



California ISO

Market Performance and Planning Forum

December 9, 2021

CAISO PUBLIC

Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2021 release plans, resulting from stakeholders inputs
- Provide information on specific initiatives
 - to support Market Participants in budget and resource planning
- Focus on implementation planning
 - Clarify timelines
 - Discuss external impacts
 - Policy discussions should occur in the initiative stakeholder process



California ISO

Market Performance and Planning Forum

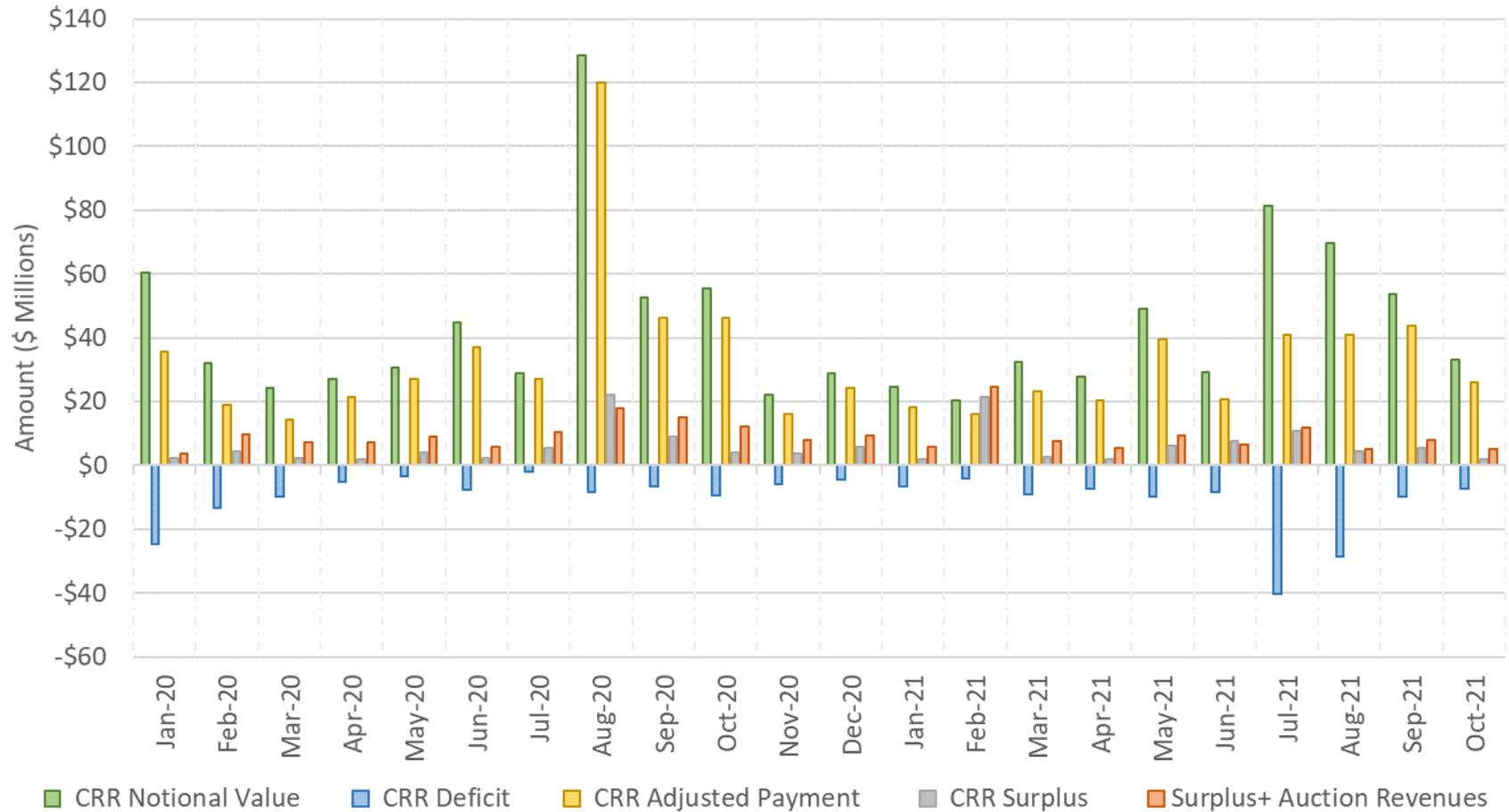
Agenda – December 9, 2021

9 a.m. – 12 p.m.

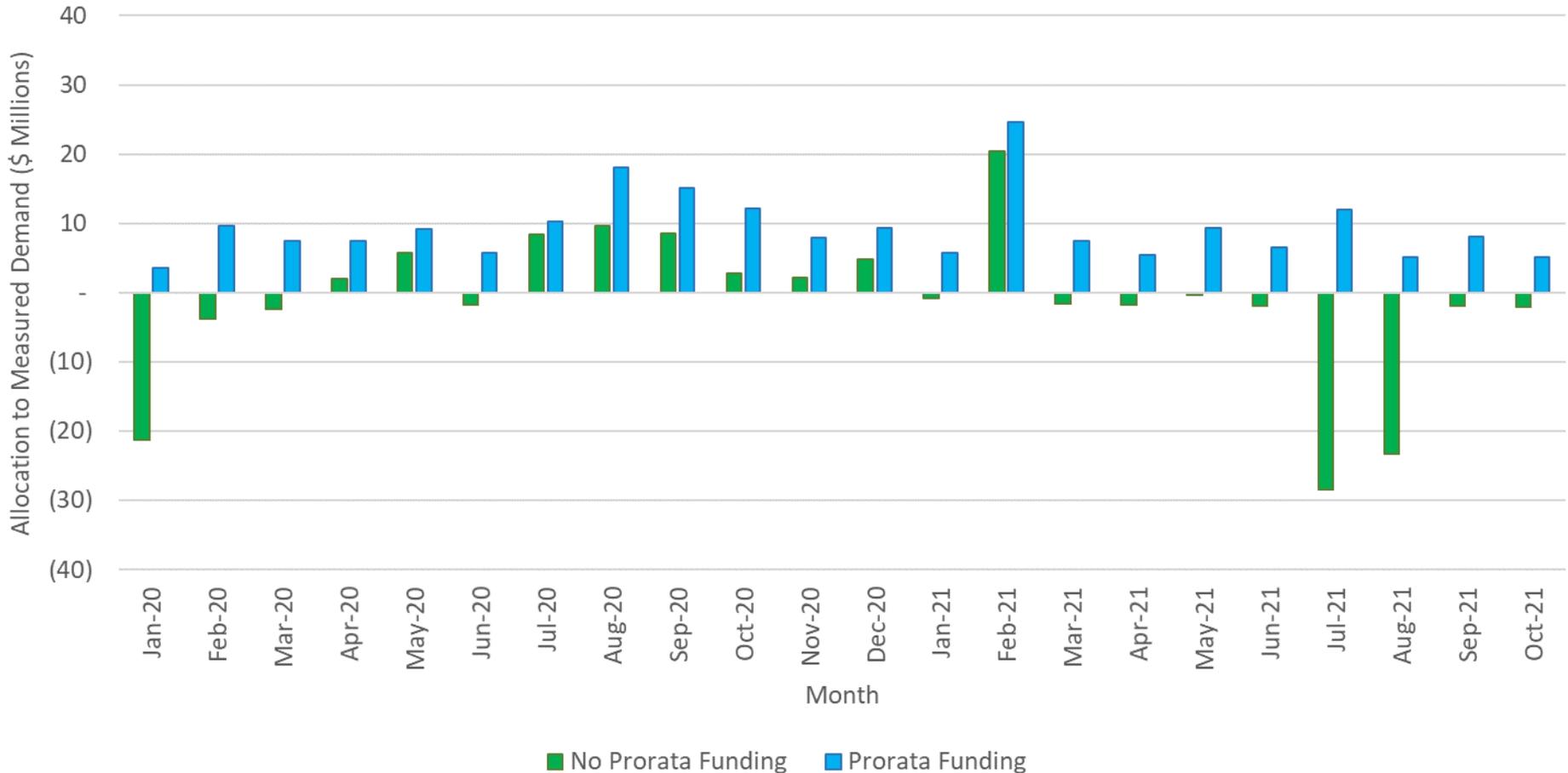
Time:	Topic:	Presenter:
9:00 – 9:05	Introduction, Agenda	Jimmy Bishara
9:05 – 10:15	Market Performance Update	Abhishek Hundiwale Guillermo Bautista Alderete Amber Motley
10:15 – 11:00	Release Update	Trang Vo
11:00 – 11:45	Policy Update	Brad Cooper John Goodin

Congestion Revenue Rights

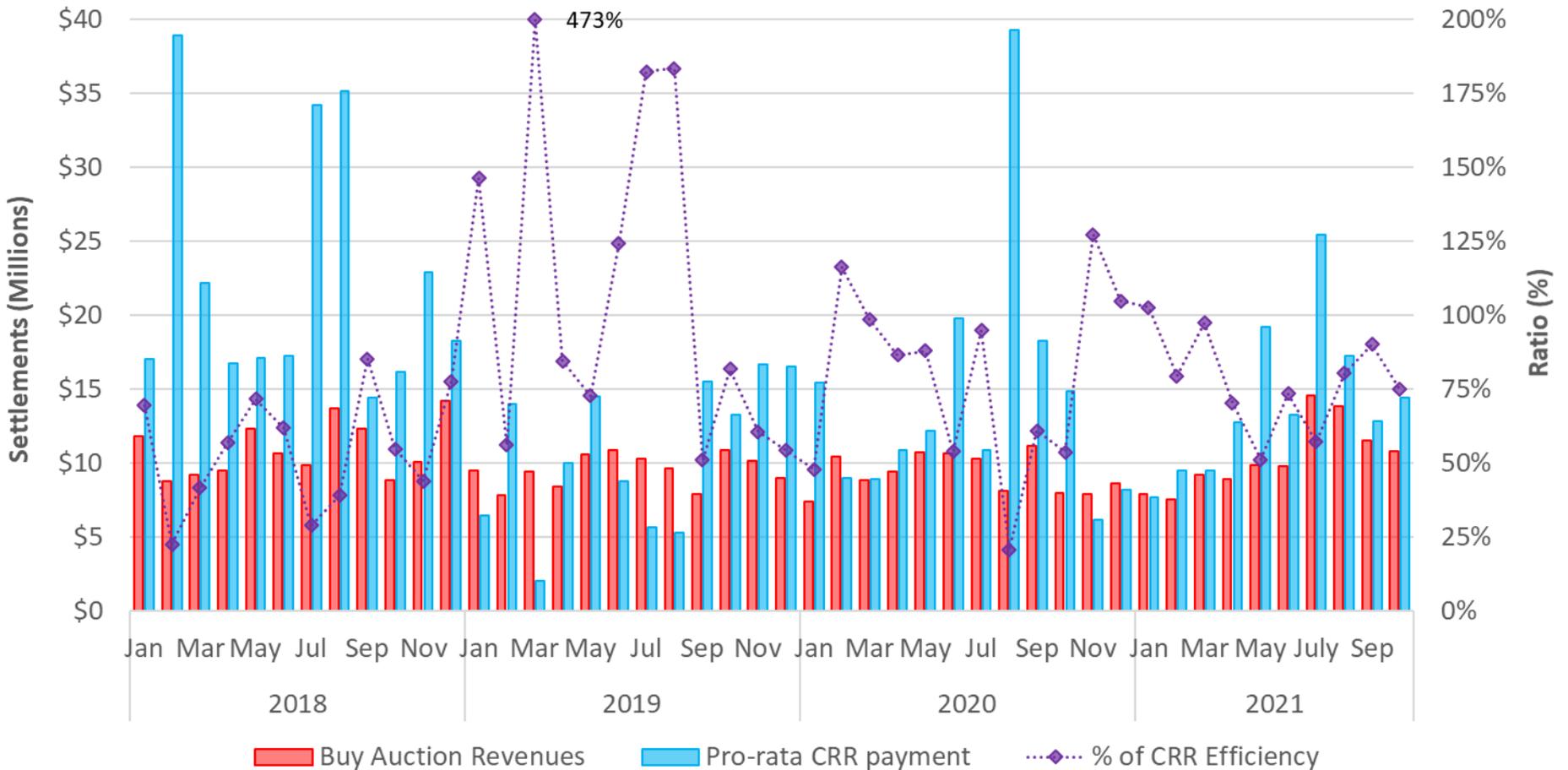
CRR settlements amounts has decreased after summer



Implementation of pro-rata funding has improved revenue adequacy in 2021



Auction efficiency improved in recent months as congestion levels decreased after summer conditions

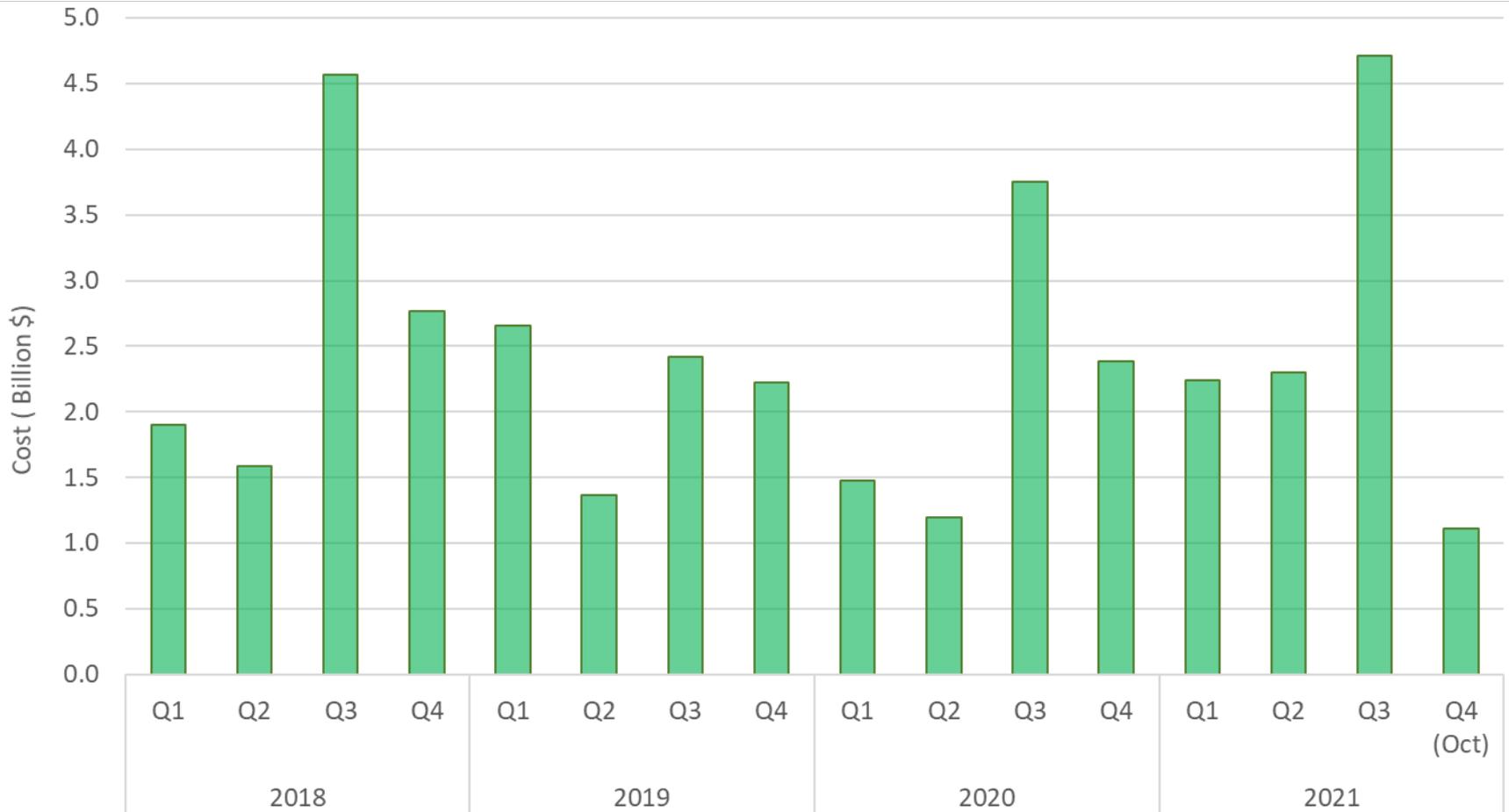


CAISO's Market Costs

CAISO markets costs have multiple components, and 90 percent of overall energy costs are transacted in day-ahead market

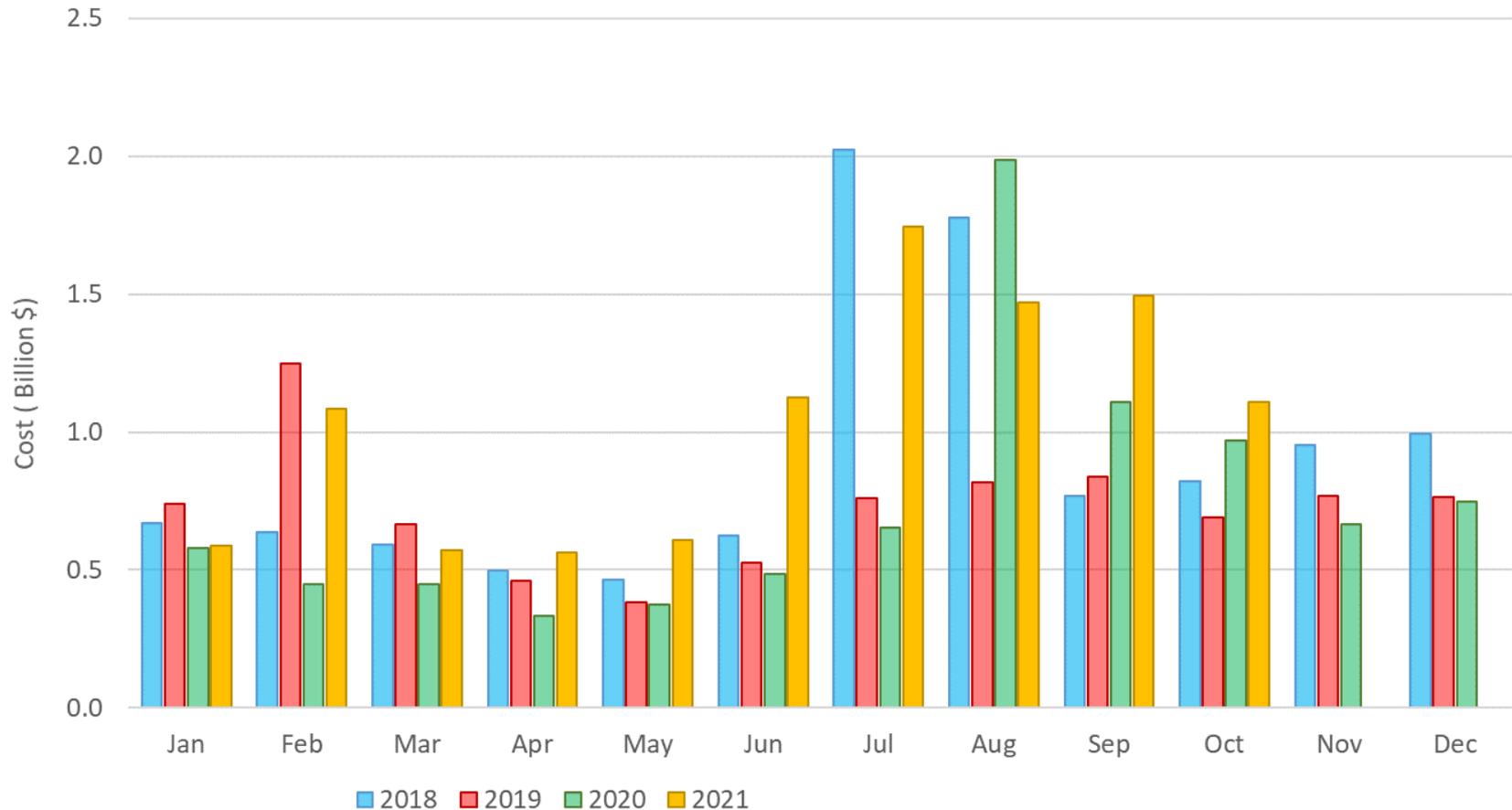
- Main cost components include:
 - Day-ahead energy costs
 - Real-time energy costs
 - Ancillary Service costs
 - Bid cost recovery
 - Reliability Must Run
 - GMC

Overall costs of CAISO's market has decreased after summer given lower load levels and prices

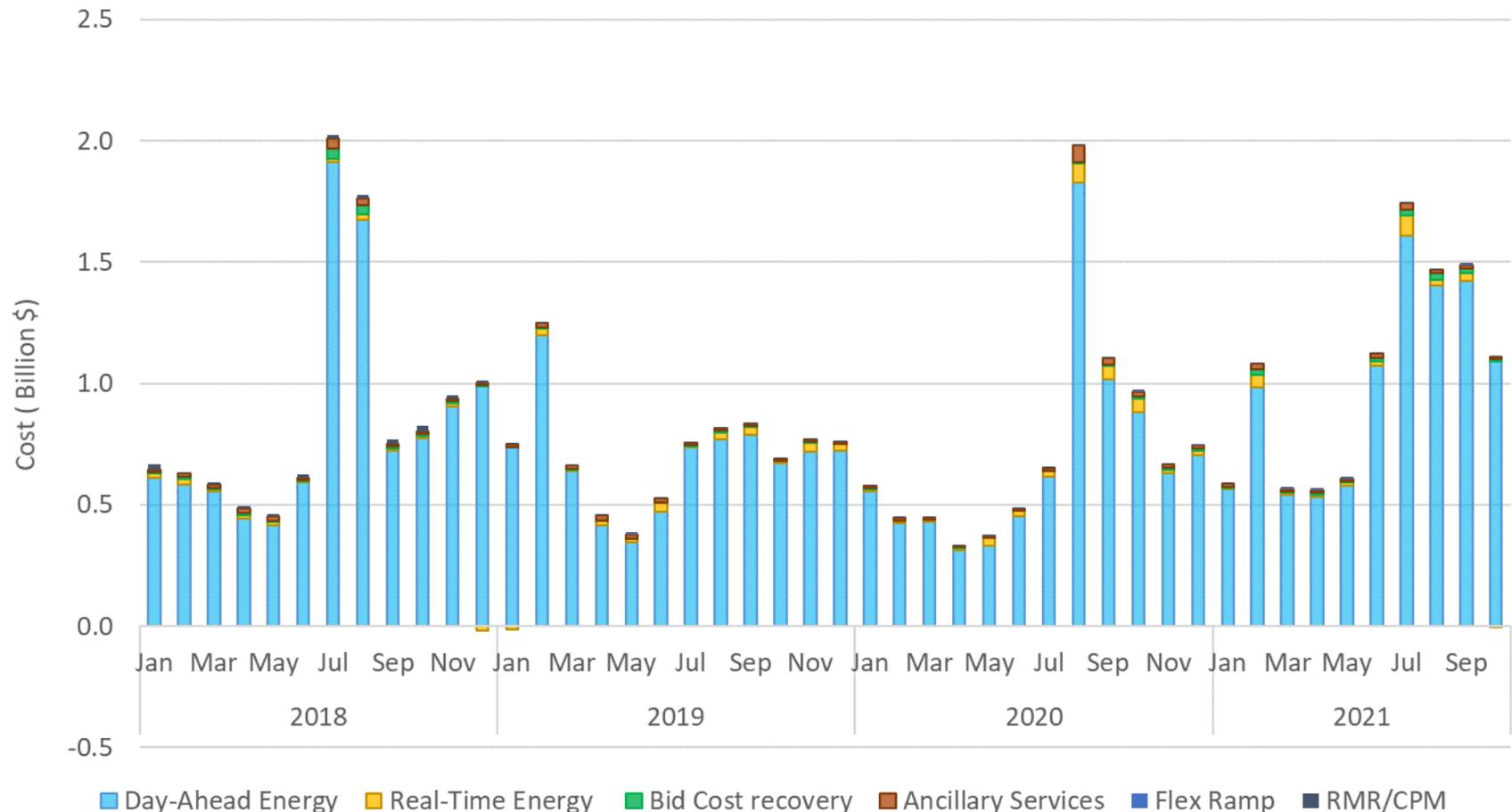


* These are estimates based on data available by the time of the calculation, which are still subject to changes

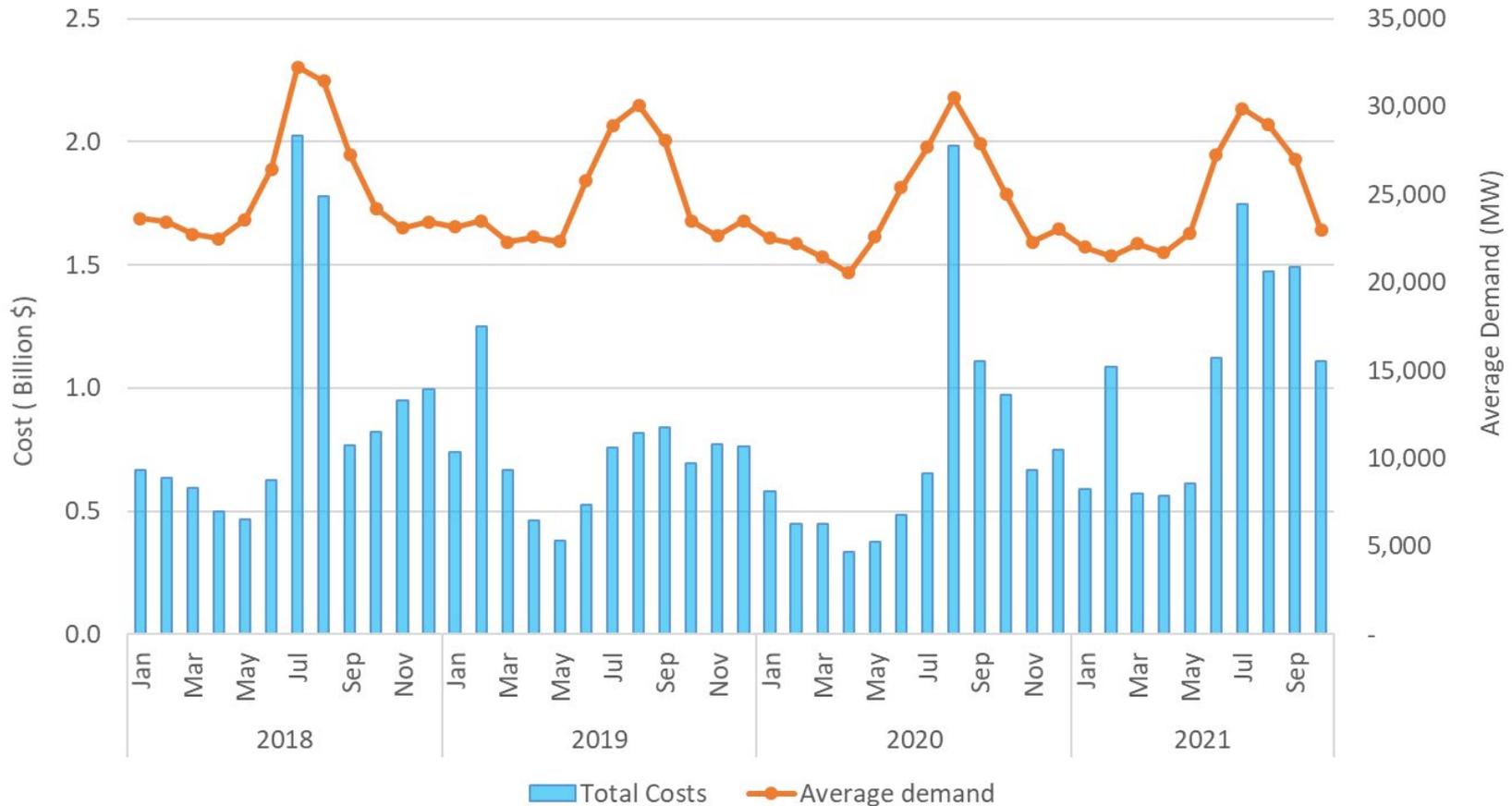
Monthly comparisons highlight the evolving conditions from year to year in a more granular basis



Over 90 percent of the overall costs are accrued on the day-ahead market transactions

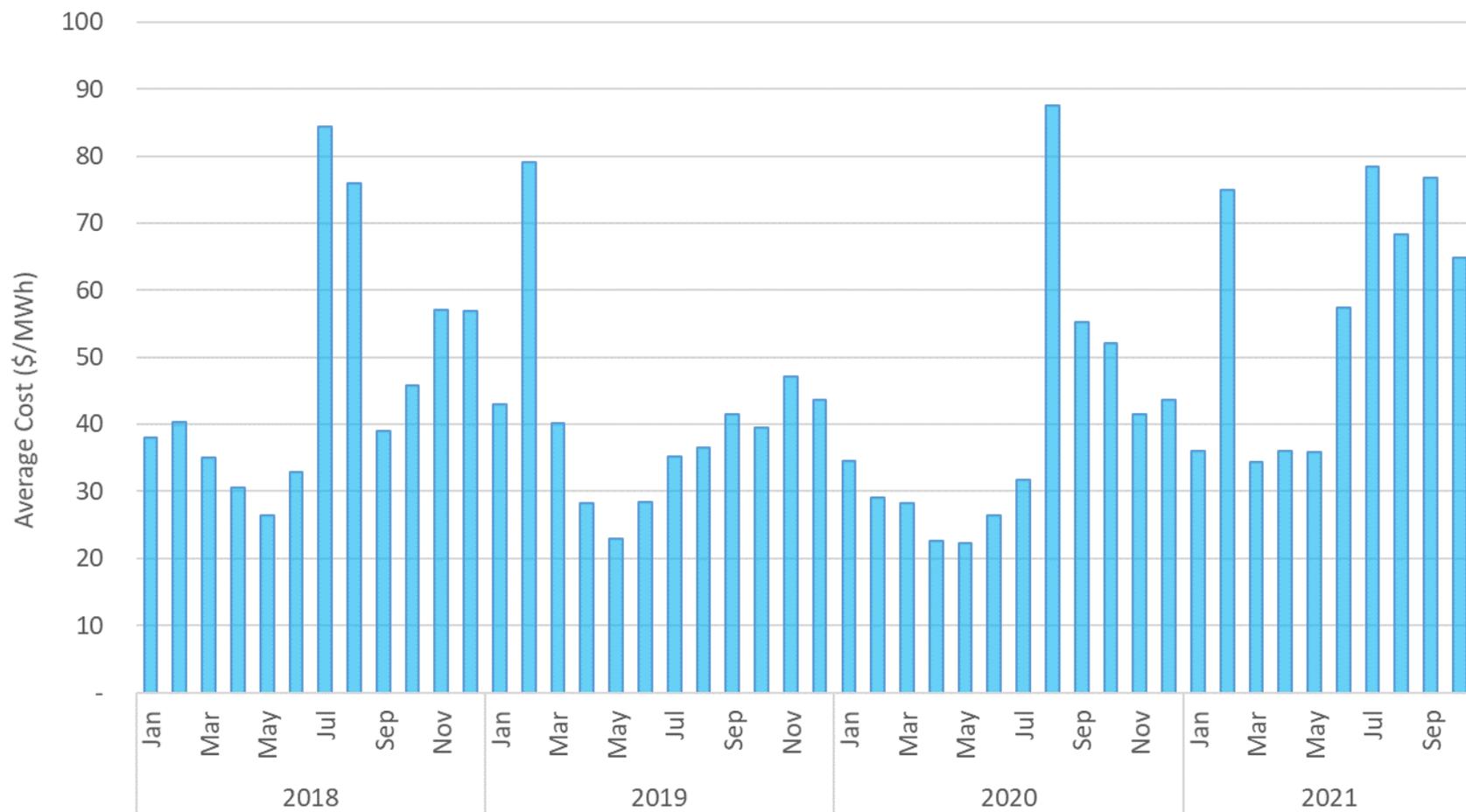


Costs depend on both market clearing prices and demand transacted

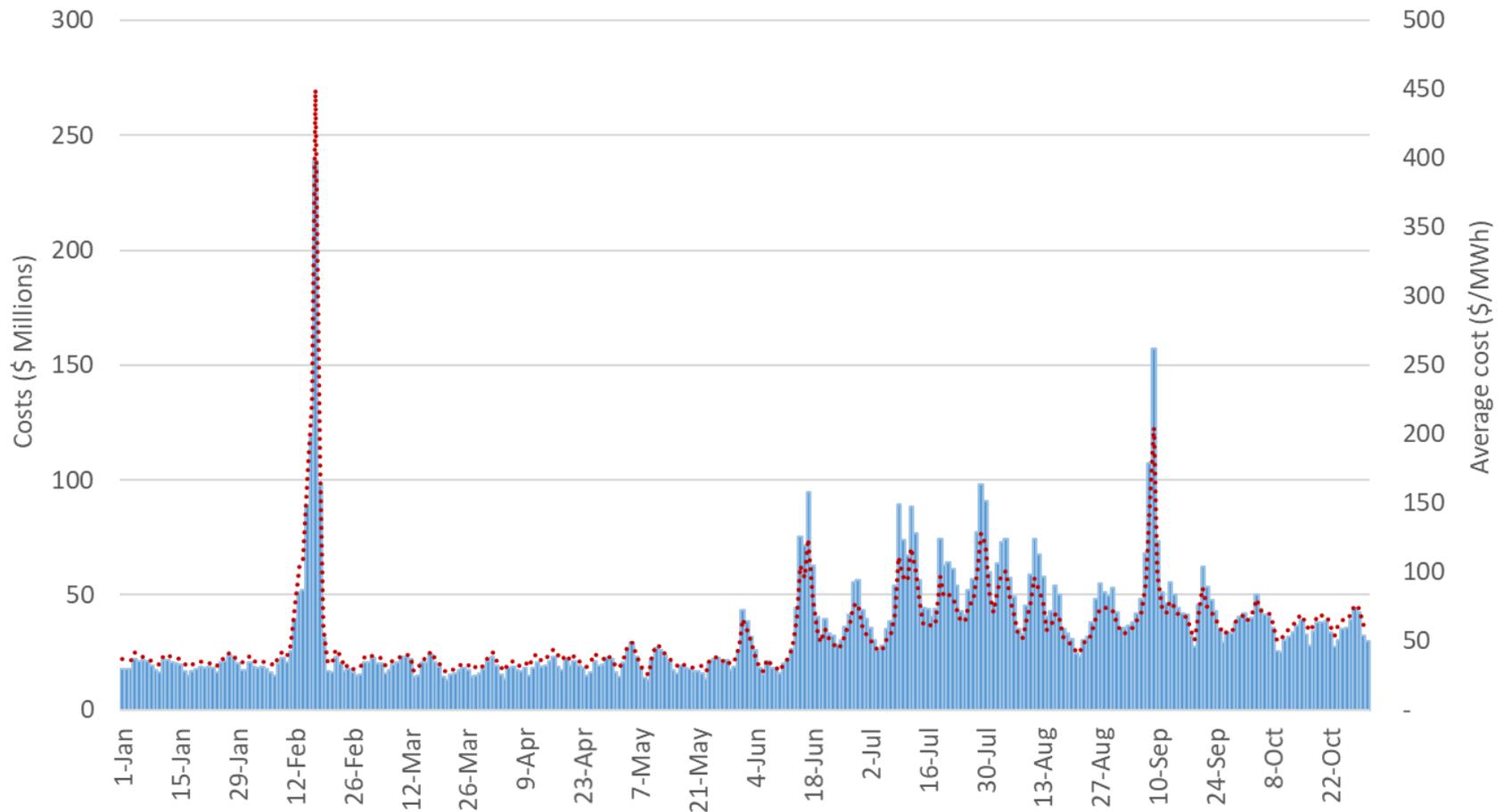


- Energy settled in the CAISO’s market during summer conditions was in the typical ranges in the last three years

Taking the cost accrued in the markets and divide it by the total energy settled gives a relative comparison of the average costs over time

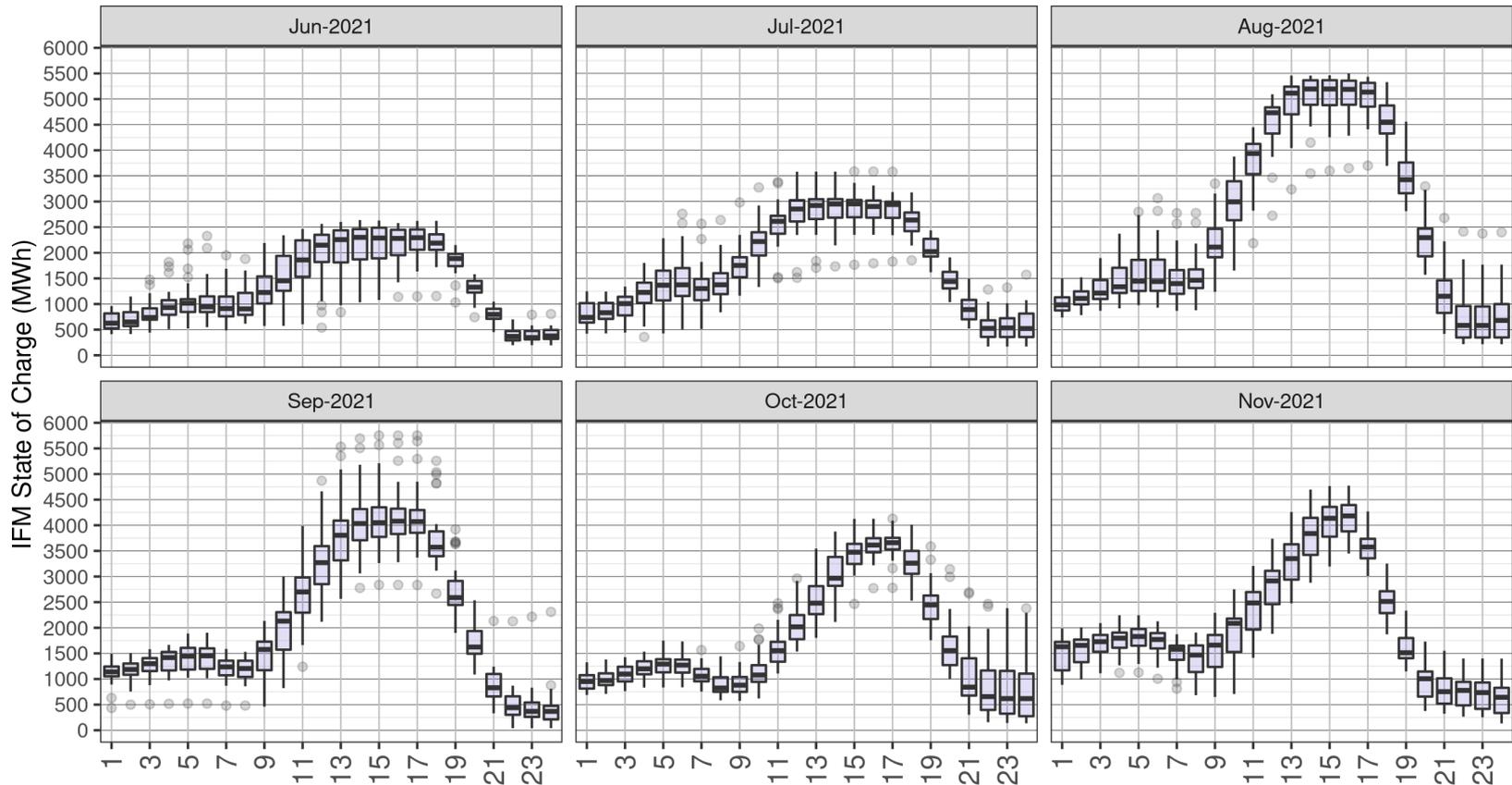


The daily costs trend of 2021 shows costs were higher during the summer except during the February gas event

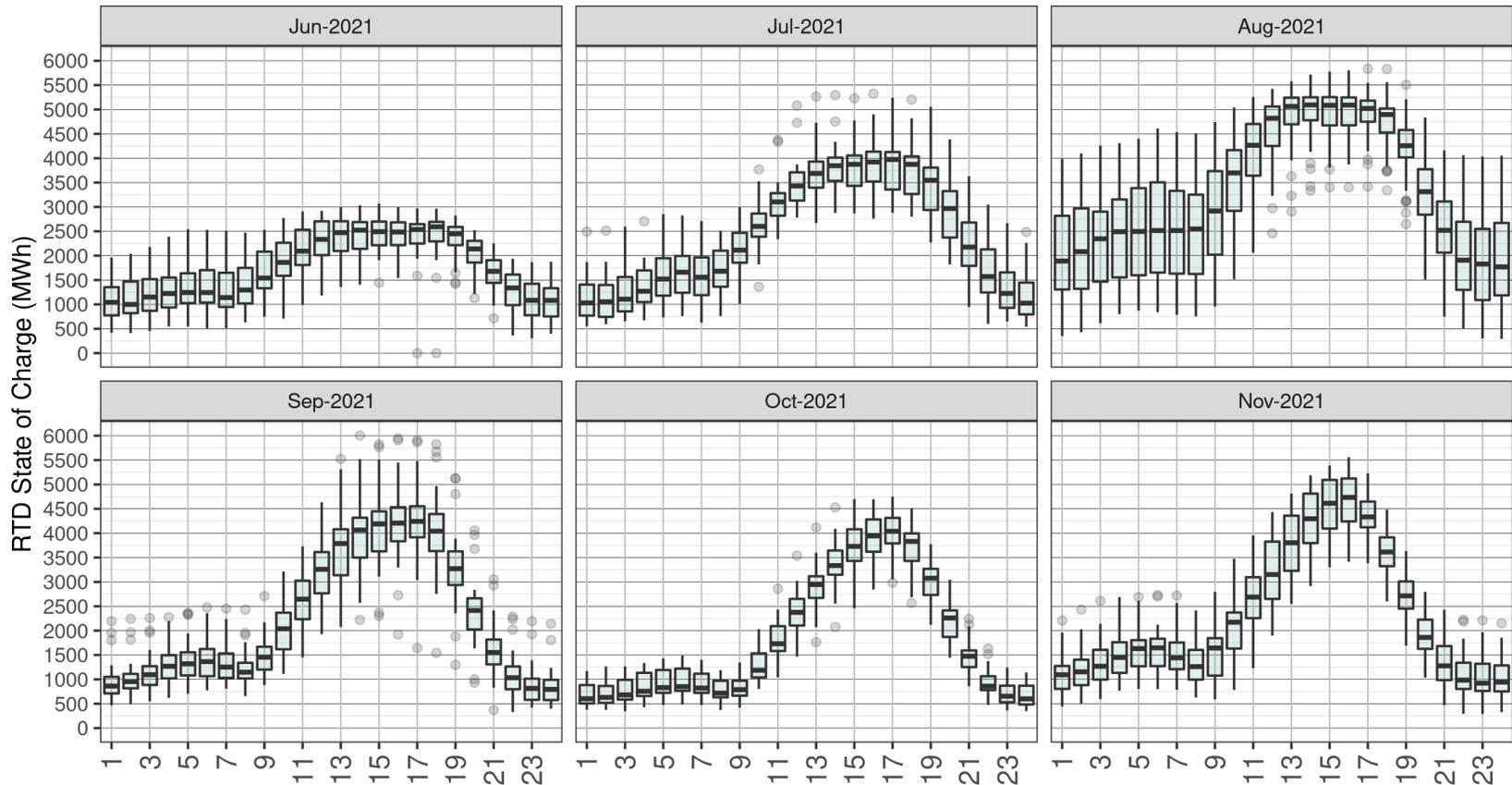


Batteries

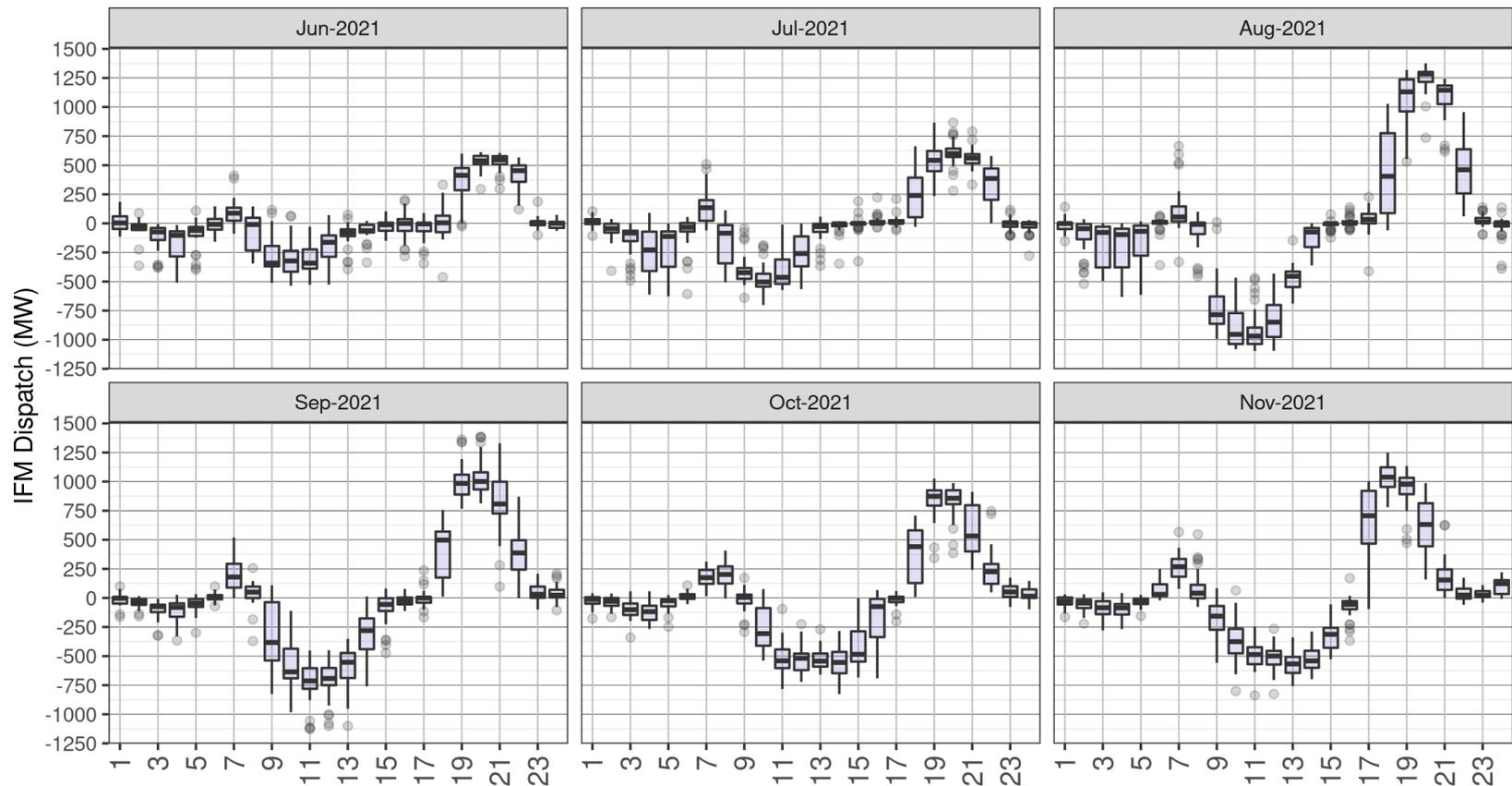
Day-Ahead State of charge for storage resources was highest during HE 14 – 17 for the month of August



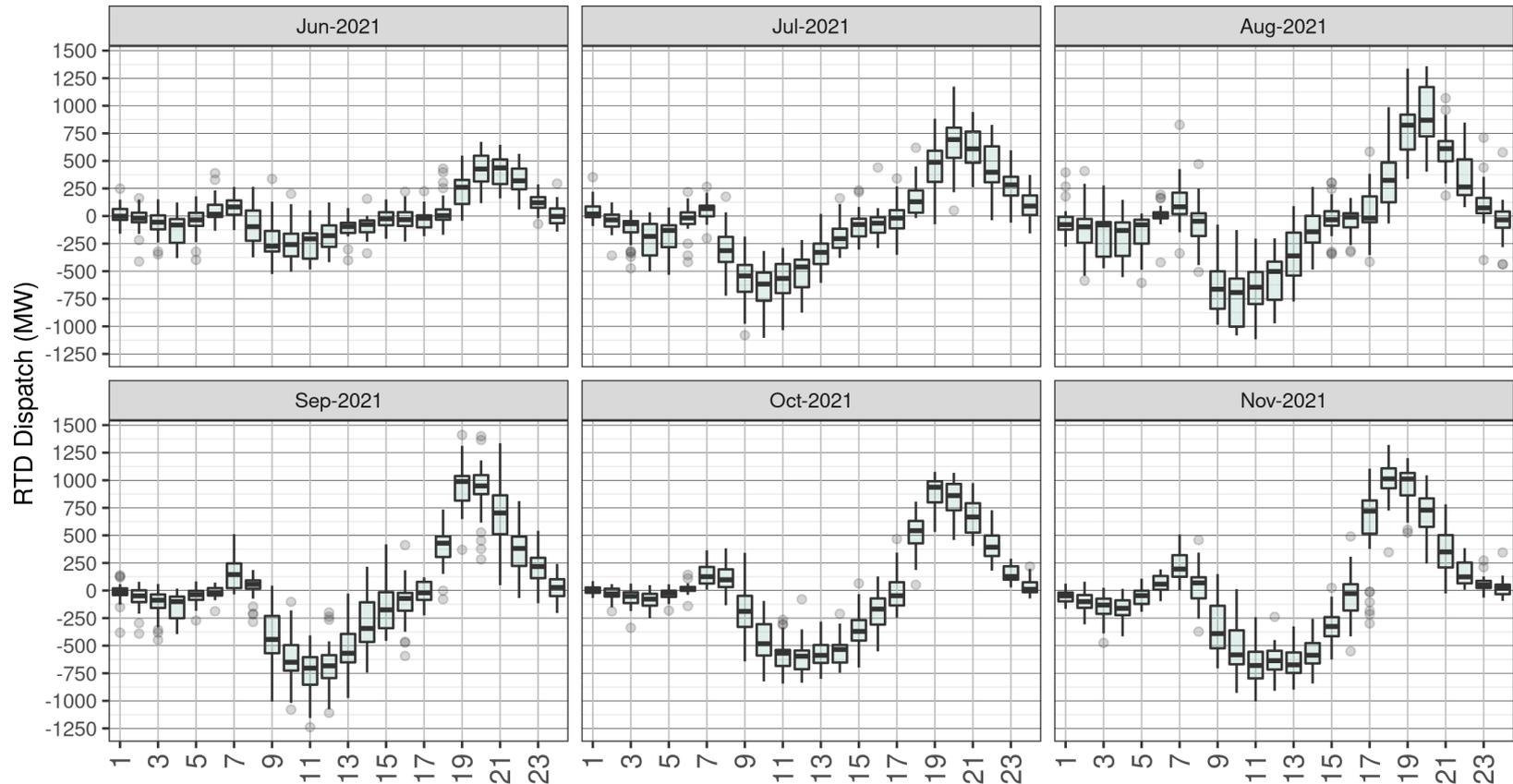
Real-Time State of charge for storage resources was in line with the day-ahead Stage of charge



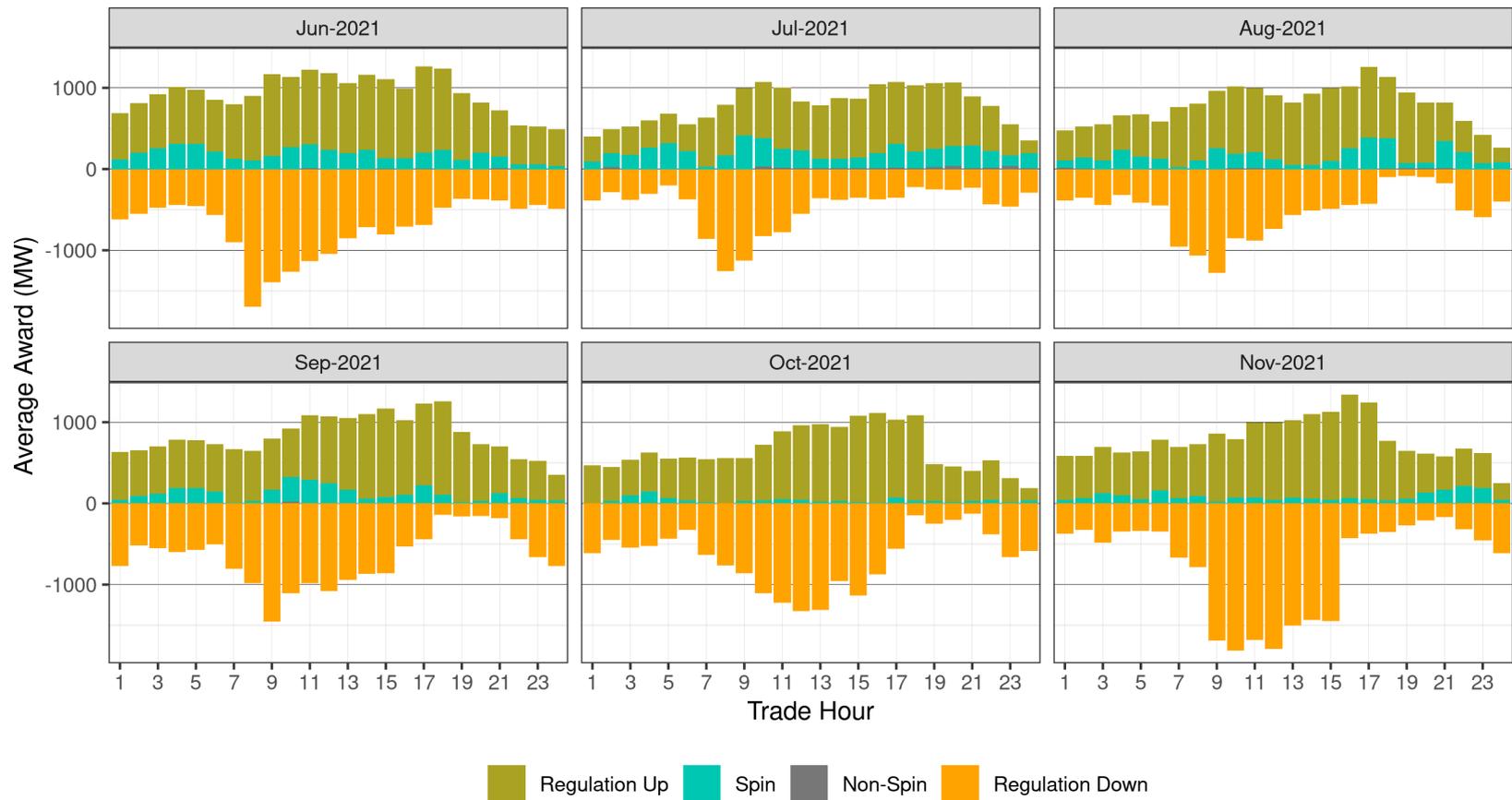
Storage resources were charging during solar hours and discharging during net load peak



Overall dispatch trend of storage resources evolved to a typical summer condition with pronounced charging in midday hours

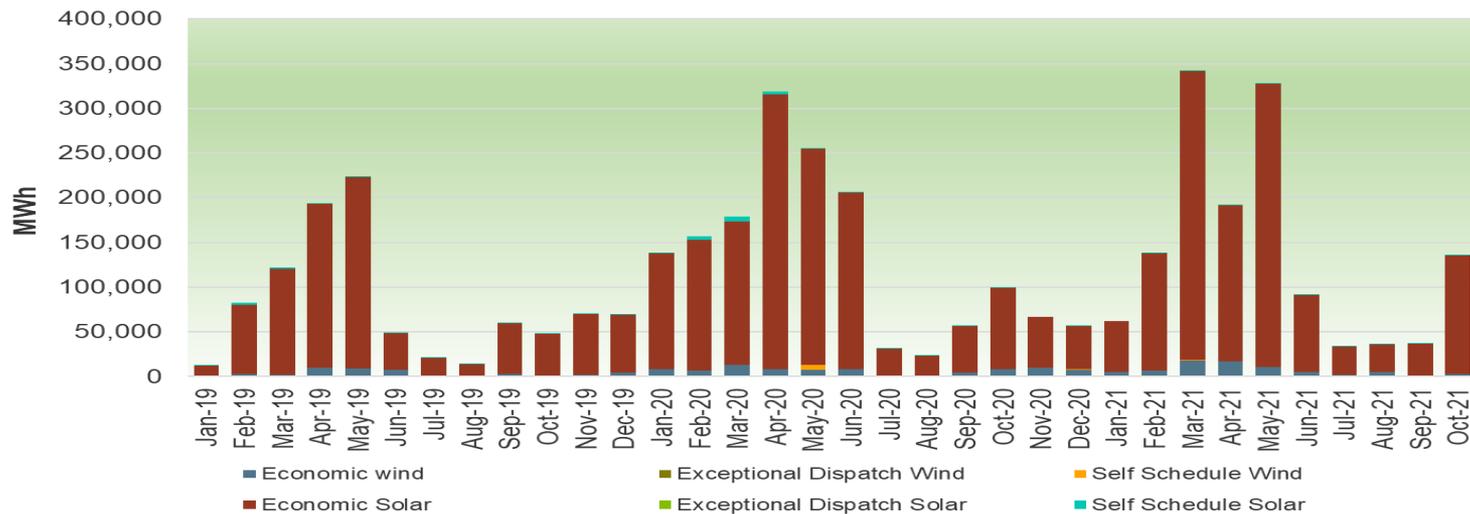
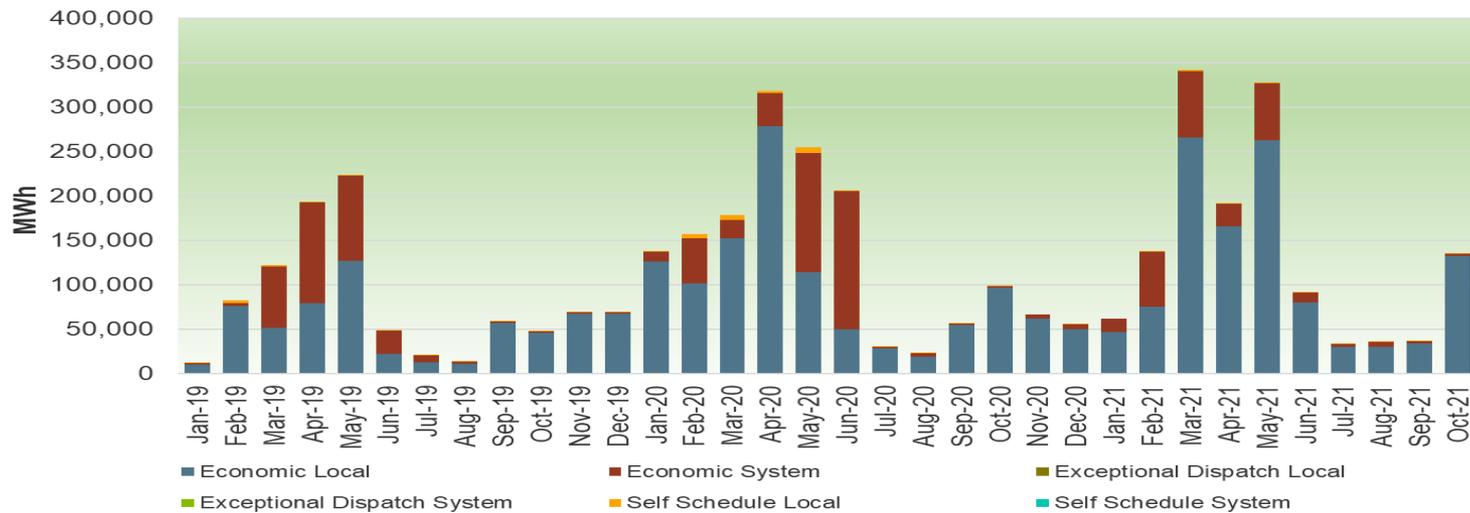


Batteries continue to provide both Regulation up and Regulation down during afternoon hours

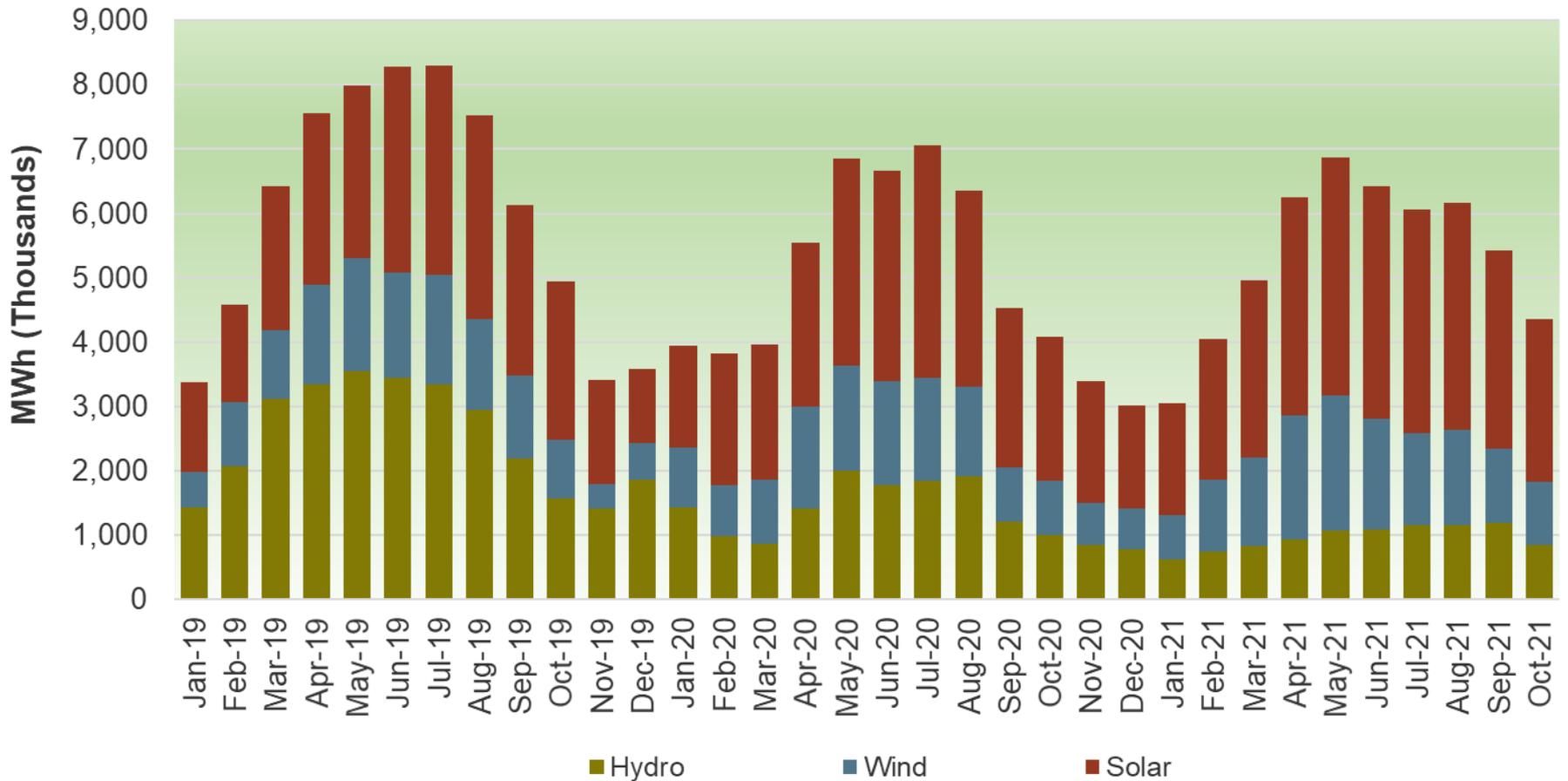


Market Performance Metrics

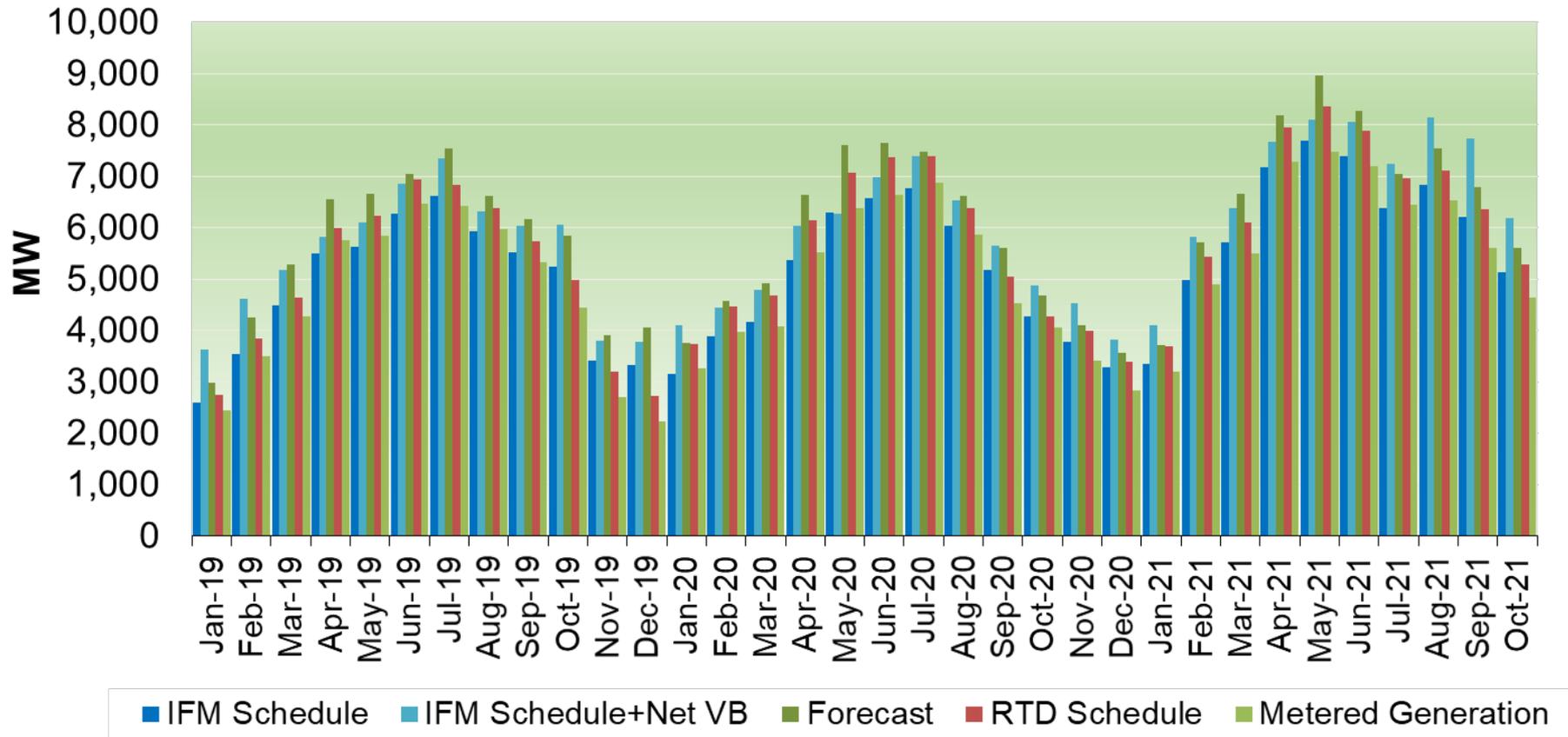
RTD renewable (VERs) curtailment rose in October



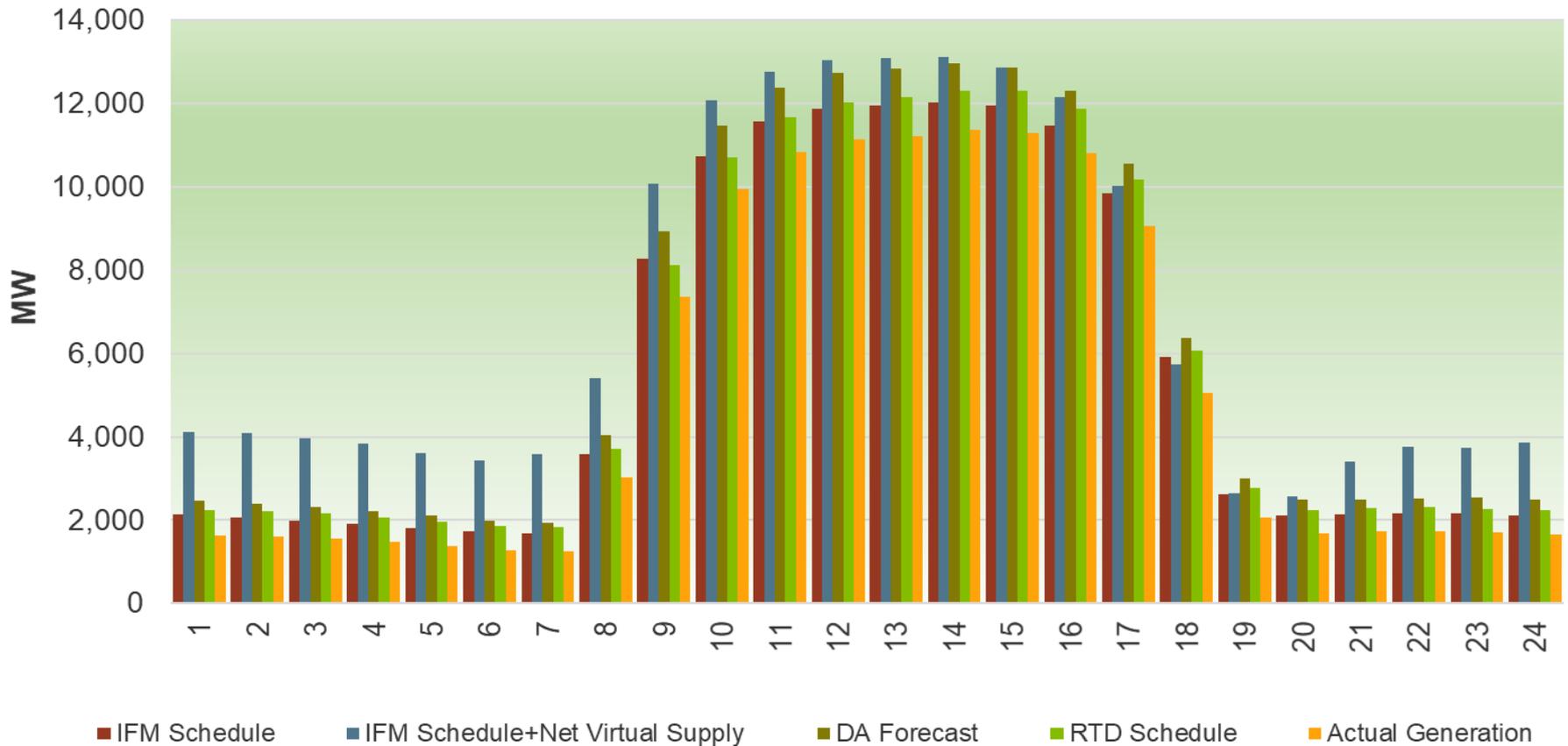
Hydro production at low levels compared with previous years



ISO total monthly VERS schedules and forecasts compared to actuals

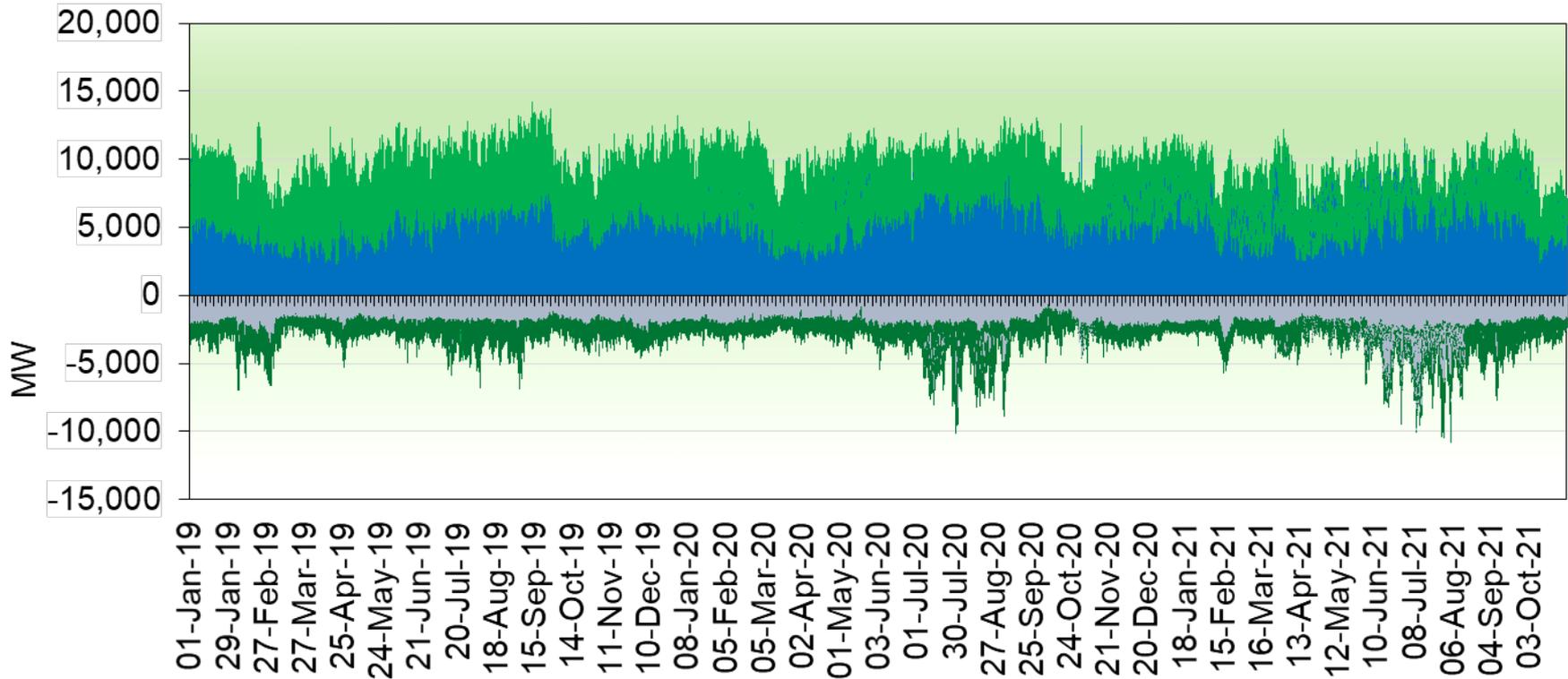


Renewable (VERS) schedules including net virtual supply aligns with VER forecast in September and October



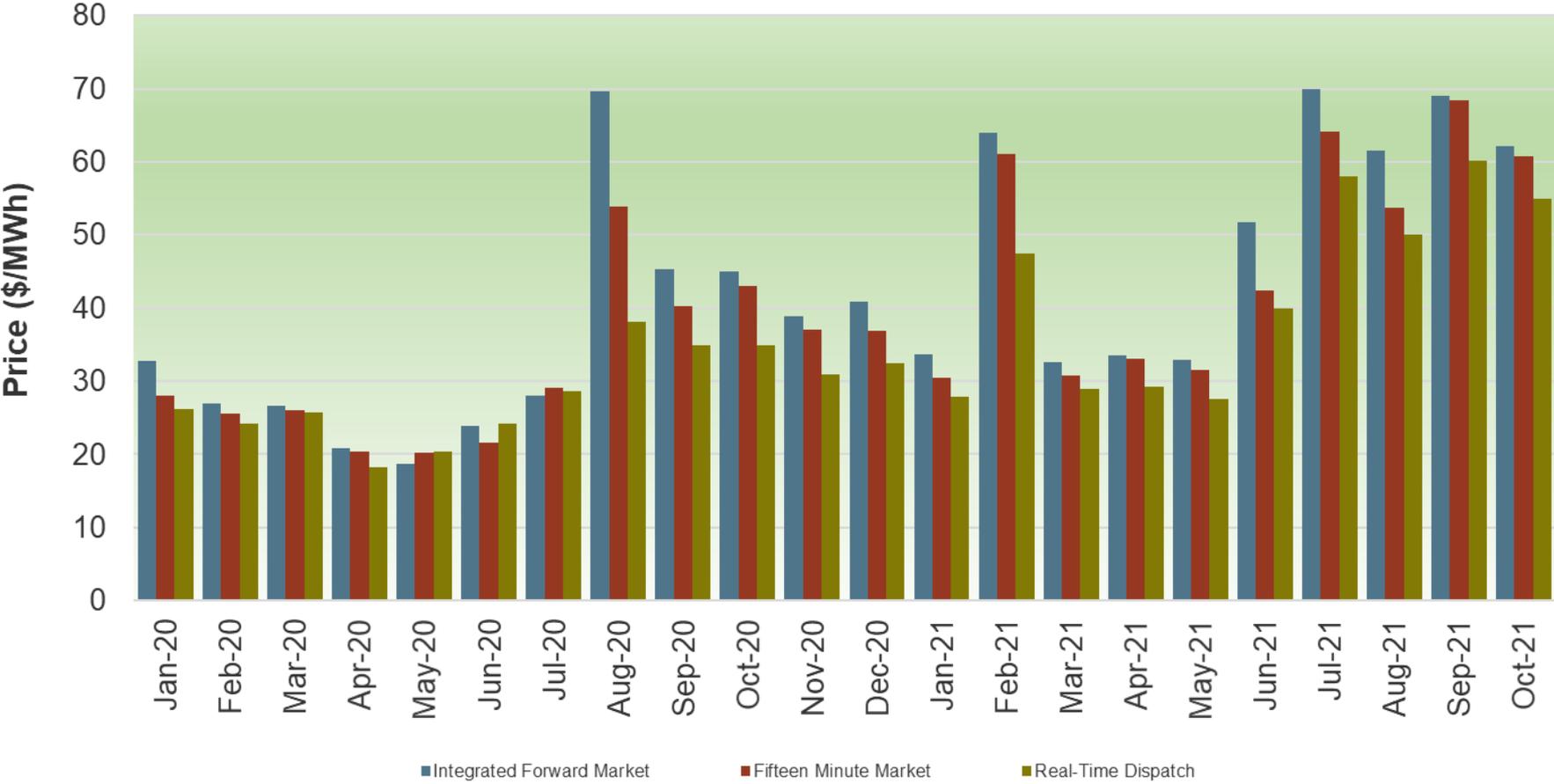
<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EFF75C2E-F28E-4087-B88B-8DFFAED828F8>

Self scheduled exports decreased after summer



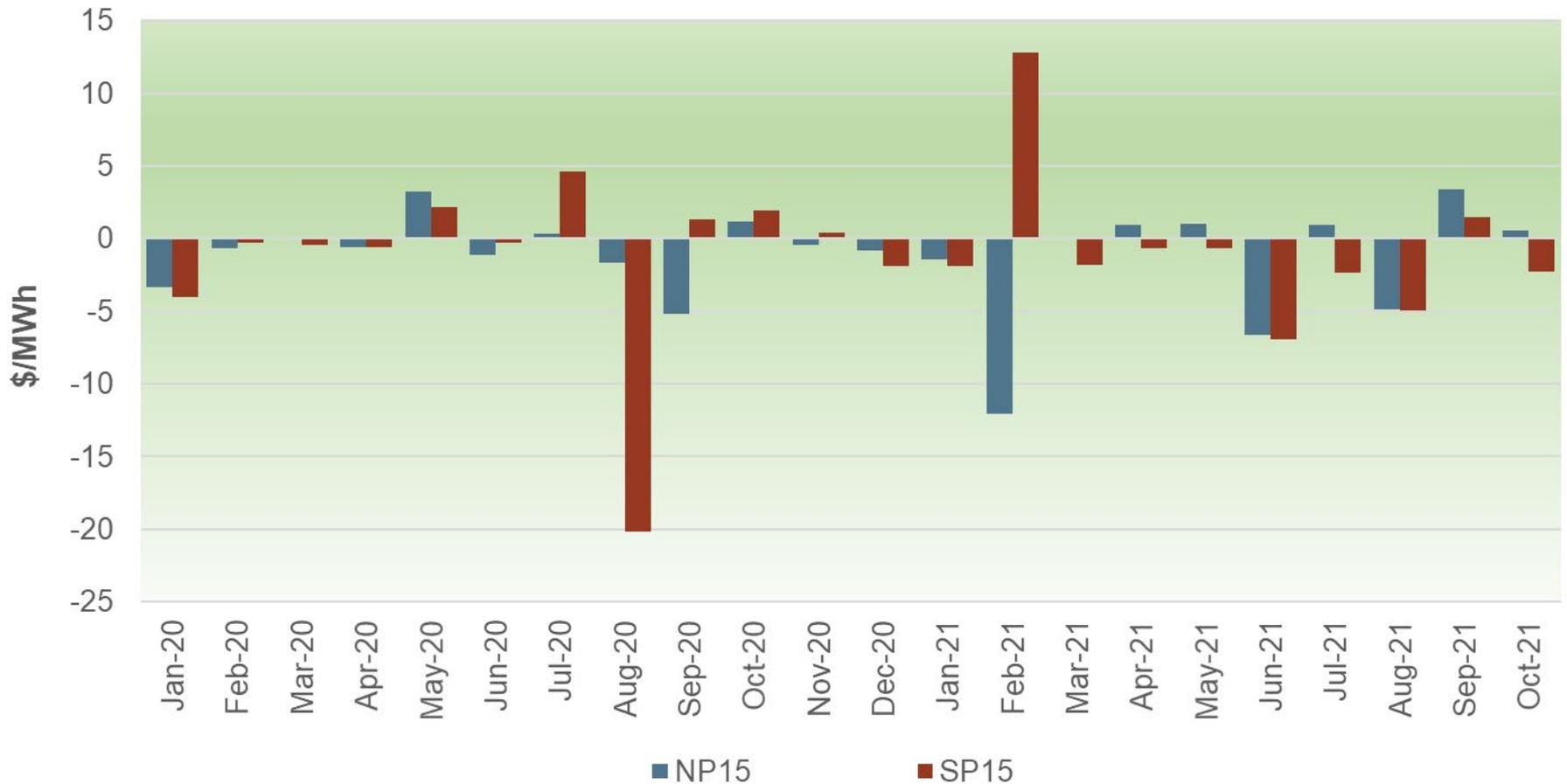
■ Self Sched Export ■ Bid-In Export ■ Self Sched Import ■ Bid-in Import

Lower average real-time prices since last August

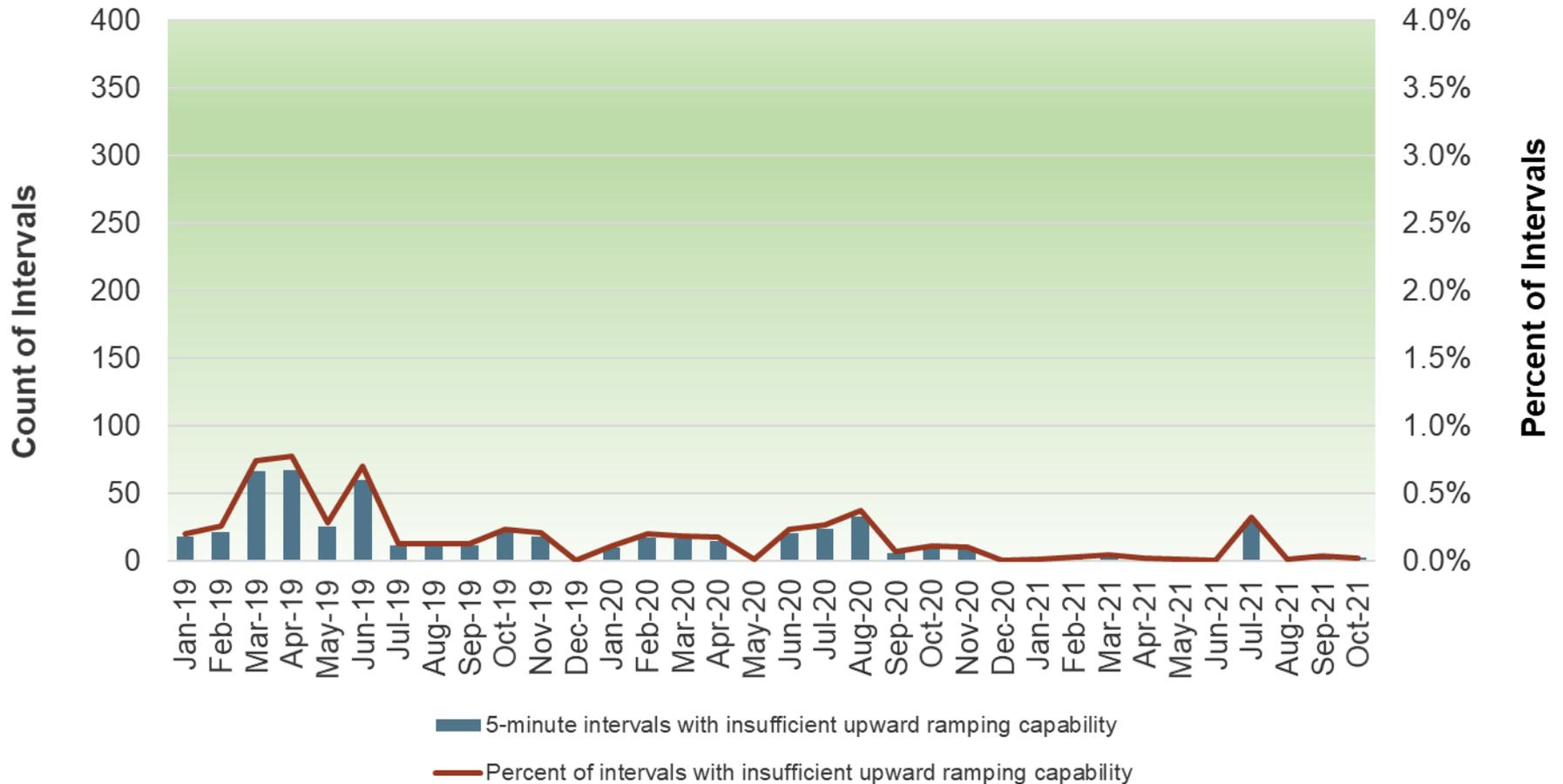


Note: Metric Based on System Marginal Energy Component (SMEC)

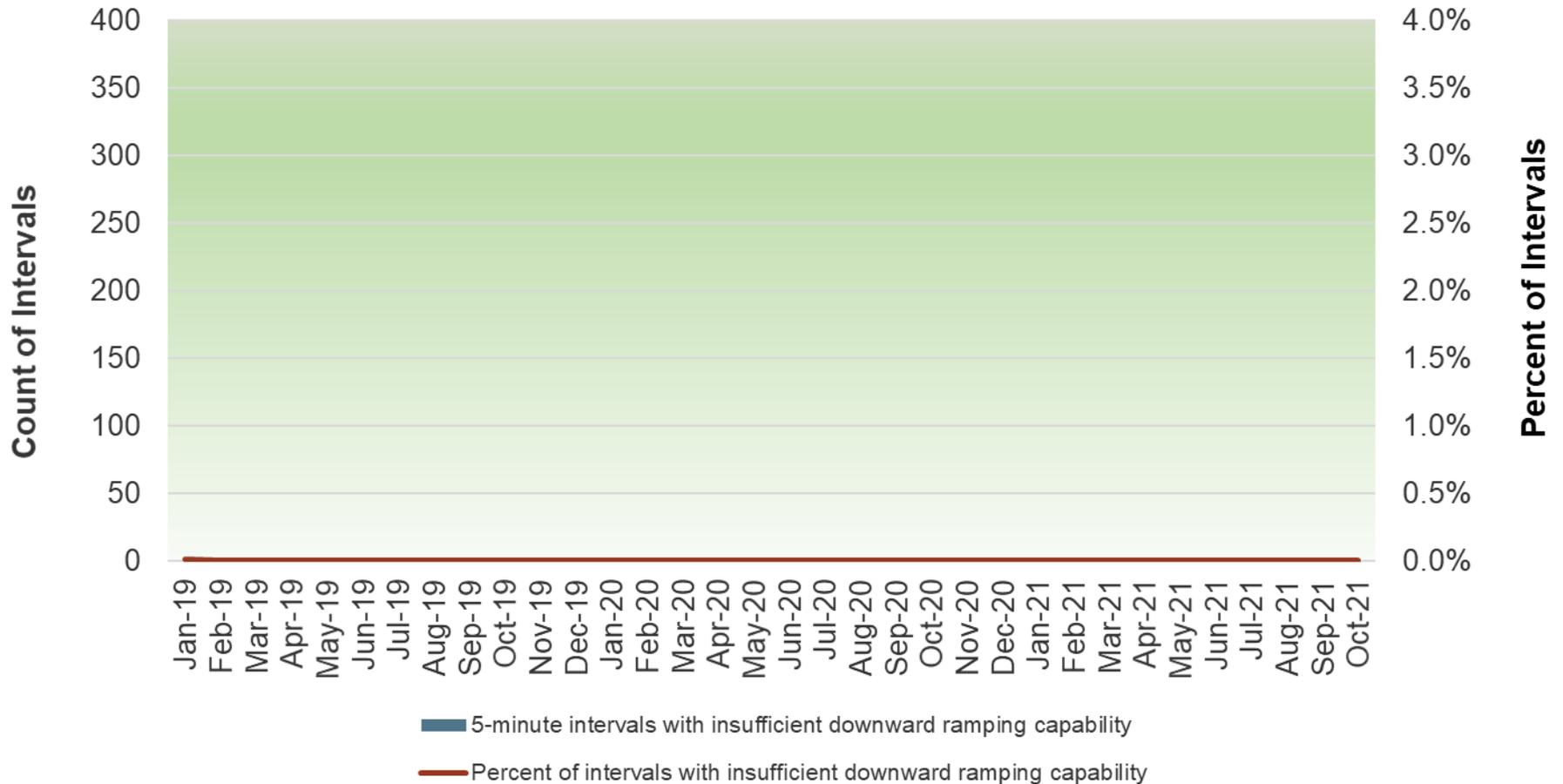
RT price higher than DA price for both NP15 and SP15 in September



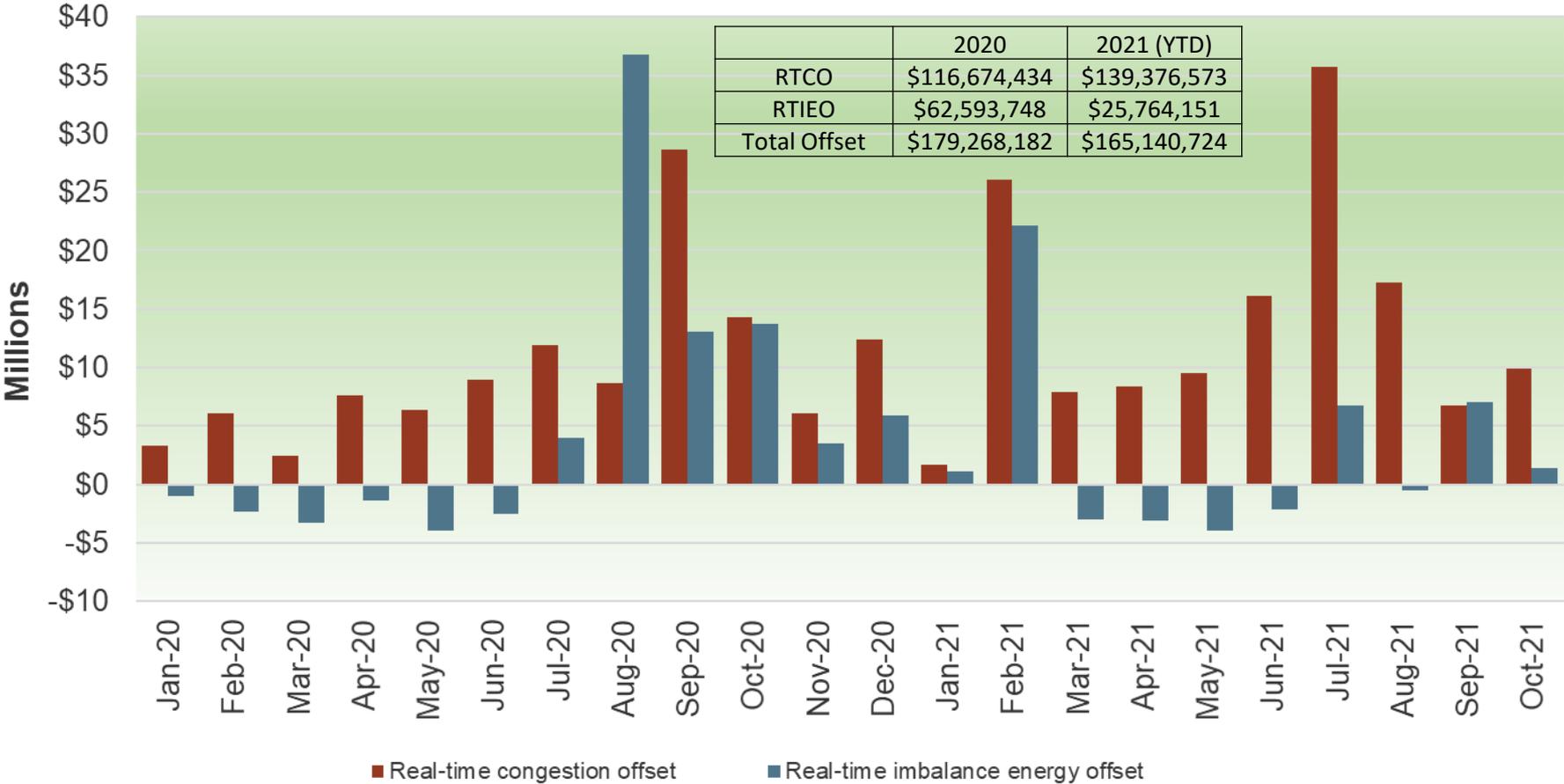
The frequency of insufficient upward ramping capacity events in ISO real-time fell since July



Insufficient downward ramping capacity in real-time stayed low



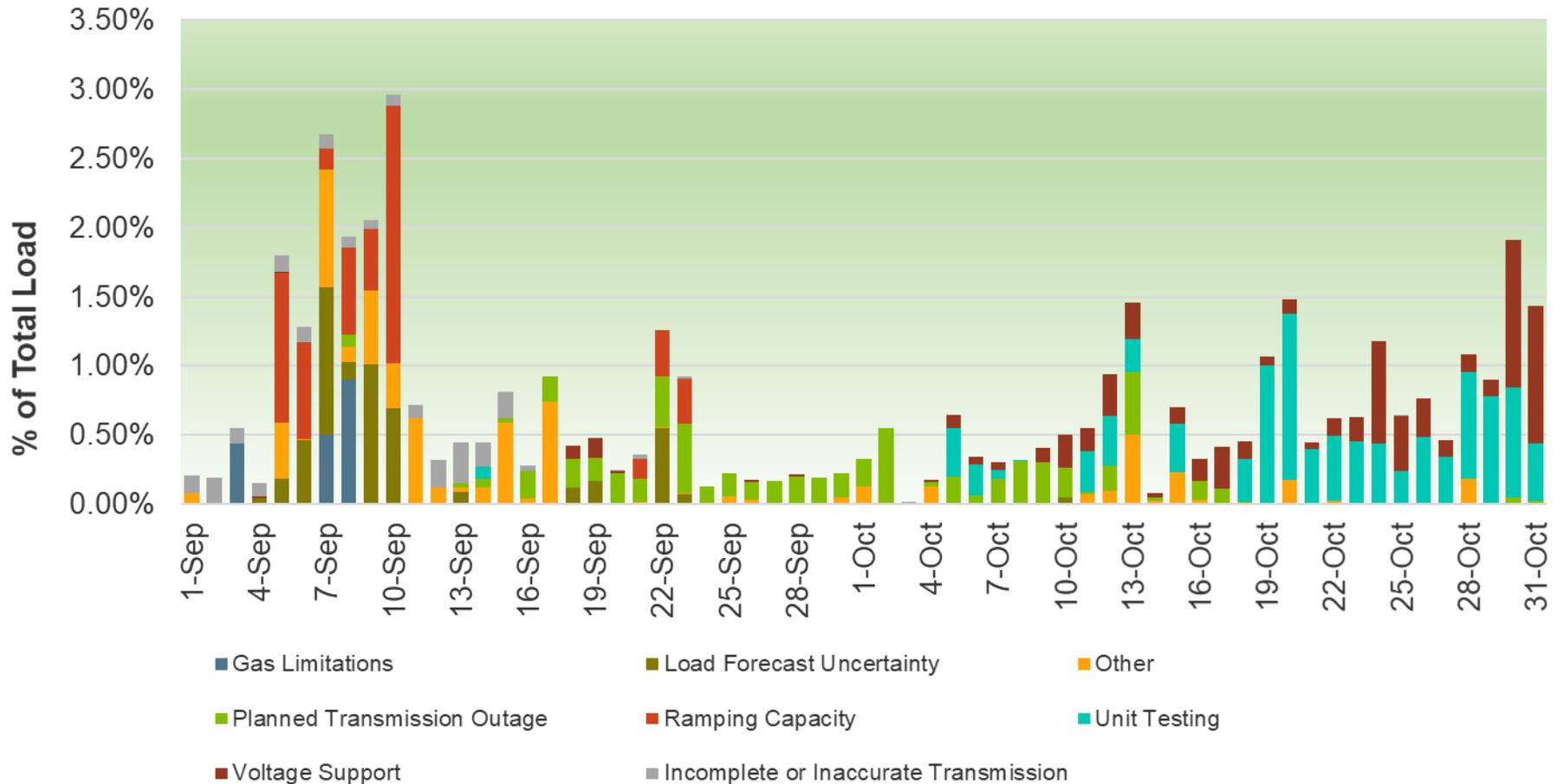
ISO area real-time imbalance energy and congestion offsets declined since July



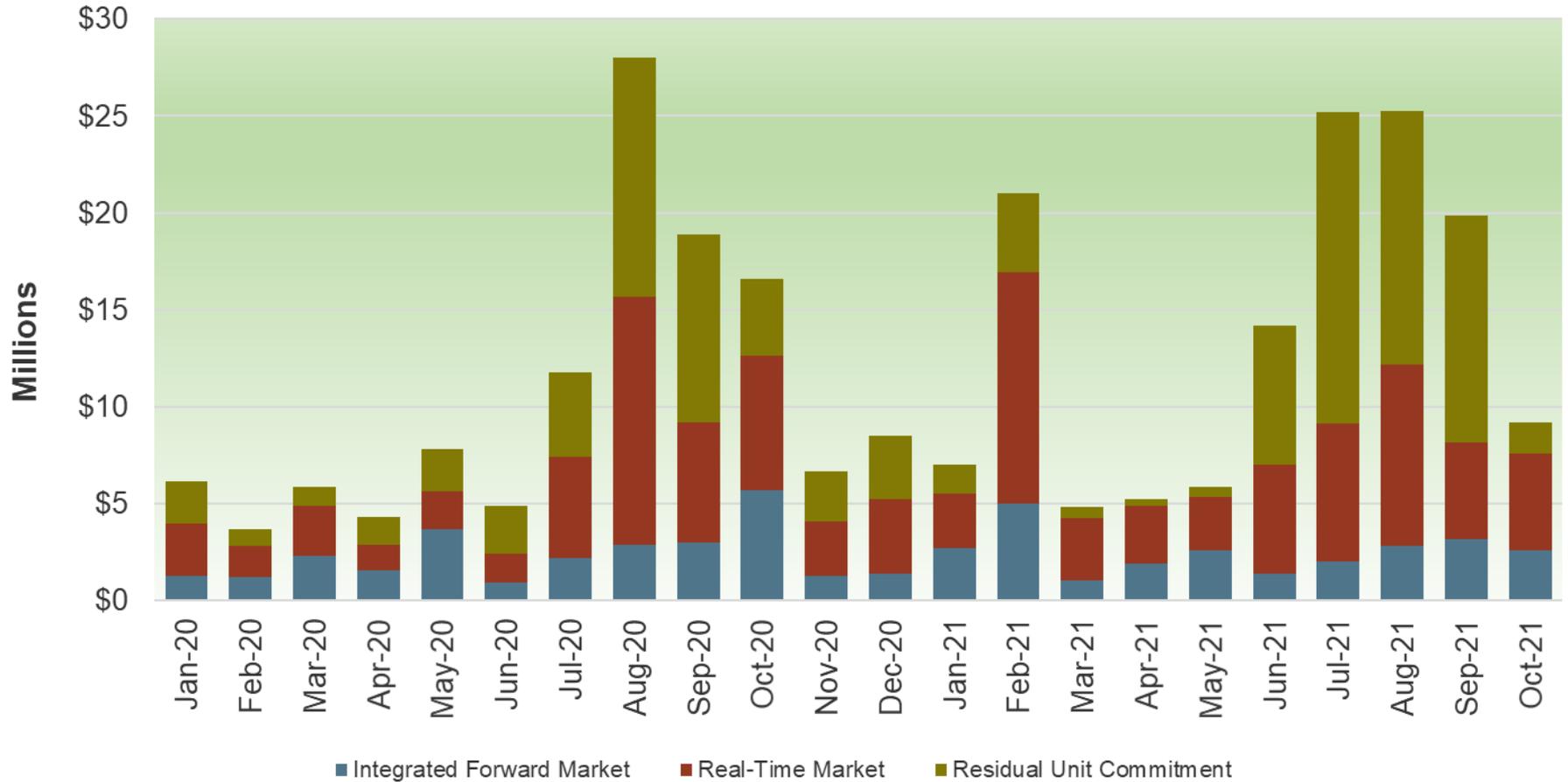
Exceptional dispatch volume in the ISO area decreased since August



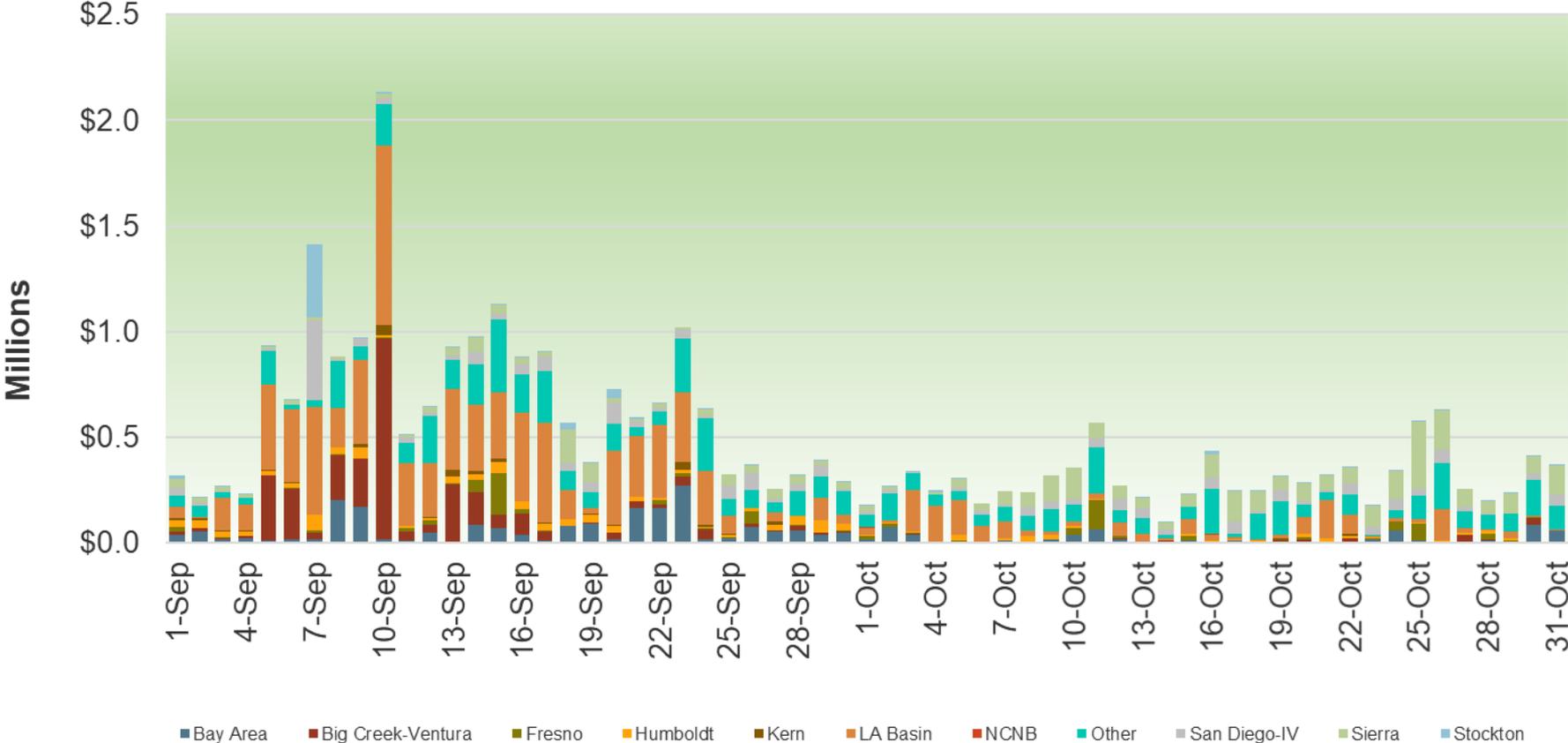
Exceptional dispatches volume increase by a variety of reasons in September and October



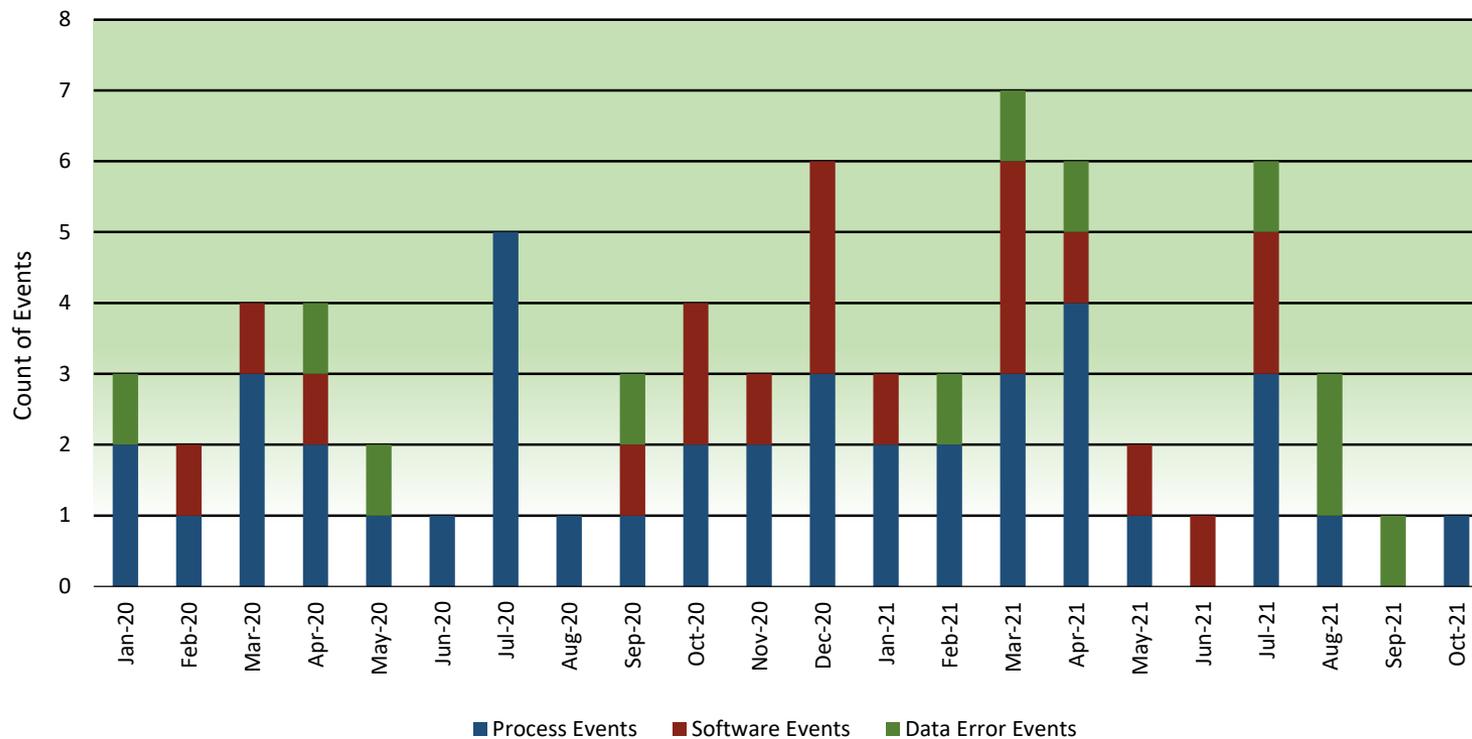
Bid cost recovery decreased since August



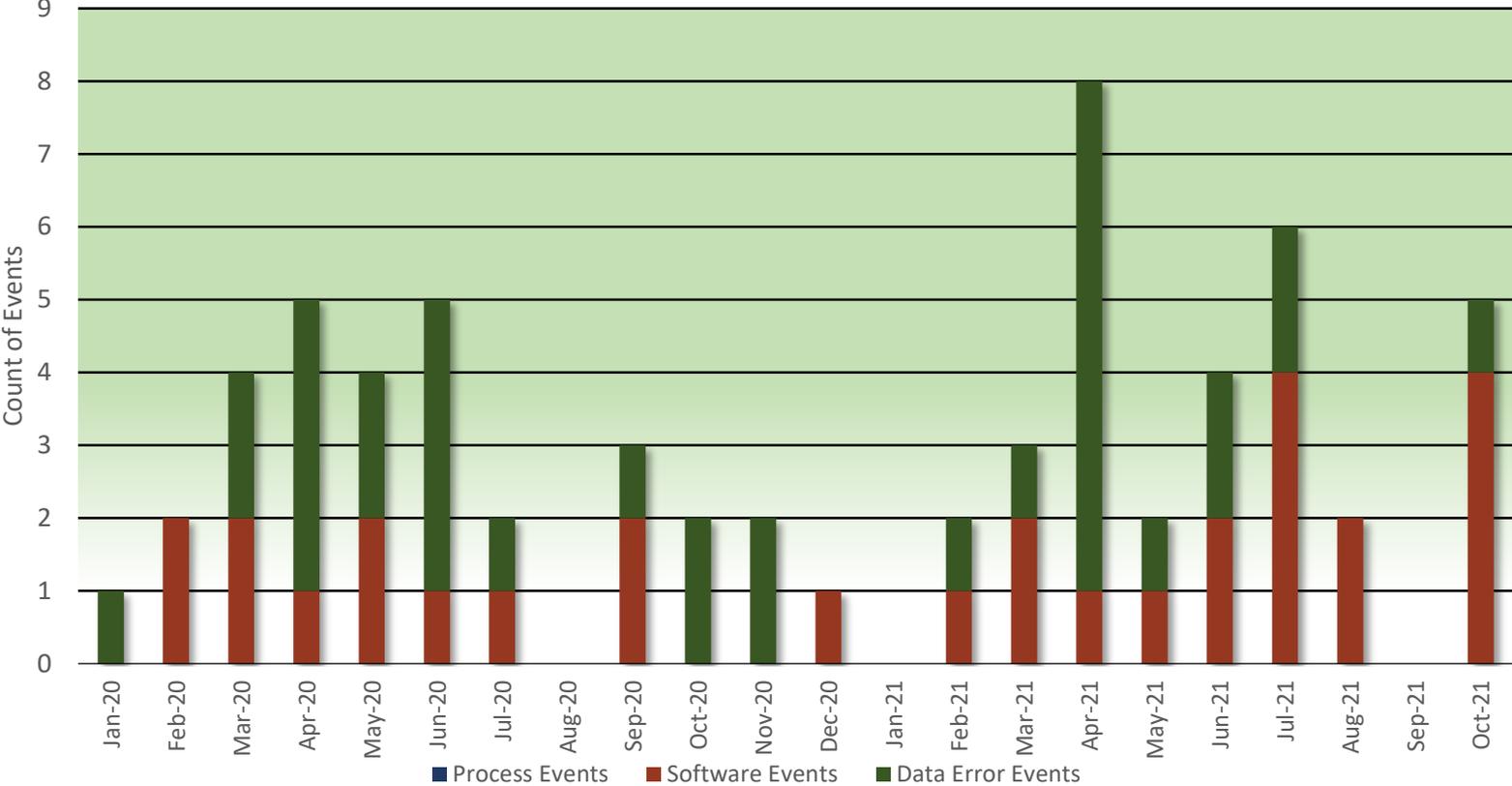
Bid cost recovery (BCR) by Local Capacity Requirement area remained low in October



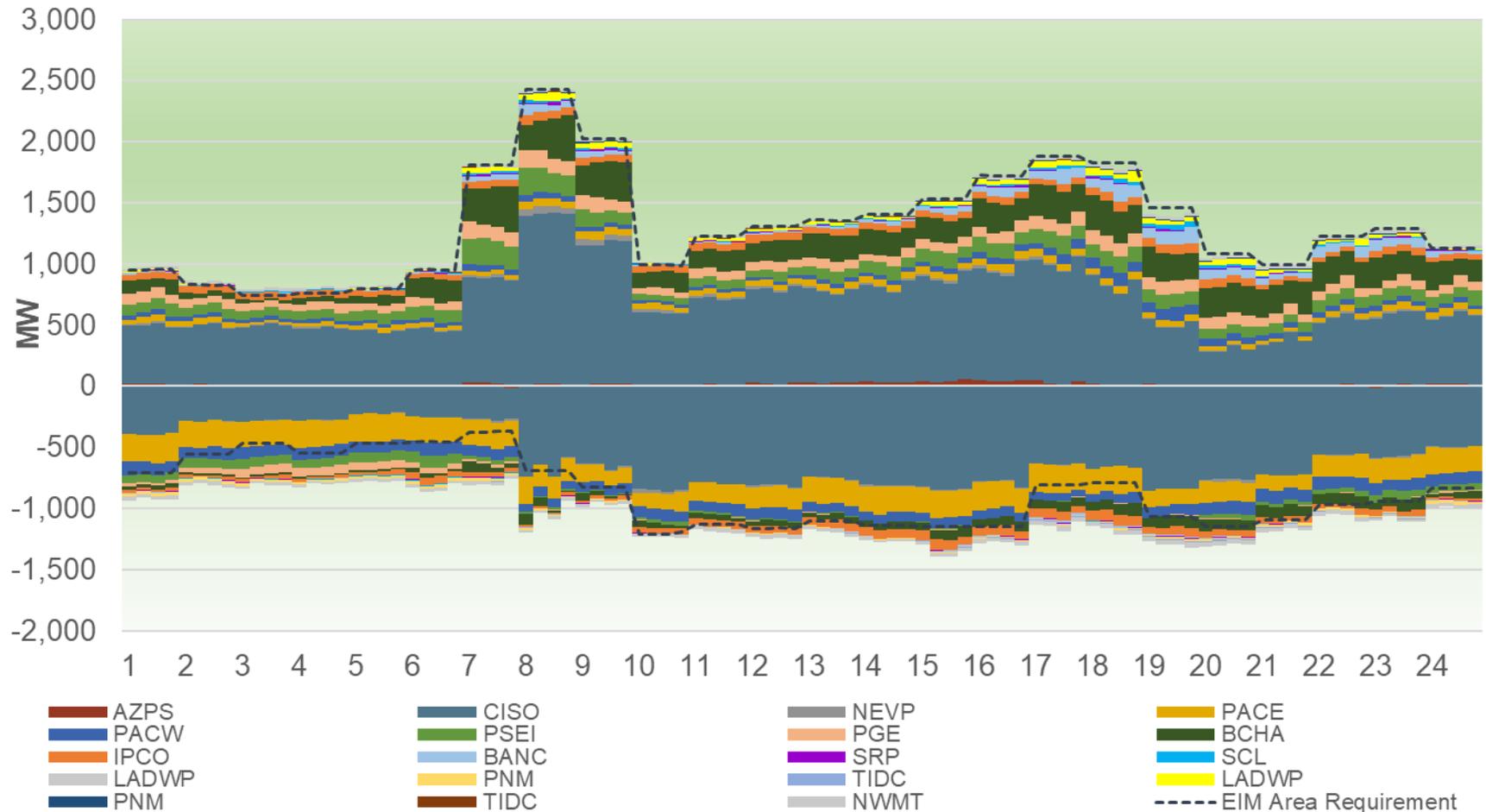
CAISO price correction events are low for August, September and October



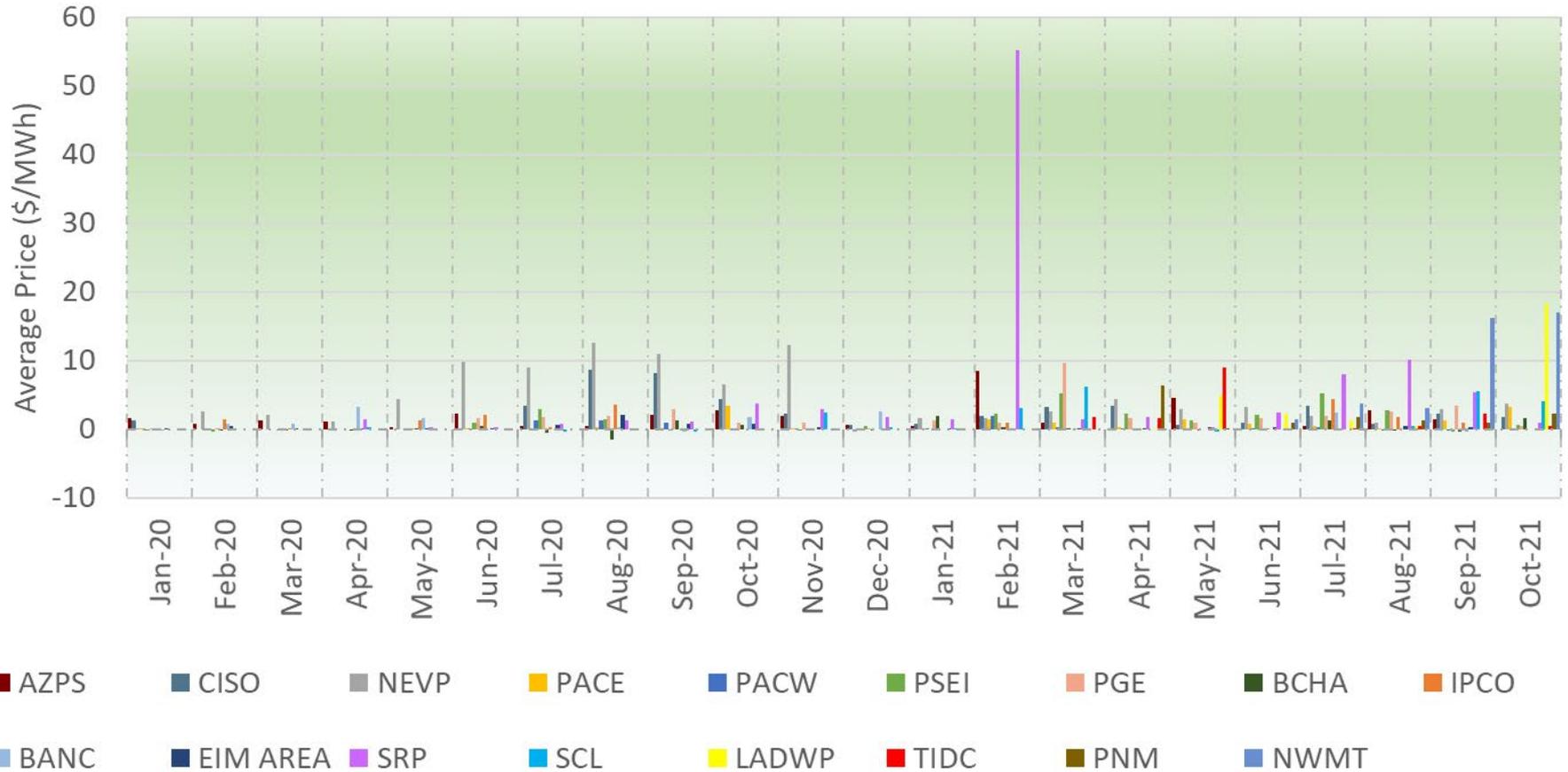
EIM-related price corrections increased in October



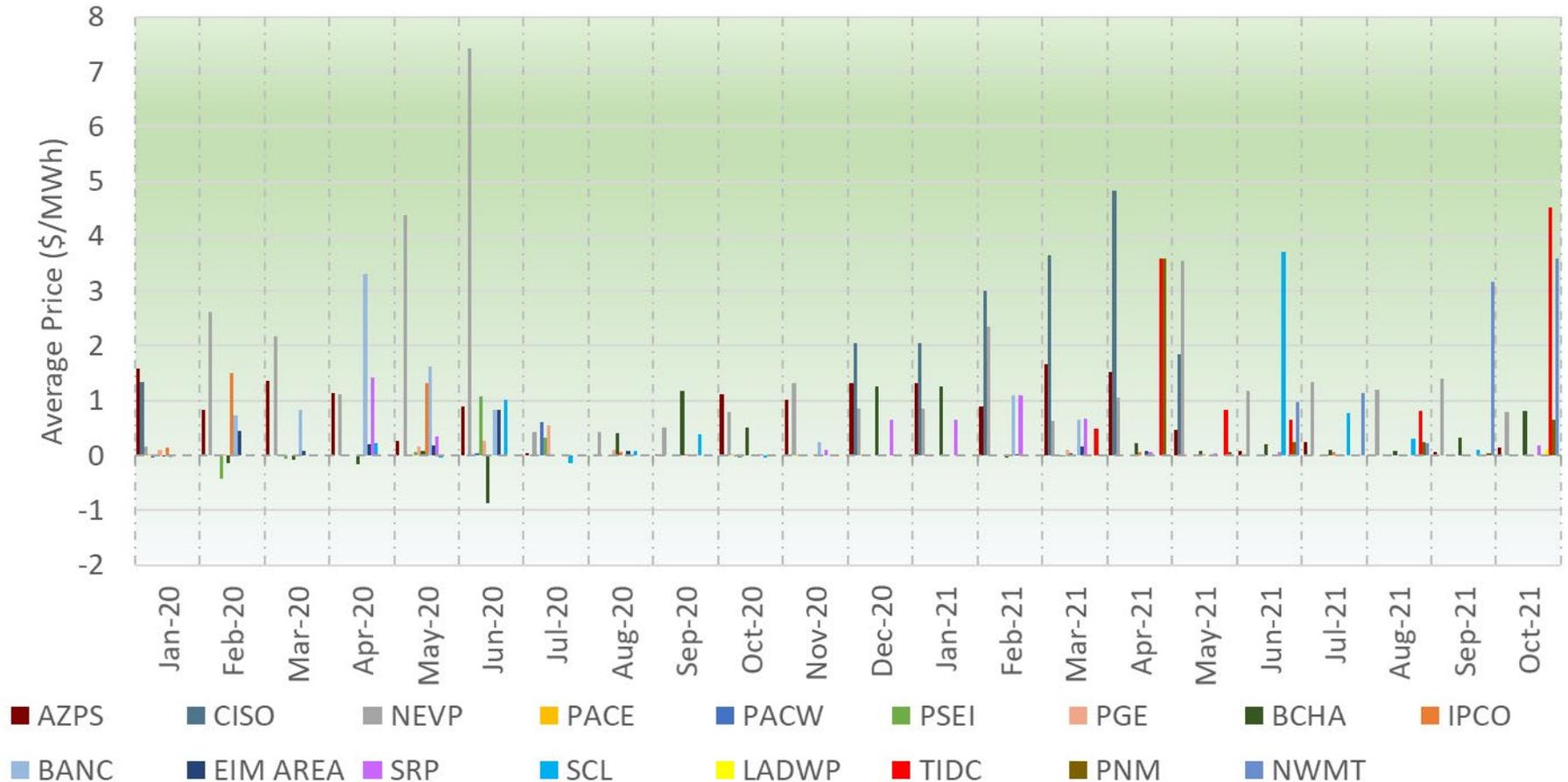
Average Flexible Ramp Product Cleared Awards for each area with EIM Area Requirement - August to October 2021



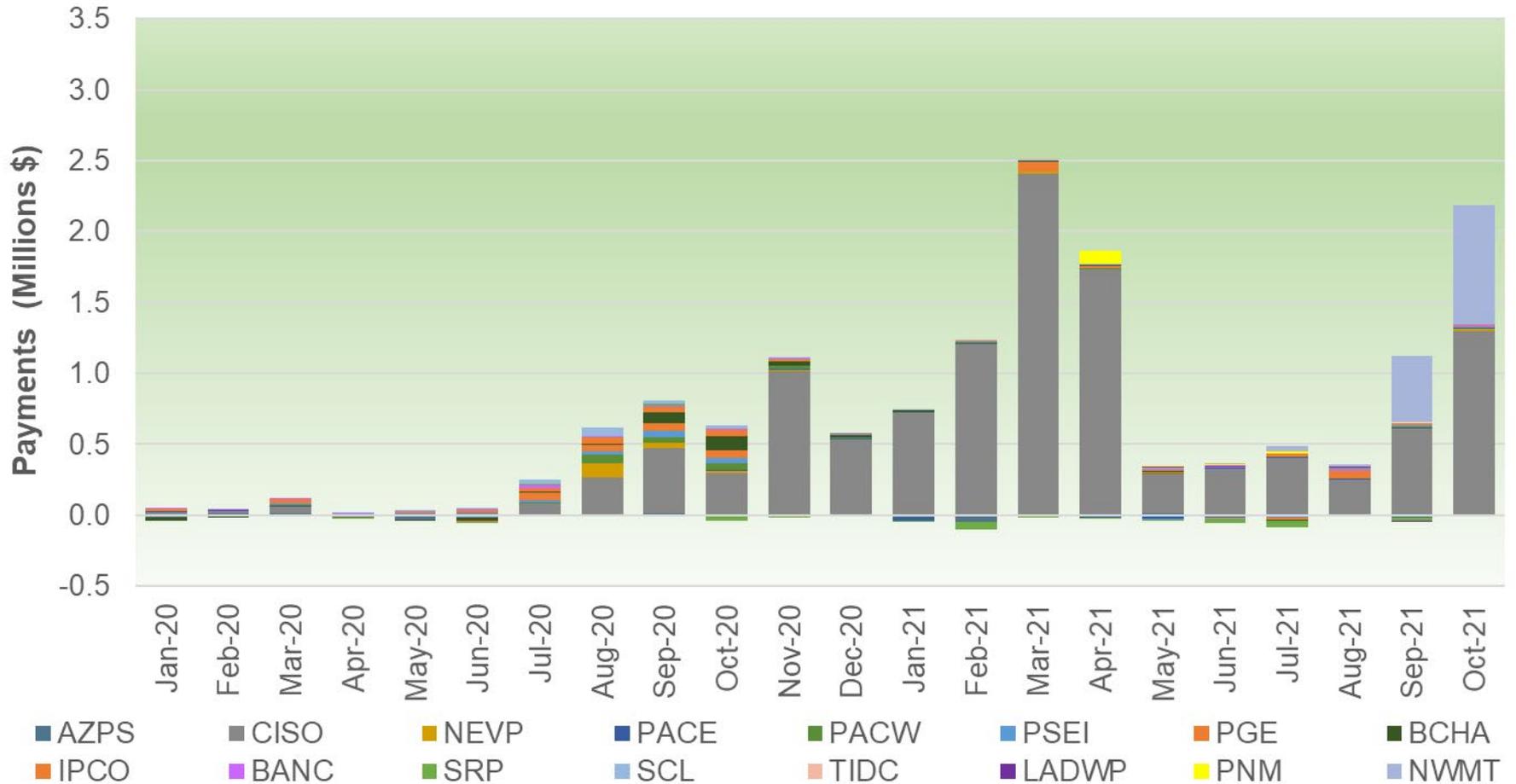
Average Flexible Ramp Up Price (\$/MWh)



Average Flexible Ramp Down Price (\$/MWh)



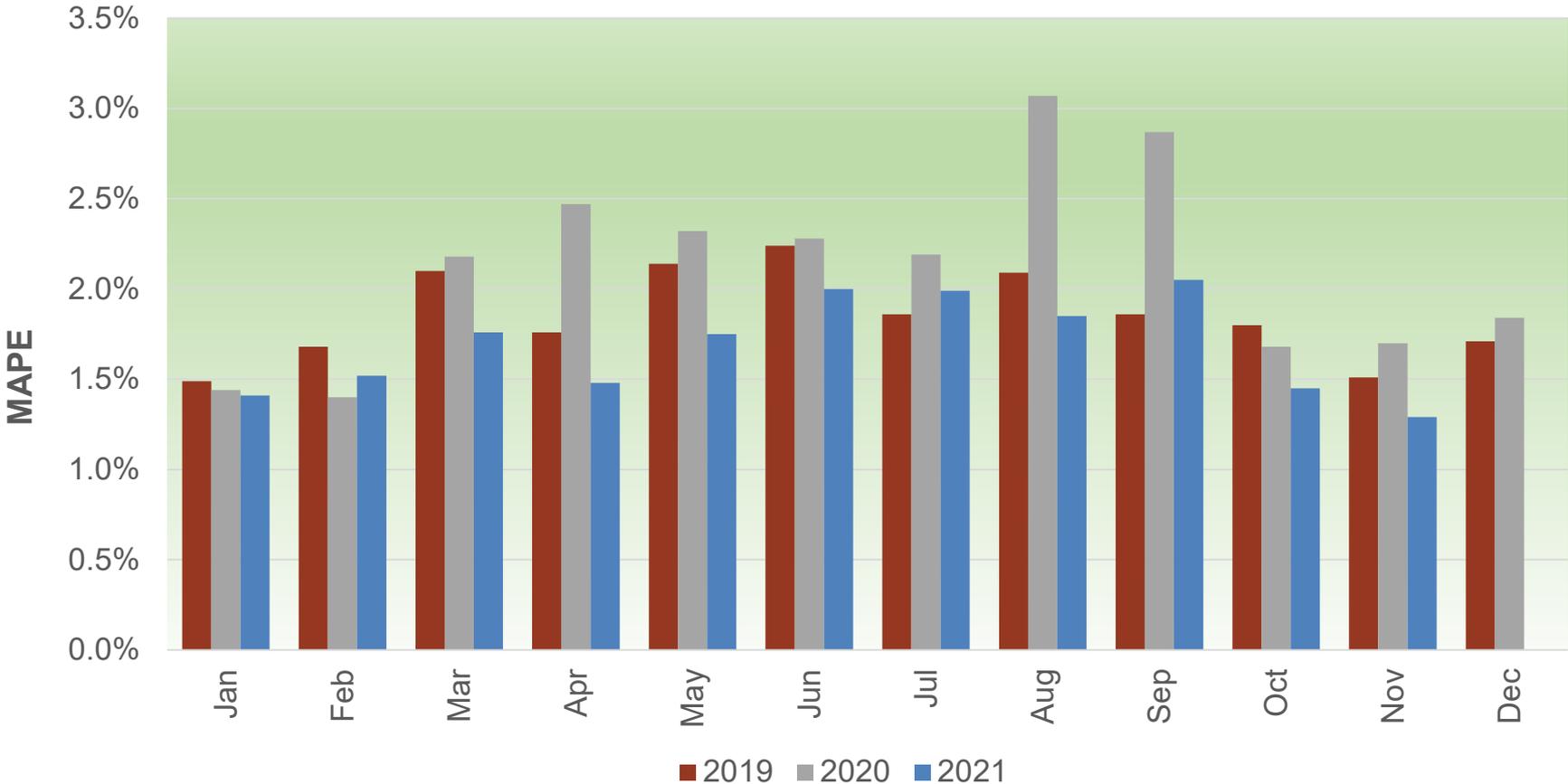
Uncertainty Up Settlement Amount



OASIS Wind and Solar Report Update

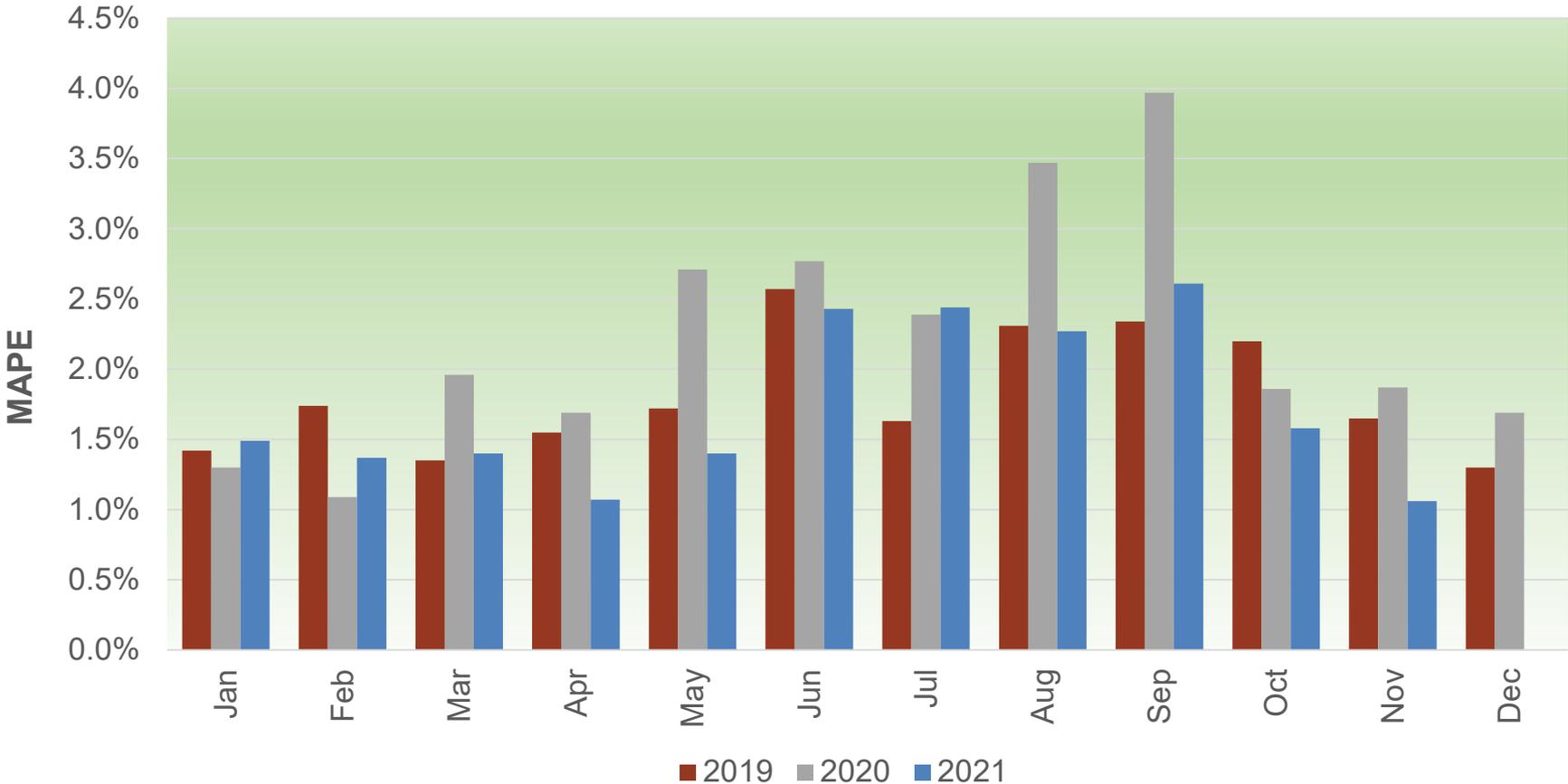
- The Actuals values reported on OASIS for Wind and Solar Forecast have been missing some resources
- This resulted in artificially large discrepancies, of up to 25% deviation, when comparing Forecasted MW to Actual MW across Trading Hubs
- Issue was fixed in the afternoon of 11/29/2021
- CAISO is looking into backfill opportunity and will communicate any changes to historical data via a Market Notice

Day-ahead Load Forecast



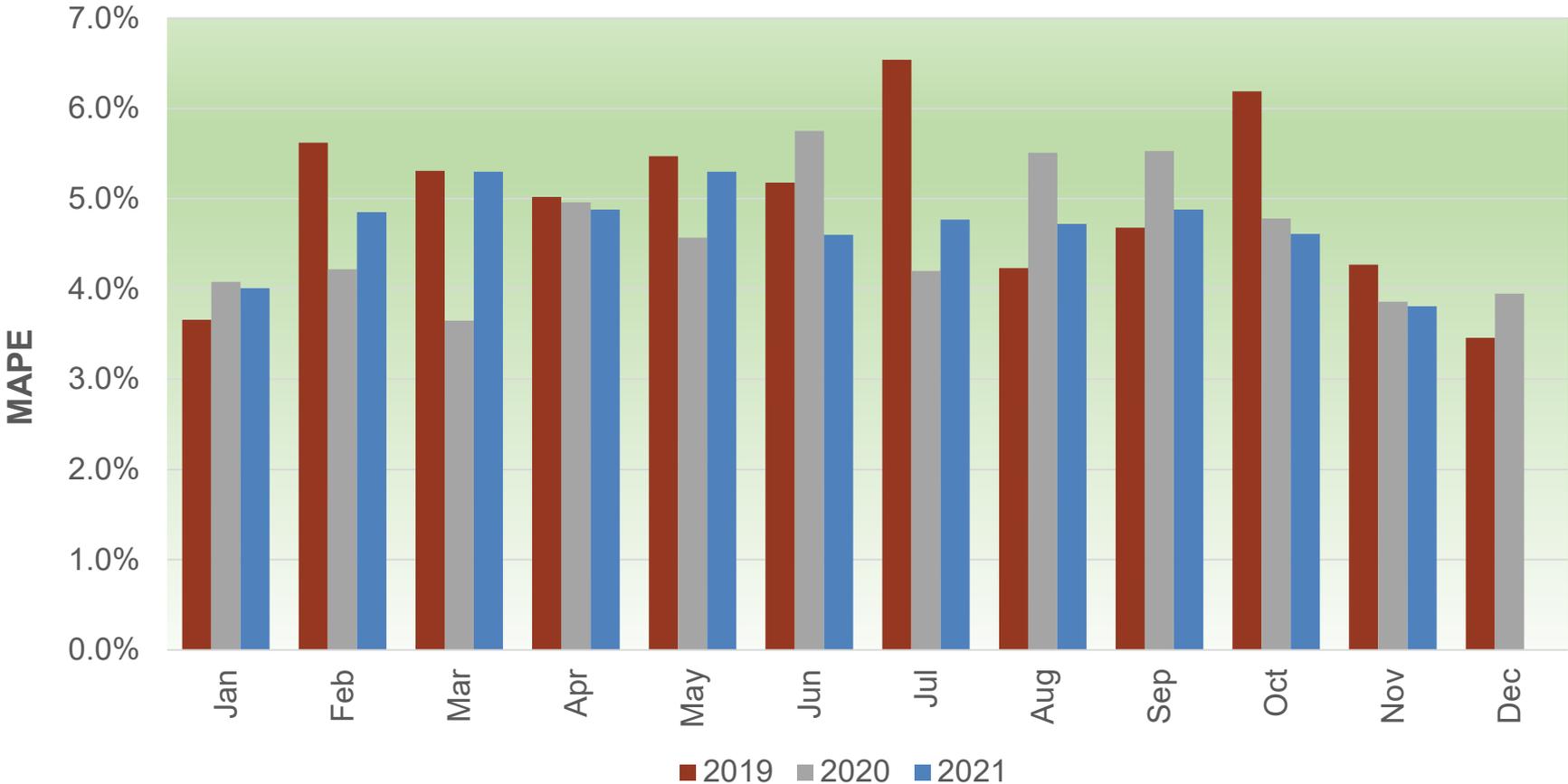
**MAPE = abs(Forecast - Actual)/Actual

Day-ahead Peak Forecast



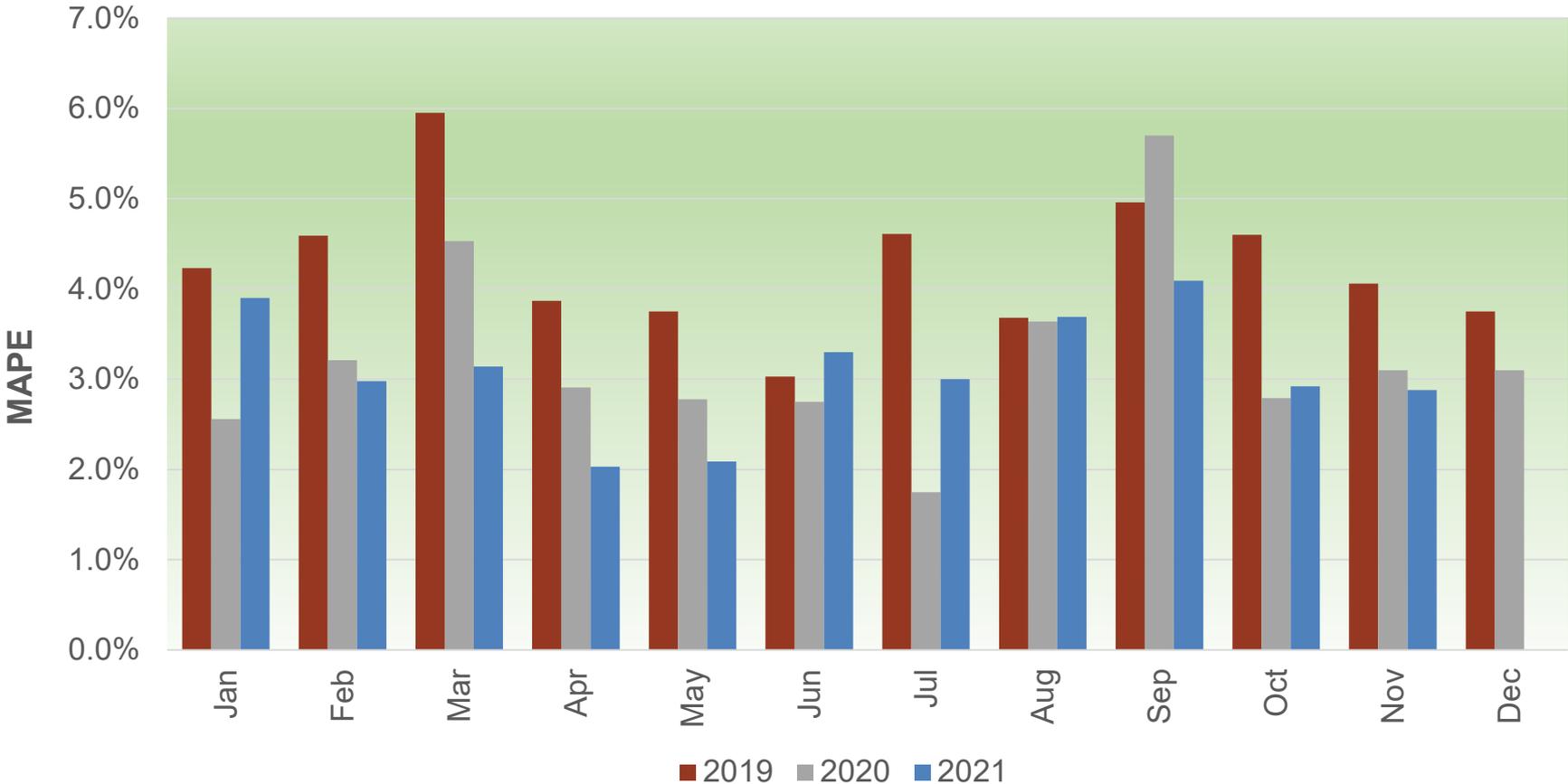
**MAPE = abs(Forecast - Actual)/Actual

Day-ahead Wind Forecast



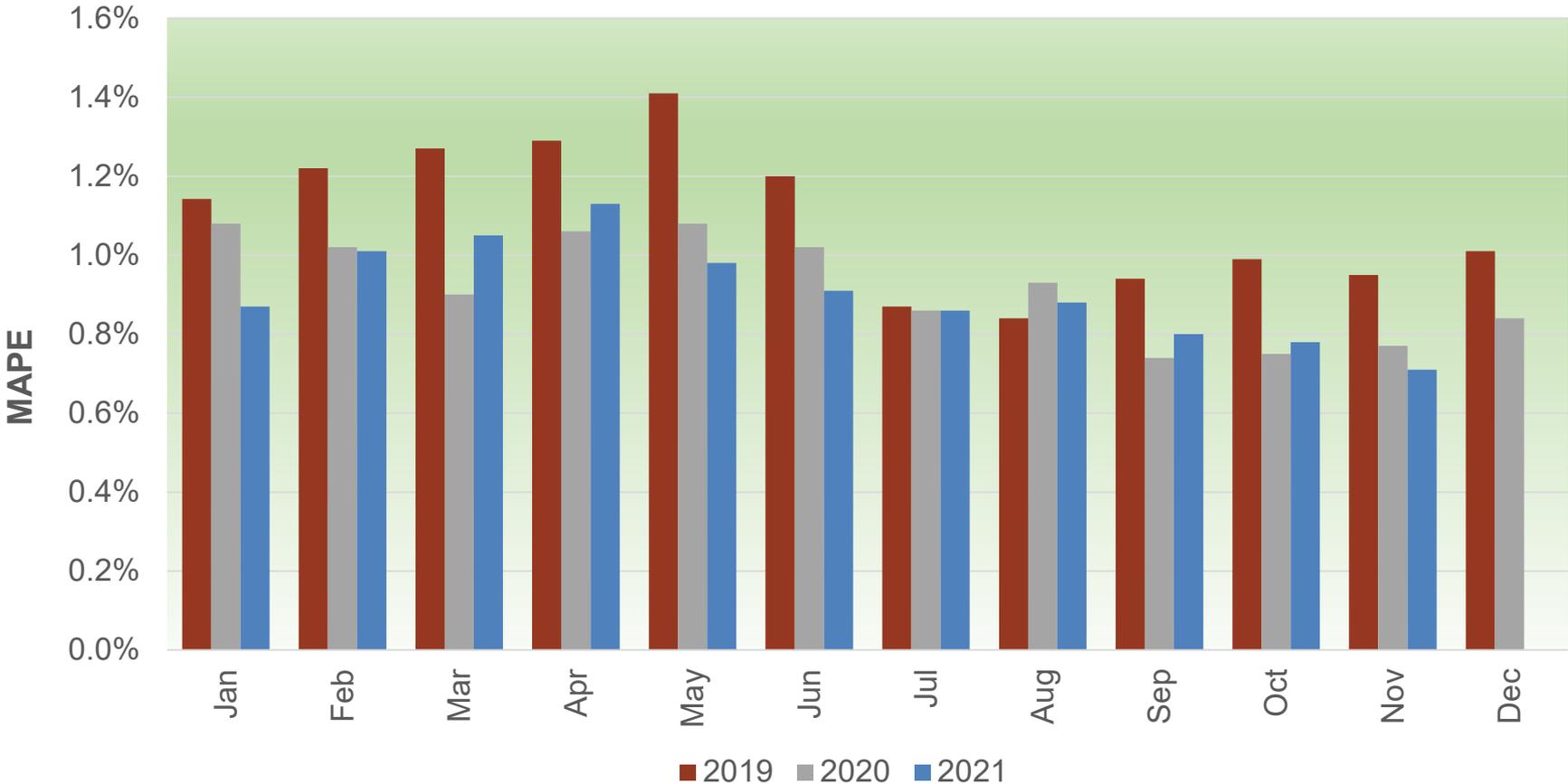
**MAPE = abs(Forecast - Actual)/Capacity

Day-ahead Solar Forecast



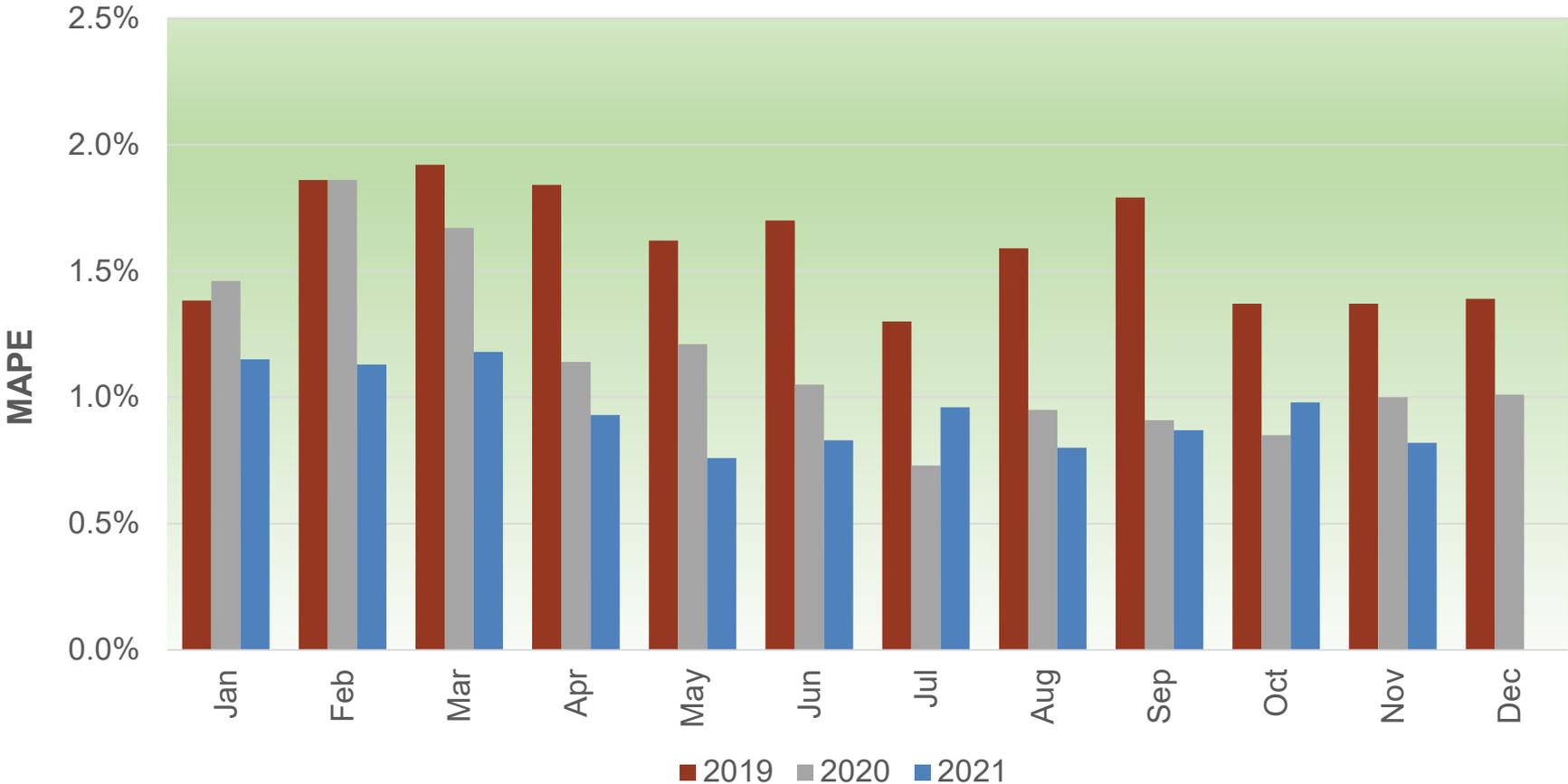
**MAPE = abs(Forecast - Actual)/Capacity

Real-Time Wind Forecast



**MAPE = abs(Forecast - Actual)/Capacity

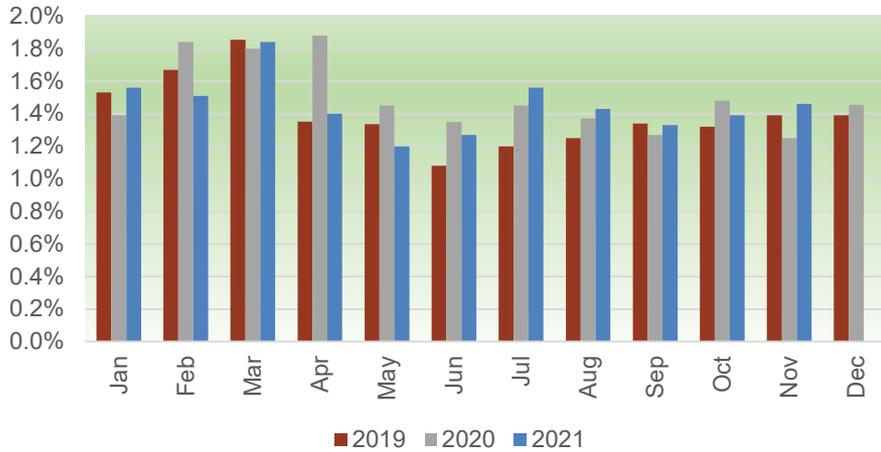
Real-Time Solar Forecast



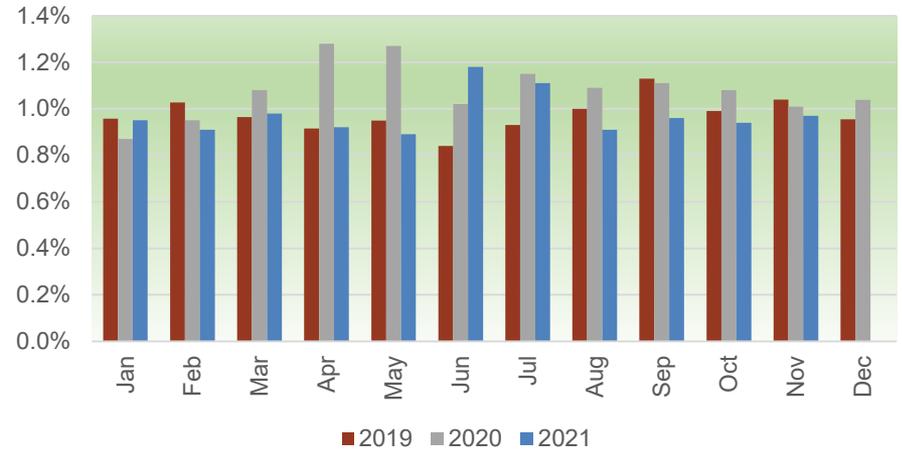
**MAPE = abs(Forecast - Actual)/Capacity

EIM T-60 Forecast

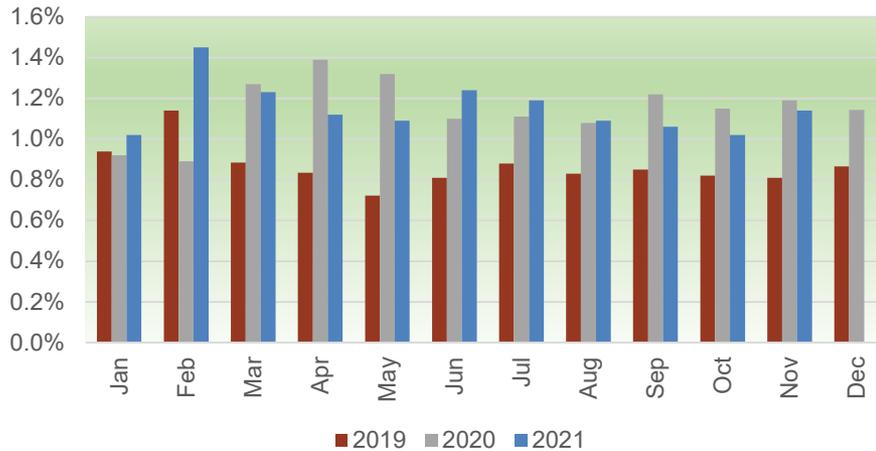
AZPS T-60 Forecast



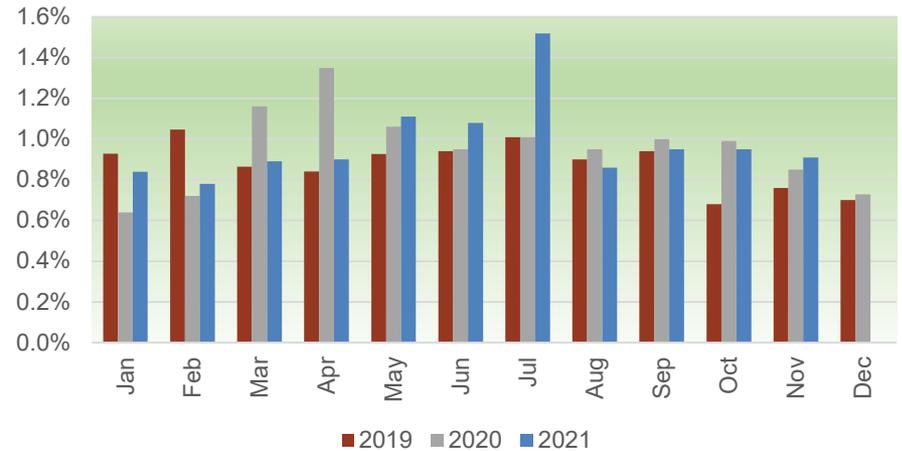
IPCO T-60 Forecast



PGE T-60 Forecast

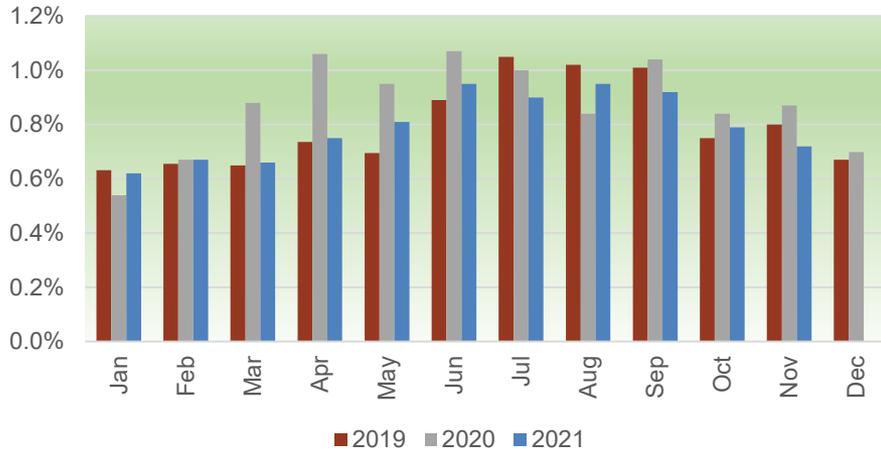


NVE T-60 Forecast

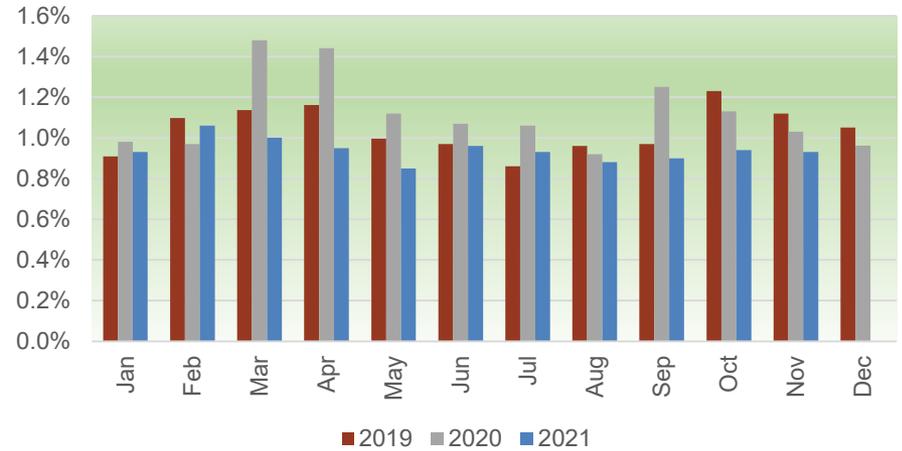


EIM T-60 Forecast

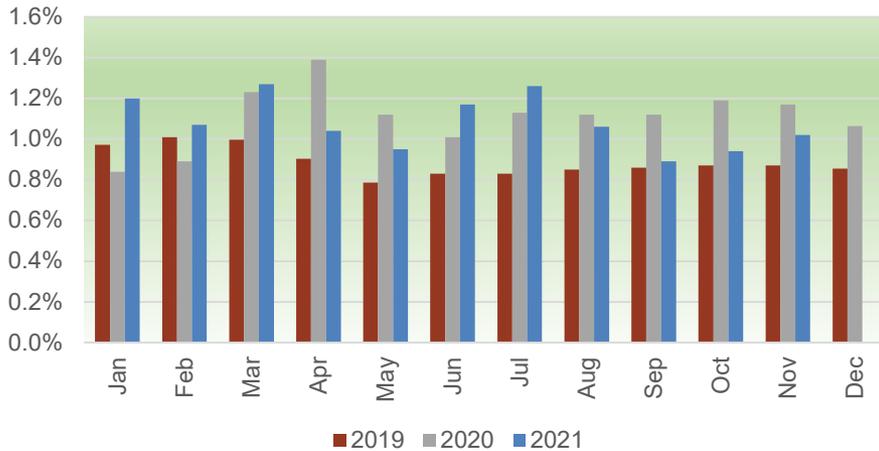
PACE T-60 Forecast



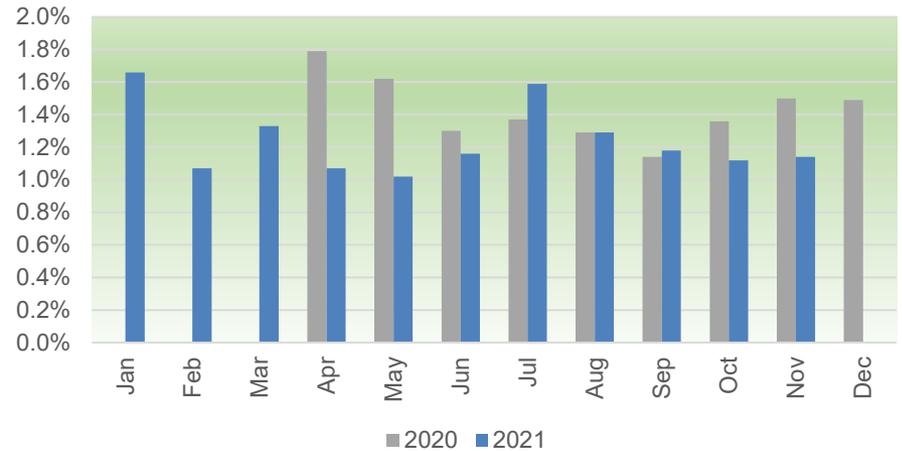
PACW T-60 Forecast



PSE T-60 Forecast

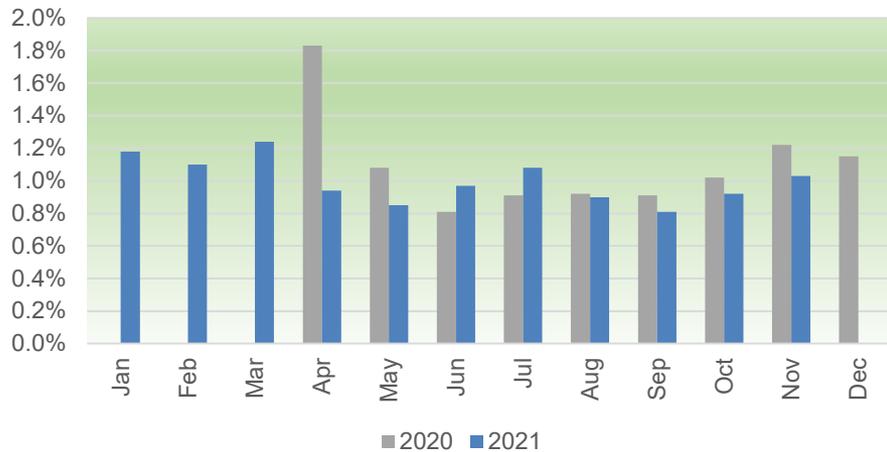


SRP T-60 Forecast



EIM T-60 Forecast

SCL T-60 Forecast



LADWP T-60 Forecast



TIDC T-60 Forecast



PNM T-60 Forecast

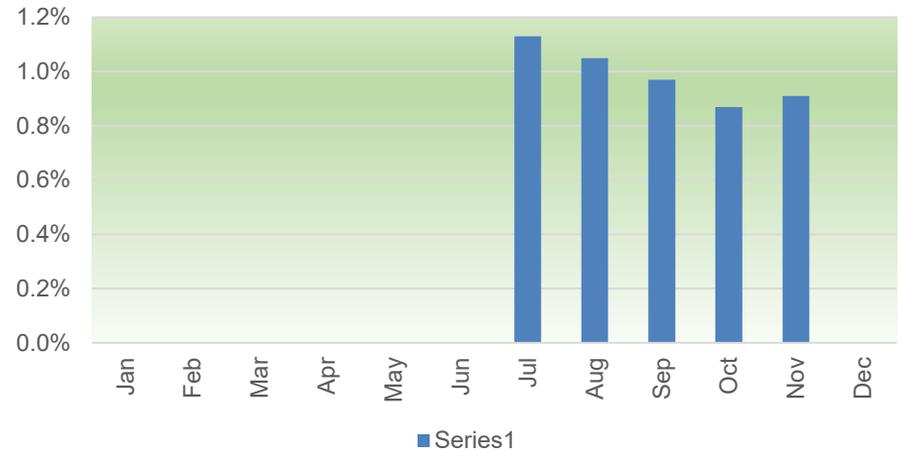


EIM T-60 Forecast

BANC T-60 Forecast



NWMT T-60 Forecast



Release Plan Update

Trang Vo
Senior Project Manager,
Strategic Initiative Management

ISO Computer Based Training



CustomerReadiness@caiso.com

New Modules

Integration of Renewables Watch Data in Today's Outlook

OASIS Enhancements – Phase 1

Variable Operations and Maintenance Costs Review

Outage Modifications in OMS

RIMS WebSDK Upgrade

OSI Enhancements 2021: MRI-S Monitoring Data

Real-Time Settlements Review Phase 2

Hybrid Resources Phase 2a

ESDER Phase 4

Today's Outlook: RA Capacity Trends

CIDI Enhancements

Outage Management System (webOMS) Enhancements

Process for Submitting Ongoing Obligations in CIDI

FERC Order 831 Market Simulation Scenarios

FERC Order 831 Import Bidding and Market Parameters

Resource Adequacy Enhancements Phase 1

Summer 2021 Readiness – Parts 1, 2 and 3

Resource Adequacy Enhancements Phase 1

SC Training Topics

Day-Ahead Overview

Real-Time Overview

Resource Adequacy ★

Storage Resources ★

Congestion Revenue Rights ★

Market Pricing

Bids and Self-Schedules

Full Network Model

Settlements Process

Metering Overview

And many more....

Release Plan Summary: 2021

Independent 2021

- Variable Operations and Maintenance Cost Review
- Hybrid Resources Phase 2-A
- Operations Systems Improvements 2021 Enhancements

Release Plan Summary: 2022

EIM Spring 2022 - March, April

- Energy Imbalance Market (EIM) 2022 - Avista
- Energy Imbalance Market (EIM) 2022 – Bonneville Power Administration
- Energy Imbalance Market (EIM) 2022 – Tacoma Power
- Energy Imbalance Market (EIM) 2022 - Tucson Electric Power
- EIM Enhancements 2021 Phase 2 – ETSR UI, Shared Ramping Constraint

Spring 2022

- Day Ahead Nodal Pricing Model Phase2 – Advisory Service for PacifiCorp – Feb 2022
- Hybrid Resources Phase 2-B – May 1
- Short-Long Start Definitions – May 1

2022 (tentative – subject to change pending impact assessment and planning activities)

- EIM Resource Sufficiency Evaluation Phase 1
- Transmission Service & Market Scheduling Priorities Ph1 (was External Load Forward Scheduling Rights Process Ph1)
- Interconnection Process Enhancements Phase 1
- RDRR Bidding Enhancements
- Market Parameter Changes

Fall 2022 (tentative – subject to change pending Policy and planning activities)

- FRP Improvements
- Resource Adequacy Enhancements Phase 2
- FERC 2222 Implementation
- FERC NOPR - Managing Transmission Line Ratings
- EIM Sub-Entity Scheduling Coordinator
- EIM Base Schedule Submission Deadline Phase 2

2023

- Congestion Revenue Rights (CRR) Replacement

2021 Independent

2021 – Variable Operations & Maintenance Cost Review

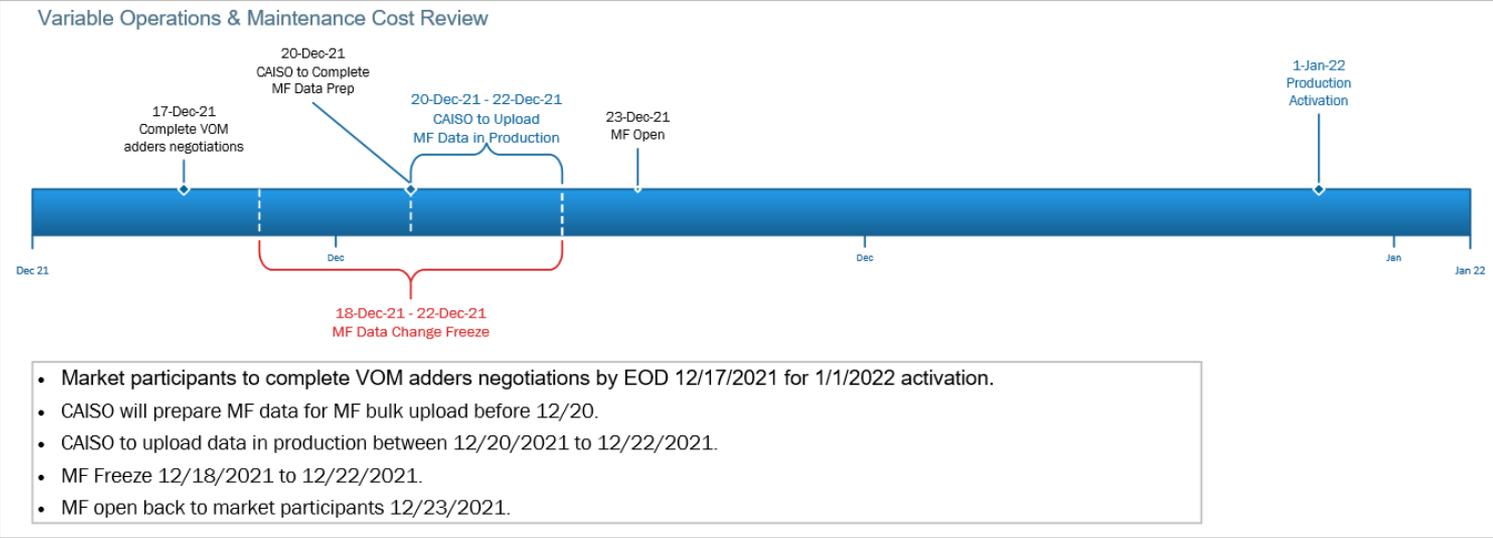
Project Information	Details/Date
High Level Business Problem or Need	This project proposes to change the structure of how operations and maintenance (O&M) costs are estimated for use in the CAISO markets.
High Level Project Scope	<p>Scope 1: Clarifying the categorization principles for variable operations and variable maintenance costs</p> <p>Scope 2: Changing the default O&M adder values that can be used in lieu of negotiated values</p> <p>Scope 3: Allow market participants to reflect their variable O&M costs in start-up costs, minimum load costs, and/or default energy bids, thus replacing the current cost framework consisting of major maintenance adders and variable O&M adders.</p>
BPM Changes	Market Instruments
Tariff Change	30.4.5, 39.7.1.1.2
Impacted Systems	SIBR, Master File, IFM/RTM, Settlements
Suggested actions:	<p>FERC has approved the proposed tariff revisions filed on 3/3/2021, thus the new default O&M adder values will go into effect on 1/1/2022. From 5/17/21 to 6/18/21 market participants were given an opportunity to negotiate new O&M adders and/or renegotiate legacy MMAs and variable O&M adders to be consistent with the new O&M adder framework. Applications not submitted during this spring timeframe are not guaranteed to be completed prior to 1/1/2022. Any existing negotiated variable O&M adder and major maintenance adders existing on 1/1/2022 will be “grandfathered” in under the new cost framework.</p> <p>The CAISO has released further instructions via the draft BPM in May 2021, see http://www.caiso.com/Documents/BPMforMarketInstruments-AttachmentL-DRAFT.pdf.</p>
Additional Information	The Market Analysis team wants to notify participants that the triennial review of the default VOM adders scheduled for 2021 will not occur this year as was discussed in the Final Proposal policy paper. Previously, the ISO had committed to revisit the default VOM values every three years, the next year being 2021. Because the new default values from the 2018 review have not yet become effective and negotiations are still ongoing, we don’t think it was appropriate to review the default values at this time.

2021 – Variable Operations & Maintenance Cost Review (cont'd)

System	High Level Changes
Scheduling Infrastructure Business Rules (SIBR)	<p><u>Scope 3:</u> SIBR will receive the variable minimum load O&M adder and variable start-up O&M adder from Master File. For default variable minimum load O&M adder and default variable start-up O&M adders, system must be enhanced to perform an automated calculation ($Min\ load\ O\&M\ Adder = Default\ Min\ load\ O\&M\ Adder * Resource's\ PMAX$ or $Start\ up\ O\&M\ Adder = Default\ start\ up\ O\&M\ Adder * Resource's\ PMAX$). If the resource has elected for a negotiated variable minimum load O&M adder or negotiated variable start-up O&M adder, the value can be used directly without the need to multiply with the Pmax.</p> <p>SIBR rules will need to be updated to reflect the latest terminology: Major Maintenance Adder to new terms “Variable Start-up O&M adder” and “Variable Minimum Load O&M adder”.</p>
Master File	<p><u>Scope 2:</u></p> <p>Default variable energy O&M adder, default variable minimum load O&M adder and default variable start-up O&M adders will be stored on a resource- and configuration-specific level.</p> <p>Two new flags will need to be added at the resource/configuration level:</p> <ul style="list-style-type: none"> ○ Default or Negotiated Variable Energy O&M Adder (naming change: Variable Energy O&M Adder replaces the Variable O&M Adder) ○ Default/Negotiated Variable Minimum Load O&M Adder and Default/Negotiated Variable Start-up O&M Adder (both new) <p>The one new flag and the two new adder values must be visible within the Resource Data Template (RDT).</p>

2021 – Variable Operations & Maintenance Cost Review (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 18, 2020	✓
Tariff	File Tariff	March 3, 2021	✓
External BRS	Milestone: Post External BRS	Mar 25, 2021	✓
BPMs	Post Draft BPM Changes	May 7, 2021	✓
Negotiations	Phase 1 Negotiations Begin	May 17, 2021	✓
Config Guides	Post Draft Config Guides	N/A	N/A
Tech Spec	Create ISO Interface Spec (Tech spec)	May 28, 2021	✓
Negotiations	Phase 1 Negotiations Deadline	June 18, 2021	✓
External Training	Deliver External Training	Oct 14, 2021	✓
Production	VOM Production Activation	Jan 1, 2022	



2021 – Hybrid Resources Phases 2-A and 2-B - Overview

Project Information	Details/Date
High Level Business Problem or Need	<p>The ISO launched this stakeholder initiative to identify new or enhanced market rules and business processes needed to accommodate hybrid resources, resources that consist of two sets of market rule changes that will facilitate mixed-fuel type project participation (hybrid and co-located resources) in the ISO markets.</p>
High Level Project Scope	<p>Phase 2 focuses on modifications that will explore how hybrid generation resources can be registered and configured to operate within the ISO market. The initiative will further develop solutions allowing developers to maximize the benefits of their resource's configuration. Additionally, hybrid resource configurations also raise new operational and forecasting challenges that the ISO plans to address during this initiative.</p> <p>The Phase 2 project has been split into two separate implementations, phases 2-A and 2-B, to support strategic delivery timing. Phase 2-B information is available under the Spring 2022 release section.</p> <p>Phase 2-A is scheduled to implement on Dec 15, 2021. This phase focuses on implementing Ancillary Services (AS) and High Sustainable Limit (HSL) functionality with a focus on the EMS, IFM/RTM, ALFS, Settlements, and CMRI systems.</p> <p>Phase 2-B is scheduled to implement Spring 2022. This project phase focuses on implementing the Hybrid Dynamic Limit functionality along with all remaining project scope to include changes to systems RIMS, Master File, EMS, SIBR, IFM/RTM, OASIS, ALFS, Settlements, MRI-S Metering, CMRI, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report', and the Over Supply Page.</p> <p>External BRS Posting: An updated External BRS v1.1 has been posted.</p>
BPM Changes	<p>Direct Telemetry, Market Instruments, Market Operations, Metering, Settlements and Billing</p>
Tariff Changes	<p>Proposed sections 4.18, 34.1.6.3, 30.5.6.1 Sections 27.13, 8.4.1.1(g), 8.4.3, Appendix K, Parts A, B and C, 8.2.3, 8.4.5, 34.7, 11.6.6, 4.8.2, 40.9.2 (b) (D)</p>
Impacted Systems	<p>ALFS, CMRI, Reporting, IFM/RTM, Master File, OASIS, RIMS, Settlements, MRI-S Metering, SIBR, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report, Over Supply Page.</p>

2021 – Hybrid Resources Phase 2-A

System	High Level Changes
Automated Load Forecast System (ALFS)	<ul style="list-style-type: none"> • Identification of variable energy resources (VER) • New forecast type for hybrid resources • Forecast for hybrid resources that elect for ISO forecast
CAISO Market Results Interface (CMRI)	<ul style="list-style-type: none"> • Updates to include resource specific forecast data for hybrid resources (VER components).
Reporting	<ul style="list-style-type: none"> • Potential: Update report(s) for resource tagging changes: Solar Total tag, Wind Total Tag, Battery Total Tag (Renewable watch, Curtailment Report, ISO Today), and new Hybrid Total Tag
Integrated Forward Market (IFM)/Real-Time Market (RTM)	<ul style="list-style-type: none"> • When any resource behind an ACC constraint has an AS award, all resources behind that ACC constraint must follow their DOT and receive the must follow flag • Create a new user interface to display the hybrid summary • Include dispatchable generation calculation in RTD and RTPD for co-located resources • Modify 'Must Follow DOT' flag for AS cleared or AS dispatched award <ul style="list-style-type: none"> ◦ Must Follow DOT Flag must turn to 'Y' for Ancillary Service Cleared by resource ID • HSL needs to be integrated with the persistent methodology for co-located resources: Validation rules must be developed for the HSL • Validate the dynamic operating limits • Software that takes the submitted limit and haircuts the energy bid used in each interval of the market time horizon • Limit the economic dispatch of a hybrid resource in the real-time market based on data submitted to SIBR • For co-located resources and hybrids, add new user interfaces • Dynamic Limit functionality: <ul style="list-style-type: none"> • Display a hybrid resources upper limit and lower limit • Display VER availability • Display ambient derates • Provide the capability to submit energy-not-available thru the functionality
Settlements	<ul style="list-style-type: none"> • Consume new VER Component ID for forecasting fee • Updates to forecast fee calculation based on meter data submitted for the VER components that elect ISO forecast

2021 – Hybrid Resources Phase 2-A (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 18, 2020	✓
External BRS	Milestone: Post External BRS	Mar 24, 2021	✓
	Revised BRS to specify scope for Phase 2-A (Fall 2021) and Phase 2-B (Spring 2022)	Aug 03, 2021	✓
Config Guides	Post Draft Configuration Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	May 28, 2021	✓
Structured Scenarios	Post proposed scenarios	N/A	
Tariff	File Tariff	Sep 8, 2021	✓
External Training	Deliver External Training	August 30, 2021	✓
Market Sim	Market Sim Window	Aug 30, 2021 - Oct 15, 2021	✓
Production Activation	Hybrid Resources Phase 2-A	Dec 15, 2021	

2021 - Operations Systems Improvements 2021 Enhancements

Project Information	Description
High Level Business Problem or Need	<ul style="list-style-type: none"> The goal of this project is to deliver timely systems improvements that support efficient day-to-day work and operations. The project aims to improve market robustness, performance, and the technology foundation for system grid reliability by updating functionality and interfaces to reduce workarounds, automating manual processes and addressing functionality enhancements. A list of specific high priority improvements will be the scope for the project. A number of these improvements may have an impact on the way in which customers interact with CAISO systems.
Affected Systems	<ul style="list-style-type: none"> A preliminary list of enhancements is included on the next slide. <p>PLEASE NOTE: This list may change as the project progresses and priority are factored. The goal is to provide advanced notification of changes whenever possible</p>
Schedule	<ul style="list-style-type: none"> External BRS v1.1 now available on CAISO.com MAP Stage Availability TBD* Customer Training TBD* PROD TBD* <p>* The plans for testing and deployment will vary between improvement items as these may be released individually or in groups. More information on specific improvements will be made available as planning and schedules are solidified.</p>

2021 - Operations Systems Improvements 2021 Enhancements

List of Proposed Improvements*

*PLEASE NOTE: This list may change as the project progresses and priorities are factored. The goal is to provide advanced notification of changes whenever possible

System	Summary Description	Next Step
Market	Ability to block/unblock ETSRs for a specified Time interval	PROD – Dec
MRI -Settlements	Automate PTO submission of TAC Rates	2022
ADS	Add advance filter, additional color scheme, change grid color	PROD - Jan
Market	Modify Unit Details UI	2022
CIRA	Publish bilateral trades from CIRA to OASIS	2022
CIRA	EFC data to OASIS Phase 3	2022
Market	✓ ED Records Shall be Identified as Current or Non-Current within RTM	Complete
MRI -Settlements	✓ Request for all monitoring data to be viewable in MRI-S	Complete
OMS	✓ Ignore redundant curtailment points in API requests for aggregate children	Complete
OMS	✓ FNM - Changes to Switch Display View	
DRRS	✓ Creating an automated notification for Registration IDs with an End Date less than x business days	Complete
OMS	✓ Differentiate the SC & ACL for EIM external BA from CAISO BA	Complete
OMS	✓ Outage Report Changes to the 'Curtailed and Non-Operational Generation' report (with Summer 2021)	Complete
OMS	✓ NGR Outage process efficiency. (with Summer 2021)	Complete
OMS	✓ Further define when a COMMUNICATION or RELAY WORK outage does or does not impact a RAS	Complete
OMS	✓ FNM - Equipment Name should not be blank in the Outage Summary	Complete
Market	✓ Have resource "SOC_YN" flag to in the UI	Complete

EIM Spring 2022 Release

Spring 2022 – EIM integrations for Avista, BPA, Tacoma Power, Tucson Electric Power

Project Info	Details/Date
Application Software Changes	System modifications as needed to accommodate any unique Avista, BPA, Tacoma Power, and Tucson Electric Power needs to support their EIM onboarding.
BPM Changes	EIM BPM will be updated if needed to reflect changes identified during the onboarding and as required to reflect the unique processes of Avista, BPA, Tacoma Power, and Tucson Electric Power.
Market Simulation	October 2021 thru January 2022
Parallel Operations	December 2021 thru March 2022

Milestone Type	Milestone Name	Dates			
		Avista	BPA	Tacoma Power	Tucson Electric Power
Market Sim	Market Sim Window		✓ Oct 2021 thru Nov 2021		Dec 2021 thru Jan 2022
Parallel Operations	Parallel Operations		Dec 2021 thru Feb 2022		Feb 2022 thru Mar 2022
Tariff	File Readiness Certification		2/1/2022		3/1/2022
Production	Activation		3/2/22		4/1/22

2021 – EIM Enhancements 2021 Phase 2

Project Information	Details/Date
High Level Business Problem or Need	To collectively address important issues identified by EIM market participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the visibility, functions and features in Energy Imbalance Market (EIM).
High Level Project Scope	<ul style="list-style-type: none"> BAAOP: Specify parameters for Shared ramping capability constraint. BAAOP: Separate ETSR Base from ETSR detail display
BPM Changes	EIM, Market Instruments
Tariff Change	Section 29.4
Impacted Systems	RTM/BAAOP, RTM/Integration, CMRI, RTM/BAAOP

System	High Level Changes
Real-Time Market (RTM) /Real-Time Base Schedule (RTBS)	<ul style="list-style-type: none"> Offline units with Base schedule centralized activation/de-activation means of this functionality System shall consider offline resources that are cycling as available for the balancing, bid range capacity, and flexible ramp sufficiency tests if capable for startup within the next hour. Same for shutdown
Real-Time Market (RTM)	<ul style="list-style-type: none"> Shared ramping capability constraint UI for EIM entity input parameters for ramp sharing Use in the optimization for each resource based on BAA ramp share parameters
Real-Time Market (RTM)/Real-Time Unit Commitment (RTUC) [(HASP, STUC, FMM)]	<ul style="list-style-type: none"> Cycling resource with base schedule in Market centralized activation/de-activation means of this functionality <ul style="list-style-type: none"> Real-Time Markets shall have the capability to automatically start-up an offline resource that is cycling if it is economic to run. Similarly, Real-Time Markets shall have the capability to automatically shut down an online resource that is cycling if it is not economic to run. Consider EIM resources with positive base schedules above minimum load and with three-part bids as cycling during the relevant trade hour (i.e. optimize its unit commitment on the basis of its bids), with the following exceptions: <ul style="list-style-type: none"> Self-schedule exists Ancillary service base schedule exists (except when non-spin for an offline resource capable of startup within 10-minutes) Flexible ramp award exists (except when flex ramp up award for an offline resource capable of startup within 5-minutes) Inter-temporal constraint (startup time, minimum up time, minimum down time, maximum daily starts) prevents cycling Real-time market horizon has limitation, where resource startup time plus minimum up time exceeds 240 minutes Cycling shall include both startup and shutdown unit commitment decisions on basis of three-part bids (economic energy bid, startup, minimum load) and applicable temporal constraints. A positive base schedule from a resource without an energy bid shall still be treated as a self-schedule.

2021 – EIM Enhancements 2021 Phase 2 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Apr 06, 2021	✓
Configuration Guides	Post Draft Configuration Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	N/A	
Production Activation	ITC ETSR UI Shared Ramping Constraint	Dec 02, 2021 Apr 01, 2022 Apr 01, 2022	✓

Spring 2022 Release

2022 – Day Ahead Nodal Pricing Model Phase2 – Advisory Service for PacifiCorp

Project Info	Details/Date
High Level Project Scope	<p>This service will produce separate advisory day-ahead nodal pricing results for locations within PacifiCorp’s balancing authority areas, without a financial settlement or impact to the ISO’s day-ahead market. PacifiCorp will pay the ISO’s estimated cost to provide the service. PacifiCorp plans to use the NPM solution results as the basis for its power cost allocation among the states within which it provides retail electric service, consistent with the recently filed inter-jurisdictional cost allocation agreement.</p> <p>In the second phase, CAISO will extend the service to support Ancillary Service Bids.</p>
Reference	<p>Reference – ISO market notice from Dec 18, 2019 – see: Stay Informed\Meetings and Events\Miscellaneous stakeholder meetings\Previous Meetings\2019 meetings\PacifiCorp nodal pricing model service informational call - Dec 18,2019 or http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=E8304346-54B9-4473-9E45-9C282AAD1340</p> <p>Reference - NPM FERC filing http://www.caiso.com/Documents/Dec20-2019_NodalPricingModelAgmt_CAISO-PacifiCorp_ER20-664.pdf</p>

Milestone Type	Milestone Name	Dates	Status
Tariff	FERC Approval	Feb 28, 2020	✓
Config Guides	Publish Config Guide	Nov 8, 2021	✓
Market Sim	Market Sim Window	N/A	
Production Activation	Day Ahead Nodal Pricing Model	Feb 16, 2022	

Spring 2022 – Hybrid Resources Phases 2-B - Overview

Project Information	Details/Date
High Level Business Problem or Need	<p>The ISO launched this stakeholder initiative to identify new or enhanced market rules and business processes needed to accommodate hybrid resources, resources that consist of two sets of market rule changes that will facilitate mixed-fuel type project participation (hybrid and co-located resources) in the ISO markets.</p>
High Level Project Scope	<p>Phase 2 focuses on modifications that will explore how hybrid generation resources can be registered and configured to operate within the ISO market. The initiative will further develop solutions allowing developers to maximize the benefits of their resource's configuration. Additionally, hybrid resource configurations also raise new operational and forecasting challenges that the ISO plans to address during this initiative.</p> <p>The Phase 2 project has been split into two separate implementations, phases 2-A and 2-B, to support strategic delivery timing. Phase 2-B information is available under the Spring 2022 release section.</p> <p>Phase 2-A is scheduled to be implemented for December 15, 2021. This phase focuses on implementing Ancillary Services (AS) and High Sustainable Limit (HSL) functionality with a focus on the EMS, IFM/RTM, ALFS, Settlements, and CMRI systems.</p> <p>Phase 2-B is scheduled to implement Spring 2022. This project phase focuses on implementing the Hybrid Dynamic Limit functionality along with all remaining project scope to include changes to systems RIMS, Master File, EMS, SIBR, IFM/RTM, OASIS, ALFS, Settlements, MRI-S Metering, CMRI, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report', and the Over Supply Page.</p> <p>External BRS Posting: An updated External BRS v1.1 has been posted.</p>
BPM Changes	<p>Direct Telemetry, Market Instruments, Market Operations, Metering, Settlements and Billing</p>
Tariff Changes	<p>Proposed sections 4.18, 34.1.6.3, 30.5.6.1 Sections 27.13, 8.4.1.1(g), 8.4.3, Appendix K, Parts A, B and C, 8.2.3, 8.4.5, 34.7, 11.6.6, 4.8.2, 40.9.2 (b) (D)</p>
Impacted Systems	<p>ALFS, CMRI, Reporting, IFM/RTM, Master File, OASIS, RIMS, Settlements, MRI-S Metering, SIBR, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report, Over Supply Page.</p>

Spring 2022 – Hybrid Resources Phase 2-B (Cont'd)

System	High Level Changes
Automated Load Forecast System (ALFS)	<ul style="list-style-type: none"> • Identification of variable energy resources (VER) • New forecast type for hybrid resources • Forecast for hybrid resources that elect for ISO forecast
CAISO Market Results Interface (CMRI)	<ul style="list-style-type: none"> • Updates to include resource specific forecast data for hybrid resources (VER components).
Reporting	<ul style="list-style-type: none"> • Potential: Update report(s) for resource tagging changes: Solar Total tag, Wind Total Tag, Battery Total Tag (Renewable watch, Curtailment Report, ISO Today), and new Hybrid Total Tag
Integrated Forward Market (IFM)/Real-Time Market (RTM)	<ul style="list-style-type: none"> • When any resource behind an ACC constraint has an AS award, all resources behind that ACC constraint must follow their DOT and receive the must follow flag • Create a new user interface to display the hybrid summary • Include dispatchable generation calculation in RTD and RTPD for co-located resources • Modify 'Must Follow DOT' flag for AS cleared or AS dispatched award <ul style="list-style-type: none"> ◦ Must Follow DOT Flag must turn to 'Y' for Ancillary Service Cleared by resource ID • HSL needs to be integrated with the persistent methodology for co-located resources: Validation rules must be developed for the HSL • Validate the dynamic operating limits • Software that takes the submitted limit and haircuts the energy bid used in each interval of the market time horizon • Limit the economic dispatch of a hybrid resource in the real-time market based on data submitted to SIBR • For co-located resources and hybrids, add new user interfaces • Dynamic Limit functionality: <ul style="list-style-type: none"> • Display a hybrid resources upper limit and lower limit • Display VER availability • Display ambient derates • Provide the capability to submit energy-not-available thru the functionality

Spring 2022 – Hybrid Resources Phase 2-B (Cont'd)

System	High Level Changes
Master File (MF)	<ul style="list-style-type: none"> • Enhance MF to identify Hybrid resources • Create a new categorization in MF to identify hybrid resources to handle dynamic limits • Add the ability to store the state-or-charge minimum and maximum limit • Identification of variable energy resources (VER) • Enhance MF to map hybrid resource to individual VER component(s) • Note: Renewable registration for VER components is currently mapped to Resource ID; will need further automation to map to individual VER component • New unit type to identify a hybrid resource under the existing NGR model • New identification of individual renewable components that make up a hybrid resource • Ability to elect for ISO forecast or SC submitted forecast to be at the renewable component level • Make the new categorization of hybrid resources along with associated attributes available for downstream applications • Add a MF rule to make sure the 'MOO Qualified Flag' is set to "N" for hybrid resources • Modifications to support the need for a few MF resource attributes (for example, fuel type, technology type, QF Flag, VER NGR flag, etc.) that need to be associated to the VER components that make up the hybrid resources • Map PI Tags (VER actual and meteorological tags) to each Resource ID or VER component. Note: System to be determined per Architecture Definition
Open Access Same Time Information (OASIS)	<ul style="list-style-type: none"> • Updates to create a new category for hybrid resources to be included in the forecast data reports.
Settlements	<ul style="list-style-type: none"> • Consume new VER Component ID for forecasting fee • Updates to forecast fee calculation based on meter data submitted for the VER components that elect ISO forecast
Metering (MRI-S)	<ul style="list-style-type: none"> • Ability to receive meter data at the VER Component ID level for hybrid resources • Updates for Western Renewable Energy Generation Information System (WREGIS) reporting of meter data on the Hybrid components
Scheduling Infrastructure and Business Rules (SIBR)	<ul style="list-style-type: none"> • Treat all hybrid resources as non REM NGRs • Flagging must be configured to ensure bid insertion does not occur • SIBR rules and new rule flow needs to be created to receive and validate the dynamic operating limits • Software that allows market participant to submit their dynamic limit • Allow submission of upper and lower economic limits for each 5-minute interval in a three hour window for hybrid resources • Validation of upper and lower economic limits • Validate the dynamic operating limits

Spring 2022 – Hybrid Resources Phase 2-B (Cont'd)

System	High Level Changes
<p>Resource Interconnection Management System (RIMS)</p>	<ul style="list-style-type: none"> • Enhance to identify Hybrid resources • RIMS will need to add a new Milestone type under App & Study > Project Summary > Status Report and Milestones: add Milestone Type “Co-located / Hybrid” • Under MPAI > General Info, below the drop box for additional fuel type, add “Co-located/Hybrid:” and add a drop down box with three choices – blank, “Co-located” and “Hybrid.” App & Study will provide this information to MPAI when the project is pulled from App & Study. • Collect topographical map and Site Information for hybrid resources • Reference Tariff Appendix Q: Automation of existing manual processes for all renewable resources (resources ID or VER component) - Site Sheets and Topo Maps <ul style="list-style-type: none"> Impacts and Design Suggestions: <ul style="list-style-type: none"> ○ Automate the Site Sheets to automatically validate and review for accuracy by creating validation checks for the submitter. <ul style="list-style-type: none"> ➤ Allow the submitter to enter all of their information in a web form (one form for solar resources and one for wind resources). ➤ Incorporate validation check on information submitted to ensure all fields are entered correctly and match Appendix Q formatting (e.g., WGS84 coordinates, resource type filled out, address provided is a legitimate address). ➤ Add a web form check option to determine if primary met station equipment is LiDAR or not. ➤ Information entered into the system can be compiled into a site sheet (XLSX or PDF format), but the information can also be stored in a database for retrieval and query. ○ Automate Topo Maps validation checks. <ul style="list-style-type: none"> ➤ Require submitter to enter a list of coordinates for necessary elements on the topo map (project corners, met station location, and/or turbine locations) via a web form. The web form could then cross reference coordinates with the site sheet to confirm all information has been entered accurately and correctly. ➤ Require submitter to upload a digital copy (PDF) of their topo map. ➤ Require submitter to upload a picture of the physical site.

Spring 2022 – Hybrid Resources Phase 2-B (Draft)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 18, 2020	✓
External BRS	Post External BRS (Includes Phase 2-A and 2-B)	Aug 3, 2021	✓
Config Guides	Post Draft Config Guides	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	Sep 10, 2021	✓
Tariff	File Tariff	Sep 17, 2021	✓
Structured Scenarios	Post proposed scenarios	Feb 2, 2022	
BPMs	Publish Final Business Practice Manuals for mkt sim	Feb 14, 2022	
External Training	Deliver External Training	Feb 15, 2022	
Market Sim	Market Sim Window	Mar 01, 2022 - Apr 01, 2022	
Production Activation	Hybrid Resources Phase 2-B	May 01, 2022	

Spring 2022 – Short-Long Start Definitions

Project Information	Details
High Level Business Problem or Need	<ul style="list-style-type: none"> - To align market applications and business processes with revised ISO Tariff definitions of Short and Long Start resources. - To simplify and streamline CAISO definitions regarding startup classifications. - To clarify operational and settlement communication and outcomes for EIM and ISO market participants.
High Level Project Scope	<ul style="list-style-type: none"> - Update current ISO Tariff definitions and business practice manuals. - The Medium Start definition will be removed and rolled into the Short Start definition. - Clarify operational and settlement communication and outcomes for EIM and ISO market participants.
BPM Changes	<ul style="list-style-type: none"> - Definitions & Acronyms - Market Instruments - Market Operations - Reliability Requirements - Settlements & Billing
Tariff Change	The tariff is being changed to 1) align the market and settlement systems, and 2) align to the existing real-time optimization horizon. Sections: 34.3.1, 34.3.2, 34.6 40.6.2

Impacted systems	Details
Market Quality System (MQS)	Auxiliary Processes (Startup, Minimum Load, and Transition Cost BCR pre-qualification) shall consider a resource to be eligible for real-time commitment if the sum of startup time and minimum up time is 240 minutes or less (was previously startup time 270 minutes or less.)
SIBR	Update bid insertion rules to account for changes to Short Start and Long Start definitions under tariff revisions; account for the DA/RT unit commitment 240 minute cycle time for Short Start units (was previously 270 minutes). As previously implemented, Long Start units will not have bid-insertion performed in real-time markets if not committed in the Day-Ahead Market.
Integrated Forward Market, Real Time Market (IFM, RTM)	<ul style="list-style-type: none"> • Update IFM and RTM market systems to have the DA binding commitment cycle time (startup time + minimum up time) changed from 270 to 240 minutes. • No software impacts to Operator Displays.
Settlements	Settlement systems shall account for new tariff startup definitions when applying DA/RT Bid Cost Recovery, AS Non-Spin/Spin No Pay, and RAAIM Pre-Calc calculations.

Spring 2022 – Short-Long Start Definitions

Milestone Type	Milestone Name	Dates	Status
Board Approval	Inform Board of Governors	2022	
External BRS	Post External BRS	Jun 21, 2021	✓
Config Guides	Post Draft Config Guides	May 27, 2021	✓
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	Short-Long Start Definitions	May 1, 2022	

2022 Fall Release

Fall 2022 – Flexible Ramping Product Improvements Deliverability

Project Information	Details/Date
High Level Project Scope	<p>The scope of the project FRP Deliverability is:</p> <ol style="list-style-type: none"> 1. Procurement of FRP for BAA's that fails the flex test is separate for each BAA. 2. Procurement of FRP for BAA's that pass the flex test for the entire group of BAA. 3. Transmission constraints and transfer limits are enforced in FRP deployment scenarios 4. Distributing the uncertainty requirement in each BAA load and VER locations versus just load 5. Distributing the demand curve surplus variable as a decision variable at load aggregation points (LAP) versus Balancing Authority Areas (BAA) 6. To establish the Locational Marginal Capacity Prices (LMCP) for FRP
BPM Changes	Market Instruments, Market Operations
Tariff Change	Yes
Impacted Systems	RTM, Settlements, CMRI/OASIS

System	High Level Changes
Real Time Markets (RTM)	<ul style="list-style-type: none"> • RTM to be impacted based on the change in the FRP procurement systems. • Input data needed for forecasted advisory in the binding interval for RTPD for approx. 40 work days or weekends. • New demand curve calculation is needed.
Settlements	<ul style="list-style-type: none"> • Prices are nodal therefore mechanics for cost allocation pricing to be changed • Nodal FRP prices
CAISO Market Results Interface (CMRI)/ Open Access Same time Information (OASIS)	<ul style="list-style-type: none"> • Publish Resource Nodal prices for the FRP awards (CMRI) • Publish requirements for FRP per BAA and BAA group (OASIS) • Publish surplus by LAP (OASIS) • Publish the nodal FRP prices (OASIS)

Fall 2022 – Flexible Ramping Product Improvements Deliverability

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sept 30, 2020	✓
External BRS	Publish External BRS	Jan 28, 2021	✓
Config Guides	Post Draft Config Guides	TBD	
Tech Spec	Publish Technical Specification	N/A	
Tariff	File Tariff	TBD	
BPMs	Publish Draft BPM updates	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Start Jul, 2022	
Production Activation	FRP Deliverability	Oct 01, 2022	

Fall 2022 – EIM Base Schedule Submission Deadline Phase 2

Project Information	Details/Date
High Level Business Problem or Need	Provide EIM Scheduling Coordinators with additional flexibility to submit more accurate base schedules closer to the operating hour. Allow CAISO and EIM Entities to more accurately capture the startup energy of large conventional resources within their Resource Sufficiency Evaluations (RSE), thus increasing their ability to pass the RSE while lowering their exposure to uninstructed imbalance energy settlement.
High Level Project Scope	Updates to the base schedule submission timeline <ul style="list-style-type: none"> • Move market closing for the final binding EIM base schedule submissions from T-40 to T-30, and add additional RSE at T-40 • Note: Base Schedule Validation outlined in the Policy paper will be covered in existing Market Validation processes so no additional manual or automated business process requirements are needed for Tariff compliance.
BPM Changes	EIM, MI, MO, Settlements
Tariff Change	No
Impacted Systems	RTM, Settlements, BSAP, RCBSAP, ITS, ADS, CMRI/OASIS

Fall 2022 – EIM Base Schedule Submission Deadline Phase 2 (cont'd)

System	High Level Changes
Real-Time Market (RTM)	<p>Phase 2:</p> <ul style="list-style-type: none"> • Shorten the run time of the current T-37.5 RTPD interval • Move start time to after T-30 • Result publication remains at T-22.5 • Final RSE will begin following T-30 deadline • Add additional RSE test
Base Schedule Aggregation Portal (BSAP)	<p>Phase 2:</p> <ul style="list-style-type: none"> • Send base schedule to market at T-30
Interchange Transaction Scheduler (ITS)	<p>Phase 2:</p> <ul style="list-style-type: none"> • ITS will need to adjust the timing of RTPD publication checks and adjustments to account for the RTPD change from T-37.5 RTPD to T-30 • RTPD 5 run will be decreased to around five and a half minutes • RTPD 5 run will be considered late at T-22.5 • RTPD 4 should start at T-21.5 • Payload times need to be adjusted
CAISO Market Results Interface (CMRI)	<p>Phase 2:</p> <ul style="list-style-type: none"> • Additional payload consumed at T-30 for test results • Receive results from RTPD 5 run by T-22.5

Fall 2022 – EIM Base Schedule Submission Deadline Phase 2 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Dec 17, 2020	✓
External BRS	Milestone: Post External BRS	Jan 15, 2021	✓
Production Activation	EIM Base Schedule Submission Deadline Phase 2	Oct 01, 2022	

2023 CRR Replacement Project

2023 CRR System Replacement - Overview

The Congestion Revenue Rights (CRR) system was implemented by CAISO in 2008 as part of the Market Redesign and Technology Upgrade (MRTU) implementation. The current CRR system is at its end of life, does not have the flexibility to accommodate future policy changes and requires the ISO to calculate data and run processes manually outside the current system to produce a successful CRR Auction.

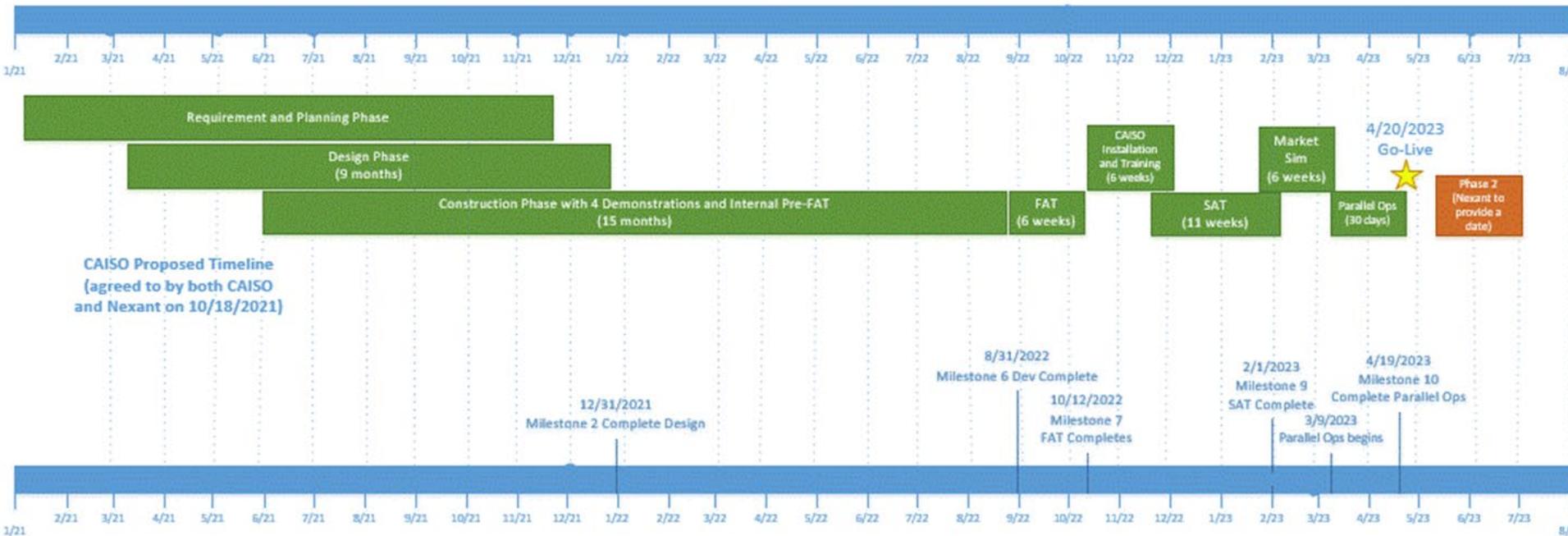
The CAISO has decided to replace the existing CRR system with a new system that adopts the latest technology stack aligned with CAISO's technology standards, consolidate all CRR related functions, minimize human errors, reduce processing time, eliminate manual workarounds, and positions the system to accommodate policy changes down the road.

2023 CRR System Replacement – Get Connected

- The two technical meetings we would like CRR technical users to attend are:
 - **Bi-weekly Technical User Group (TUG)** meetings at 10 AM on Tuesdays, alternating with RUG.
 - Meetings are available on the CAISO calendar on www.caiso.com
 - Meeting details and presentation materials are available on the CAISO Developer site at www.developer.caiso.com , which requires an account to be setup for access
 - **B2B Improvements – Webinar Series**
 - This meeting is by invitation only
 - Technical representations only as the meeting covers technical details with respect to the new integration pattern
 - Team met on 11/3/2020 and next webinar is tentatively planned for **2/3/2022**
 - Interested folks should send email to inambiar@caiso.com
 - All CRR new API specifications will be presented and discussed in this meeting

2023 CRR System Replacement – Milestone Schedule

CRR System Replacement Timeline



Policy Update

Brad Cooper

Senior Manager, Policy Integration and Governance

Transmission Services and Market Scheduling Priorities (formerly External Load Forward Scheduling Rights)

- **Scope:**
 - Considers process for wheeling transactions through the CAISO BAA to obtain high-priority scheduling rights
 - Explores enhancements to processes for exporting from non-resource adequacy resources
- **EIM Governing Body role: advisory**
- **Status:**
 - Phase 1 draft final proposal posted on Dec 8
 - January EIM Governing Body and CAISO Board meetings
 - Phase 2 targeting mid 2022 completion

Resource Sufficiency Evaluation Enhancements – Phase 1

- **Scope:**
 - Develop further enhancements to the EIM’s resource sufficiency evaluation
 - Examine modifications to the consequences for resource sufficiency evaluation failure
- **EIM Governing Body role: joint authority**
- **Status:**
 - Revised draft final proposal to be posted on Dec 16
 - Feb 2022 2022 Joint EIM Governing Body and ISO Board meeting

Central Procurement Entity Implementation

- **Scope:**
 - Develop enhancements to accommodate a separate central buyer of resources adequacy resources on behalf of load serving entities
- **EIM Governing Body role: CAISO Board only**
- **Status:**
 - Draft final proposal to be posted on Dec 22
 - March CAISO Board Meeting

Interconnection Process Enhancements

- **Scope: Enhancing the CAISO's generator interconnection and deliverability allocation procedures**
 - Enhancements to address queue overload
 - Broader process reform considerations focusing on aligning the procurement processes
- **EIM Governing Body Role: CAISO Board only**
- **Status:**
 - Issue paper/straw proposal posted on Dec 6
 - Phase 1 - May 2022 CAISO Board meeting
 - Phase 2 - Nov 2022 CAISO Board meeting

Reliability Demand Response Resource Bidding Enhancements

- **Scope: Enhancements to RDRR bidding:**
 - Aligning with FERC Order No. 831
 - Exploring minimum load costs
 - Potential change to discrete dispatch option cap
- **EIM Governing Body role: Joint authority**
- **Status:**
 - Revised straw proposal to be posted Dec 14
 - May 2022 CAISO Board and EIM Governing Body meeting

Energy Storage Enhancements Initiative

- **Scope:** Developing enhancements to efficiently dispatch storage resources in alignment with operational needs.
 - Improvements to the existing storage model
 - New model for state of charge
 - Storage exceptional dispatch provisions to ensure reliable system operations
 - Enhancements to the co-located resource model
- **EIM Governing Body role:** Joint authority
- **Status:**
 - Straw proposal posted on Dec 8
 - Mid 2022 EIM CAISO Board and Governing Body meeting

Day-Ahead Market Enhancements

- Scope:
 - Co-optimizing supply based on both cleared demand and imbalance reserve product needs
 - Residual unit commitment process improvements
- EIM Governing Body Role: Advisory
- Status:
 - Stakeholder workshop on Dec 15
 - Additional workshops in early 2022
 - Mid-2022 EIM Governing Body and CAISO Board meetings

Resource Adequacy Enhancements – Phase 2

- Scope:
 - Day-ahead market enhancements alignment
 - Bid price and must offer obligations changes
 - Flexible resource adequacy
 - Enhance must offer obligations for storage and conditionally available resources
 - Bid insertion modifications
- Status:
 - Revised straw proposal to be posted February 2022
 - Q3 2022 Board of Governors Meeting
- EIM Governing Body role – limited items potentially advisory

Extended Day-Ahead Market

- **Scope: Extending day-ahead market to EIM entities. Scope includes:**
 - Supply commitment and resource sufficiency
 - Transmission commitment and congestion rent allocation
 - Greenhouse gas accounting and costs
- **EIM Governing Body Role:**
 - Management has not yet proposed a decisional designation
- **Status:**
 - December 16 web conference to kick-off working group process
 - Targeting completion by end of 2022

Stay Informed

Ways to participate in releases

- Visit the Release Planning page
 - <http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx>
- Attend meetings
 - Release Users Group (RUG) bi-weekly meetings
 - Initiative status updates
 - System change updates on independent releases
 - Market Simulation calls
 - Visit the ISO calendar at www.caiso.com for meeting dates and times and add events to your calendar
 - Typically held on Mondays and Thursdays
 - Market Performance and Planning Forum
 - Bi-monthly review of market performance issues
 - High level discussion of release planning, implementation and new market enhancements

What to look for on the calendar...

Calendar of Meetings, Training and Events

Month: February Year: 2018 Calendar View List View Print View

February 2018						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	<p>Market Sim</p> <p>WebCONF: Market Simulation 2:00pm - 3:00pm</p>	<p>Training: Get to Know the ISO - Day 1 9:00am - 4:00pm</p> <p>WebCONF: Imbalance Conformance Enhancements 10:00am - 12:00pm</p> <p>WebCONF: Technical User Group 10:00am - 11:00am</p>	<p>Deadline: Comments - Interconnection Process Enhancements 2018 - Issue Paper and Meeting Discussion 9:00am - 4:00pm</p> <p>Training: Get to Know the ISO - Day 2 9:00am - 4:00pm</p> <p>Meeting: Flexible Resource Adequacy Criteria Must Offer Obligation Phase 2 - Revised Draft Flexible Capacity Framework 10:00am - 4:00pm</p> <p>WebCONF: Market Settlement User Group 10:00am - 11:00am</p>	<p>Meeting: Audit Committee Teleconference (Executive) 3:30pm - 6:30pm</p> <p>Training: Settlements 101 9:00am - 4:00pm</p> <p>Meeting: 2017-2018 Transmission Planning Process 10:00am - 4:00pm</p> <p>Market Sim</p> <p>WebCONF: Market Simulation 2:00pm - 3:00pm</p>	<p>Training: Settlements 201 9:00am - 4:00pm</p>	
<p>WebCONF: Participating Transmission Owner Per Unit Cost Guides 10:30am - 12:00pm</p> <p>WebCONF: Market Simulation 2:00pm - 3:00pm</p> <p>Release Users Group (RUG)</p>	<p>Meeting: Congestion Revenue Rights Auction Efficiency 10:00am - 4:00pm</p> <p>WebCONF: Release User Group 10:00am - 11:00am</p> <p>Call: Energy Imbalance Market Governing Body Teleconference (Executive) 11:30am - 12:30pm</p>	<p>Deadline: Submissions - April 2018 Monthly Resource Adequacy and Supply Plans 11:00am - 11:30am</p> <p>Call: Congestion Revenue Rights 11:00am - 11:30am</p> <p>WebCONF: Outage Management System Customer Partnership Group 2:00pm - 3:00pm</p>	<p>Deadline: Comments - Review Transmission Access Charge Structure Straw Proposal and Meeting Discussion 3:15pm - 6:00pm</p> <p>Call: Board of Governors Teleconference (General) 9:00am - 10:00am</p> <p>Call: Board of Governors Teleconference (Executive) 9:00am - 10:00am</p> <p>Call: Market Update 10:15am - 11:00am</p> <p>WebCONF: Market Simulation</p>			

Upcoming meetings

The next MPPF series will begin first quarter of 2022 (to be formally noticed).

MPPF related materials are available on the ISO website [here](#).

Agenda topic suggestions:

- Submit through CIDI
 - Select the *Market Performance and Planning Forum* category
- Send email to isostakeholderaffairs@caiso.com.

ENERGY matters

The California ISO's blog highlights its most recent news releases, and includes information about ISO issues, reports, and initiatives.



- *Energy Matters* blog provides timely insights into ISO grid and market operations as well as other industry-related news <http://www.caiso.com/about/Pages/Blog/default.aspx>.

Click image below to read a recent article featured in the blog:



August 20, 2021

Western EIM

Improving the resource sufficiency evaluation

Conditions on the electrical grid are dynamic, a situation that creates additional challenges and opportunities for the ISO and its ...

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