declassification of the Definitions and Acronyms Business Practice Manual (BPM) with updated link on how to find ISO definitions and acronyms.

  The Definitions and Acronyms BPM previously served as a consolidated reference for all definitions and acronyms in the ISO Tariff and other BPMs.

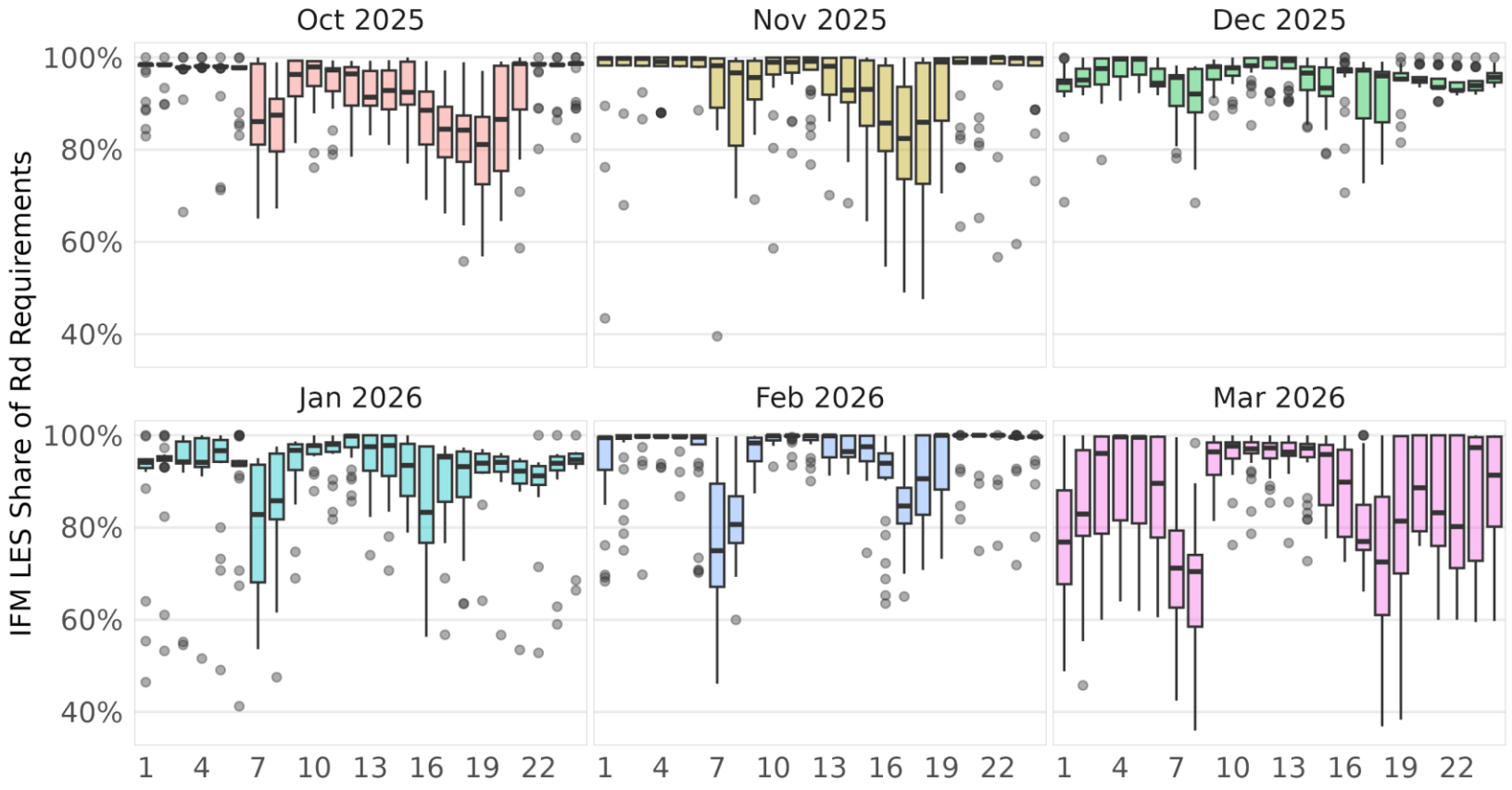
  A link to the ISO glossary is now available in the BPM Library, where you can find the most current definitions and acronyms formerly included in the Definitions and Acronyms BPM. Definitions and acronyms will also remain accessible within the individual BPMs.

  For more information about the BPM Change Management process, please visit the BPM webpage on the ISO website.
- Glossary | California ISO

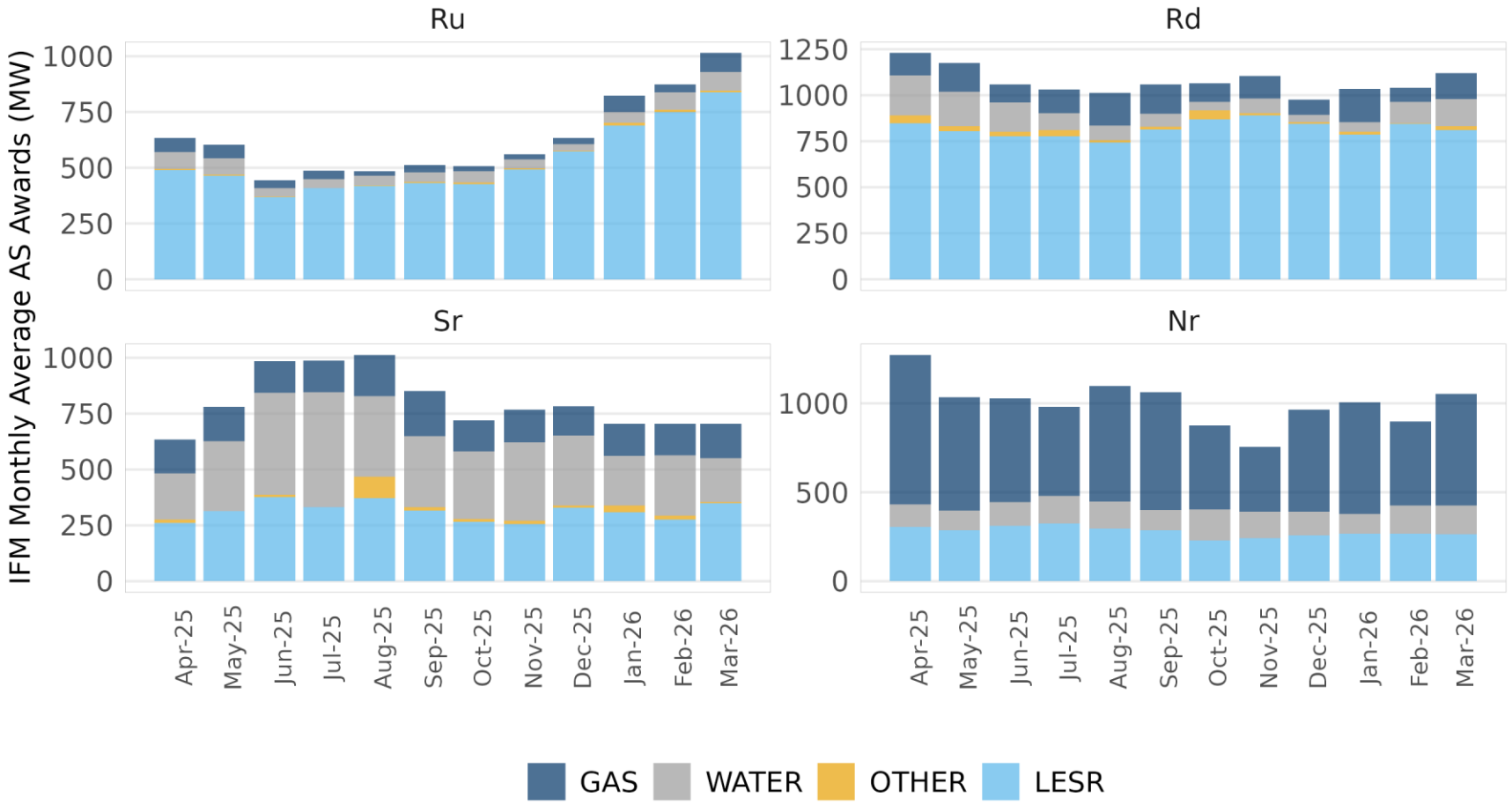
The hourly profile of the LESR percentage share of the Ru requirement increases in Q1 2026



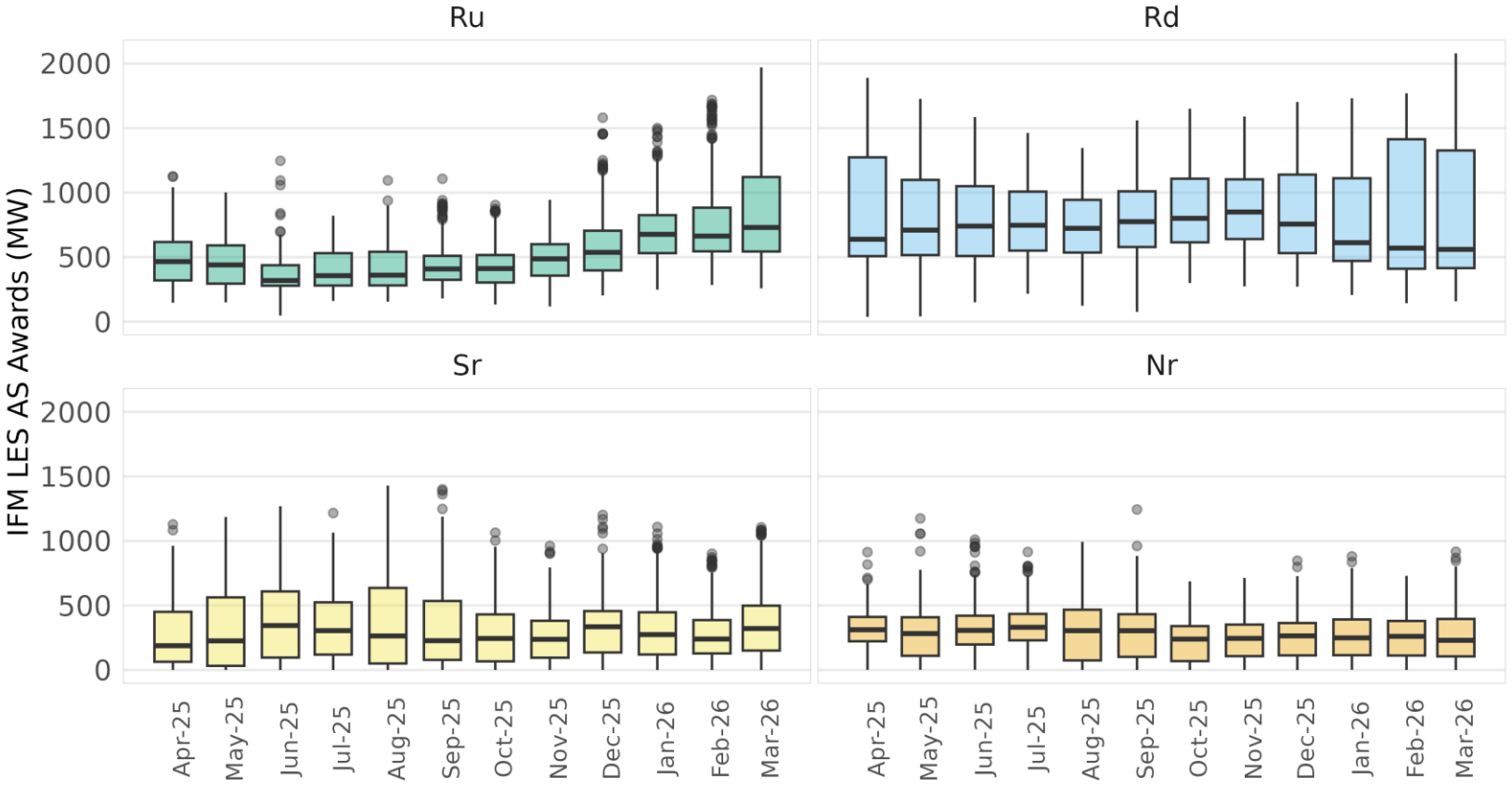
The hourly profile of the LESR percentage share of the Rd requirement decreases in Q1 2026



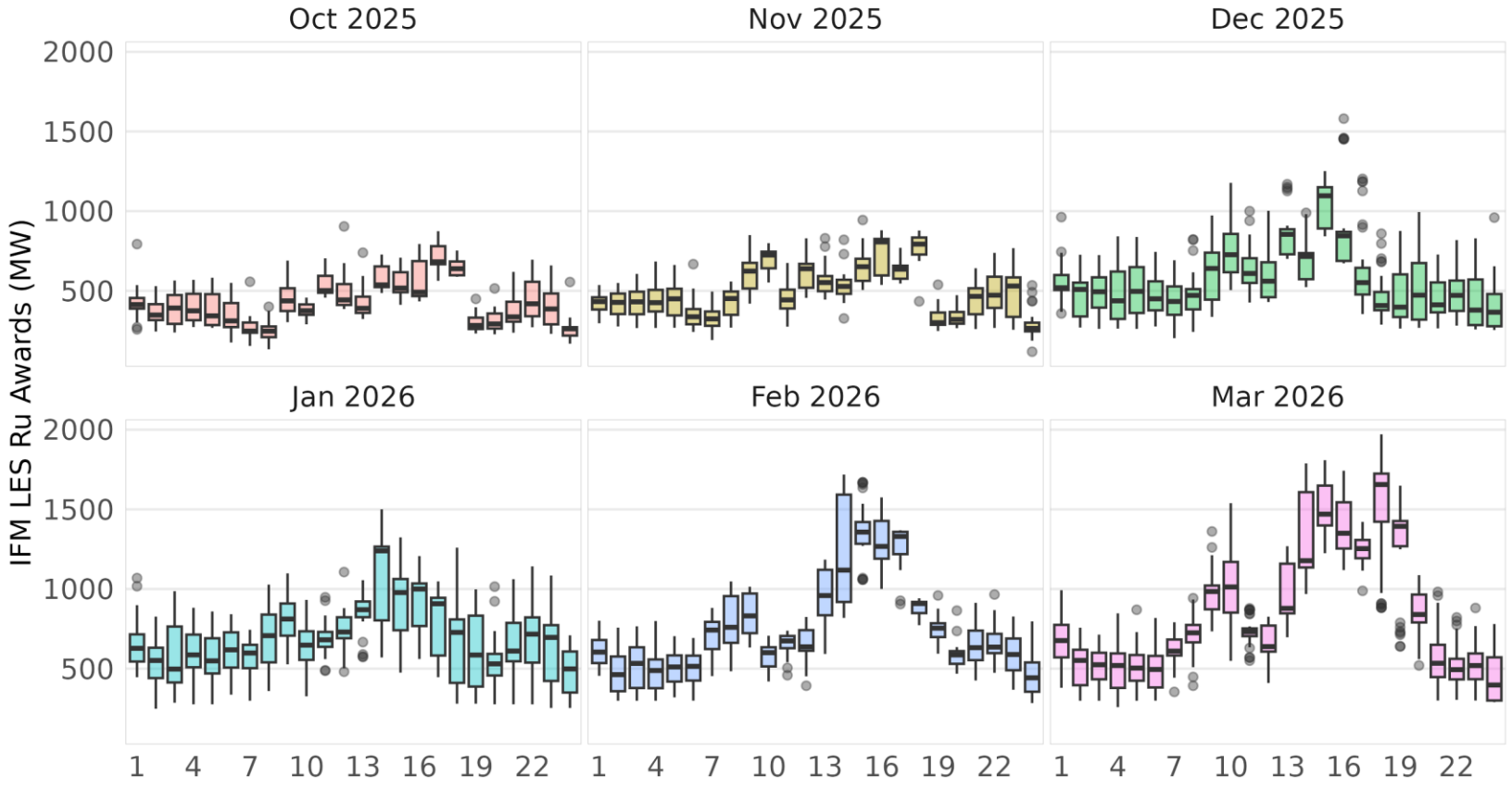
Monthly average IFM AS awards for storage shows slight reduction in Sr and increase in Ru in Q1 2026.



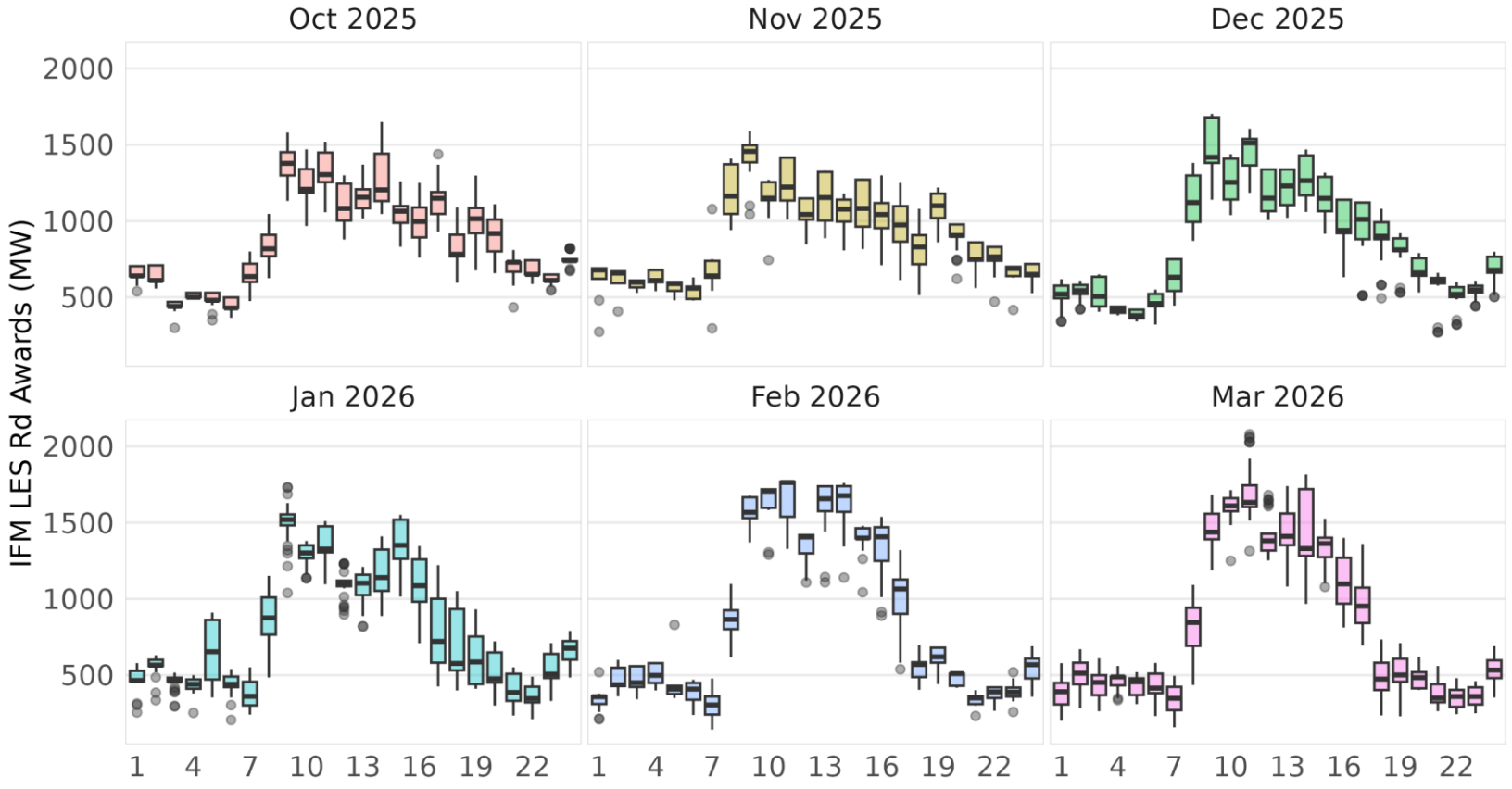
Monthly IFM AS market awards show increase in Ru, no significant change in Rd/Sr/Nr in Q1 2026



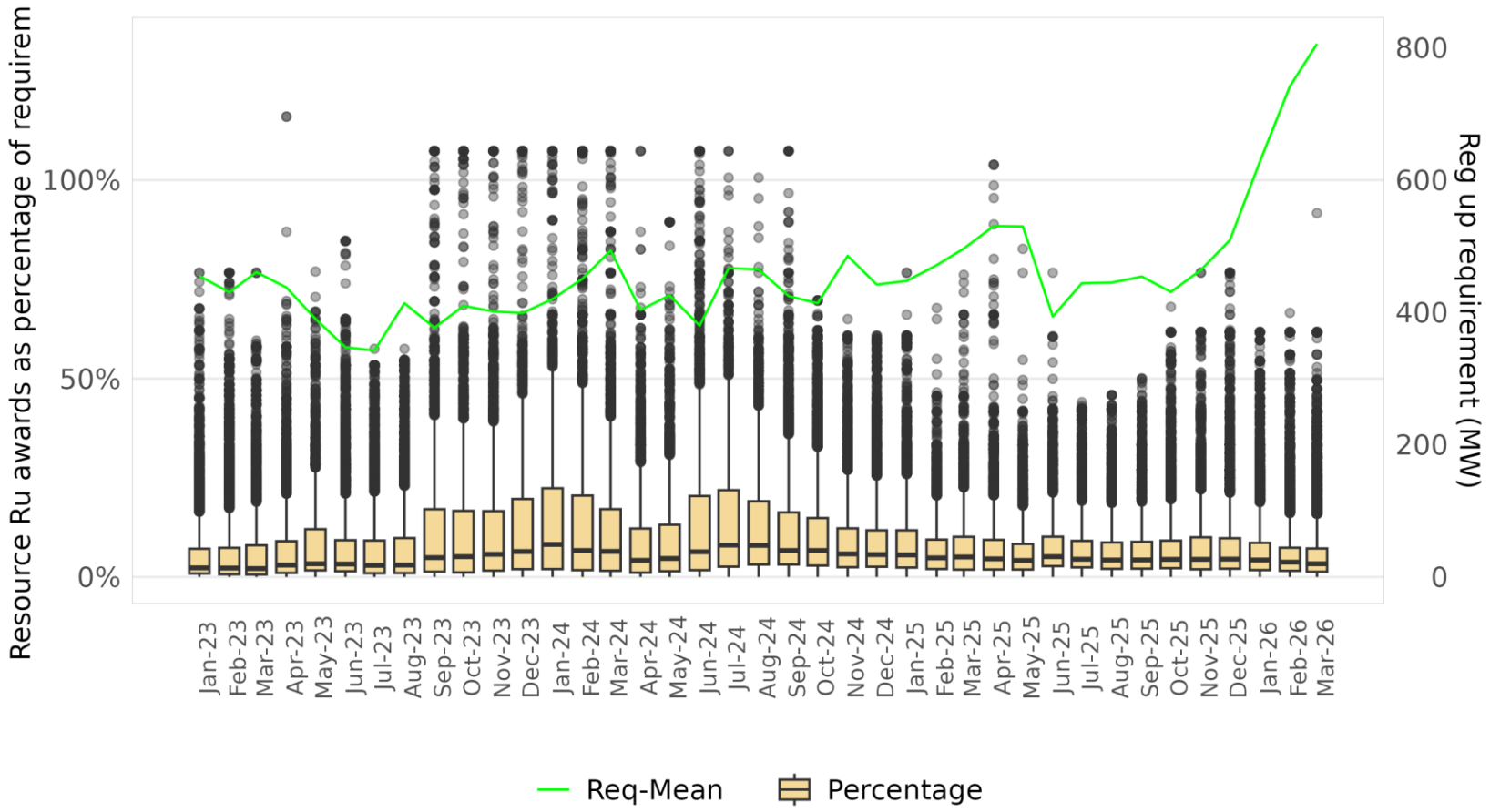
Regulation up awards in the day-ahead market have seen an increase in Q1 2026



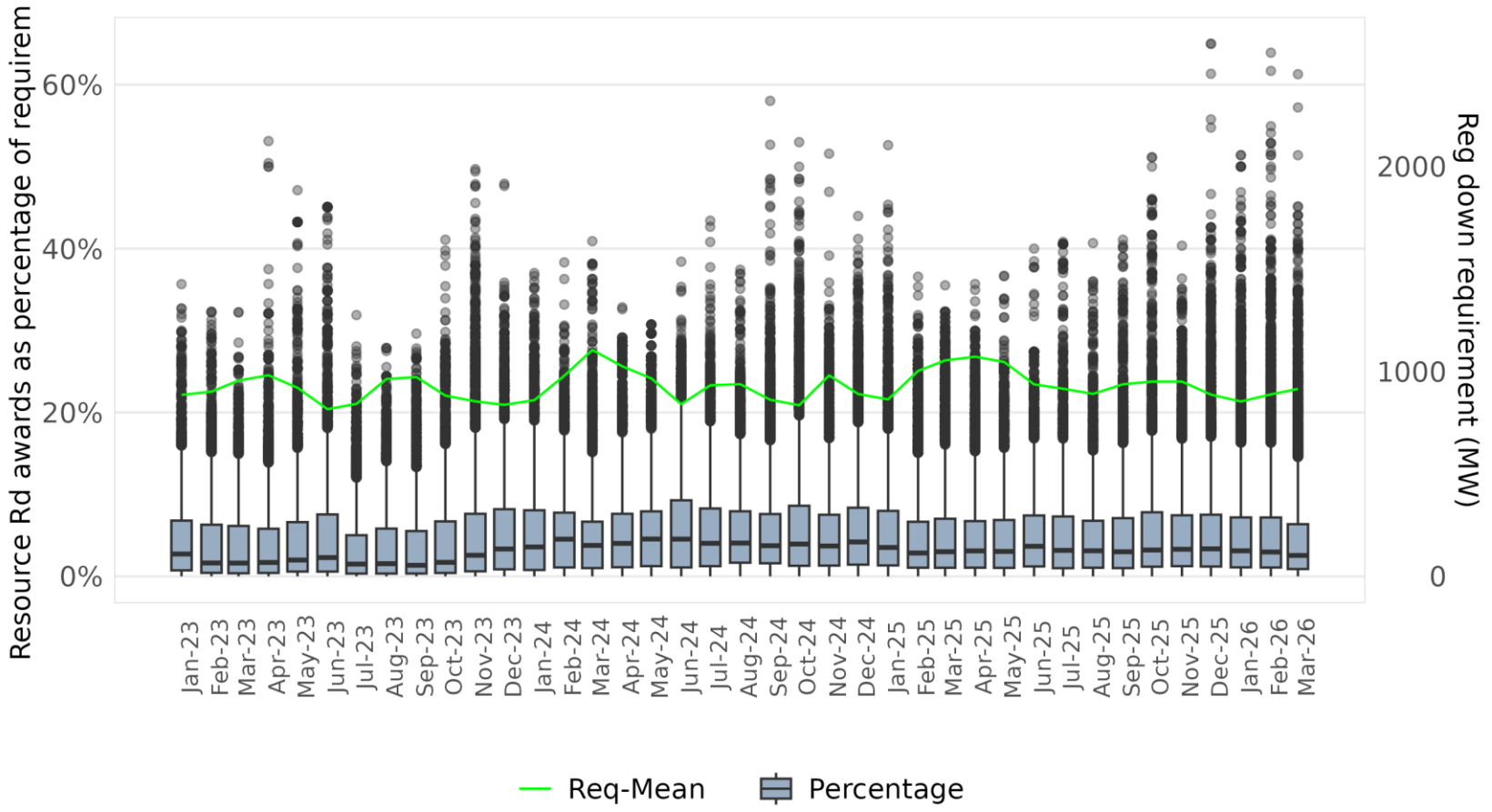
Regulation down awards in the day-ahead market have not seen a material change in trend in Q1 2026



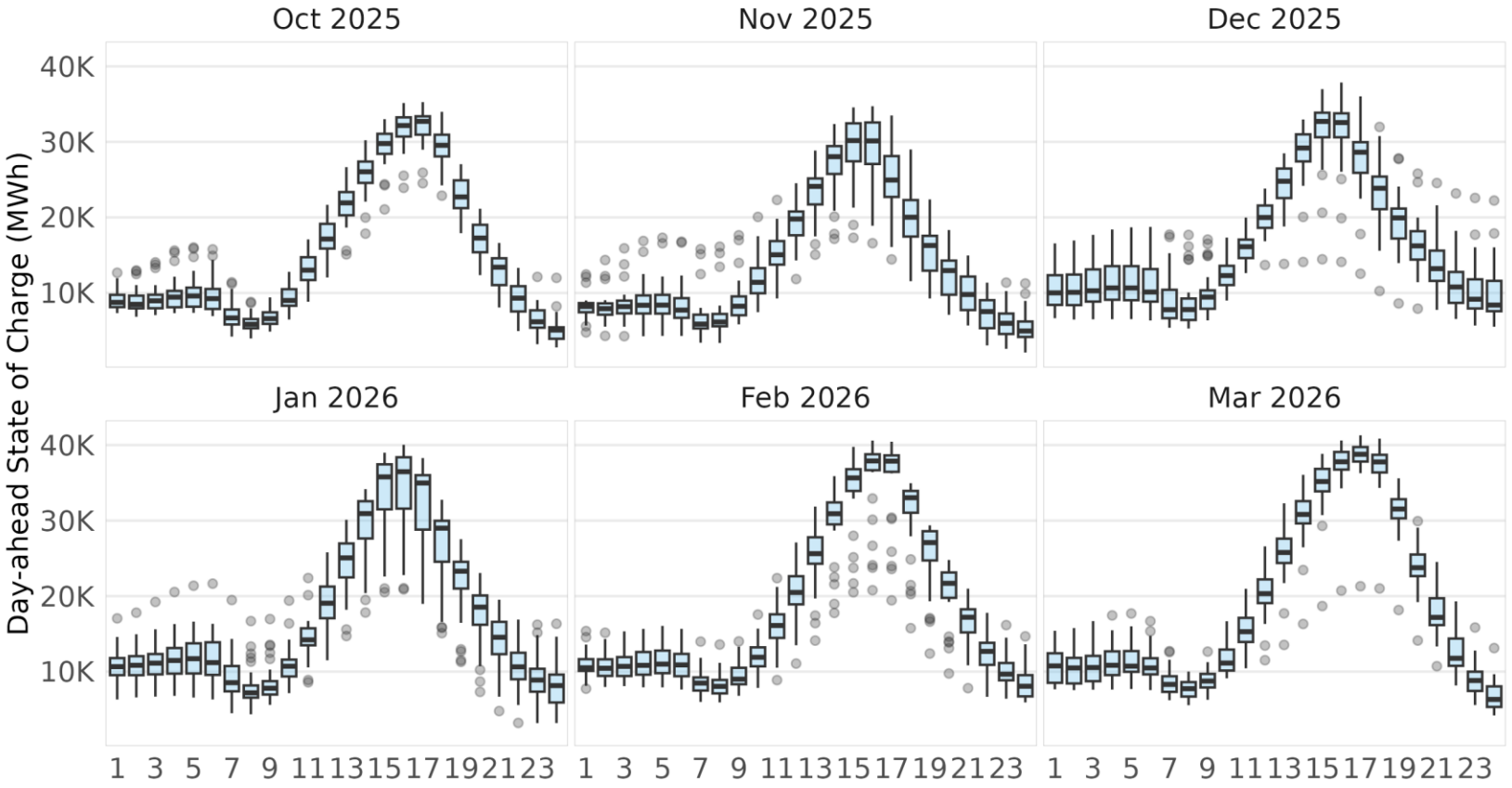
The relative size of Regulation award on individual resources tends to be within typical ranges



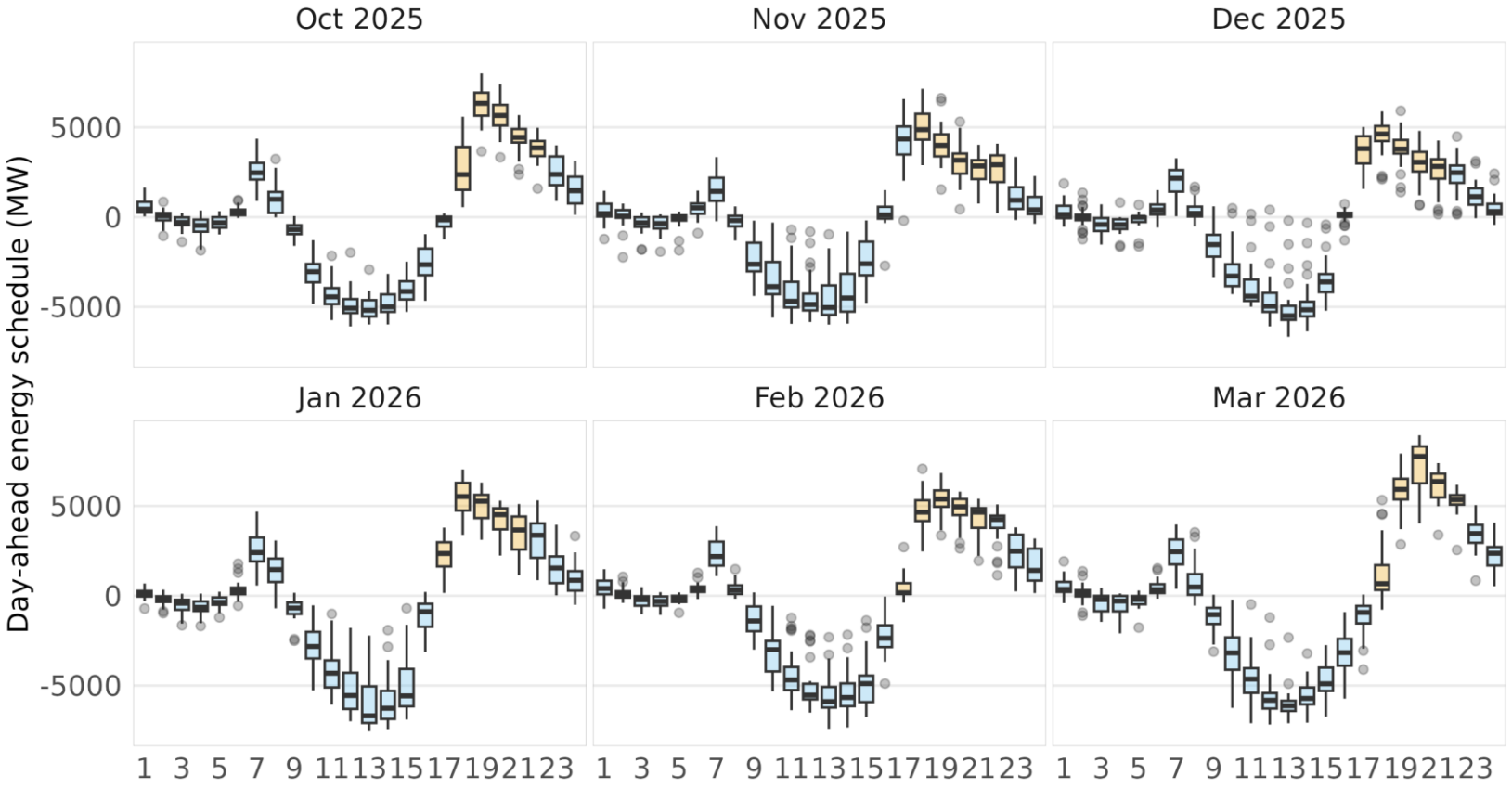
Resource Rd awards as percentage of Rd requirement sees not notable change in pattern with enhancements



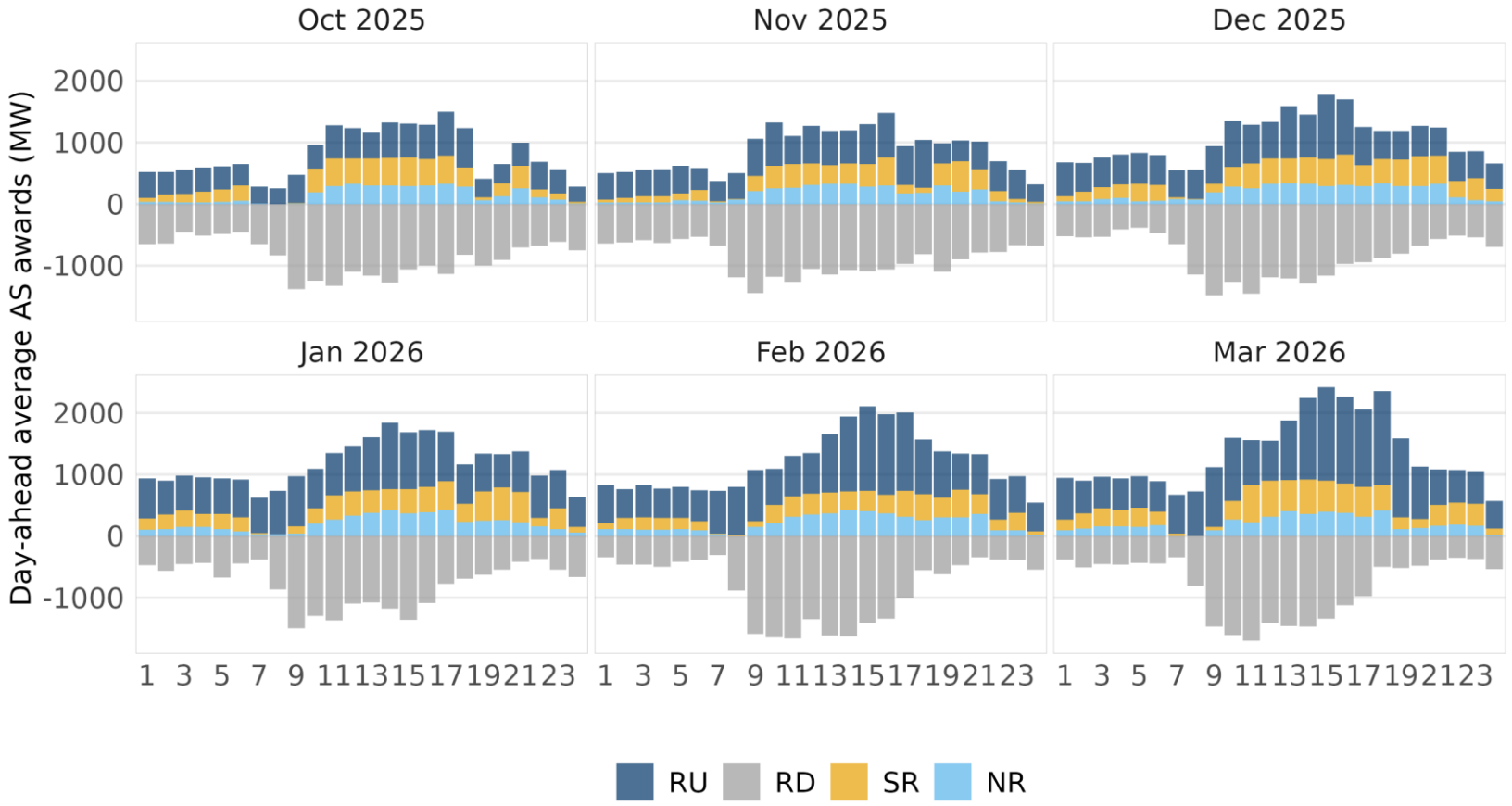
Day-Ahead state of charge for storage resources is typically achieved between hour ending 16 and 17



Storage resources were consistently charging during solar hours and discharging during net load peaks. Day-ahead

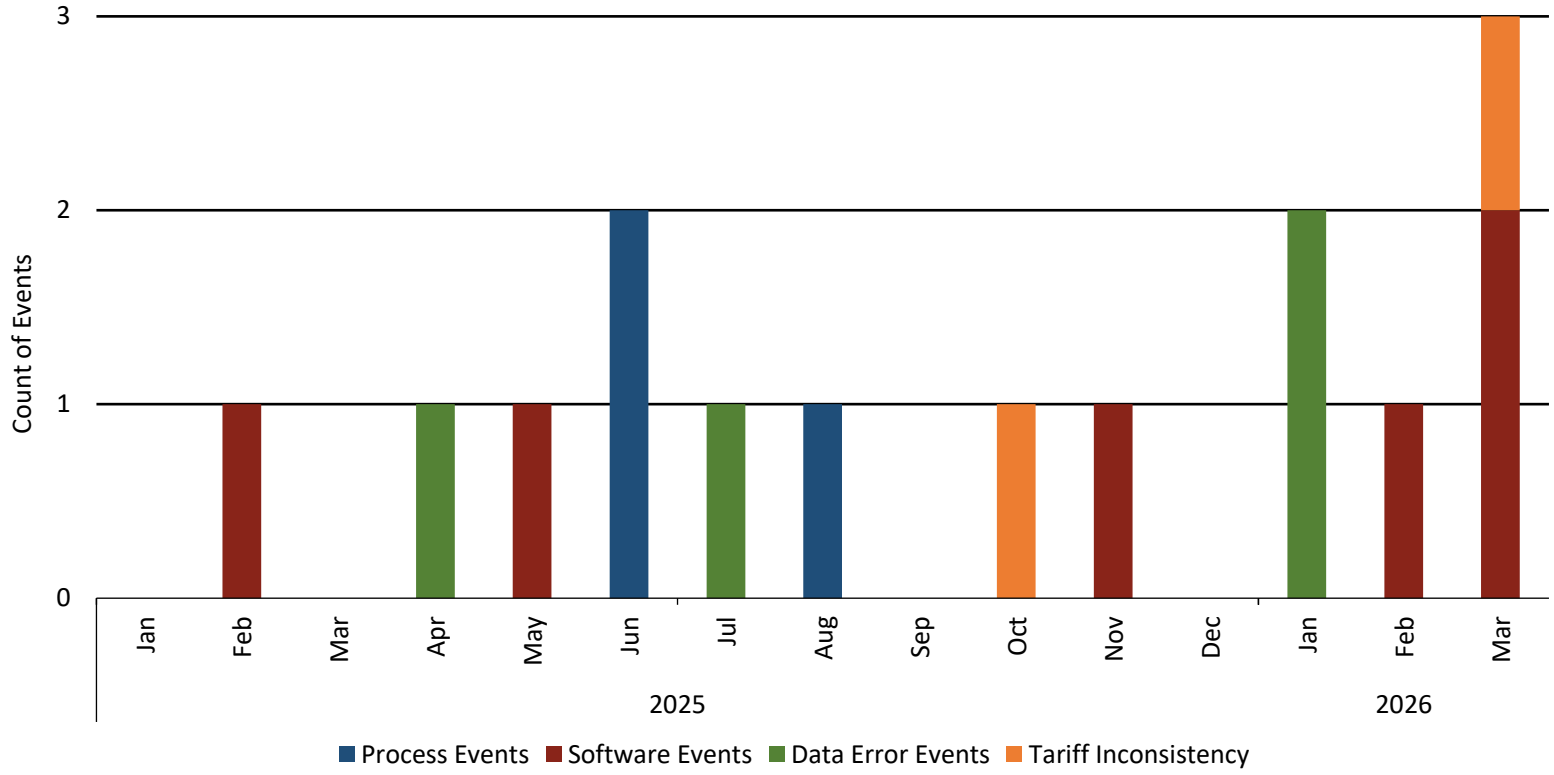


Storage resources procure mostly regulation while in recent months they have also increased the provision of Regulation reserves. Day-ahead

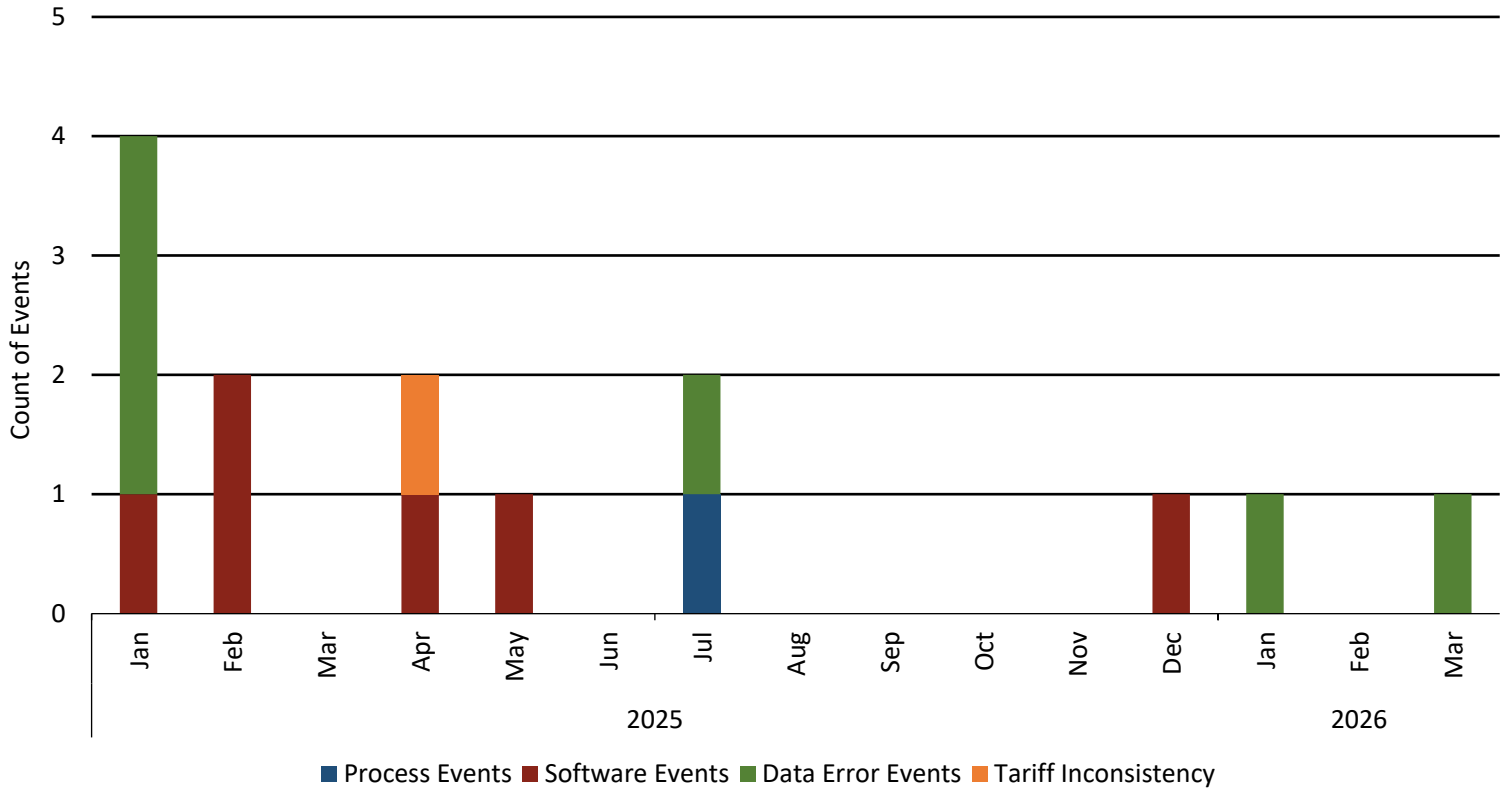


CAISO price correction events increased in March, mainly due to software issues.

- Mar 2: Invalid congestion on 7690-CONTRL-INYOKN_EXP_NG due to a software defect impacting price formation
- Mar 23: Invalid prices due to a software defect impacting power
- Mar 23: Invalid congestion on SUNZIA_ITC and PINALCENT500_ITC due to inconsistency with ISO Tariff

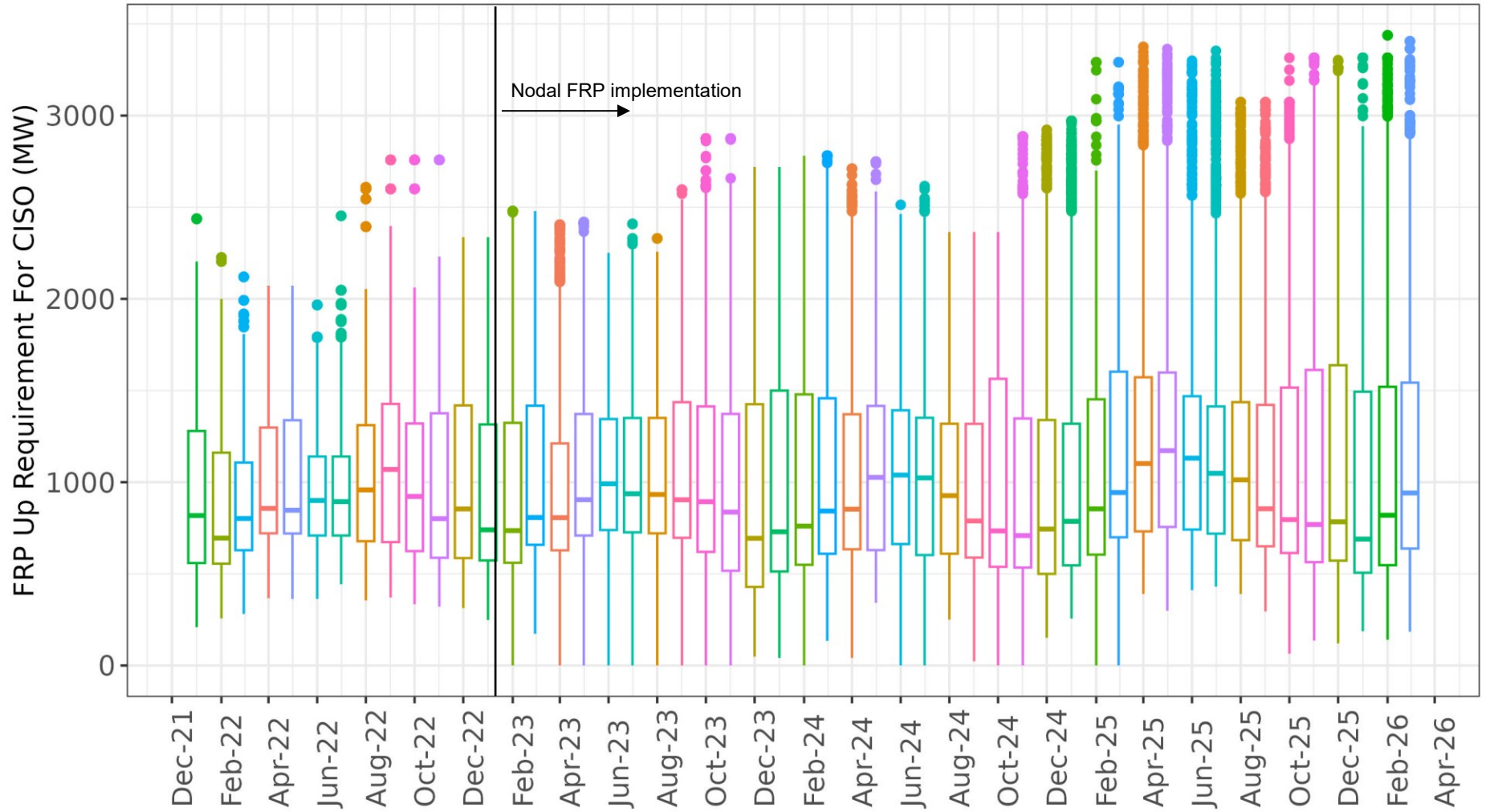


WEIM-related price correction events remain low

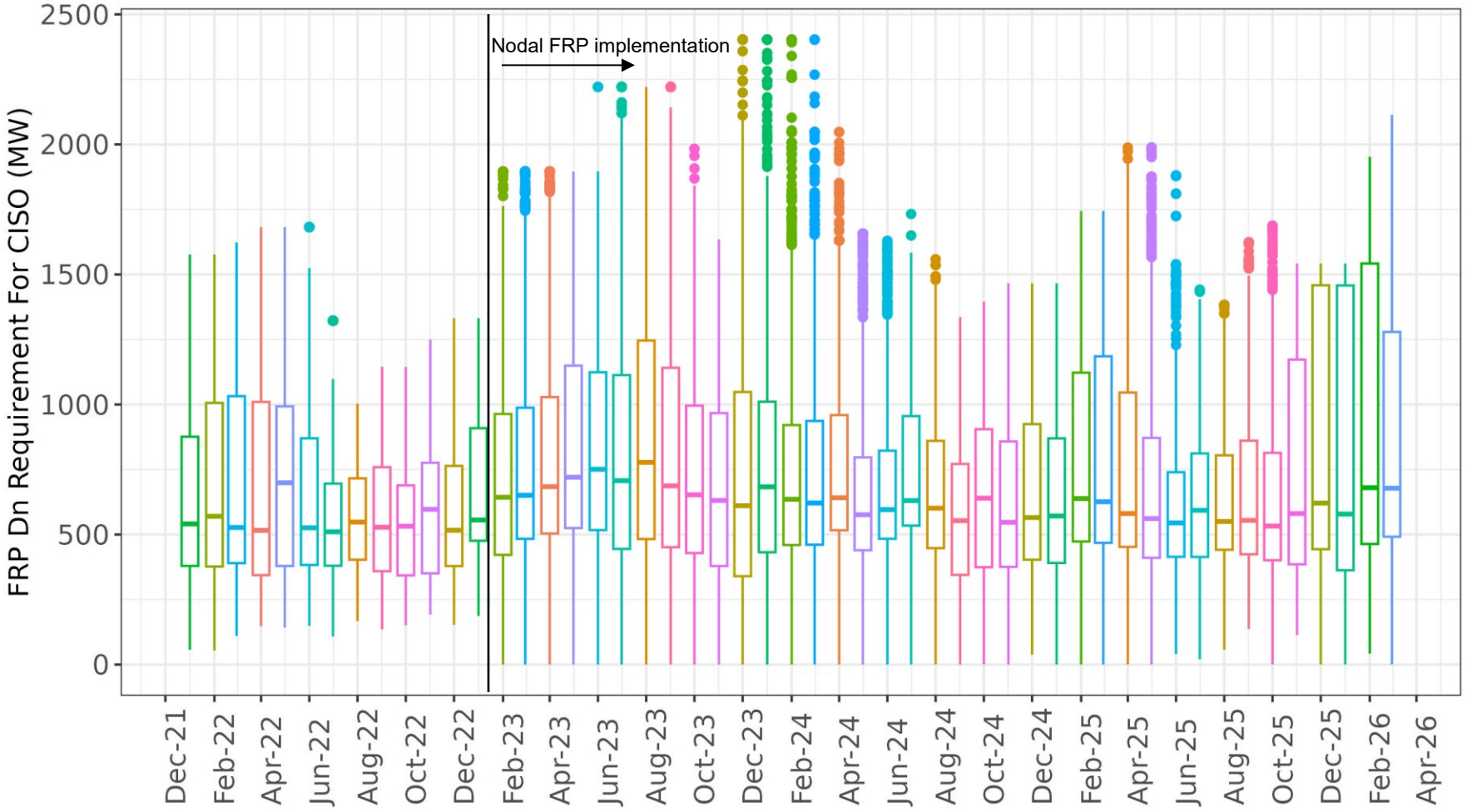


Flexible Ramping Product

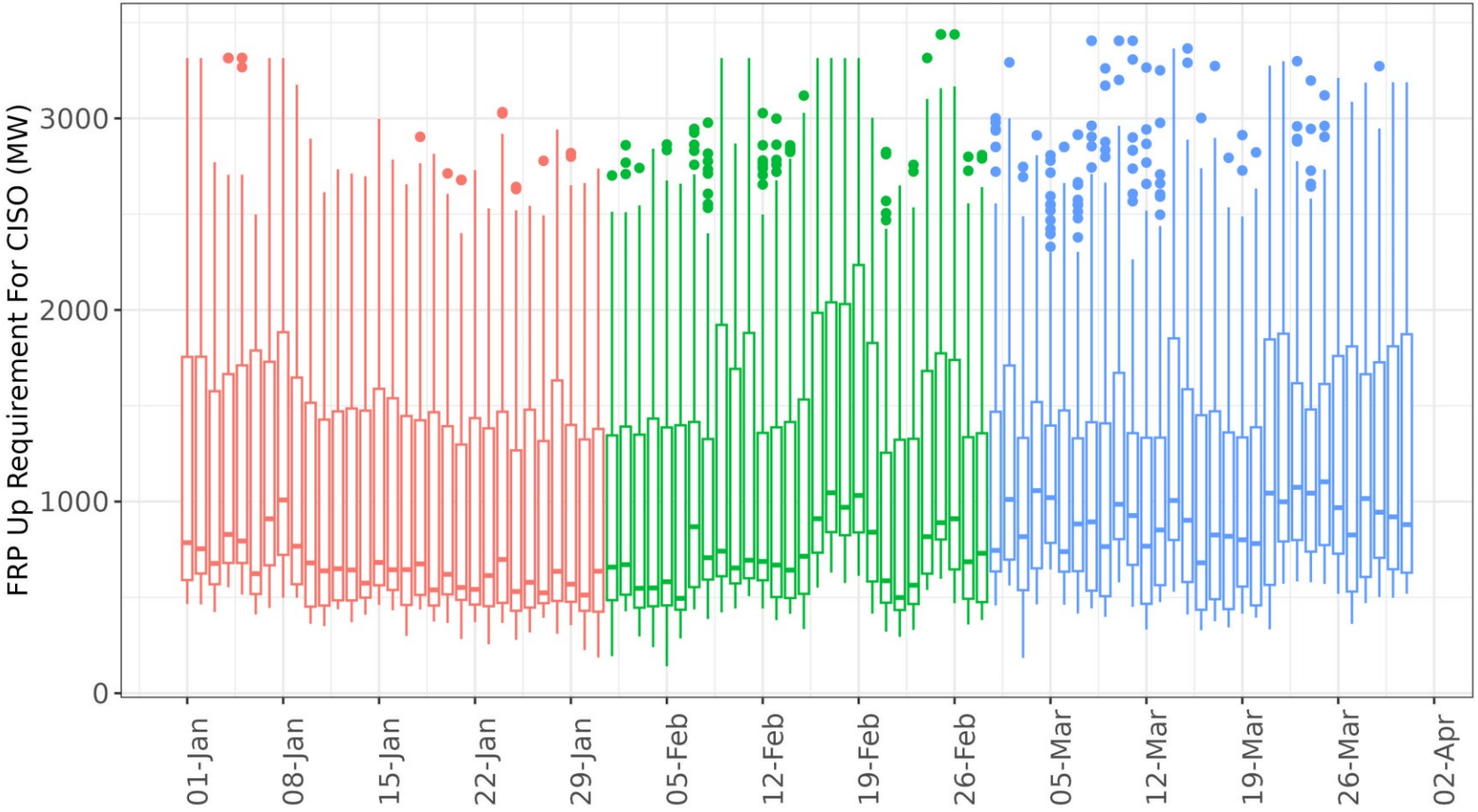
FRP Up Requirement averages for CAISO remain within typical ranges highest quartile has increased



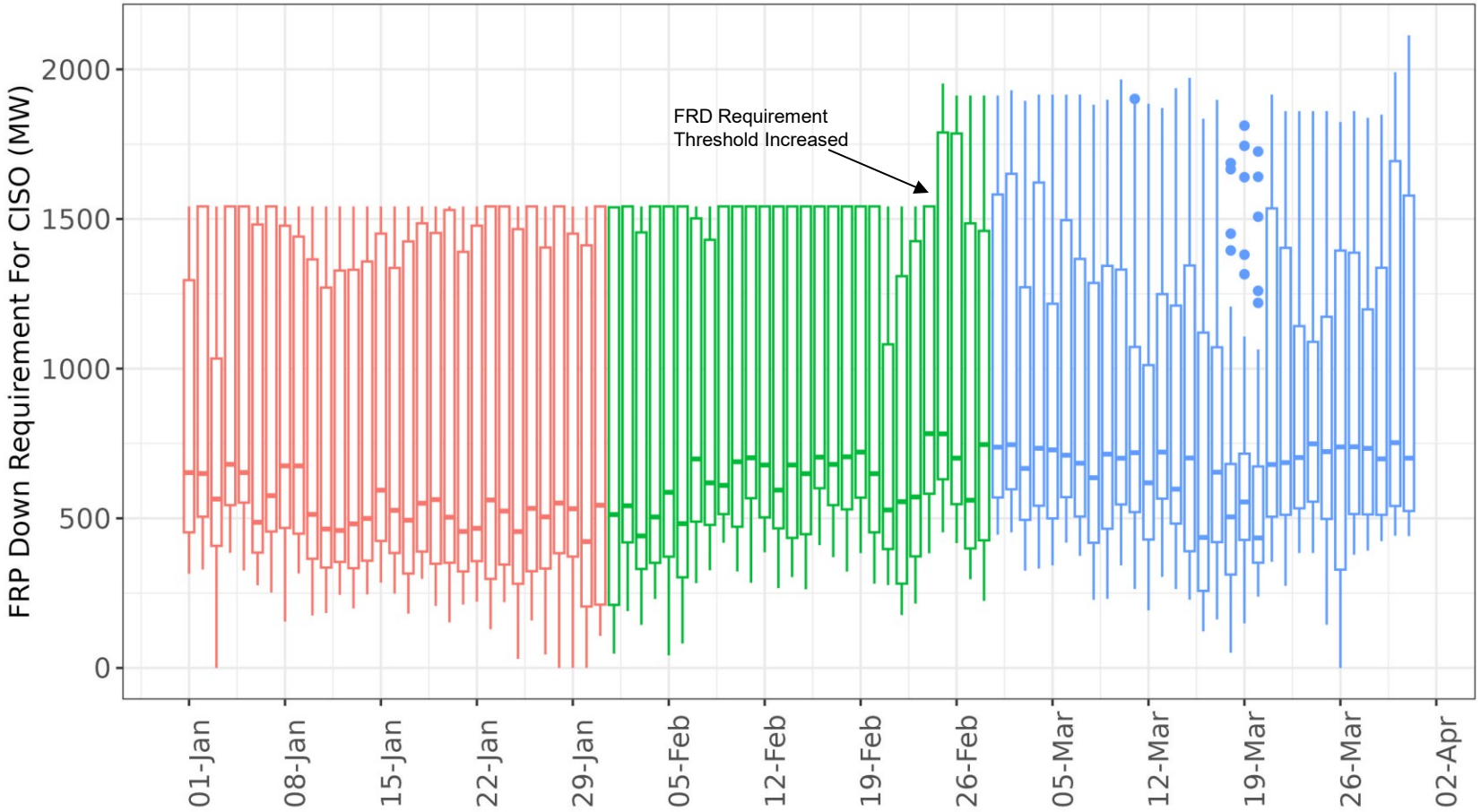
FRP Down Requirement averages remain within typical ranges but the thirds quartile has increased



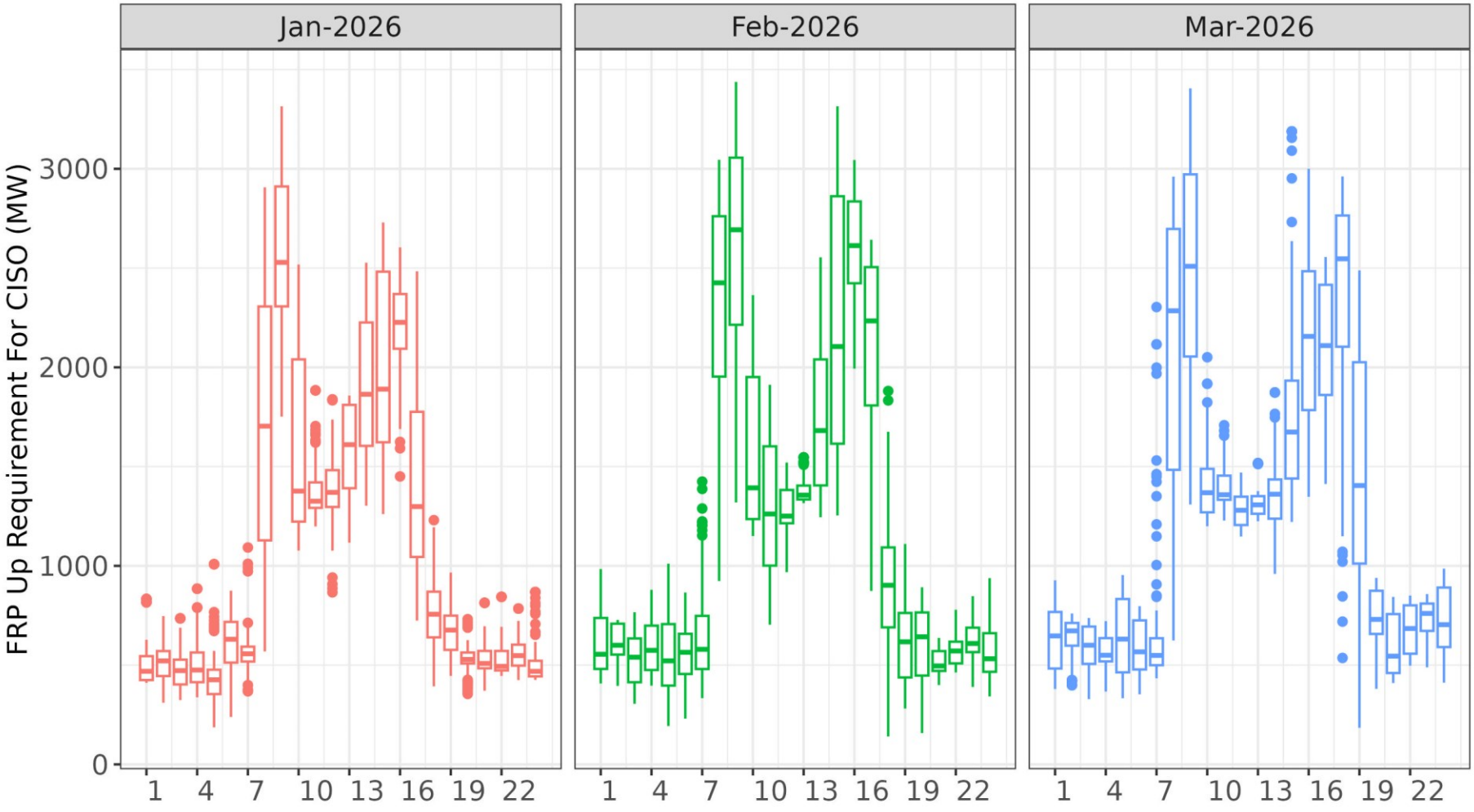
Daily distribution of FRP Up requirement for CAISO maintained a stable range but saw a small increase in the average in February and March



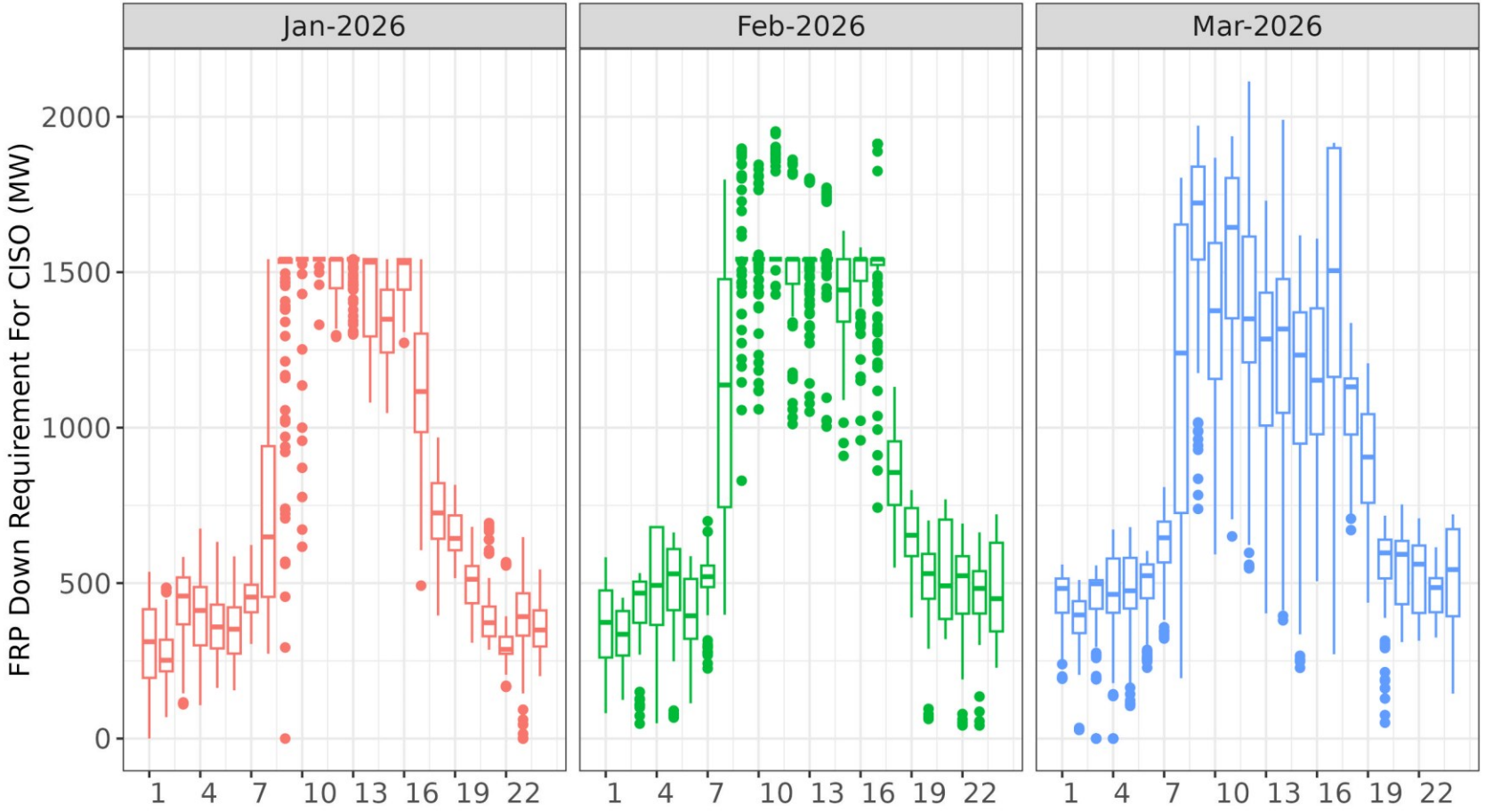
Daily distribution of FRP Down requirement has been higher in recent months, leading to an increase in the threshold which is calculated based on historical data



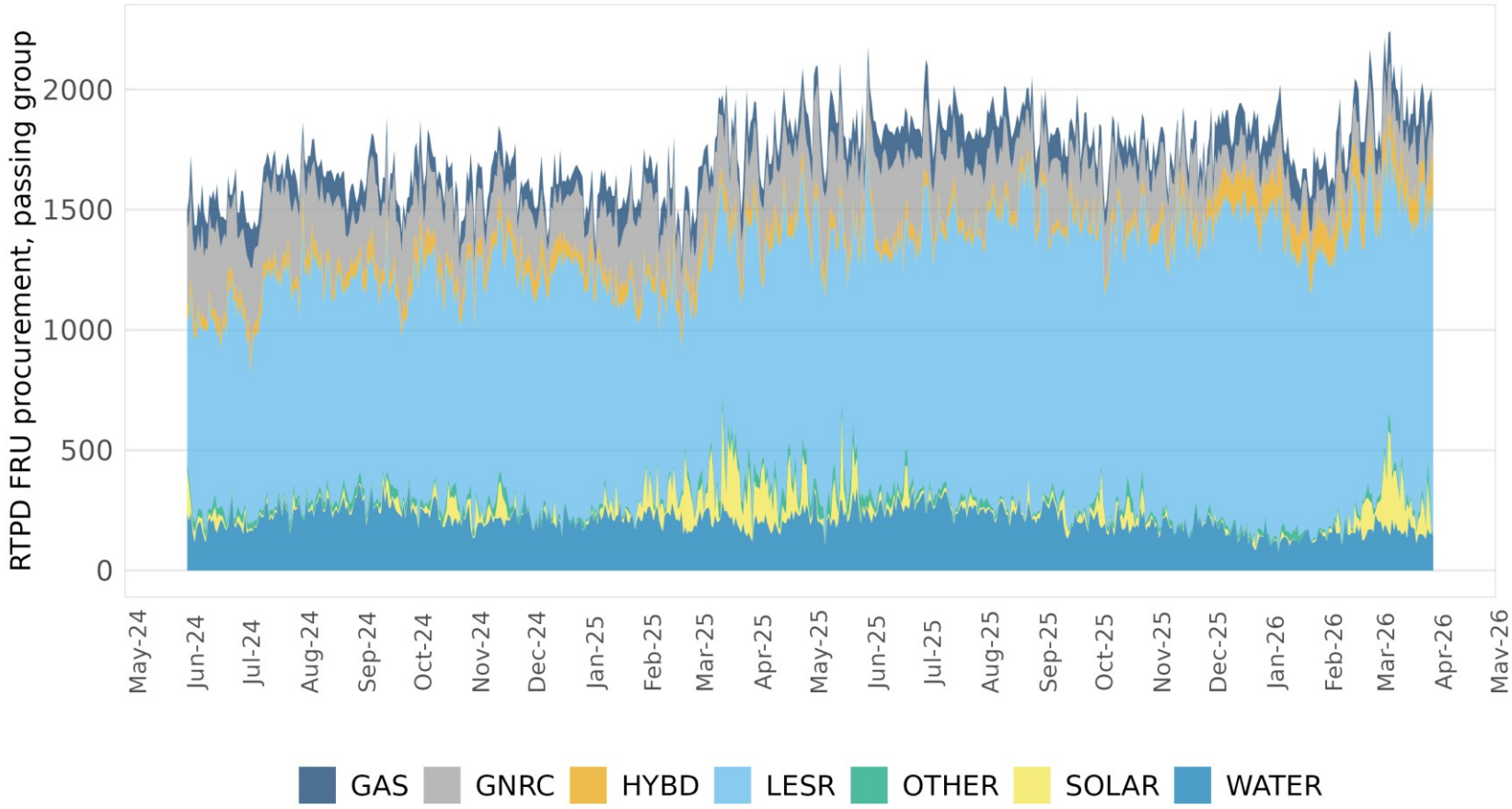
The hourly profile of upward FRP requirement tends to follow a pattern of morning and evening peaks



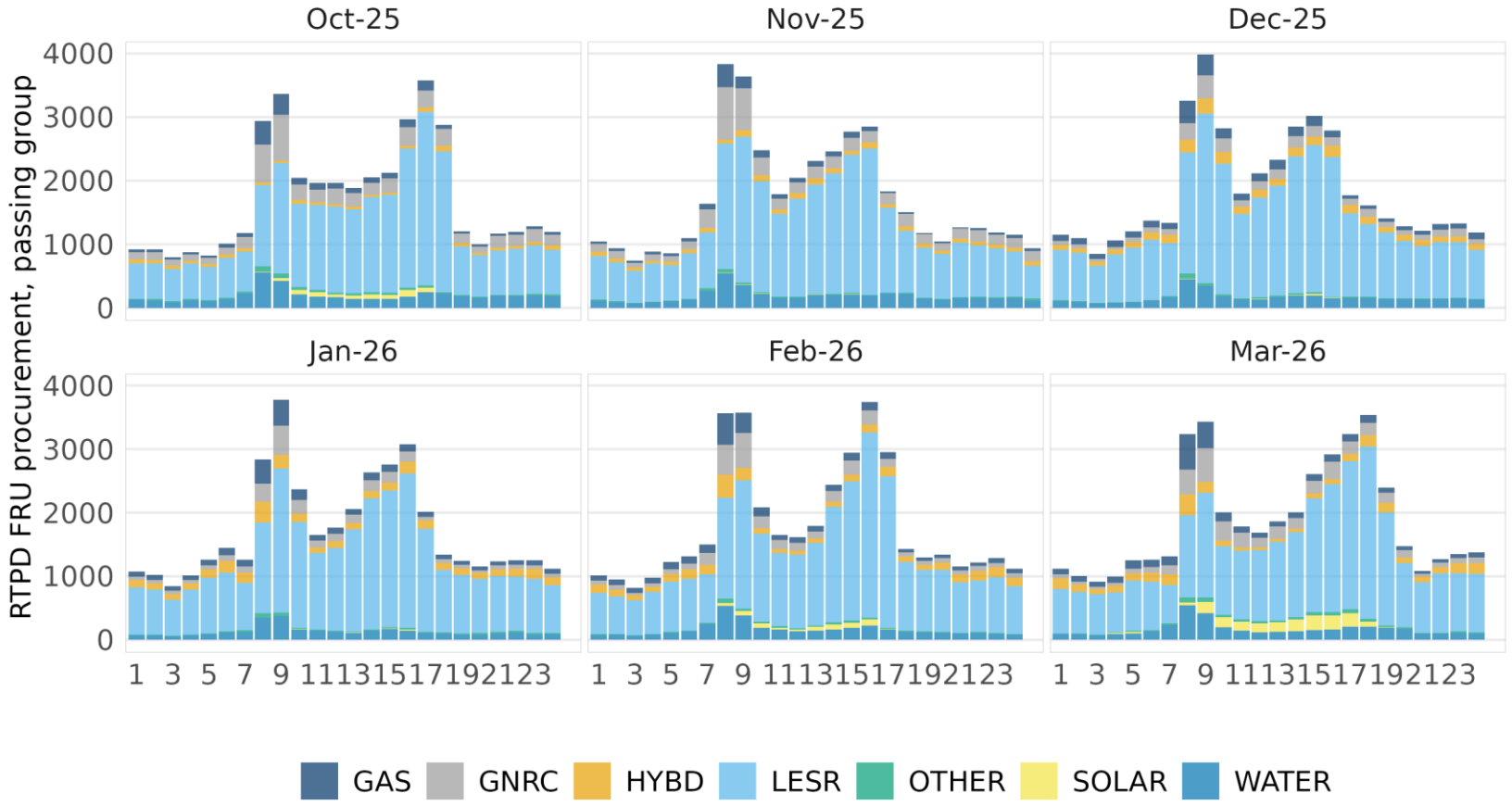
The hourly profile of downward FRP tends to have higher values in midday hours; In Jan and Feb the requirement frequently hit the threshold, then the threshold was raised



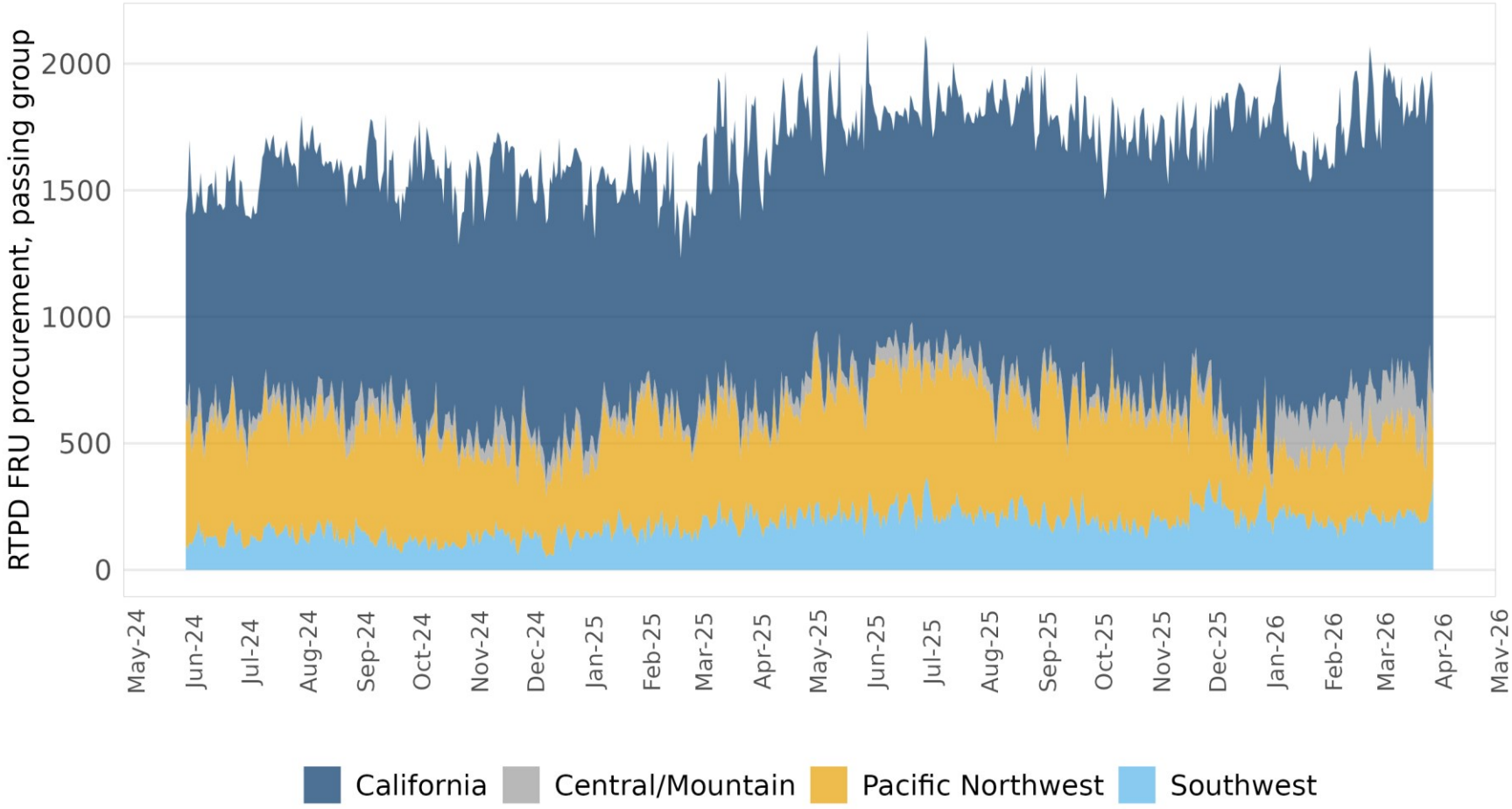
Upward FRP procurement is supported largely by storage resources; March 2026 saw a spike in procurement from solar resources



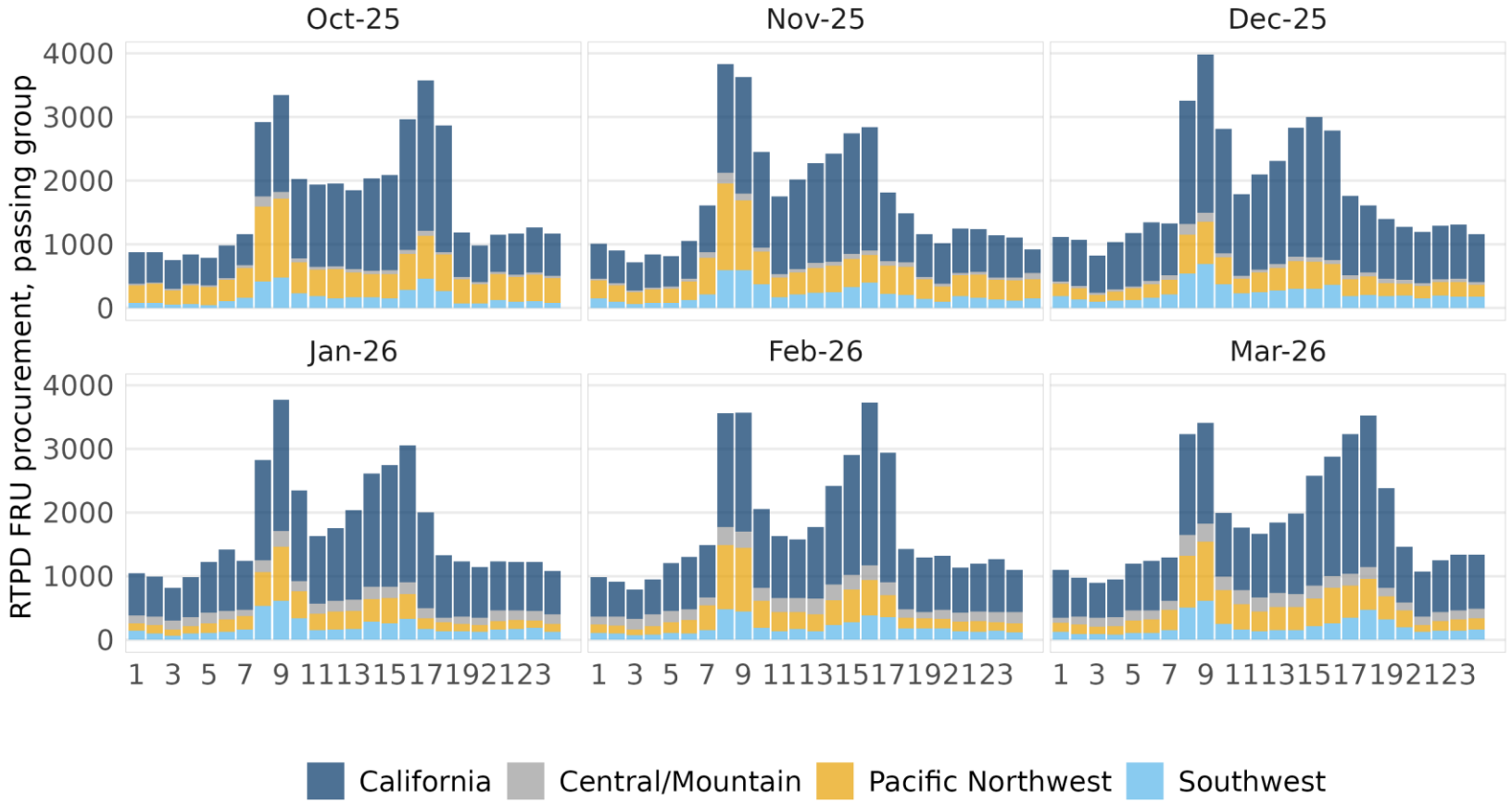
Storage resources tend to support upward FRP procurement throughout the day



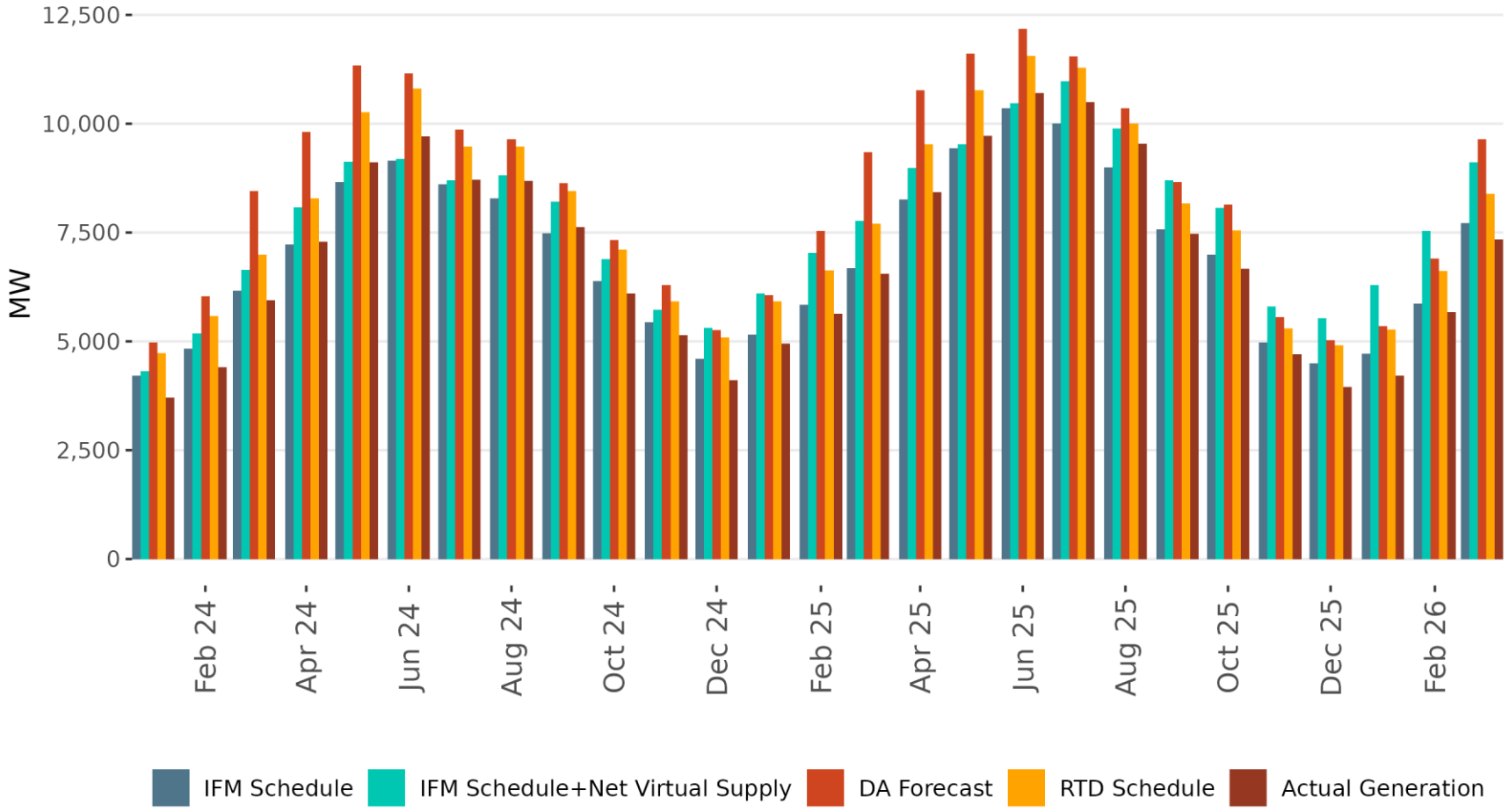
Upward FRP saw an increase in procurement from the Central/Mountain region in 2026 so far



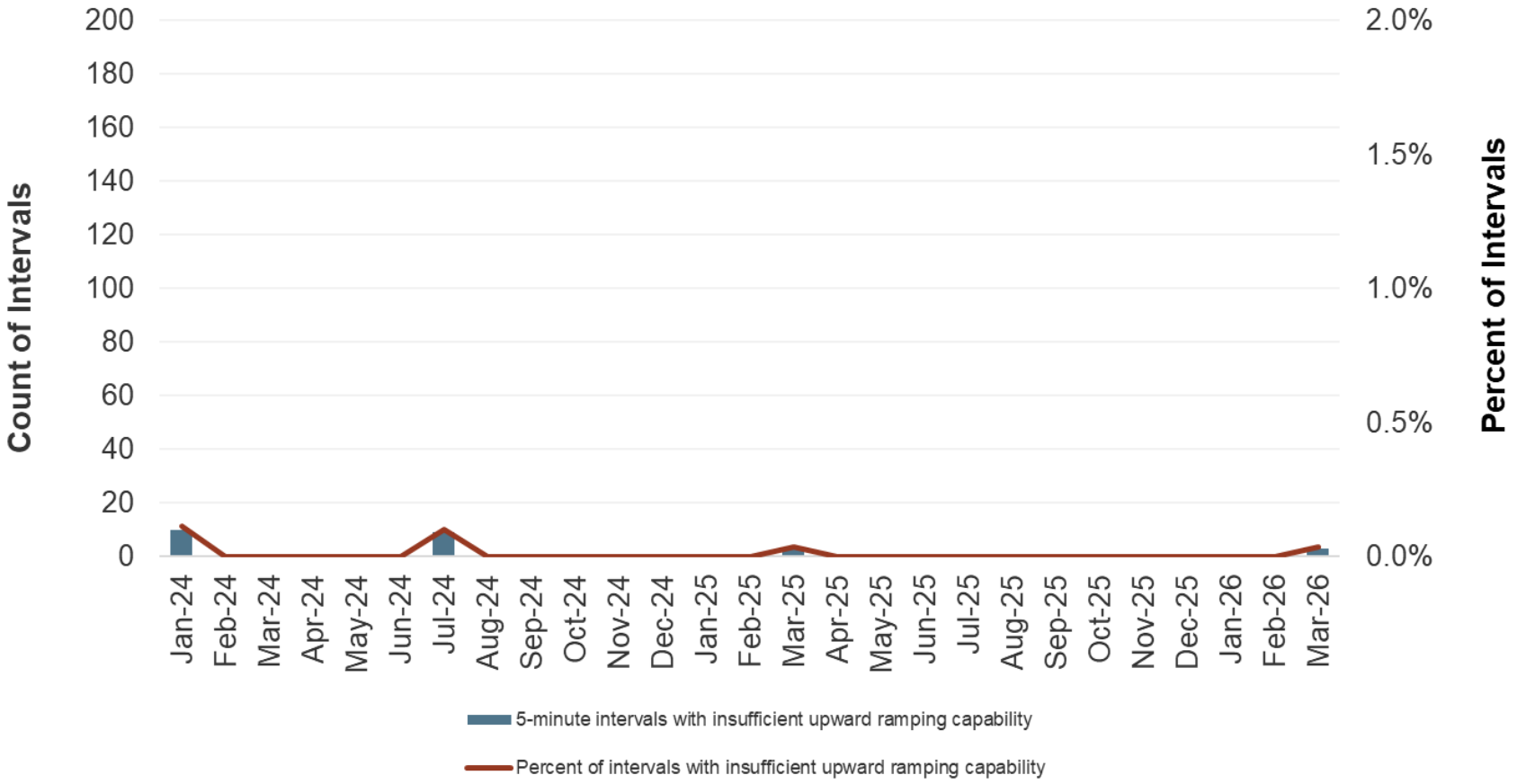
Upward FRP procurement from CAISO area is largely occurring in the peak hours



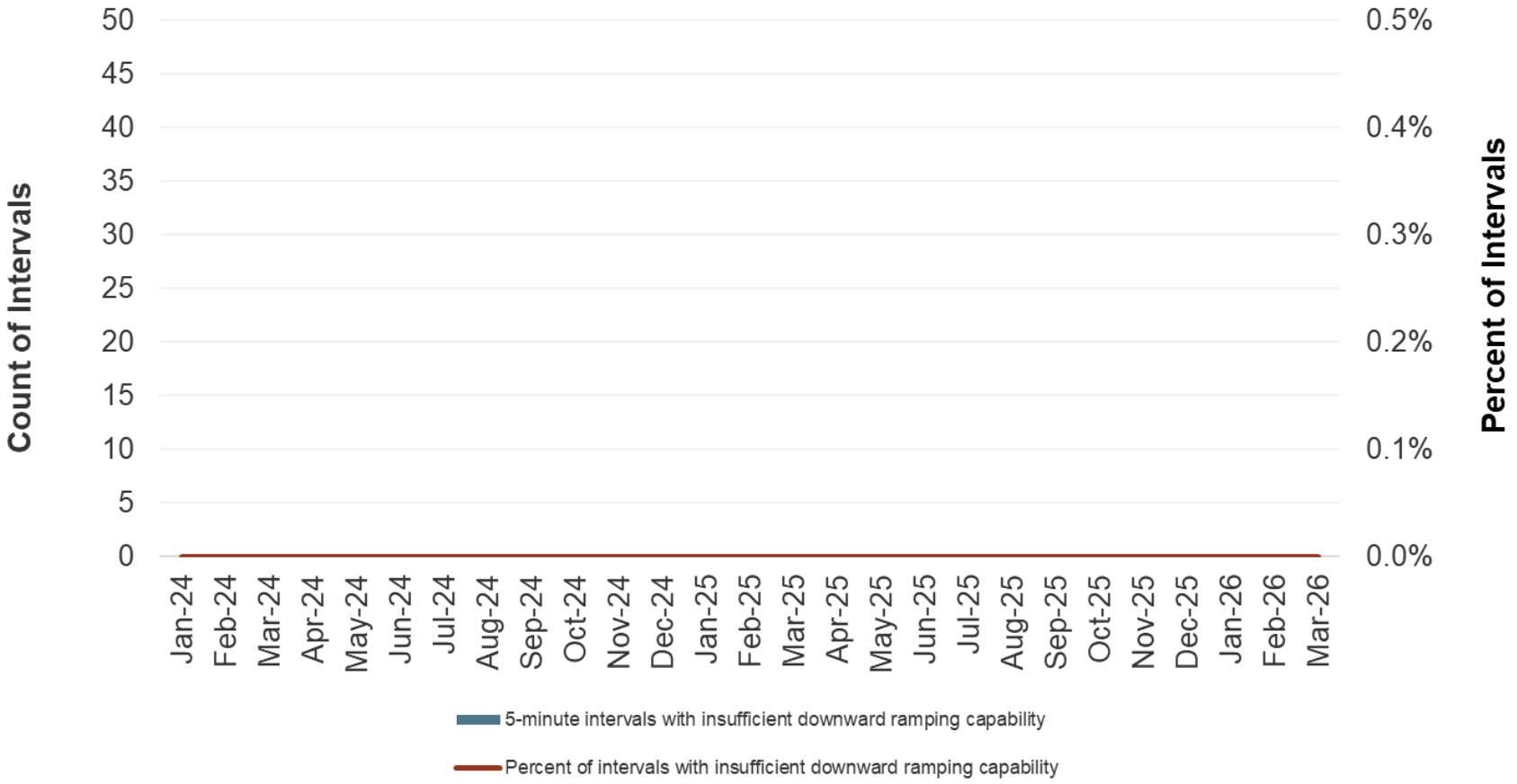
ISO total monthly VERS schedules and forecasts compared to actuals



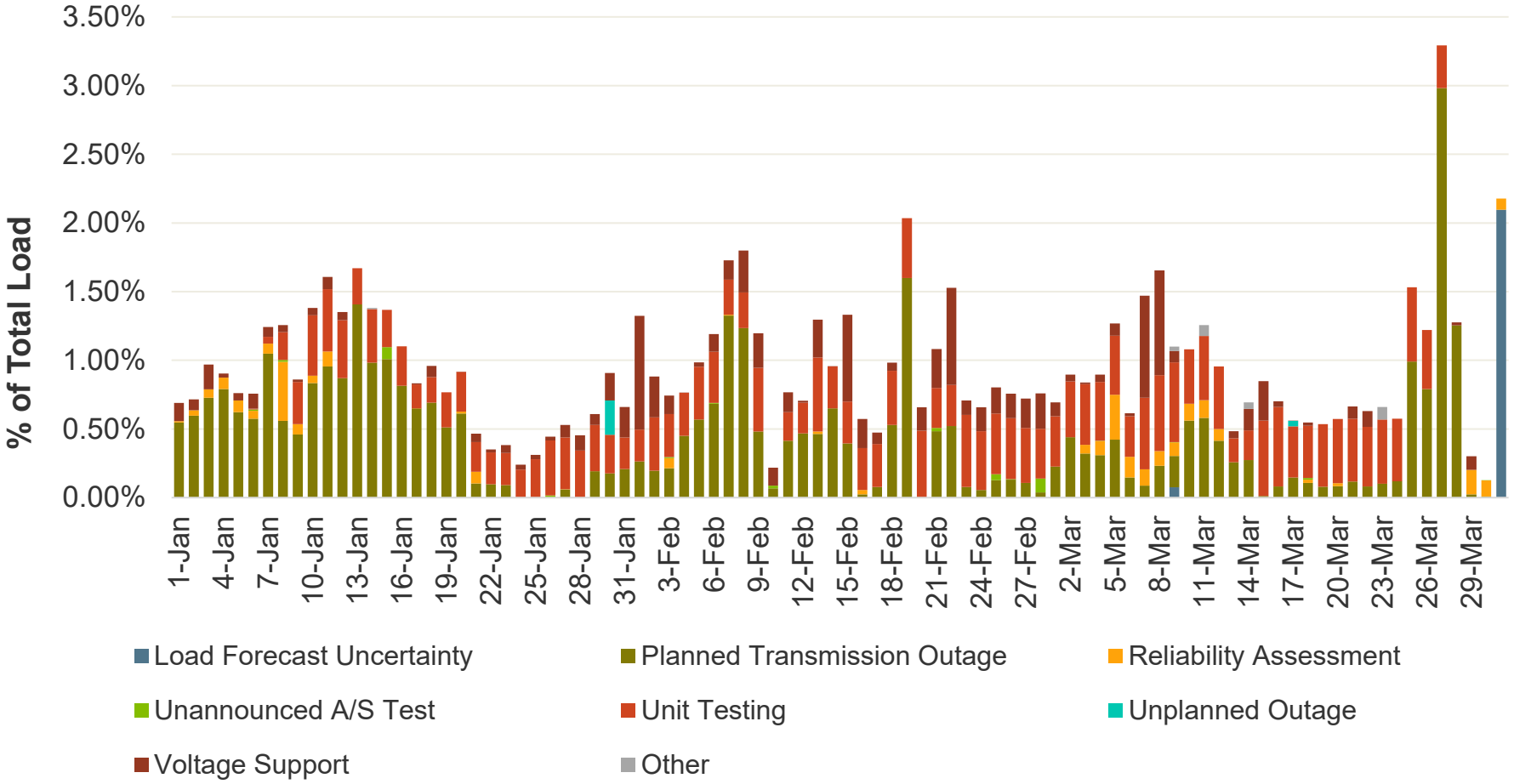
Insufficient upward ramping capacity in ISO real-time stayed at low levels



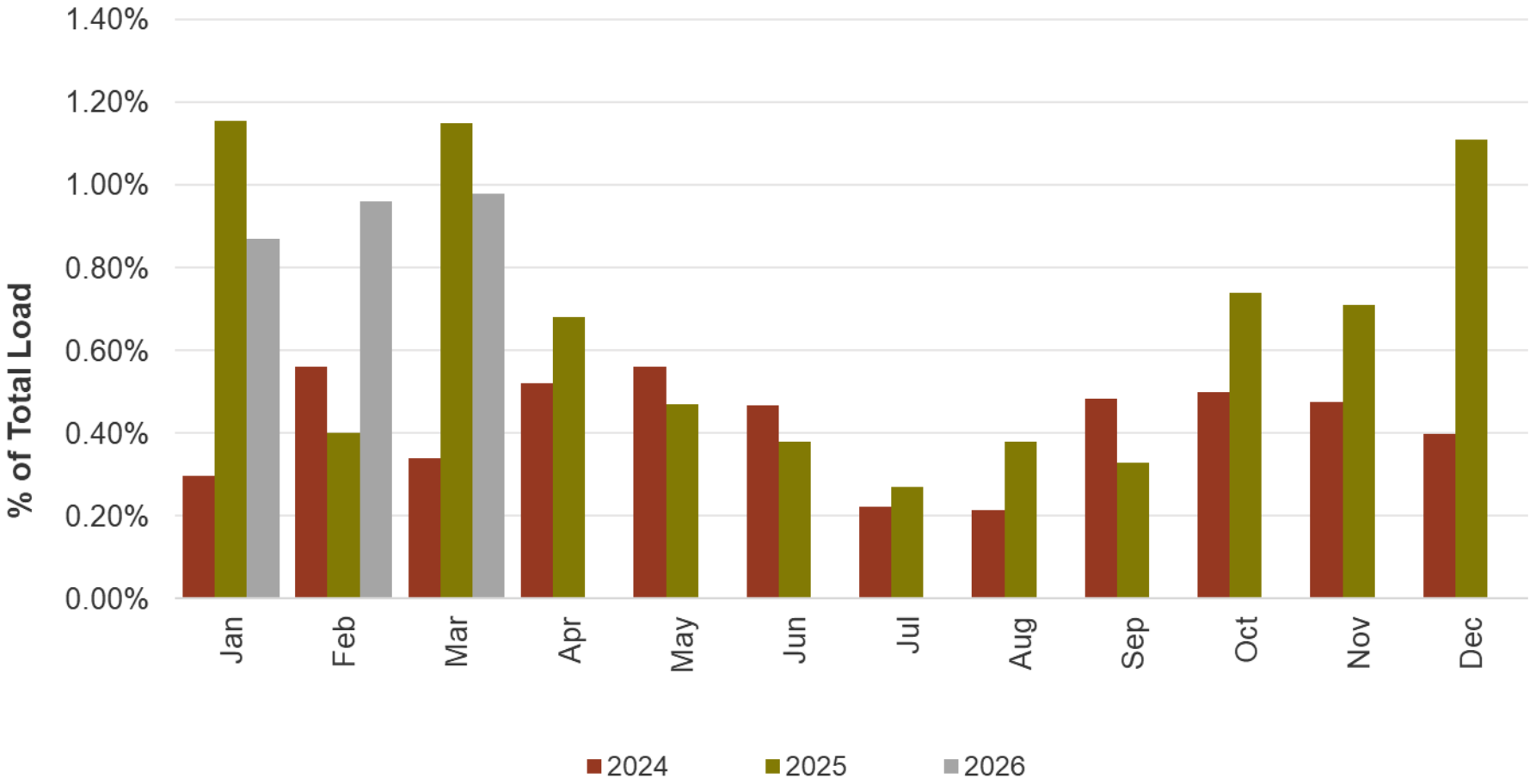
Insufficient downward ramping capacity in real-time remained low



Exceptional dispatches volume is driven by a variety of reasons



Exceptional dispatch volume in the ISO area for Q1 2026



Forecasting metrics

Takeaways from STF metrics

Highlights:

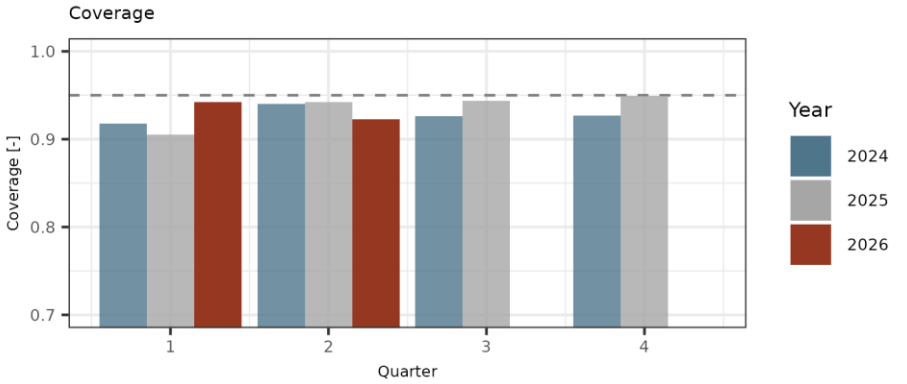
- Many regions saw forecast performance maintained through unseasonably warm weather and elevated peak loads in March.
- Most regions saw FRP coverage improvement over this time last year.

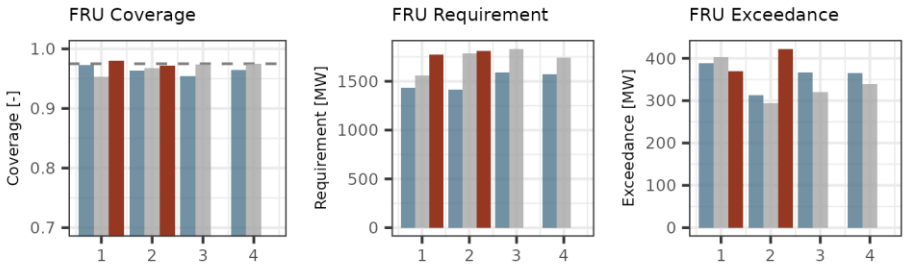
Areas for additional monitoring:

- A number of EIMs have potential load growth that can be seen in higher peak loads and shifts in temperature to load relationships. STF is working with EIMs to monitor and model.
- WALC FRP showed low coverage and high exceedance metrics following large increase in solar capacity. There is data quality and extended VER forecast issues to review.

FRP Requirements

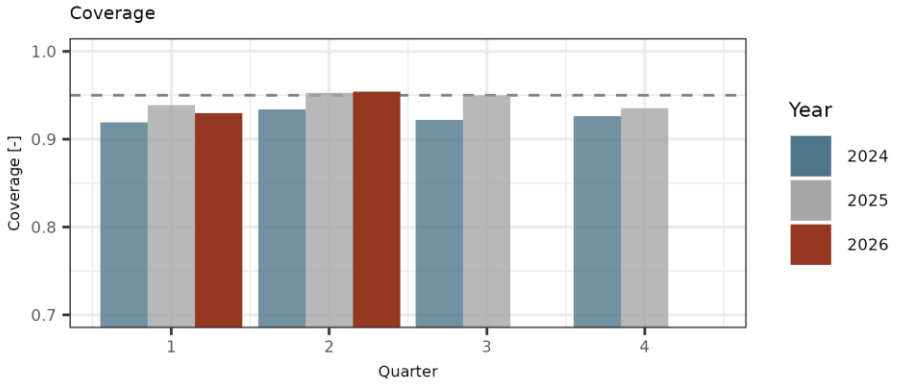
EIM AREA

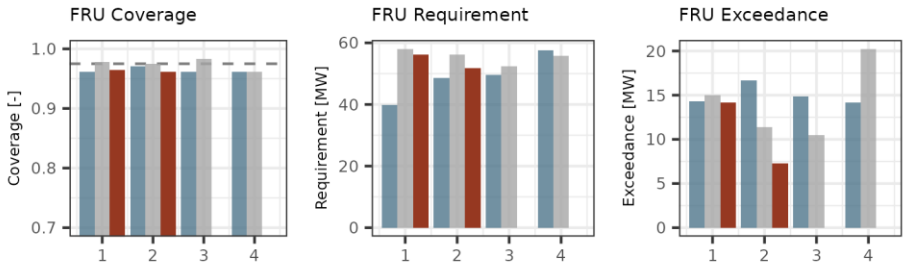


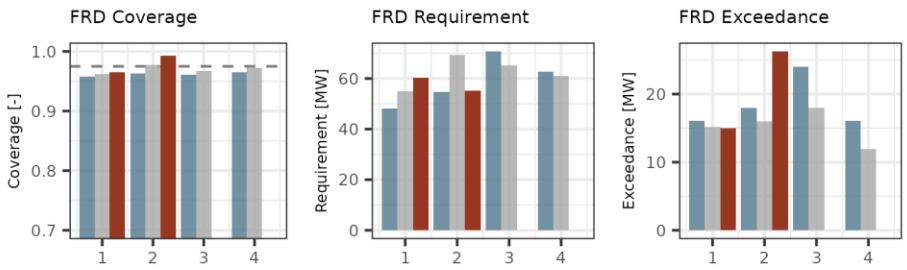


Data current to 2026-04-05

AVA

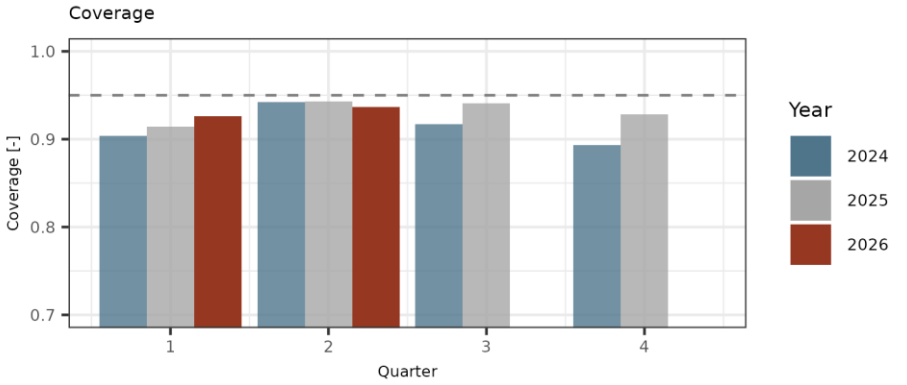


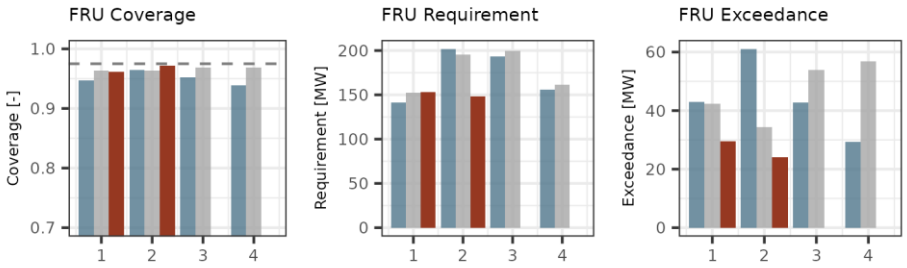


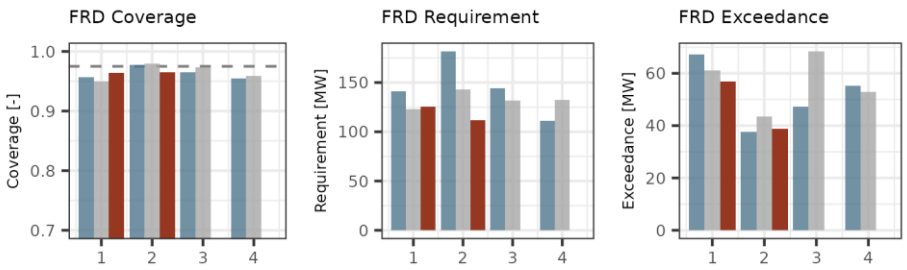


Data current to 2026-04-05

AVRN

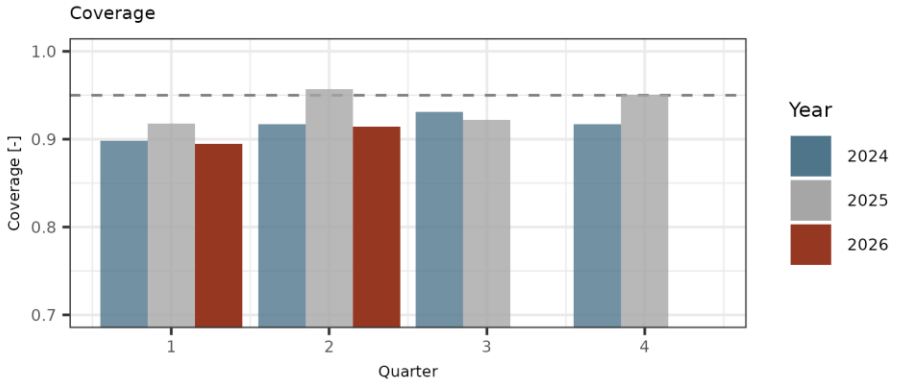


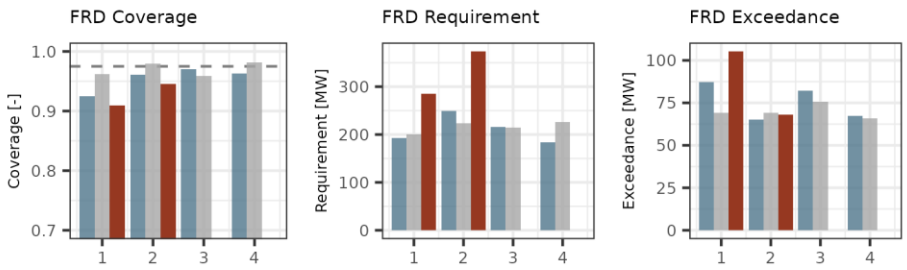




Data current to 2026-04-05

APS





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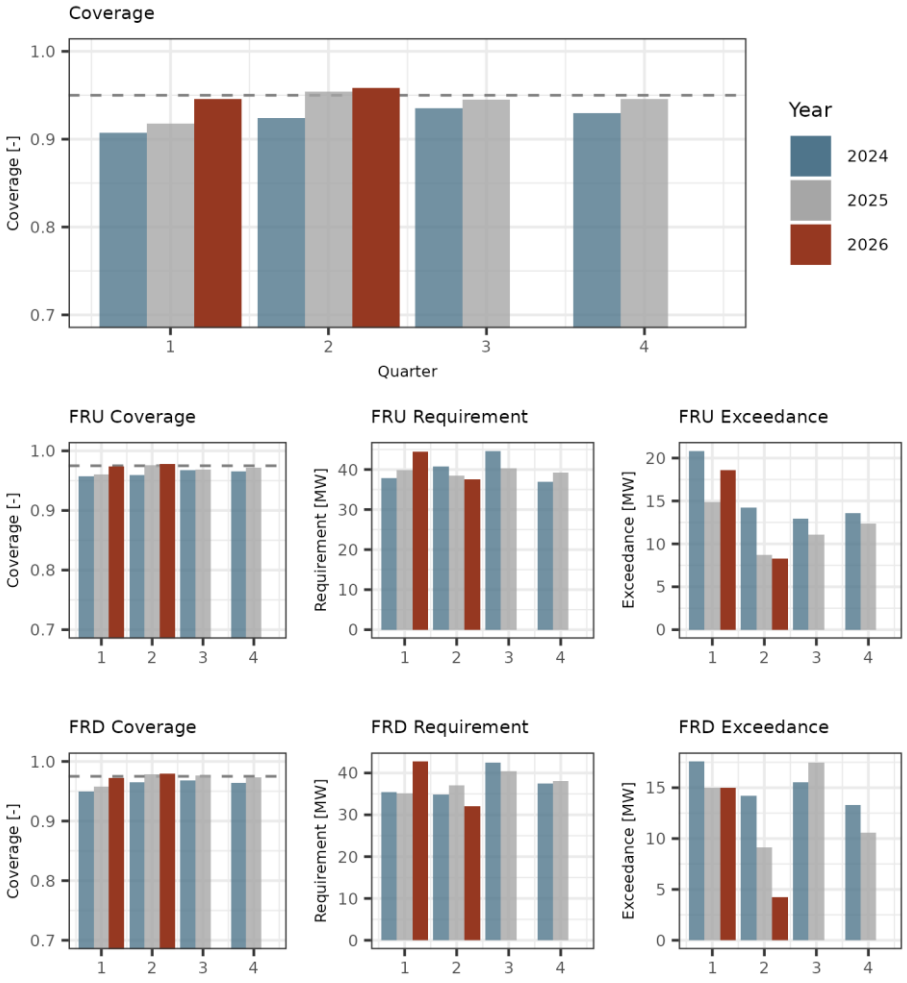

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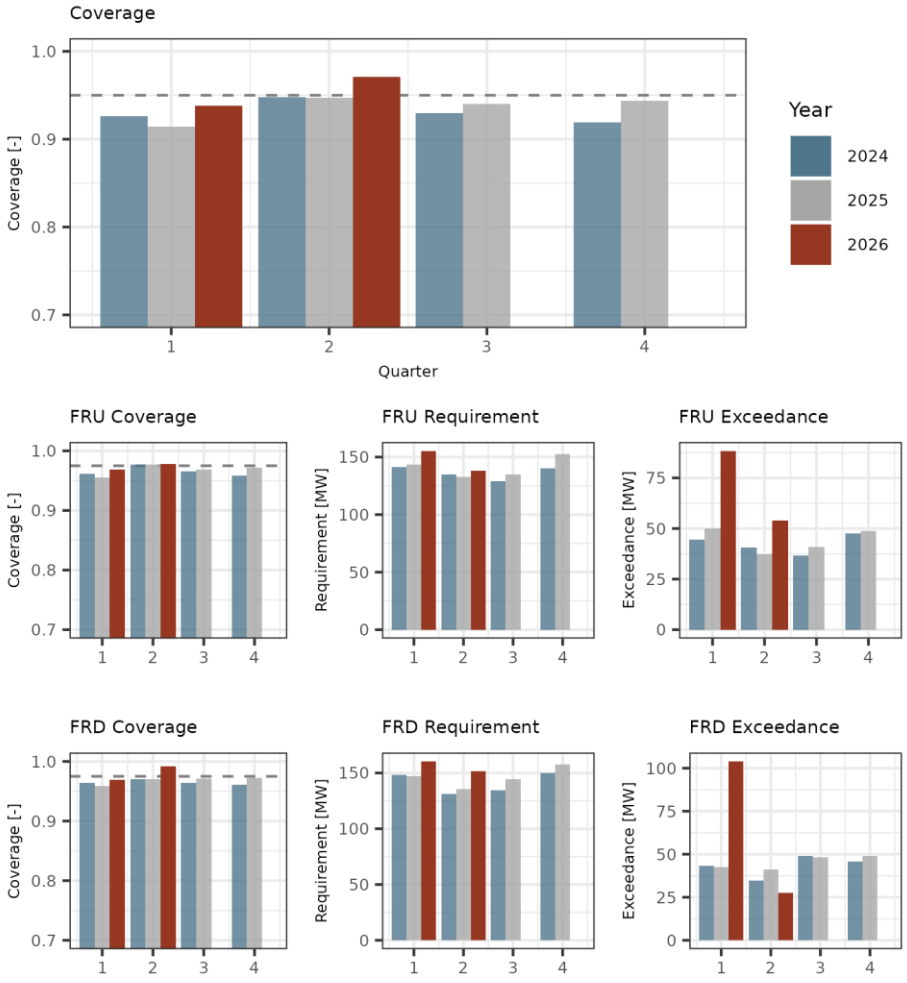

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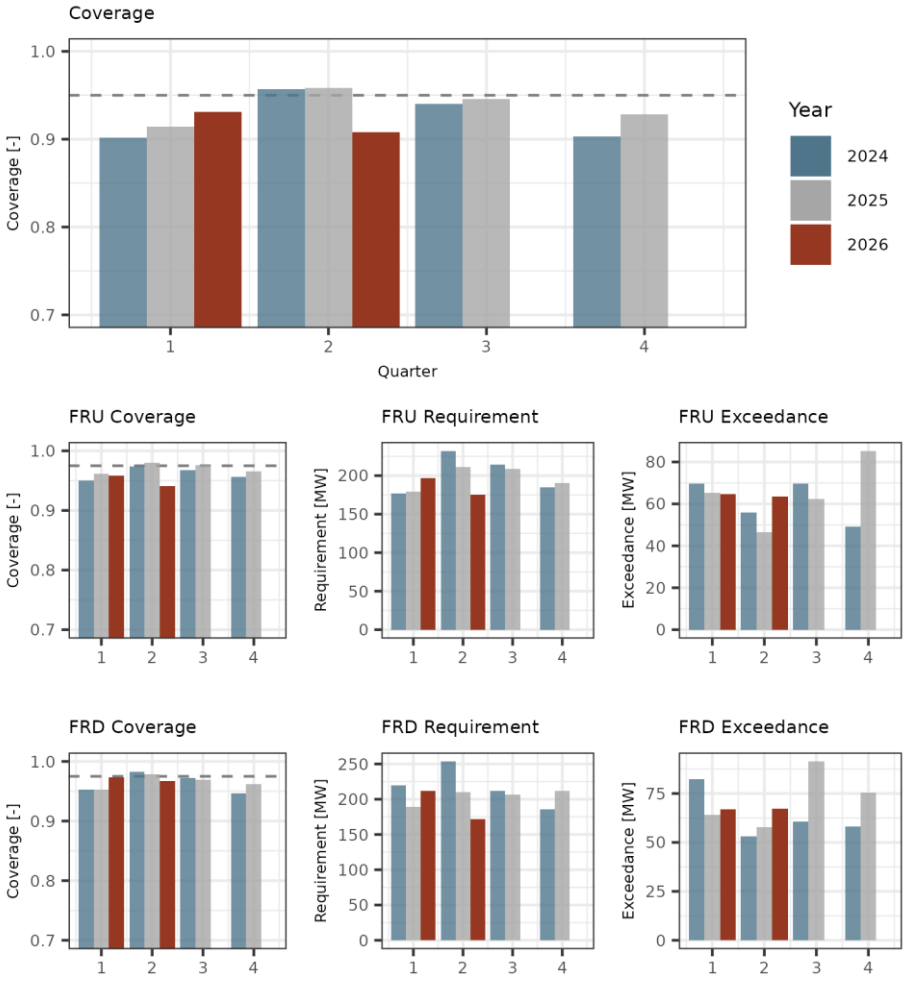

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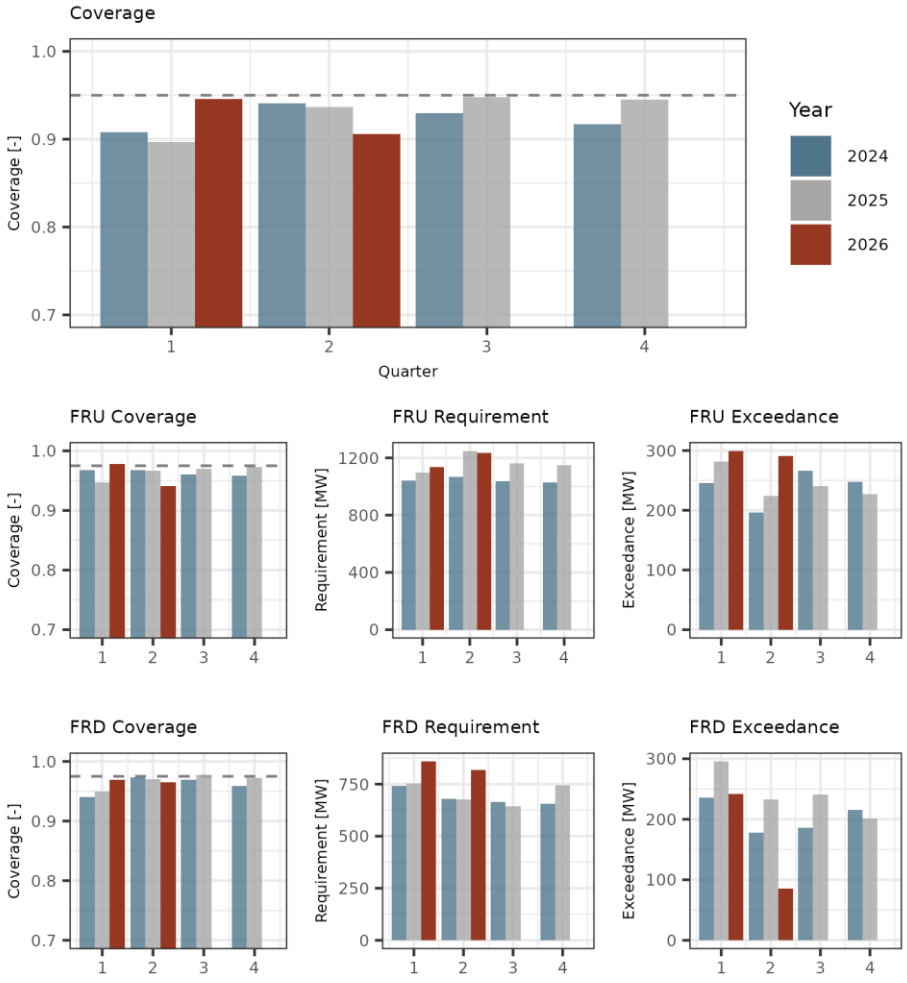
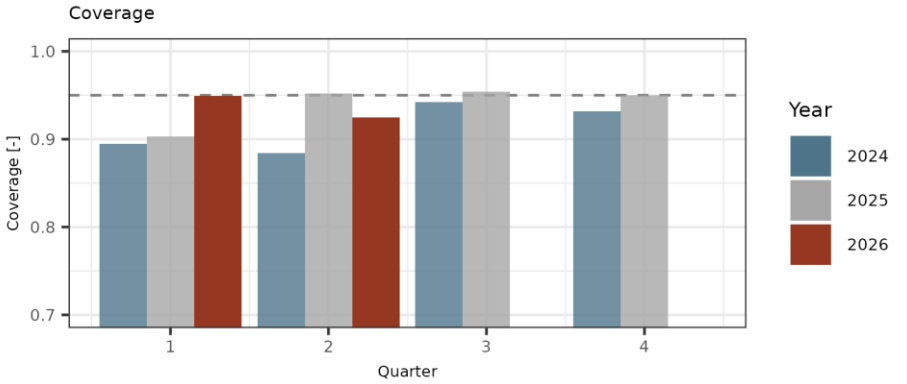
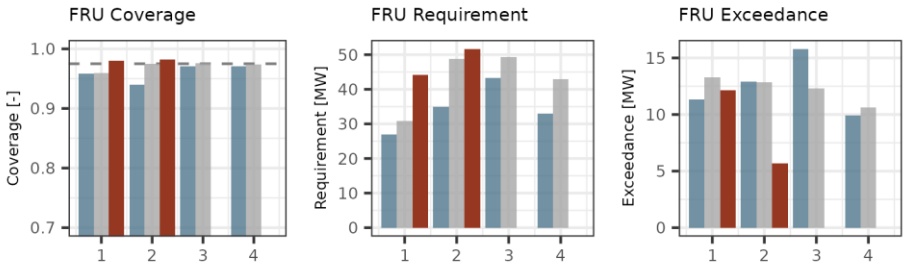
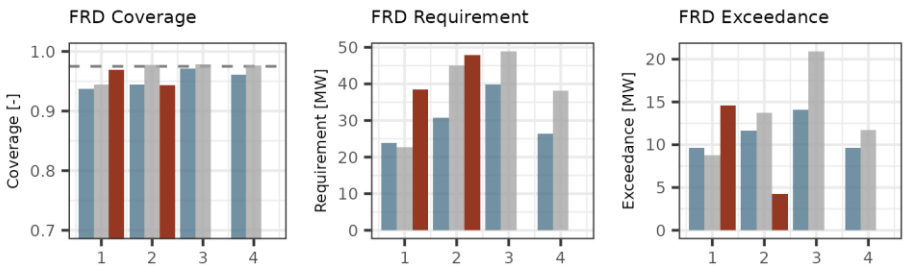


Data current to 2026-04-05

EPE







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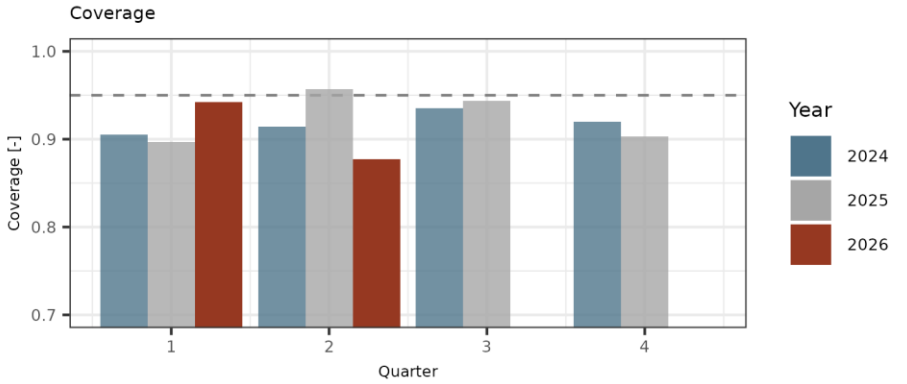
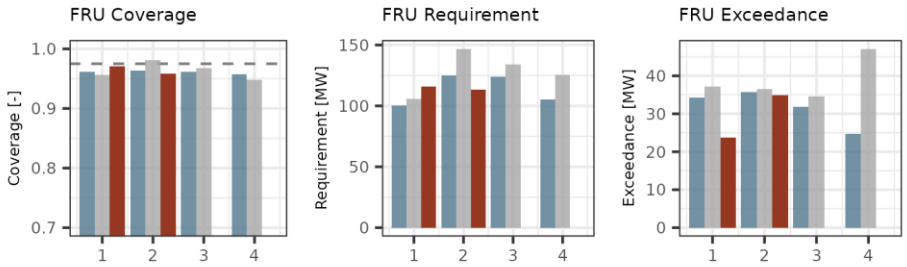
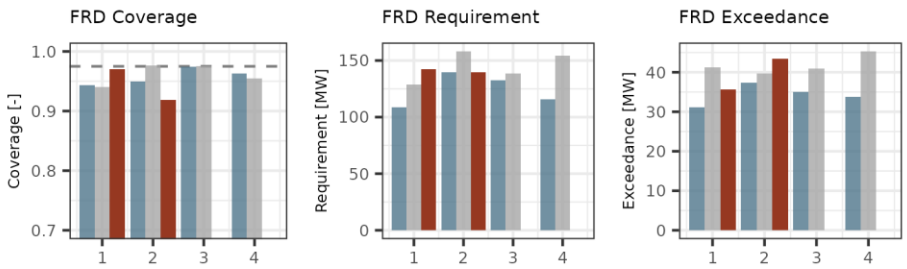
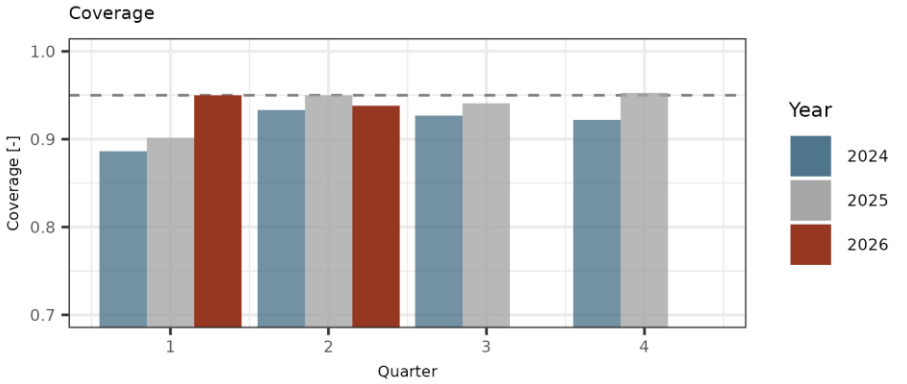


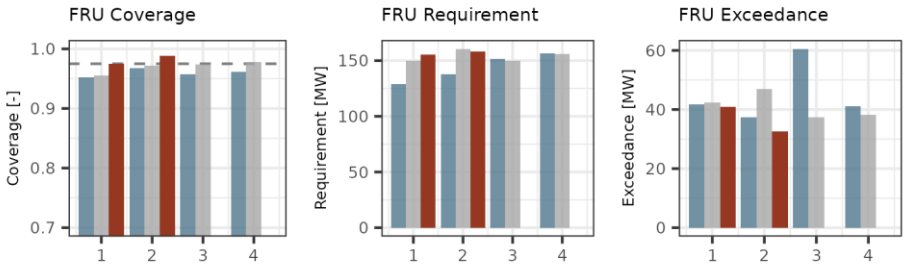


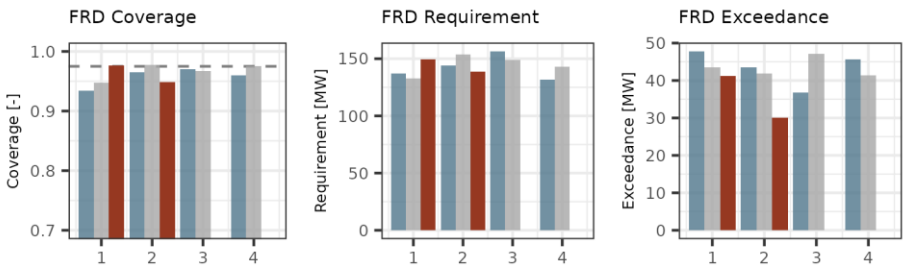


Data current to 2026-04-05

LADWP







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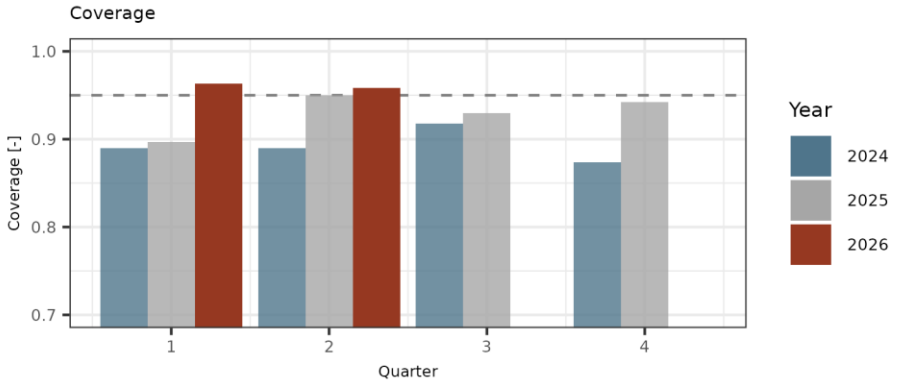

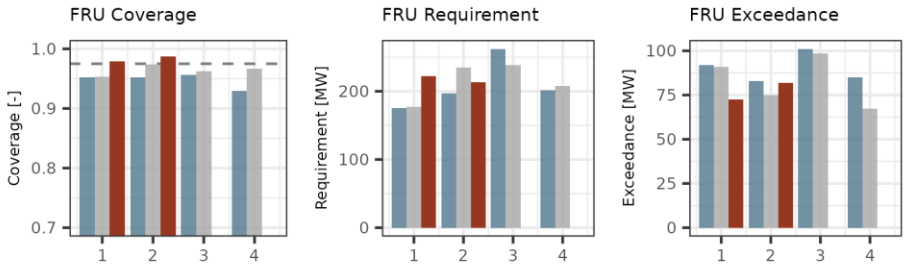

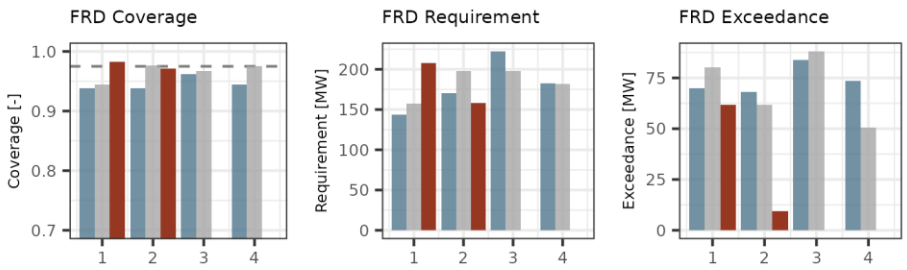

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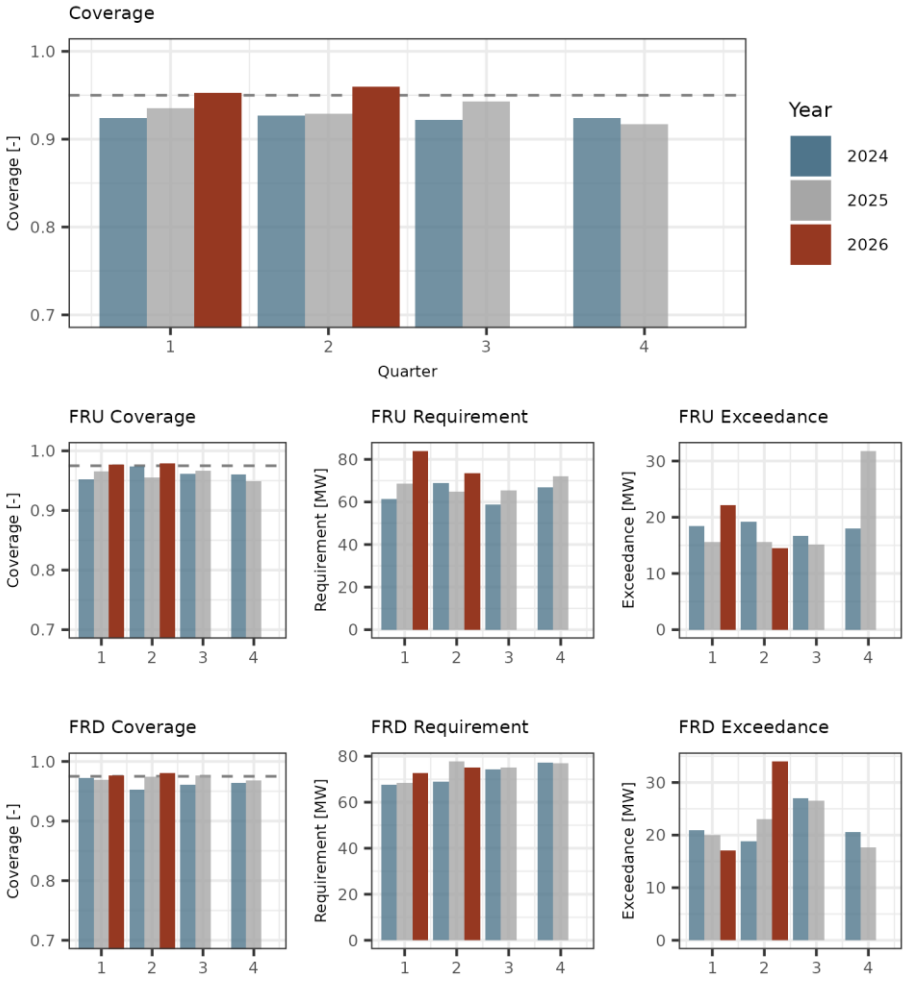

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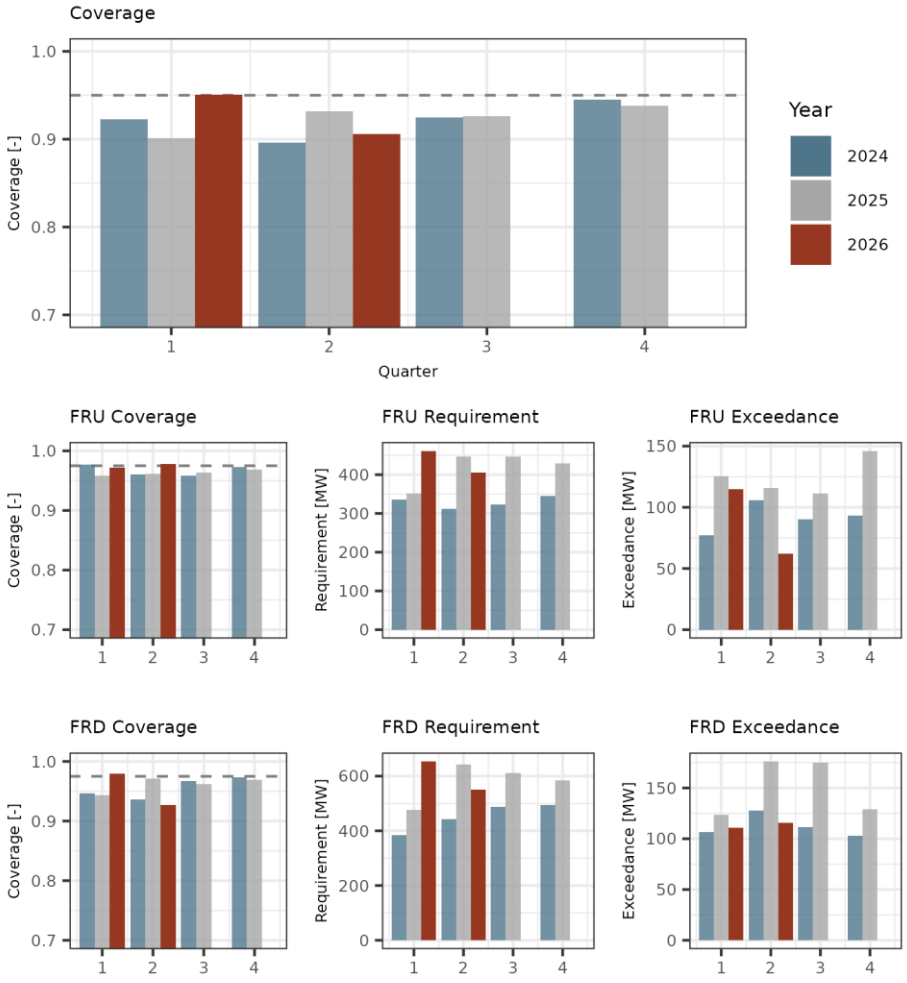
PACE



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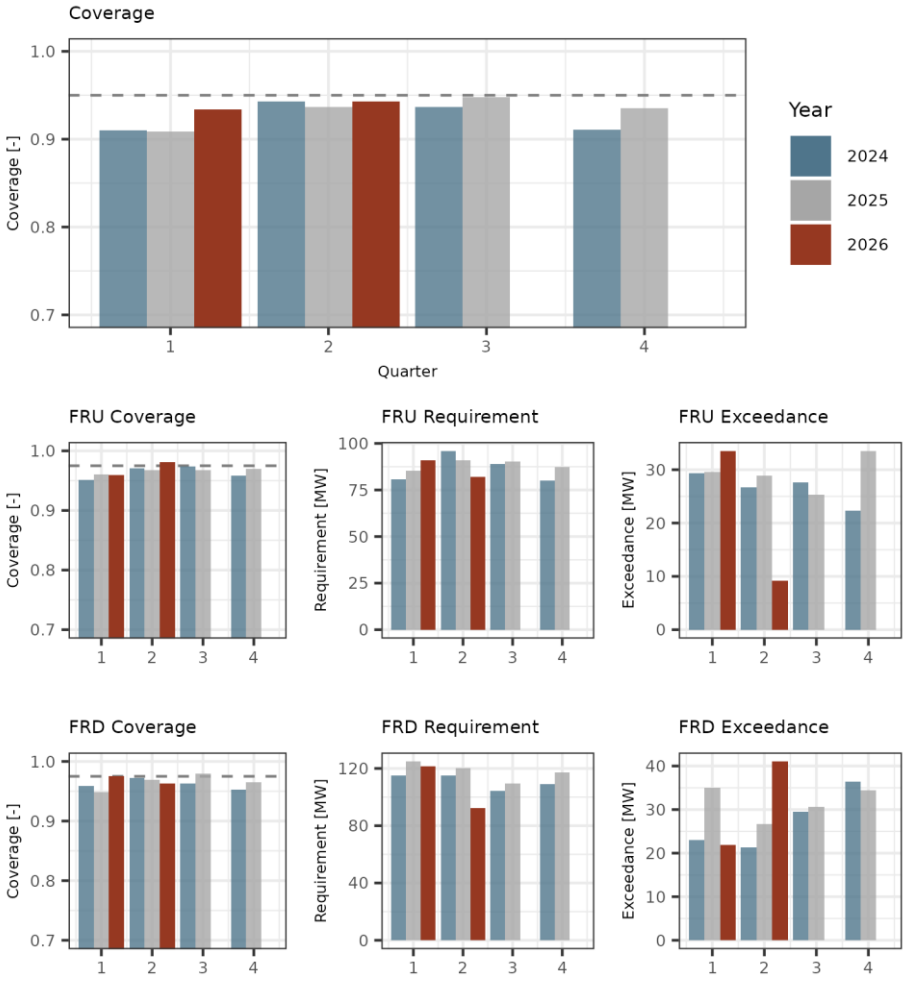

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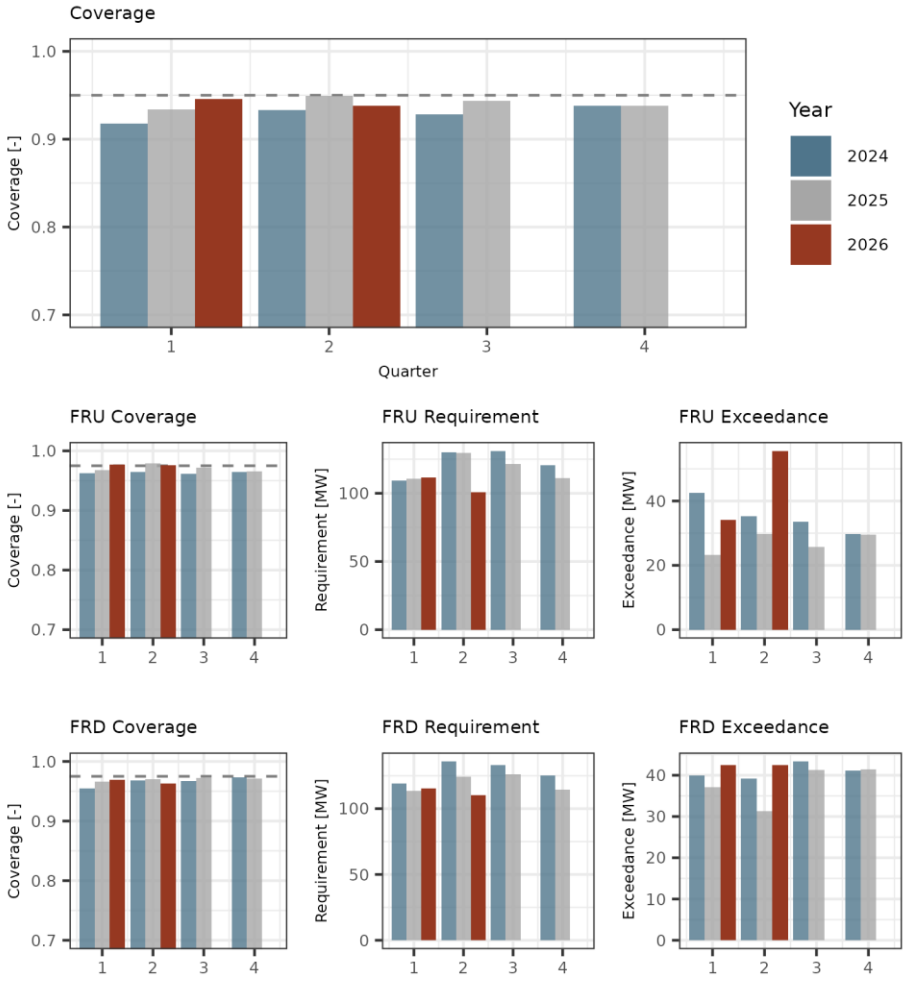

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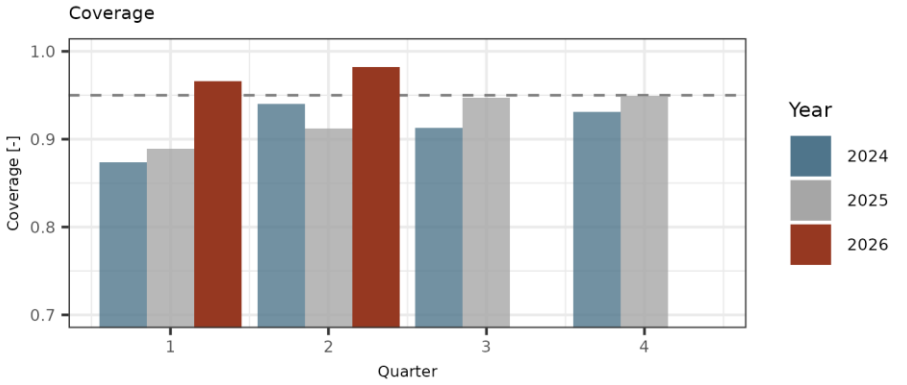

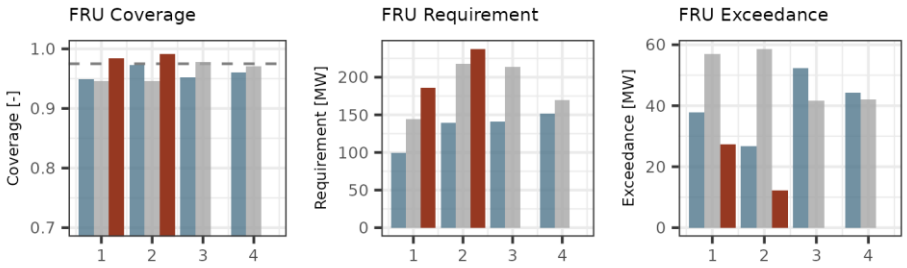

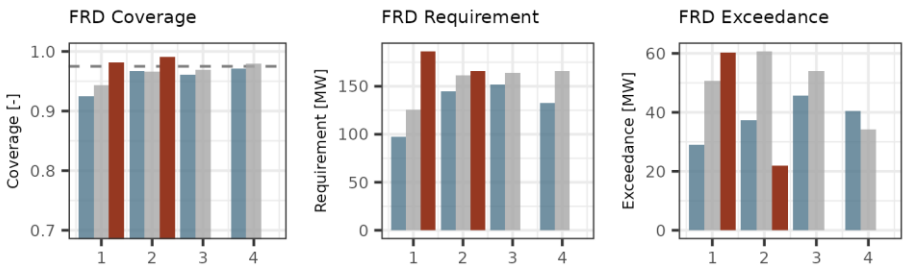

Data current to 2026-04-05

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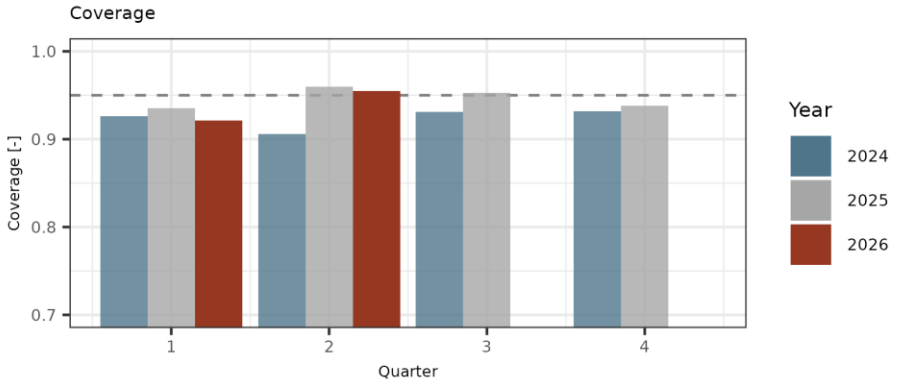

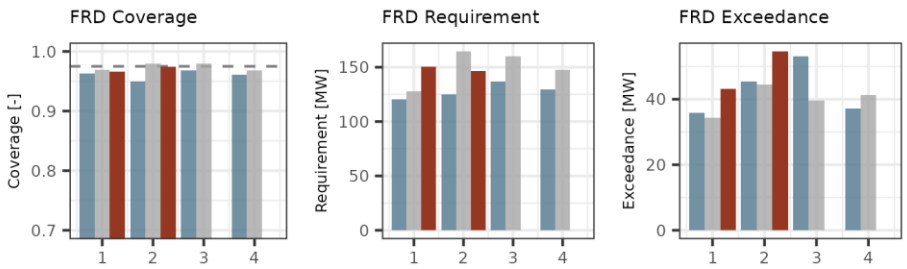

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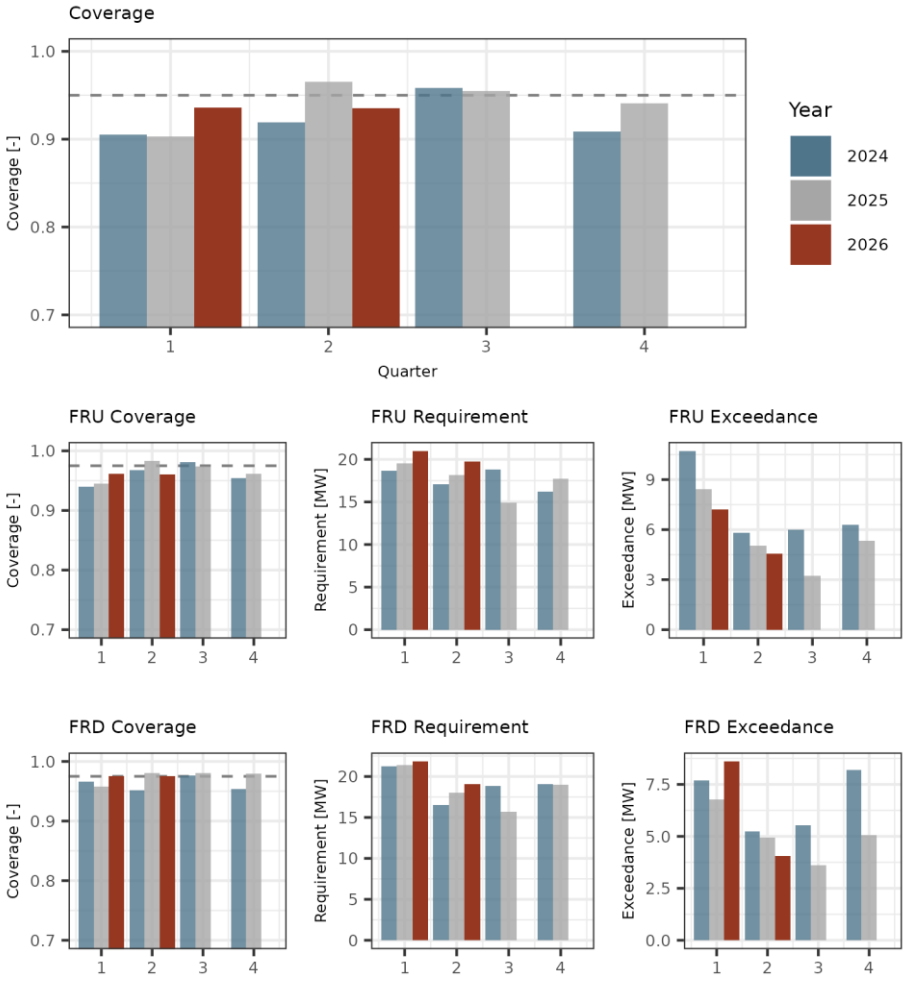

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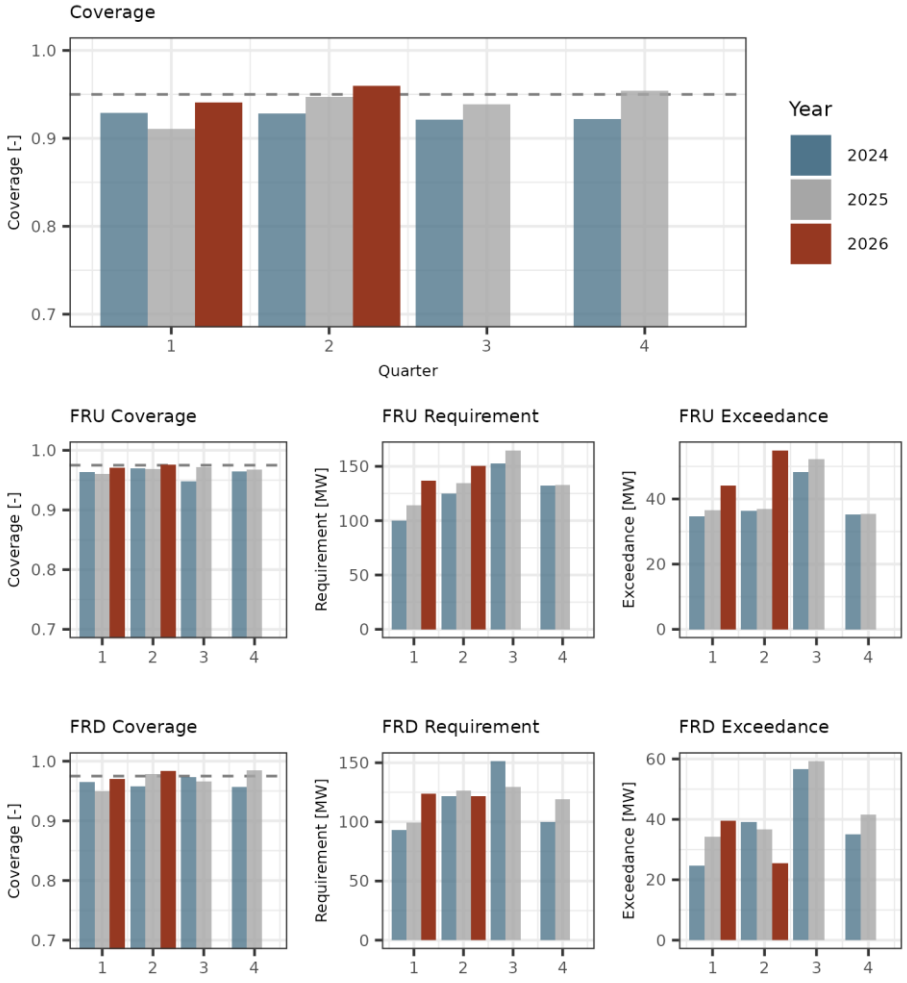

Data current to 2026-04-05

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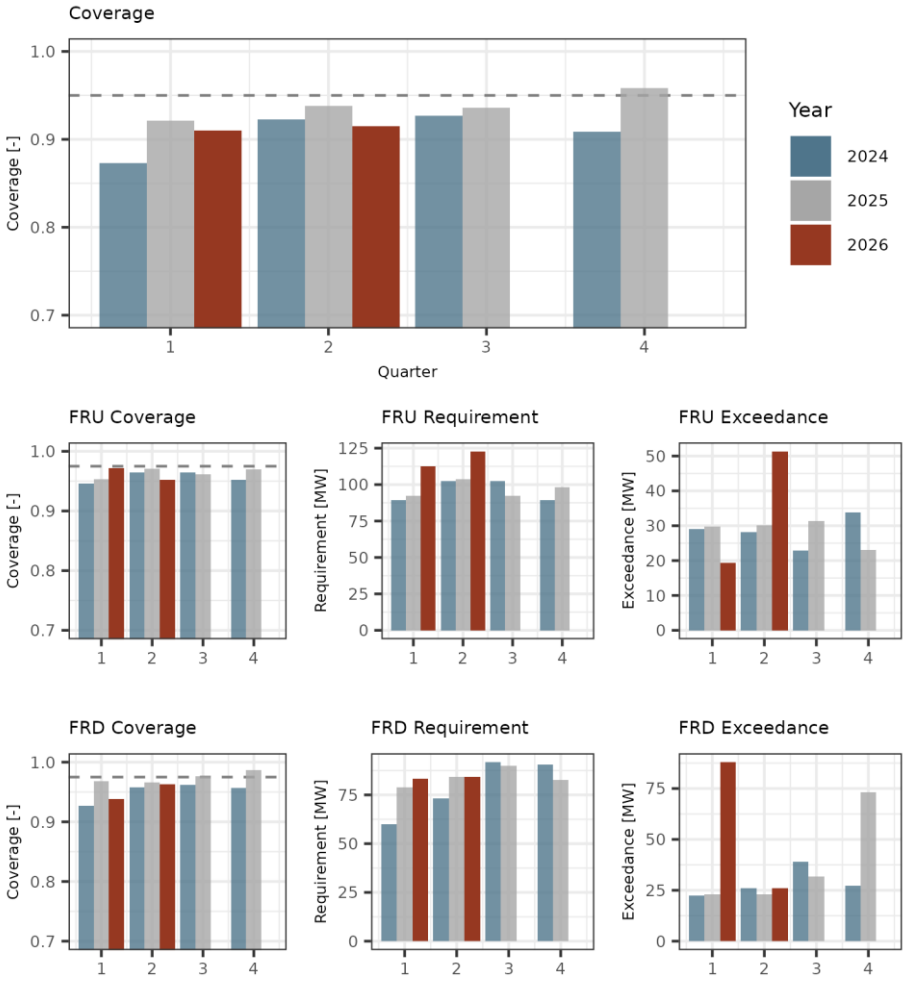

Data current to 2026-04-05

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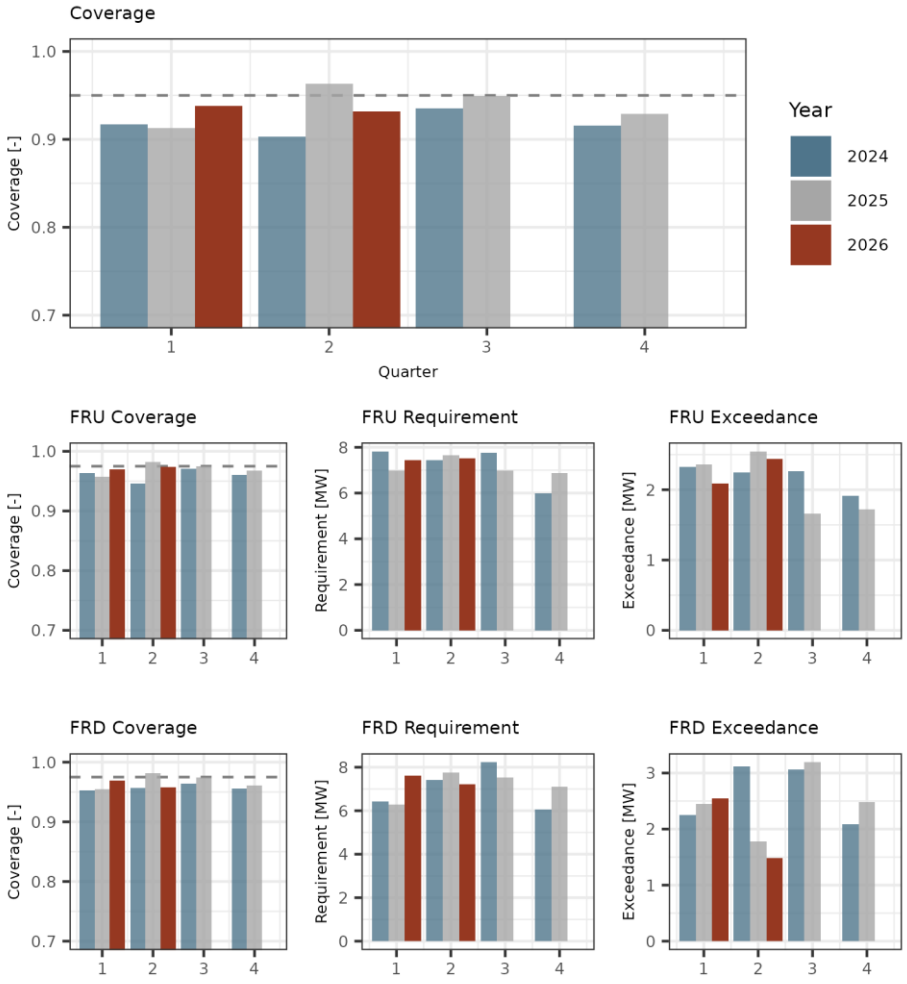
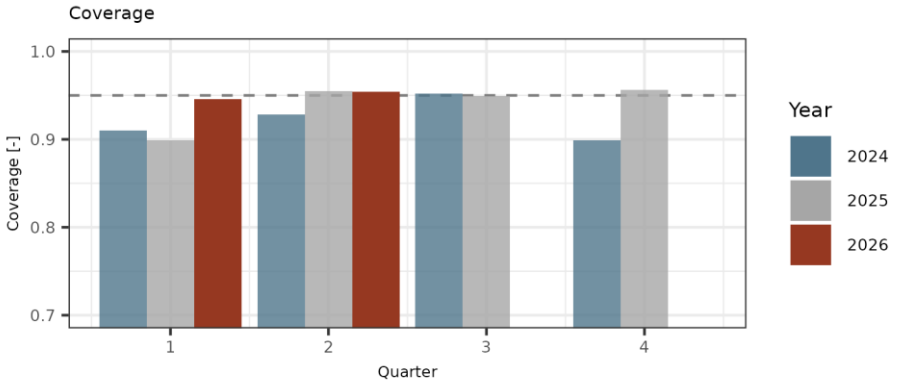
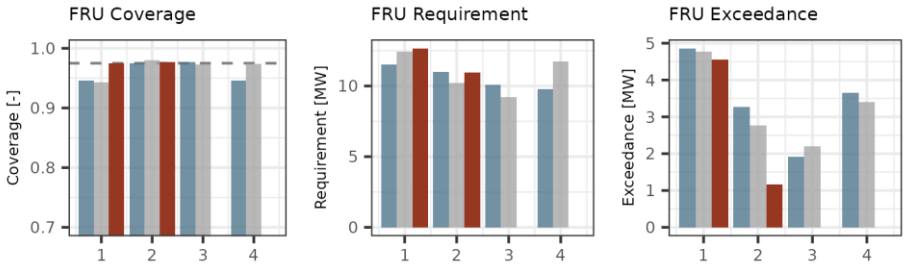
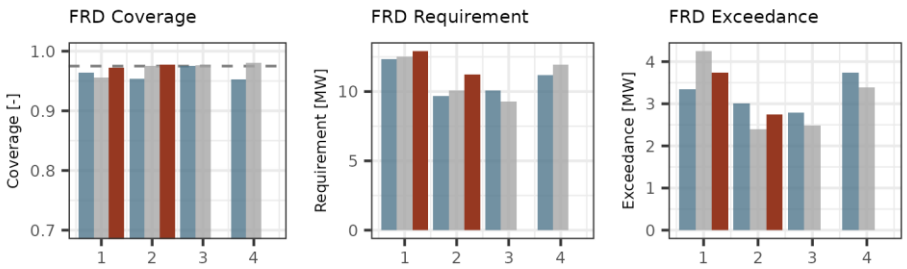


Data current to 2026-04-05

TPWR

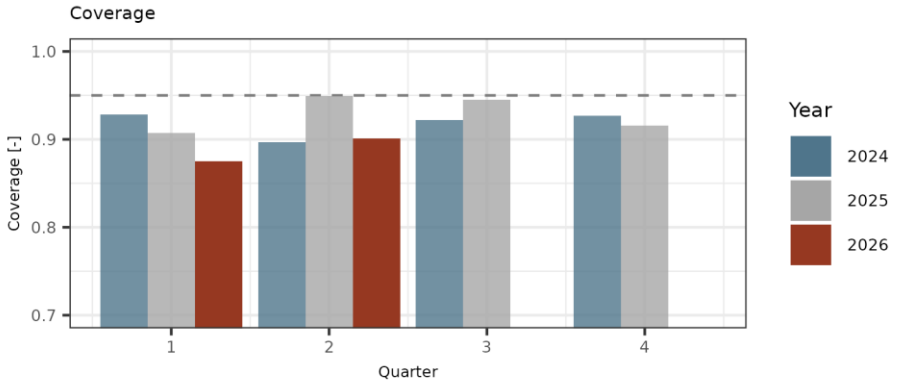


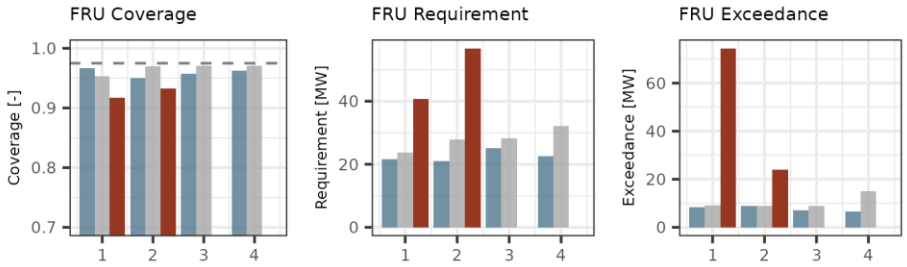


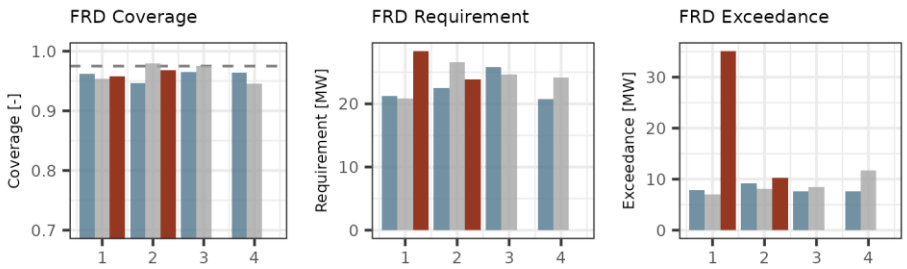


Data current to 2026-04-05

WALC





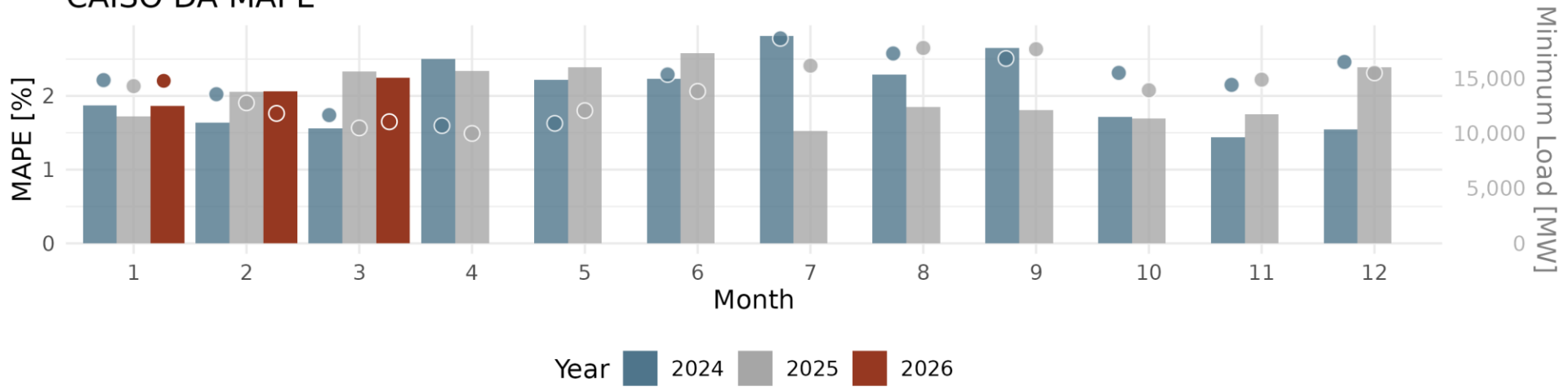


Data current to 2026-04-05

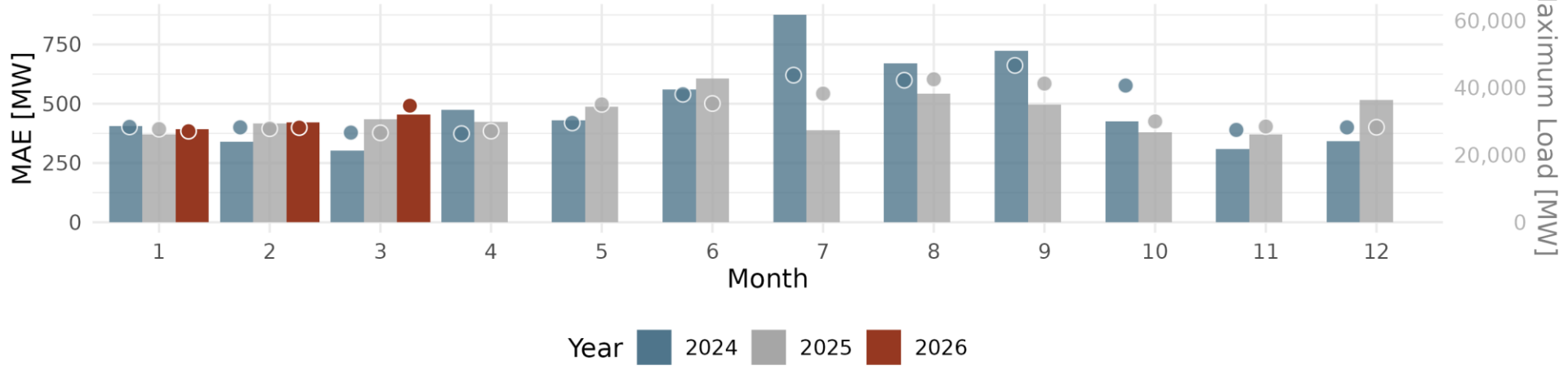
* WALC metrics impacted by VER forecast issue.

Demand Forecasting

CAISO DA MAPE



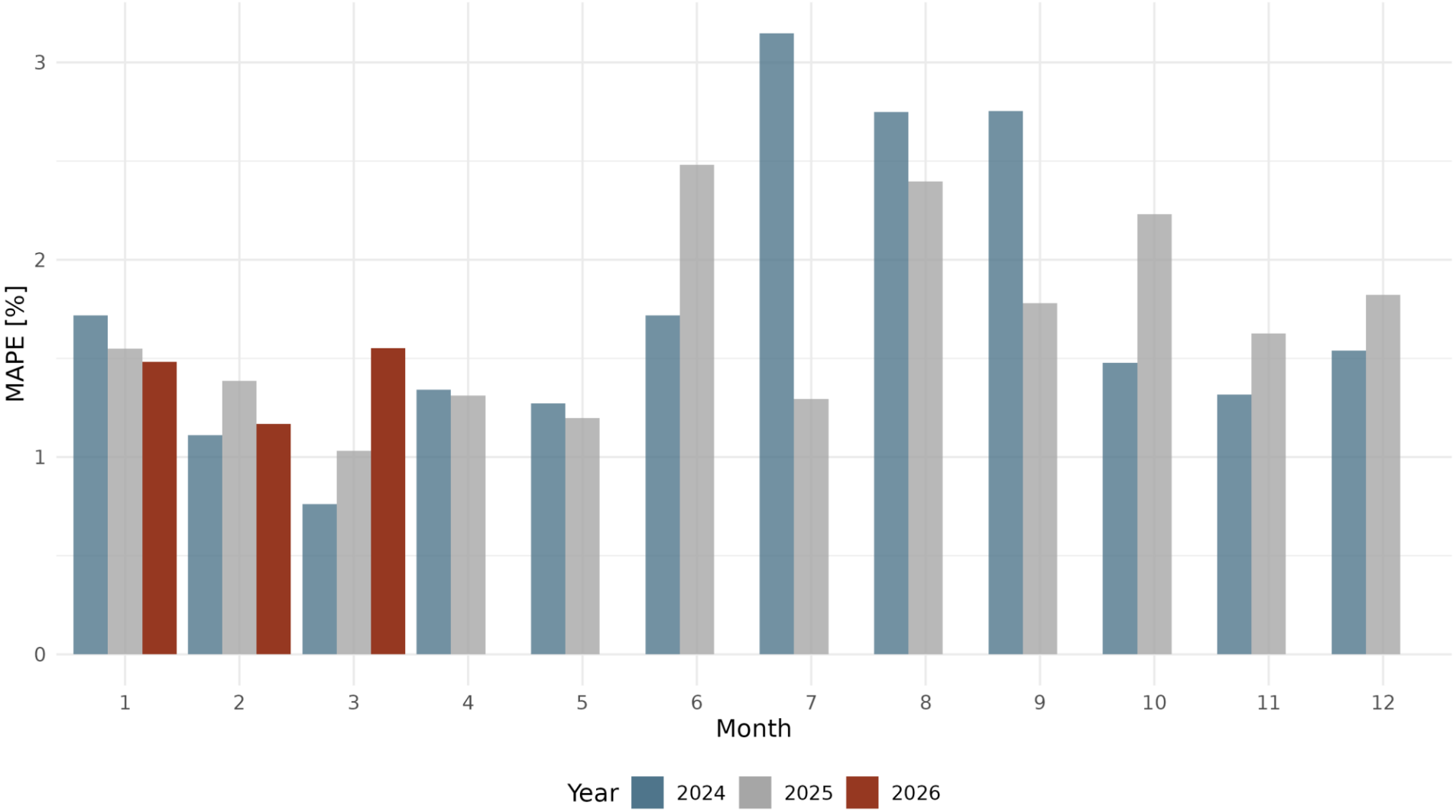
CAISO DA MAE



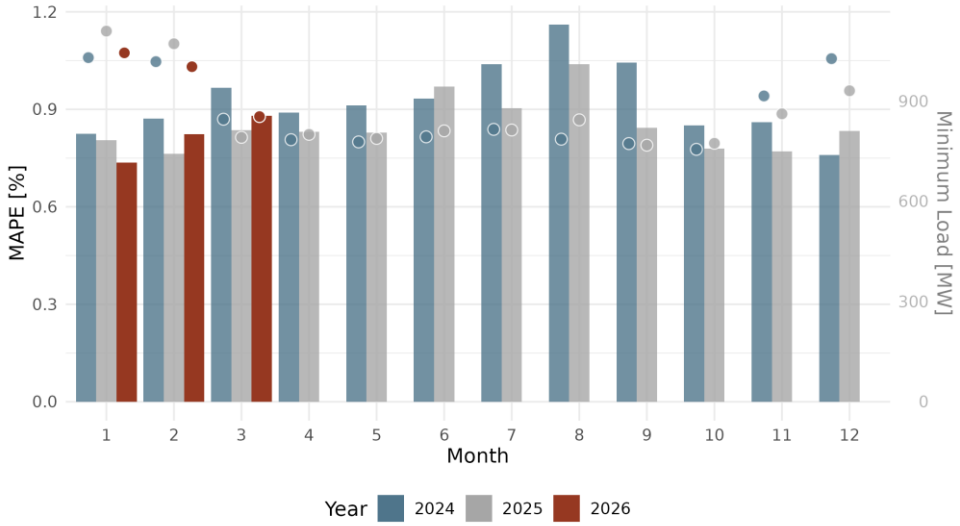
MAPE = abs(Forecast – Actual)/Actual
MAE = abs(Forecast – Actual)

Bars use primary y-axis at left. Points use secondary y-axis at right.

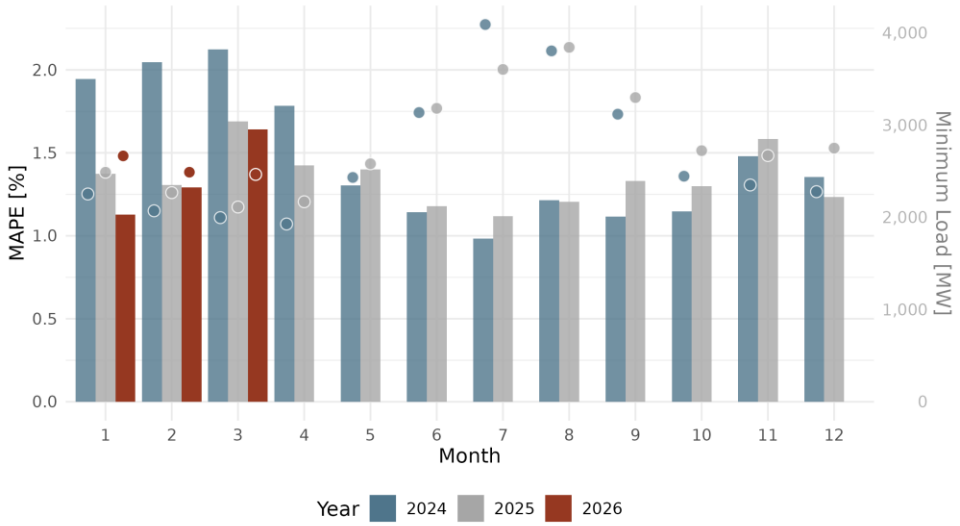
CAISO DA Peak Forecast



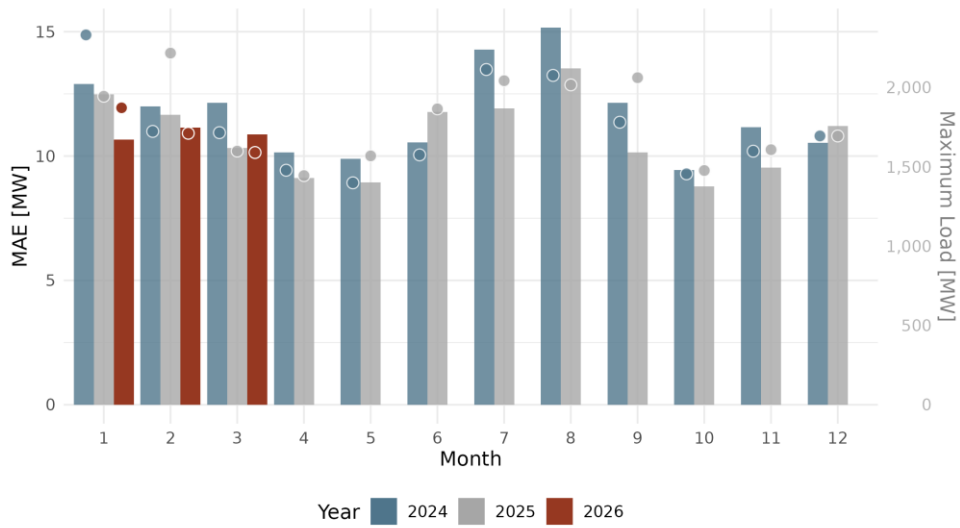
AVA T-60 MAPE



APS T-60 MAPE

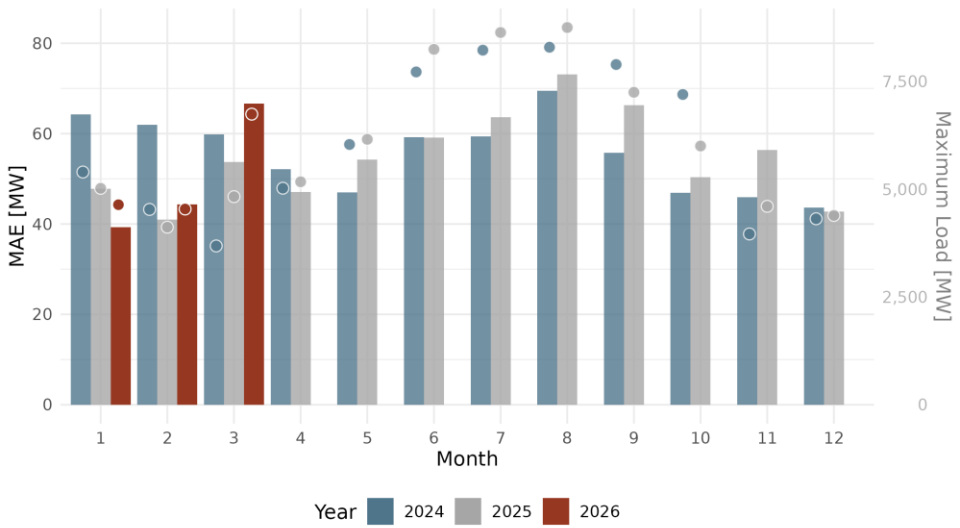


AVA T-60 MAE



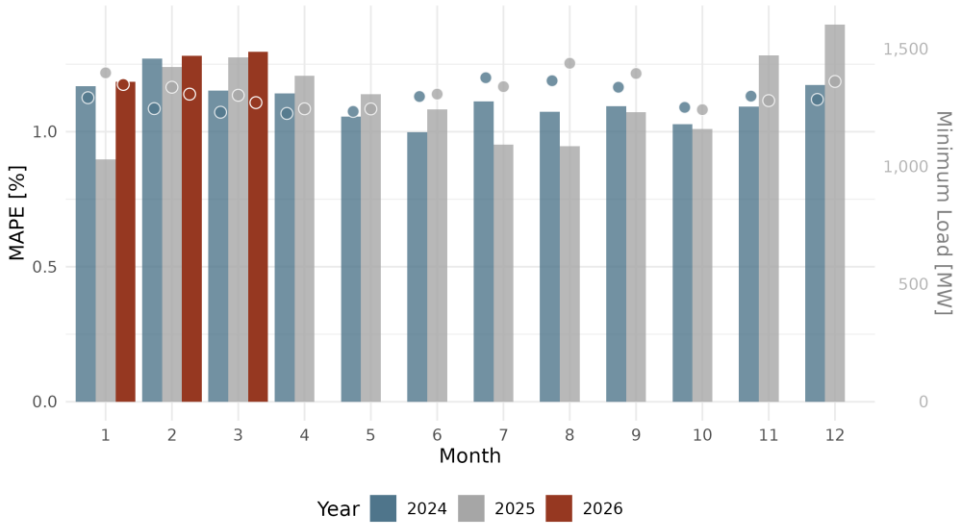
Bars use primary y-axis at left. Points use secondary y-axis at right.

APS T-60 MAE

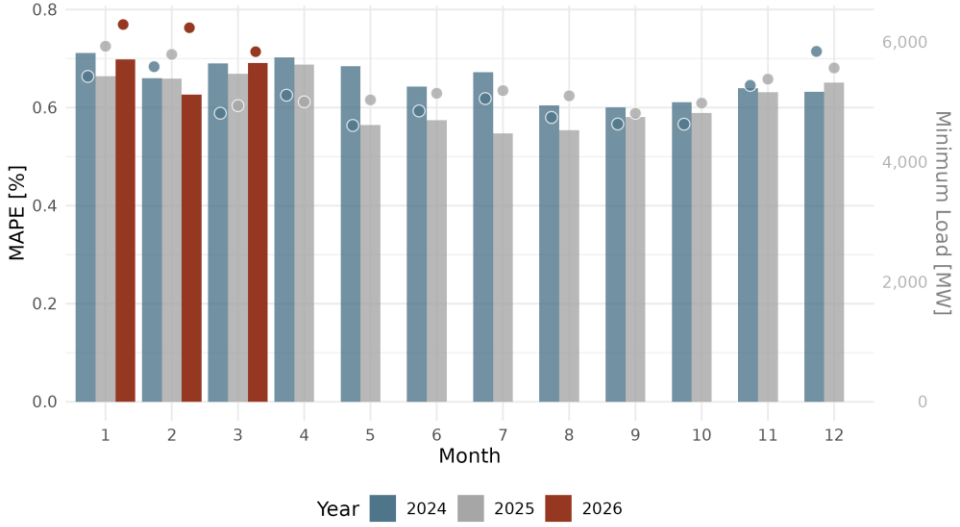


Bars use primary y-axis at left. Points use secondary y-axis at right.

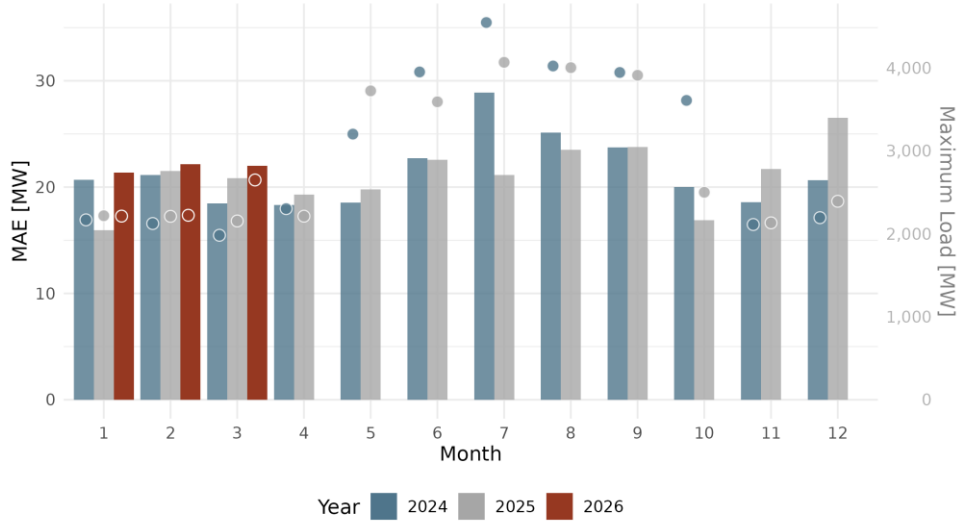
BANC T-60 MAPE



BPA T-60 MAPE

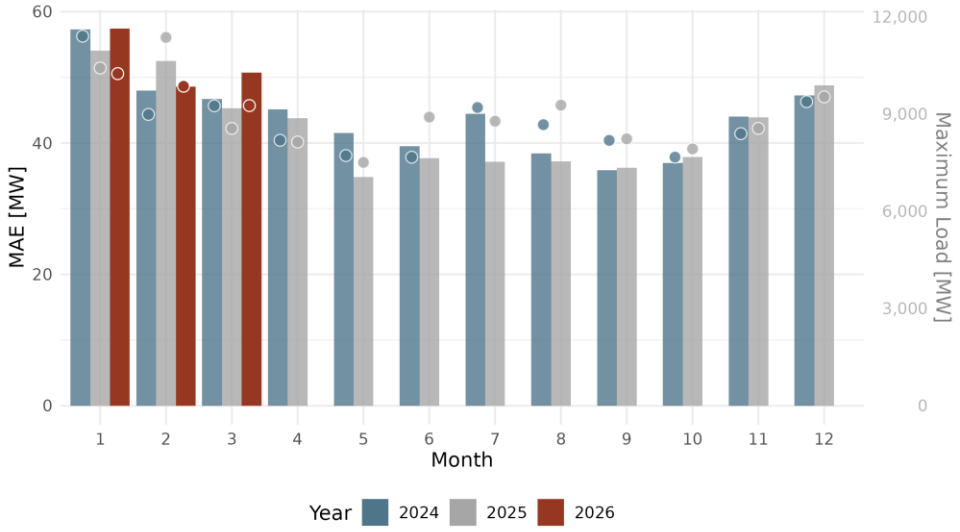


BANC T-60 MAE



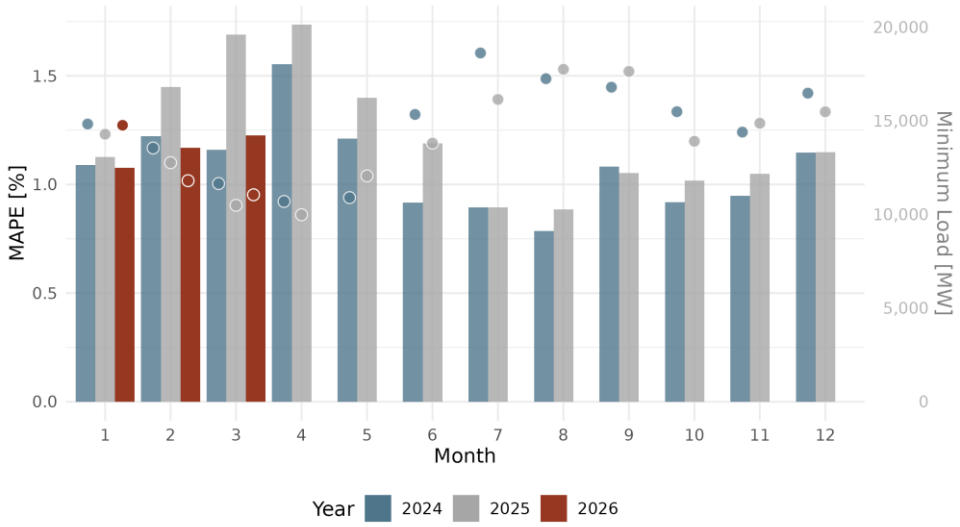
Bars use primary y-axis at left. Points use secondary y-axis at right.

BPA T-60 MAE

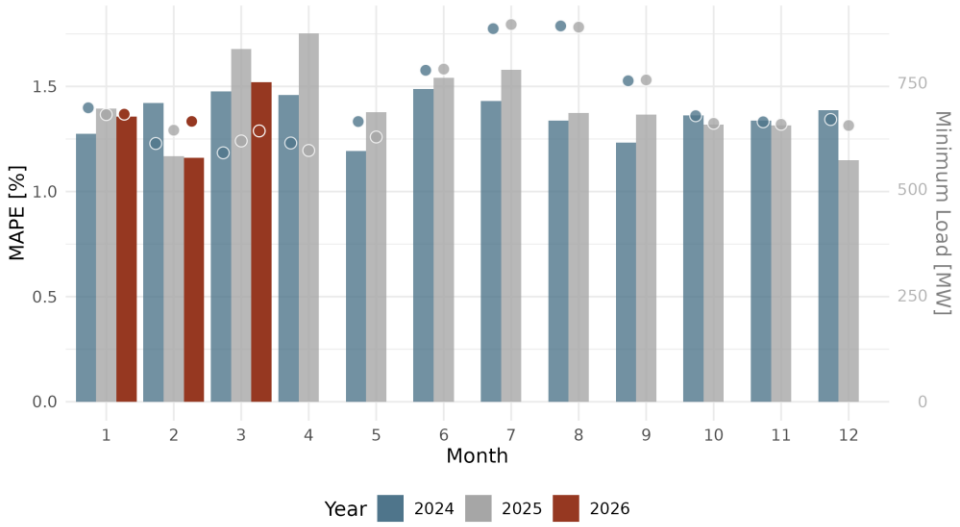


Bars use primary y-axis at left. Points use secondary y-axis at right.

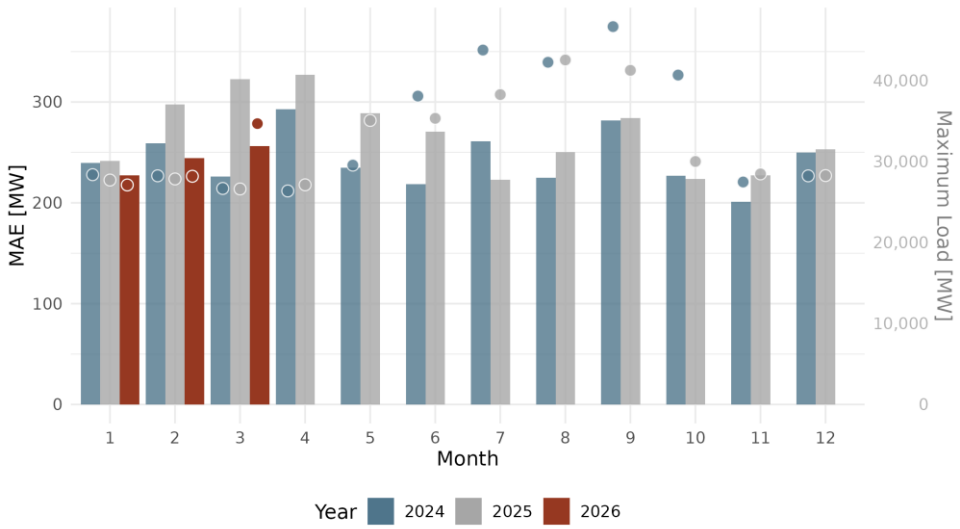
CAISO HASP MAPE



EPE T-60 MAPE

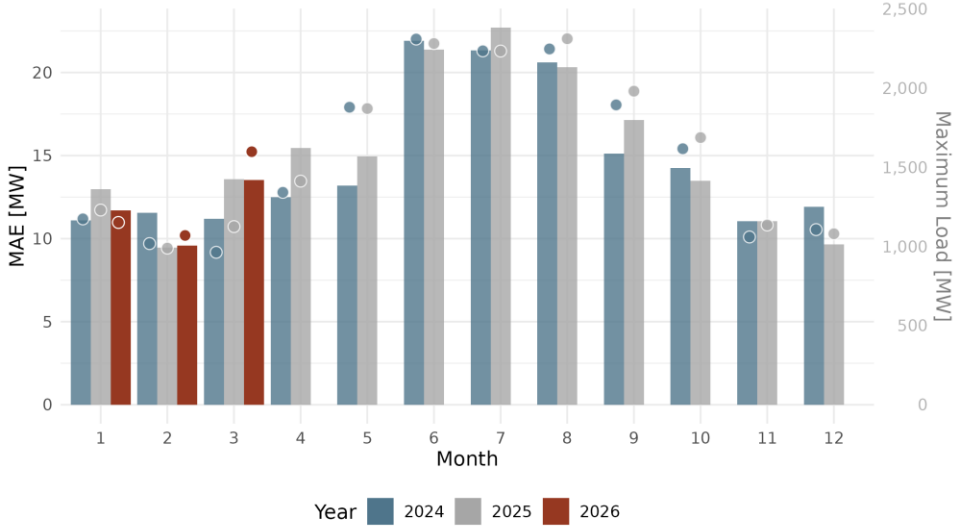


CAISO HASP MAE



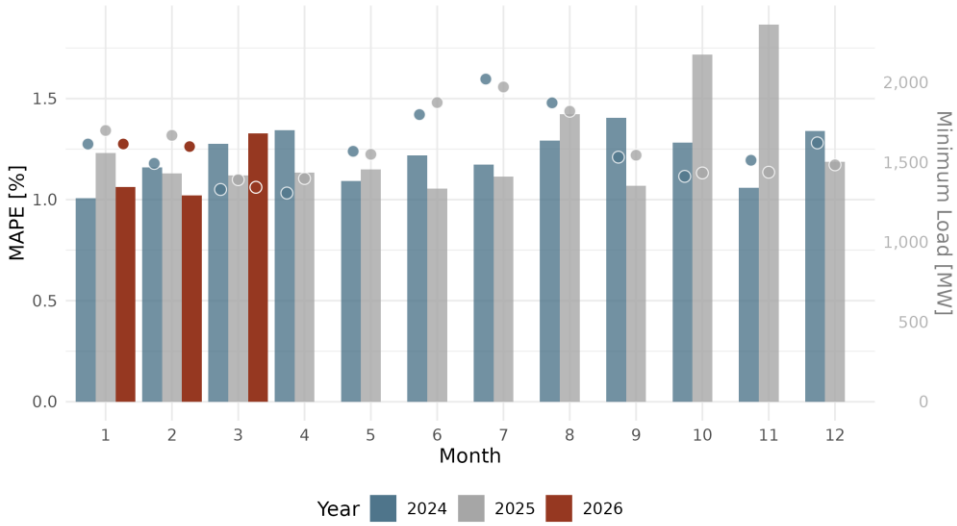
Bars use primary y-axis at left. Points use secondary y-axis at right.

EPE T-60 MAE

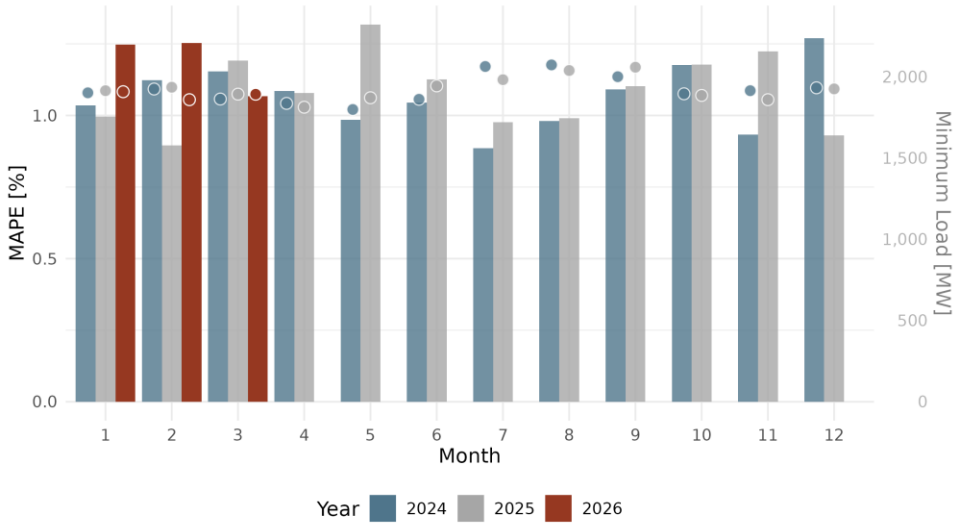


Bars use primary y-axis at left. Points use secondary y-axis at right.

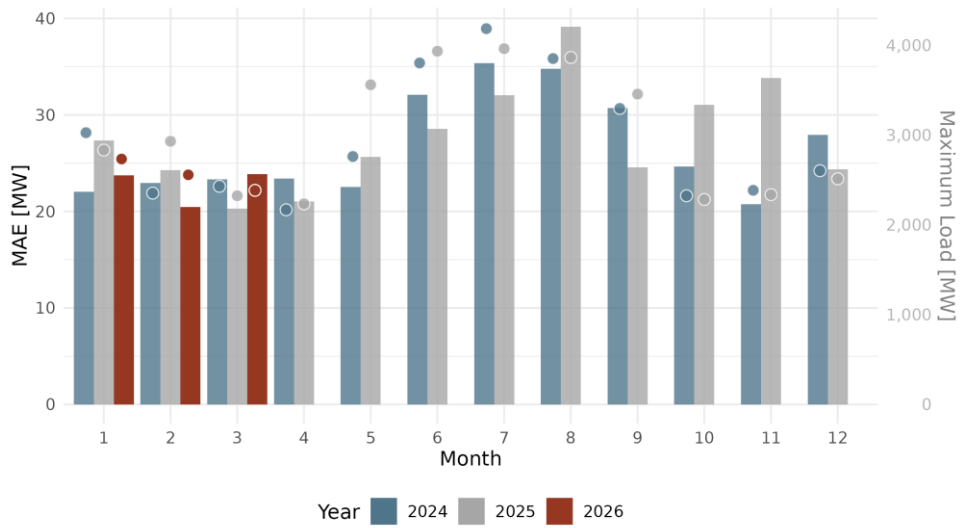
IPCO T-60 MAPE



LADWP T-60 MAPE

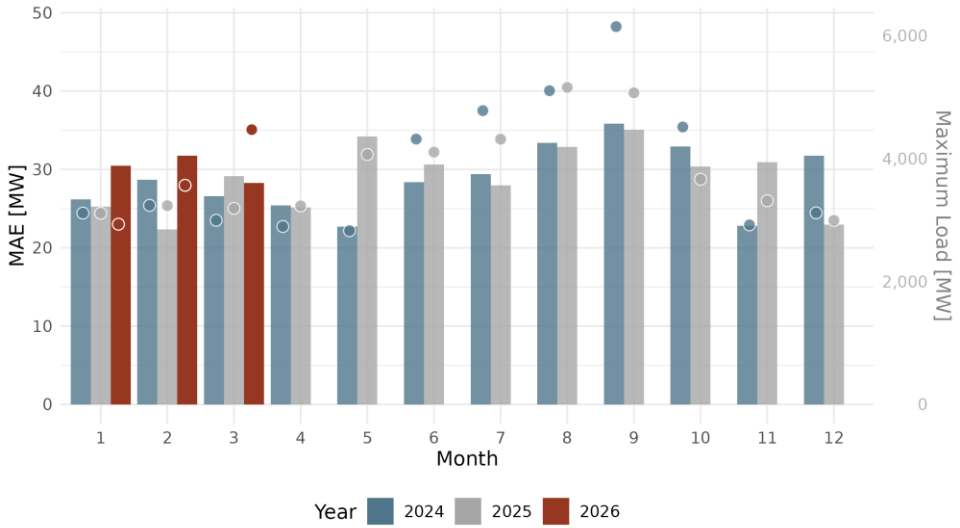


IPCO T-60 MAE



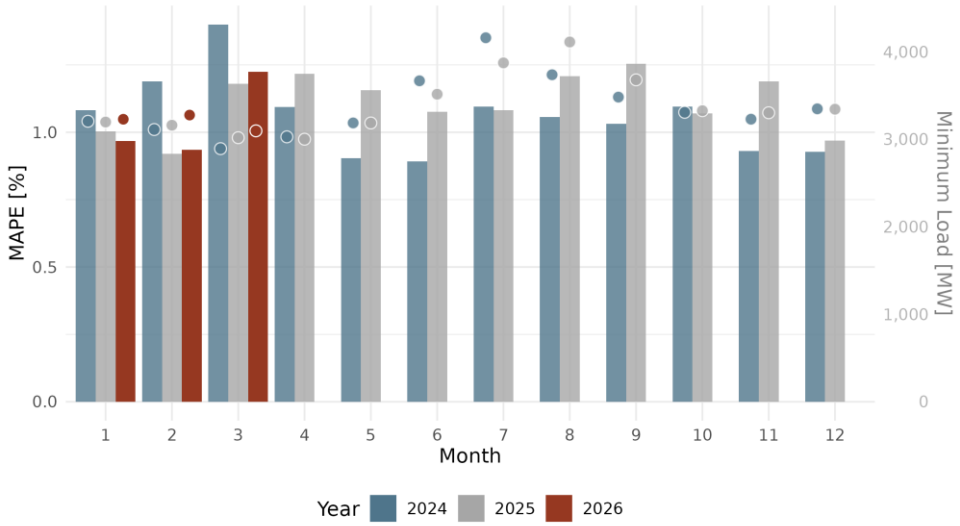
Bars use primary y-axis at left. Points use secondary y-axis at right.

LADWP T-60 MAE

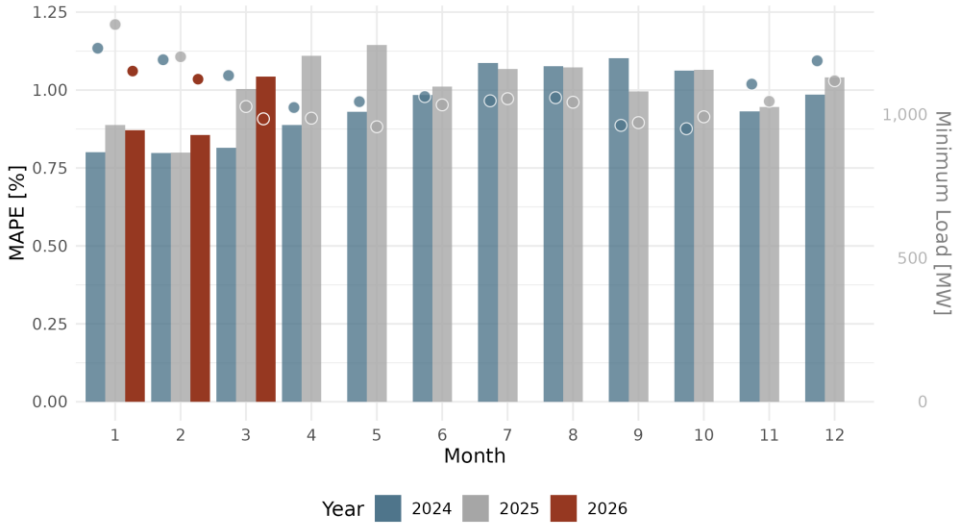


Bars use primary y-axis at left. Points use secondary y-axis at right.

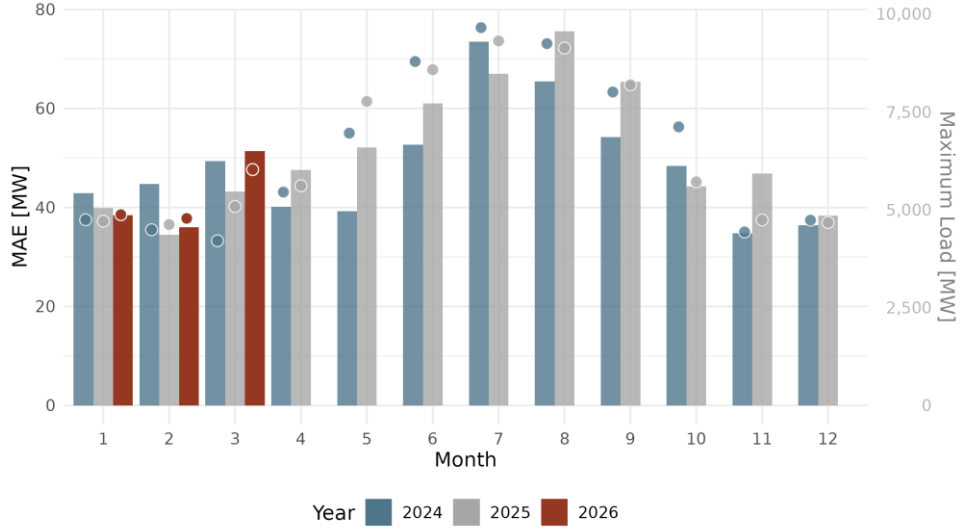
NVE T-60 MAPE



NWMT T-60 MAPE

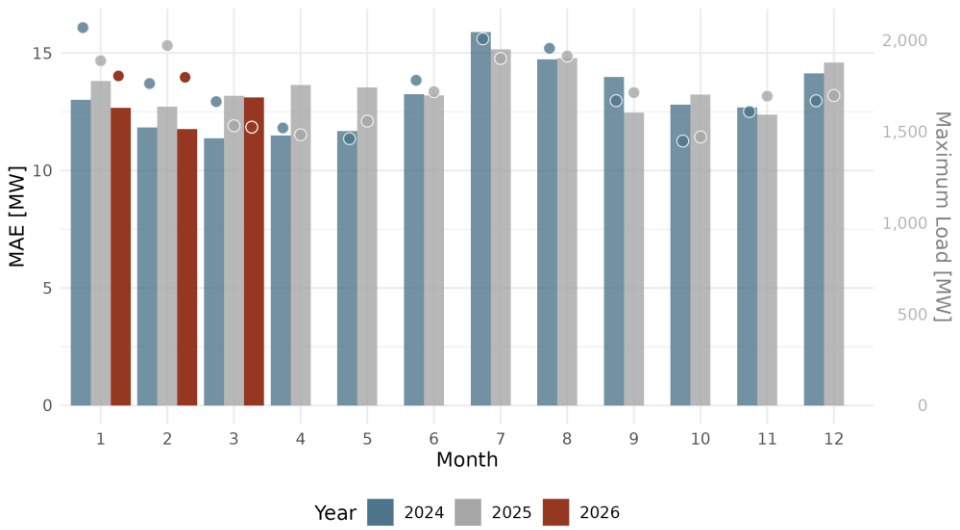


NVE T-60 MAE



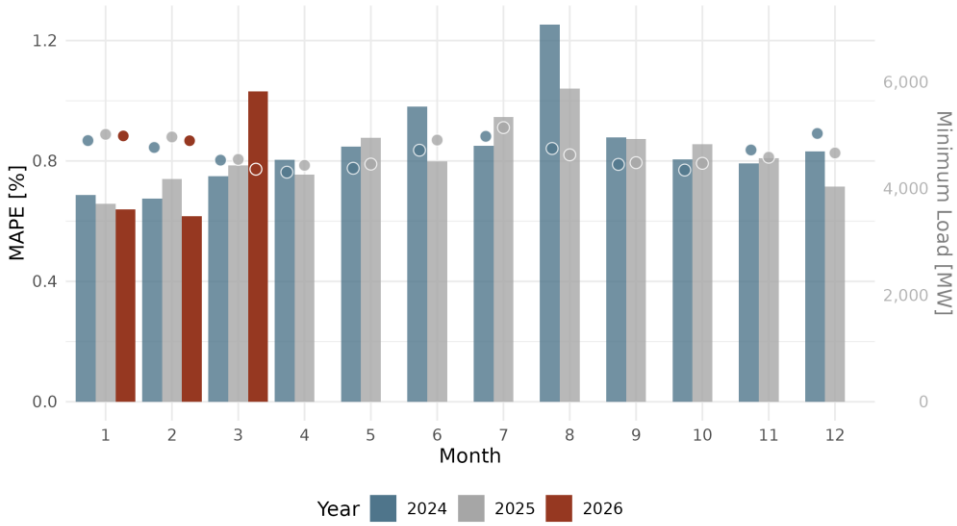
Bars use primary y-axis at left. Points use secondary y-axis at right.

NWMT T-60 MAE

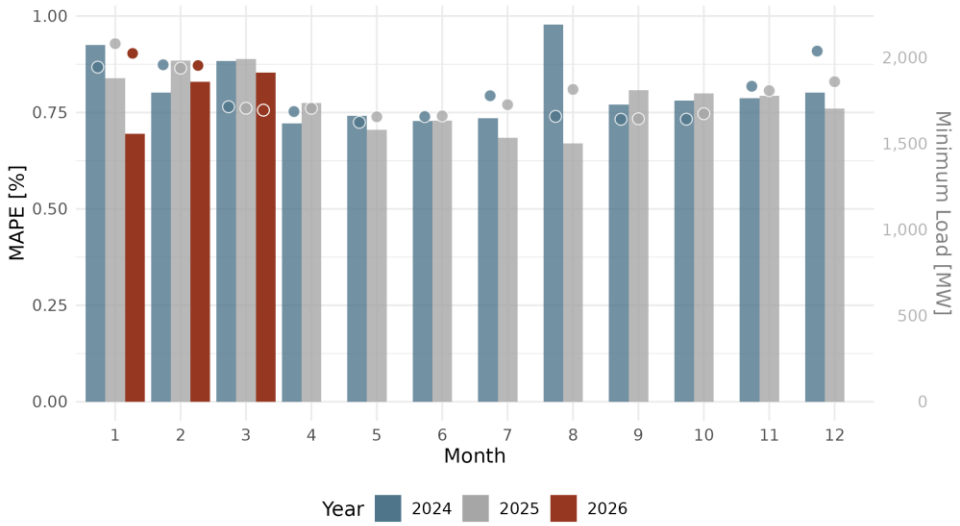


Bars use primary y-axis at left. Points use secondary y-axis at right.

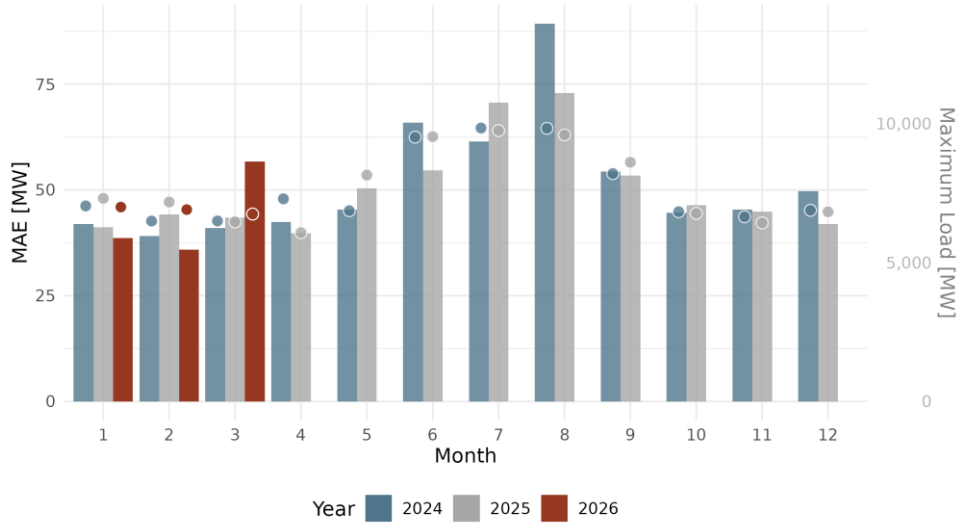
PACE T-60 MAPE



PACW T-60 MAPE

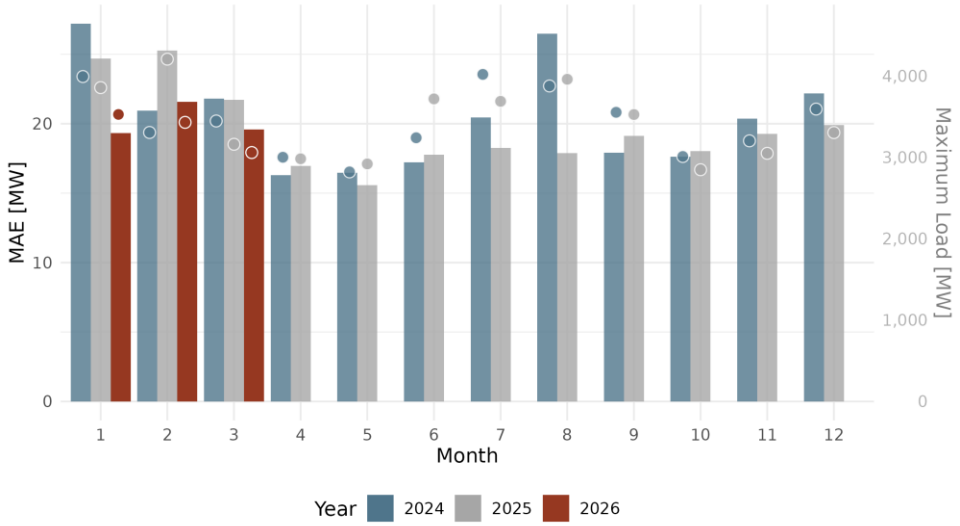


PACE T-60 MAE

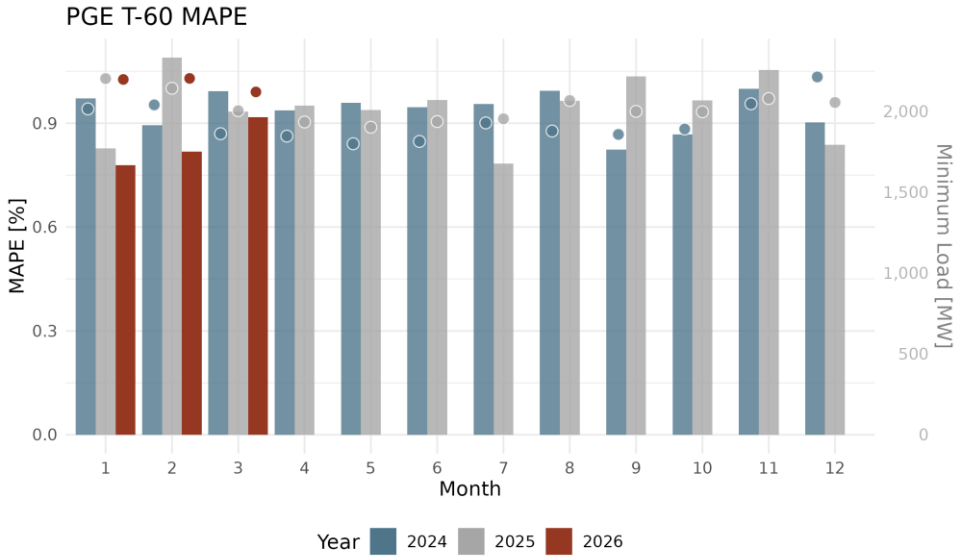


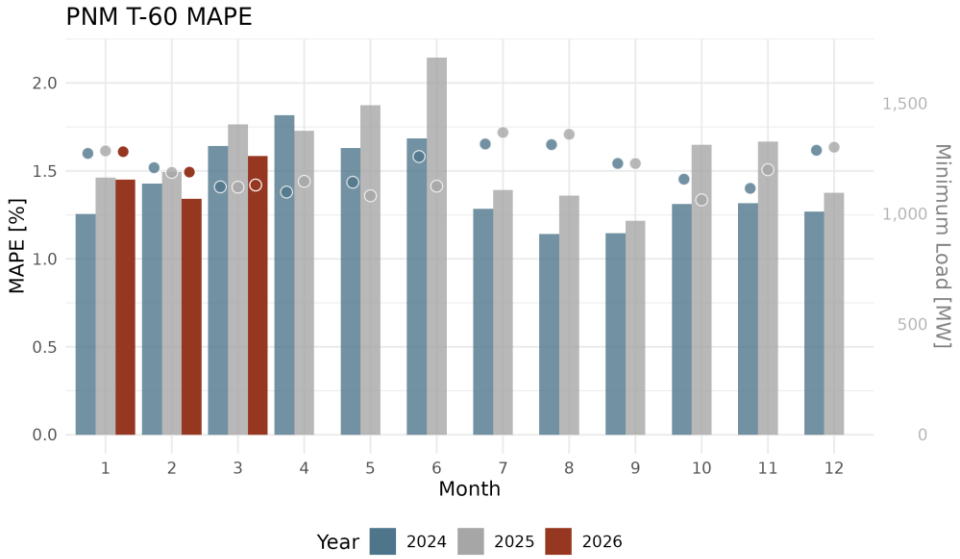
Bars use primary y-axis at left. Points use secondary y-axis at right.

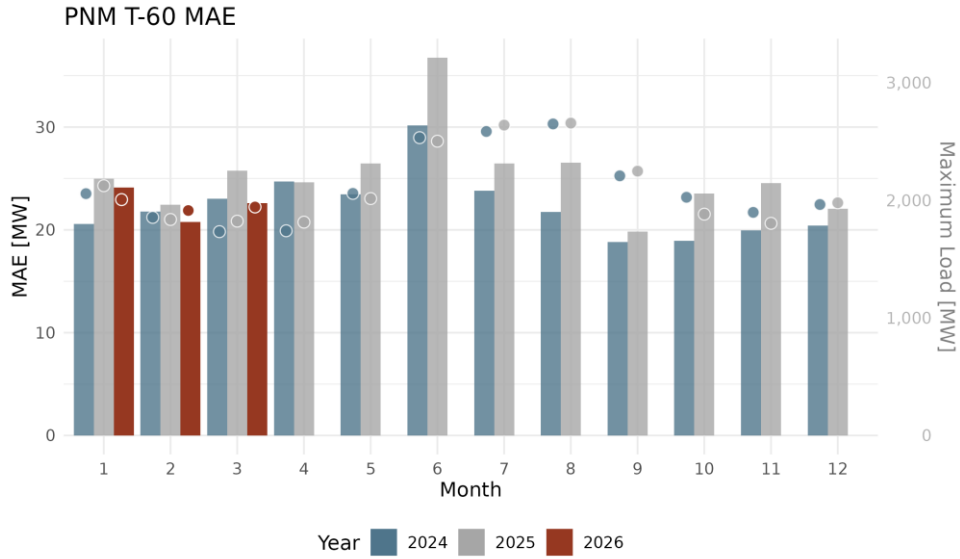
PACW T-60 MAE

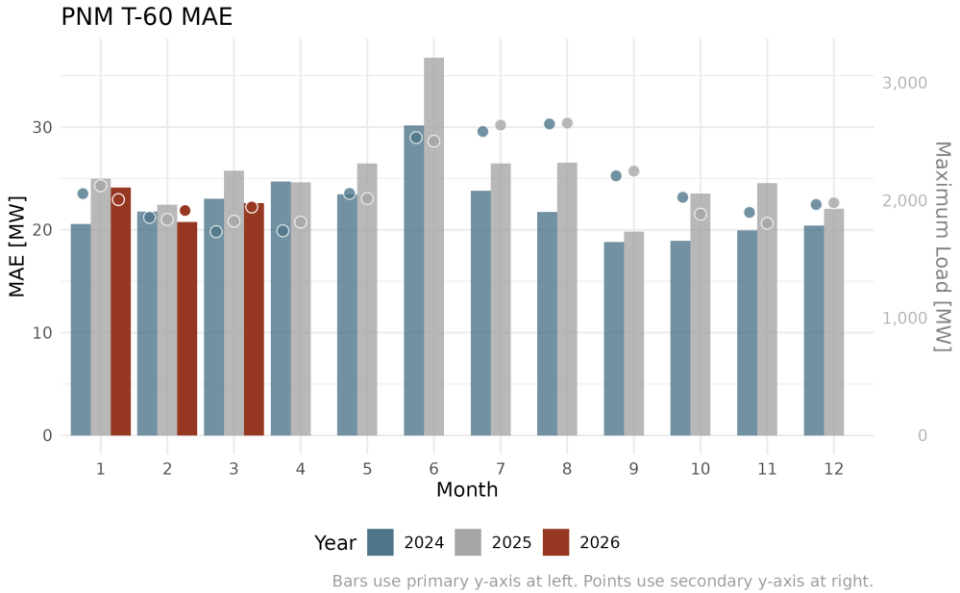


Bars use primary y-axis at left. Points use secondary y-axis at right.

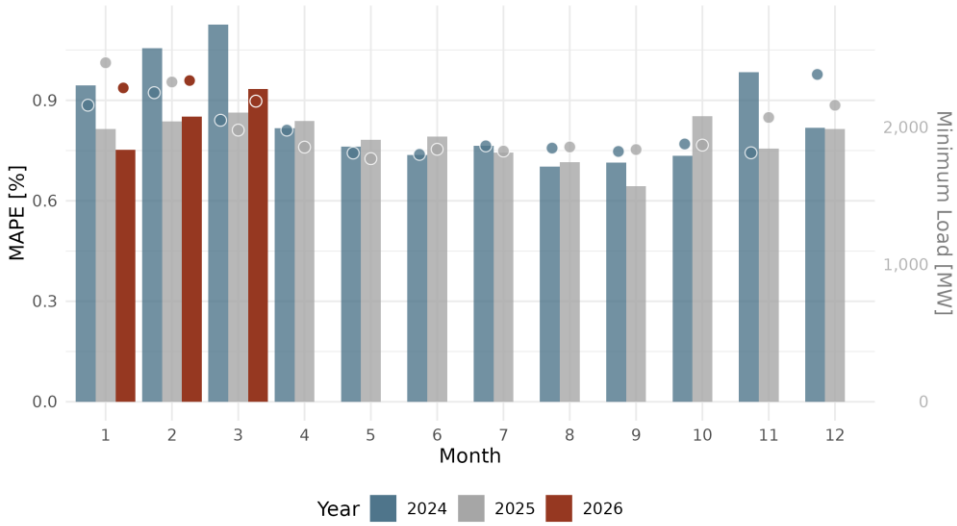

PGE T-60 MAPE
MAPE [%]
0.0
0.3
0.6
0.9
Minimum Load [MW]
0
500
1,000
1,500
2,000
1
2
3
4
5
6
7
8
9
10
11
12
Month
Year
2024
2025
2026


PNM T-60 MAPE
MAPE [%]
0.0
0.5
1.0
1.5
2.0
Minimum Load [MW]
0
500
1,000
1,500
1
2
3
4
5
6
7
8
9
10
11
12
Month
Year
2024
2025
2026

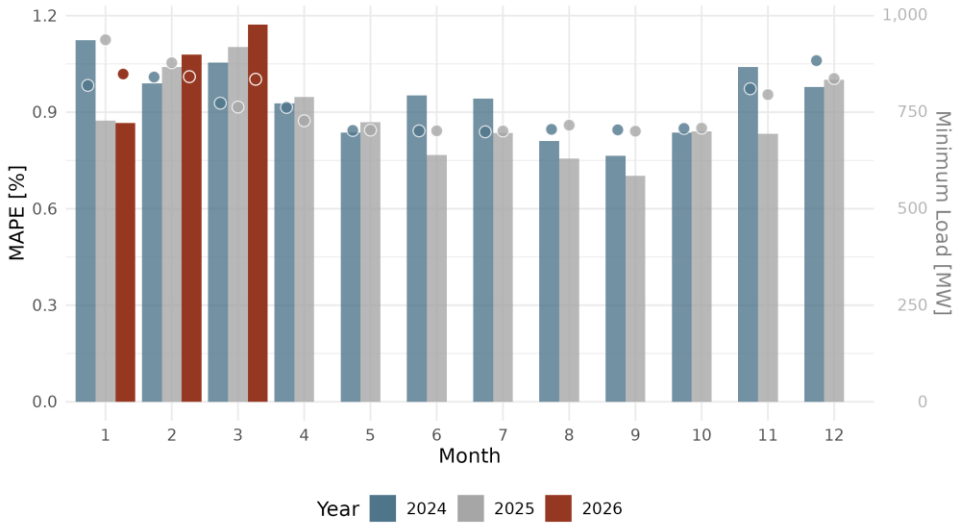

PNM T-60 MAE
MAE [MW]
0
10
20
30
Maximum Load [MW]
0
1,000
2,000
3,000
1
2
3
4
5
6
7
8
9
10
11
12
Month
Year
2024
2025
2026
Bars use primary y-axis at left. Points use secondary y-axis at right.


PNM T-60 MAE
MAE [MW]
0
10
20
30
Maximum Load [MW]
0
1,000
2,000
3,000
1
2
3
4
5
6
7
8
9
10
11
12
Month
Year
2024
2025
2026
Bars use primary y-axis at left. Points use secondary y-axis at right.

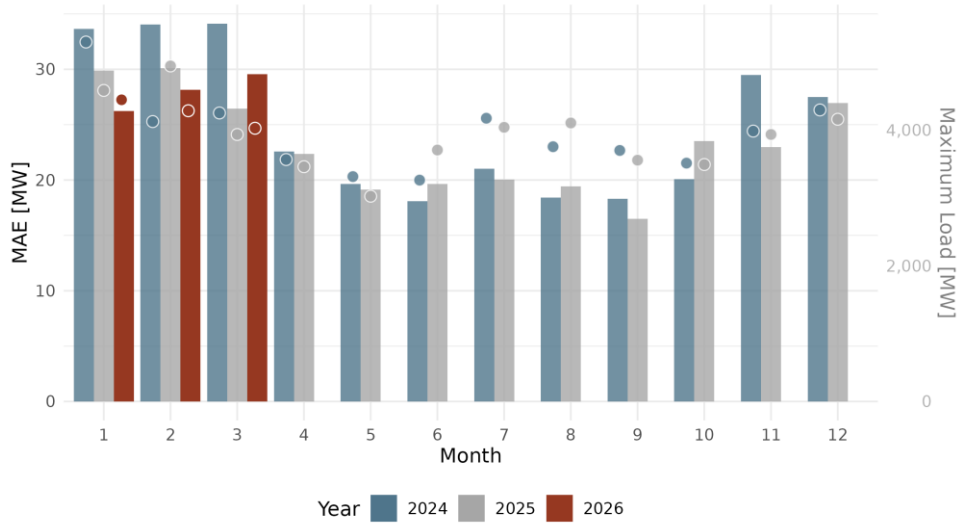
PSE T-60 MAPE



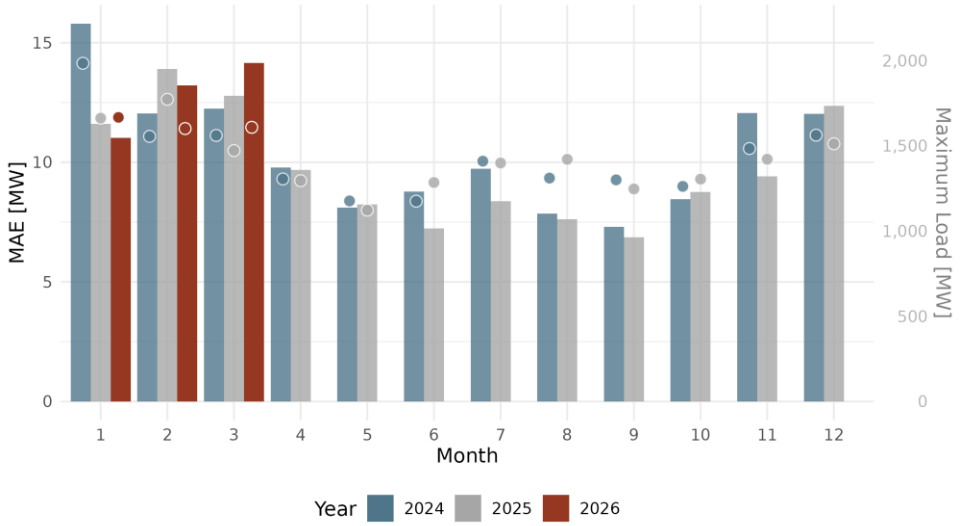
SCL T-60 MAPE



PSE T-60 MAE

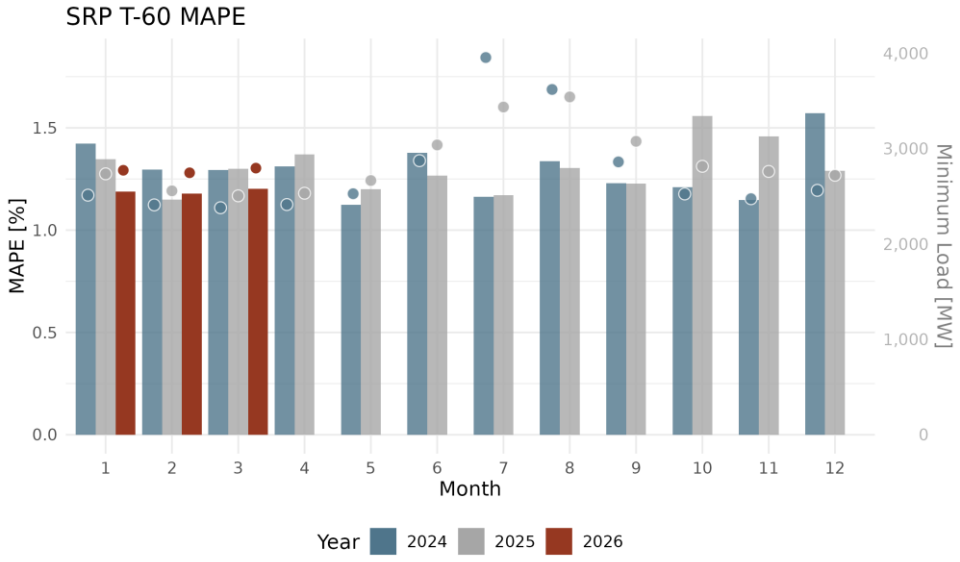


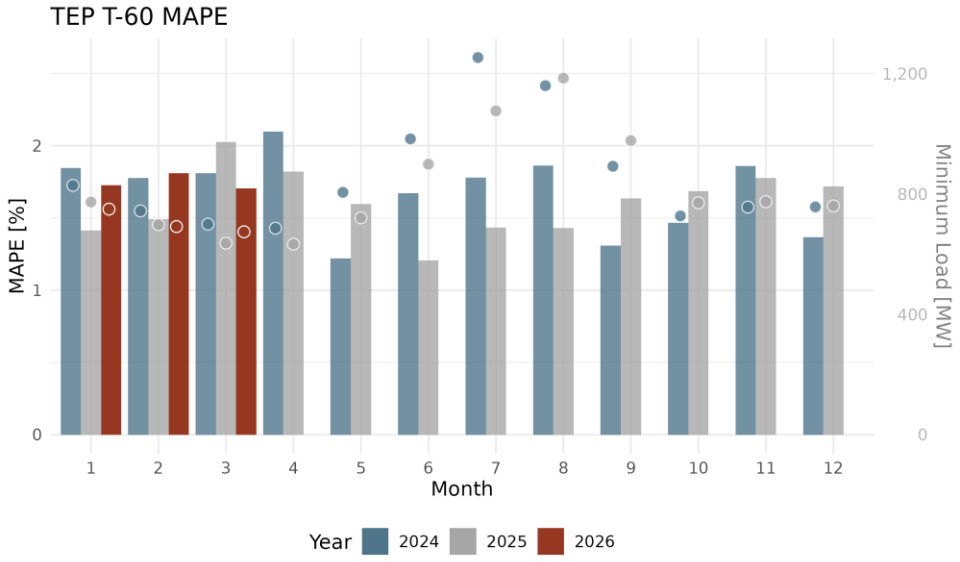
SCL T-60 MAE

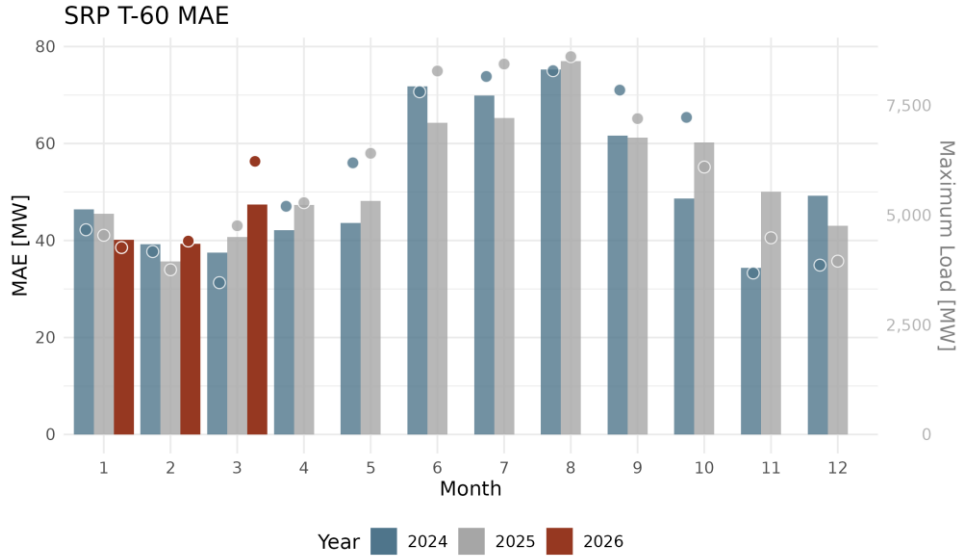


Bars use primary y-axis at left. Points use secondary y-axis at right.

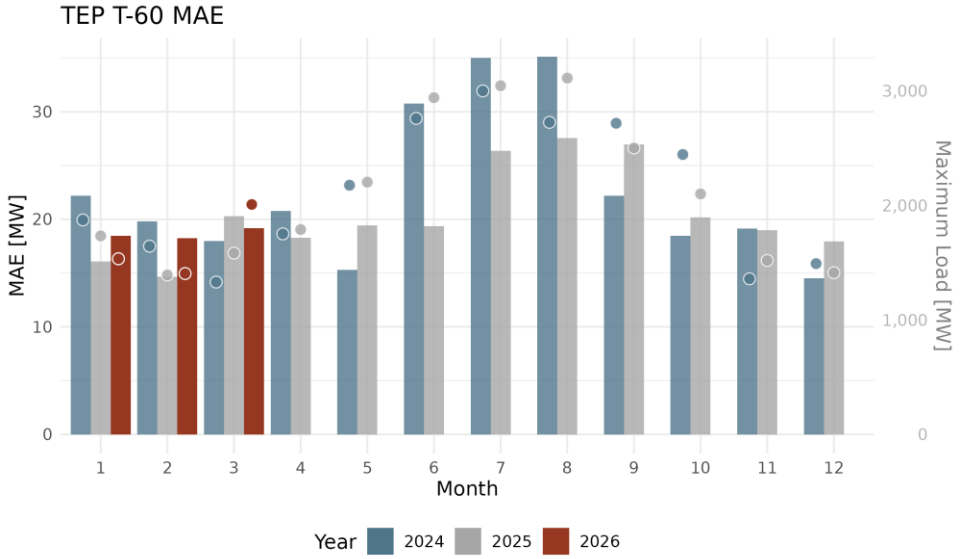
Bars use primary y-axis at left. Points use secondary y-axis at right.





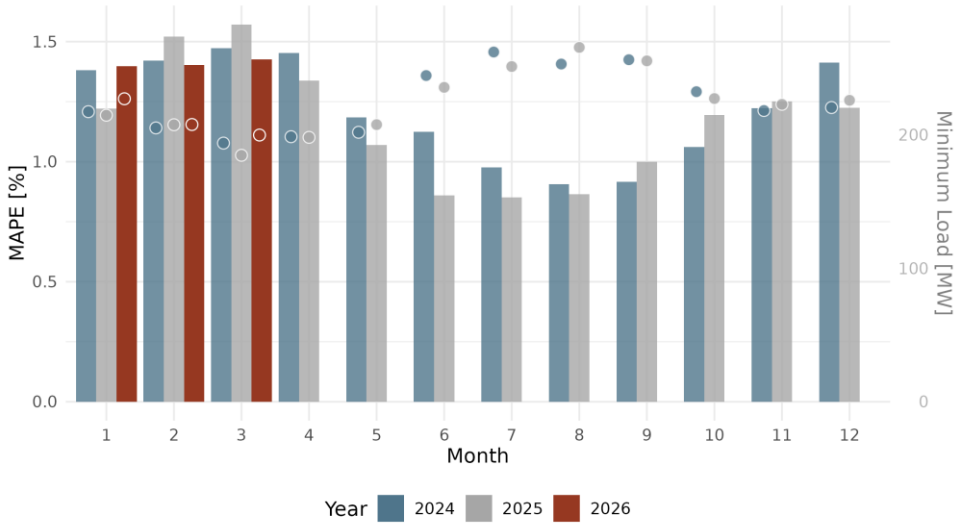


Bars use primary y-axis at left. Points use secondary y-axis at right.

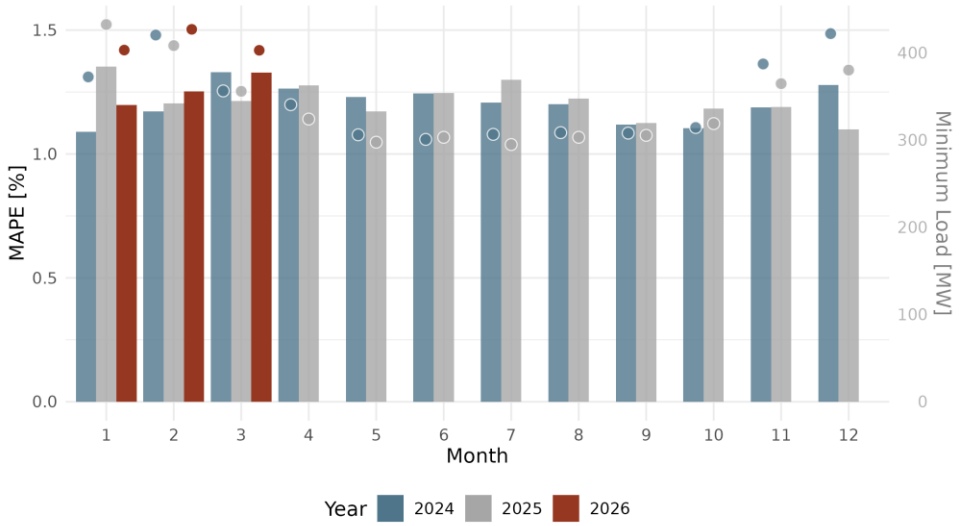


Bars use primary y-axis at left. Points use secondary y-axis at right.

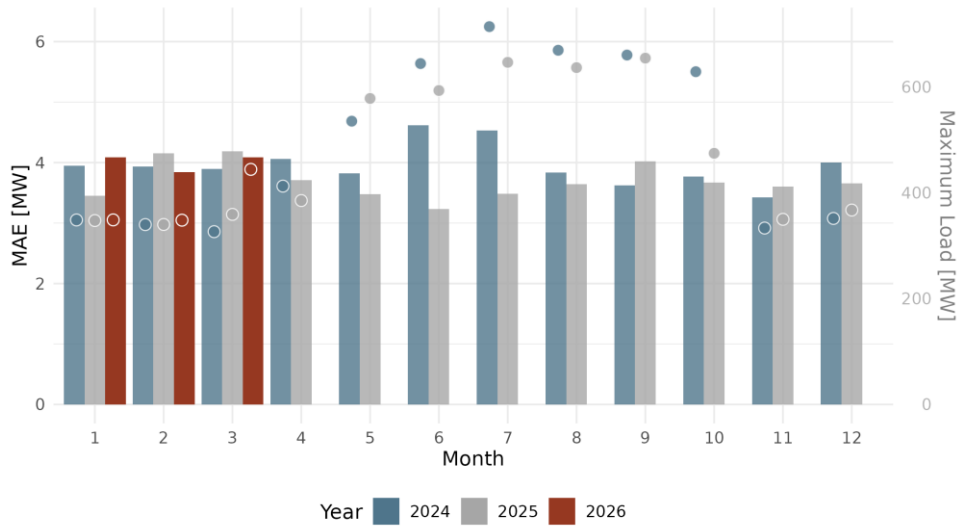
TID T-60 MAPE



TPWR T-60 MAPE

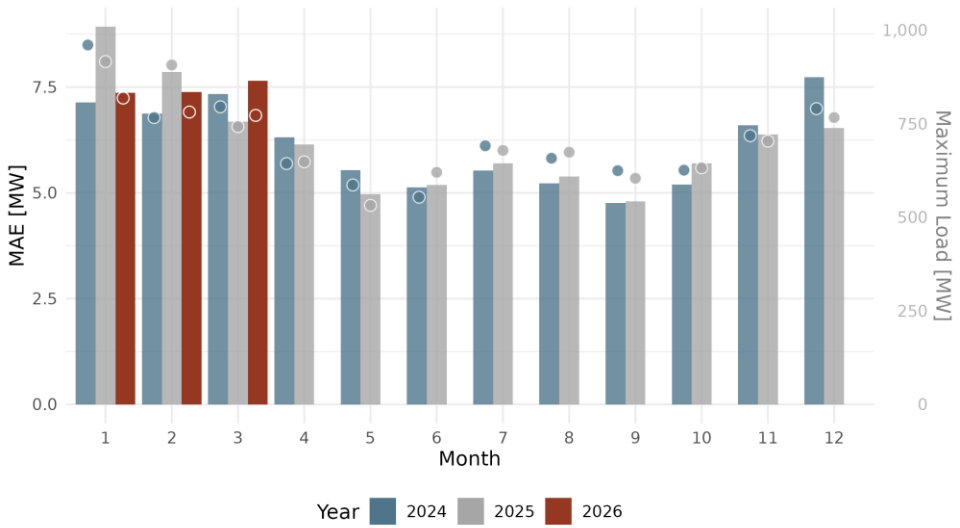


TID T-60 MAE



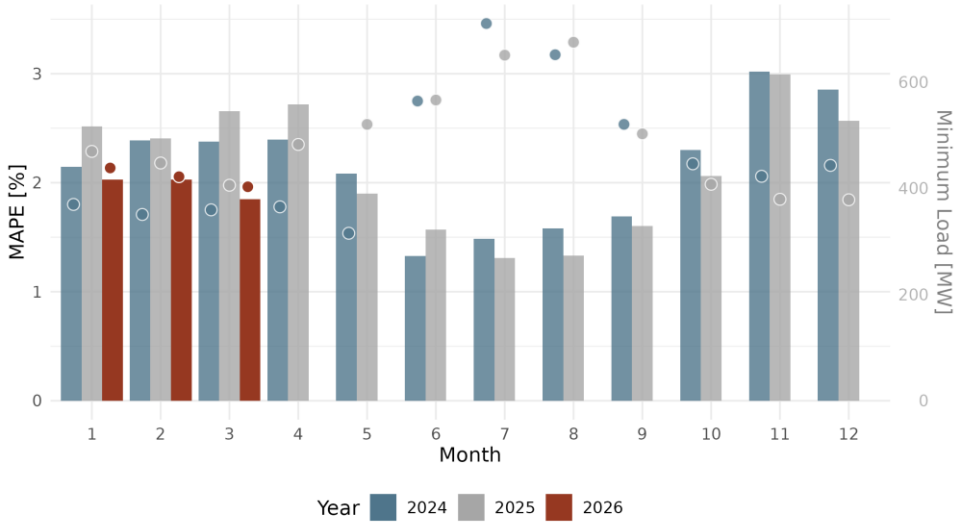
Bars use primary y-axis at left. Points use secondary y-axis at right.

TPWR T-60 MAE

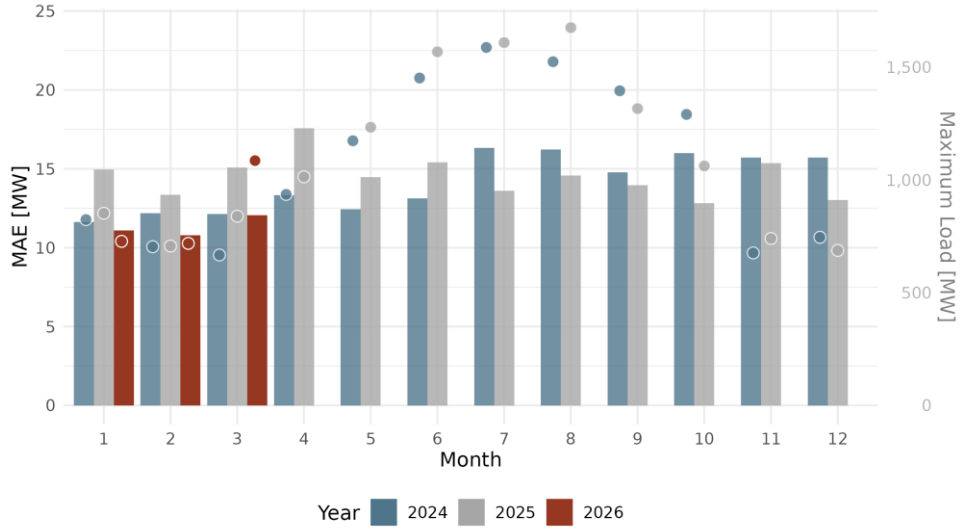


Bars use primary y-axis at left. Points use secondary y-axis at right.

WALC T-60 MAPE



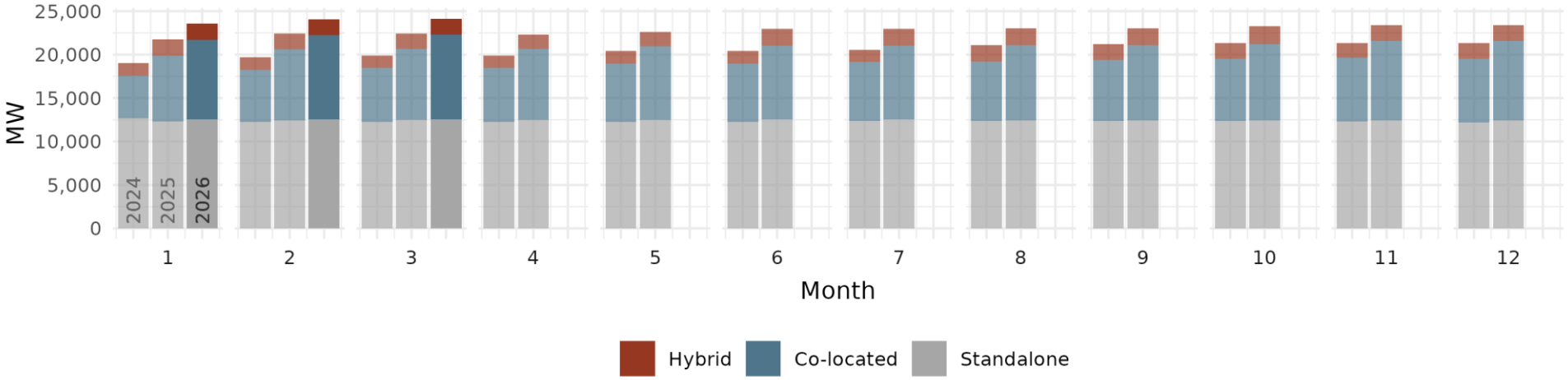
WALC T-60 MAE



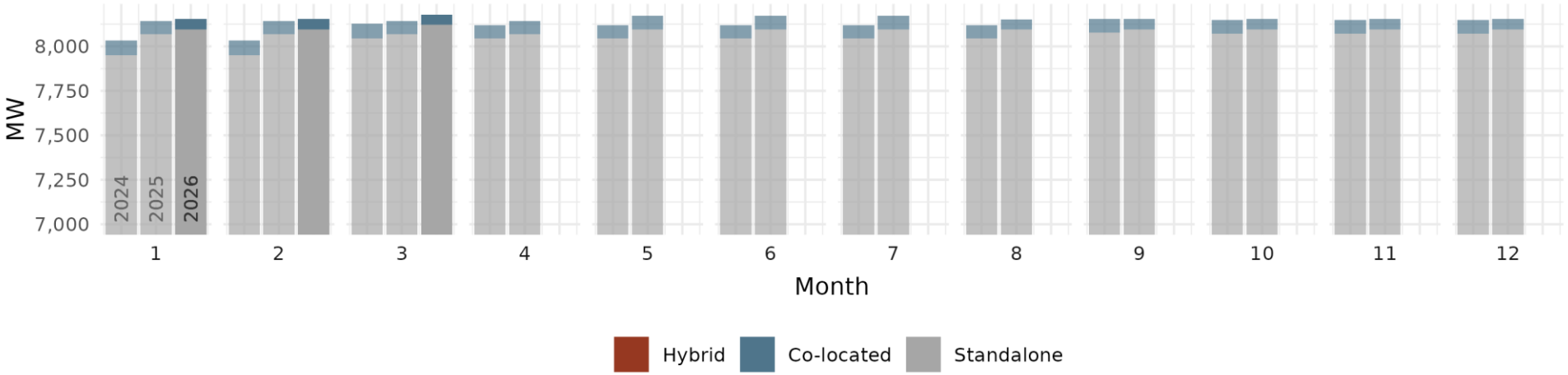
Bars use primary y-axis at left. Points use secondary y-axis at right.

Renewable Forecasting

CAISO solar capacity

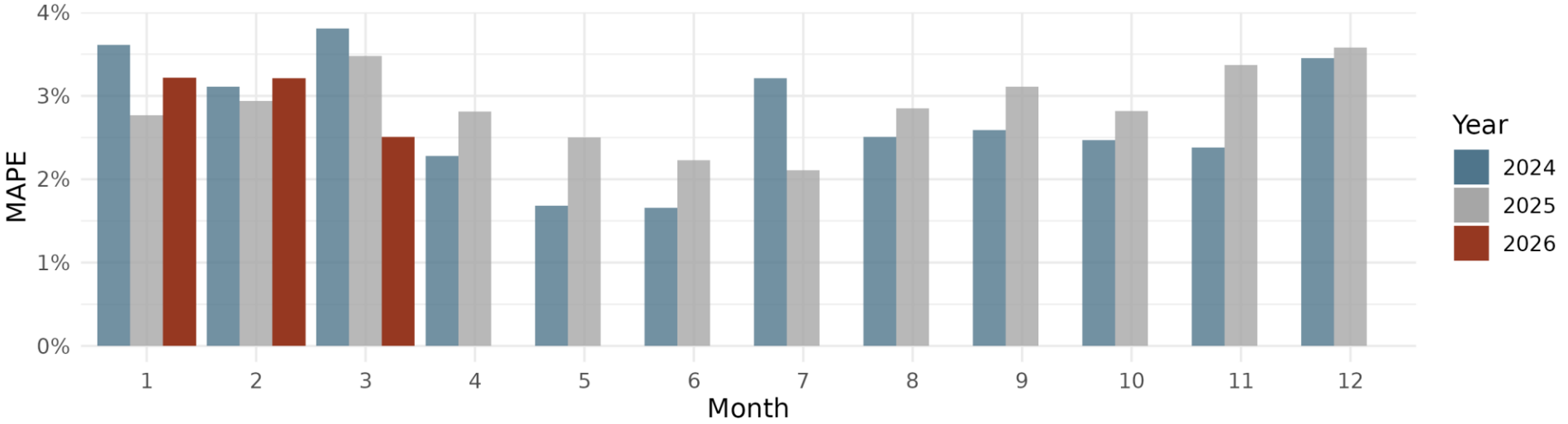


CAISO wind capacity

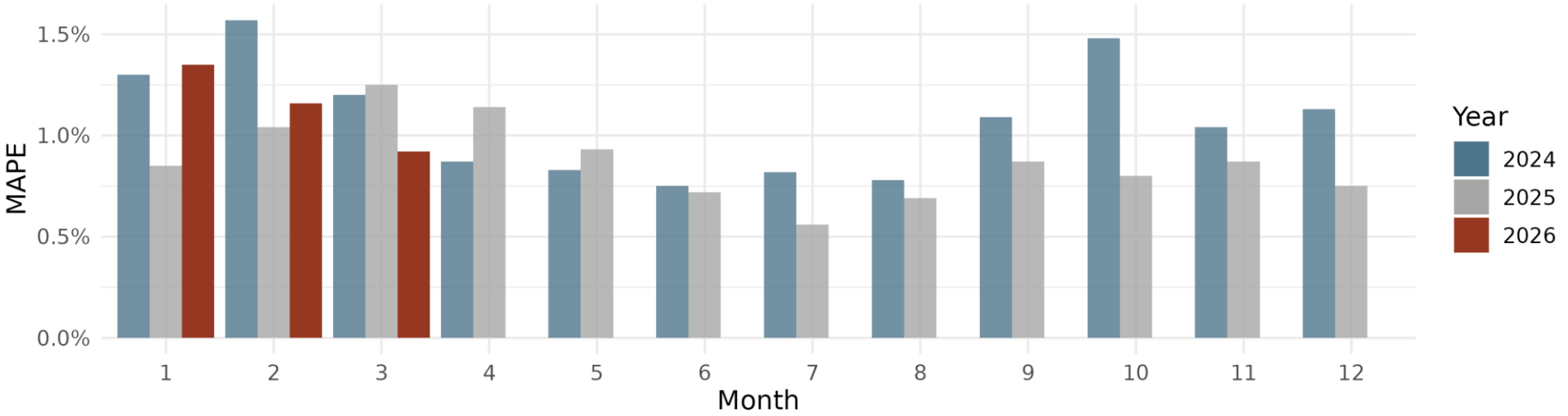


Note, the y-axis uses a non-zero baseline.

DA solar forecast

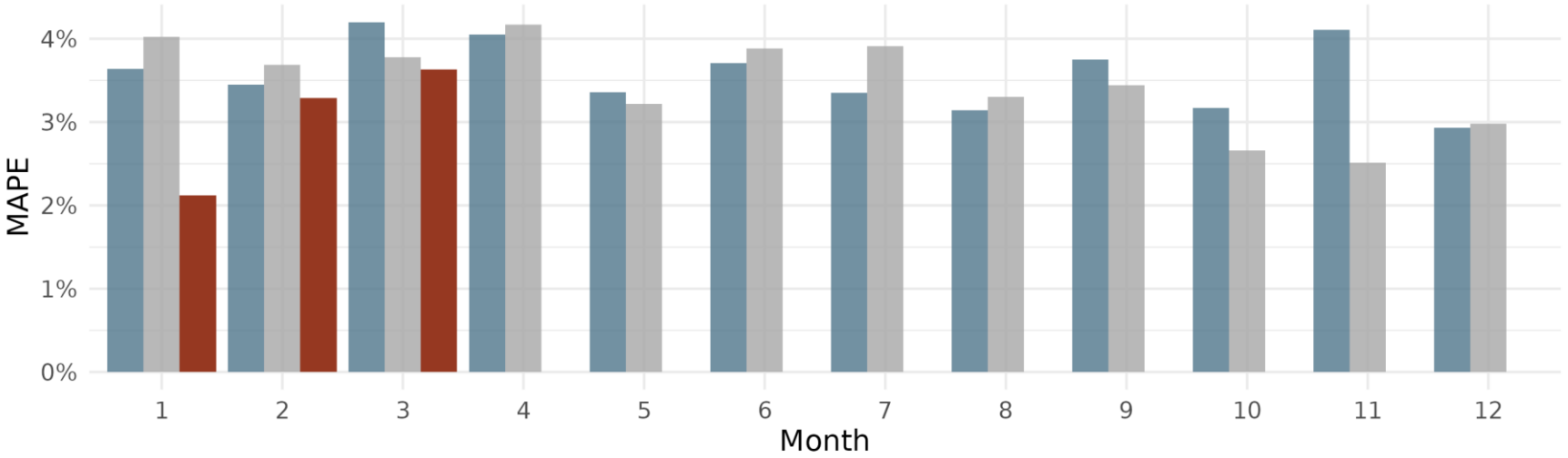


RTD solar forecast

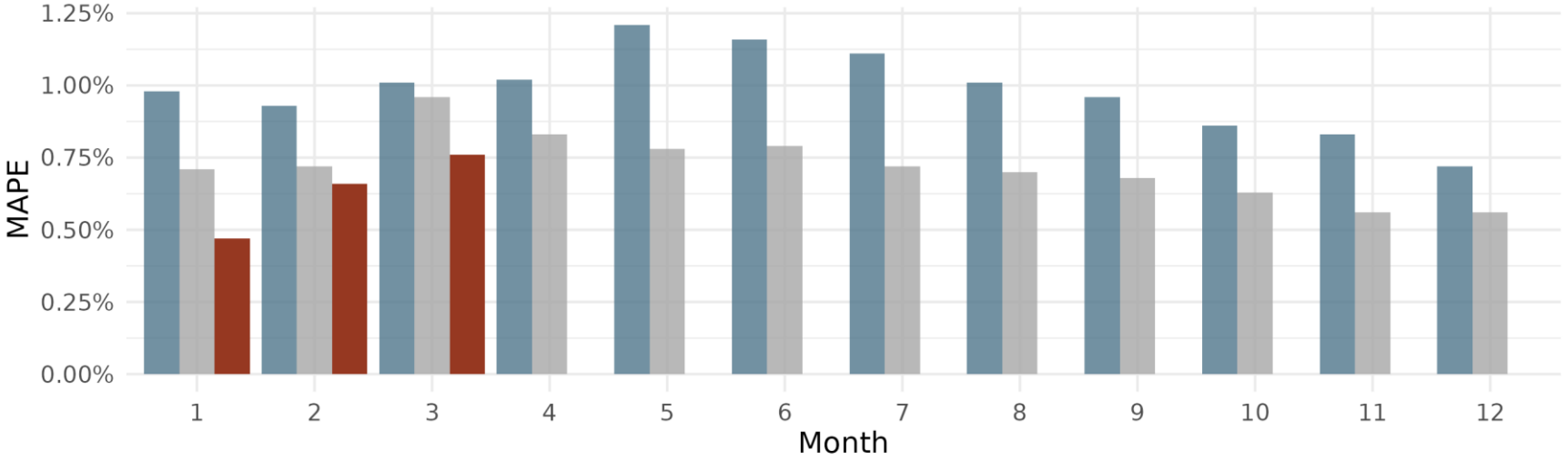


*MAPE = abs(Forecast – Actual)/Actual
**MAPE only calculated for intervals where Forecast > 0

DA wind forecast



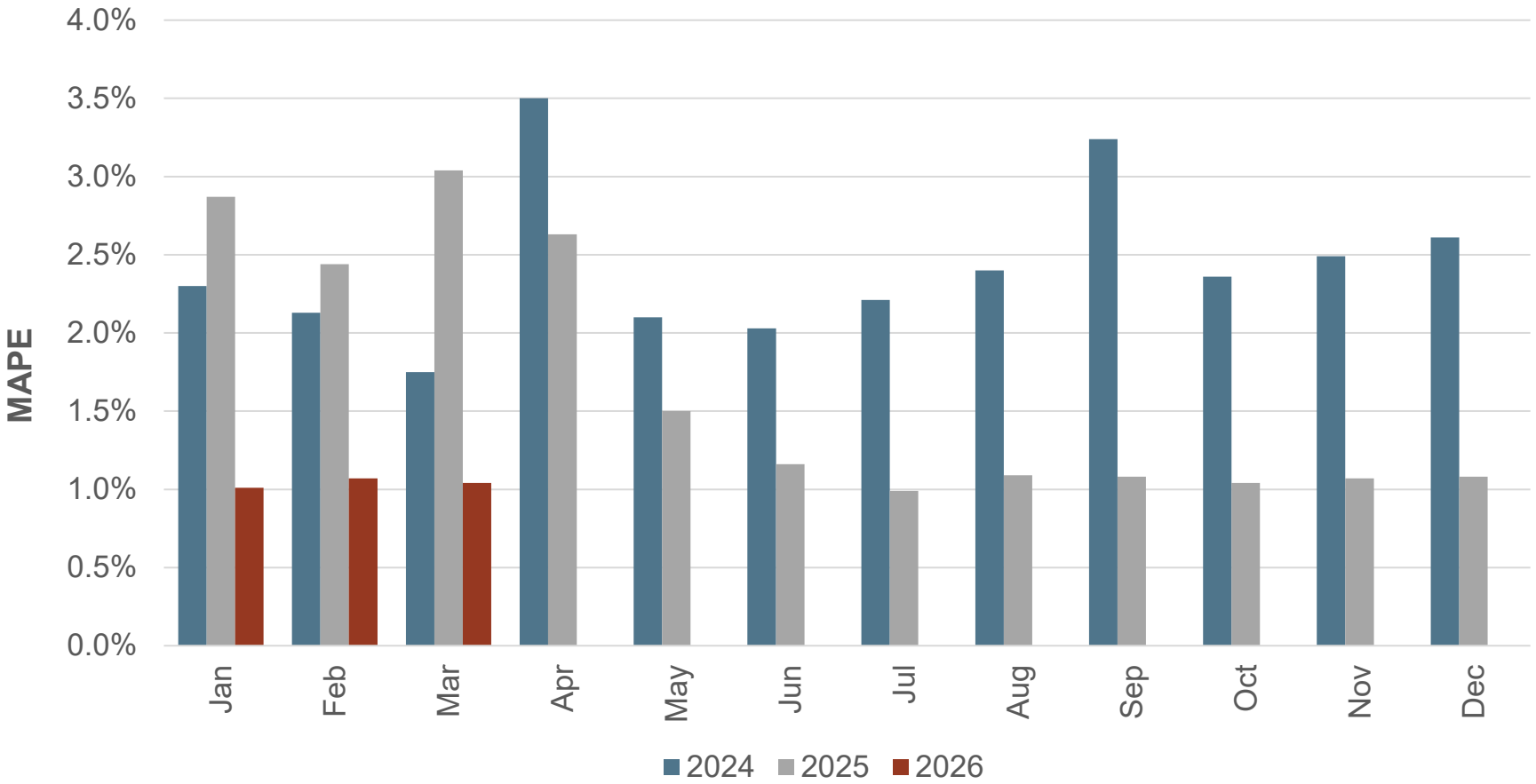
RTD wind forecast



*MAPE = abs(Forecast – Actual)/Actual

Real Time Solar Hybrid Performance

*Comparison of DOT to MW Production



*MAPE = abs(DOT – Actual)/Capacity