Market Performance and Planning Forum

September 9, 2020

Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2020 release plans, resulting from stakeholders inputs
- Provide information on specific initiatives
    - to support Market Participants in budget and resource planning
- Focus on implementation planning; not on policy
- Clarify implementation timelines
- Discuss external impacts of implementation plans
- Launch joint implementation planning process

California ISO
Market Performance and Planning Forum
Agenda – September 9, 2020
9 a.m. – 12 p.m.

Time:	Topic:	Presenter:
9:00 – 10:05	Introduction, Agenda	Jimmy Bishara
9:05 – 11:00	Market Performance and Quality Update	Market Analysis and Forecasting
11:00 – 11:30	Policy Update	Brad Cooper John Goodin
11:30 – 12:00	Release Update	Adrian Chiosea

Market Performance and Quality Update

Market Analysis and Forecasting Department

California ISO

BPM Changes related to Exports

California ISO

Two BPM changes were implemented on September 5 regarding scheduling of Exports resources in CAISO markets

- CAISO implemented an emergency BPM change (PRR1282) to take effect for trading date September 5

- Change 1: Use schedules from Scheduling run in the Day-ahead Residual Unit Commitment (RUC) process instead of schedules from Pricing run

- Change 2: Use RUC schedules for exports as the reference for self schedules into real-time markets

California ISO

Change 1: Use of schedules from scheduling run better reflect intended uneconomical adjustments

- CAISO's markets uses two market runs in each market
  - The scheduling run sets the uneconomical adjustments based on predefined priorities
  - Pricing run uses prices based on caps and floors to clear for economically meaningful prices
- Since implementation of Price Inconsistency Market Enhancements (PIME) policy, schedules and prices are based from pricing run
- PIME logic was intended to address mainly differences between schedules and aggregated prices for Default Load Aggregation Point (DLAP) and Trading (TH) in the integrated forward market and real-time market but is not relevant to RUC settlement

Under stressed conditions, like those in August, there were noticeable differences in uneconomical adjustments between the two runs in RUC

- Schedule differences led to export cuts in scheduling run that were not realized in pricing run.

- When the ISO implemented PIME, it also applied it the RUC process for consistent treatment across all markets

- One of the consequences of using PIME is that the CAISO uses the schedules from pricing run

- RUC process includes enforcement of a physical interchange constraint

- The CAISO determined that it is more effective to use the scheduling run in RUC to ensure export curtailments are reflected correctly in the total day-ahead market solution

- The BPM change clarifies that going forward, the CAISO will use the schedules from scheduling run and prices from pricing run for the RUC process. This allows the solution to reflect better the potential export cuts in RUC results.

- This does not affect the MPM,IFM and real-time markets, which are material for the energy settlements and remain under PIME logic

Change 2: Use RUC schedules for exports as the reference for self schedules into real-time markets

- The day-ahead market consist of the financial (IFM) market, and the residual (RUC) market. Each one produces schedules.

- IFM schedules are use to settle energy; RUC schedules above IFM schedules allow to settle for capacity procured (RUC awards).

- Participants with a day-ahead position can use self schedules to secure their day-ahead position in the real-time market

- Tariff section 31.8 requires market Export schedules up to the cleared RUC schedule determine what part of the day-ahead schedule is feasible;

- The BPM change clarifies that going forward the ISO will provide the day-ahead priority to Exports based on the RUC supported amounts in the real-time market

California ISO

With this change, any day-ahead exports self scheduled into real-time will have a day-ahead priority only up to the RUC schedule

- Prior to this change the self schedule had a day ahead priority up to the IFM schedule.

- When RUC assesses the need to curtail exports, RUC schedules will be lower than IFM schedules

- Coming into the real-time market:
  - Self schedule up to RUC schedule will have day-ahead priority
  - Any self schedule above RUC level will not have a day-ahead priority.
    - If supported by non-RA, it will have high priority
    - If not supported by non-RA, it will have lowest priority

- The market utilizes the defined priorities and will start making uneconomical adjustment from lowest to highest priority

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Illustration of assigned priorities

- Assume a self schedule coming into real time is all supported by non-RA resource and above IFM schedule

IFM Schedule	
RUC Schedule	IFM curtailment

Self Schedule coming into real-time	
Self schedule with day-ahead priority	High-priority self schedule
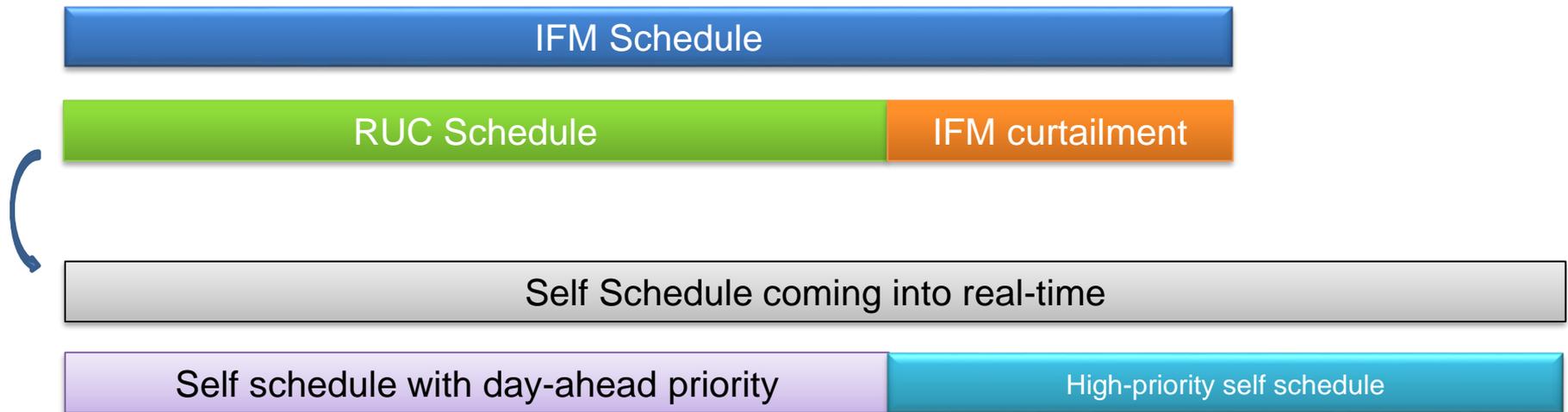
- Real time gives day-ahead priority up to RUC cleared schedule
- Any self schedule above RUC scheduled is high priority

Illustration of self schedules

- A Self schedule coming into real time is supported by non-RA resource up to IFM schedule, above IFM is not supported by non-RA

IFM Schedule		
RUC Schedule	IFM curtailment	

Self Schedule coming into real-time		
Self schedule with day-ahead priority	High-priority self schedule	Low-priority self schedule
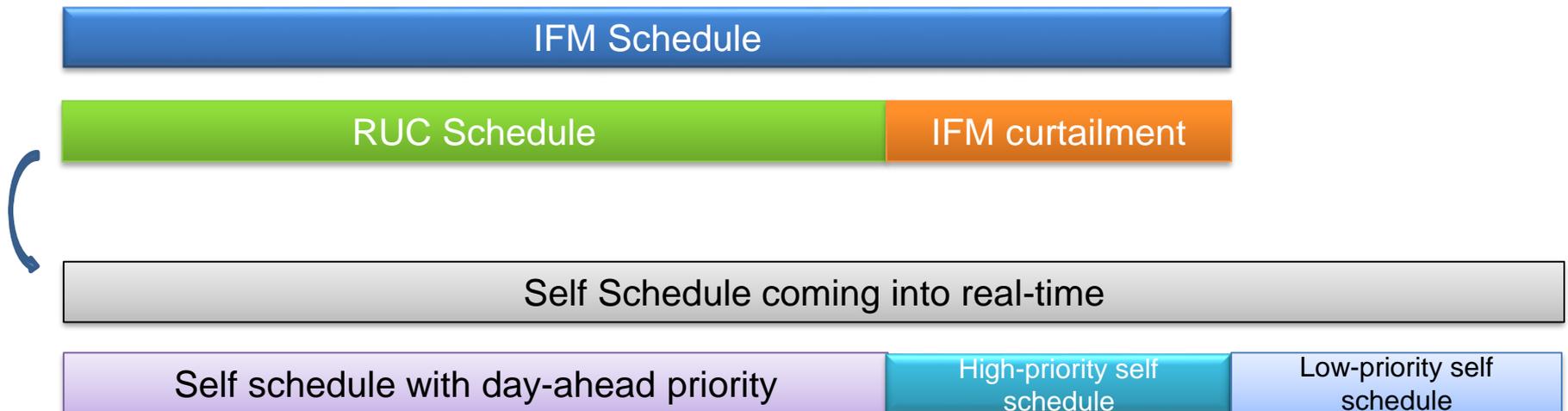
- Day-ahead priority is up to RUC schedule
- High priority is between RUC and IFM schedule to cover the capacity supported by non-RA capacity
- Lowest priority is for portion above the IFM, which is the capacity not covered by non-RA resources

California ISO

The expectation of using RUC schedules as the reference for expected delivery on interties is not new

- With the implementation of 15-minute market in 2014, CAISO adopted a practice regarding interties.

- This practice required the RUC schedule represents the expected delivery and E-tags that market participants should submit in the pre-scheduling time period, and not the IFM schedule.

- CAISO discussed with participants about this expectation through conference calls. This was memorialized in a Q&A document in 2014

  https://www.caiso.com/Documents/FAQ_TaggingRequirements_May1.pdf

California ISO

Under-scheduling of Bid-in Demand

California ISO

During the heatwave of early September CAISO issued market notices encouraging load serving entities (LSE) to bid in their demand up to their forecasts
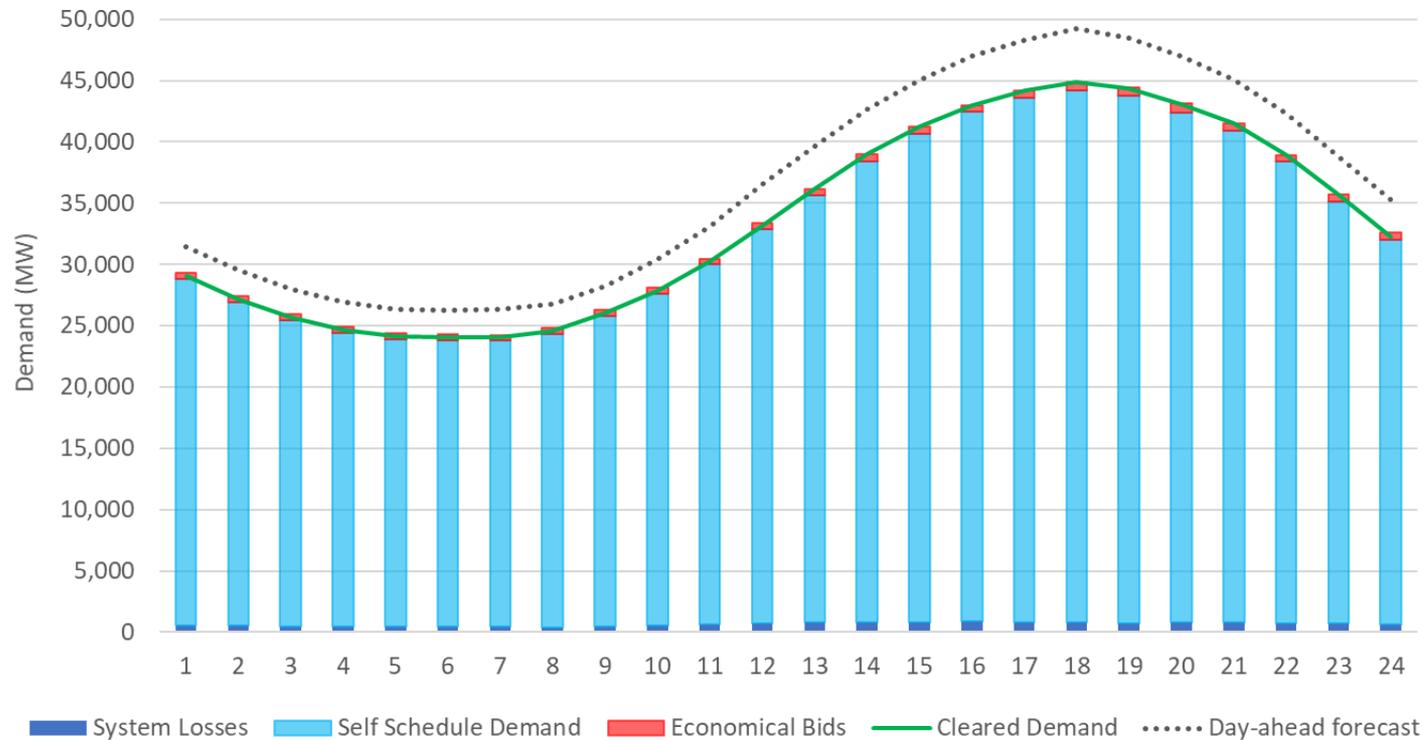

CAISO has recently observed under scheduling of demand

California ISO

Breakdown of Demand under-scheduling by TAC area
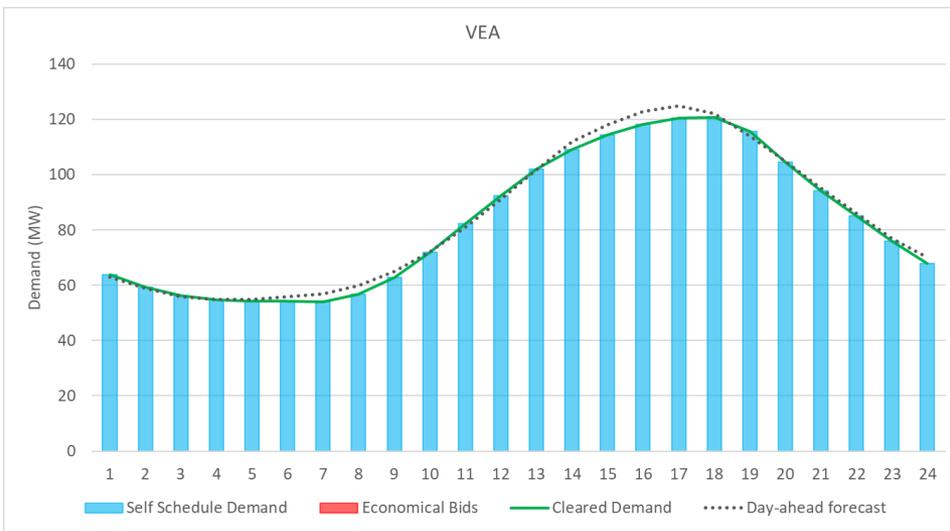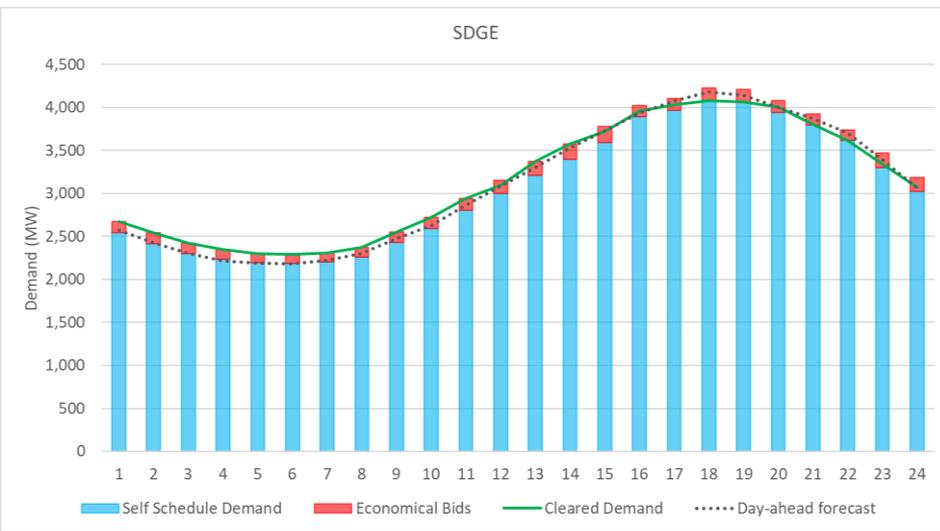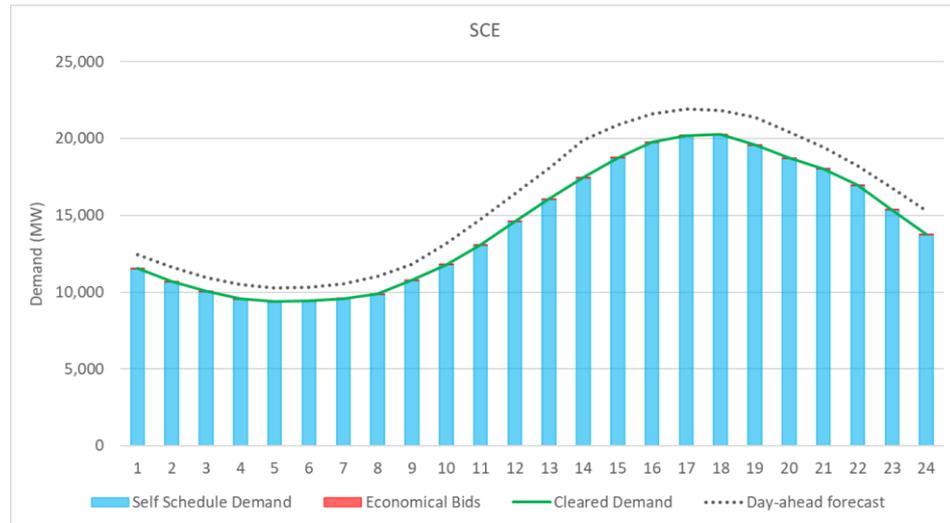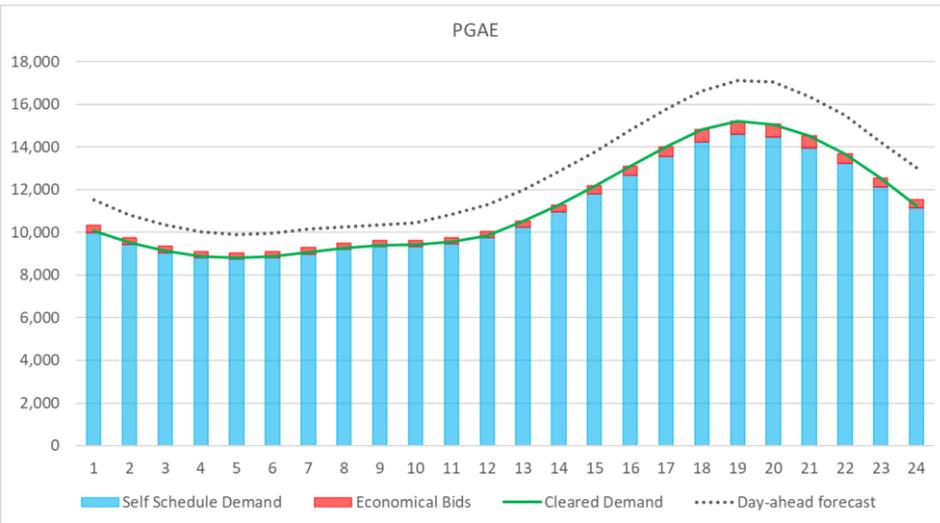
Enforcement of Gas Constraints

California ISO

Gas Nomogram Enforced

- Planned curtailment for the Southern Gas System
  - due to maintenance work causing curtailment on electric generation from July 17 to July 20
  - Binding in the evening peak hours (19 and 20) in all the markets.

RTD gas nomogram

California ISO
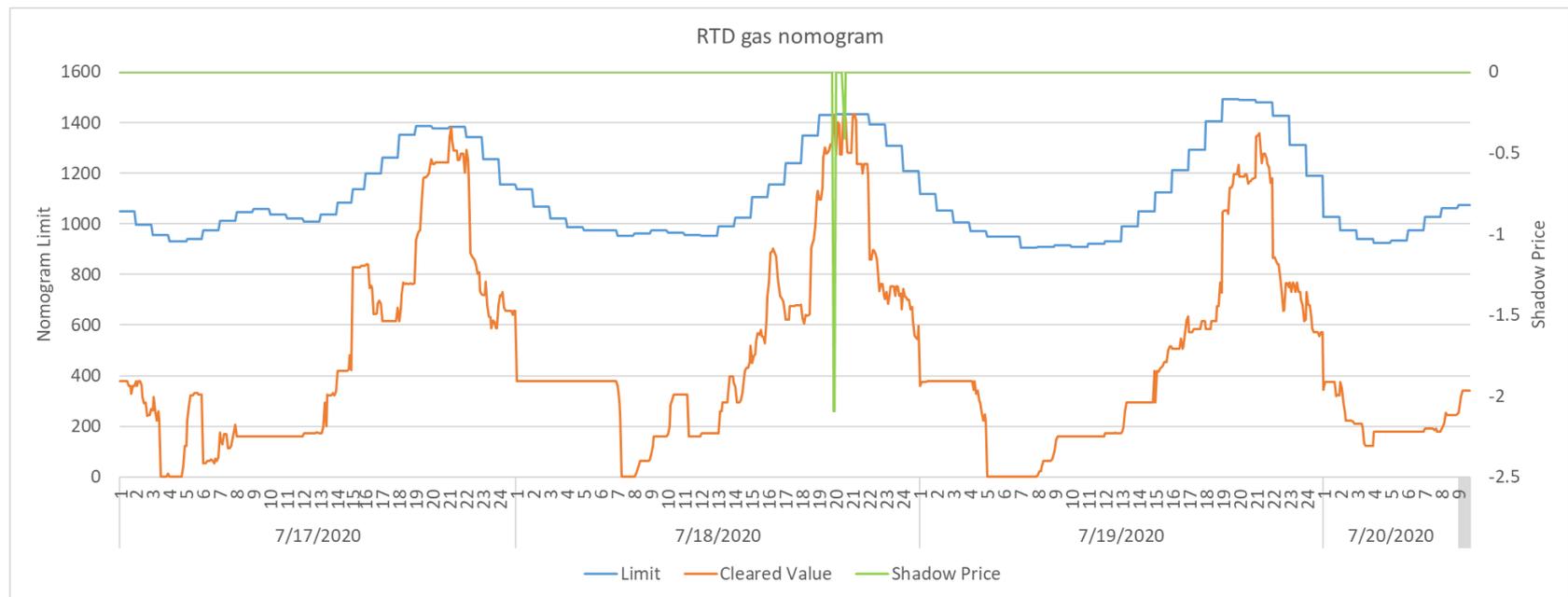
Flexible Ramp sufficiency Test for CAISO area

California ISO

Flexible Ramp Up Sufficiency Test Results

California ISO
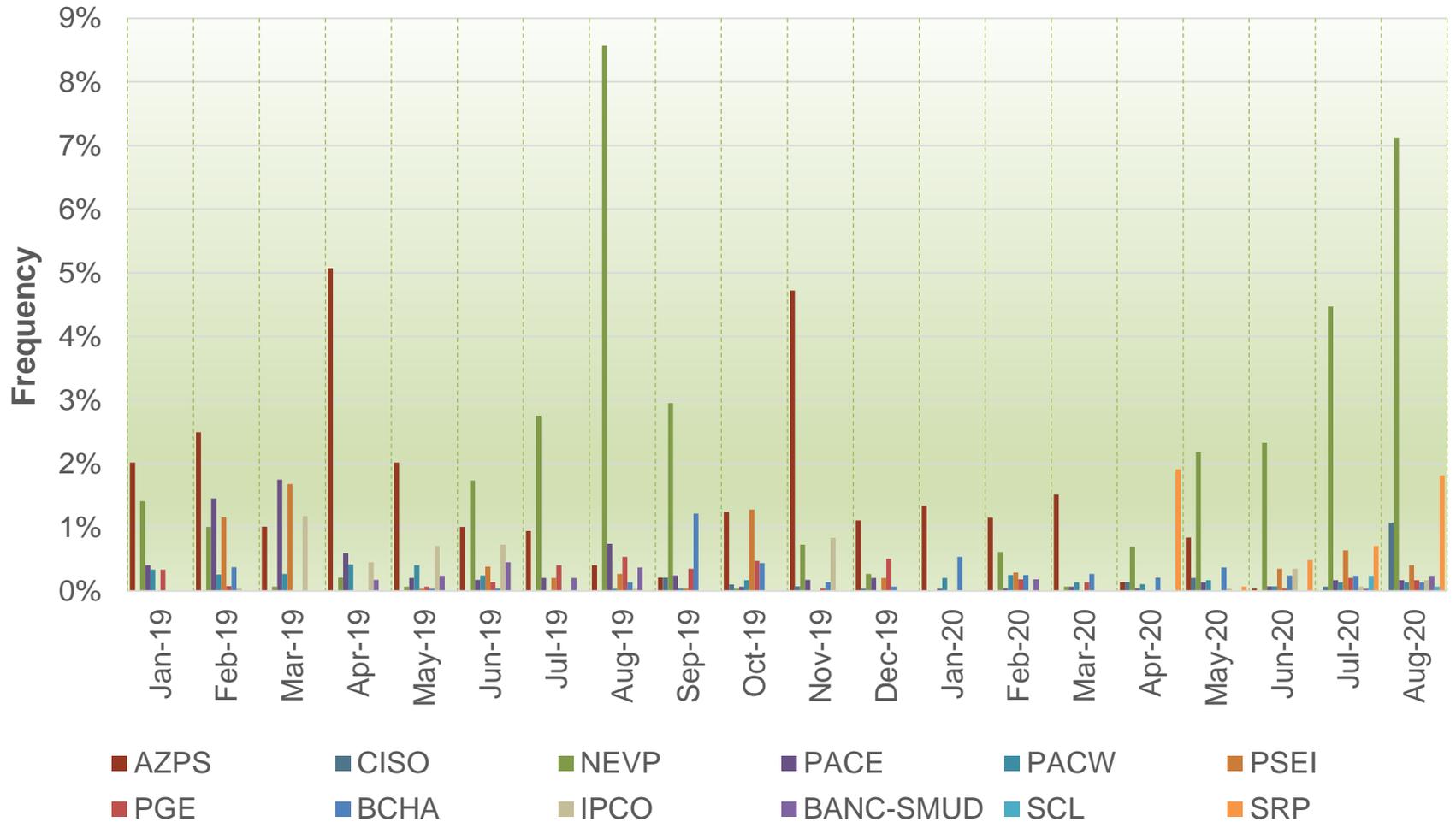
Flexible Ramp Down Sufficiency Test Results

California ISO
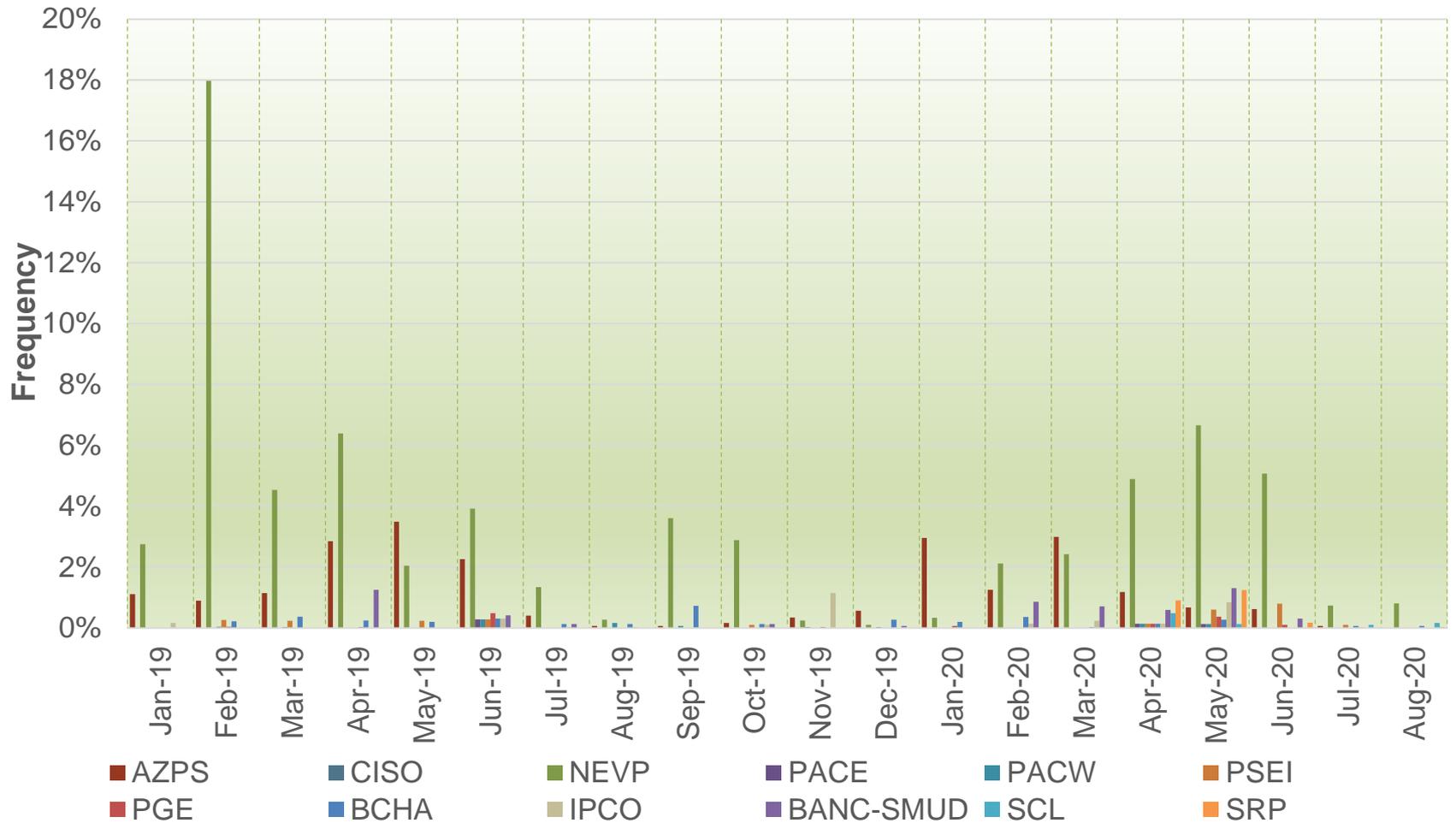
During the August heatwave CAISO failed the flexible ramp test in some intervals of peak hours

- CAISO is subject to the Flexible Ramp test like any other balancing area participating in the energy imbalance market

- This is the outcome of the Year 1 EIM enhancement implemented in 2015

- For any 15-minute interval in which there is a failure of this test, the BAA is constrained by a transfer cap based on the most recent projected transfer

- Transfers are still allowed to occur to the most recent transfer level; but transfers above that level cannot occur

California ISO

The Flexible Ramp test failures on August 14 and 15 were largely inconsequential because there were no more transfers available anyway


- The transfers materialized in most of these intervals were already below the cap imposed by the failures
- This means that even with no failures there was already limited energy available for additional transfers

California ISO

Congestion Revenue Rights

California ISO

High level of CRR settlements occurred in August due to the severity of transmission congestion

California ISO
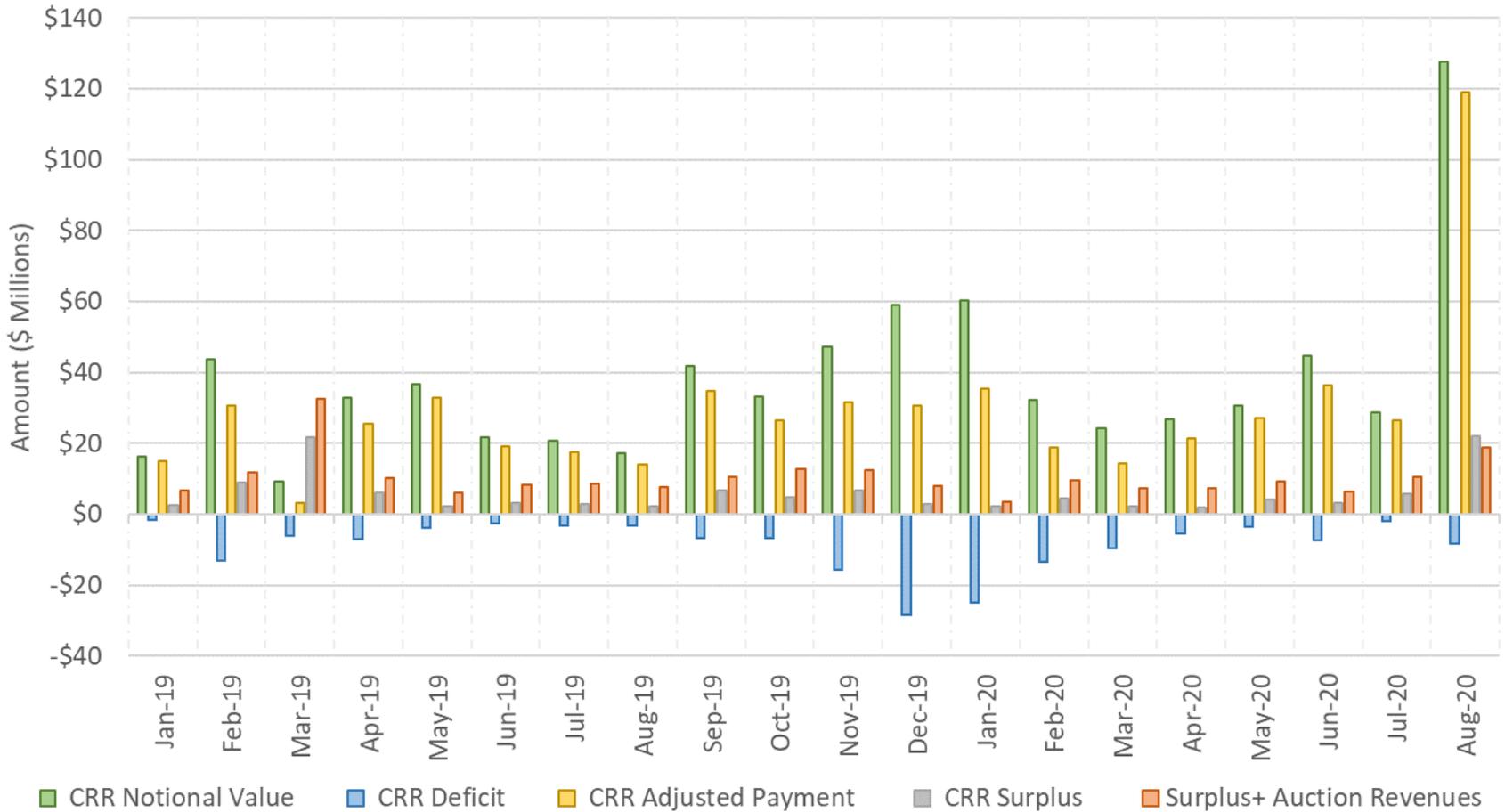
# Auction revenues remain within typical ranges in recent months
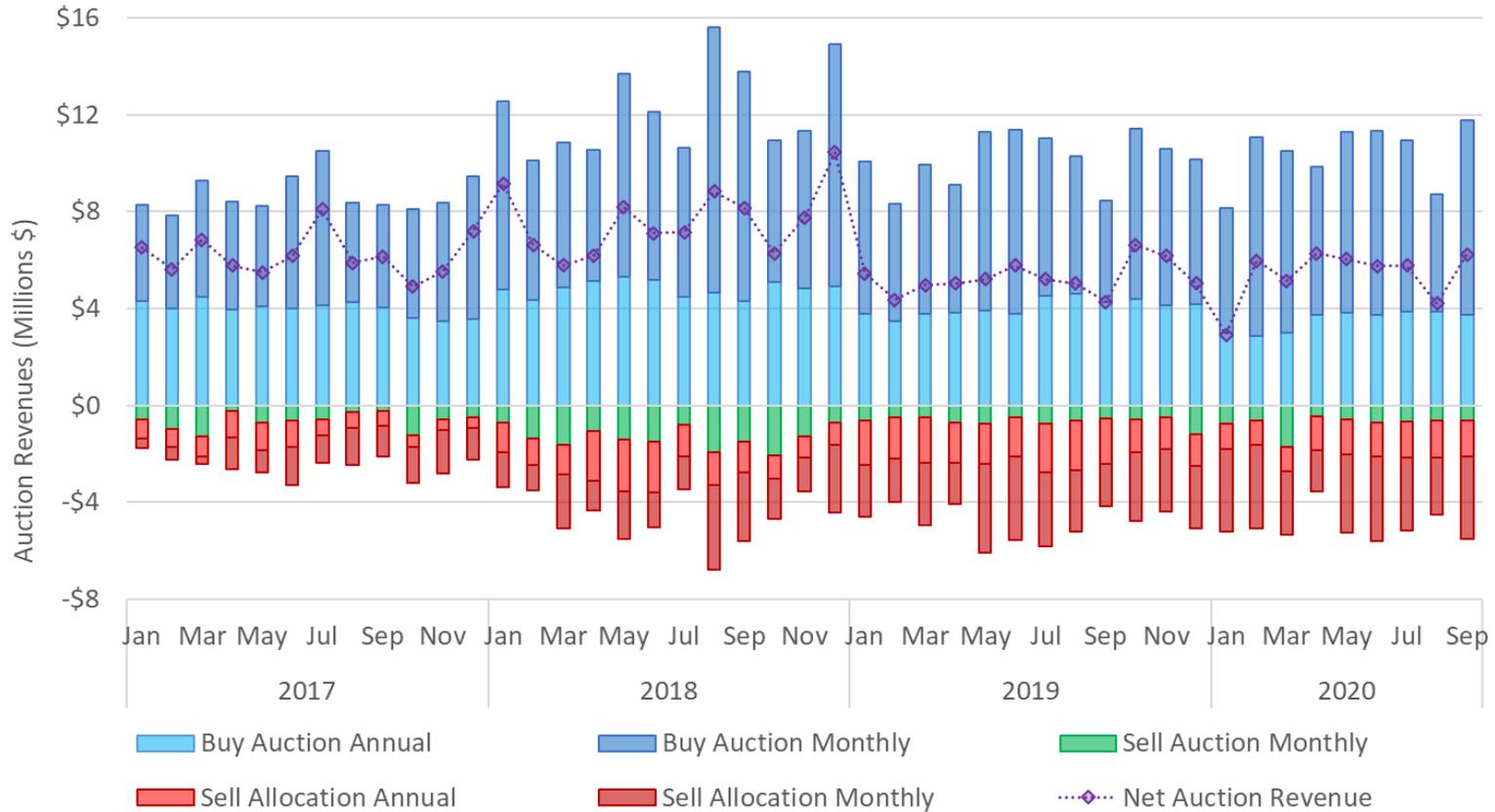
Low auction efficiency observed in August driven by the high level of unanticipated congestion

473%

Buy Auction Revenues   Pro-rata CRR Payment   CRR Auction Efficiency

California ISO
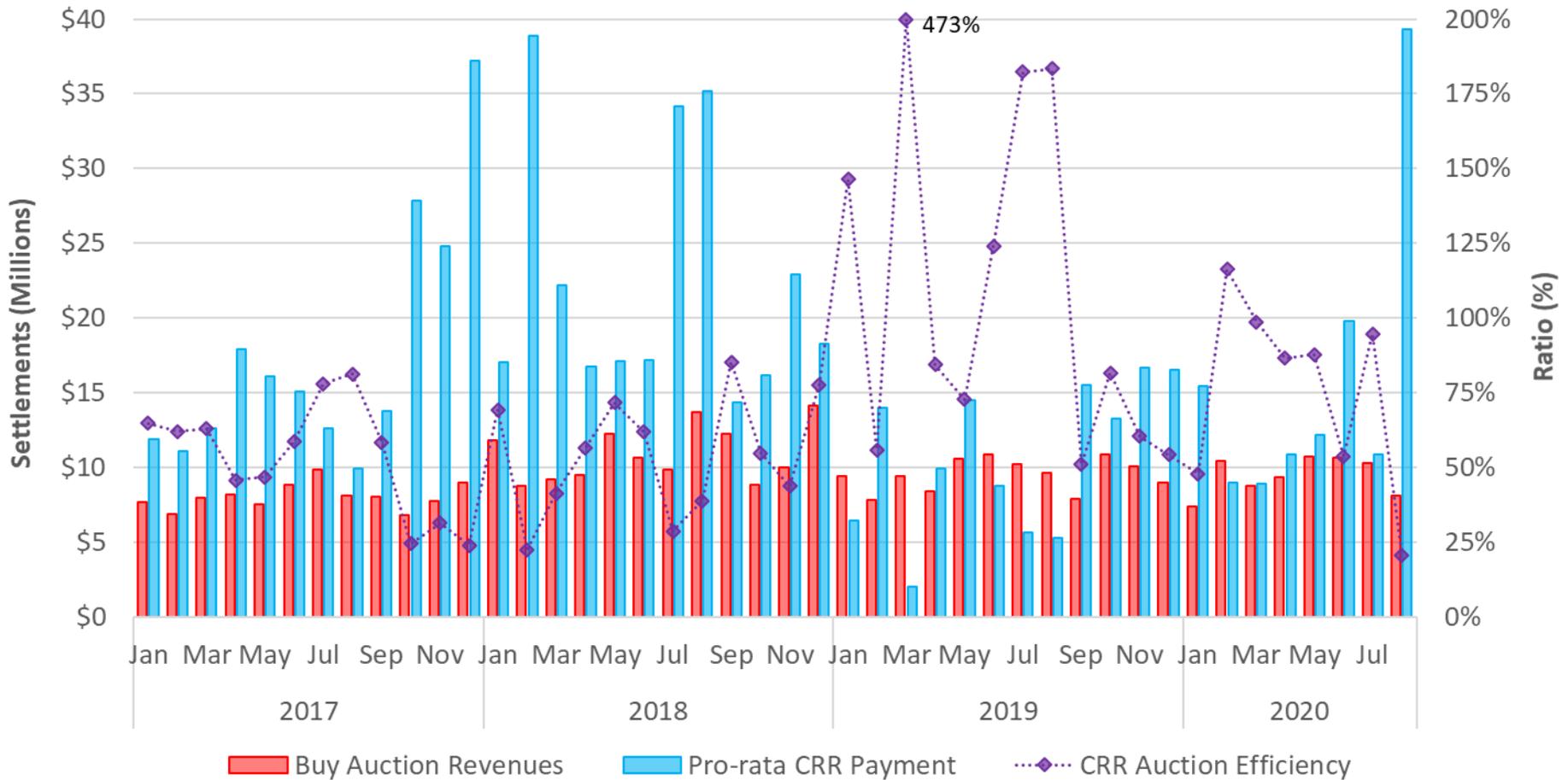
Implementation of pro-rata funding has led to a improvement of over $150 million of revenue adequacy for 2019 and 2020.

California ISO
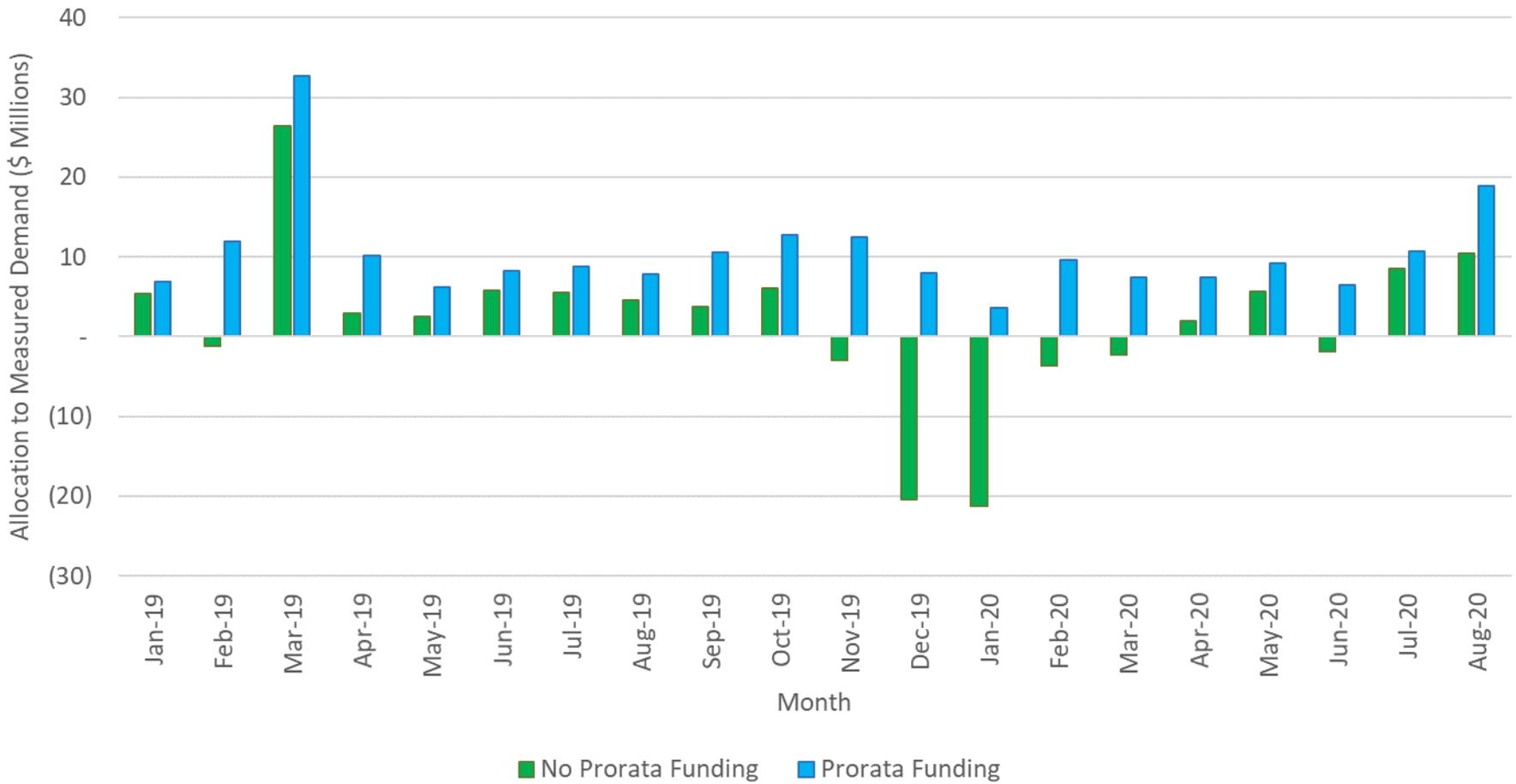
CRR auctions continue to be used by LSEs to rebalance their portfolio risk

California ISO
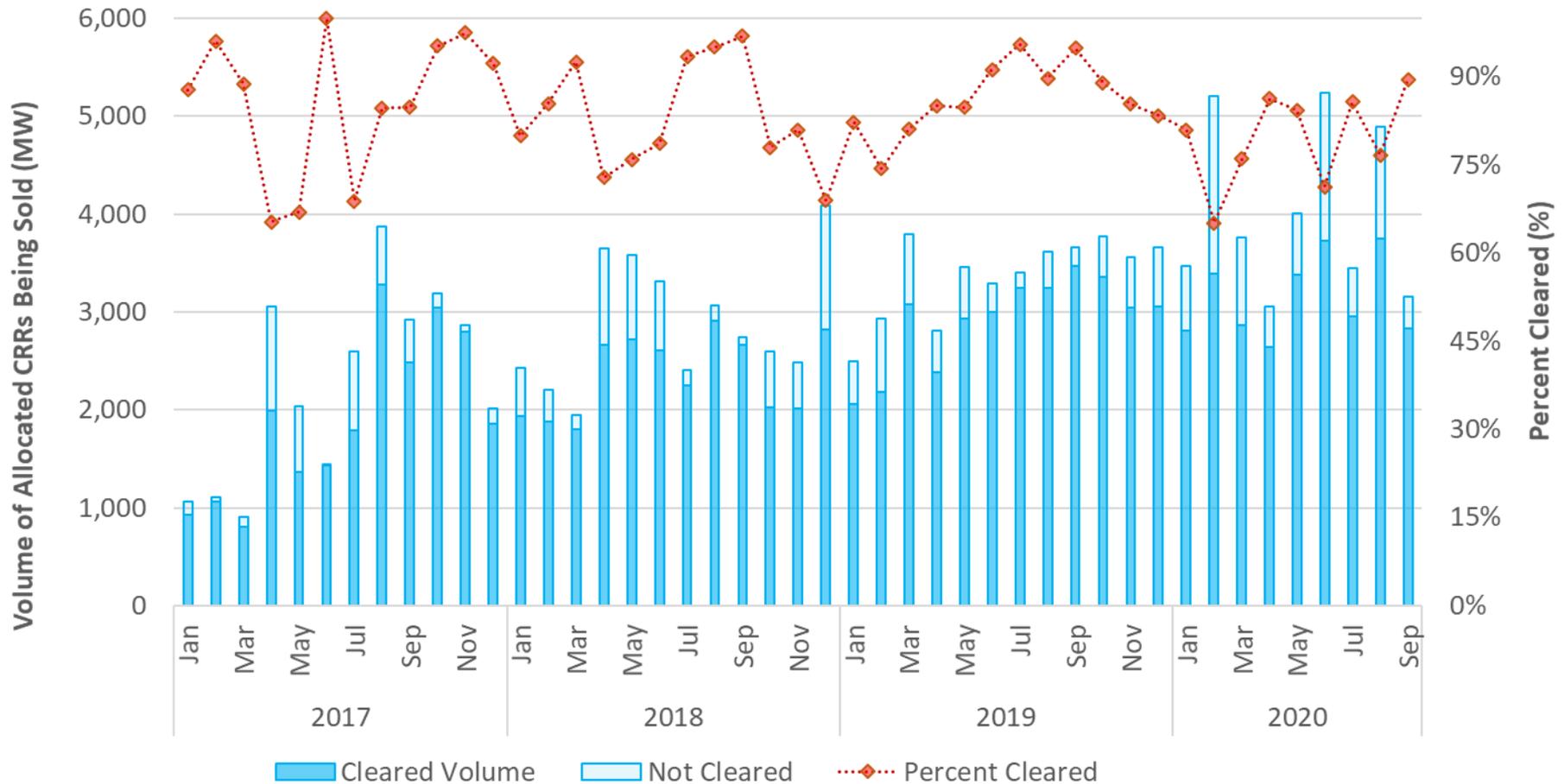
RTD renewable (VERs) curtailment dropped since record high in April

California ISO
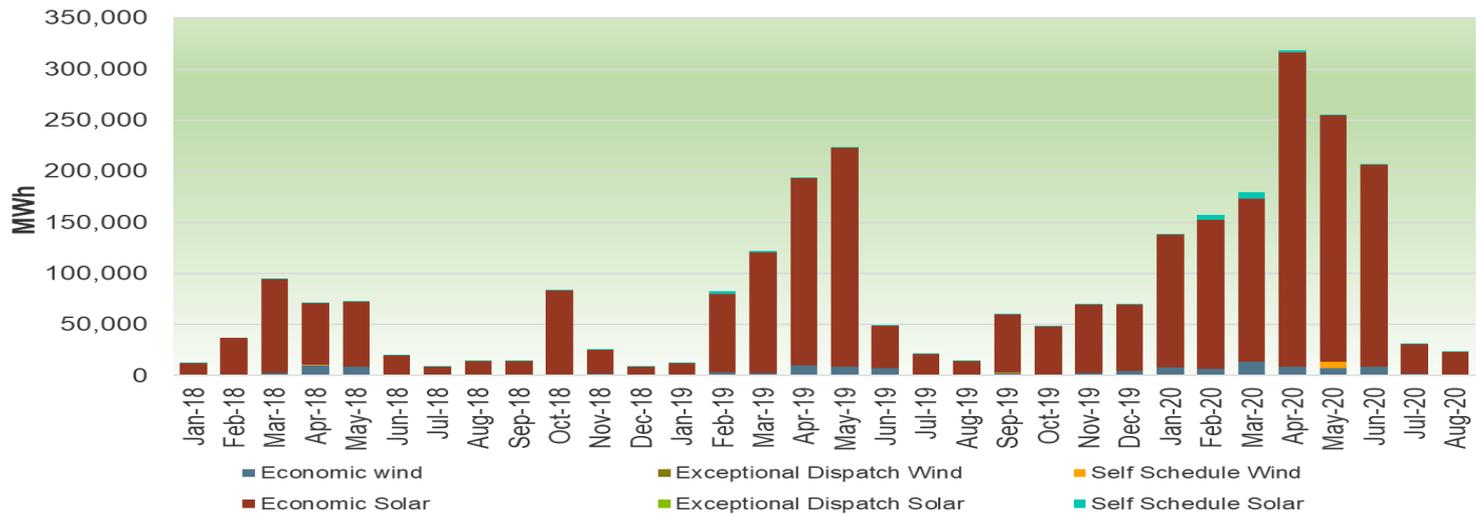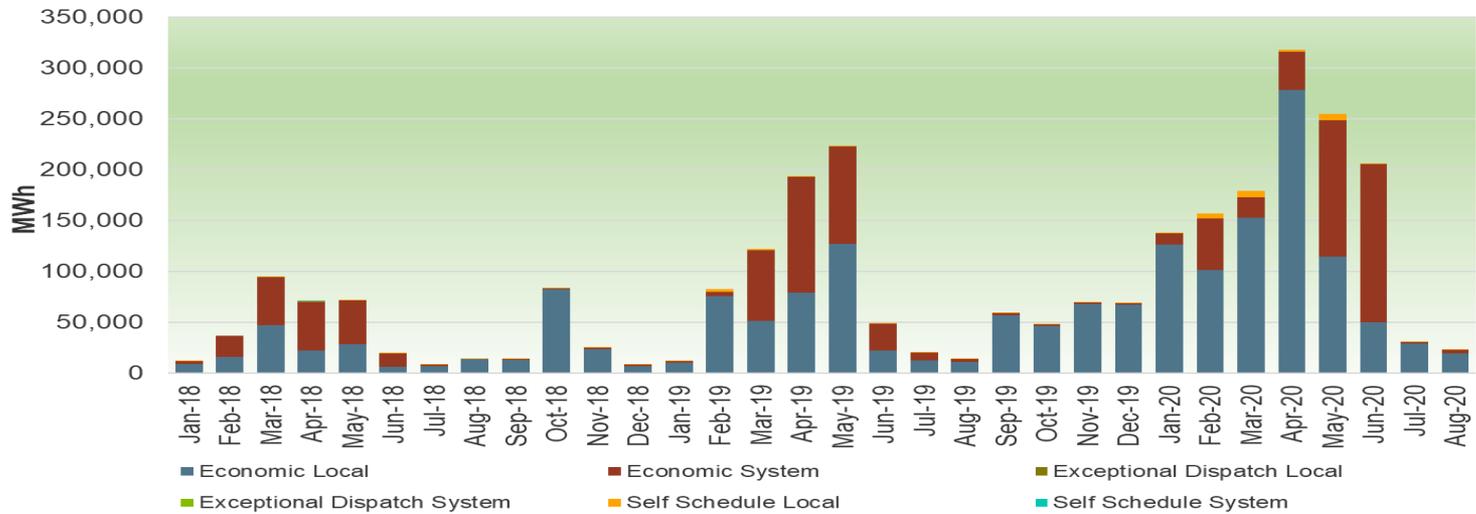
Hydro production in 2020 has been lower than previous year
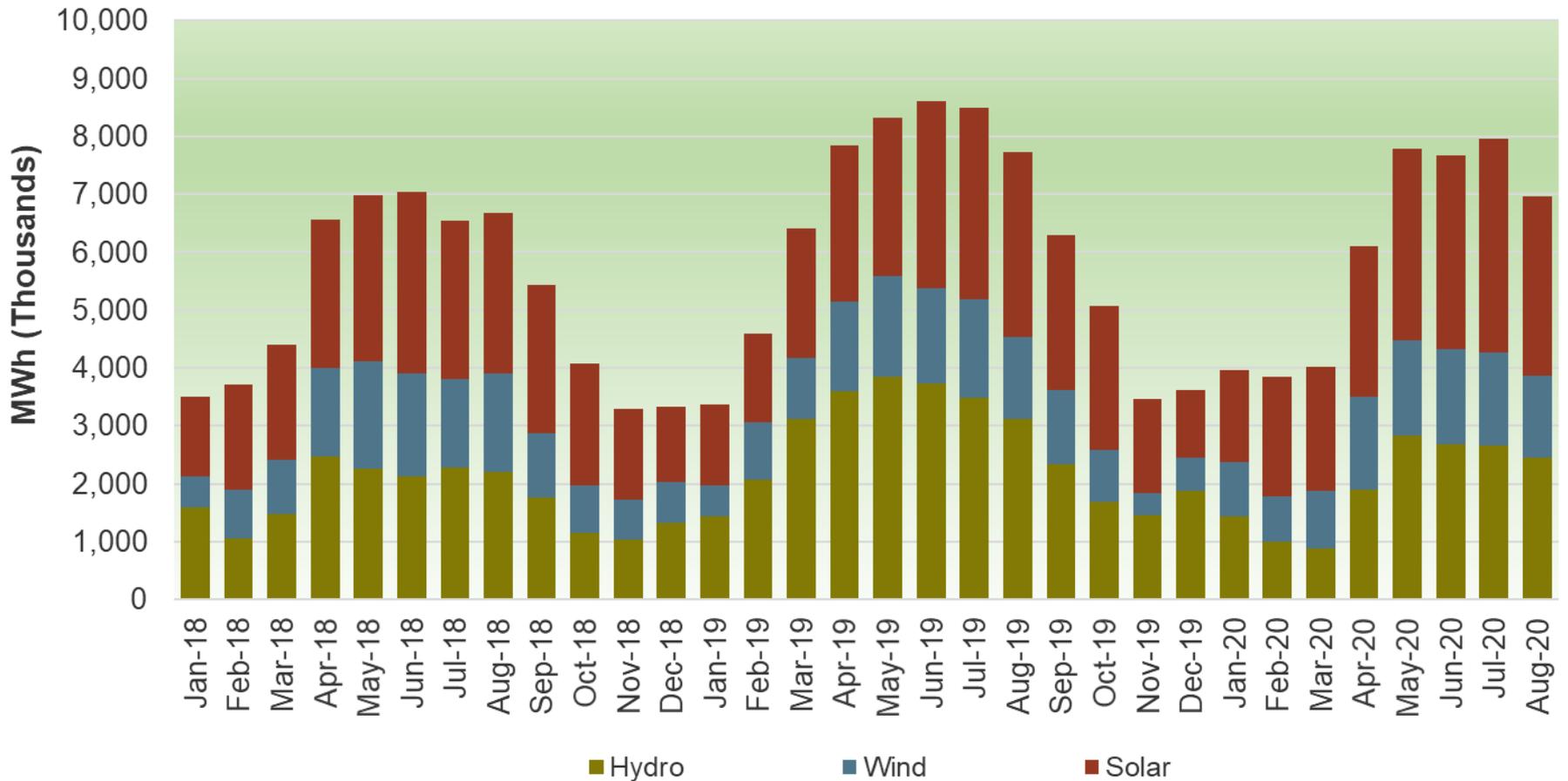
ISO total monthly VERS schedules and forecasts compared to actuals

California ISO
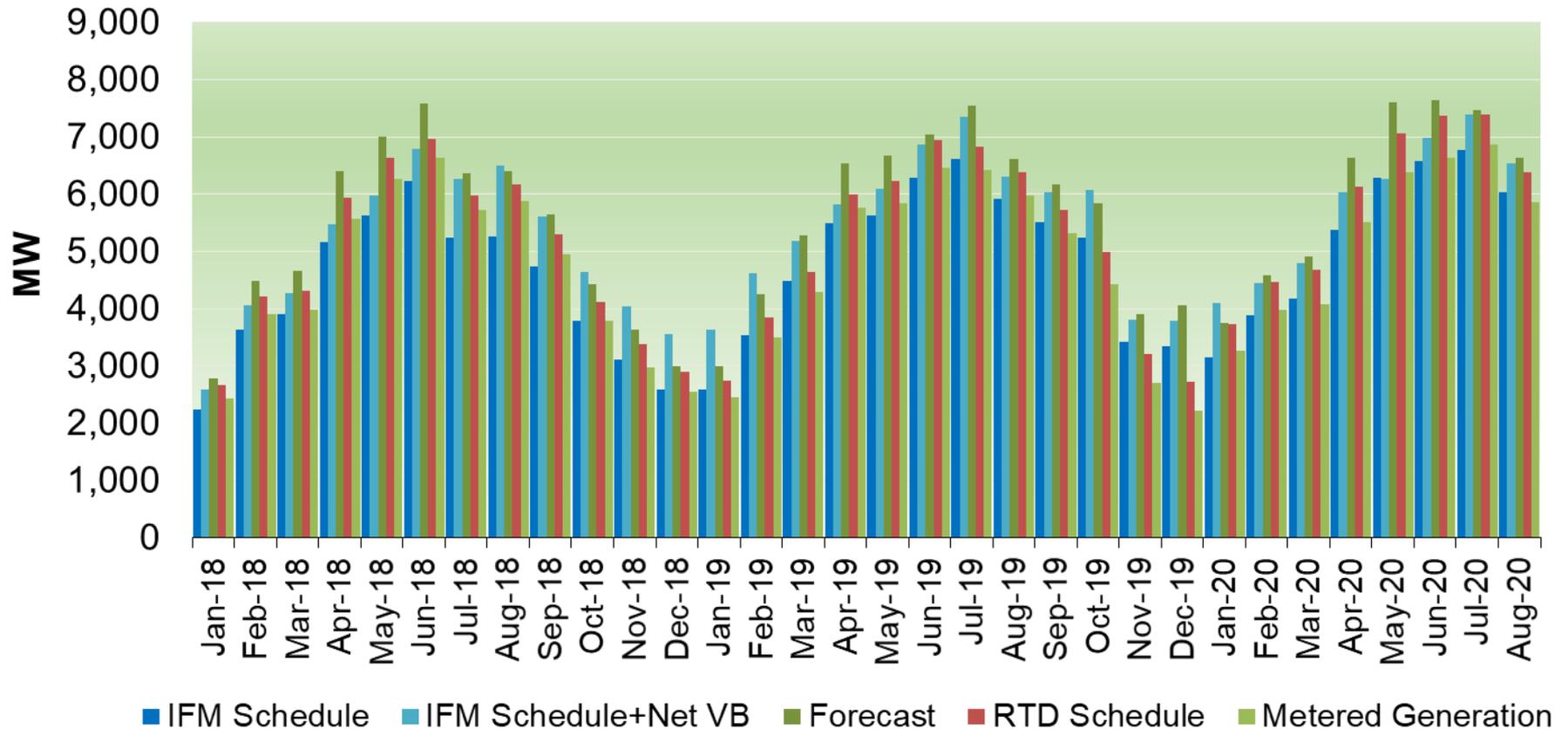
Monthly wind (VERS) downward flexibility in FMM
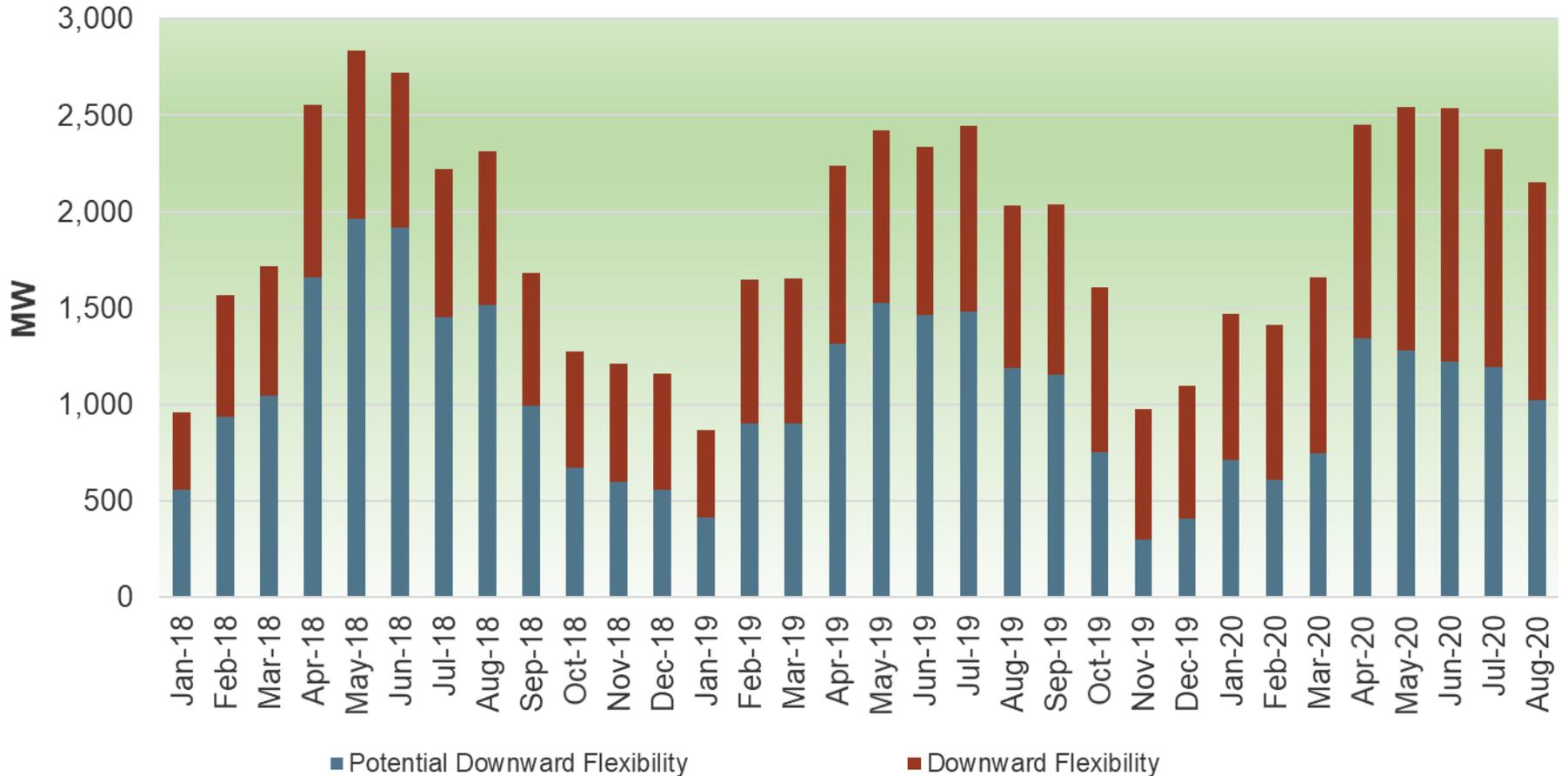
Monthly solar (VERS) downward flexibility in FMM from 11 AM to 5 PM

California ISO
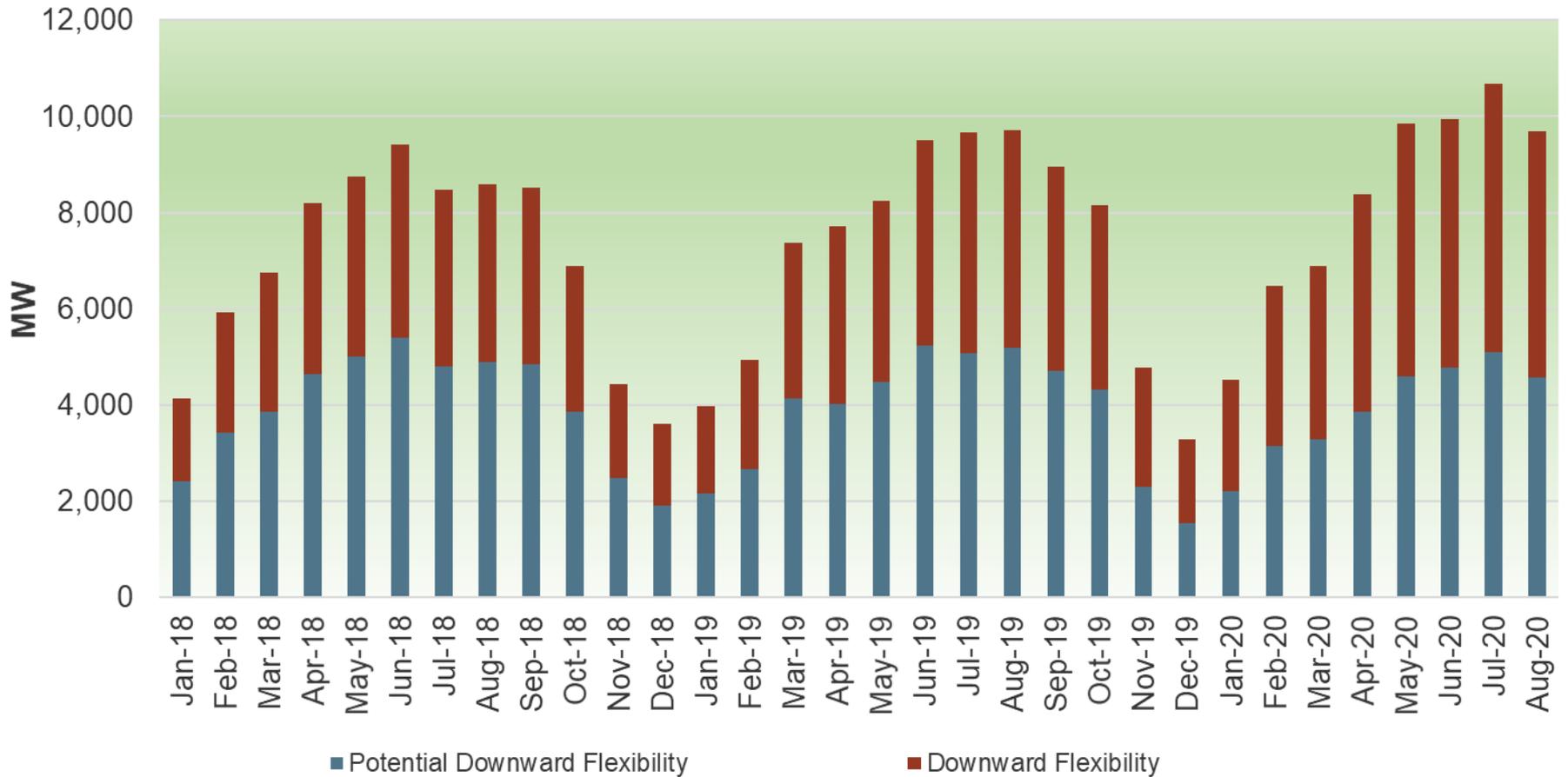
Renewable (VERS) schedules including net virtual supply aligns with VER forecast in July and August

http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EFF75C2E-F28E-4087-B88B-8DFFAED828F8
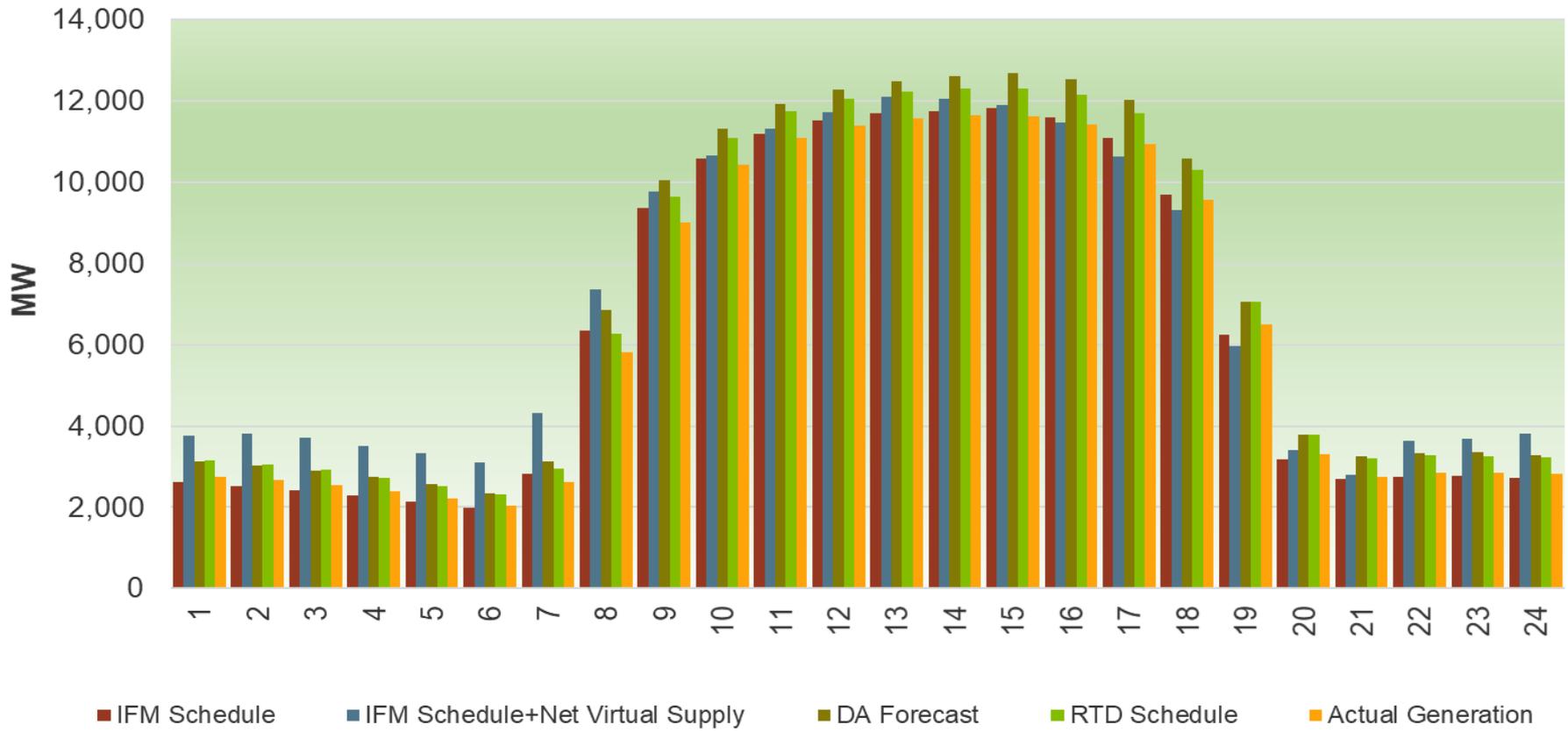
Self scheduled interties in the real-time market remained at historical levels

California ISO
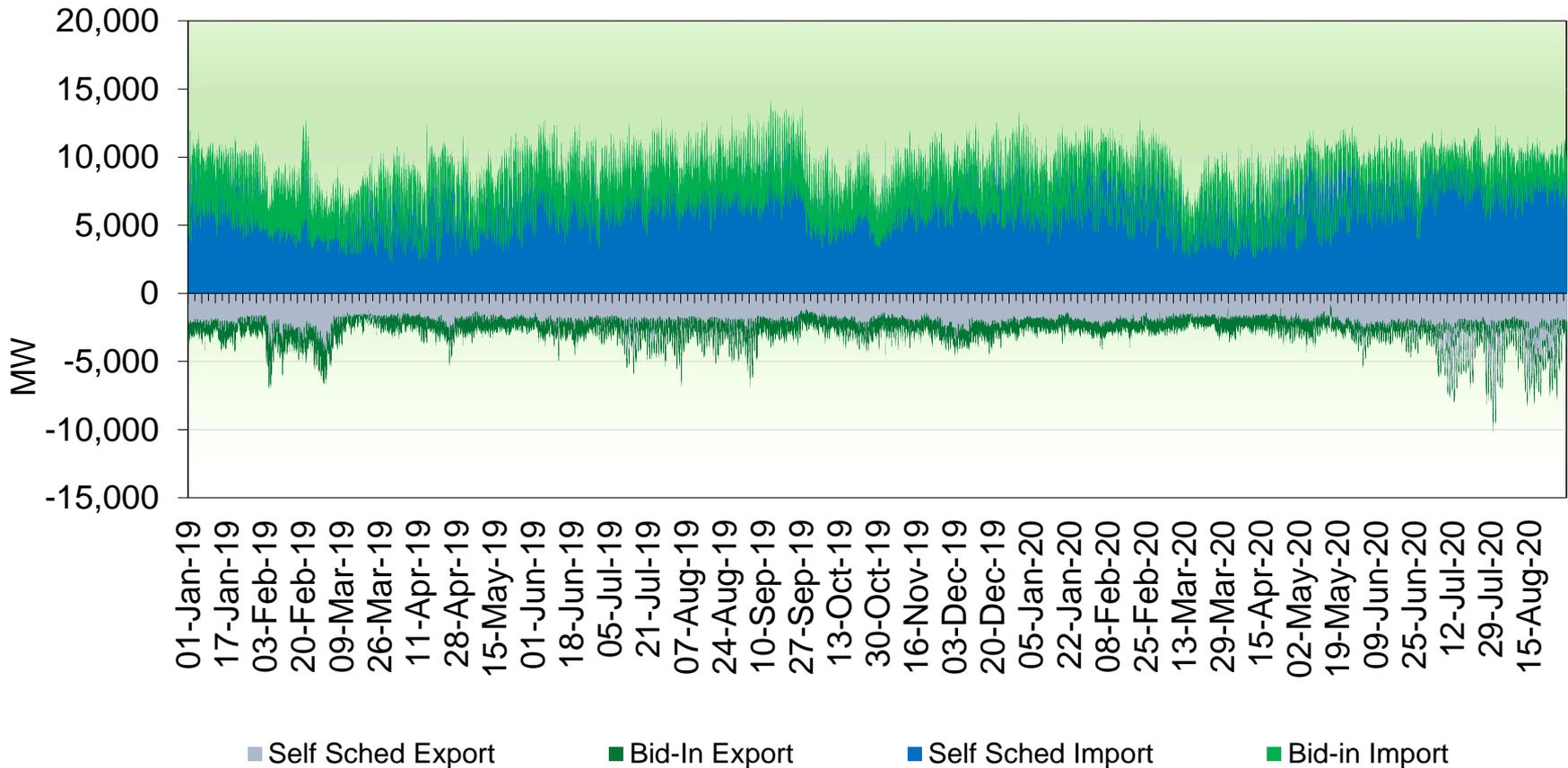
High DA and RT prices in August driven by heat wave and higher gas prices
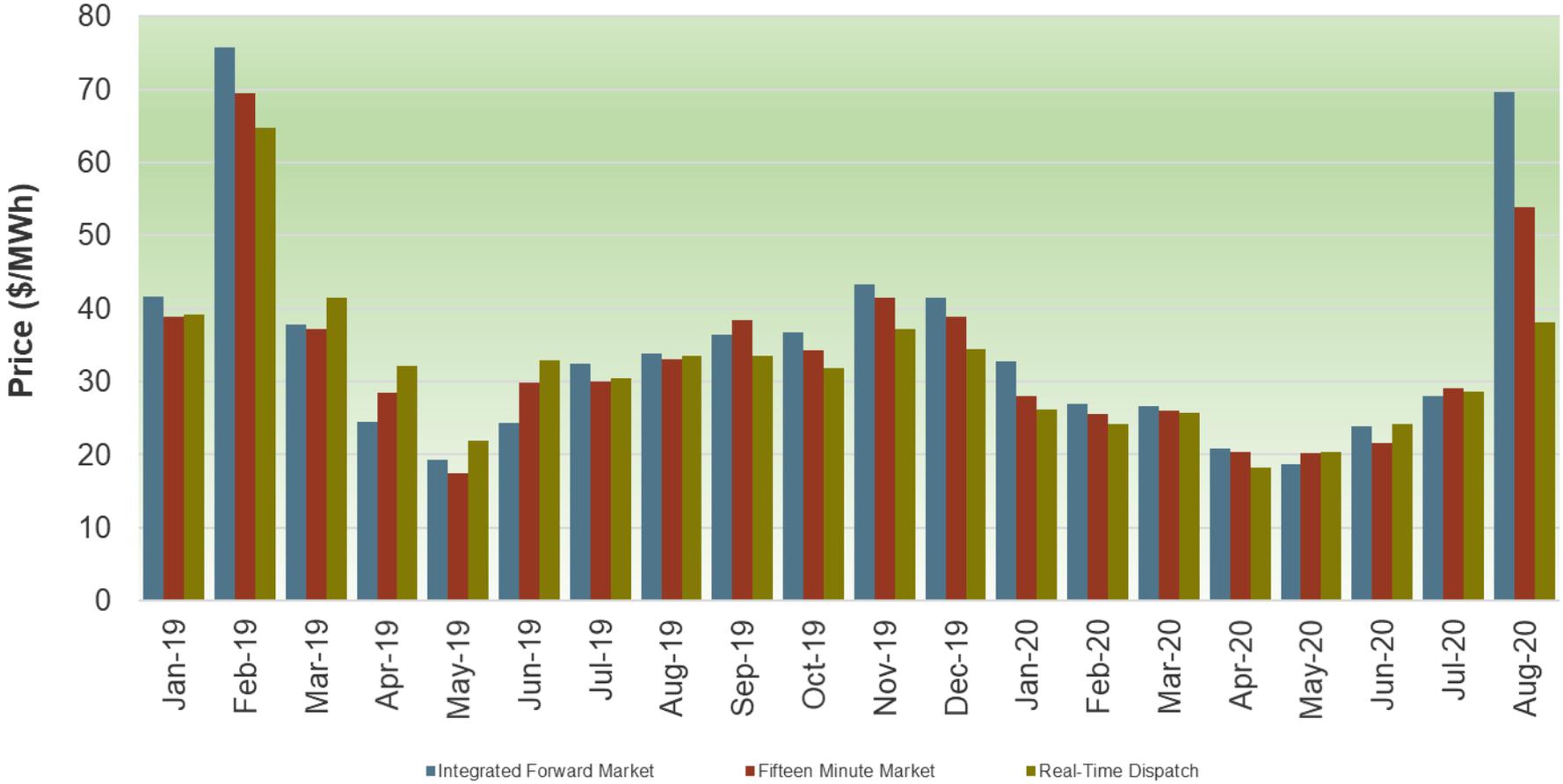
Note: Metric Based on System Marginal Energy Component (SMEC)

California ISO

RT prices much lower than DA prices for SP15 in August

California ISO
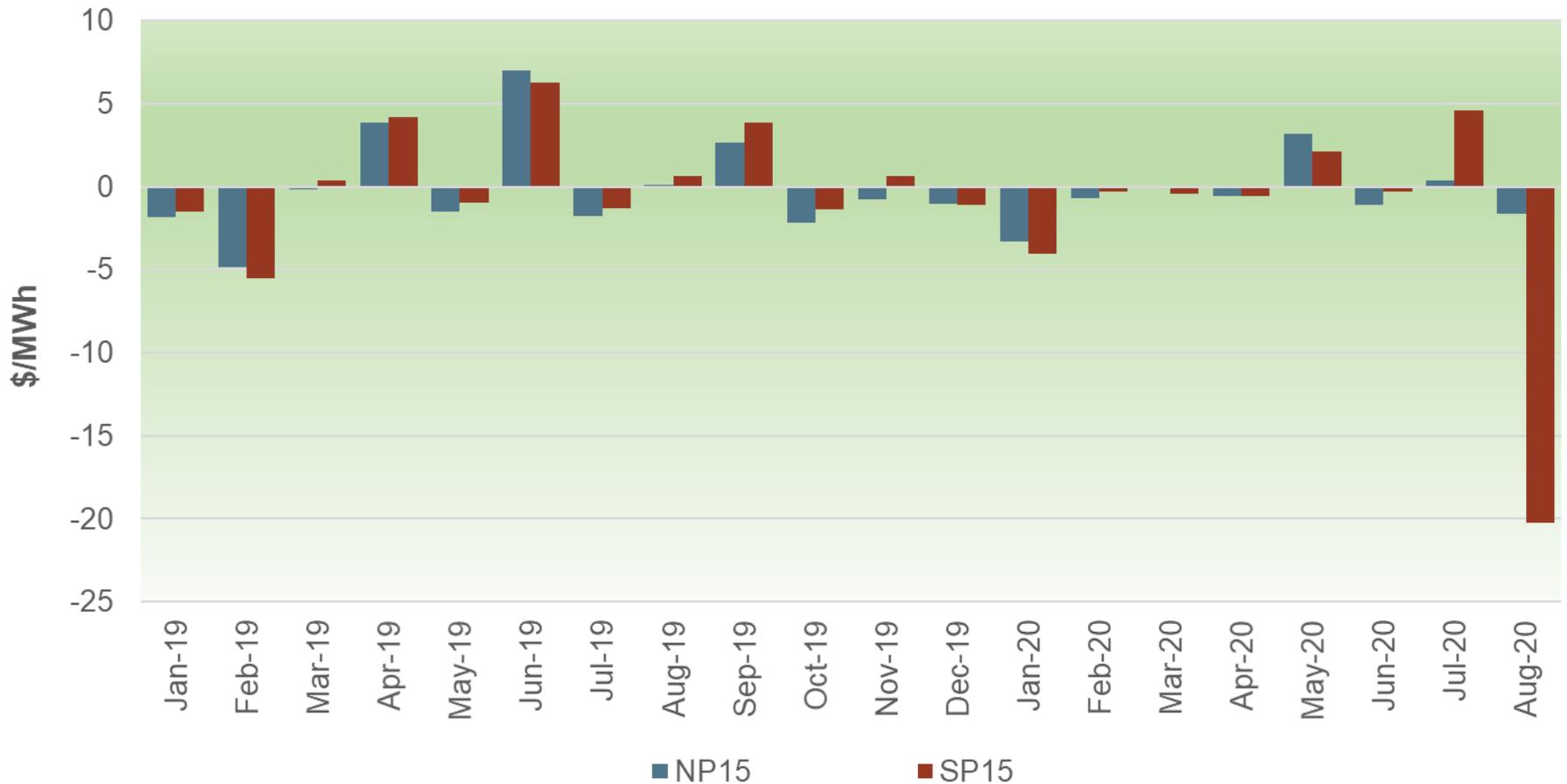
Insufficient upward ramping capacity in ISO real-time remained low in June - August
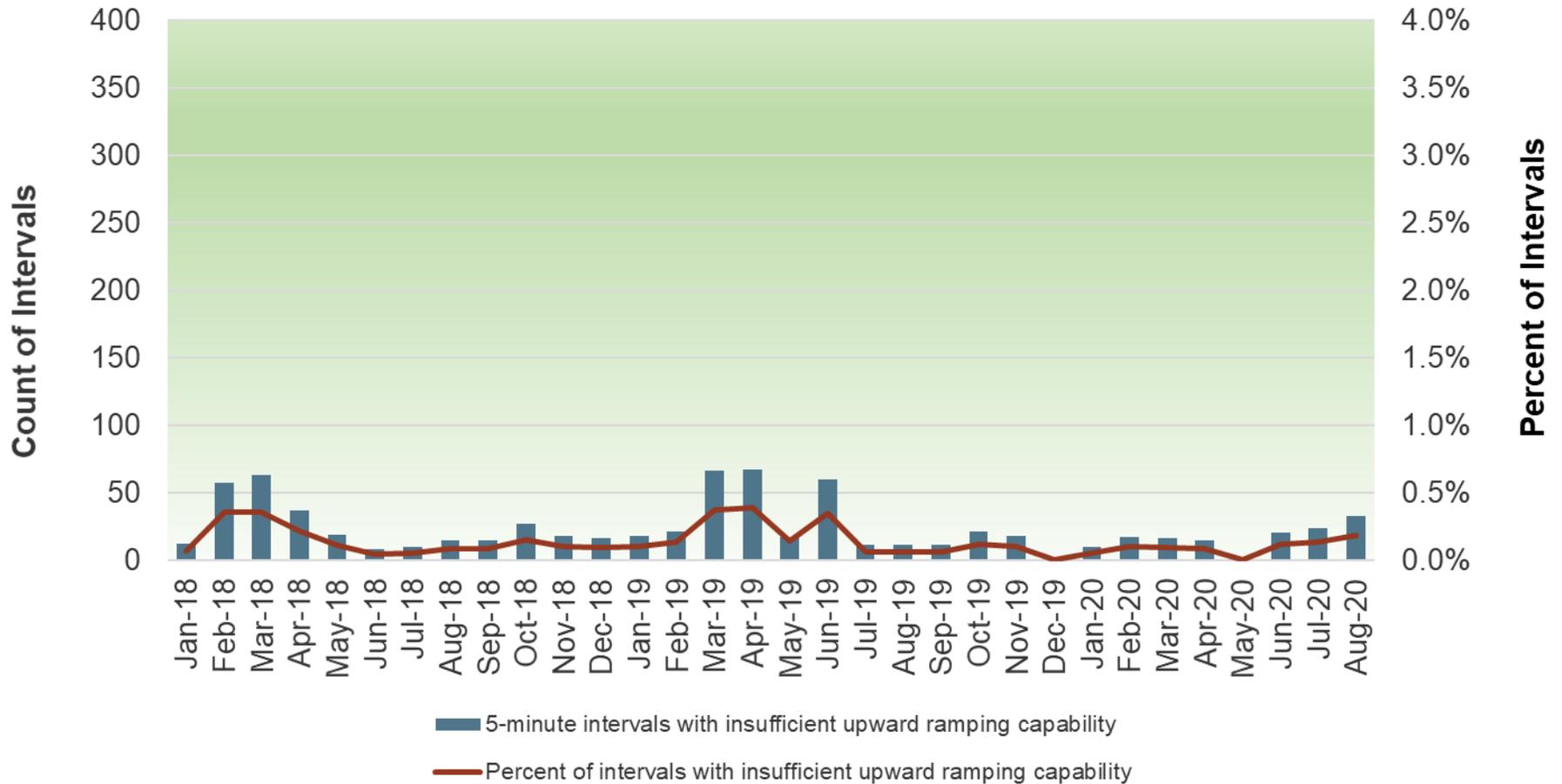
Insufficient downward ramping capacity in real-time stayed low

California ISO
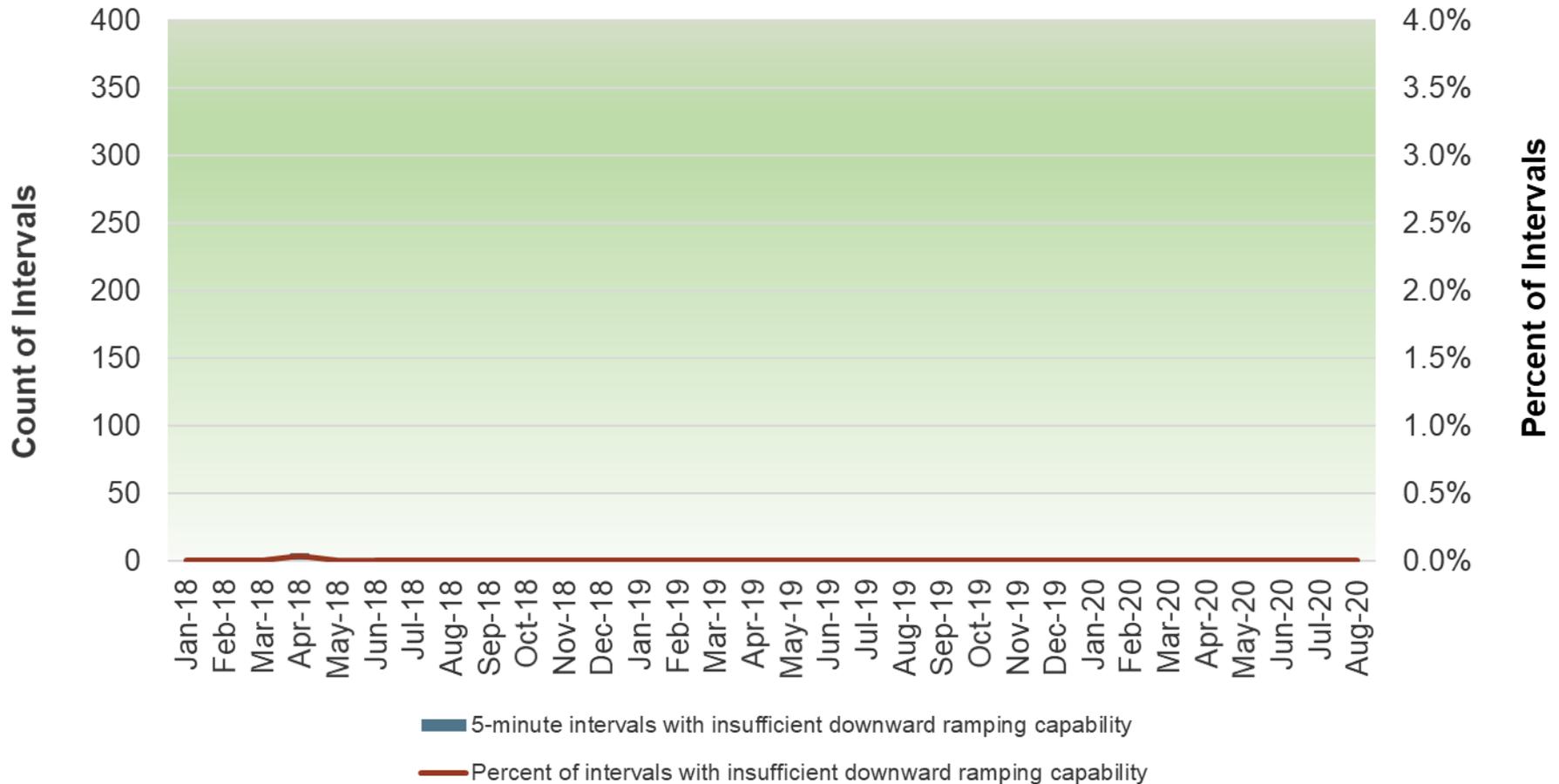
ISO area RTIEO rose in August given the peaking conditions, and high congestion and prices

	2019	2020 (YTD)
RTCO	$96,950,545	$54,583,477
RTIEO	$7,862,509	$33,195,857
Total Offset	$104,813,055	$87,779,334

■ Congestion Imbalance Offset　　　■ Energy Imbalance Offset
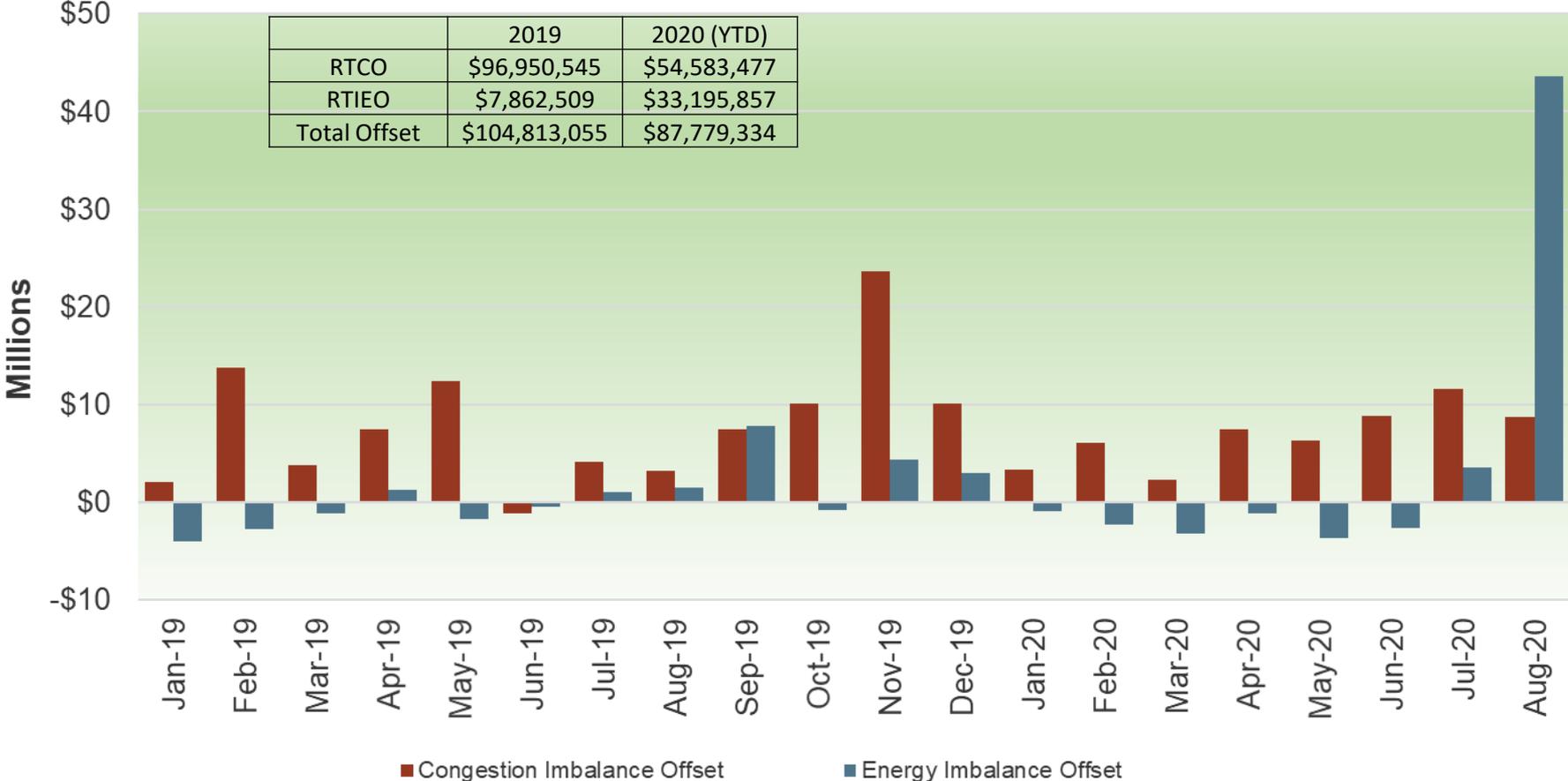
Exceptional dispatch volume in the ISO area has remained at historical levels

California ISO
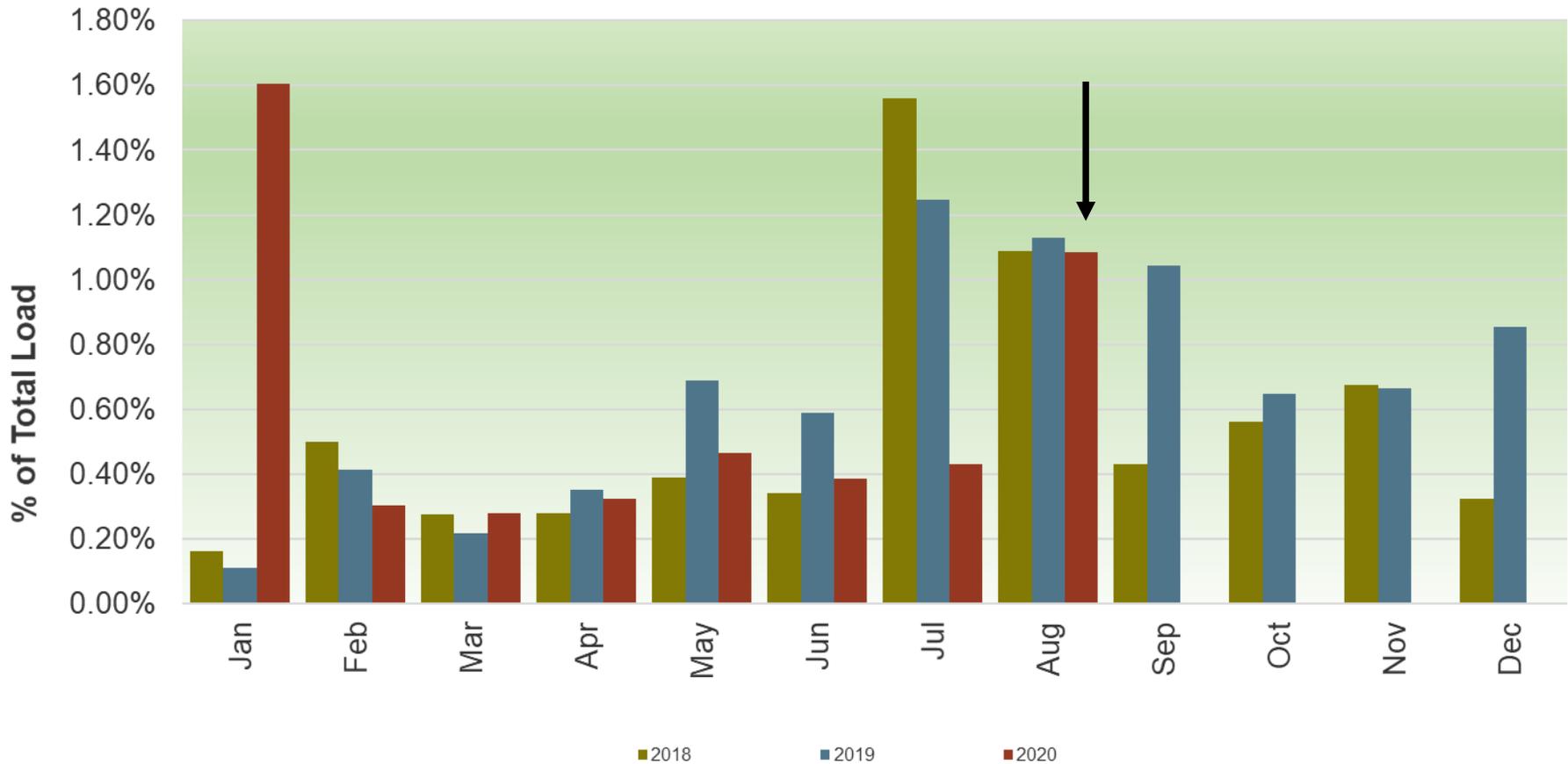
Exceptional dispatches volume driven by a variety of reasons in July and August
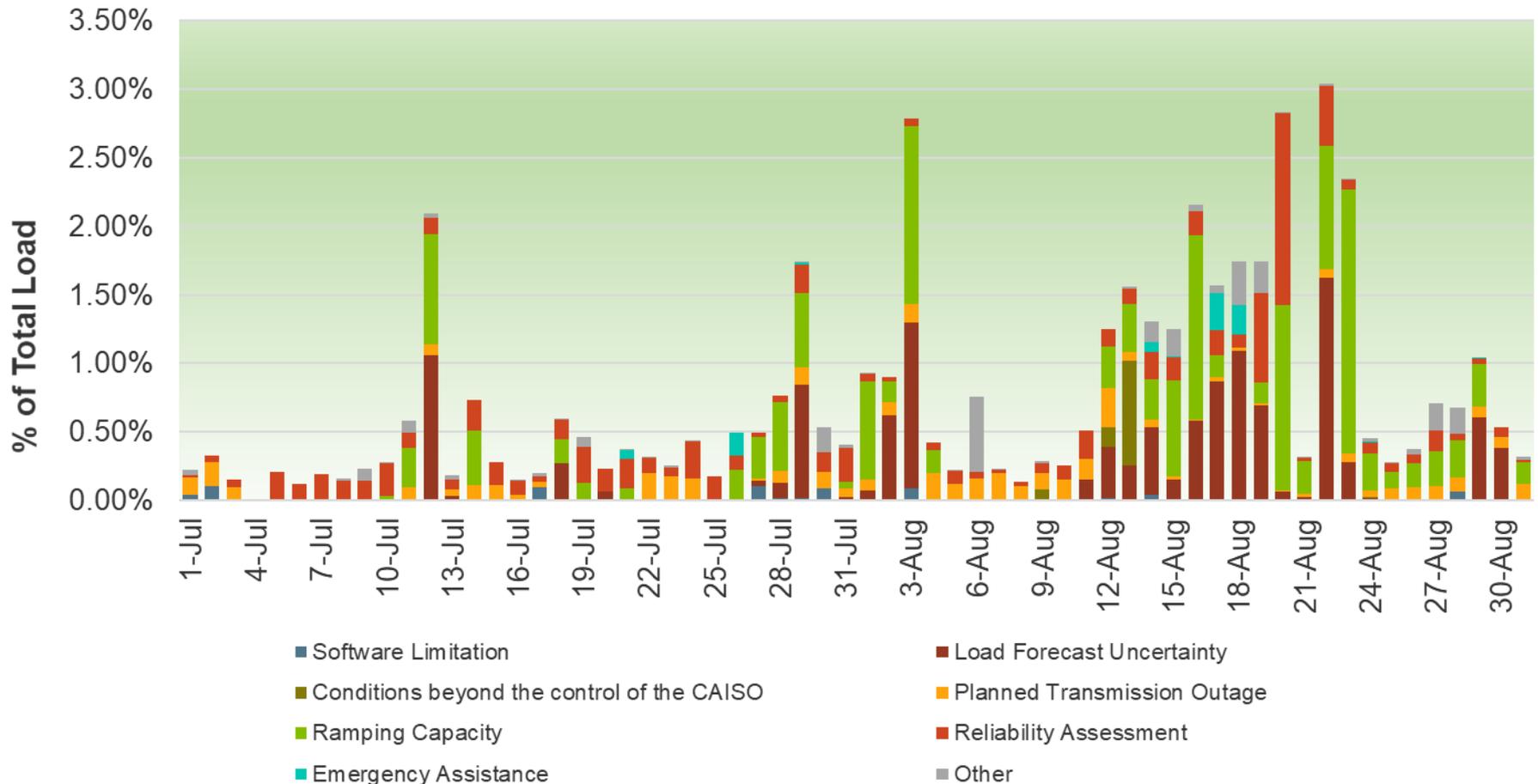
Bid cost increased in August mainly driven by heat wave
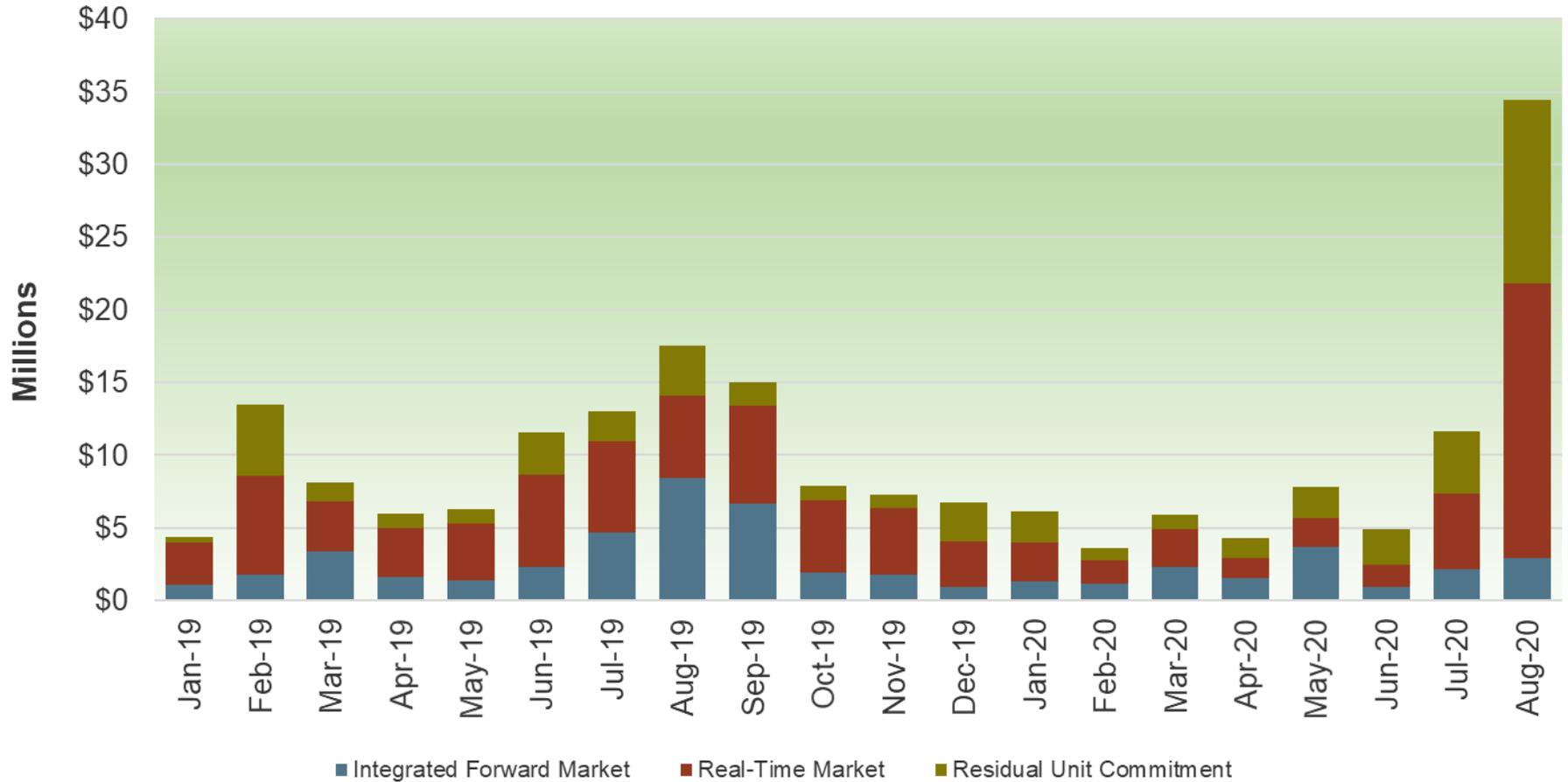
Bid cost recovery (BCR) by Local Capacity Requirement area

California ISO
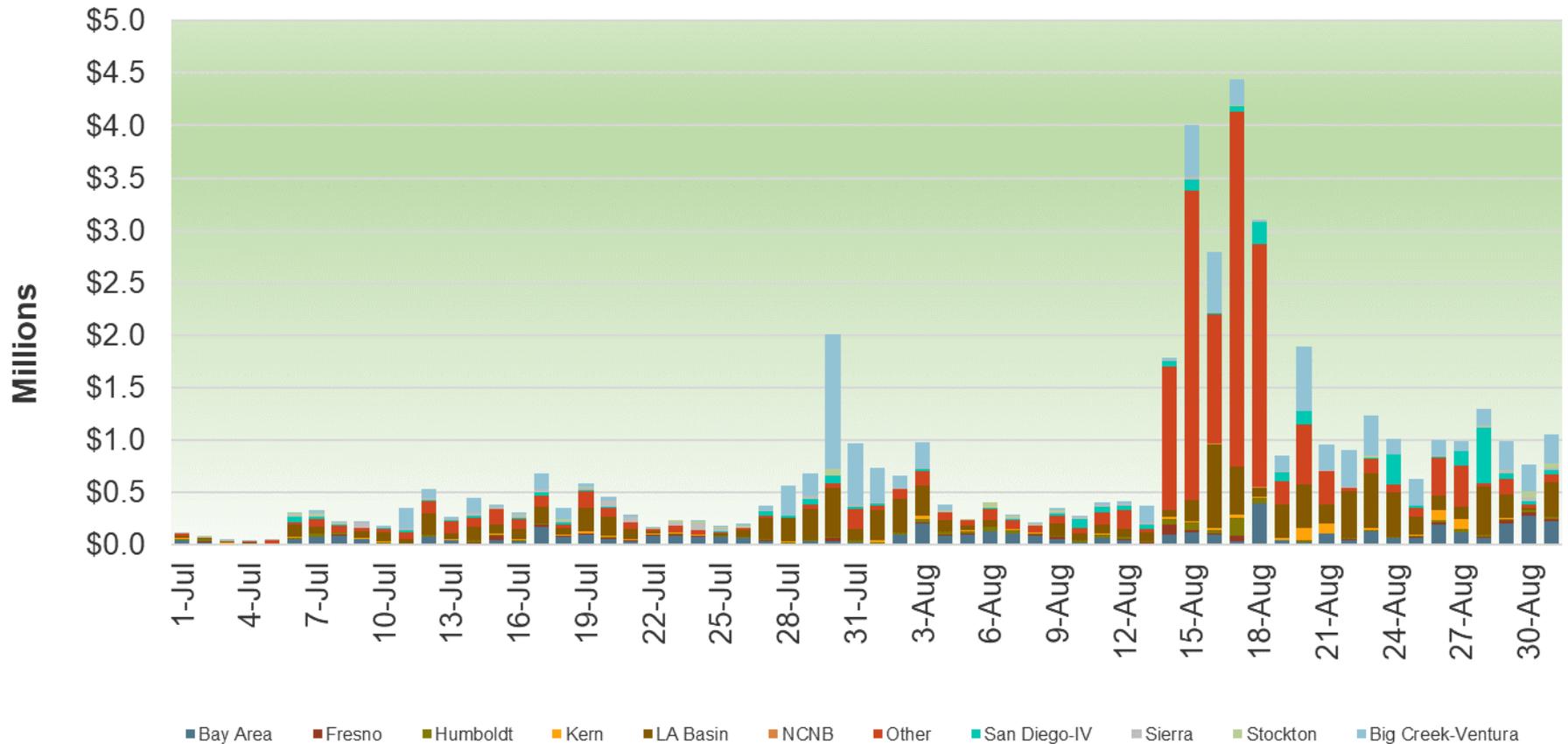
CAISO price correction events increased in July

California ISO
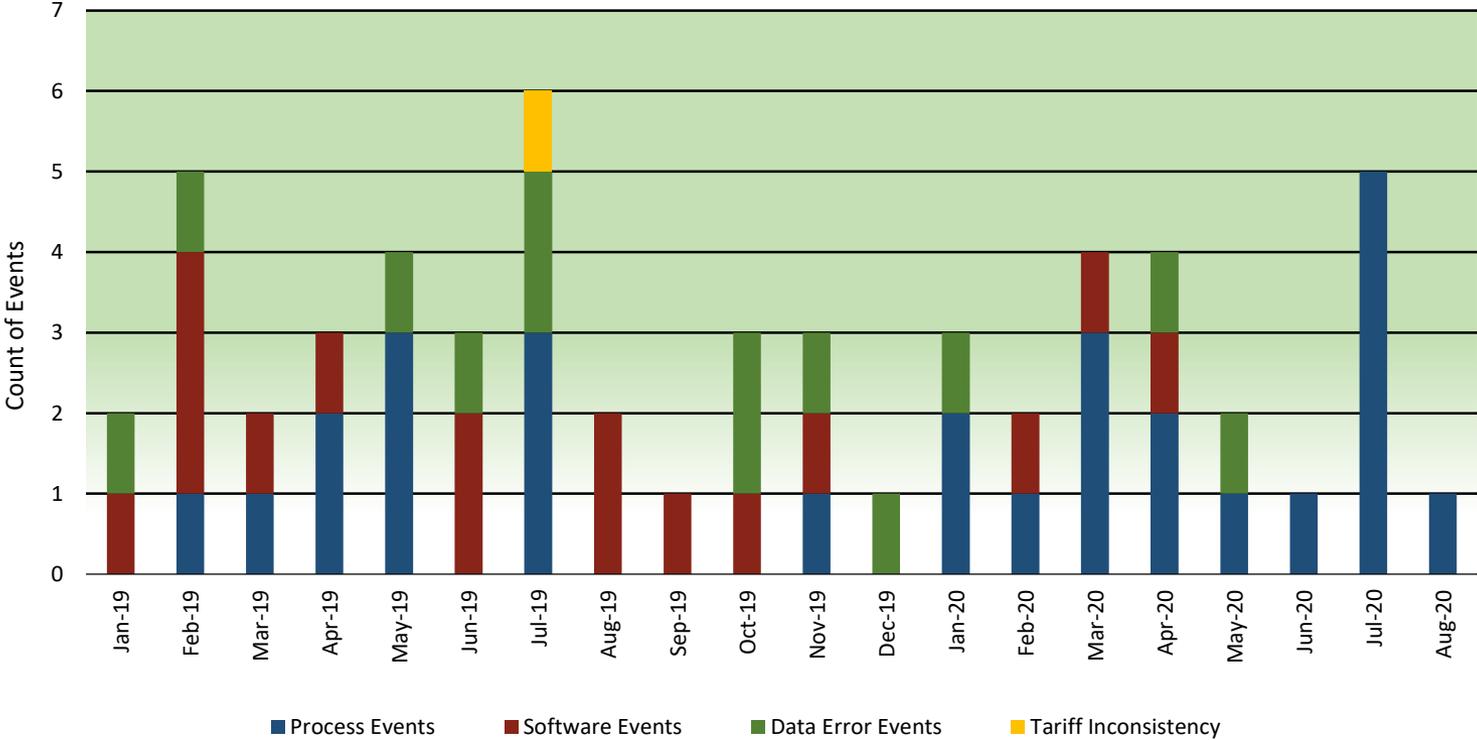
EIM-related price corrections remain within historical levels
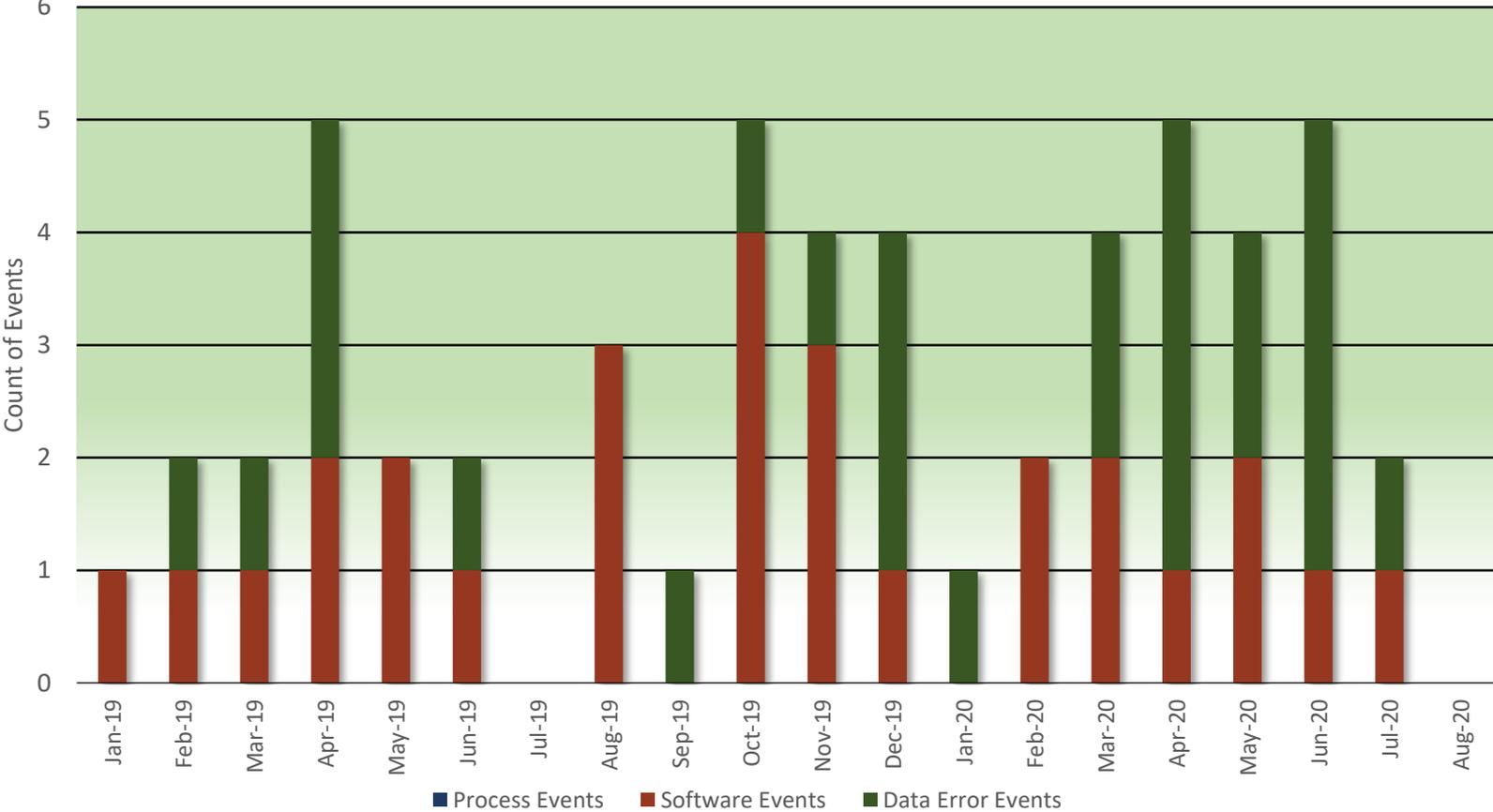
Average Flexible Ramp Product Cleared Awards for each area with EIM Area Requirement - June to August 2020

California ISO
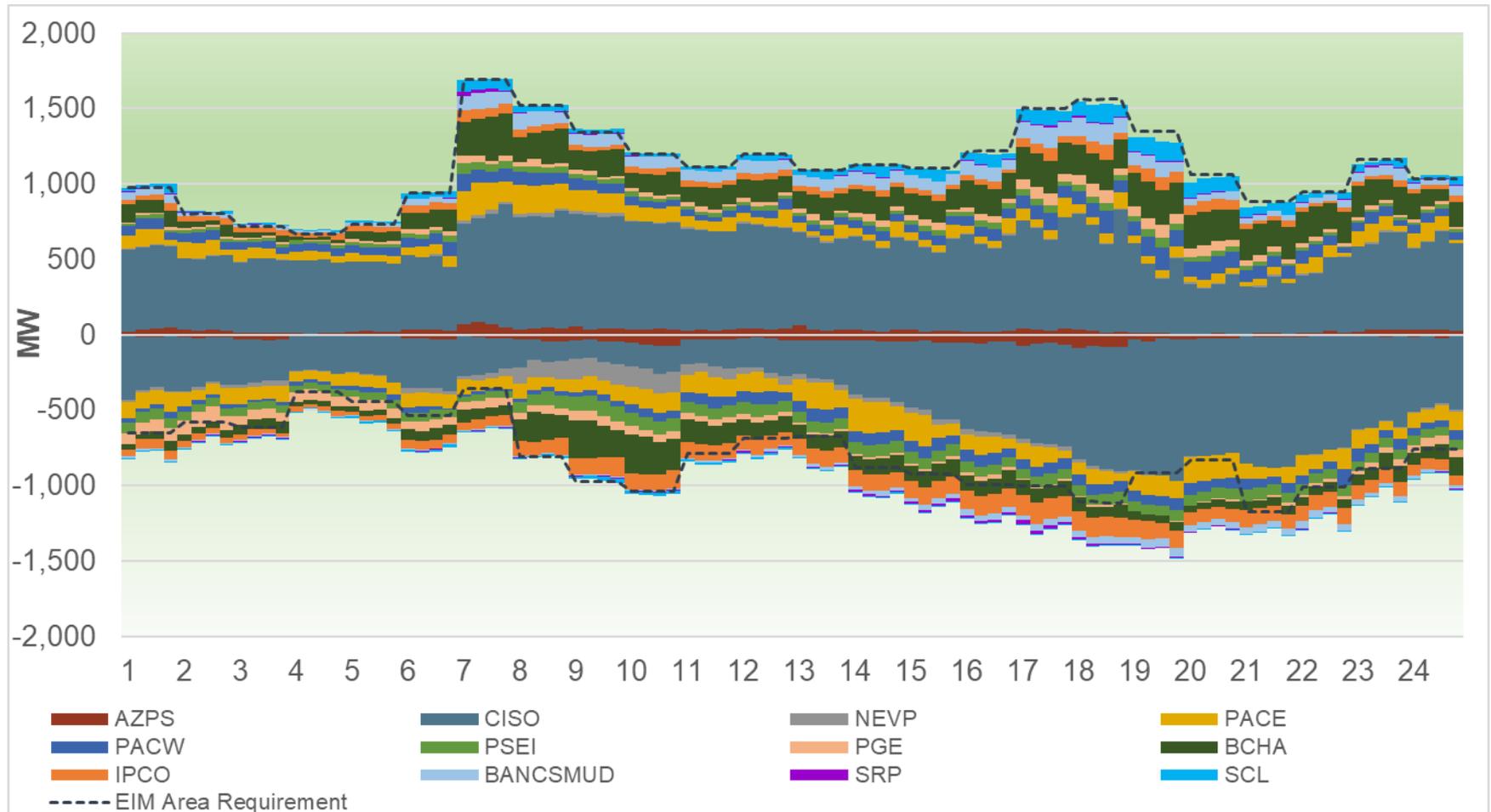
Average Flexible Ramp Up Price ($/MWh)

California ISO
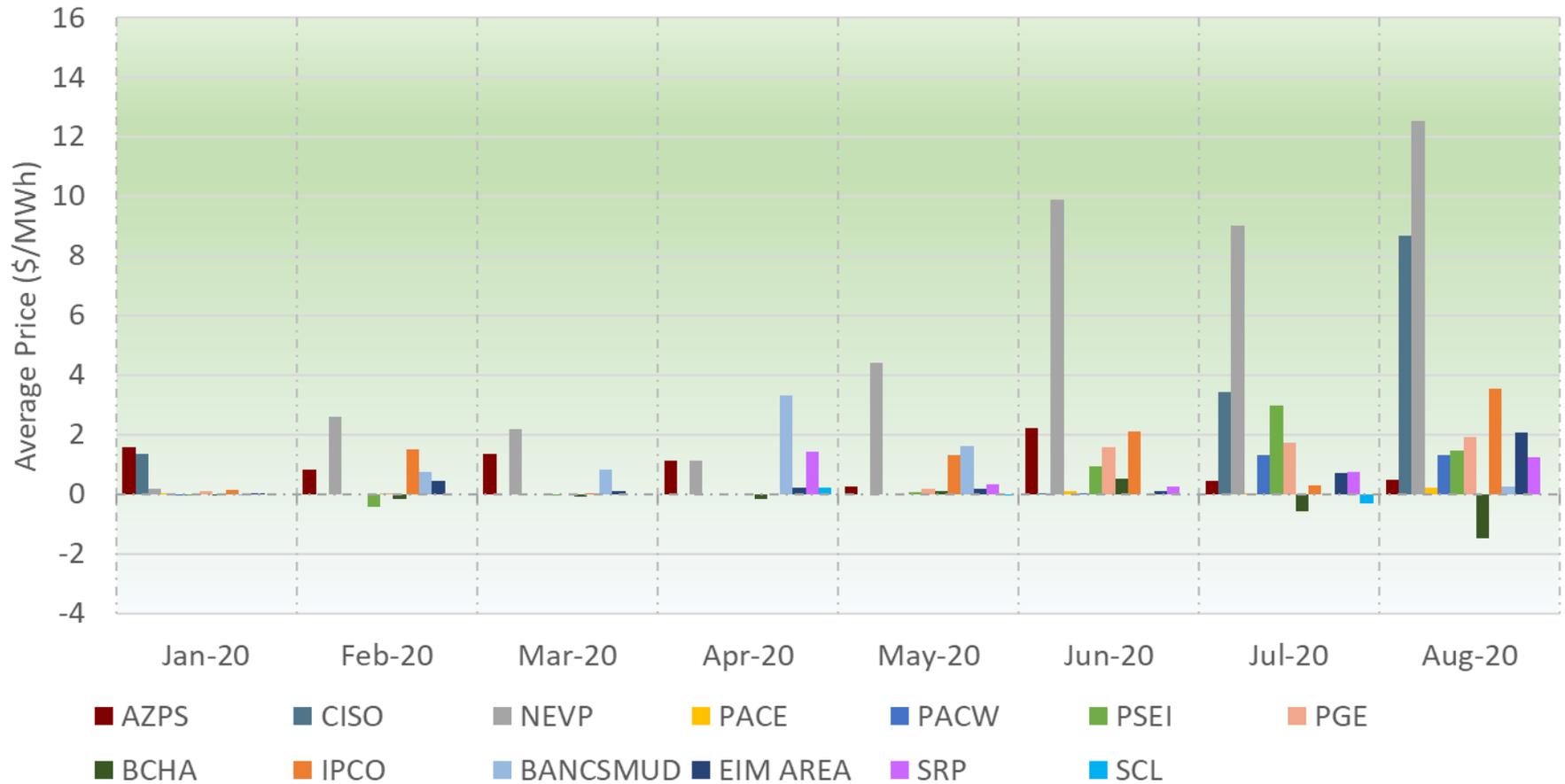
Average Flexible Ramp Down Price ($/MWh)

California ISO
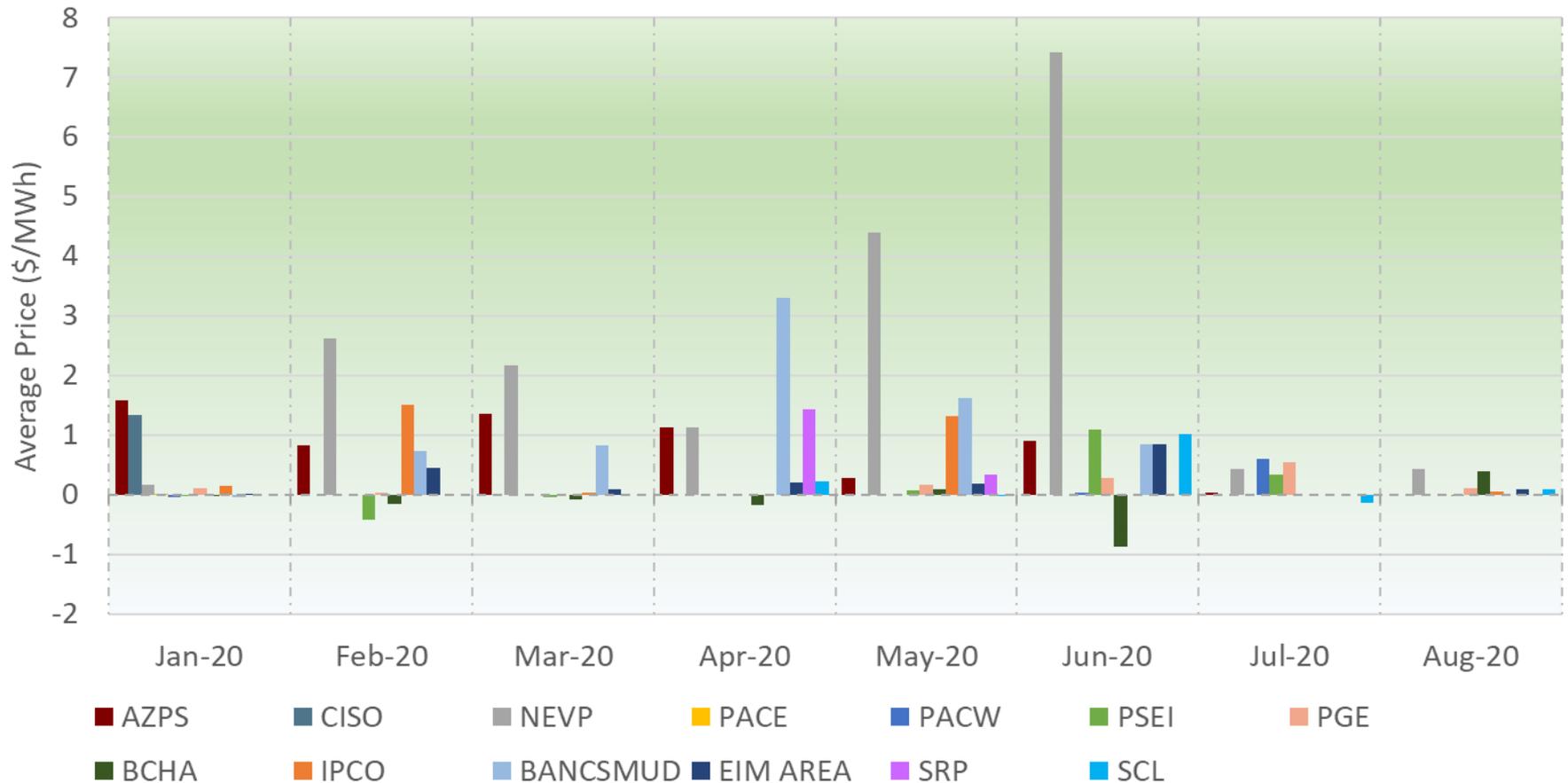
Uncertainty Up Settlement Amount

California ISO
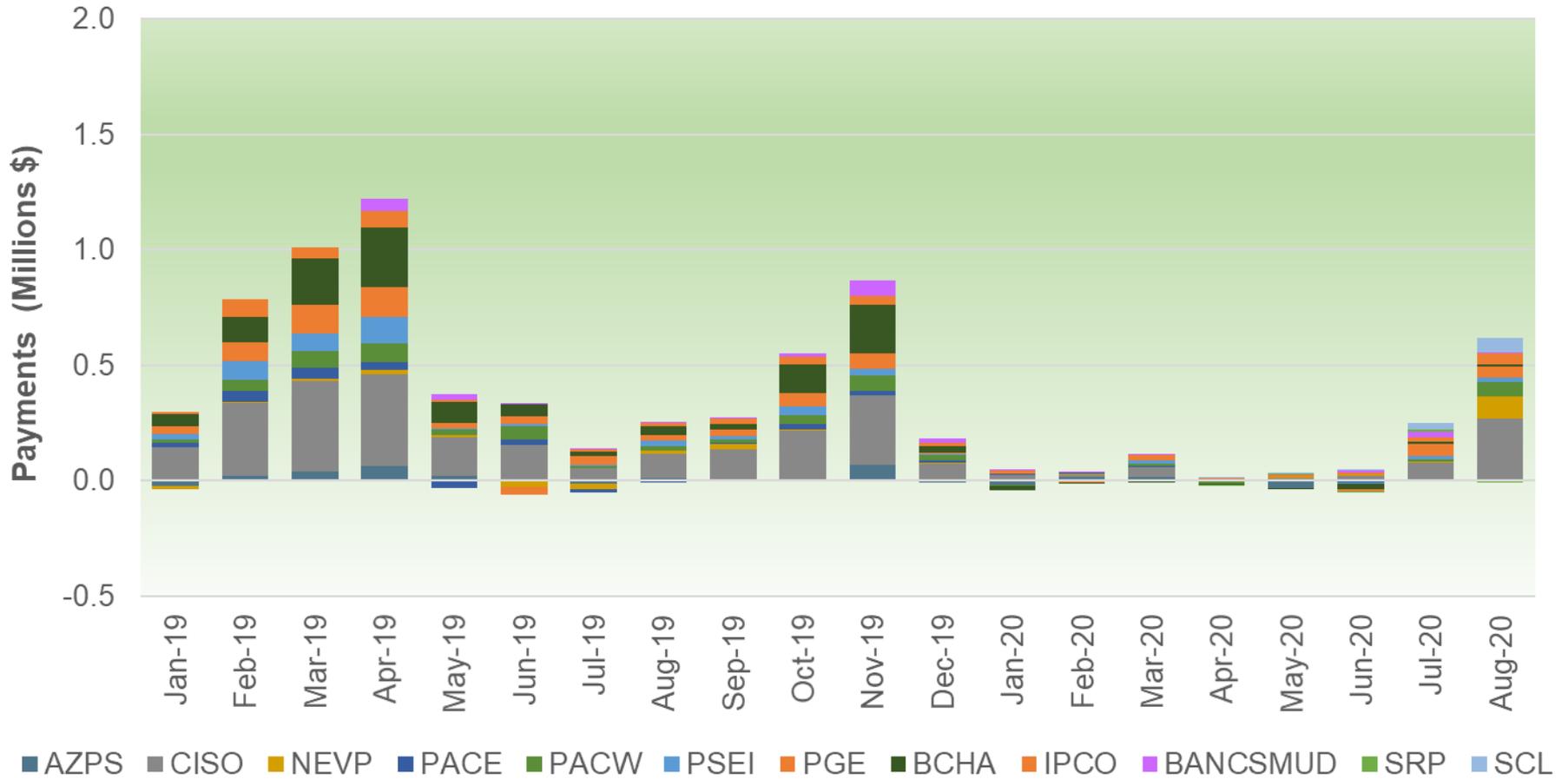
Day-ahead load forecast
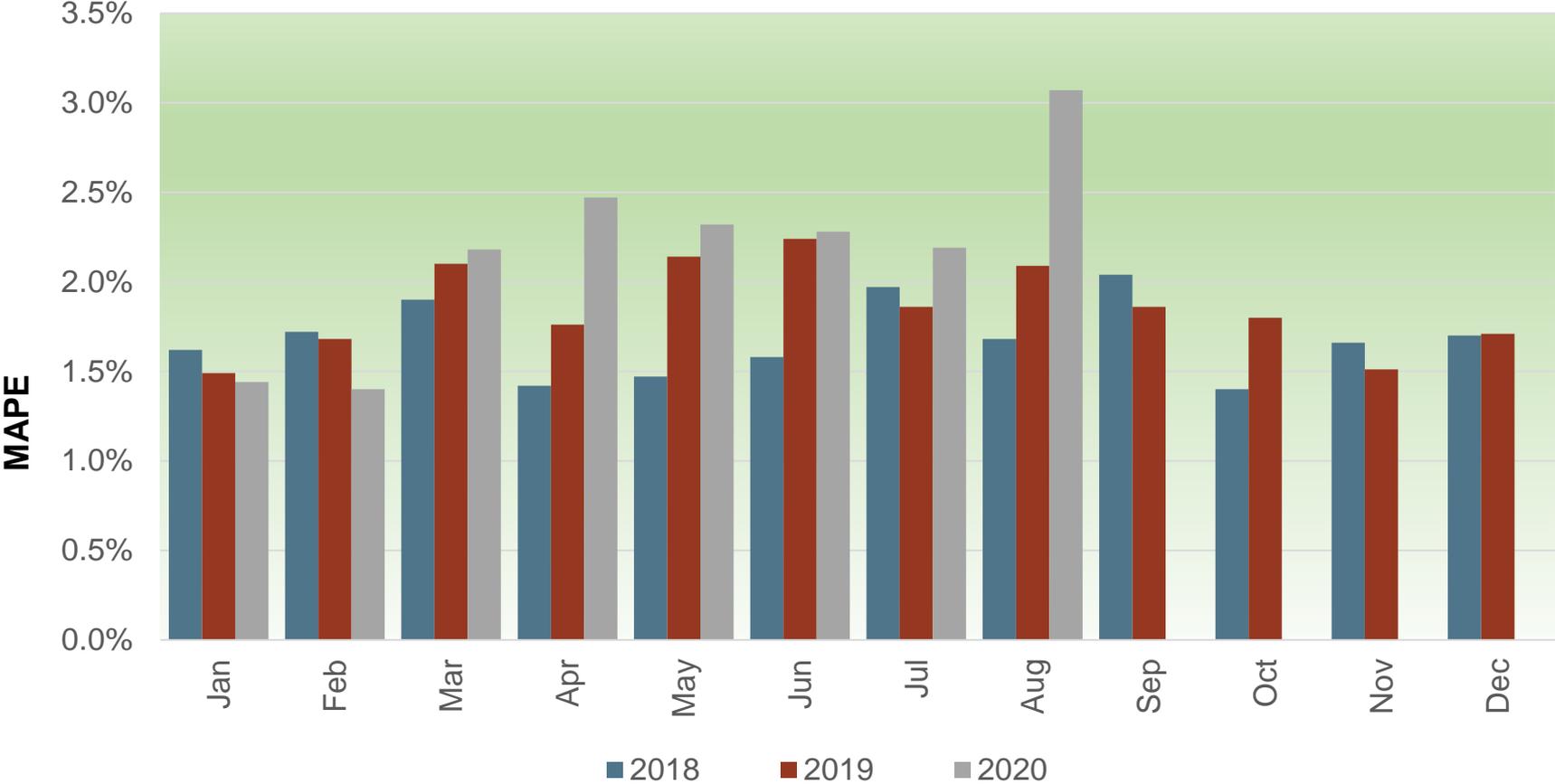
**MAPE = abs(Forecast − Actual)/Actual

California ISO

August Temperature Error

- 8/20-8/21 stayed cooler than expected for Inland areas due to smoke impacts; max temperatures over-forecasted by 6-10 degrees throughout Inland stations
- 8/26 stayed cooler than expected on the Coast due to stronger marine layer; max temperatures over-forecasted by 6-9 degrees throughout Coastal stations

Forecast vs Actual

California ISO

August Temperature Error

ISO PUBLIC
California ISO
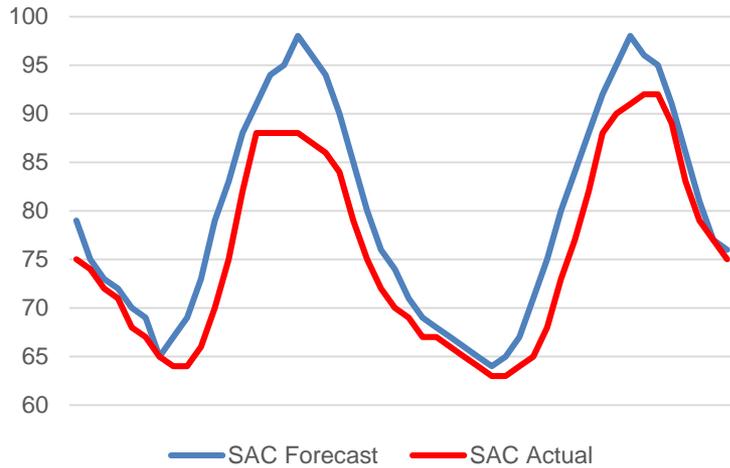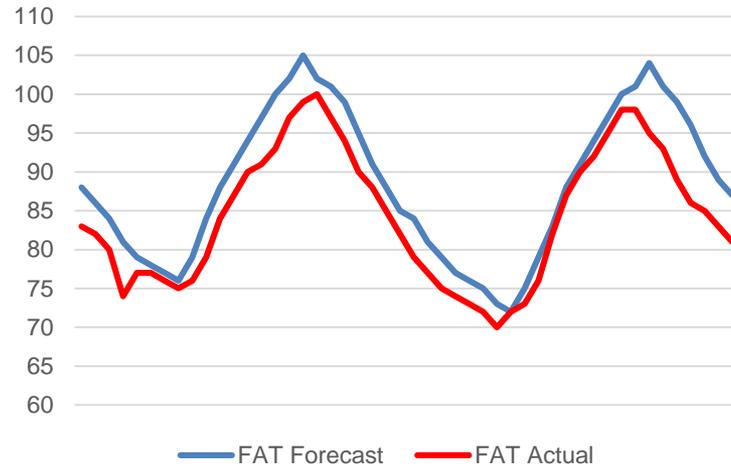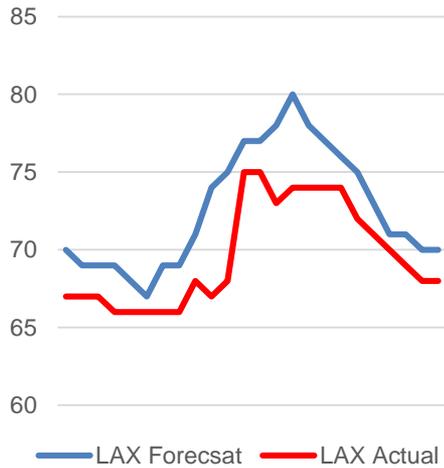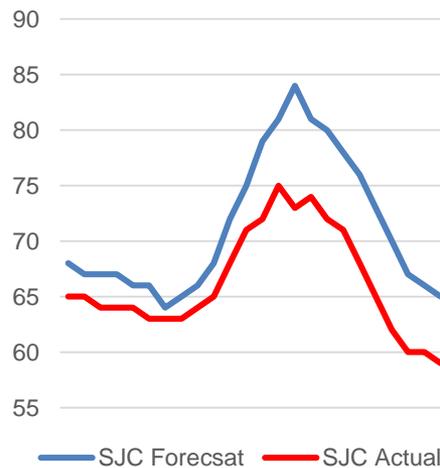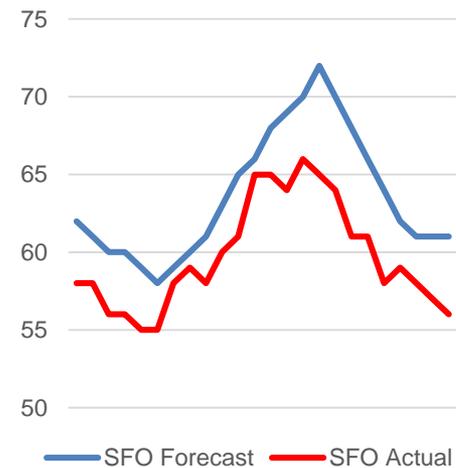
Day-ahead peak to peak forecast accuracy

Day-ahead wind forecast

MAPE

Legend: 2018, 2019, 2020

Months: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
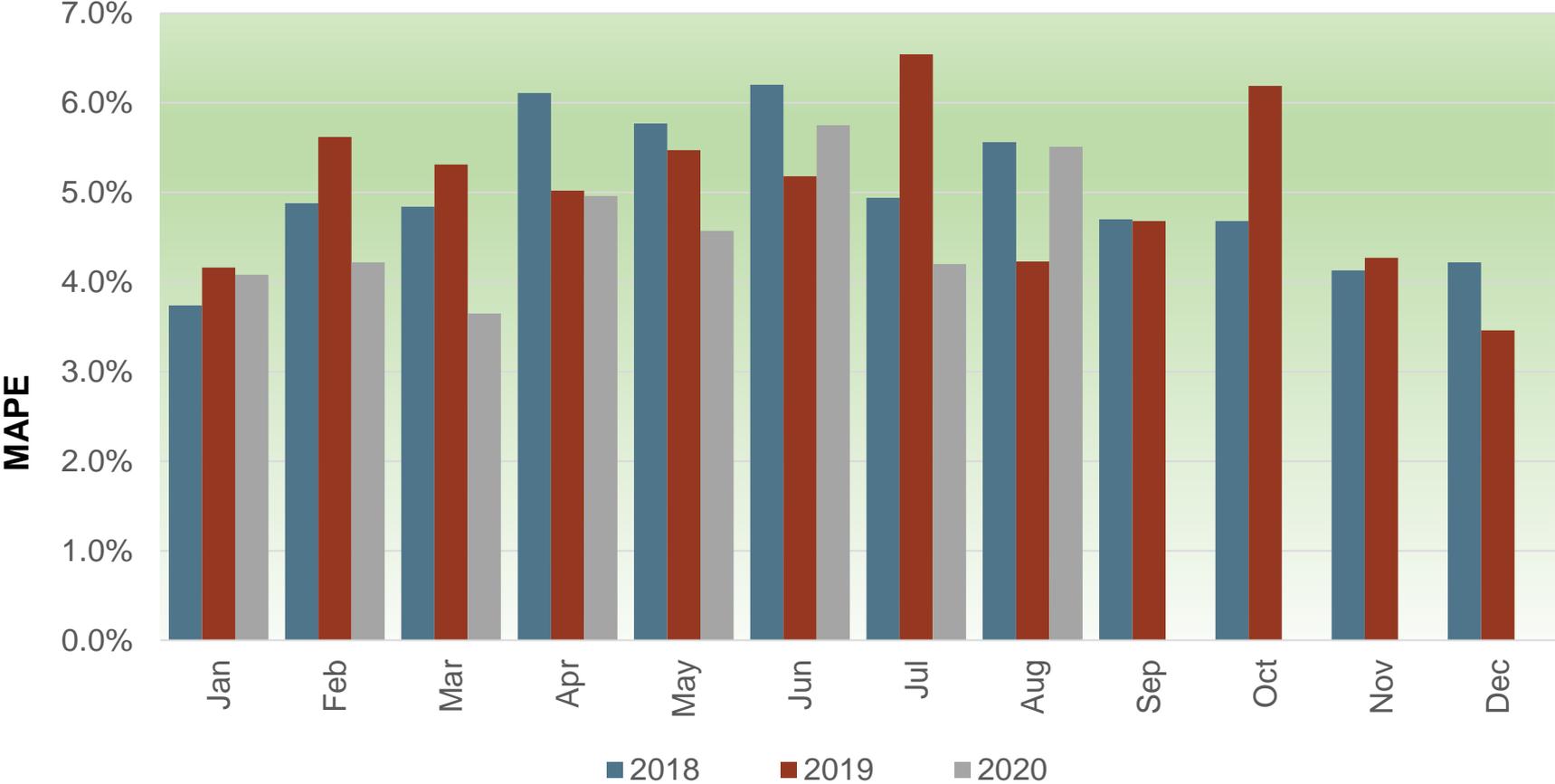
**The 2017 generation data used for accuracy calculation contains the economically dispatched MW.
**MAPE = abs(Forecast – Actual)/Capacity

Day-ahead solar forecast

MAPE

2018   2019   2020
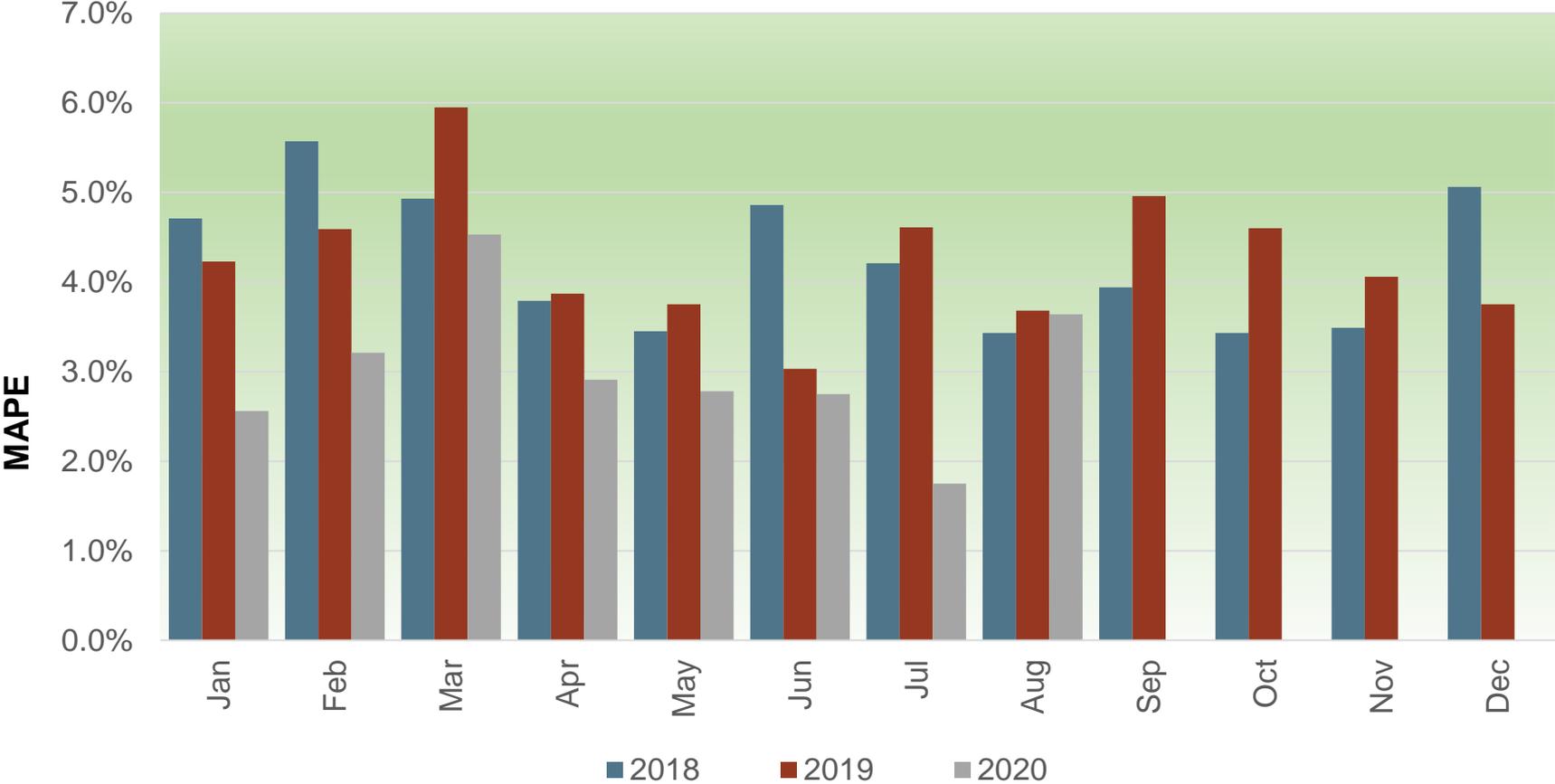
**MAPE = abs(Forecast – Actual)/Capacity

Real-time solar forecast

MAPE

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

Legend: ■ 2018 ■ 2019 ■ 2020

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

Real-time wind forecast
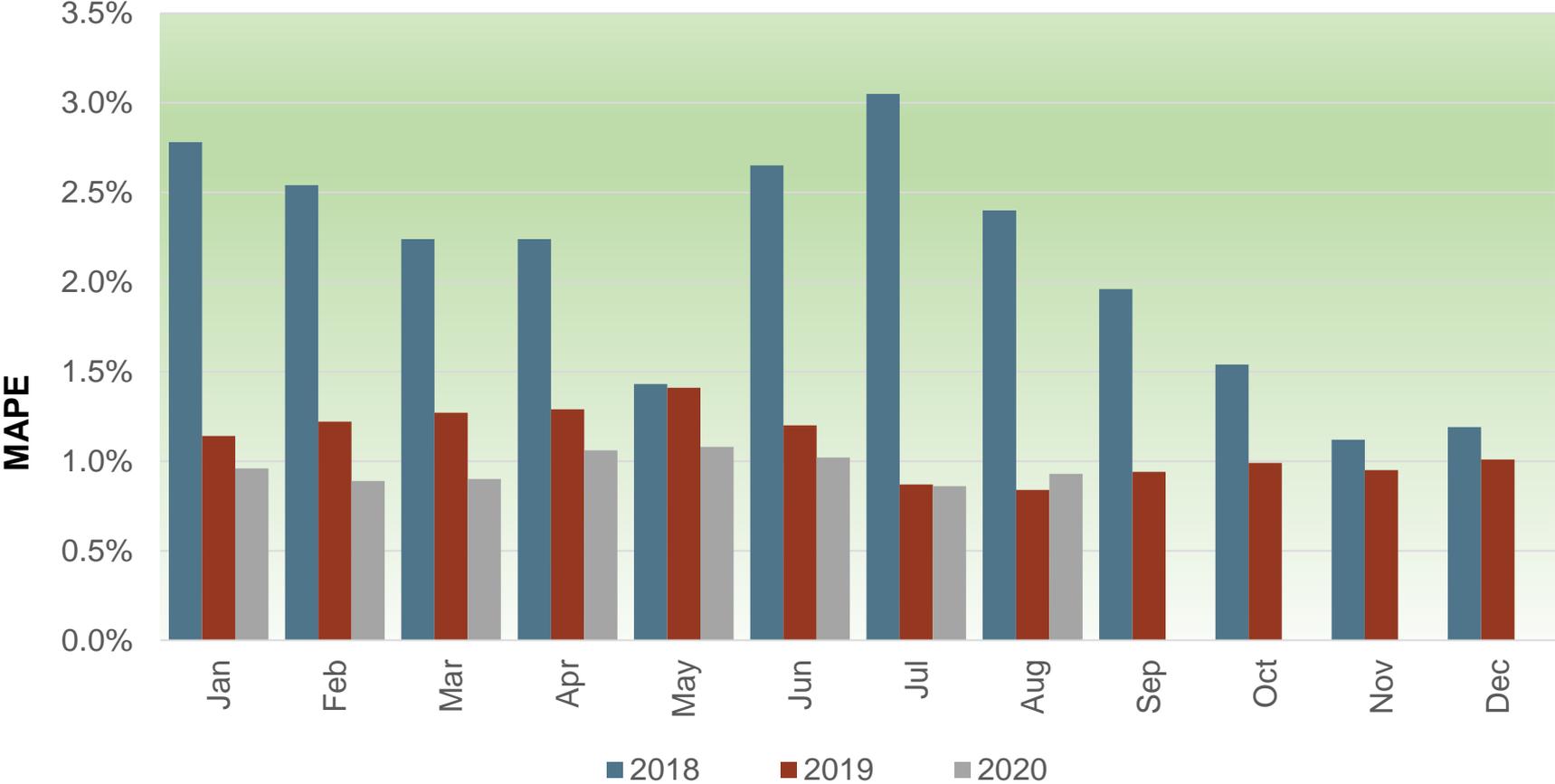
MAPE (y-axis)

Chart showing monthly MAPE values for 2018, 2019, and 2020 from Jan to Dec, with y-axis from 0.0% to 3.5%.

Legend: ■ 2018 ■ 2019 ■ 2020

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

California ISO

EIM T-60 Forecast

EIM T-60 Forecast

PACE T-60 Forecast
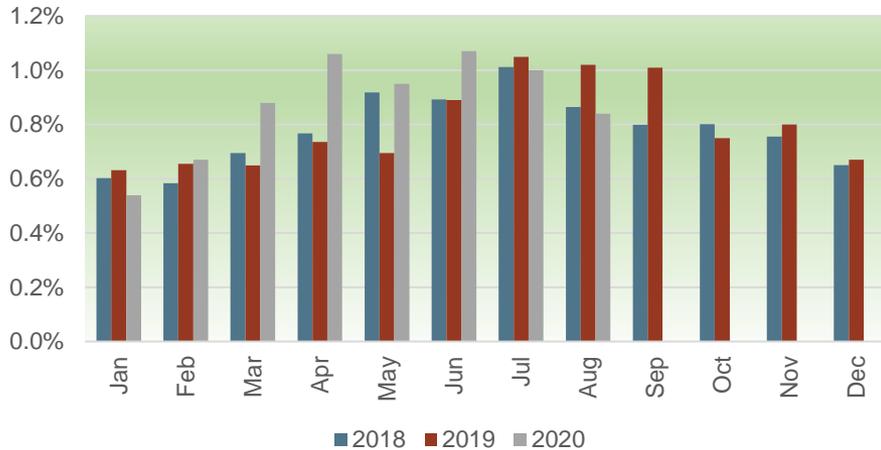
PACW T-60 Forecast
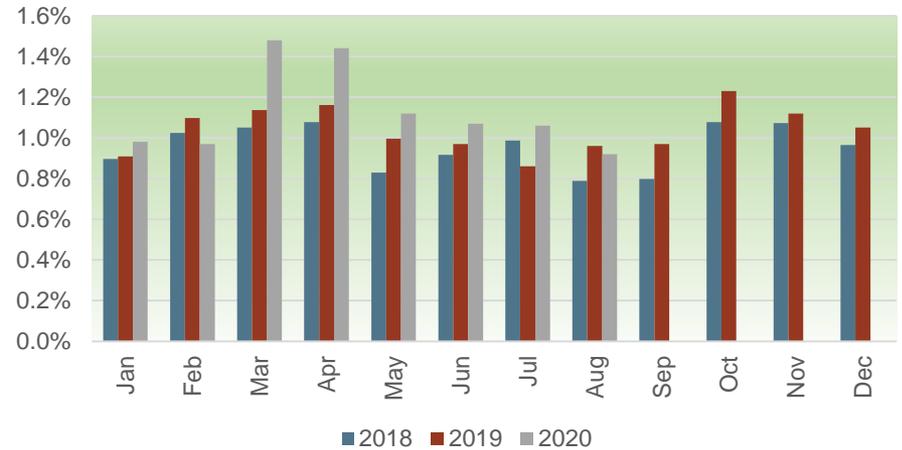
PSE T-60 Forecast

SMUD T-60 Forecast

California ISO
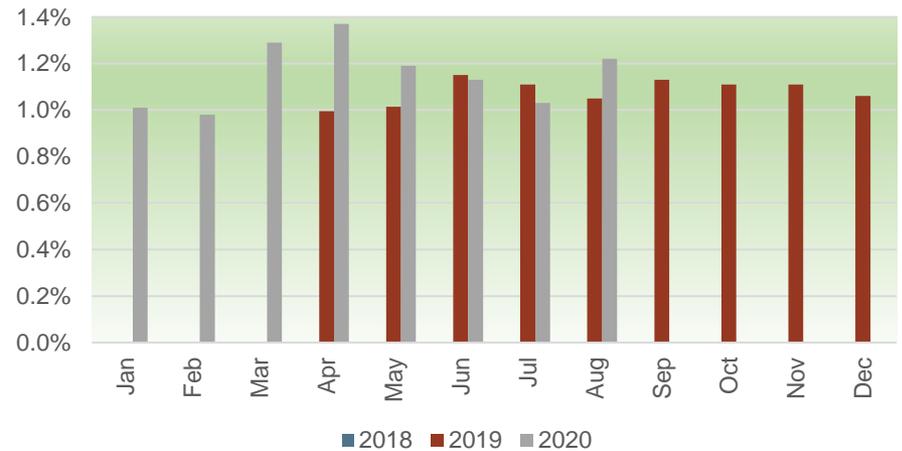
EIM T-60 Forecast

SRP T-60 Forecast

SCL T-60 Forecast

California ISO
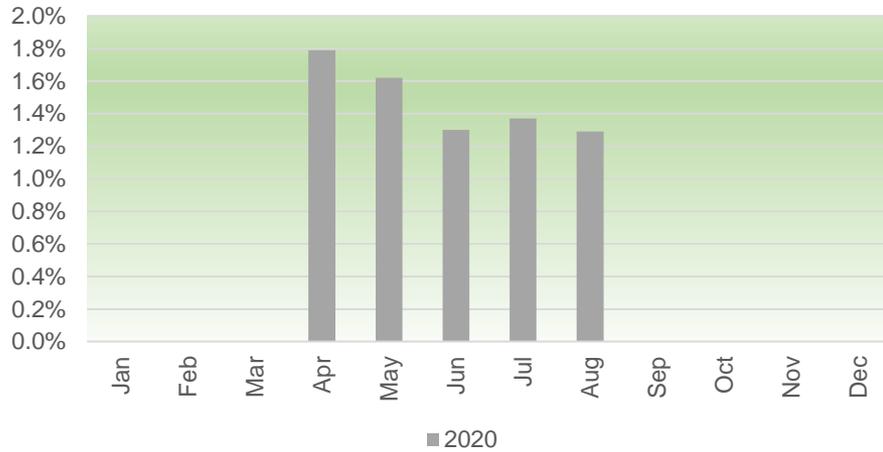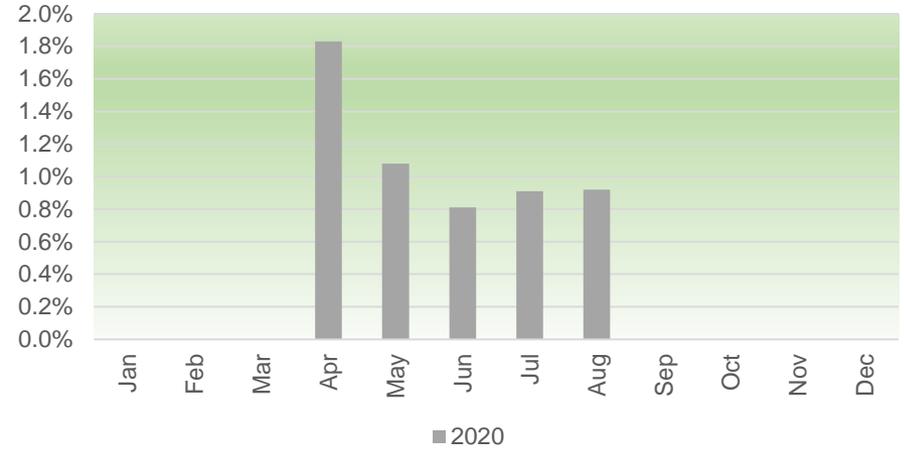
Policy Update

John Goodin

Senior Manager, Infrastructure & Regulatory Policy

Brad Cooper

Senior Manager, Market Design Policy
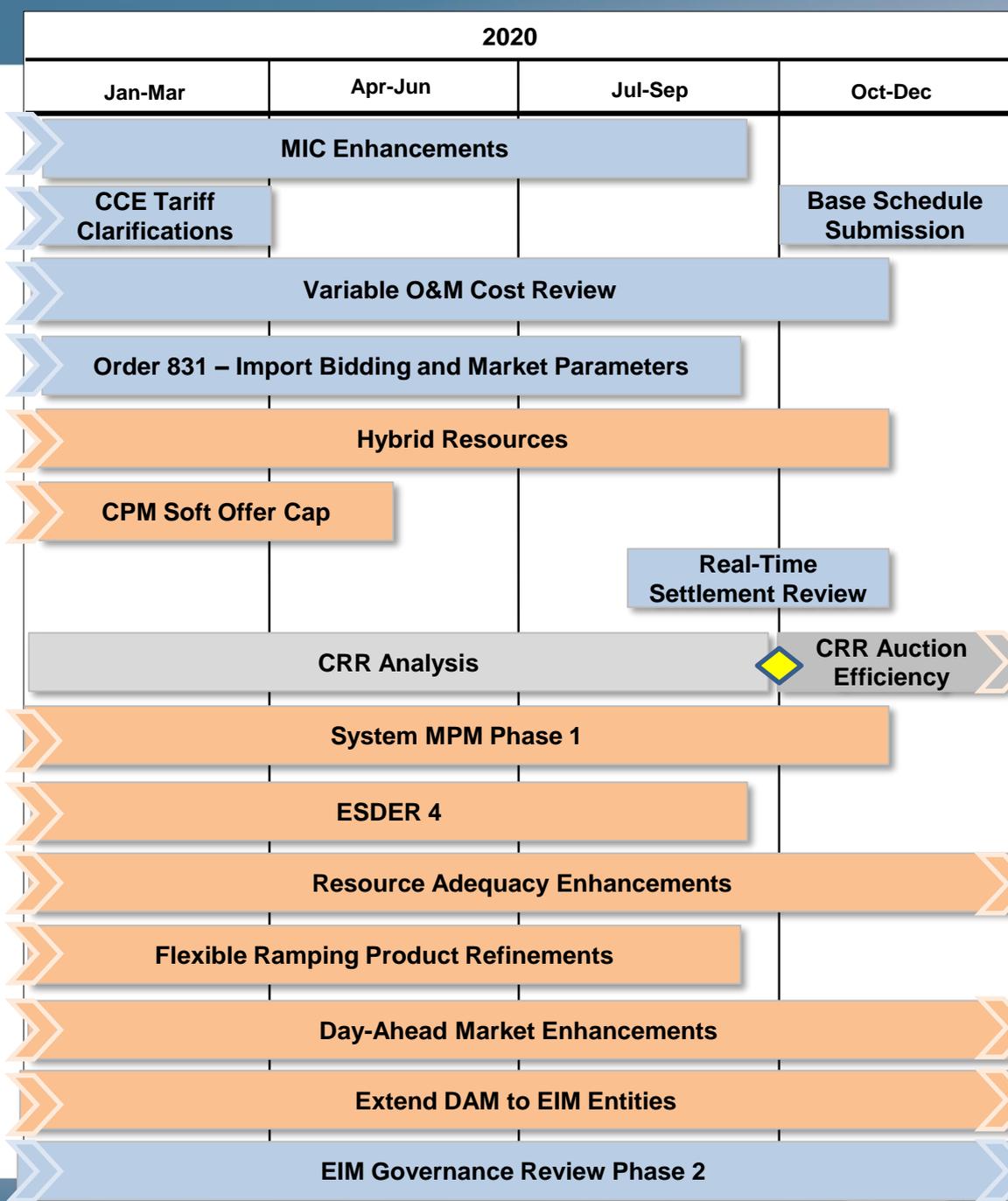
Energy Storage and Distributed Energy Resources – Phase 4

- Scope: Enhancements to energy storage and distributed energy resource model and market rules
  - ELCC DR study to help inform demand response capacity value
  - End of hour state of charge parameter
  - Demand response max daily run time parameter
- EIM Governing Body advisory role
  - Enhancements are applicable to EIM participants, but no specific changes affecting EIM balancing authority area participation
- Status:
  - Final proposal Aug 20 and meeting Aug 27; comments due Sep 10
  - September 19 EIM Governing Body briefing
  - September 30 ISO Board decision

Energy Storage and Distributed Energy Resources – Default Energy Bid for Storage

- Scope: Apply market power mitigation and develop a default energy bid for storage resources
- EIM Governing Body advisory role
  - Enhancements are applicable to EIM participants, but no specific changes affecting EIM balancing authority area participation
- Status:
  - ESDER 4 final proposal: Aug 20; Meeting Aug 27; Comments Sep 10
  - Default energy bid draft final proposal Sep 15; Meeting Sep 22
  - Final proposal for storage DEB Nov TBD
  - December 1-2 EIM Governing Body briefing
  - December 16-17 ISO Board decision

Hybrid Resources Initiative

- Scope: Develop models for hybrid and co-located resources to accommodate new storage in CAISO
- Status
  - **Phase 1**: Develop co-located model, including the aggregate capability constraint for generation above interconnection limits
  - **Phase 2**: Develop hybrid resource model to allow participation as a single resource. Allow both models to provide ancillary services.
- EIM Governing Body advisory role
- Status:
  - Phase 1 approved by Board July 2020
  - Draft final proposal posted and meeting Aug 10 (Phase 2)
  - Final proposal Sep 30 and meeting Oct 7 (Phase 2)
  - November 4 EIM Governing Body briefing (Phase 2)
  - November 18 and 19 ISO Board decision (Phase 2)

Resource Adequacy Enhancements Initiative

- Scope: Considering reforms needed to the ISO's resource adequacy rules, requirements, and processes to ensure the future reliability and operability of the grid.

- No EIM Governing Body role

- Status:
  - Stakeholder working group meetings on September 14, 15, and 17
  - Draft final proposal to be posted in early November
  - Final Proposal early Q1 2021
  - Late Q1 2021 ISO Board decision

California ISO

Flexible Ramping Product Refinements

- Scope:
  - Deliverability
  - Eligibility to provide
  - Ramp management between 15- and 5-minute markets

- EIM Governing Body Role:
  - EIM Governing Body advisory role

- Status:
  - Draft tariff posted on August 11 and meeting on Sept 2
  - Final proposal posted on August 31
  - September 16 EIM Governing Body briefing
  - September 30/October 1 ISO Board decision

California ISO

FERC Order 831 – Import Bidding & Market Parameters

- Scope:
  - Cost verification for import bids above $1,000/MWh
  - ISO market constraint relaxation prices

- EIM Governing Body advisory role

- Status:
  - Final proposal posted August 24
  - Tariff and business requirements completed August - September
  - September 19 EIM Governing Body briefing
  - September 30 and October 1 ISO Board decision

System Market Power Mitigation

- ## Scope:
  - Develop real-time market system-level market power mitigation for the CAISO balancing authority area

- ## EIM Governing Body advisory role

- ## Status:

  - Revised draft final proposal September 11 and meeting September 18 (tentative)

  - Tariff and business requirements September - October

  - November 4 EIM Governing Body briefing

  - November 18 and 19 ISO Board decision

Variable O&M Cost Review

- ## Scope:
  - Updates to the CAISO's calculation of variable operations and maintenance costs it uses to calculate default energy bids and commitment costs

- ## EIM Governing Body advisory role

- ## Status:
  - Draft final proposal posted on August 12
  - Tariff and business requirements completed August - September
  - November 4 EIM Governing Body briefing
  - November 18 and 19 ISO Board decision

California ISO

Day-Ahead Market Enhancements

- Scope:
  - Co-optimizing supply based on both cleared demand and demand forecast
  - Day-ahead imbalance reserve product

- EIM Governing Body Role:
  - EIM Governing Body Charter specifies advisory role for components that change generally applicable real-time market rules
  - However, Management will request that the CAISO Board of Governors give the EIM Governing Body an advisory role for entire initiative

- Status:
  - Second revised straw proposal September 21
  - Stakeholder meeting September 28 and 29
  - Q2 2021 EIM Governing Body briefing and ISO Board decision

California ISO

Extended Day-Ahead Market

- Scope: Extending day-ahead market to EIM entities
  - Bundle 1: transmission provision, resource sufficiency evaluation, distribution of congestion rents
  - Bundle 2: accounting for GHG costs, ancillary services, full network model enhancements, administrative fee
  - Bundle 3: price formation, convergence bidding, external resource participation, and other items

- EIM Governing Body Role:
  - Management will request that the CAISO Board of Governors give the EIM Governing Body joint approval authority for entire initiative

- Status:
  - Comments on straw proposal due Oct 8
  - Revised straw proposal Dec 17 (bundle 1)
  - Stakeholder meeting Jan 6 and 7
  - 2022 EIM Governing Body and ISO Board decisions

California ISO

Real-Time Settlement Review

- Scope:
  - Review real-time market settlement charges to ensure consistency with cost allocation principles
  - Proposes two EIM settlement changes associated with wheeling and unaccounted for energy
- EIM Governing Body advisory role primary
- Status:
  - Issue paper/straw proposal was posted August 17
  - Draft final proposal mid-October
  - November 18 and 19 ISO Board decision

Release Plan Update

Adrian Chiosea

Senior Manager, Strategic Initiative Management

California ISO

The ISO offers innovative training programs

CustomerReadiness@caiso.com

Date	Training courses and workshops
October 15	Welcome to the ISO Webinar
	Email us at CustomerReadiness@caiso.com for any training or readiness related questions

New Modules (recorded webinar and slides)

You can now find the following new initiatives training courses on the learning center web page:

- ADS Training Part 1 & 2
- DOT Tariff Clarification
- Excess Behind the Meter Production

- ESDER 3B
- FERC 841
- Market Settlements Timeline Transformation

Computer Based Training

There are more than 20 computer based training modules on the ISO website covering: Markets and Operations, Settlements and Metering, Reference Materials, Western Energy Imbalance Market and more!

Visit our **Learning Center** web page to access our training calendar, register for courses and find other informational resources:

http://www.caiso.com/participate/Pages/LearningCenter/default.aspx

California ISO

Release Plan Summary: 2020

Independent 2020

Activation – Nov 4

- Aliso Canyon Phase 5
- FRP Improvements - Buffer and Min
- Slow Demand Response
- Energy Imbalance Market (EIM) Enhancements 2020

Activation - Dec 1

- Hybrid Resources - Phase 1
- Commitment Costs and Default Energy Bid Enhancements Phase 1

Activation– Jan 1, 2021

- Nodal Pricing Model – Advisory Service for PacifiCorp - Settlements Effective Date
- Intertie Deviation Settlement

Fall 2020

Activation on Jul 1 (retroactive)

- Commitment Cost Enhancement Tariff Clarifications

Activation on Oct 1

- Energy Storage and Distributed Energy Resources Phase 3B
- FERC Order 841 – Requested Adjustments
- Automated Dispatch System (ADS) User Interface (UI) Replacement
- Dispatch Operating Target Tariff Clarifications

Activation on Jan 1, 2021

- Excess Behind the Meter Production
- Market Settlement Timeline Transformation

Release Plan Summary: 2021 - 2022

Independent 2021
- System Market Power Mitigation (BOG Nov 2020 and implementation prior to Q3, 2021)
- Variable operations and maintenance cost review (BOG Nov 2020)

Spring 2021
- Energy Imbalance Market (EIM) 2021 - BANC Ph 2/WAPA
- Energy Imbalance Market (EIM) 2021 - Turlock Irrigation District
- Energy Imbalance Market (EIM) 2021 - Public Service Company of New Mexico
- Energy Imbalance Market (EIM) 2021 - North-Western Energy
- Energy Imbalance Market (EIM) 2021 - Los Angeles Dept. of Water and Power

Fall 2021 – tentative, subject to impact assessment
- Resource Adequacy (RA) Enhancements (BOG Q1 2021)
- Energy Storage and Distributed Energy Resources Phase 4 (BOG Sept 2020)
- FERC Order 831 - Import Bidding and Market Parameters – (BOG Sept 2020)
- Flexible Ramping Product Refinements (BOG Sept 2020)
- Hybrid Resources Phase 2 (BOG Nov 2020)

Spring 2022
- Energy Imbalance Market (EIM) 2022 - Avista
- Energy Imbalance Market (EIM) 2022 - Tucson Electric Power
- Energy Imbalance Market (EIM) 2022 – Tacoma Power
- Energy Imbalance Market (EIM) 2022 – Bonneville Power Administration
- Energy Imbalance Market (EIM) 2022 – Xcel Energy - Colorado

TBD
- Day Ahead Market Enhancements (BOG 2021)
- Extend DA Market (BOG 2021)

California ISO

Release Schedule 2020

Date of Data Refresh: 8/21/2020

California ISO

Legend
- Market Simulation — CA ISO Holiday
- External Testing — Deployment Week

Column headers (weeks): 8/24/20 - 8/30/20, 8/31/20 - 9/6/20, 9/7/20 - 9/13/20, 9/14/20 - 9/20/20, 9/21/20 - 9/27/20, 9/28/20 - 10/4/20, 10/5/20 - 10/11/20, 10/12/20 - 10/18/20, 10/19/20 - 10/25/20, 10/26/20 - 11/1/20, 11/2/20 - 11/8/20, 11/9/20 - 11/15/20, 11/16/20 - 11/22/20, 11/23/20 - 11/29/20, 11/30/20 - 12/06/20, 12/7/20 - 12/13/20, 12/14/20 - 12/20/20, 12/21/20 - 12/27/20, 12/28/20 - 1/3/21, 1/4/20 - 1/10/21, 1/11/20 - 1/17/21
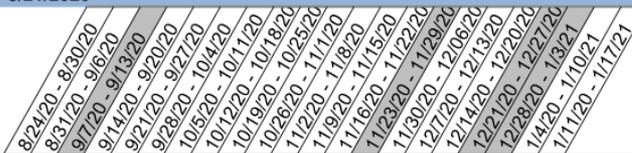
MAP Stage Environment Window

Task	Schedule
Commitment Cost Enhancement Tariff Clarification - Market Sim	Commitment Cost Enhancement Tariff Clarification - Market Sim (07/27-
CCDEBE Phase 1 - Market Sim	CCDEBE Phase 1 - Market Sim (07/27-09/04)
ESDER Phase 3b - Load Shift Product - Market Sim	ESDER Phase 3b - Load Shift Product - Market Sim (07/27-09/04)
FERC841 Requested Adjustments - Market Sim	FERC841 Adjustments - Market Sim (07/27-09/04)
ADS UI Replacement - Market Sim	ADS UI Replacement - Market Sim (07/27-
Dispatch Operating Target Tariff Clarification - Market Sim	Dispatch Operating Target Tariff Clarification - Market Sim (07/27-09/04)
Excess Behind the Meter Production - Market Sim	Excess Behind the Meter Production - Market Sim (07/27-09/18)
Market Settlement Timeline Transformation - Market Sim	Market Settlement Timeline Transformation - Market Sim (07/27-09/18)
EIM Enhancements 2020 - Market Sim	EIM Enhancements 2020 - Market Sim (08/31-10/14)
Aliso Canyon 5 - Market Sim	Aliso Canyon 5 - Market Sim (09/29-10/14)
FRP Improvements - Buffer and Min - Market Sim	FRP Improvements - Buffer and Min - Market Sim (09/29-10/14)
Nodal Pricing Model - Market Sim	Nodal Pricing Model - Market Sim (10/06-11/13)
Intertie Deviation Settlement - Market Sim	Intertie Deviation Settlement - Market Sim (10/06-
Hybrid Resources Phase 1 - Market Sim	Hybrid Resources Phase 1 - Market Sim (10/26-11/13)
EIM - BANC Phase 2 / WAPA - Market Sim	EIM - BANC Phase 2 / WAPA - Market Sim (11/03-01/31)
EIM - Public Service Company of New Mexico - Market Sim	EIM - Public Service Company of New Mexico - Market Sim (11/03-01/31)
EIM - Los Angeles Dept. of Water & Power - Market Sim	EIM - Los Angeles Dept. of Water & Power - Market Sim (11/03-01/31)
EIM - North-Western Energy - Market Sim	EIM - North-Western Energy - Market Sim (12/01-01/31)
EIM - Turlock Irrigation District - Market Sim	EIM - Turlock Irrigation District - Market Sim (12/01-01/31)

Production Environment Window

Task	Schedule
CCDEBE Phase 1 Activation	CCDEBE Phase 1 (10/01)
ESDER Phase 3 - DRRS	ESDER Phase 3 - DRRS (09/14)
ESDER Phase 3b - Load Shift Product	ESDER Phase 3b - Load Shift Product (10/01)
FERC841 Requested Adjustments	FERC841 Adjustments (10/01)
ADS UI Replacement	ADS UI Replacement (10/01)
Dispatch Operating Target Tariff Clarification	Dispatch Operating Target Tariff Clarification (10/01)
Excess Behind the Meter Production Deployment	Excess Behind the Meter Production Deployment (10/01)
Market Settlement Timeline Transformation Deployment	Market Settlement Timeline Transformation Deployment (10/01)
Aliso Canyon 5	Aliso Canyon 5 (11/04)
FRP Improvements - Buffer and Min	FRP Improvements - Buffer and Min (11/04)
EIM Enhancements 2020	EIM Enhancements 2020 (11/04)
Hybrid Resources Phase 1	Hybrid Resources Phase 1 (12/01)
Excess Behind the Meter Production Activation Effective Trade Date	Excess Behind the Meter Production Activation Effective Trade Date
Market Settlement Timeline Transformation Activation Effective Trade Date	Market Settlement Timeline Transformation Activation Effective Trade Date (01/01)
Intertie Deviation Settlement	Intertie Deviation Settlement (01/01)
Nodal Pricing Model Settlements Effective Date	Nodal Pricing Model Settlements Effective Date (01/01)
Nodal Pricing Model Activation	Nodal Pricing Model Activation (01/15)

http://www.caiso.com/Documents/ReleaseSchedule.pdf

California ISO

2020 Independent

California ISO

2020 – Aliso Canyon Ph5

Project Info	Details/Date
Application Software Changes	**Scope**: This project will consider enhancements to the existing Dynamic Competitive Path Assessment (DCPA) and Gas Nomogram capabilities currently in production. **IFM/RTN**: Formulate and solve the linear programming problem for maximizing the Residual Supplier Index (RSI) for each binding constraint that DCPA is applied. **SMDM:** Enhance the User Interface to include "All Markets" when the user is defining "Market" within the Curtailment to Process section. **SMDM:** Creation of error message if the RT curtail type "incremental" or "absolute" are used and total curtailment is left null.
BPM Changes	• Managing Full Network Model • Market Operations
Tariff Changes	• N/A

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval - NO BOG Needed	N/A	
External BRS	Post External BRS	May 05, 2020	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Publish Technical Specifications	N/A	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	Jul 17, 2020	✓
External Training	Deliver External Training	N/A	
Market Sim	Market Sim Window	Sep 29, 2020 - Oct 14, 2020	
Production Activation	Aliso Canyon Phase 5	Nov 04, 2020	

2020 – FRP Improvements – Buffer and Min

Project Info

Improvements are needed for addressing the flexible ramping product (FRP) issues identified in the CAISO Energy Markets Price Performance report. The flexible ramping product secures additional ramping capability that can be dispatched in subsequent market runs to cover a range in the forecasted net load.

The scope behind this policy and project include:

- Scope 1 (2020) - To maintain up to 100% (configurable) of FRP awards in the buffer interval that were procured in the prior Fifteen Minute Market (FMM) to preserve ramping capability for the Real Time Dispatch (RTD).
- Scope 2 (2021) - Changing Proxy Demand Response (PDR) dispatch capability default from five minute to hourly.
- Scope 3 (2020) - To enforce a minimum FRP requirement in the Balancing Authority Area (BAA) that will ensure a minimum amount of FRP to be procured from resources within the BAA.

Project Info	Details/Date
Application Software Changes	• RTPD, RTD, STUC
BPM Changes	• Market Instruments • Market Operations
Tariff Changes	• N/A

2020 – FRP Improvements – Buffer and Min

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	May 15, 2020	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	N/A	
BPMs	Market Operations Market Instruments Demand Response	Jul 20, 2020	✓
External Training	Deliver External Training	Sep 28, 2020	
Market Sim	Market Sim Window	Sep 29, 2020 - Oct 14, 2020	
Production Activation	FRP Improvements - Buffer and Min	Nov 4, 2020	

2020 – Slow Demand Response

Overview

Following up on Proxy demand resource - resource adequacy clarifications policy initiative

The Master File GRDT (Generator Resource Data Template) will be updated with a new field called "SLOW DR" (GRDT v14).
- Field will be populated with Y, N or NULL
    - YES means the PDR or Curtailment LSR resource has been designated "slow"
    - NO means the PDR or Curtailment LSR resource has NOT been designated "slow" and
    - NULL means the resource is neither a PDR nor a Curtailment LSR

A resource is designated "slow" when it meets one or both of the following criteria:
- Startup + ramp is greater than 20 minutes to reach PMAX, or
- A bid dispatchable option of Hourly or 15 minute has been elected by the resource (this is done through a GRDT request)

"SLOW DR" will be a read-only field for Market Participants, indicating the resource met one or both of these criteria.
The Market Instruments BPM Attachment B will be updated to add the definition of the slow demand response resource designation.

For PDR or PDR_LSR where BID_DISP_OPT >= 15 or startup time plus ramp time to Pmax >= 20

Project Info	Details/Date
Application Software Changes	• Master File
BPM Changes	• Market Instruments Attachment B: Slow Demand Response resource definition
Tariff Changes	• No

See Frequently Asked Questions – Slow Demand Response

At www.caiso.com\Stay Informed\Release Planning\Independent 2020\Slow Demand Response

California ISO

2020 – EIM Enhancements 2020

Project Info	Details/Date

Application Software Changes	**Scope:**
	Energy Imbalance Market Enhancements (EIM) 2020 is a collection of important issues identified by EIM market participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the visibility, functions and features in the Energy Imbalance Market.
	
	Technology team and customer services review the 66 EIM enhancement requests by EIM entities and 4 internal request by ISO market operator. Combine each EIM entities submitted the priority list of 10 enhancements, ISO determine to include total 14 requests in EIM enhancement 2020 project.
	
	Impacted Systems:
	BAAOP
	• Allow EIM entity override activation for the contingencies up to 15 in NA contingency list
	• Add visibility of other adjacent BAA's ETSR locks and reasons
	• Add Static ETSR transfer data to RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer data to BAAOP ETSR Detail Display (in RTD)
	• Fix/Improve SVG One Lines. Request to be able to view SE and telemetry values for all substation flows and elements. – available after Market Sim
	• In RTD/RTPD Dispatch Control display, in Dispatch Instruction Review table, add columns for UP and DN remaining ramp capacity (5/15 minute respectively). In addition, include the sum of these columns at bottom of table. Example Calculation: RTD UP Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch].
	• Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/RTPD Dispatch Control, add SUPP DOT column
	• Fix the functionality for Manual Dispatches - users should be able to utilize MSG functions, such as designating a specific configuration, and users should be able to do commitment override
	• EIM Entities have a notification status of market inputs, showing if BAAOP received the latest payload of critical market inputs. Example Critical data submissions: (not all inclusive)
	    • BAAOP Dynamic Limits
	    • BAAOP RTIS
	    • ALFS (load forecast and/or VER forecast)
	    • ICCP link

California ISO

2020 – EIM Enhancements 2020 (cont.)

Project Info	Details/Date
Application Software Changes (cont.)	**<u>Impacted Systems:</u>** **BSAP** • Add Manual Dispatch information to BSAP Resource Bal Viewer. Add any applicable deviations that used in the test to BSAP BAA Bal Viewer. • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to publish the true requirement, not just the INCREMENTAL/DECREMENTAL requirement **RTM** • Publish the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Publish the effective load bias for the market run for RTPD and RTD • Publish the effective ETSR import and export limits for the market run for RTPD and RTD • Support Pump Storage for EIM BAAs **CMRI** • Display and publish, download the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Display and publish, download the data of the effective load conforming for the market run for RTPD and RTD • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to display and publish, download the true requirement, not just the INCREMENTAL/DECREMENTAL requirement. Only upstream has changes with regards to the data that is sends to CMRI. **Settlements**
BPM Changes	Market Instruments
Tariff Change	N/A

California ISO

2020 - EIM Enhancements 2020 (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Mar 24, 2020	✓
Tech Spec	Create ISO Interface Spec (Tech spec) CMRI tech spec 1. MW Infeasibility Report 2. Load Conforming Report 3. Available Balance Capacity (ABC) Up and Down Dispatch Report by Resource 4. Advisory Load Conforming Report	May 29, 2020 May 29, 2020 Jul 1, 2020 Aug 5, 2020	✓ ✓ ✓ ✓
Tariff	File Tariff	N/A	
BPMs	Draft BPM changes - Market Instruments – PRR 1281	Aug 31, 2020	✓
External Training	Deliver External Training – coordinate via customer readiness EIM ops mtg	Aug 31, 2020 – Oct 14, 2020	
Market Sim	Market Sim Window - unstructured	Aug 31, 2020 – Oct 14, 2020	
Production Activation	EIM Enhancements 2020	Nov 4, 2020	

California ISO

2020 – EIM Enhancements 2020 (cont.)

Group 1: 8/31/20
BAAOP
- Allow EIM entity override activation for the contingencies up to 15 in NA contingency list
- Add visibility of other adjacent BAA's ETSR locks and reasons
- Add Static ETSR transfer data to RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer data to BAAOP ETSR Detail Display (in RTD)
- In RTD/RTPD Dispatch Control display, in Dispatch Instruction Review table, add columns for UP and DN remaining ramp capacity (5/15 minute respectively). In addition, include the sum of these columns at bottom of table. Example Calculation: RTD UP Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch].
- Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/RTPD Dispatch Control, add SUPP DOT column
- Fix the functionality for Manual Dispatches - users should be able to utilize MSG functions, such as designating a specific configuration, and users should be able to do commitment override
- EIM Entities have a notification status of market inputs, showing if BAAOP received the latest payload of critical market inputs. Example Critical data submissions: (not all inclusive

RTM
- Publish the effective ETSR import and export limits for the market run for RTPD and RTD
- Support Pump Storage for EIM BAAs

Group 2: 9/21/20
BAAOP
- Fix/Improve SVG One Lines. Request to be able to view SE and telemetry values for all substation flows and elements

BSAP
- Add Manual Dispatch information to BSAP Resource Bal Viewer. Add any applicable deviations that used in the test to BSAP BAA Bal Viewer.
- For the Bid Range Capacity Test Results report, Requirement Amount Column needs to publish the true requirement, not just the INCREMENTAL/DECREMENTAL requirement

RTM
- Publish the effective load conforming for the market run for RTPD and RTD for Binding and Advisory
- Publish the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD

CMRI
- Display and publish, download the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD
- For the Bid Range Capacity Test Results report, Requirement Amount Column needs to display and publish, download the true requirement, not just the INCREMENTAL/DECREMENTAL requirement. Only upstream has changes with regards to the data that is sends to CMRI.
- Display and publish, download the data of the effective load conforming for the market run for RTPD and RTD for
    1. CMRI Load Conforming Binding rpt
    2. CMRI Load Conforming Advisory rpt

California ISO

2020 – Hybrid Resources Phase 1

Project Info	Details/Date
Application Software Changes	**Scope:** Phase 1 of the Hybrid Resource Initiative will introduce co-located resources which are two or more resources sharing the same point-of-interconnection to the grid. In cases where the interconnection capacity is below the maximum aggregate output of the co-located resources, an aggregate capability constraint (ACC) will be modeled to ensure the total dispatch of the ACC's associated resources are within its maximum and minimum limits. The markets will support co-located resources for ISO and EIM (participating and non-participating) resources. Hybrid Resources will be introduced at a later time in Phase 2 of the initiative. **MasterFile:** Enhance to include Co-Located Status, Aggregate Capability Constraint Limits **IFM, RTM:** Enhance market model to optimize energy dispatch for co-located resources behind a generation capability nomogram constraint. Add ISO and EIM Operator display for ACC limit override (allowing reduction of ACC limits for a fixed time). Add energy congestion management logic to create and enforce POI limit constraints. **Price Corrections Tool** (internal to ISO)**:** Price correction logic will reflect the Point-of-Interconnection (POI) pnode LMP as the price for co-located resources. **ALFS:** Time periods where co-located VER are operating with negative supplemental DOT will be excluded from data forecast model training by ISO-provided FSP.
BPM Changes	Definitions and Acronyms, Energy Imbalance Market, Generator Management, Market Instruments, Market Operations, Metering, Reliability Requirement
Tariff Changes	Tariff amendments will define Aggregate Capability Constraint, Co-Located Resources, Point of Interconnection. Phase 1 interim will not support Ancillary Services for co-located resources (will be supported in future).

2020 – Hybrid Resources Phase 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Jul 22, 2020	✔
External BRS	Milestone: Post External BRS	Jul 17, 2020	✔
Config Guides	Post Draft Config. Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	Draft Tariff	Jun 18, 2020	✔
BPMs	Post Draft BPM changes for review	Sep 30, 2020	
External Training	Deliver External Training	Oct 20, 2020	
Market Sim	Market Sim Window - tentative	Oct 26 – Nov 13, 2020	
Production Activation	Hybrid Resources Phase 1	Dec 1, 2020	

California ISO

2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

Project Info	Details/Date
Application Software Changes	**Scope:** Enhances the ability to submit market-based commitment cost bids in order to reflect unique costs and volatility: • Ex-ante cost adjustment requests • Reference Level Adjustments to default commitment cost bids (start-up and minimum load costs) and default energy bids • Make Day Ahead Market process permanent • Make D+2 Process permanent • Use of indices clarification, and Monday Only in DAM and RTM, per LMPME • Conditionally Available Resources (CAR) **Impacted Systems:** • SIBR: Allow the submittal of Ex Ante cost adjustments. • CMRI: Provide additional source information for default bids. Submit requests through CIDI for manual consultation and ex-post default bid adjustments.
BPM Changes	• Market Instruments • Market Operations
Business Process Changes	• Maintain Major Maintenance Adders (MMG LIII) • Maintain Negotiated Default Energy Bids (MMG LIII) • Maintain Negotiated O_Ms (MMG LIII) • Manage Day Ahead Market (MMG LII) • Manage Market Billing Settlements (MOS LII) • Manage Real Time Hourly Market (RTPD) (MMG LII) • Manage Real Time Operations – Maintain Balance Area (MMG LII)

2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

Milestone Type	Milestone Name	Dates	Status
Draft Policy	Publish Draft Business Rules externally	Jan 31, 2018	✓
Board Approval	Obtain Board of Governors Approval	Mar 22, 2018	✓
External BRS	Publish External BRS v1.5: implementation notes & clarifications (BRQ046, BRQ035/335), Generic Hub GPI update	Sep 03, 2019	✓
	Revised BRS	Sept 4, 2020	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications	May 17, 2019	✓
	Publish Technical Specification updates for CARs and Electric Pricing Hub weighting	Jun 28, 2019	✓
Tariff	Collect stakeholder comments	Feb 21, 2020	✓
	Draft tariff conference call with stakeholders	Feb 27, 2020	✓
	Stakeholder call to review CCDEBE draft tariff re-filing	May 20, 2020	✓
	Publish updated draft tariff (reflecting 20-May feedback)	Jun 05, 2020	✓
	Refile CCDEBE tariff	Jul 09, 2020	✓
BPMs	Publish draft Market Instruments: Attachment O on CCDEBE Stakeholder Processes page	Oct 04, 2019	✓
	PRR 1203 published: CCDEBE updates to Market Instruments BPM, incl. Attachment O	Oct 18, 2019	✓
External Training	Deliver External Training	Oct 08, 2019	✓
	Finalize external training material	Oct 04, 2019	✓
Market Sim	Market Sim Window	Oct 14, 2019 - Dec 03, 2019	✓
	Market Sim Window – 2020	Jul 27, 2020 – Nov 13, 2020	
Production Activation	CCDEBE Phase 1 - tentative	Dec 1, 2020	

California ISO

2020 – Nodal Pricing Model – Advisory Service for PacifiCorp

Project Info	Details/Date
Reference	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 Reference - NPM FERC filing http://www.caiso.com/Documents/Dec20-2019_NodalPricingModelAgmt_CAISO-PacifiCorp_ER20-664.pdf#search=NPM
Excerpt from the market notice:	"The California ISO is hosting an informational stakeholder call on Dec. 18, 2019, to discuss an agreement that it intends to file with Federal Energy Regulatory Commission (FERC) that will provide PacifiCorp with an advisory nodal pricing model (NPM) service. Information related to this effort available on the ISO website at http://www.caiso.com/informed/Pages/MeetingsEvents/MiscellaneousStakeholderMeetings/Default.aspx. 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."

Milestone Type	Milestone Name	Dates	Status
Tariff	FERC Approval	Feb 28, 2020	✔
Config Guides	Publish Config Guide	Aug 10, 2020	✔
External BRS	Post External BRS	Sep 04, 2020	—
Market Sim	Market Sim Window	Oct 06, 2020 - Nov 13, 2020	
Production Activation	Day Ahead Nodal Pricing Model	Jan 15, 2021	

California ISO

2020 – Intertie Deviation Settlement

Project Info	Details/Date
Application Software Changes	**Scope:** Implement a new Under/Over Delivery Charge for intertie deviations from Market Schedule and After-The-Fact (ATF) E-Tag, to replace Decline charge **Impacted Systems:** **Settlements** • Calculate FMM binding intertie award, exclude Curtailment, calculate under/over delivery quantity as deviation of schedule and ATF E-Tag, Charge under/over delivery Charge at 50% of RTD LMP. • Remove the decline charge calculation and Decline Threshold • Allocate Over/Under delivery charge to measured demand **ADS** - display the HASP schedule, the scheduling coordinator accepted value, and the difference between the two **RTM** - determine the 15-minute binding award for hourly intertie resources based on the E-Tag at T-40.
BPM Changes	Settlements and Billing
Tariff Change	Section 11.32

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Feb 07, 2019	✓
External BRS	Post External BRS	Mar 02, 2020	✓
Config Guides	Post Revised Config Guides	Aug 10, 2020	✓
Tech Spec	Publish Technical Specifications	N/A	
Tariff	Tariff Activities	May 22, 2020	✓
BPMs	Settlements and Billing Market Operations	Aug 10, 2020	✓
External Training	Deliver External Training	Sep 29, 2020	
Market Sim	Market Sim Window	Oct 6, 2020 – Nov 13, 2020	
Production Activation	Intertie Deviation Settlement	Jan 1, 2021	

OMS Roadmap for 2020

Release	Major Changes	Participant	MAPStage	Stage	Production
2.2.208.1	Remove defaulting discovery date - For retro-active outages submit discovery date. - Handle no discovery date if not previously submitted.	All	09/18/2020	10/19/2020	10/21/2020
	Aggregate Resource Outage retrieve results changes - Handle receiving only parent and impacted children.	All			
	Transmission Retrieve Changes - If moving to new version (= 10012020), consume new XSD and handle receipt of multiple change requests.	All			
	Retrieve Resource/Transmission outage change request - Limiting to 50 - Disable querying with participant ID & Date Range. - Query by Outage ID, Change request ID and Equipment ID/Resource ID	All			

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OMS Roadmap for 2020

Release	Major Changes	Participant	MAPStage	Stage	Production
2.2.209	TOP Calculations for shared equipment - Based on participant ID TOP attribute will be comma separated TOPs.	RC	10/30/2020	11/30/2020	12/2/2020
	Communication and RAS changes - Handle Providing these flags for Nature of Work for communication and Relay work. - RAS flags – UI Only change (RAS/SPS Out of Service, RAS/SPS Reduced Redundancy, Protection Zone, EMS/ICCP Outage) will be changed from Y/N to Y/N/NA(Undefined or Null)	RC			
	Significant Outage flag determination. - Flag will be displayed in the version history of the outage - Please see May 2020 - CPG slide deck for more details.	All			

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2020 Fall Release

Fall 2020 Release – Overview

	BOG	BRS	Config Guide	Tech Spec	Mkt Sim Scenarios	Draft Tariff**	Draft BPMs	Training	Market Sim	Production Activation
Fall 2020 Release		04/01/20	05/29/20	05/29/20	05/29/20	06/26/20	07/20/20	07/20/20	Jul 27, 2020 - Sep 4, 2020	10/01/20
CCE Tariff Clarification	03/25/20	06/04/20	6/26/20 - *Documentation Only*	05/28/20	*N/A*	04/17/20	06/16/20 06/30/20	*N/A*	Jul 27, 2020 - Sep 04, 2020	07/01/20 (Retroactive)
ESDER Phase 3b - Load Shift Product	09/05/18	07/18/19 02/14/20 03/12/20 04/14/20	05/28/20	05/01/20 - DRRS 05/28/20 - MF	05/29/20	05/20/20	05/01/20	06/22/20	Jul 27, 2020 - Sep 04, 2020	09/14/20 - DRRS 10/01/20
FERC 841 – Requested Adjustments	*N/A*	04/01/20	6/26/20	05/28/20	06/12/20	1/21/20	07/20/20	07/15/20	Jul 27, 2020 - Sep 04, 2020	10/01/20
ADS UI Replacement	*N/A*	08/06/18	*N/A*	05/22/20	05/29/20	*N/A*	07/23/20	06/01/20 06/11/20 07/16/20	Jul 27, 2020 - Sep 04, 2020	10/01/20
Dispatch Operating Target Tariff Clarification	07/26/18	12/26/18 04/30/20	*N/A*	05/22/20	05/29/20	09/04/18	07/23/20	07/16/20	Jul 27, 2020 - Sep 04, 2020	10/01/20
Excess Behind the Meter Production	11/17/18	02/27/20 04/16/20	05/28/20	05/29/20	06/12/20	11/04/19	07/20/20	07/21/20	Jul 27, 2020 - Sep 18, 2020	01/01/21 (TD)
Market Settlement Timeline Transformation	11/14/19	02/06/20	6/26/20 - *Documentation Only*	05/29/20	06/12/20	5/19/20	07/20/20	07/20/20	Jul 27, 2020 - Sep 18, 2020	01/01/21 (TD)

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Fall 2020 Release - Market Simulation Overview

Wk	Date	ISO	Market Participants	Settlement Timeline - Initial	Settlement Timeline - Recalc
1	7/27	Mkt Sim Readiness Testing	Connectivity		
2	8/3	Mkt Sim Readiness Testing	Connectivity		
3	8/10		Phase 1 Structured Scenarios	Current timeline	
4	8/17		Phase 1 Structured Scenarios	Current timeline	
5	8/24		• Phase 1 Unstructured Simulation • MSTT cutover TD 8/24/20 (Corresponds to Production TD 1/1/21) • Phase 2 (MSTT, EBTMP) Structured Scenarios - first Settling TD 8/25	Current timeline	Current timeline + New MSTT timeline
6	8/31		• Unstructured Simulation	Current timeline	Current timeline + New MSTT timeline

Settlements TDs Tue/Wed
Maintenance Friday
Market Simulation Plan
Market Simulation Settlements Calendar

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Fall 2020 Release Market Simulation Connectivity

System	API	UI
DRRS	OPEN 7/20	OPEN 7/27
ADS	OPEN 7/27	OPEN 7/27
MRI-S	OPEN 7/28	OPEN 7/28
OASIS	OPEN 7/28	OPEN 7/29
MF	OPEN 8/4	OPEN 8/4
CMRI	9/21 Drop	9/21 Drop

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Fall 2020 Release – System Impacts

Fall 2020 Release	ADS	CMRI	IFM / RTM	OASIS	Settlements	MF	DRRS	CIRA	MRI-S Metering	MRI-S Settlements	CIDI	BAAOP	BSAP
CCETC			Y										
ESDER3B					Y	Tech Spec	Tech Spec	Y					
FERC Order 841 – Requested Adjustment					Y	Tech Spec							
ADS UI Replacement	Tech Spec												
DOTTC	Tech Spec		RTM										
EBTMP				Tech Spec	Y				Tech Spec				
Market Settlement Timeline Transf.		Tech Spec		Tech Spec	Y				Y	Y	Y		

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Fall 2020 Release – BPM Impacts

Fall 2020 Release	Mkt Instr	Mkt Ops	Stlmts & Billing	Definition & Acronyms	Outage Mgmt	Reliability Rqmts	Metering	Credit Mgmt & Market Clearing	EIM	Rules of Conduct Admin	Demand Response
CCETC	Y	Y	Y		Y	Y					
ESDER3B	Y	Y			Y	Y	Y				Y
FERC 841	Y		Y				Y				
ADS UI Repl	Y	Y									
Dispatch Op Target Tariff Clarification	Y	Y									
Excess Behind Meter Prod			Y	Y			Y				
Mkt Stlmt Timeline Trans	Y		Y	Y		Y	Y	Y	Y	Y	

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Fall 2020 Release - System Interface Changes - CCDEBE1

SIBR					
Project	**Change Type**	**API Service Name & Major Version, Artifacts**	**MAP Stage**	**Production**	**Technical Specifications**
CCDEBE1	Modify	RetrieveCleanBidSet_SIBRv5_AP RetrieveCleanBidSet_SIBRv5_DocAttach_AP	✓ 10/16/19	✓ Deploy 3/26/20 Activation 12/1/20	13.2
CCDEBE1	Modify	RetrieveCurrentBidResults_SIBRv5_AP RetrieveCurrentBidResults_SIBRv5_DocAttach_AP	✓ 10/16/19	✓ Deploy 3/26/20 Activation 12/1/20	13.2
CCDEBE1	Modify	SubmitRawBidSet_SIBRv5_AP SubmitRawBidSet_SIBRv5_DocAttach_AP	✓ 10/16/19	✓ Deploy 3/26/20 Activation 12/1/20	13.2

CMRI						
Project	**Change Type**	**UI**	**API Service Name & Major Version, Artifacts**	**MAP Stage**	**Production**	**Technical Specifications**
LMPME CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Energy Bid Curves	RetrieveDefaultBidCurves_CMRIv2_AP RetrieveDefaultBidCurves_CMRIv2_DocAttach_AP	LMPME ✓ 9/12/19 CCDEBE1 ✓ 11/6/19	LMPME ✓ 11/13/19 CCDEBE1 ✓ Deploy 3/26/20 Activation 12/1/20	3.9.4 Release Notes 1.2
CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Commitment Costs	RetrieveExternalDefaultCommitmentCost_CMRIv1_AP RetrieveExternalDefaultCommitmentCost_CMRIv1_DocAttach_AP	✓ 11/11/19	✓ Deploy 3/26/20 Activation 12/1/20	3.9.4 Release Notes 1.2

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Fall 2020 Release - System Interface Changes

ADS					
Project	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
N/A	Decom	Decommission of deprecated versions	✓ **7/29/20, v8.2.0**	7/27/20	10/1/20
ADS Replacement DOTTC	Modify	APIWebService v8 APIResponseWebService v8	✓ **7/29/20, v8.2.0**	7/27/20	10/1/20

DRRS					
Project	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
ESDER3B	Modify	SubmitDRLocations_DRRSv2_AP SubmitDRLocations_DRRSv2_DocAttach_AP SubmitDRRegistrations_DRRSv2_AP* *examples doc updated 7/30 for "FALSE" should be "false"* SubmitDRRegistrations_DRRSv2_DocAttach_AP* *examples doc updated 7/30 for "FALSE" should be "false"* RetrieveDRLocations_DRRSv2_AP RetrieveDRLocations_DRRSv2_DocAttach_AP RetrieveDRRegistrations_DRRSv2_AP RetrieveDRRegistrations_DRRSv2_DocAttach_AP	✓ **8/20/20, v3.2 clarifications** ✓ **8/3/20, v3.2 clarifications & updated examples**	7/27/20	Deploy 9/14/20 Activation 10/1/20

MRI-S					
Project	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
EBTMP	Modify	For: - MRIS Meter: Submit Meter & - MRIS Meter: Retrieve Meter additionally include EBtMP measurement type values (as negative load) both Gross Load and EBtMP meter data would associate with same Load Resource ID	✓ **5/28/20, v2.5**	7/28/20	Activation 1/1/21

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Fall 2020 Release - System Interface Changes

Master File						
Project	**Change**	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
ESDER3B	Add enumeration to GRDT: DR_TYPE of PDR_LSR	Modify	RetrieveGeneratorRDT_MFRDv5 RetrieveGeneratorRDT_MFRDv5_DocAttach SubmitGeneratorRDT_MFRDv5 SubmitGeneratorRDT_MFRDv5_DocAttach GRDT 14.0	✓ **6/22/20, v6.2**	8/4/20	9/8/20
FERC841 RA	New GRDT attribute: Apply Wholesale Charge					
EIM2020	New GRDT attribute: Meter Data Interval					
Other	Remove from GRDT: MIN_DISP_LEVEL					
CCE Tariff	New GRDT attribute: Run of River					
Slow DR	New GRDT attribute: Slow DR					

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Fall 2020 Release - System Interface Changes

CMRI					
Project	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
N/A	Decom	Decommission of deprecated versions	✓ **8/5/20, v3.9.7**	8/31/20	9/1/20
EIM2020	New	RetrieveEIMInfeasibility_CMRIv1_AP RetrieveEIMInfeasibility_CMRIv1_DocAttach_AP	✓ **8/5/20, v3.9.7**	8/31/20	11/4/20
EIM2020	New	Available Balance Capacity	✓ **8/5/20, v3.9.7**	8/31/20	11/4/20
EIM2020	New	RetrieveLoadConforming_CMRIv1_AP RetrieveLoadConforming_CMRIv1_DocAttach_AP	✓ **8/5/20, v3.9.7**	9/21/20	11/4/20
EIM2020	New	Advisory Load Conforming	✓ **8/5/20, v3.9.7**	9/21/20	11/4/20

OASIS					
Project	**Change Type**	**Summary**	**Technical Specifications**	**MAP Stage**	**Production**
N/A	Decom	Decommission of deprecated versions	✓ **6/22/20, v5.1.14**	7/28/20	9/1/20
EBTMP	New	ENE_EBTMP_PERF_DATA	✓ **6/22/20, v5.1.14**	7/28/20	Activation 1/1/21

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Fall 2020 – CCE Tariff Clarification

Project Info

Commitment Cost Enhancements Tariff clarifications project is focused on use of limited, conditionally available resources and run-of-river resources and to clearly reflect these clarifications in the CAISO tariff. This policy covers bidding obligations, notification of outage requirements to the ISO and Resource Adequacy Availability Incentive Mechanism (RAAIM) obligation to the resource type discussed in this initiative. The principle driver in the Commitment Costs Enhancements Tariff Clarifications policy is to allow for expanded market participation from all use-limited resources including the hydro fleet.

- Clarify tariff language that resources can be both use-limited and conditionally available and permitted to submit outage cards available to both designations

- Clarify tariff language that conditionally available resources should submit outage cards when unavailable while limiting outage card use for certain Nature of Work (NOW) classifications

- Provide definition for Run of river (hydro) resources and specify that they have similar treatment to Variable energy resources (VER)(wind/solar)

- Provide RAAIM exemption for run of river hydro resources

Project Info	Details/Date
Application Software Changes	• Master File • Settlements
BPM Changes	• Market Instruments • Market Operations • Settlements & Billing • Outage Management • Reliability Requirement
Tariff Changes	• Yes

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Fall 2020 – CCE Tariff Clarification

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	March 25, 2020	✓
External BRS	Milestone: Post External BRS	Jun 04, 2020	✓
Config Guides	Post Draft Config Guides - *Documentation Only*	Jun 26, 2020	✓
Tech Spec	Create ISO Interface Spec (Tech spec)	May 28, 2020	✓
Tariff	File Tariff - Tariff Amendment to Clarify Resource Adequacy Obligations from the Commitment Costs Enhancements Phase 3 Initiative and Other Related Matters	April 17, 2020	✓
	FERC approval	June 30, 2020	✓
BPMs	Post Draft BPM changes – Market Operations	June 16, 2020	✓
	PRR 1257 Market Operations BPM, Emergency PRR, Run-of-river registration process	June 30, 2020	✓
External Training	Deliver External Training	N/A	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Implementation date	Oct 1, 2020	
	Effective Date	Jul 1, 2020	

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Project Info	Details/Date
Application Software Changes	**Scope:** The ESDER 3b initiative will include two (2) demand response enhancements: • Addition of a Load Shift Product wherein demand response resources with behind the meter (BTM) storage devices can participate in both load consumption and load curtailment. • Enable sub-metered electric vehicles supply equipment (EVSE) to participate in load curtailment. **Impacted Systems (Overview):** **Master File:** • Registration of new PDR Resource Types and business rules for PDRs with BTM storage devices and wanting to participate in both Load Curtailment and Consumption. • Two (2) Resource IDs will be assigned to the same Resource to allow Consumption versus Curtailment participation (PDR-LSR). **DRRS:** • New baseline methods for PDR-LSRs and EVSEs. • New attribute for locations to indicate an energy storage (ES) device or Electric Vehicle Supply Equipment (EVSE). • DRRS URL Change: | Changing from- (existing) https://portalmap.caiso.com/drrs ➔ URL for mkt sim https://portal.caiso.com/drrs ➔ URL for prod	To- (new) https://drrs.map.caiso.com ➔ URL for mkt sim https://drrs.prod.caiso.com ➔ URL for prod | **CIRA:** • Will prevent the request of NQC for PDR-LSR Consumption resources **Settlements**

# Fall 2020 – ESDER Phase 3b – Load Shift Product (cont.)

Project Info	Details/Date
BPM Changes	• Market Instruments, Market Operations, Outage Management, Reliability Requirement, Metering and Demand Response
Tariff Change	Sections 4.13, 6.4, 6.5, 11.6, 11.8, 31.3, 34.1,34.4, 34.5, 30.7 and 34.8

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 05, 2018	✔
External BRS	Post External BRS v1.4	Jul 18, 2019	✔
	Post External BRS v1.6	Mar 12, 2020	✔
	Post External BRS v1.6	Apr 14, 2020	✔
	Post External BRS v1.5	Feb 14, 2020	✔
Config Guides	Post Draft Config Guides	May 28, 2020	✔
Tech Spec	Publish Technical Specifications - MF	May 28, 2020	✔
	Publish Technical Specifications - DRRS	May 01, 2020	✔
Tariff	File Tariff	Jul 16, 2020	✔
BPMs	Post Draft BPM changes	May 01, 2020	✔
External Training	External training	Jun 22, 2020	✔
Market Sim	MARKET SIMULATION	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ESDER Phase 3B - DRRS	Sep 14, 2020	
	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	

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Fall 2020 – ESDER Phase 3b – Load Shift Product (cont.)

Energy Storage and Distributed Energy Resources Phase 3B – Transition Timeline
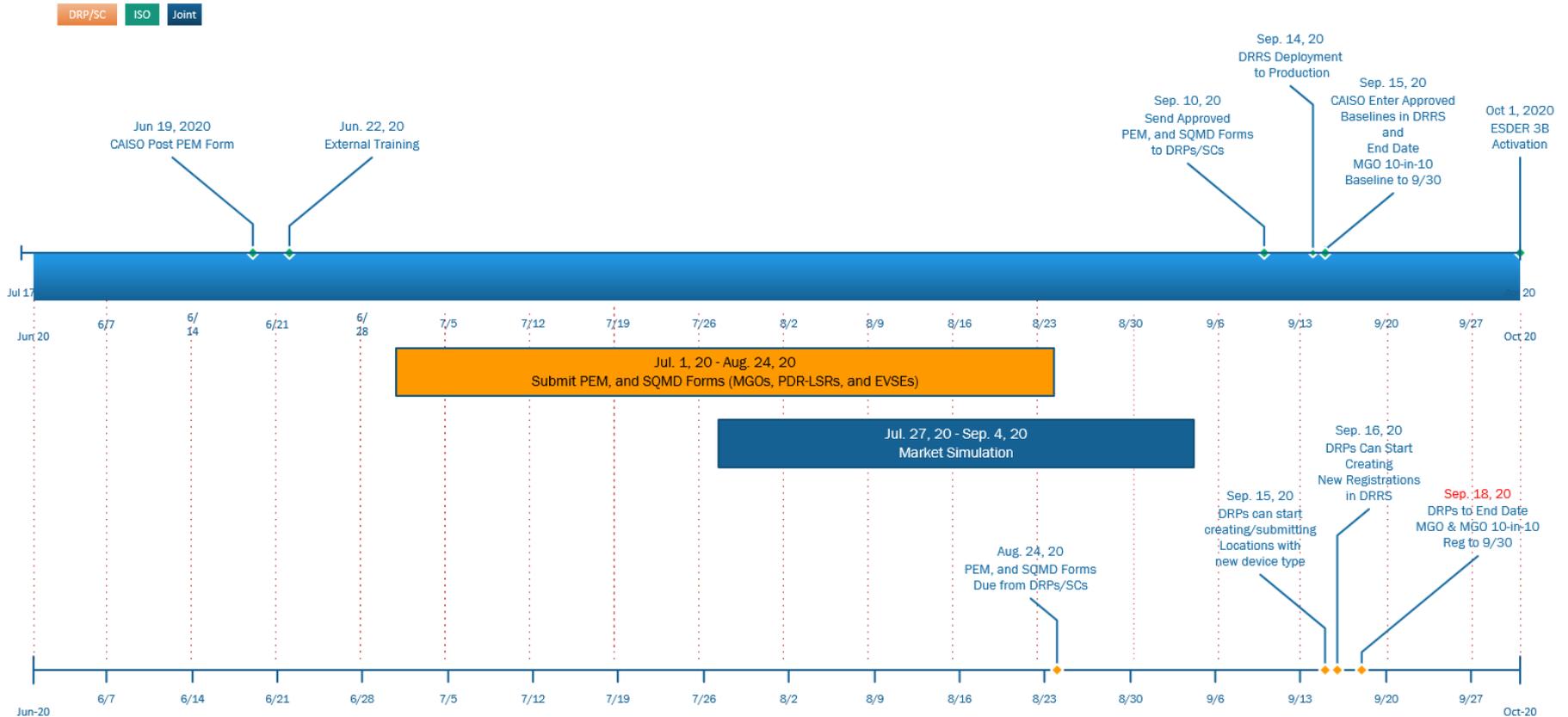
Note: SC shall follow the normal Master File process. Master File may take up to 10 business days for processing.

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Fall 2020 – FERC Order 841 – Requested Adjustments

Project Info

In November, 2019 FERC responded to ISO compliance filing for FERC Order No. 841. FERC generally accepted CAISO compliance filing, finding that the NGR model and pumped storage model account for the physical and operating characteristics of storage, and that the CAISO appropriately does not assess TAC to energy storage.

FERC took some exceptions with CAISO compliance filing, as follows:

- While accepting that the NGR and Pumped Storage model accommodate the physical and operating characteristics of storage, FERC directs the CAISO to capture the corresponding Master File parameters for storage that are currently in the BPM in the tariff

- FERC disagrees that ancillary service qualification requirements were outside the scope of the order, directing the CAISO to lower its minimum capacity requirements for ancillary services from 500 kW to 100 kW for storage resources

- Finding it unclear whether the CAISO's metering and accounting practices allow for simultaneous participation in both retail and wholesale markets, FERC directs the CAISO to clarify metering and accounting practices for storage in the tariff

- FERC disagrees that the demand response MGO methodology complies with its requirement to avoid duplicative billing where a UDC is unwilling or unable to exempt a storage resource from retail charges. FERC directs the CAISO to create or modify a participation model that will exempt a storage resource from wholesale charges where it already pays retail charges.

CAISO responded to FERC with a subsequent compliance filing Jan 21. We requested a target implementation of these adjustments by Oct 1, 2020 (Fall Release)

Fall 2020 – FERC Order 841 – FERC requested adjustments

Project Info	Details/Date
Application Software Changes	• Master File • Settlements
BPM Changes	• Market Instruments • Metering • Settlements and Billing
Tariff Changes	• New Tariff Section 10.1.3.4 • Updates to 4.6.11, 27.9, Appendix K

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Apr 01, 2020	✓
Config Guides	Post Draft Config Guides	Jun 26, 2020	✓
Tech Spec	Create ISO Interface Spec (Tech spec)	May 29, 2020	✓
Tariff	File Tariff	Jan 21, 2020	✓
BPMs	Post Draft BPM changes	Jul 20, 2020	✓
External Training	Deliver External Training	Jul 15, 2020	✓
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	FERC 841 - Requested Adjustments	Oct 01, 2020	

Fall 2020 – ADS Replacement

Project Info	Details/Date
Application Software Changes	• Transition to web-based user interface to eliminate the need to install thick client • Transition ADS provisioning to the Access and Identity Management (AIM) application including Resource Level Access Controls (RACL) access • The query tool will provide 30 days of historical data • Various user interface enhancements adding content per Operation's request • ADS B2B services changes
BPM Changes	• Market Instruments • Market Operations

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Post External BRS	Aug 06, 2018	✔
ADS Update	ADS Update Meeting	Aug 15, 2018	✔
ADS Demonstration	ADS WebEx Demonstration	Apr 16, 2020	✔
CPG Meeting	ADS CPG Meeting	Jul 09, 2020	✔
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	May 22, 2020	✔
Tariff	Tariff Activities	N/A	
BPMs	Post Draft BPM changes	Jul 27, 2020	✔
External Training	Provisioning ADS ACL Training	Jun 01, 2020	✔
	External Training Part 1 (Application Preview preparation)	Jun 11, 2020	✔
	Deliver External Training Part 2	Jul 16, 2020	✔
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Parallel Operations	ADS Parallel Operations	Sep 1, 2020 – Sep 30, 2020	
Production Activation	ADS Replacement	Oct 01, 2020	
Decommission	Old ADS Decommission	Feb 01, 2021	

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ADS Replacement – Data availability during Parallel Operations

- During parallel operation data for new functionalities (such as Follow DOT Flag, Operating Instructions, Unannounced AS TEST, RTCD Commitment) will not be available as we will stream production data to parallel environment.

- For those new functionalities data will be available in MAPStage.

ADS Replacement – Cutover Activities At a Glance

Milestone Date	Activity	MAPStage	Stage	Production
7/27/2020	New Code Available	New ADS UI ADS API V8 Begin Market Sim	-	-
7/27/2020	Hard Cut-Over	ADS API V6	-	-
09/01/2020	New Code Available	-	New ADS UI ADS API V8 Begin Parallel Operations	-
09/01/2020	Hard Cut-Over	-	ADS API V6	-
09/04/2020	Milestone	End Market Sim	-	-
09/30/2020	Milestone	-	End Parallel Operations	-
10/1/2020	New Code Available	-	-	New ADS UI ADS API V8 Production Go-Live
10/1/2020	Hard Cut-Over	-	-	ADS API V6
11/04/2020	Hard Cut-Over	Current ADS Delphi Client	Current ADS Delphi Client	-
02/01/2021	Hard Cut-Over	-	-	Current ADS Delphi Client

Fall 2020 – Dispatch Operating Target Tariff Clarification

Project Info	Details/Date
Application Software Changes	**Scope:** Allow Energy Intermittent Resources (EIRs) to automate their response to operational instructions that require the resource not to exceed their Dispatch Operating Target. **Impacted Systems:** **RTM:** Operator can select EIR resources, system to send Operating instruction Flag to ADS **ADS:** Receive Operating instruction flag for EIRs. Broadcast message to EIRs operator.
BPM Changes	Market Instruments Market Operations
Tariff Change	Changes tariff language from "Operating Order" to "Operating Instruction" in multiple sections.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Jul 26, 2018	✓
External BRS	Posted External BRS	Dec 26, 2018	✓
	Posted revised External BRS	Apr 30, 2020	✓
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	May 22, 2020	✓
Tariff	Draft Tariff	Sep 04, 2018	✓
	File Tariff	Oct 29, 2018	✓
BPMs	Post Draft BPM changes	Jul 27, 2020	✓
External Training	Deliver External Training	Jul 16, 2020	✓
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Dispatch Operating Target Tariff Clarification	Oct 01, 2020	

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Fall 2020 – Excess Behind the Meter Production

Project Info	Details/Date

Application Software Changes	**Scope:**
	• Clarify the Tariff definition of Gross Load per amended tariff definition
	• Establish how EBTMP will be submitted, reported, and settled
	• Provide option for entities with meter agreements existing prior to ISO to submit EBTMP interval meter data
	• Update definitions for Net Load and Unaccounted For Energy settlement calculations
	• Publish EBTMP performance to market participants
	
	Impacted Systems:
	MRI-S - Meter submission
	• Allow SC to submit Gross Load and EBTMP under the single Resource ID
	   • New EBTMP measurement type for interval meter data submission; existing Load measurement type interval meter data submission with represent new Gross Load tariff definition
	      • Meter submission UI and API will accept the new EBTMP measurement type
	
	OASIS
	• Publish hourly aggregated EBTMP by TAC area once meter data submission deadline passes for settlement date
	
	Settlements
	• Modify Net Load and UFE calculations to align with tariff amendments:
	   • NET LOAD = GROSS LOAD METER – EXCESS BTMPRODUCTION METER
	   • UFE QUANTITY = GENERATION METER + INTERTIE IMPORT METER – (NET LOAD METER + EXPORT INTERTIE METER + RTD LOSS MW)
	• New Excess Behind the Meter Production (EBTMP) metered value bill determinant will be provided (similar to metered Load today)
	• Modify follow charge codes to settle based on Gross Load (Reliability based charge codes, list may not be comprehensive – See updated Settlements Configuration Guides)
	   • 372 High Voltage Access Charge Allocation (UDC gross load)
	   • 382 High Voltage Wheeling Allocation (Non PTO load)
	   • 383 Low Voltage Wheeling Allocation (Non PTO load)
	   • 591 Emissions Cost Recovery (Measured Demand)
	   • 1101 Black Start Capability Allocation
	   …

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Fall 2020 – Excess Behind the Meter Production (cont.)

Project Info	Details/Date

Application Software Changes (cont.)	**Impacted Systems:**
	Settlements (continued);
	• Modify follow charge codes to settle based on Gross Load (Reliability based charge codes, list may not be comprehensive – See updated Settlements Configuration Guides)
	    • 1302 Long Term Voltage Support Allocation
	    • 1303 Supplemental Reactive Energy Allocation
	    • 6090 Ancillary Service Upward Neutrality Allocation
	    • 6194 Spinning Reserve Obligation Settlement
	    • 6196 Spinning Reserve Neutrality Allocation
	    • 6294 Non-Spinning Reserve Obligation Settlement
	    • 6296 Non-Spinning Reserve Neutrality Allocation
	    • 6594 Regulation Up Obligation Settlement
	    • 6596 Regulation Up Neutrality Allocation
	    • 6694 Regulation Down Obligation Settlement
	    • 6696 Regulation Down Neutrality Allocation
	    • 7256 Regulation Up Mileage Allocation
	    • 7266 Regulation Down Mileage Allocation
	    • 7896 Monthly CPM Allocation

BPM Changes	• **Definitions & Acronyms:**
	    • Update definition of Gross Load
	    • Add Excess Behind the Meter Production
	• **Metering**
	    • Submission, retrieval of new measurement type (EBTMP)
	• **Settlements & Billing**
	    • See Settlements Configuration Guide for changes

Tariff Change	• **Appendix A:**
	    • Clarify Gross Load definition, Update Demand definitions,
	    • Add new term Excess Behind the Meter production
	• **Section 11:**
	    • Update reliability based tariff reference sections to be based upon gross load

California ISO

Fall 2020 – Excess Behind the Meter Production (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 17, 2018	✔
External BRS	Publish Market Notice, External BRS to Release Planning	Feb 27, 2020	✔
	Publish External BRS update (v1.1), FAQ update	Apr 16, 2020	✔
Config Guides	Post Draft Config Guides	May 29, 2020	✔
Tech Spec	Publish Technical Specifications	May 29, 2020	✔
Tariff	File Tariff	Oct 01, 2020	
	Tariff Stakeholder Walkthrough	Dec 04, 2019	✔
	Draft Tariff published	Nov 04, 2019	✔
BPMs	Post Draft BPM changes	Jul 20, 2020 • Metering BPM - PRR 1266 • Market Instruments BPM - PRR 1263	✔
External Training	Deliver external training webinar	Jul 21, 2020	✔
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 18, 2020	
Production Activation	Excess Behind the Meter Production Deployment	Oct 01, 2020	
	Excess Behind the Meter Production Effective Trade Date	Jan 01, 2021	

California ISO

Fall 2020 – Market Settlement Timeline Transformation

Project Info	Details/Date
Application Software Changes	**Scope:** • The California ISO is proposing changes to its market settlement timeline to reduce market participant financial exposure by producing initial settlement statements that will more closely approximate the final settlement, and allow sufficient time for CAISO and market participants to resolve disputes. • The California ISO's current settlement timeline is compressed, which places potentially avoidable burdens on CAISO and market participants. The compressed timeline causes CAISO to publish initial statements of lower financial quality and to sometimes delay the publication of its settlement statements. These inefficiencies impact market participants as they must bear a financial burden of varying magnitude for many business days. • The California ISO and market participants also devote a large level of effort to correct data, re-calculate, process, and validate relatively small financial adjustments associated with optional re-calculations long after the settlement trade date has passed. • To resolve inefficiencies and issues, CAISO proposes to calculate and publish two settlement statements within seventy (70) business days after a trade date and re-align the due dates for settlement quality meter data. • Additionally, and under certain defined circumstances, CAISO proposes to re-calculate and publish three settlement statements between seventy (70) business days after a trade date and twenty-four (24) months after a trade date thus reducing the normal settlement life cycle from thirty-six to twenty-four months.
Application Software Changes (cont.)	**Impacted Systems:** **CIDI:** The disputable statements in the Statement Disputed drop-down list will be updated to include the new statements per the MSTT. CAISO will continue to accept disputes from the date of statement publication through the dispute deadline, as prescribed by the tariff, and continue to calculate the Adjustment Publication Date based on the Correction Statement, as selected by the dispute analyst, and the Trade Date disputed. **CMRI:** Data retention impact due to reducing from 39 months to 27 months. **MRI-S Metering:** • Impacts to the external data submission windows that currently exist, as well as the data transfers from MV-90 to MRI-S Metering and MRI-S Metering to Settlements. • Data submission/freeze timeline. **MRI-S Settlements:** • Update the Post Date calculation, as the payment calendar will change. • Auto scheduling for statement generation. • Statement posting.

California ISO

Project Info	Details/Date	
Application Software Changes (cont.)	**Market Clearing:** Updates needed to the deviation Interest calculations and credit calculation functions. Updates needed for invoice clearing and interest calculations. Check PTB publication timeline for any updates. Will impact the Extrapolation Component (one of 16 EAL Components) for Daily & Monthly Extrapolation and credit calculation. **Recalculation Log:** Post update recalculation log. **Payment Calendar:** Post the payment calendar to reflect overlap between existing and new timeline. **OASIS:** • Data retention impact due to reducing from 39 months to 27 months. • FERC 841 related data availability needs to be vetted.	
BPM Changes	Credit Management and Market Clearing Definitions & Acronyms Energy Imbalance Market Market Instruments Metering Settlements and Billing	Rules of Conduct Administration Settlements and Billing • Section 2.3.2 – Schedule for Settlement Statement Publication • Section 2.3.5.1.1 – Dispute Timing • Section 2.3.6 – Billing & Payment • Section 2.4 – Payment Calendars
Tariff Change	Section 10: Metering Section 11: California ISO Settlements and Billing (Publication Contingency document) Section 12: Creditworthiness Section 13: Dispute Resolution	Section 26: Transmission Rates And Charges Section 27: California ISO Markets And Processes Section 29: Energy Imbalance Market Section 37: Rules Of Conduct

California ISO

Fall 2020 – Market Settlement Timeline Transformation (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 14, 2019	✔
External BRS	Post External BRS	Feb 06, 2020	✔
Config Guides	Post Draft Configuration Guides - *Documentation Only*	Jun 26, 2020	✔
Tech Spec	Create ISO Interface Spec (Tech spec)	May 29, 2020	✔
Tariff	Draft Tariff	May 19, 2020	✔
BPMs	Post Draft BPM changes • Credit Management and Market Clearing • Definitions & Acronyms • Energy Imbalance Market • Market Instruments • Metering • Settlements and Billing	PRR #1264 Once per year PRR#1271 PRR#1276 PRR#1266 Draft BPM	✔ ✔ ✔ ✔ ✔
External Training	Deliver External Training	Jul 20, 2020	✔
Market Simulation	Market simulation window	Aug 24, 2020 - Sep 18, 2020	
Deployment	Market Settlement Timeline Deployment	Oct 01, 2020	
Production Activation	Market Settlements Timeline Effective Trade Date	Jan 01, 2021	

California ISO

2021 Spring Release

California ISO

Spring 2021 – EIM integrations for BANC Phase 2, TID, PNM, LADWP, and NWE

Project Info	Details/Date
Application Software Changes	Implementation of BANC Phase 2, TID, PNM, LADWP, and NWE as EIM Entities
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during implementation and feedback from BANC Phase 2, TID, PNM, LADWP, and NWE.
Market Simulation	December 2020 – January 2021
Parallel Operations	February 2021 – March 2021

Milestone Type	Milestone Name	Dates					Status
		BANC Phase 2	TID	PNM	LADWP	NWE	
Market Sim	Market Sim Window	11/3/20 - 1/31/21	12/1/20 - 1/31/21	11/3/20 - 1/31/21	11/3/20 - 1/31/21	12/1/20 - 1/31/21	
Parallel Operations	Parallel Operations	2/1/21 - 3/31/21					
Tariff	File Readiness Certification	Mar 2021					
Production	Activation	3/25/21	3/25/21	4/1/21	4/1/21	4/1/21	

California ISO

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

Market Sim

Market Sim

Release Users Group (RUG)

California ISO
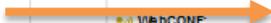
2020 MPPF Schedule

Upcoming meetings:
- *Tuesday, December 15*

Note: These meetings are held in-person and via webinar on a quarterly basis or as needed.

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.

California ISO