



California ISO

# Market Performance and Planning Forum

June 25, 2020

ISO PUBLIC

## 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 – June 25, 2020

9 a.m. – 12 p.m.

Time:	Topic:	Presenter:
9:00 – 10:05	Introduction, Agenda	Isabella Nicosia
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

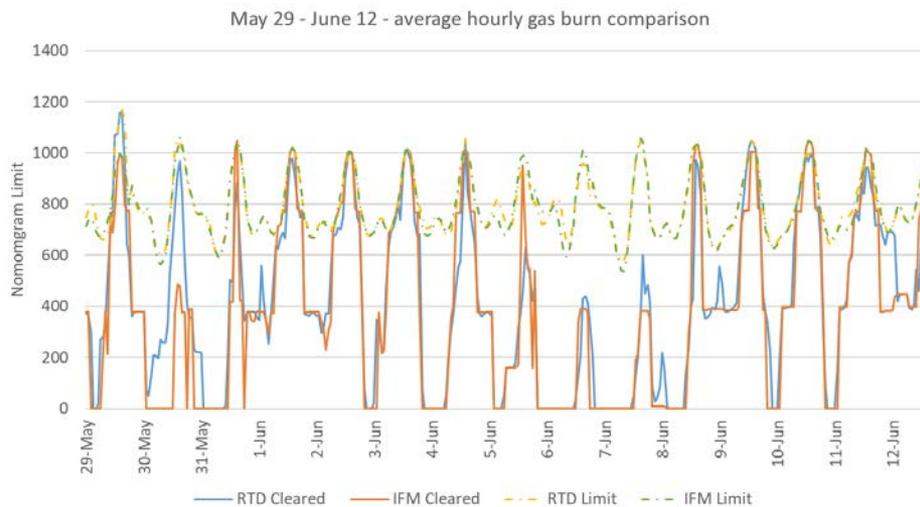
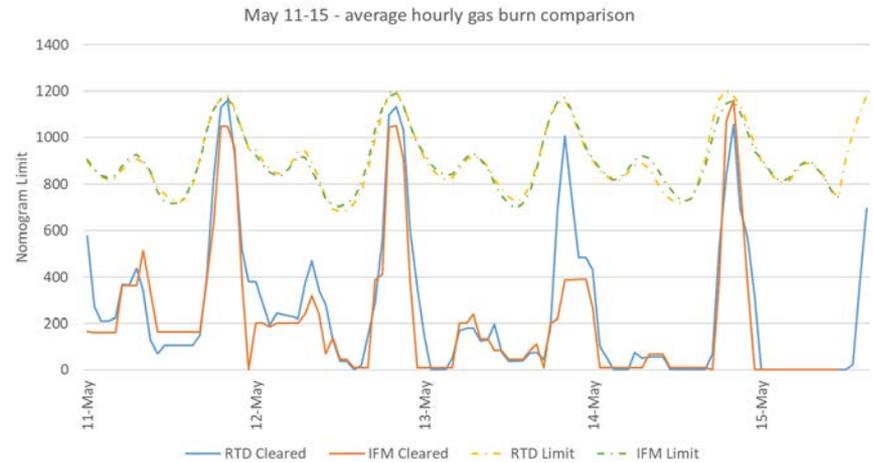
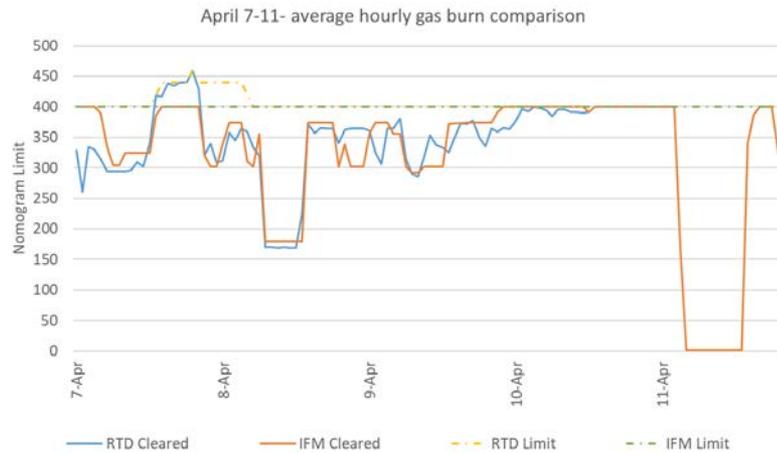
Market Analysis and Forecasting Department

# Gas Constraints

## MAXBURN Nomogram was enforced for a few days in April, May and June 2020.

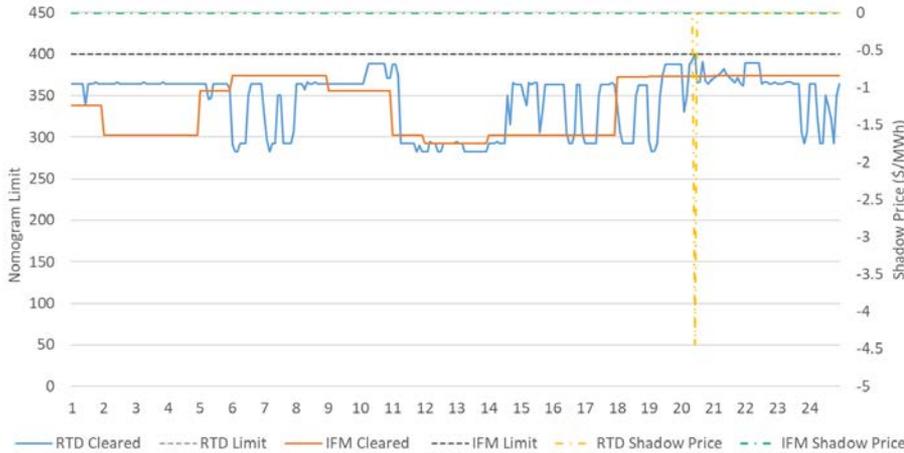
- Planned curtailment for CAISO-dispatched Electric Generators in SDG&E territory was in effect from April 7 through April 11. The localized curtailment was limited to the city of Carlsbad and Miramar
- Planned curtailment for the Southern Gas System
  - due to maintenance work causing curtailment on electric generation from May 11 to May 15
  - due to maintenance work at the Blythe compressor station and severely limiting imports into the southern gas system from May 29 to June 12

# Gas burn comparison when the nomogram was enforced

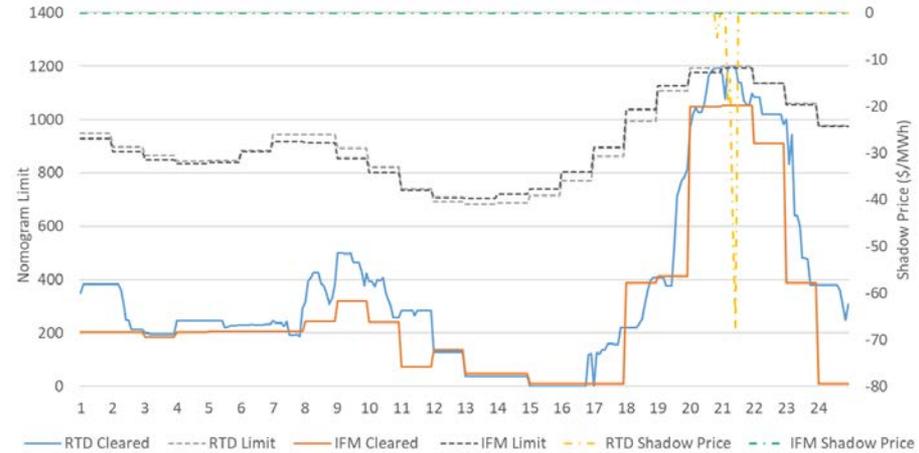


# Nomogram gas burn comparison across markets

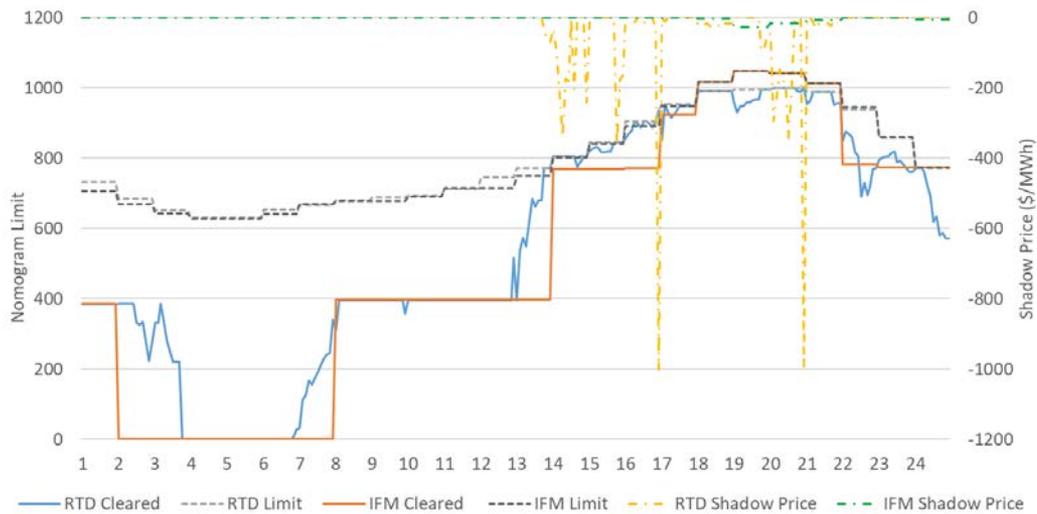
April 9 - Sample day gas nomogram comparison



May 12 - Sample day gas nomogram comparison

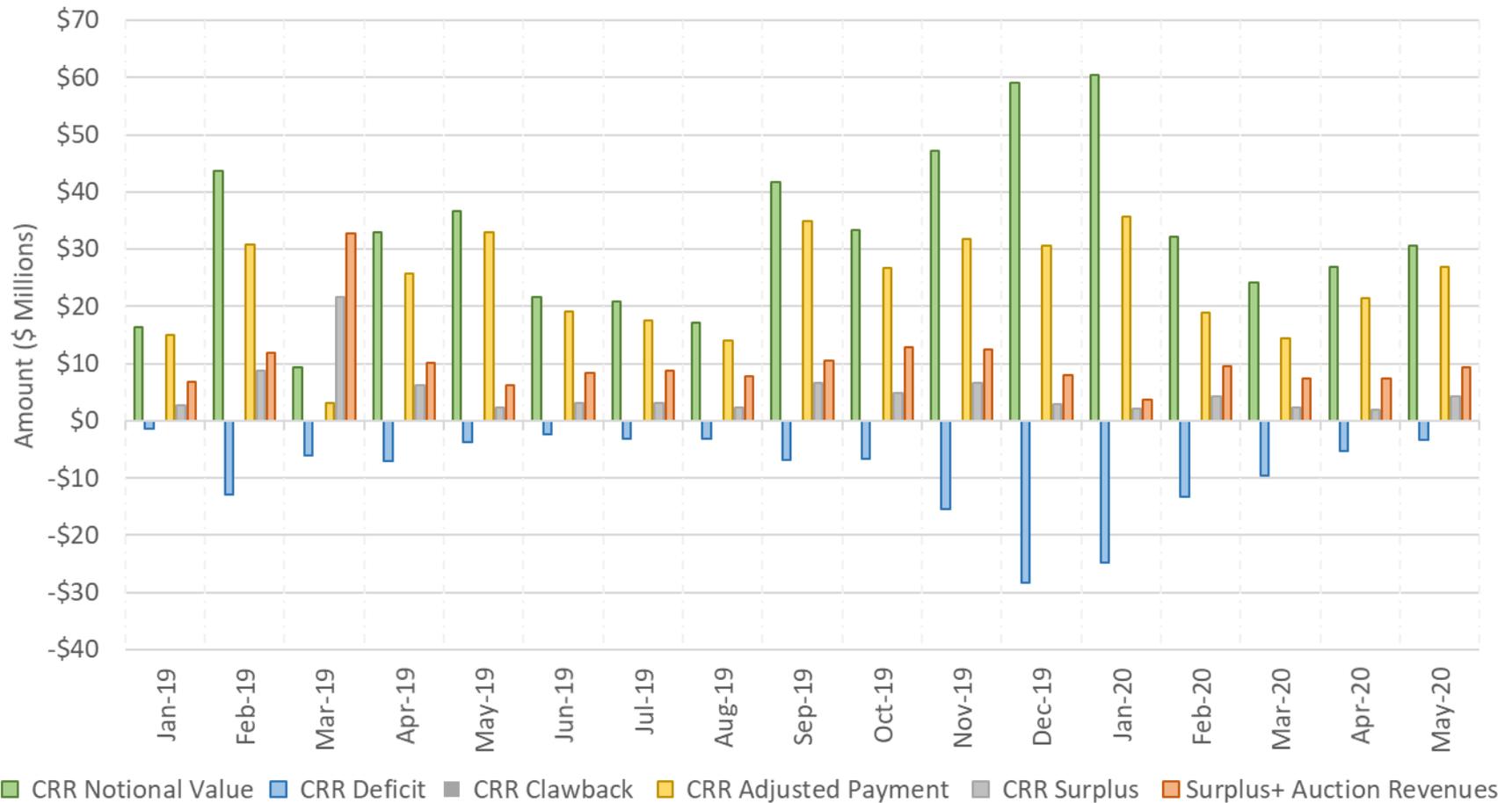


June 10 - Sample day gas nomogram comparison

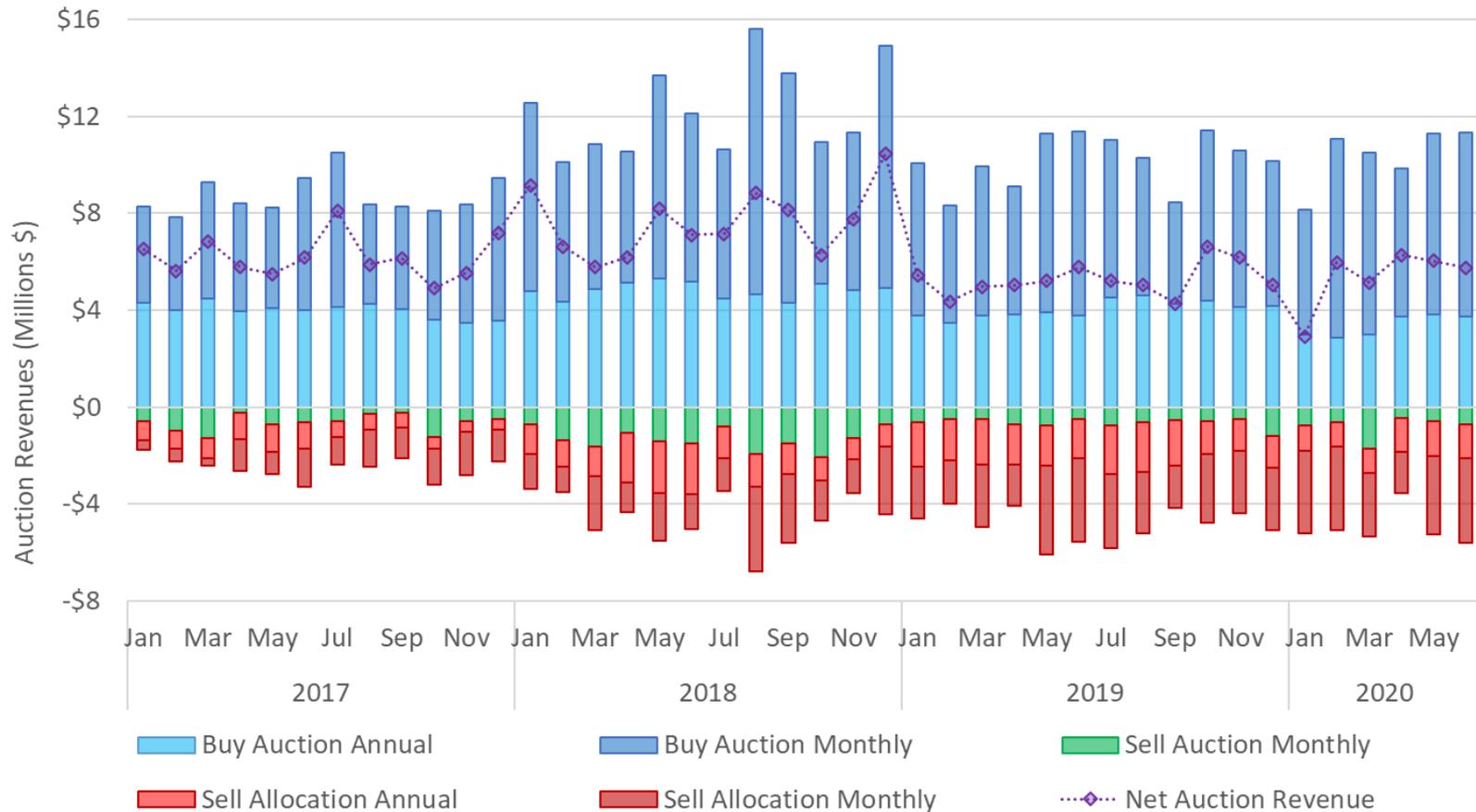


# Congestion Revenue Rights

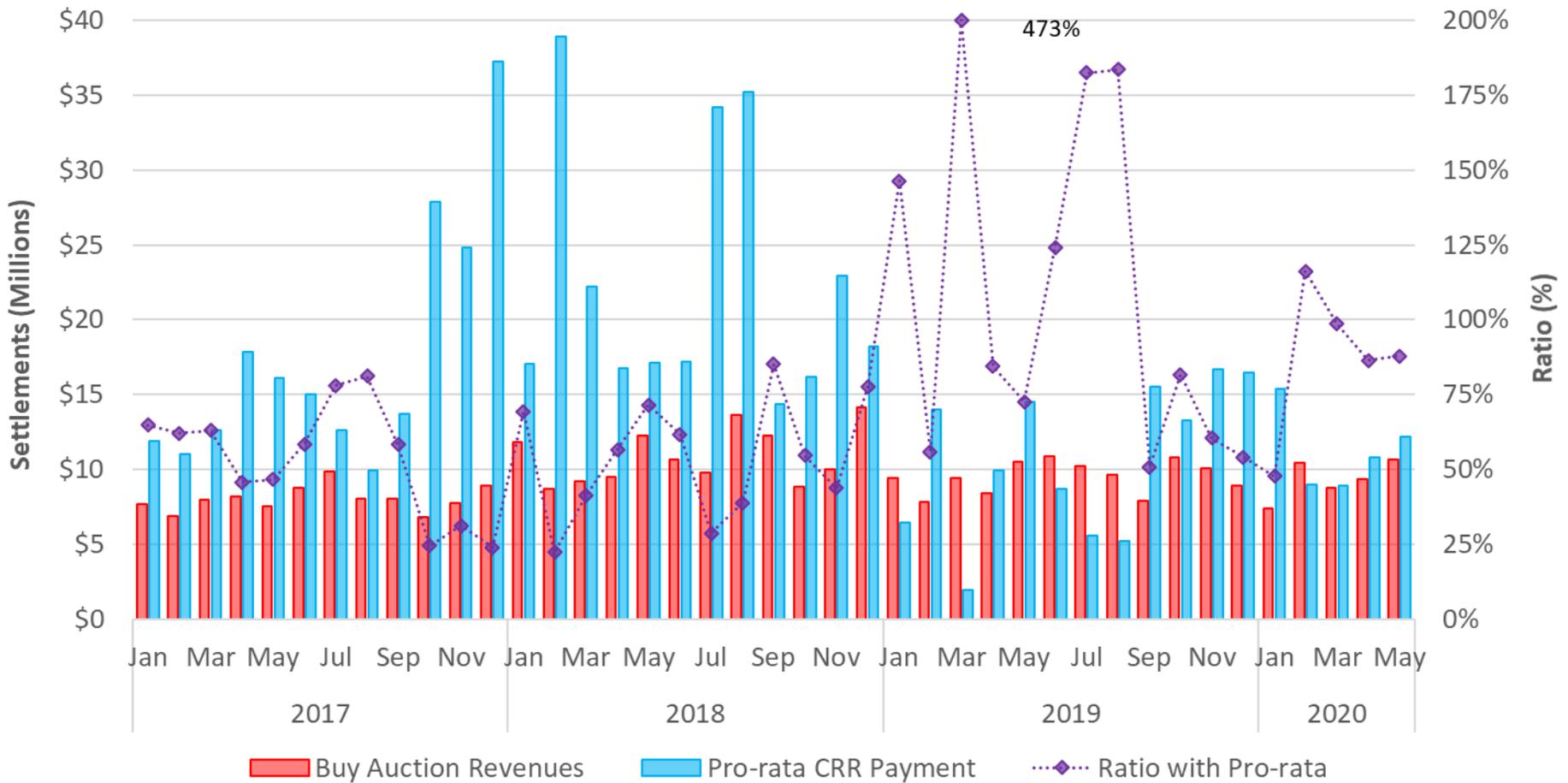
# CRR Deficit has decreased since December 2019, which has required less pro-rata cuts to CRR payments



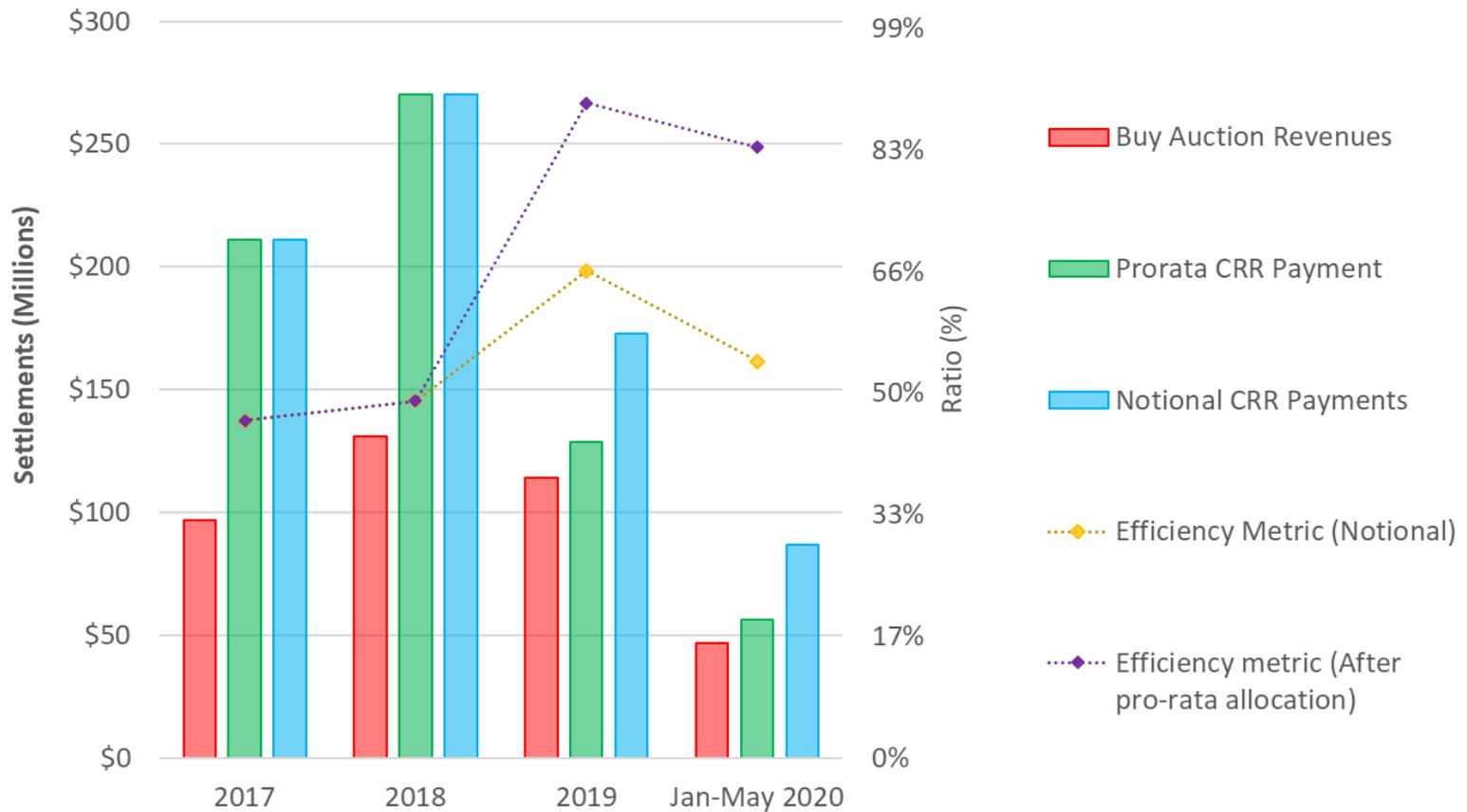
# Negative auction revenues remained robust after the policy changes, largely driven by the increase of sales of allocated CRRs



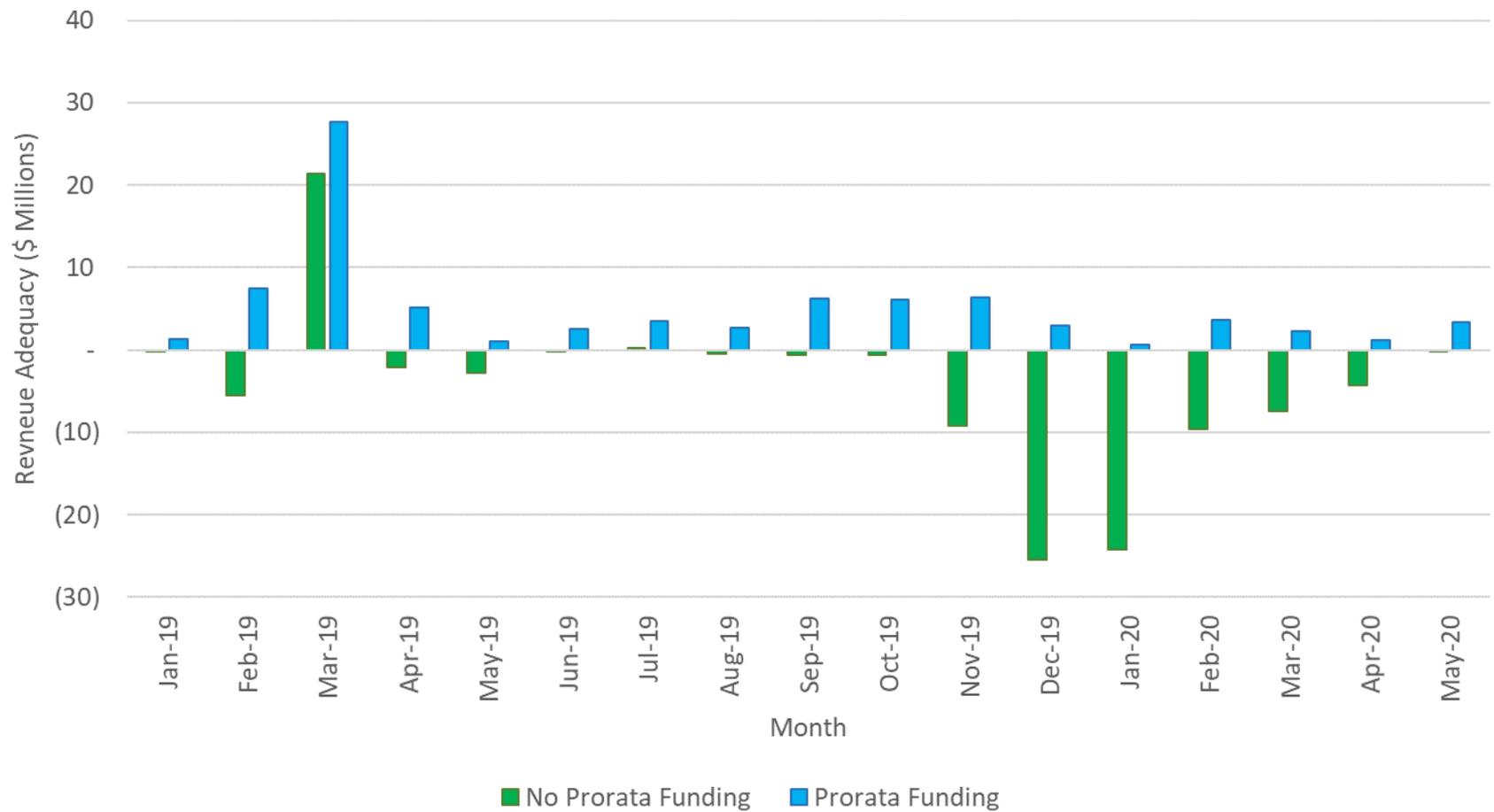
# Auction efficiency has performed well in the first months of 2020



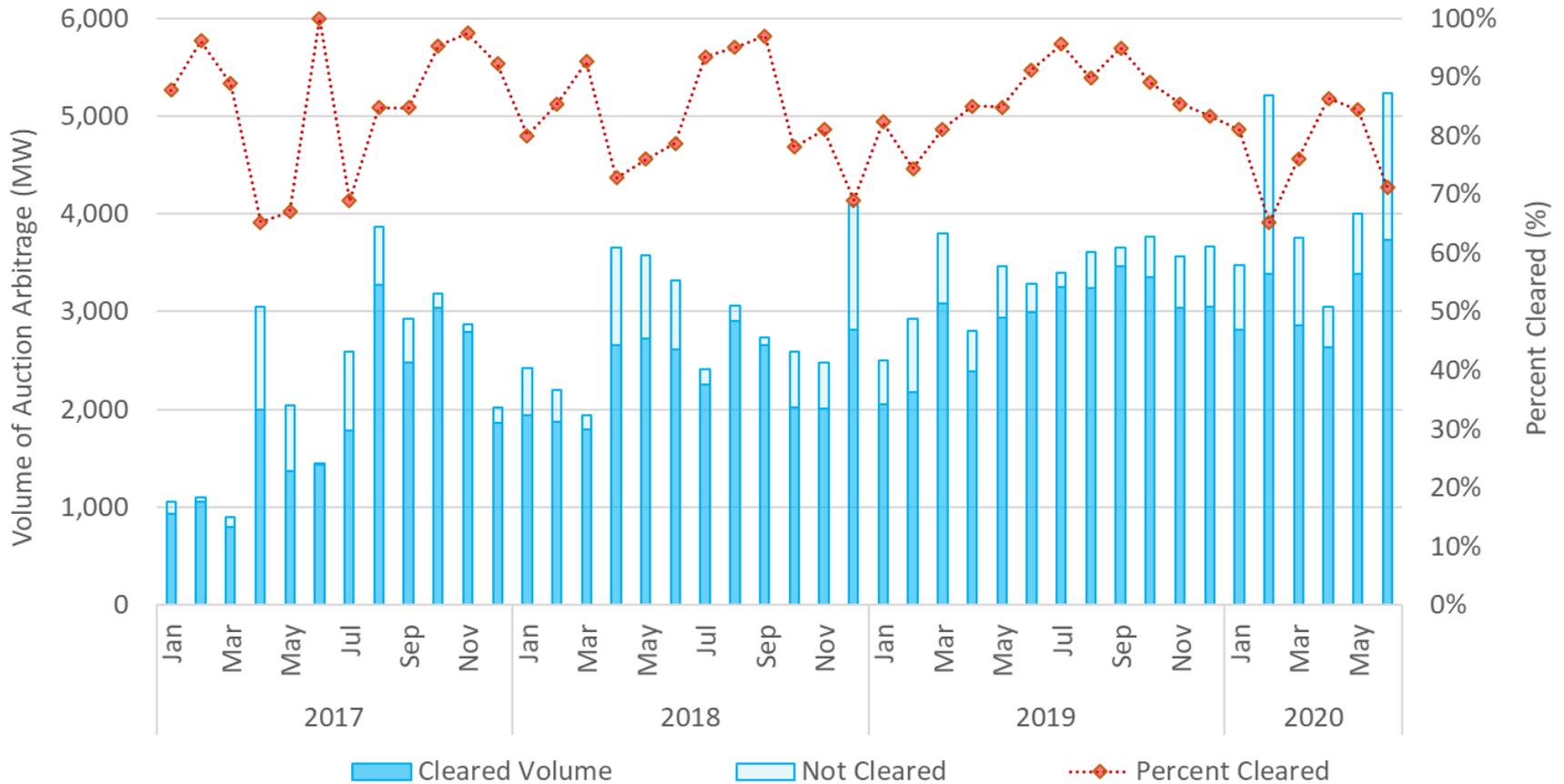
# Auction efficiency improved from 47% to 87% in 2019 and to 83% in 2020



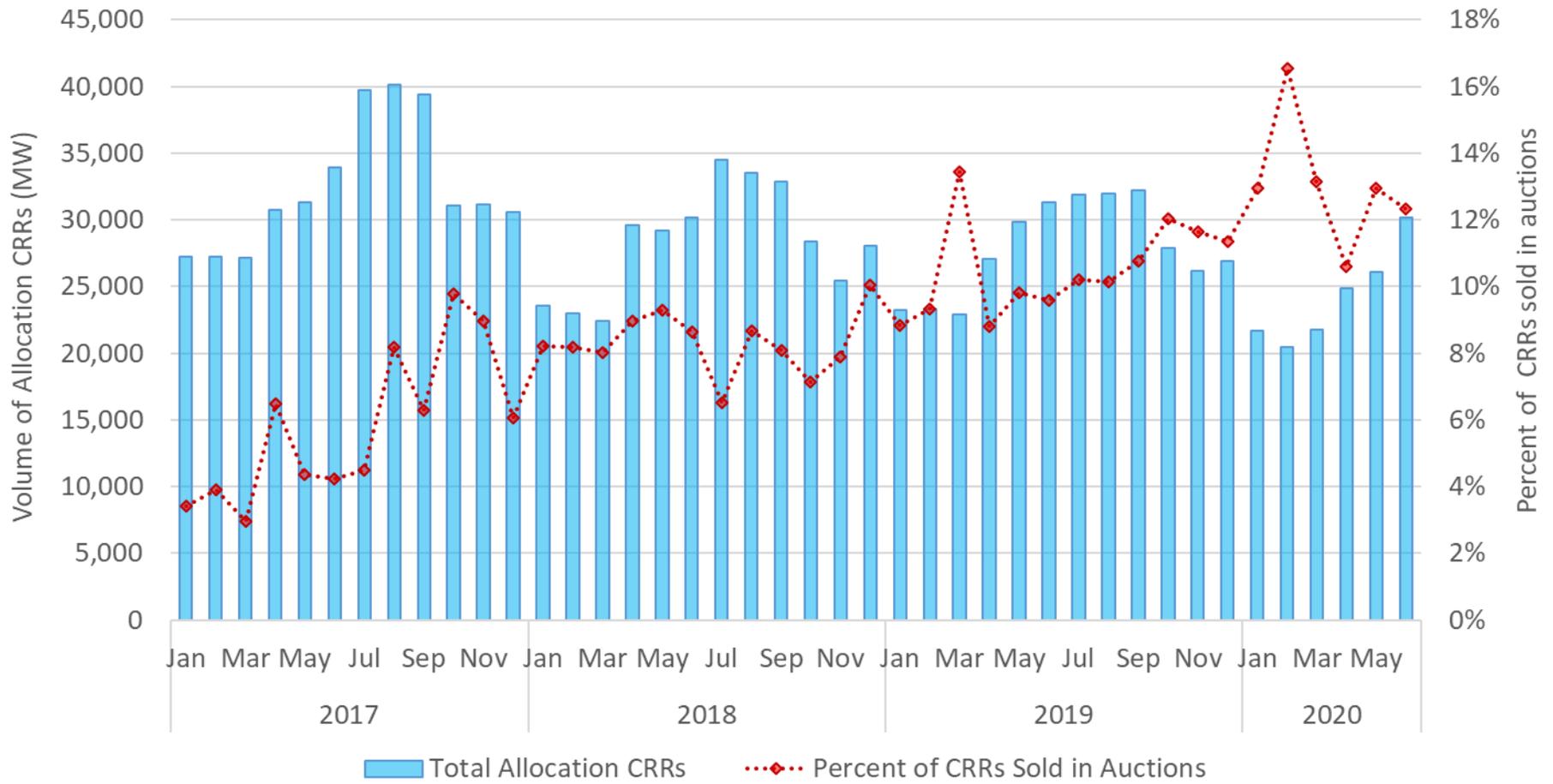
Implementation of pro-rata funding has led to a improvement of \$155 million of revenue adequacy for 2019 and 2020.



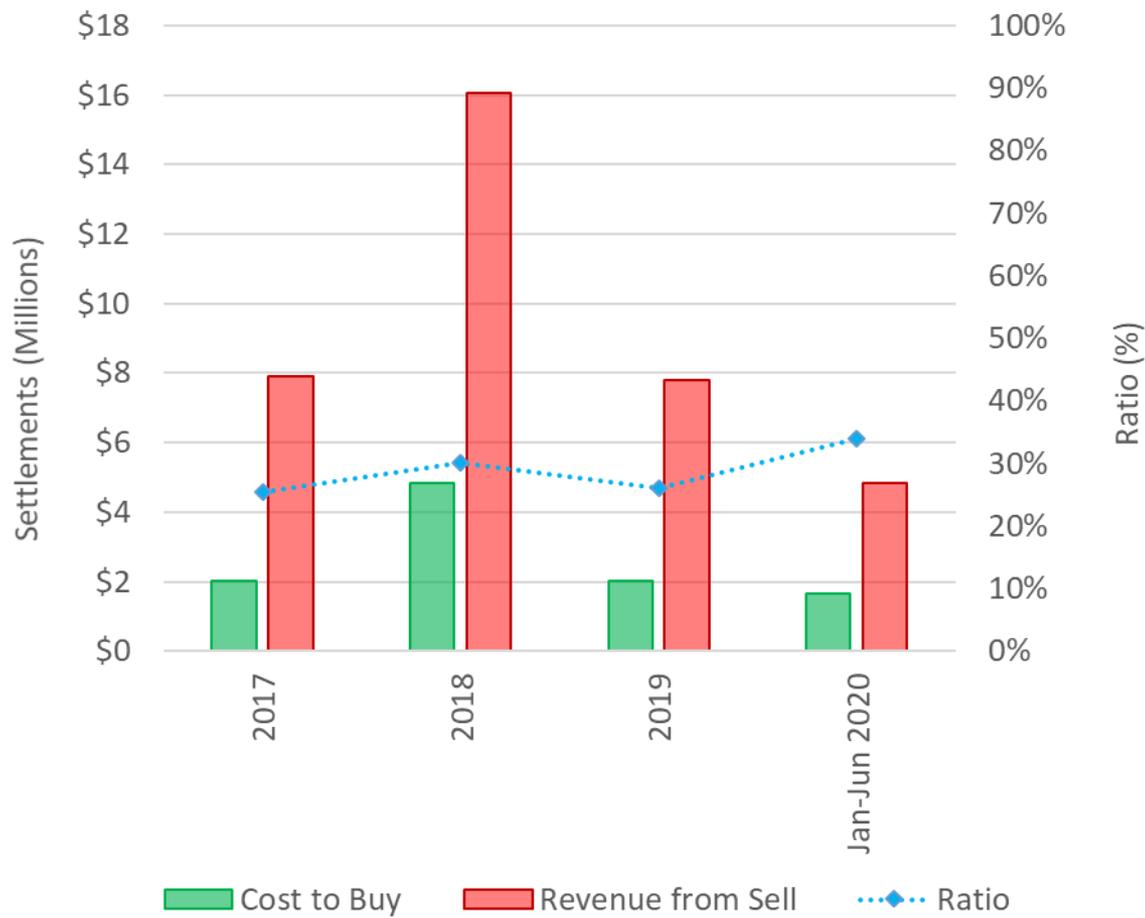
# CRR auctions are increasingly being used by LSEs to rebalance their portfolio risk



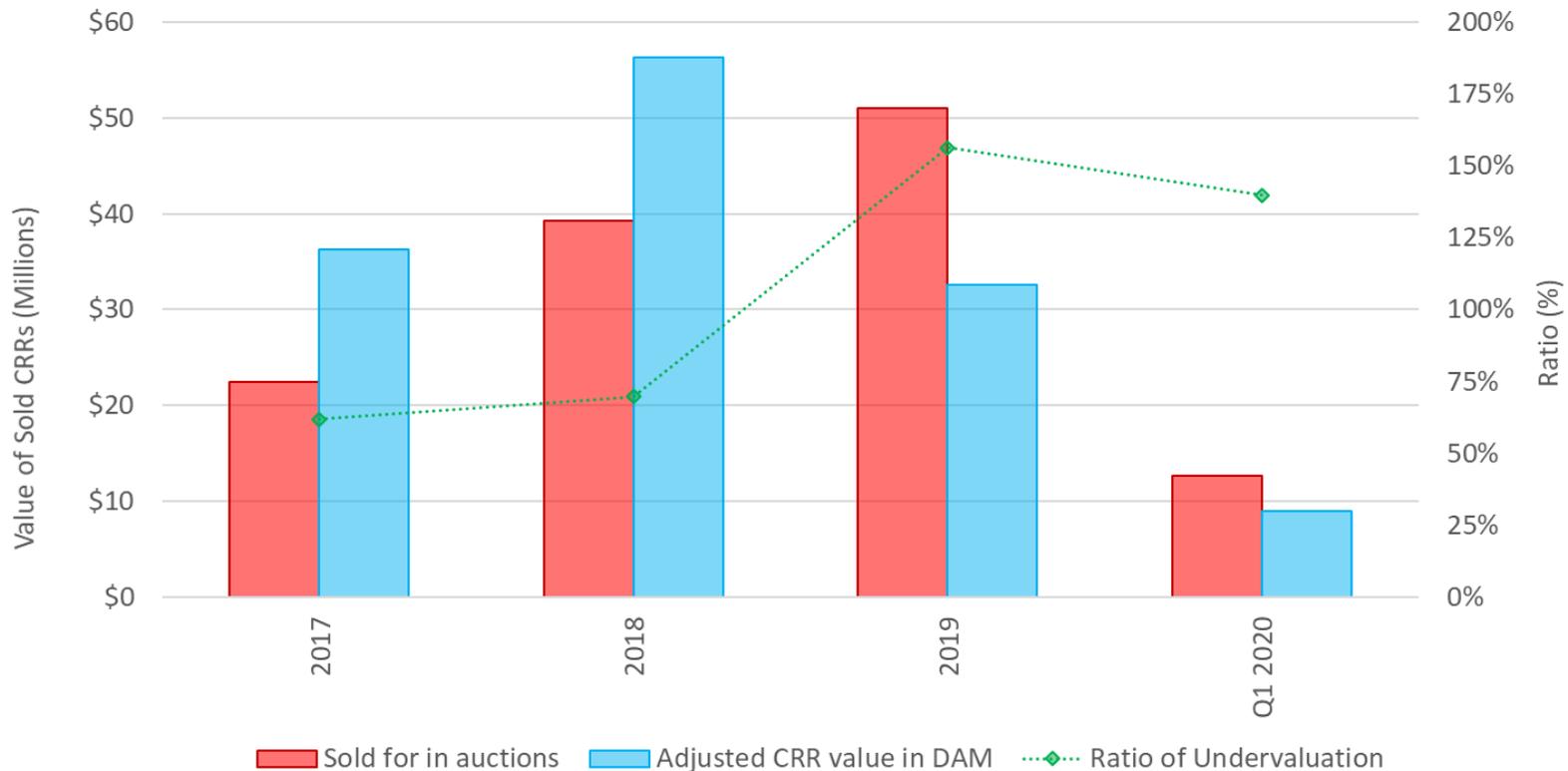
# Volume of allocated CRRs being sold in auctions have increased from 4 percent in 2017 up to 17 percent in 2020



After implementing the policy changes about a half of the CRR inefficiency is still monetized by pure arbitrage between the annual and monthly auctions



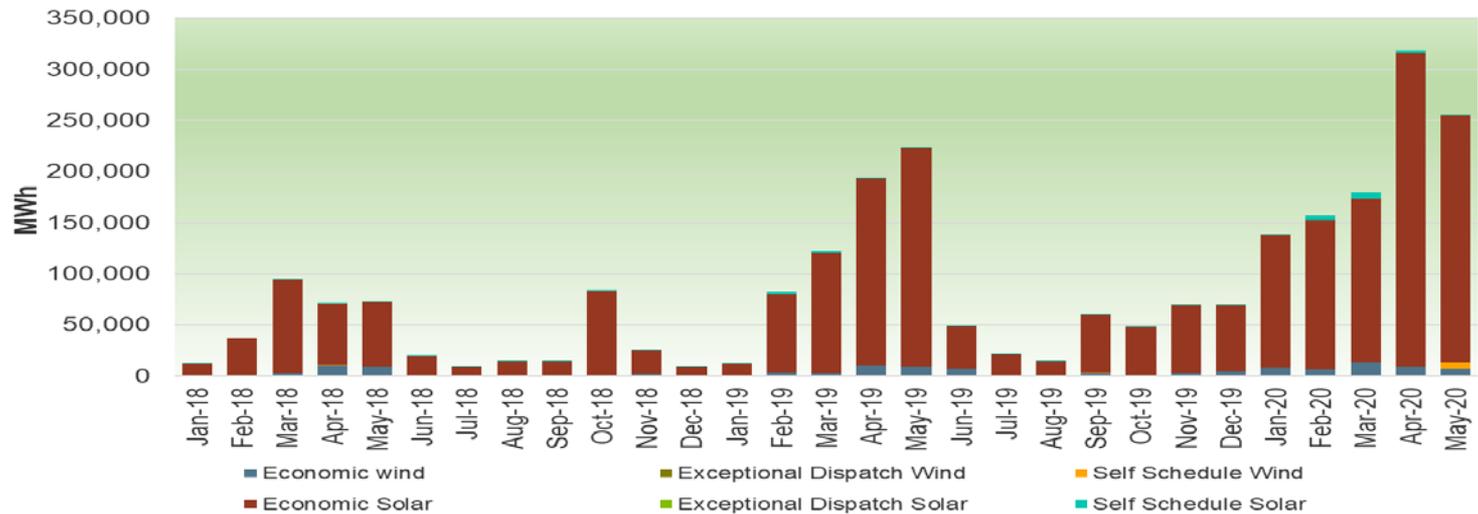
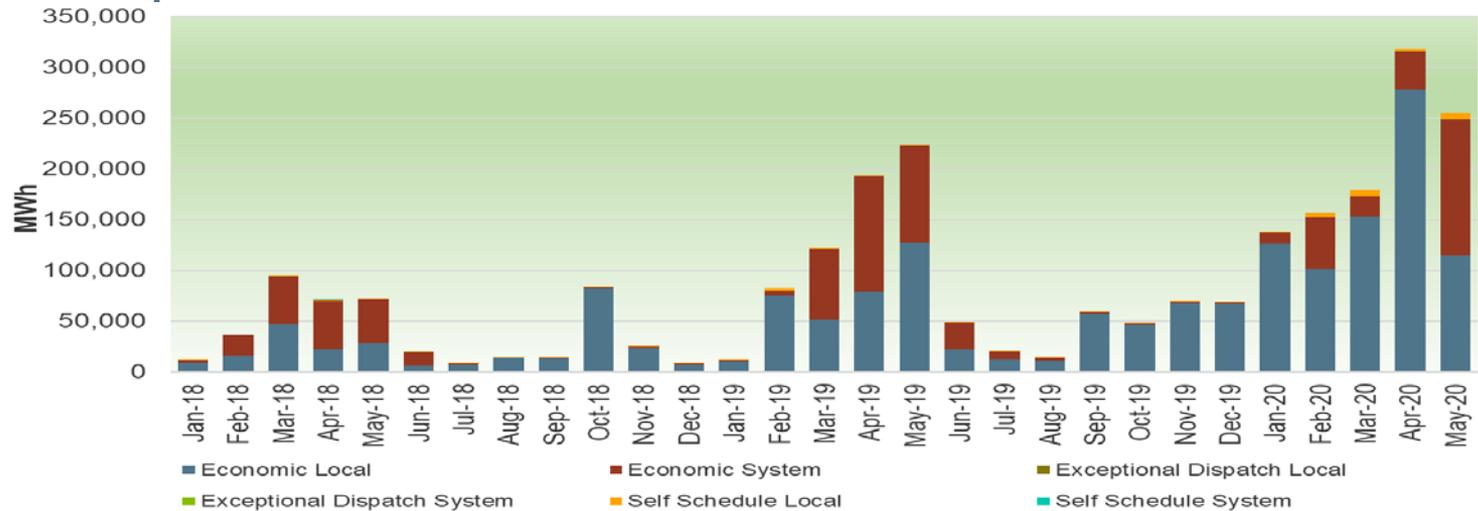
# About \$31 million of losses in 2017 and 2018 were caused by LSEs underselling (undervaluing) their allocated CRRs



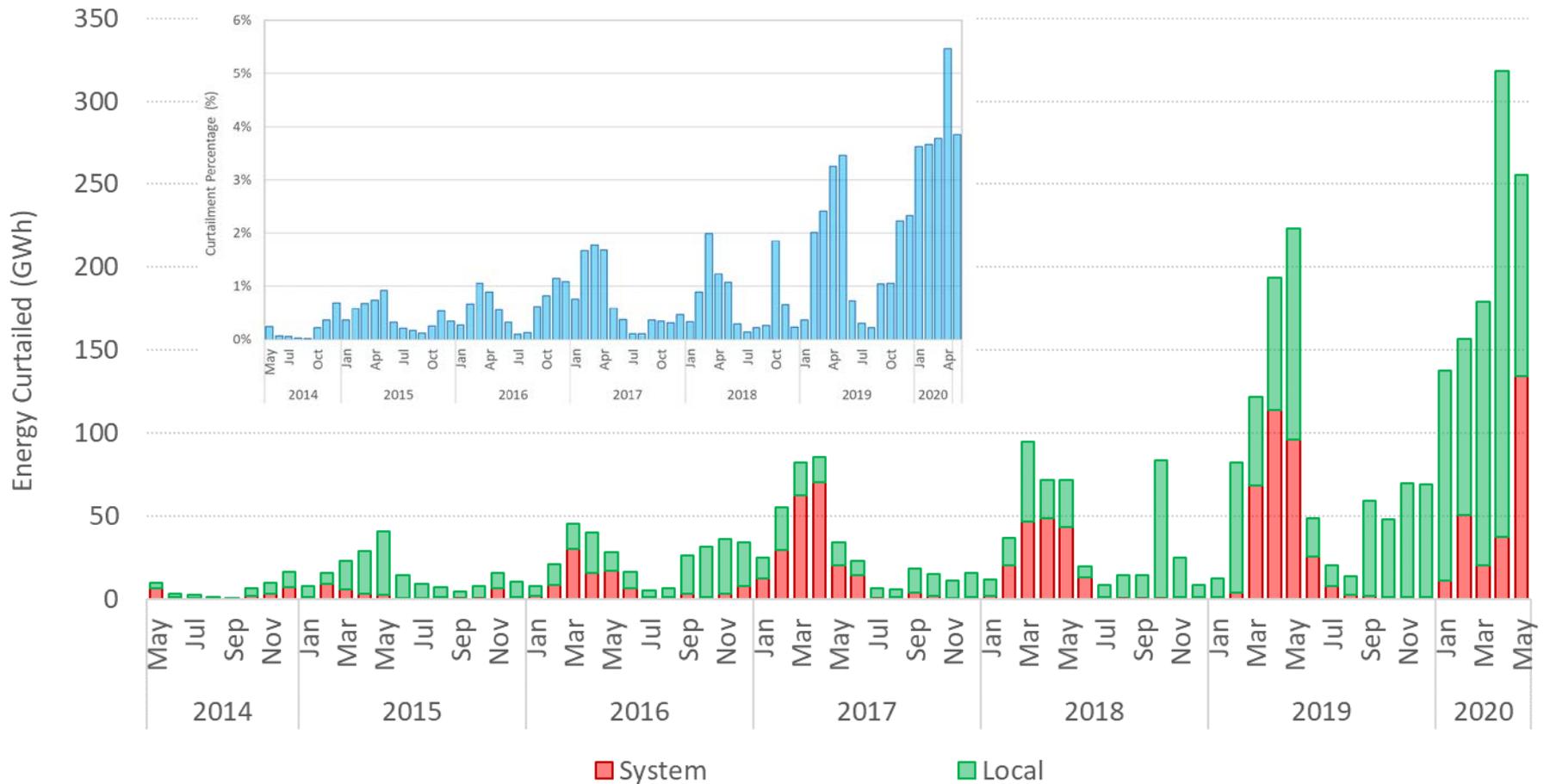
After the policy changes, LSEs have flipped from under-valuing to over-valuing their allocated CRRs

# Renewables and Curtailments

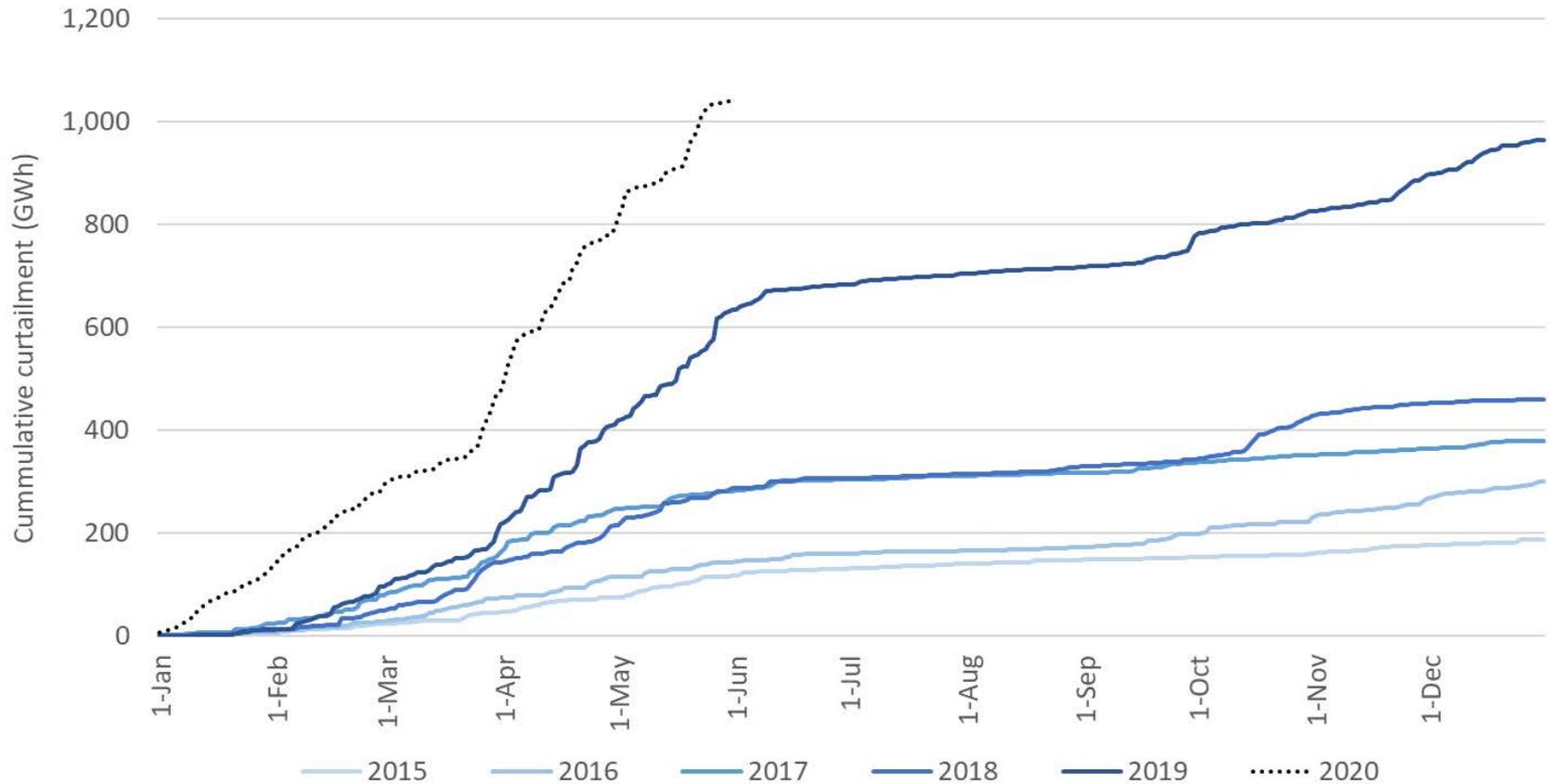
# RTD renewable (VERs) curtailment fell in May after a record high in April



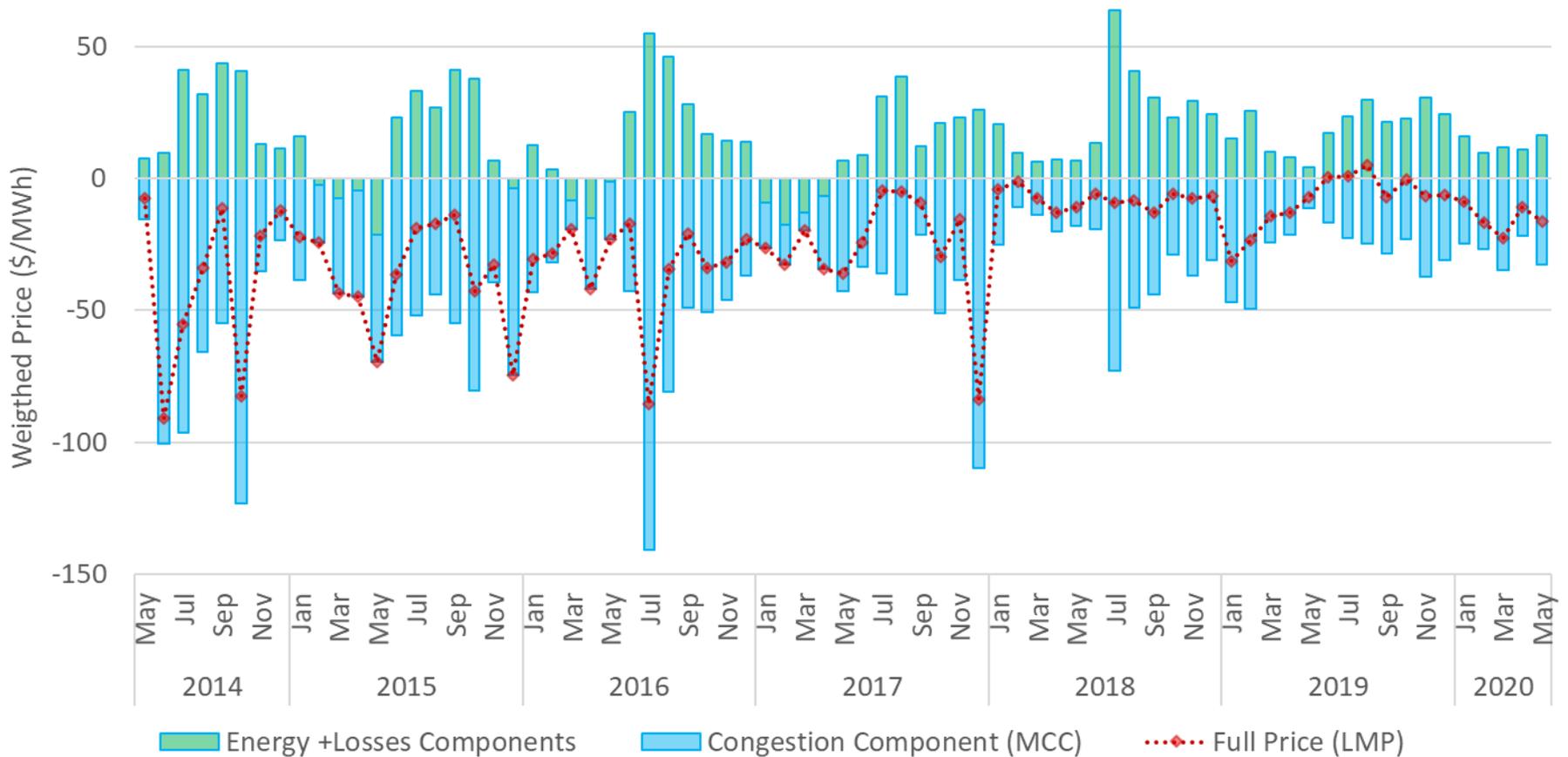
Curtailments are growing with additional integration of renewables and the need for congestion management, and has been as high as 5% of total renewable production



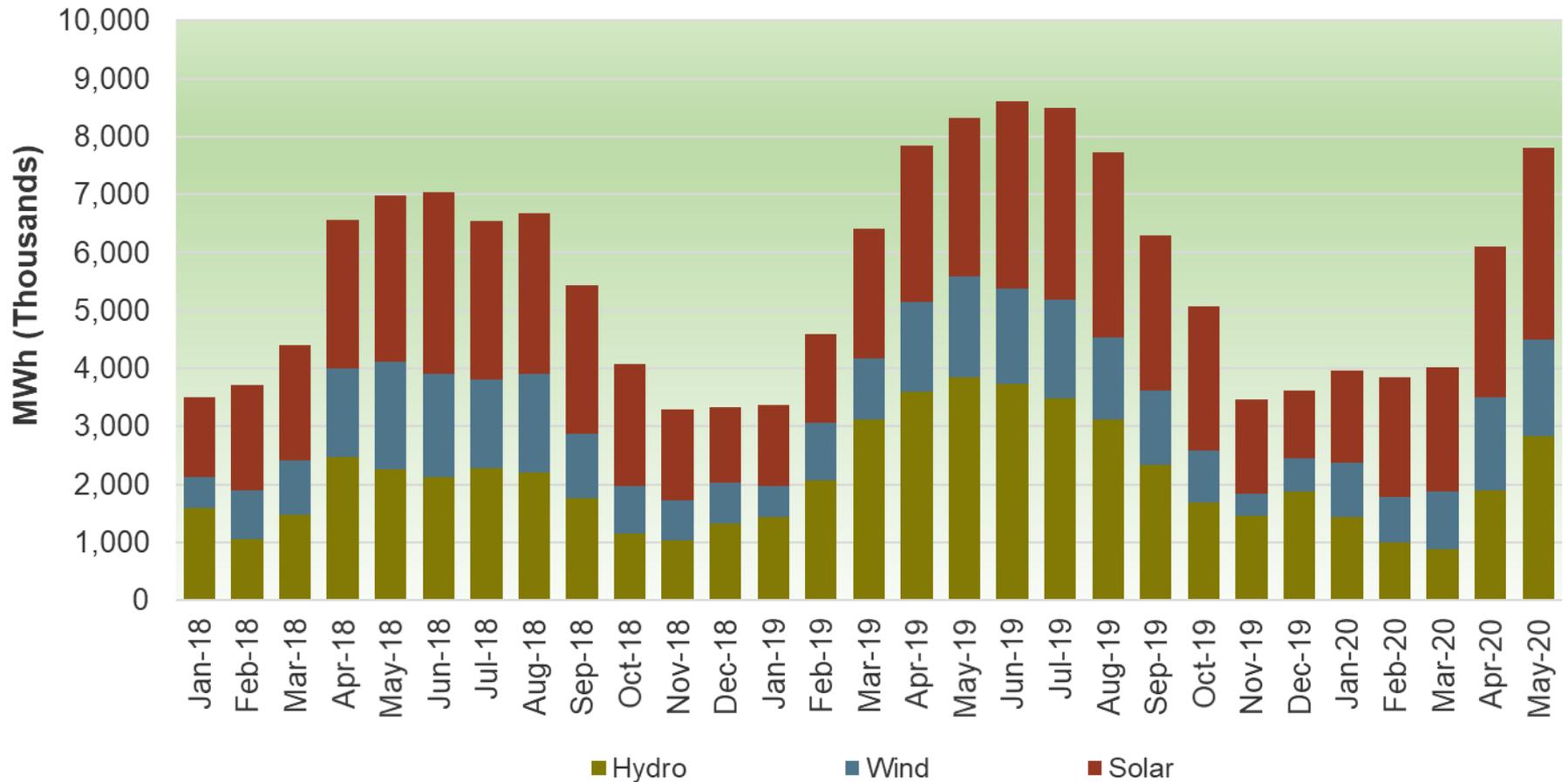
# 2020 cumulative curtailments through May exceeded the 1,000GWh mark



# Clearing prices for resources under curtailment reflect not only oversupply conditions both also congestion conditions



# Hydro production in 2020 has been lower than previous year



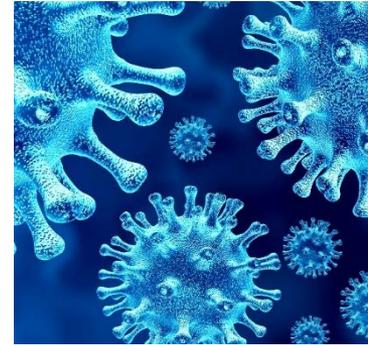


# COVID-19 Impacts to California ISO Load & Markets:

Market Analysis and Forecasting

June 25, 2020

ISO PUBLIC



# Summary

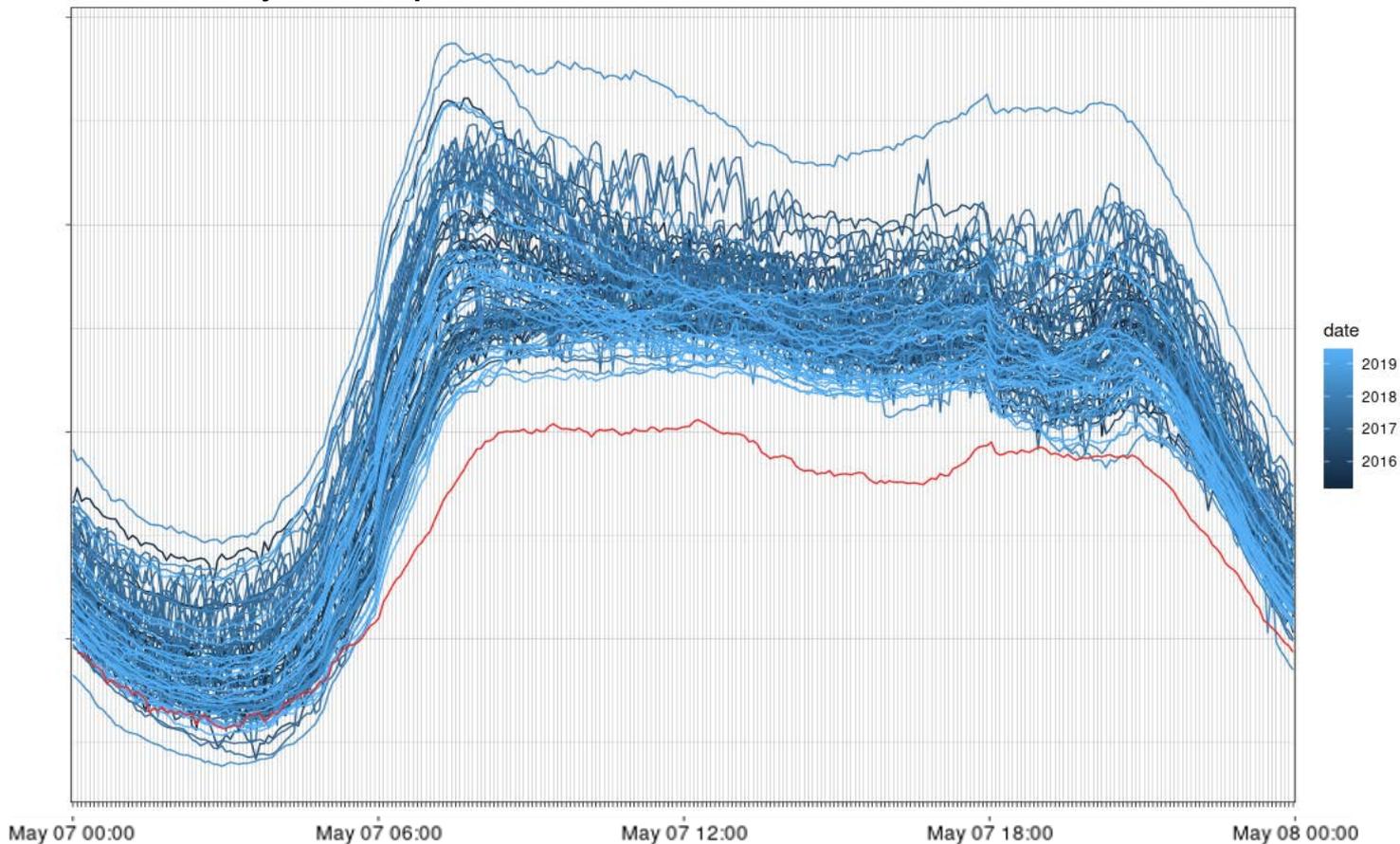
- Since the first full week of the statewide stay-at-home order, the ISO has observed:
  - **Weekday** average load reductions of **3.7%**, and up to **6.7%** reductions during peak hours.
    - hourly average load reductions range from **0.5% to 12%**, with the highest percent reductions observed during HE 7 through HE 18
  - **Weekend** average load reductions of **1.4%**, and up to **3.0%** reductions during peak hours.
- Because ISO's forecasting process allows us to perform a backcast analysis given the underlying weather conditions and type of day, these reductions compare actual load to expected loads if no order were in place.
- While the sophisticated load forecast models could not have anticipated the stay-at-home order, the ISO continues to fine-tune its models to improve forecast accuracy in day-ahead and real-time markets as conditions evolve.
- Energy prices have declined by about \$10/MWh in the day-ahead and real-time markets. With higher loads by the end of May, prices increased to pre-provision levels.
- There have been no impacts to grid reliability from the stay-at-home order.

# COVID Impacts

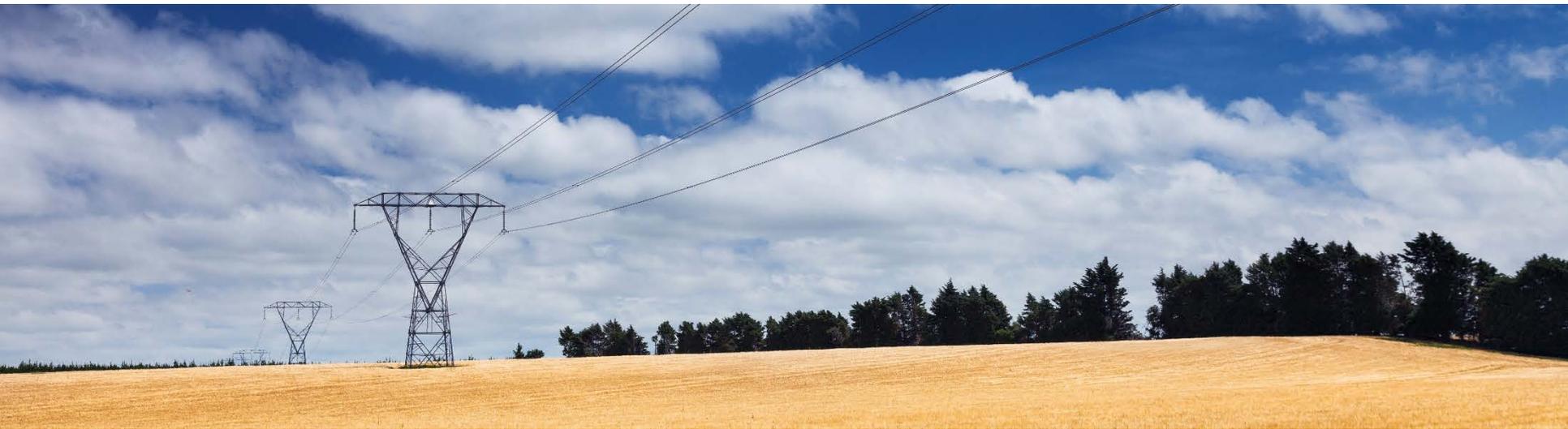
- Since March 16<sup>th</sup>, various western states adopted shelter-in-place policies due to COVID-19; ISO observed the following for CAISO/EIM entities:
  - Load Reduction
  - Morning Peak profile changes
    - Changing ramp rate
  - Peak Time Shift
  - Forecast Accuracy Degradation
  - Evolving policies led to continued changing loads
    - Load impact varied by entity
  - New load shapes and lower loads acted as outliers in each region's historical data and led to increased error

# Lower loads and altered morning shapes were outliers in model training set

## EIM Entity Example



COVID impacted load actuals; Non-COVID impacted load actuals



Removing weather errors to isolate stay-at-home order's impact

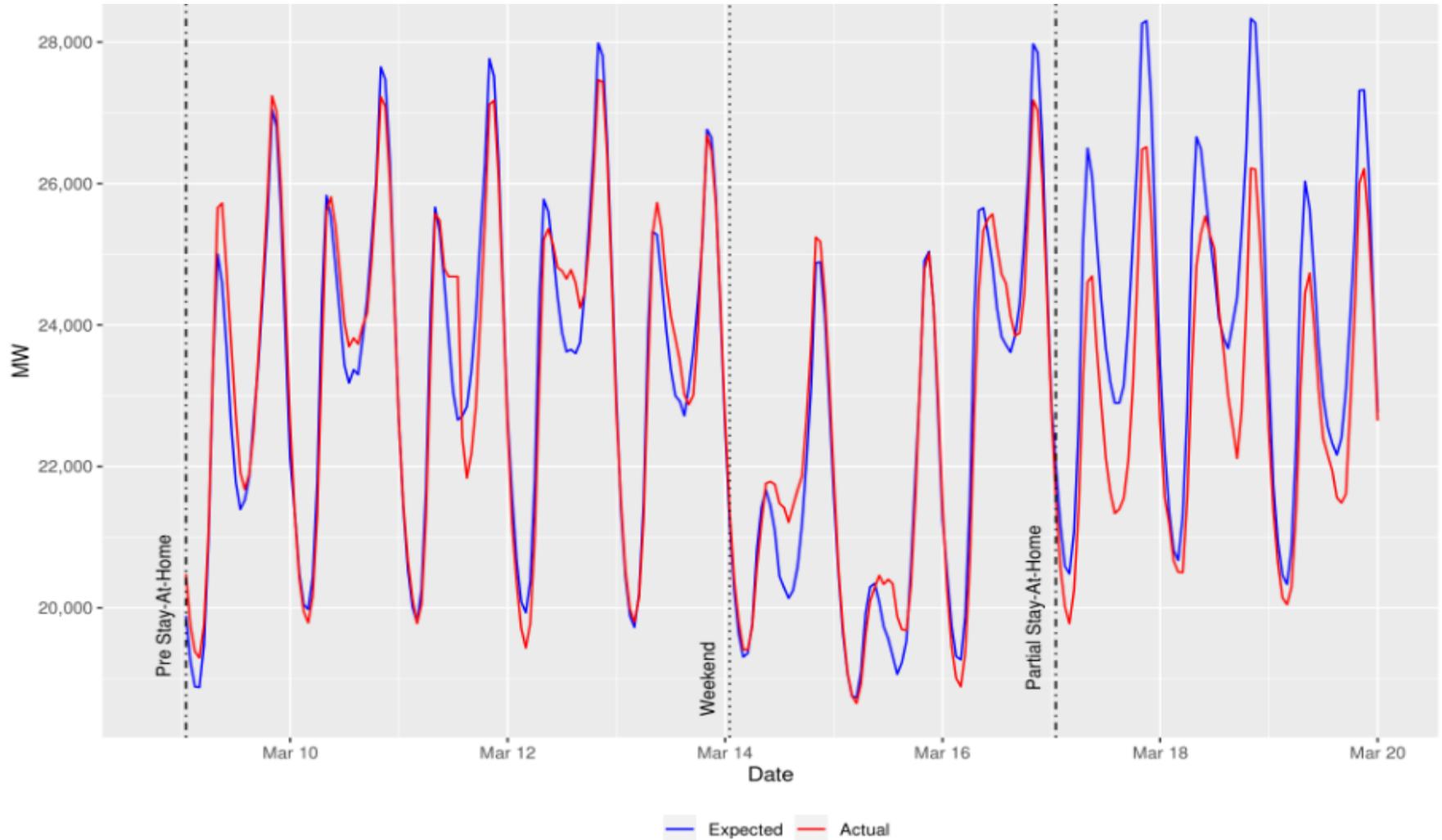
# Backcast Analysis

# Methodology for removing weather errors to isolate stay-at-home order's impact

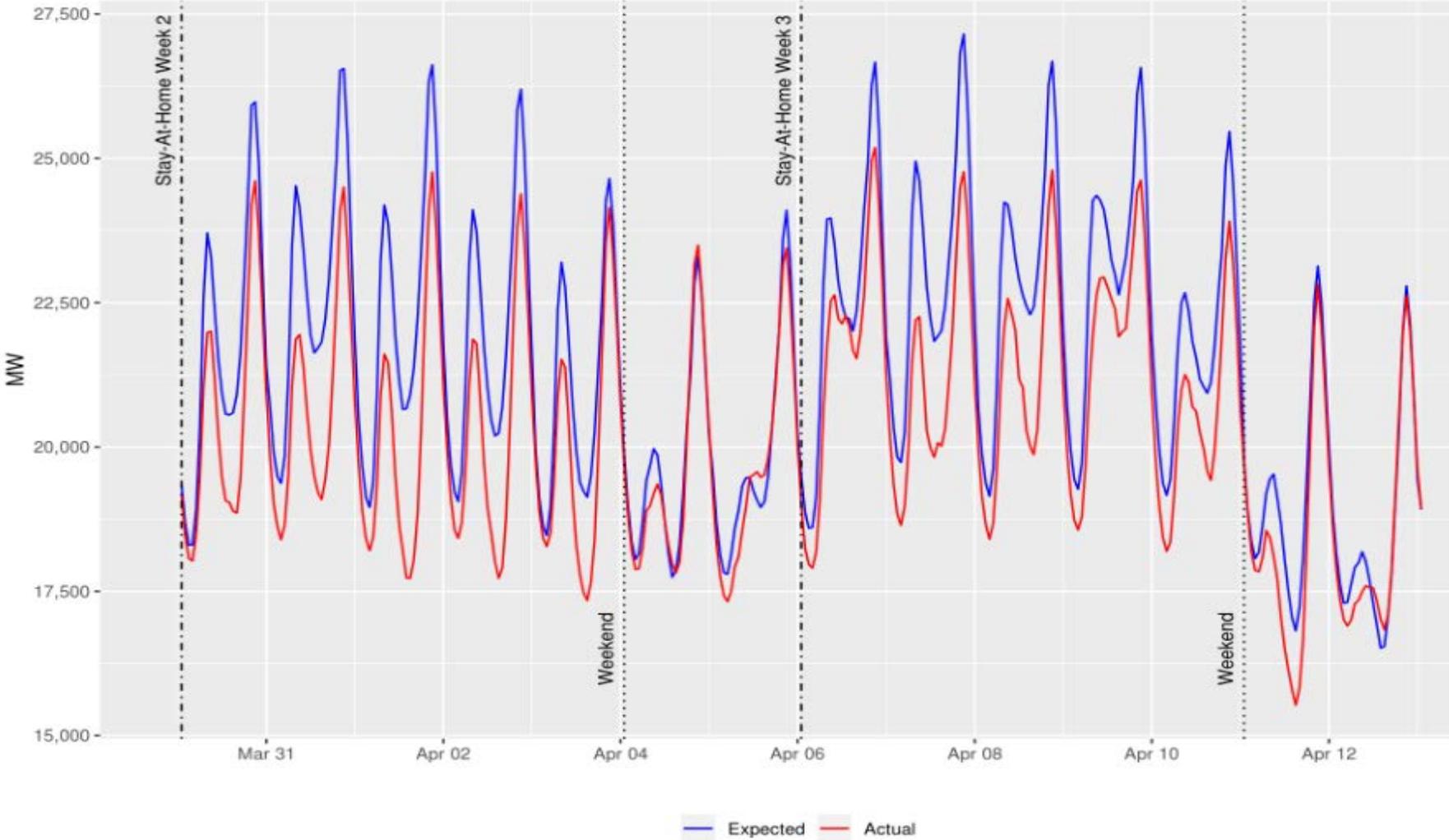
- CAISO is using a backcast model, which removes the largest known sources of weather error to isolate the stay-at-home order's impact.
- The difference between the expected load model and what actually occurred is referred to as model error.
  - COVID-19 is a component of model error. There is a normal range for model errors and what is seen in this analysis is outside the normal range, allowing the ability to isolate the COVID-19 Impact.



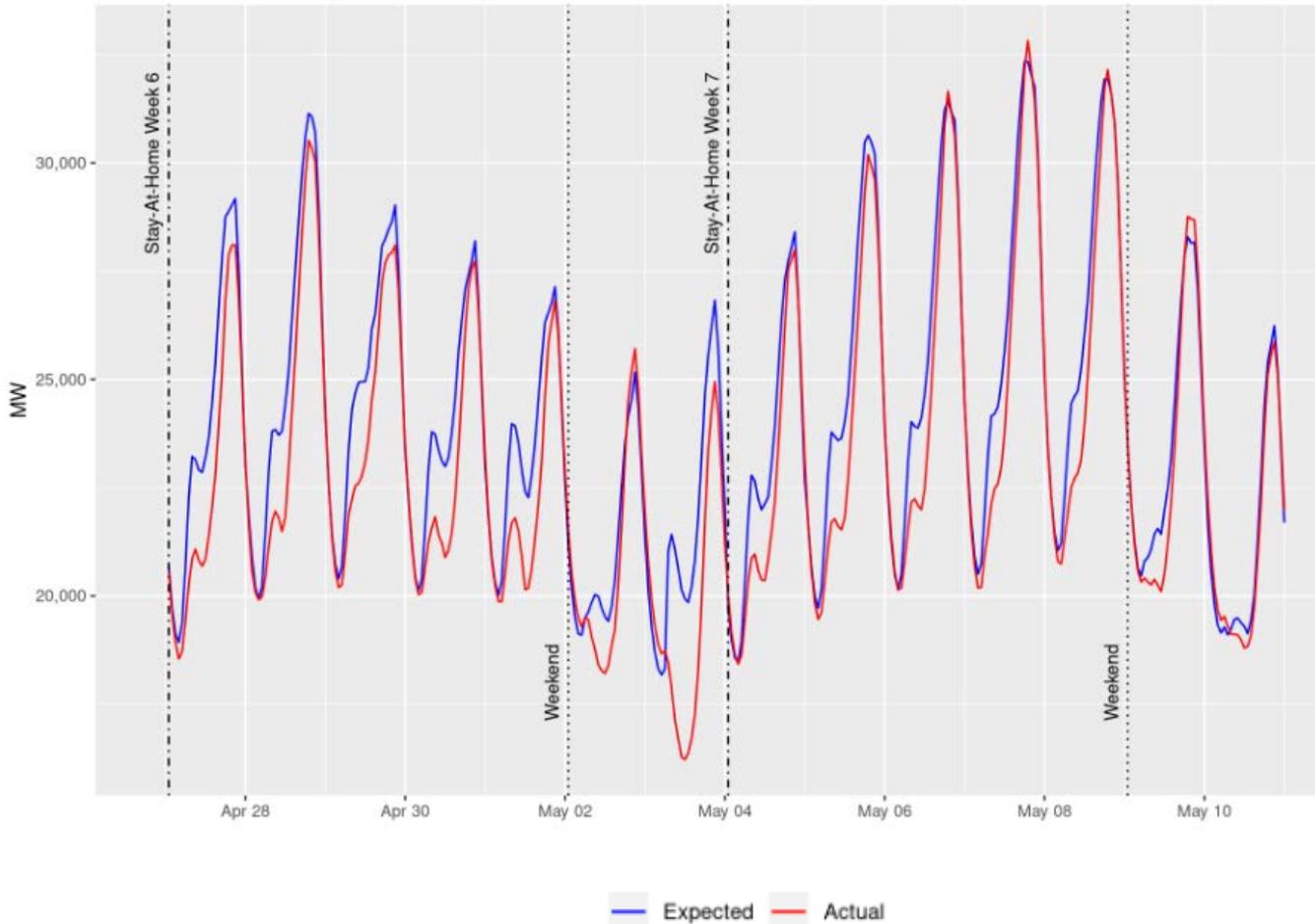
# Weather Adjusted: System impact March 9 - March 19



# Weather Adjusted: System impact March 30 – April 12



# Weather Adjusted: System impact April 27 – May 10



Above-normal temperatures were experienced system-wide May 4 – 10. During the heat, minimal to no load reductions were observed for the evening peak, compared to pre-COVID-19 orders.

The ISO continues to see the most significant reductions to load during the morning and mid-day hours.

# Summary of system impact: March 23 – June 7

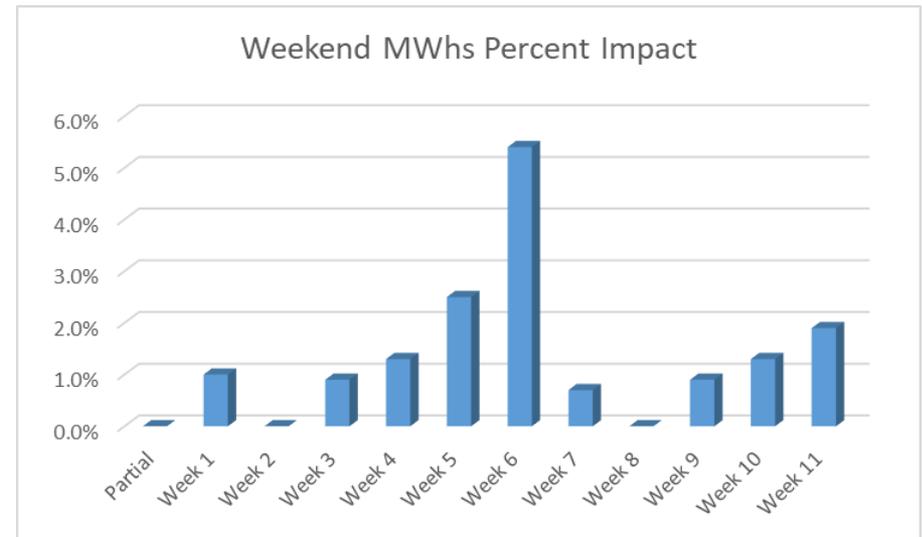
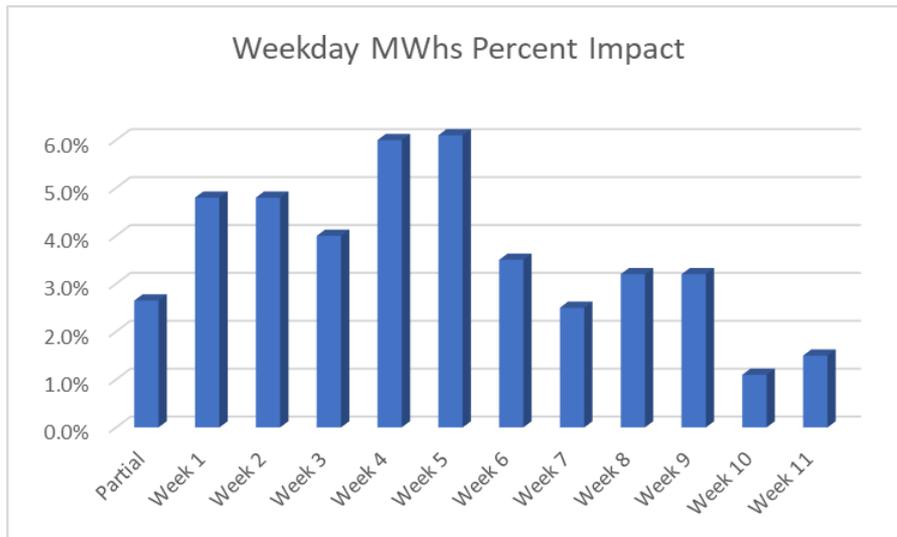
<b>Day Type</b>	<b>Peak</b>	<b>MW Impact</b>	<b>MW Percent Impact</b>
Weekday	Morning	1,690	6.7%
Weekday	Evening	1,143	4.7%
Weekend	Morning	627	3%
Weekend	Evening	274	1.2%

<b>Day Type</b>	<b>MWhs Impact</b>	<b>MWhs Percent Impact</b>
Weekday	20,807	3.7%
Weekend	7,316	1.4%

Numbers Show an Overall Reduction

The stay-at-home order began on Friday, March 20; our summary begins at the first full week beginning Monday, March 23. For details of impact during the partial stay-at-home orders, see next slide.

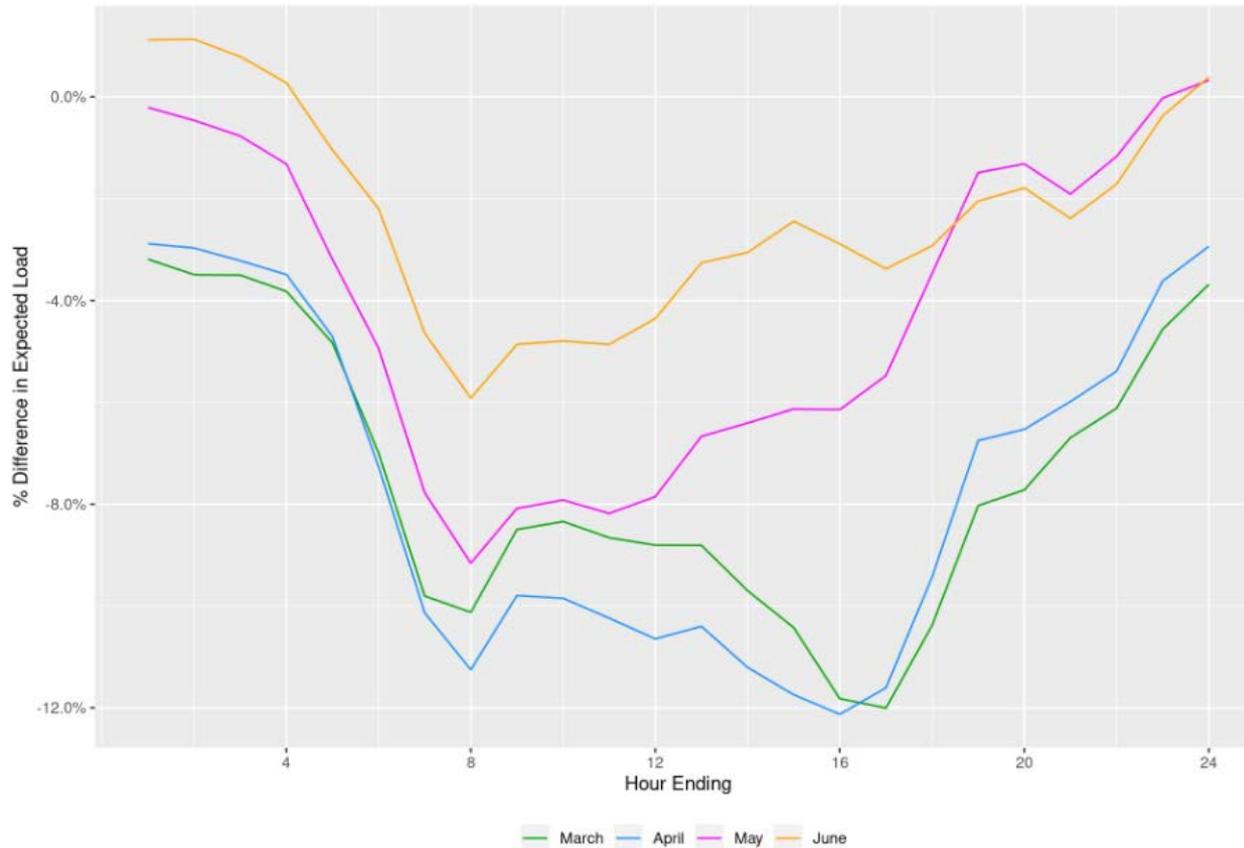
# Average daily energy system impact due to COVID-19



Numbers Show an Overall Reduction

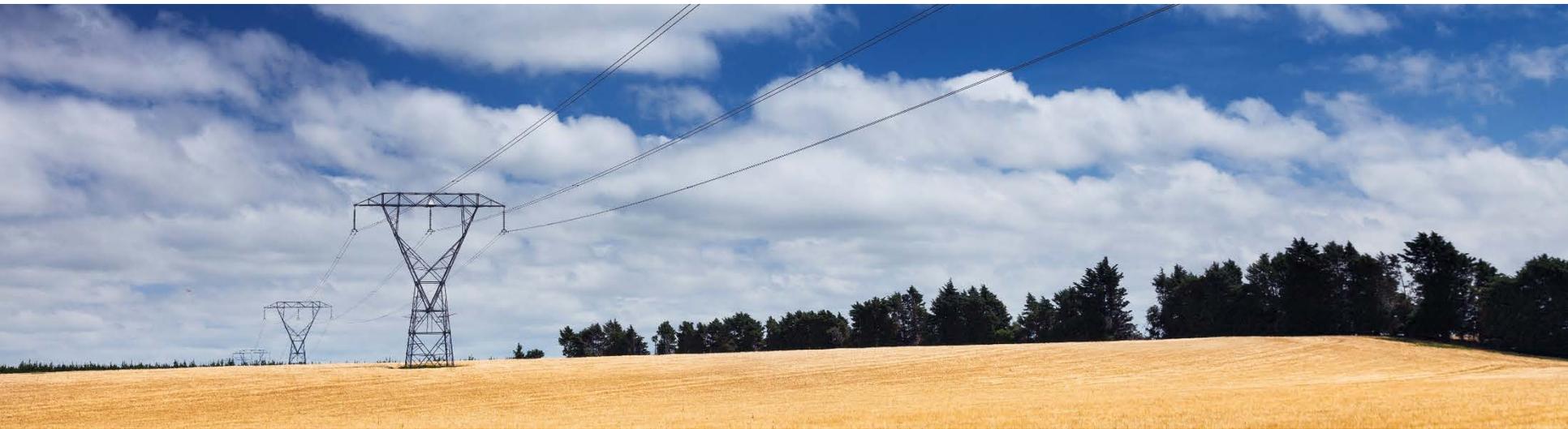
The stay-at-home order began on Friday, March 20; our summary begins at the first full week beginning Monday, March 23.

# Average weekday hourly percent difference in expected load due to COVID-19



Numbers Show an Overall Reduction

The stay-at-home order began on Friday, March 20; our analysis begins at the first full week beginning Monday, March 23.



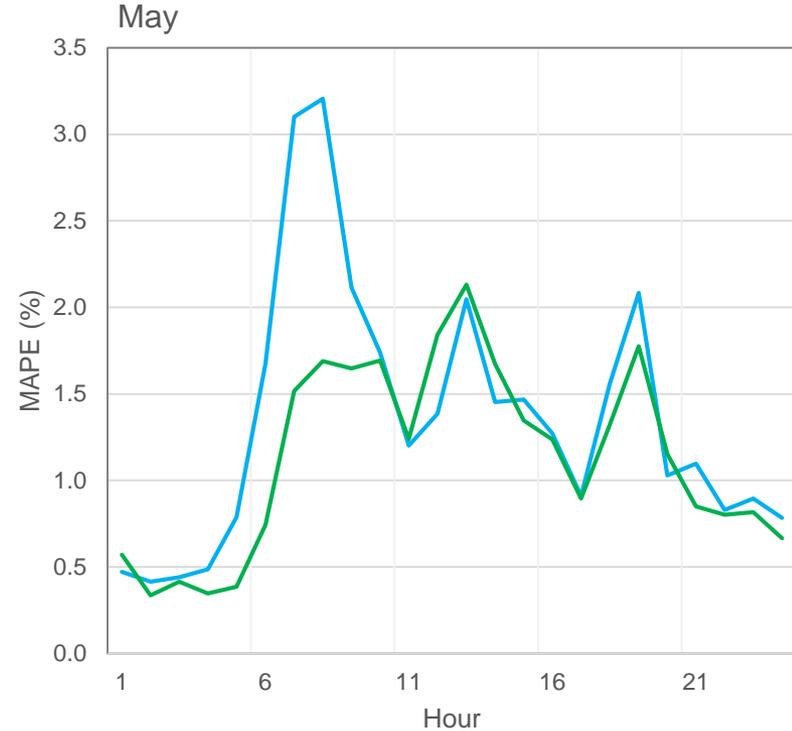
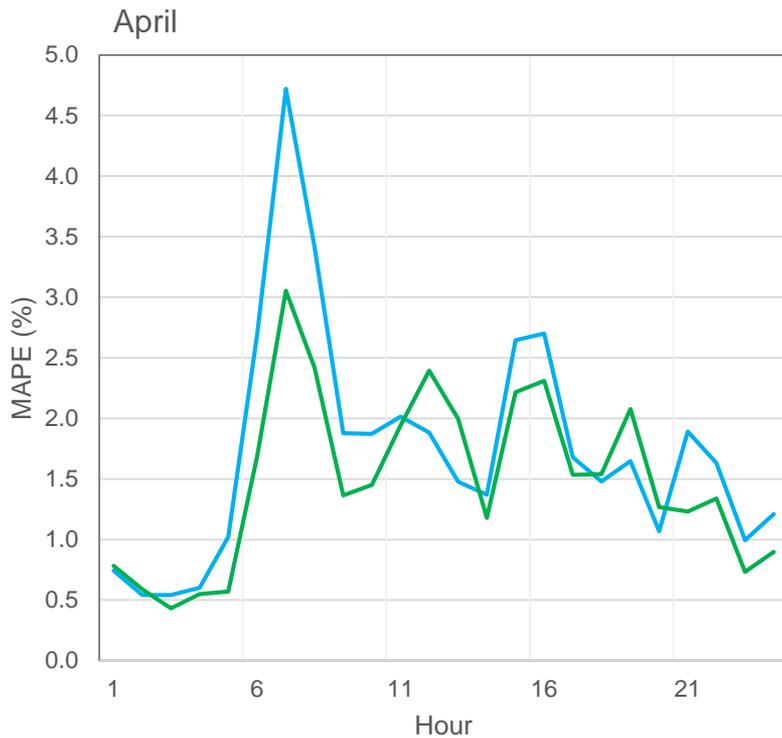
# Forecasting Improvements

# Improvements to model to adjust for morning turn and peak profiles

- While the sophisticated load forecast models could not have anticipated the stay-at-home orders, the ISO continues to fine-tune its models to improve forecast accuracy as conditions evolve.
- In March, CAISO improved DA accuracy by 1.39% from Base Model as stay-at-home orders began.

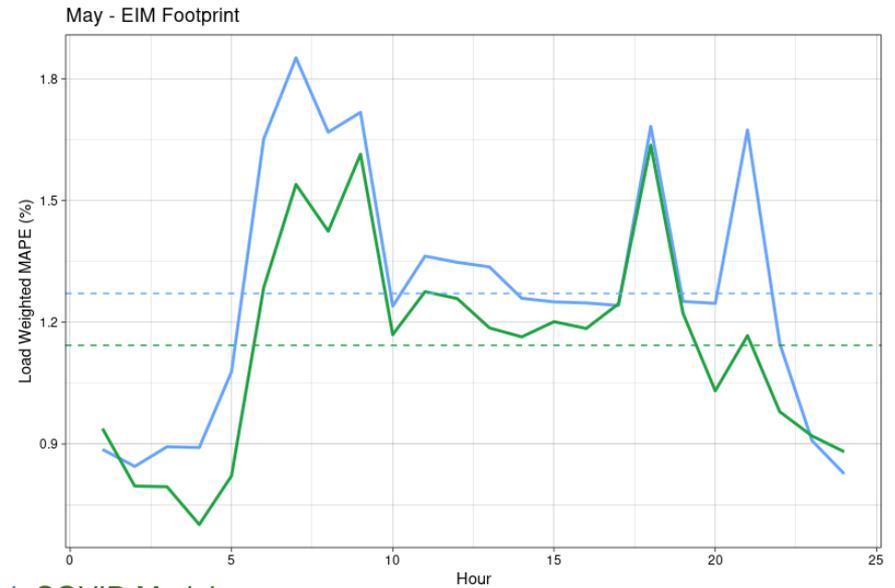
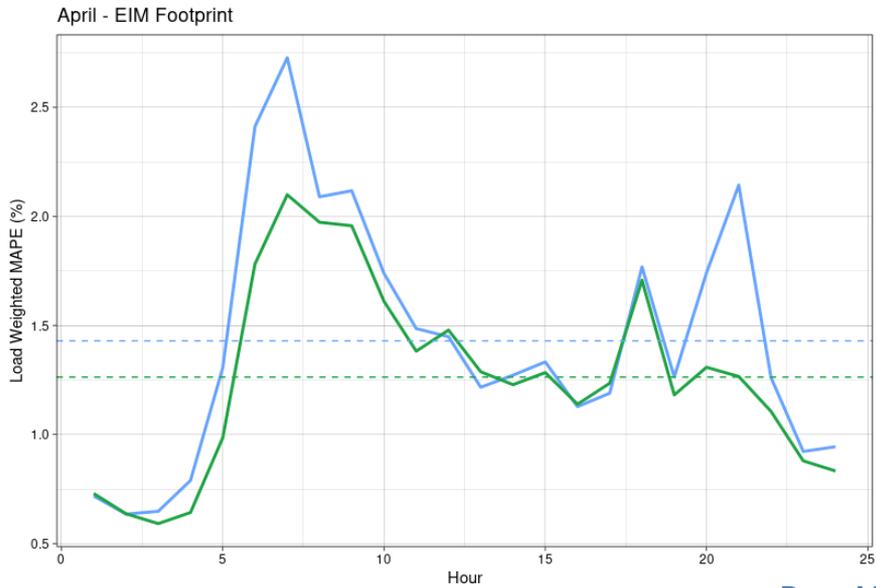
CAISO Accuracy Improvements by Market					
	DA	STUC	HASP	RTPD	RTD
April	2.17%	0.57%	0.26%	0.26%	0.03%
May	2.82%	0.38%	0.22%	0.22%	0.05%

# Hour Ahead Error improvement by month - CAISO



Base Model; COVID Model

# T-60 Error improvement by month - EIM footprint



Base Model; COVID Model

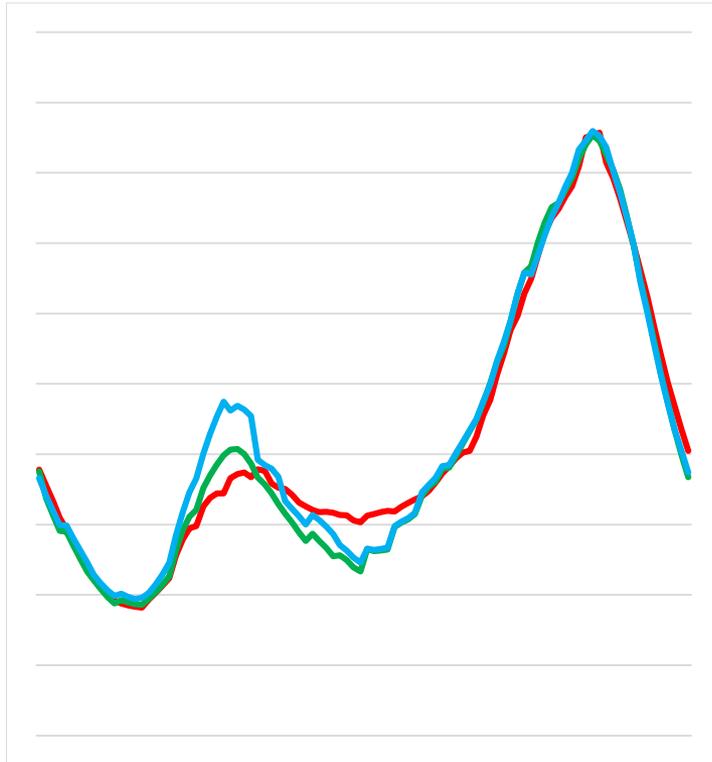
## EIM Area Improved Forecast Accuracy

Month	Average
April	0.16% (1.1 - 4.4% by entity)
May	0.13% (0.3 - 1.9% by entity)

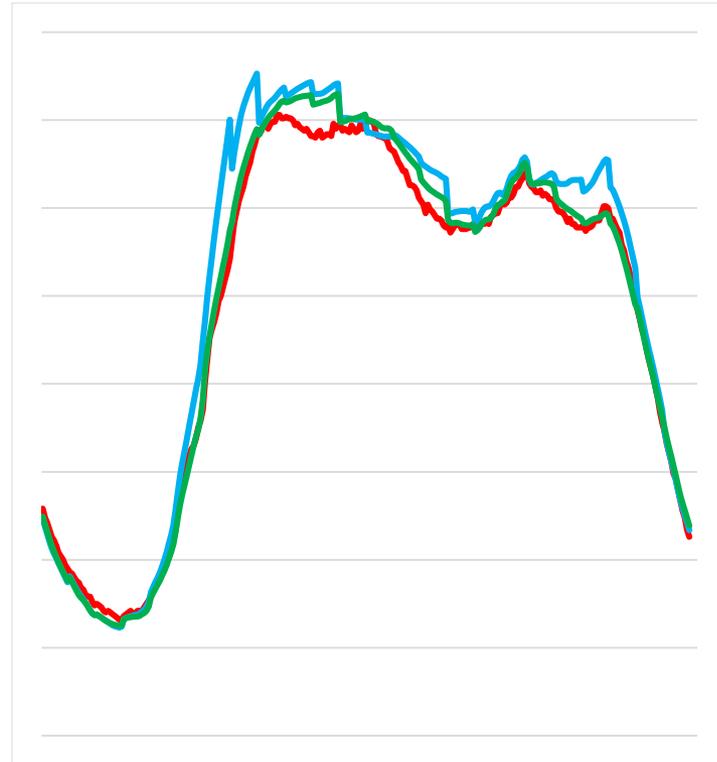
*\*\*Does not include CAISO load*

# Model adjustments for COVID – Hour Ahead Forecast

## CAISO Example

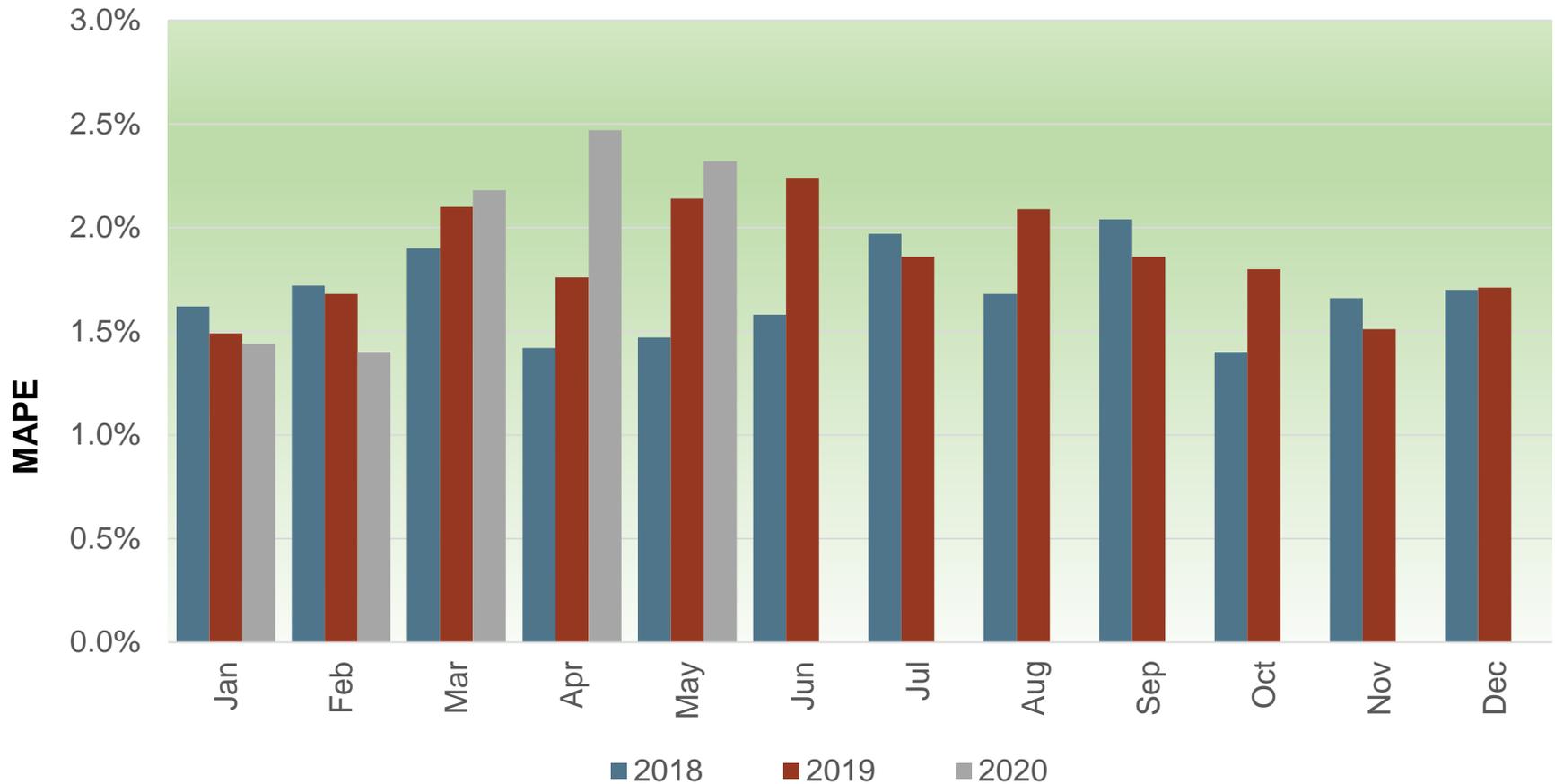


## EIM Entity Example



Load Actual; Base Model; Adjusted Forecast

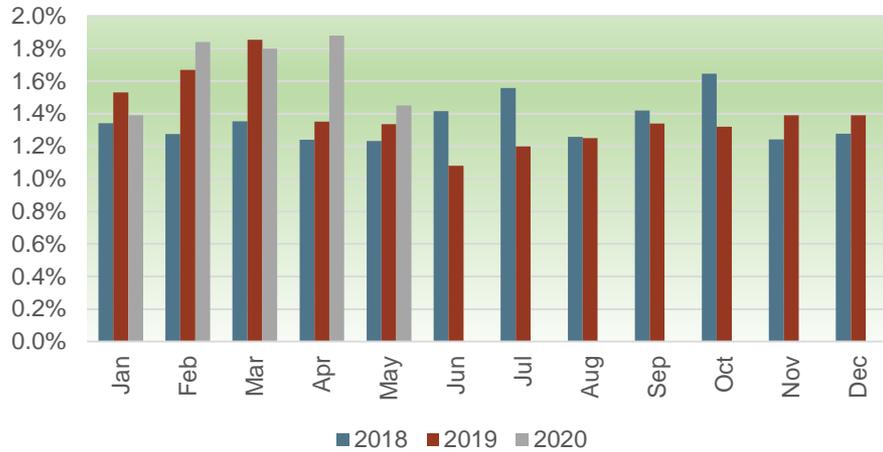
# CAISO Day-ahead load forecast



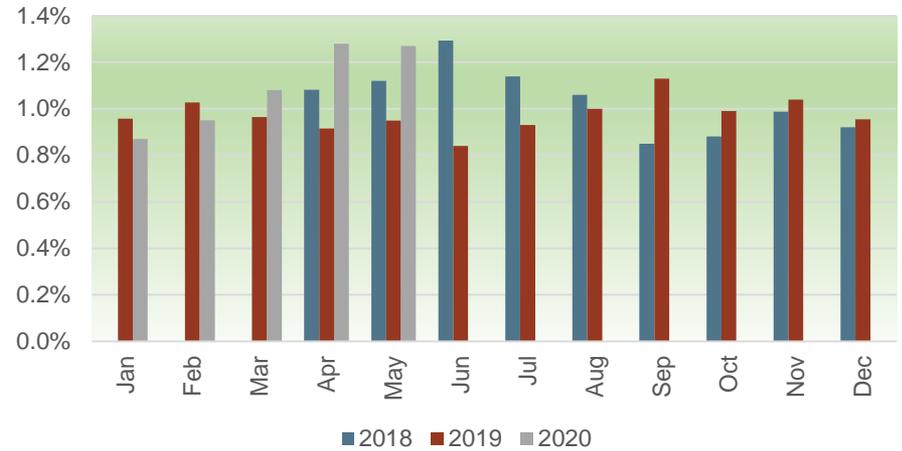
\*\*MAPE =  $\text{abs}(\text{Forecast} - \text{Actual})/\text{Actual}$

# EIM T-60 Forecast

## AZPS T-60 Forecast



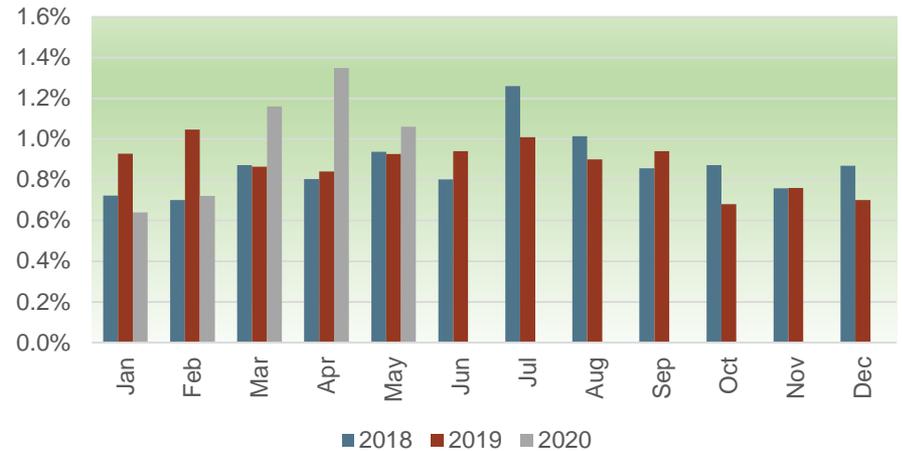
## IPCO T-60 Forecast



## PGE T-60 Forecast

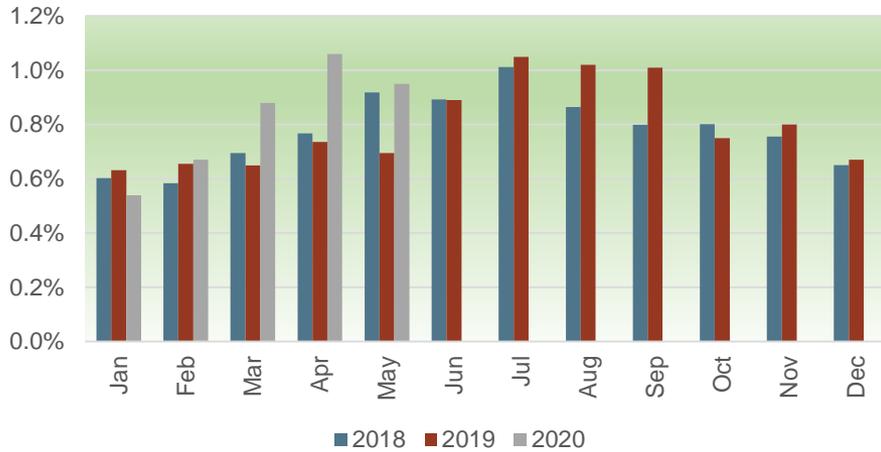


## NVE T-60 Forecast

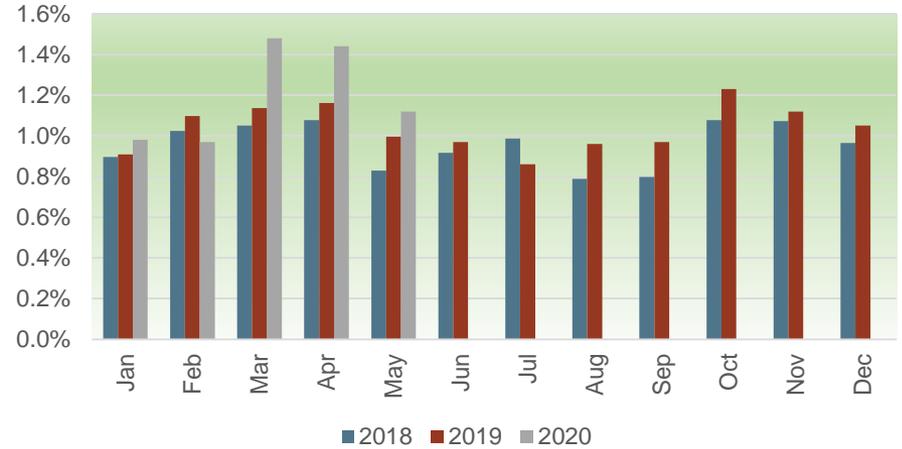


# EIM T-60 Forecast

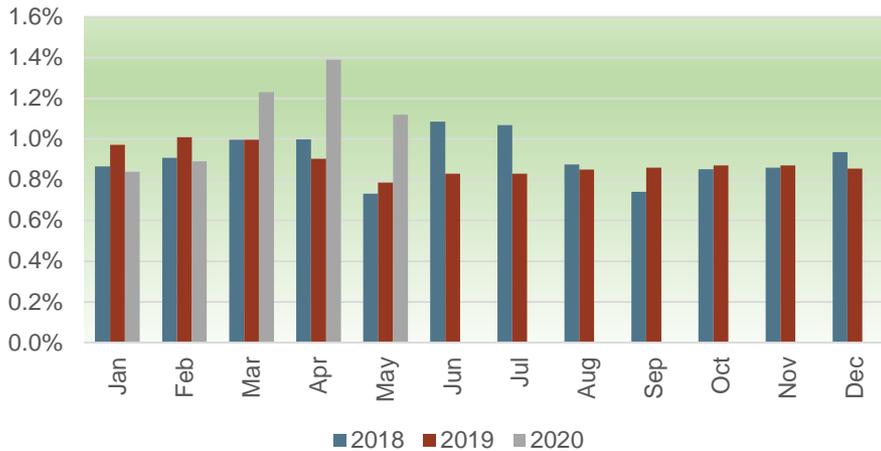
## PACE T-60 Forecast



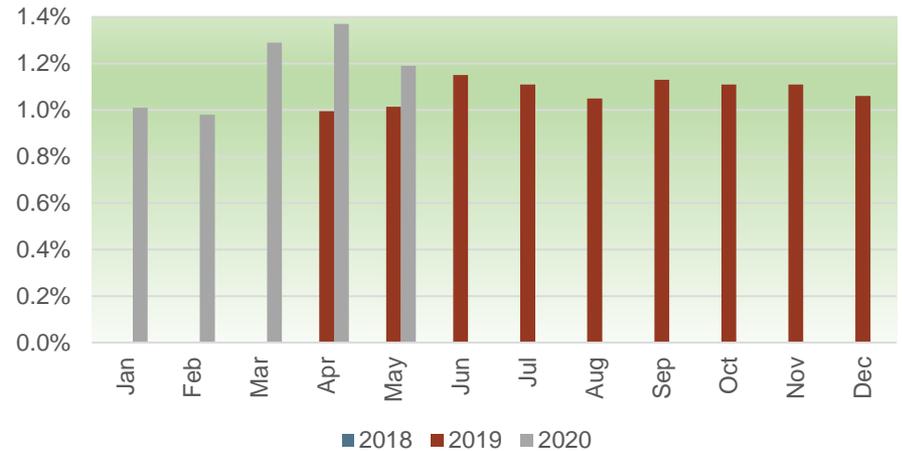
## PACW T-60 Forecast

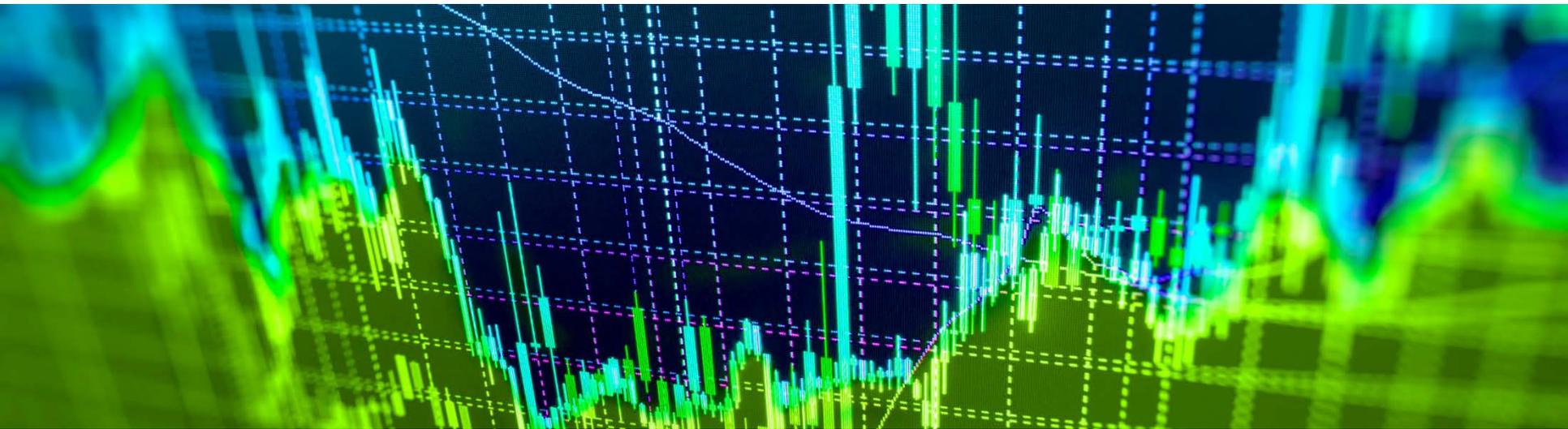


## PSE T-60 Forecast



## SMUD T-60 Forecast

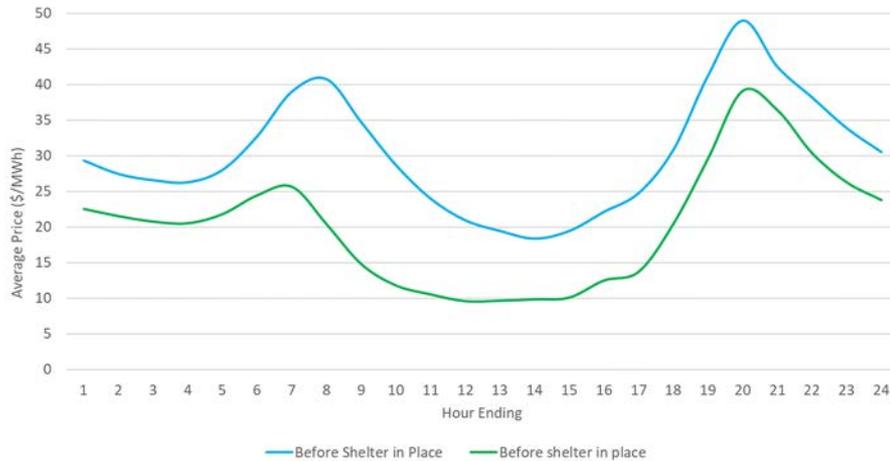




Market analysis and forecasting

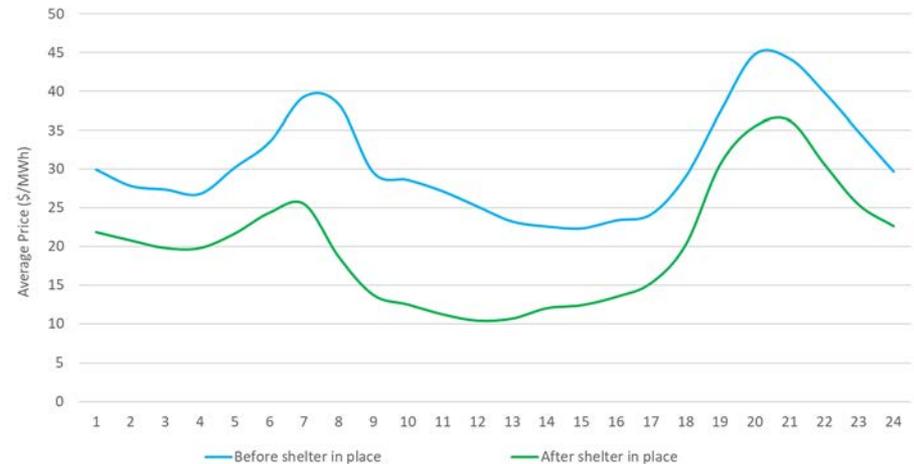
# Price impact: COVID-19

# After the shelter in place provisions, energy prices in CAISO markets saw a fair decline

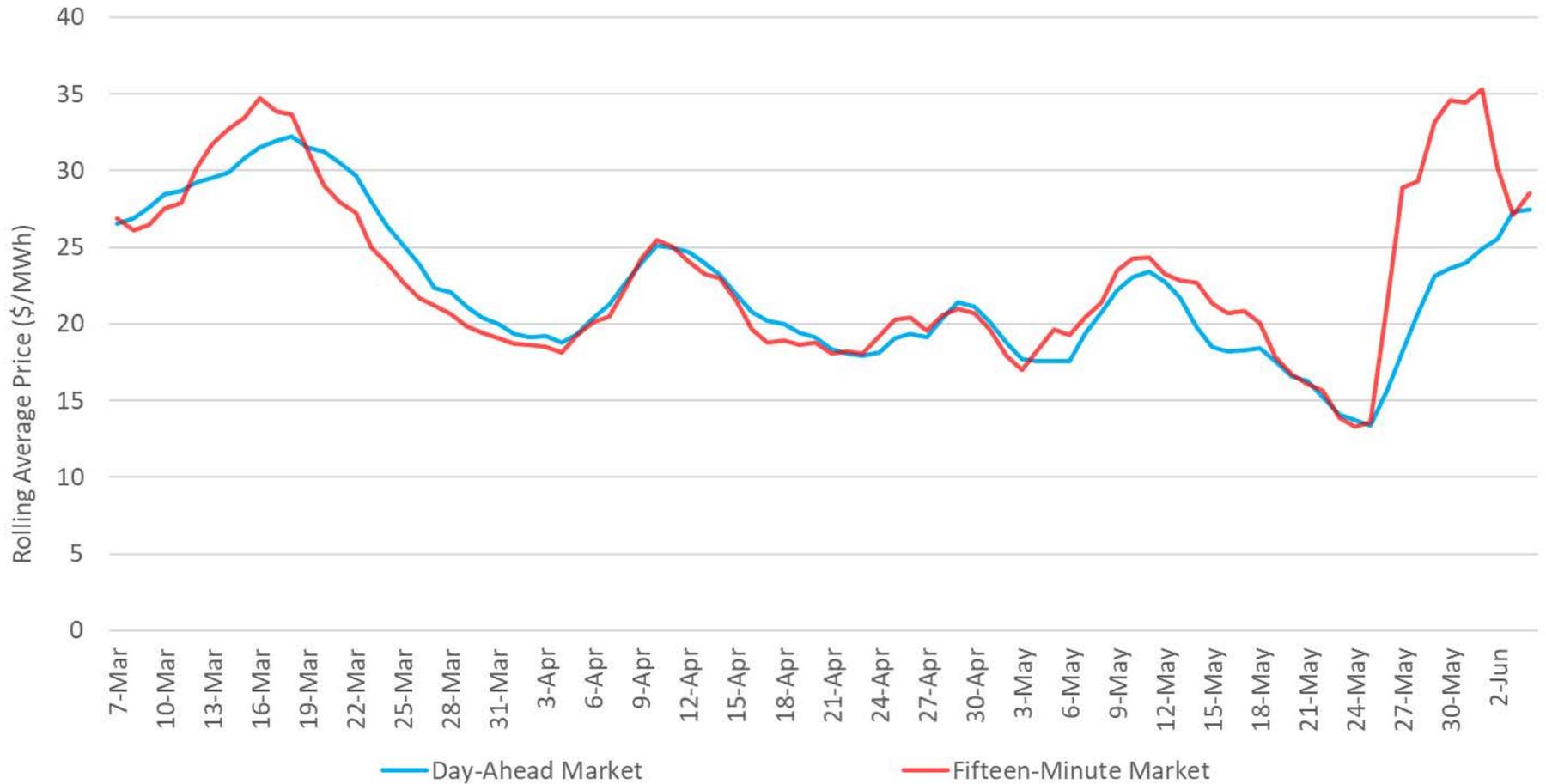


Real-Time Prices

Day-Ahead prices



# With summer-like temperatures and loads, prices have increased accordingly

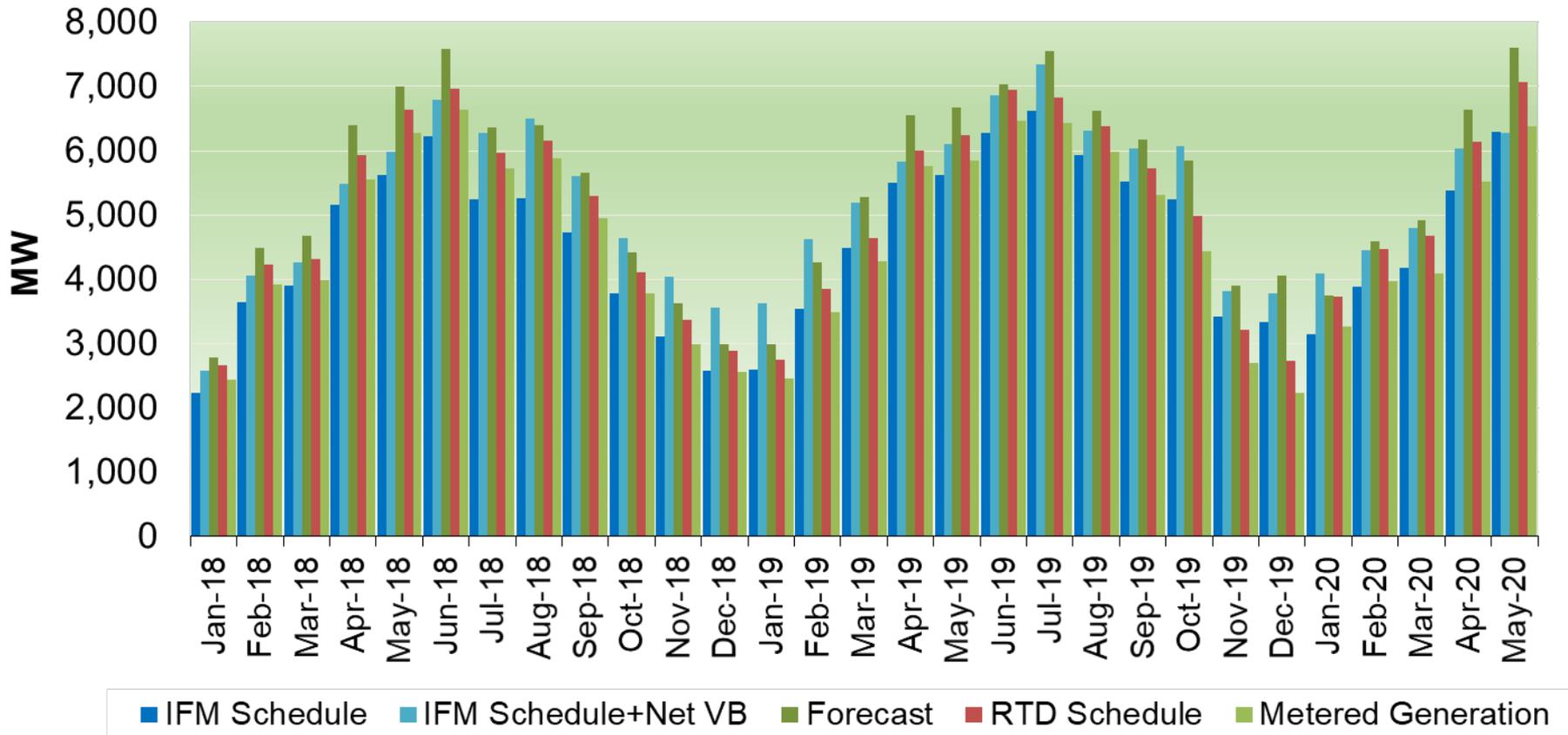


# Looking Ahead

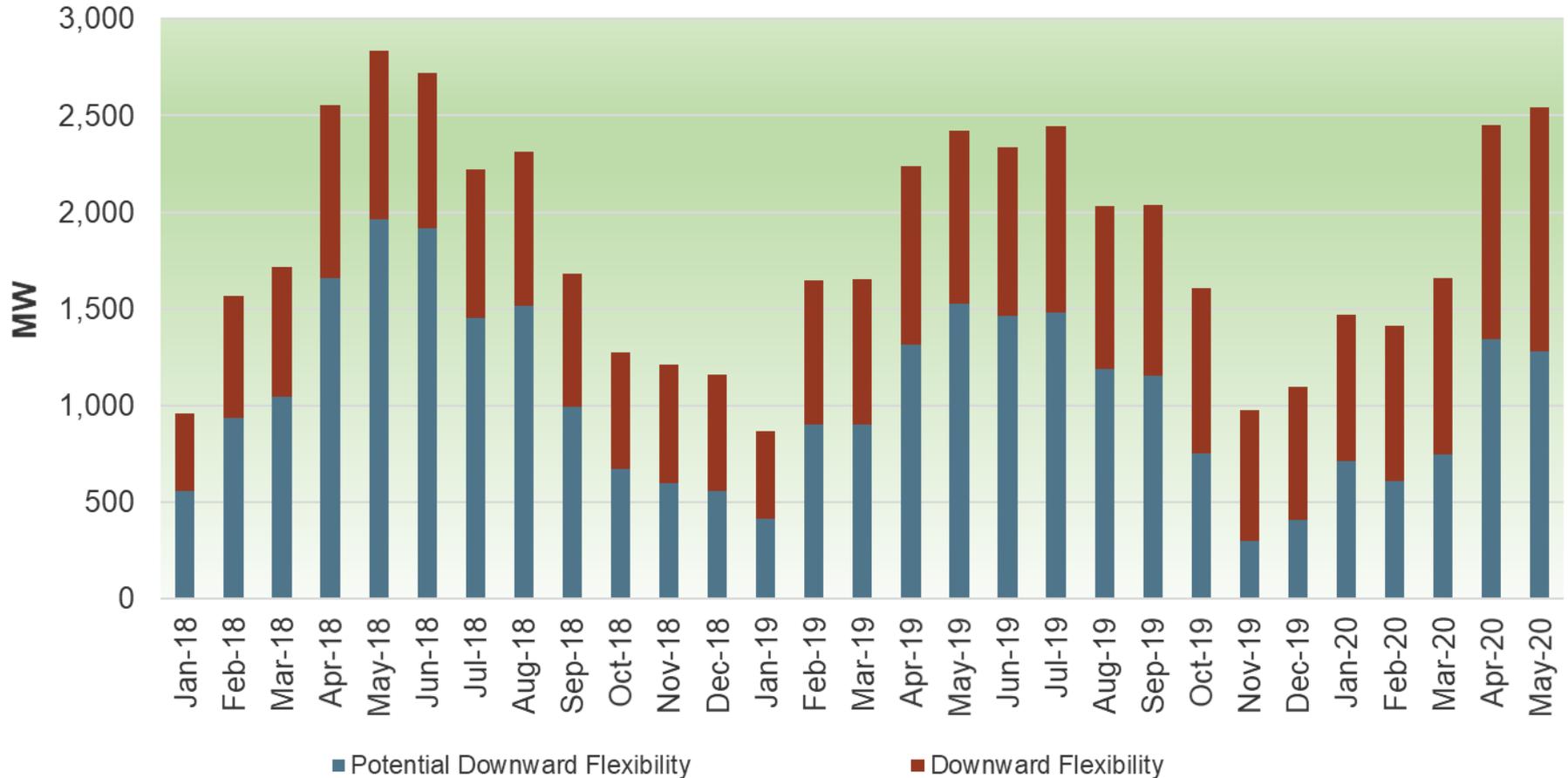
- As states re-open, load reactions to Summer temperatures may differ from previous years
- The ISO will continue to analyze various modeling methods to ensure forecast accuracy and quality

# Market Metrics

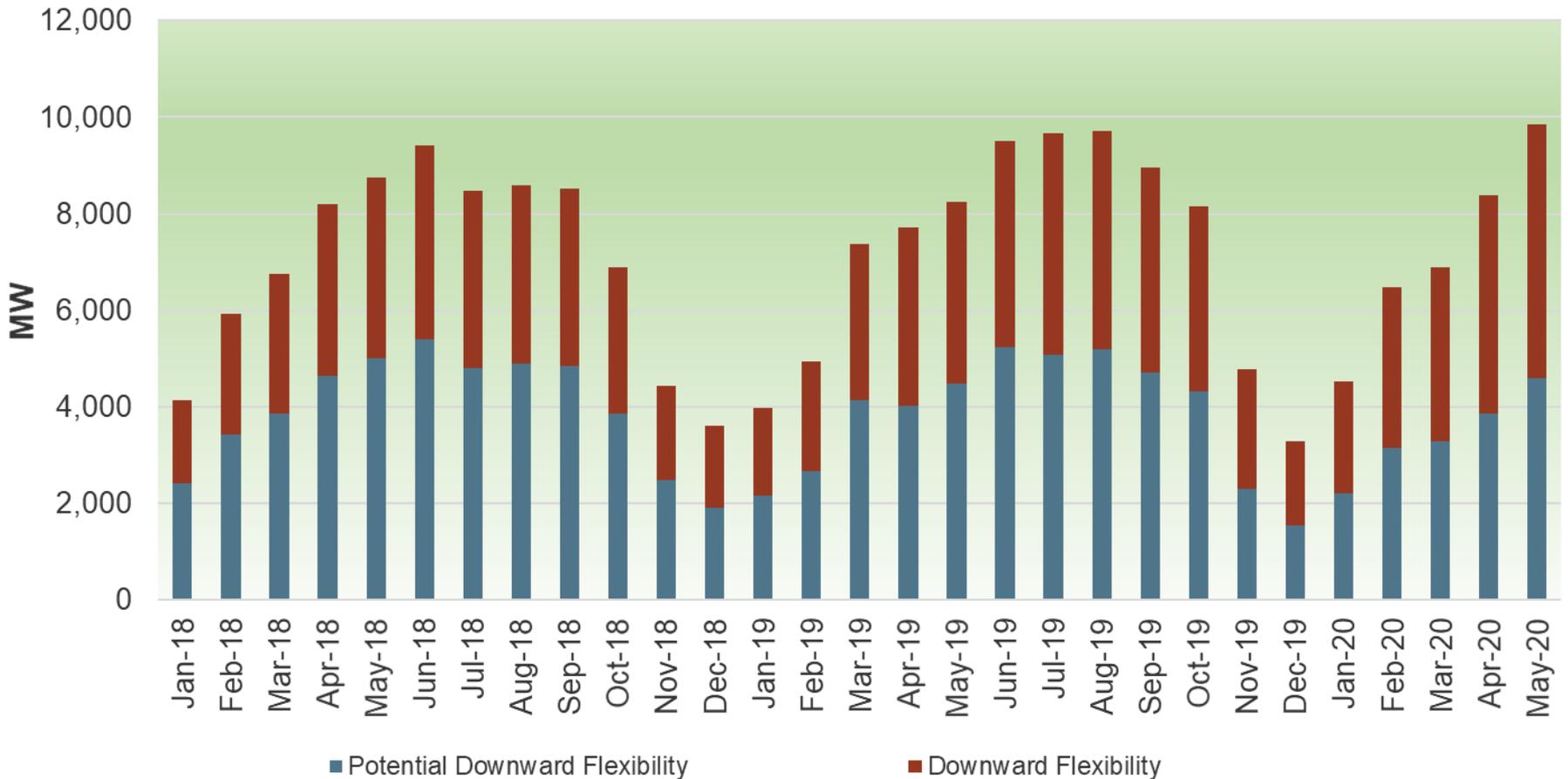
# ISO total monthly VERS schedules and forecasts compared to actuals



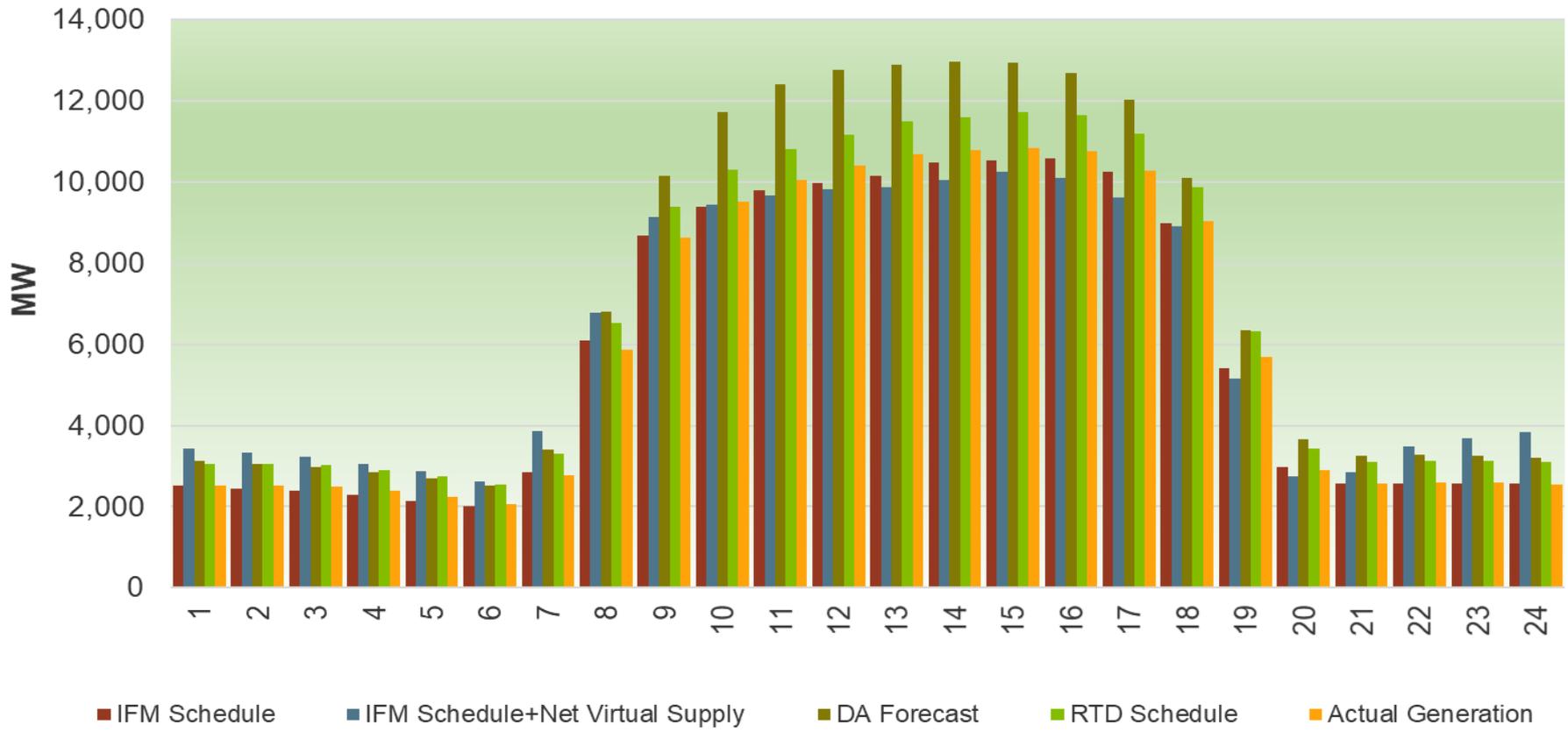
# Monthly wind (VERs) downward flexibility in FMM



# Monthly solar (VERs) downward flexibility in FMM from 11 AM to 5 PM

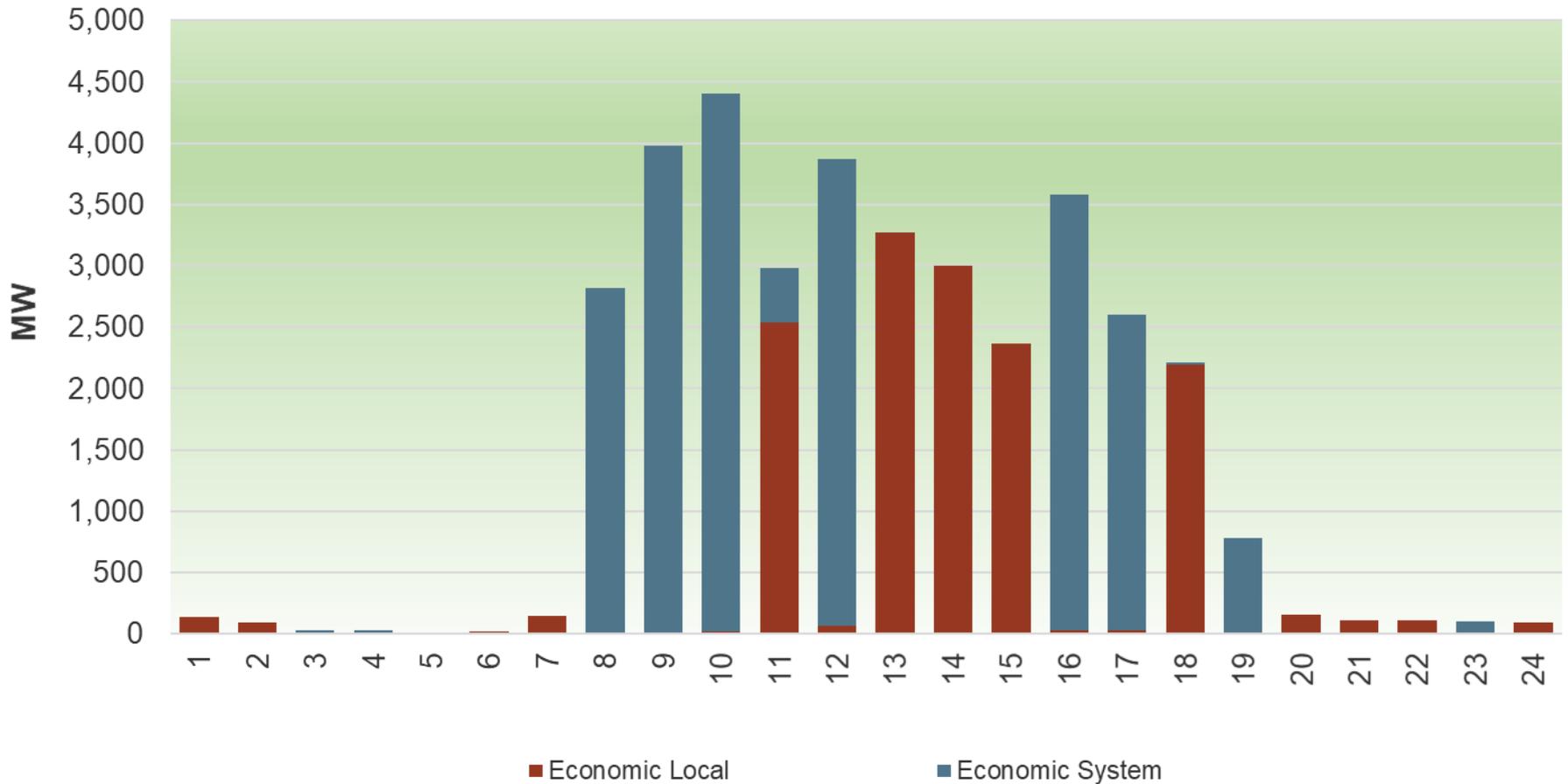


# Renewable (VERS) schedules including net virtual supply aligns with VER forecast in April and May

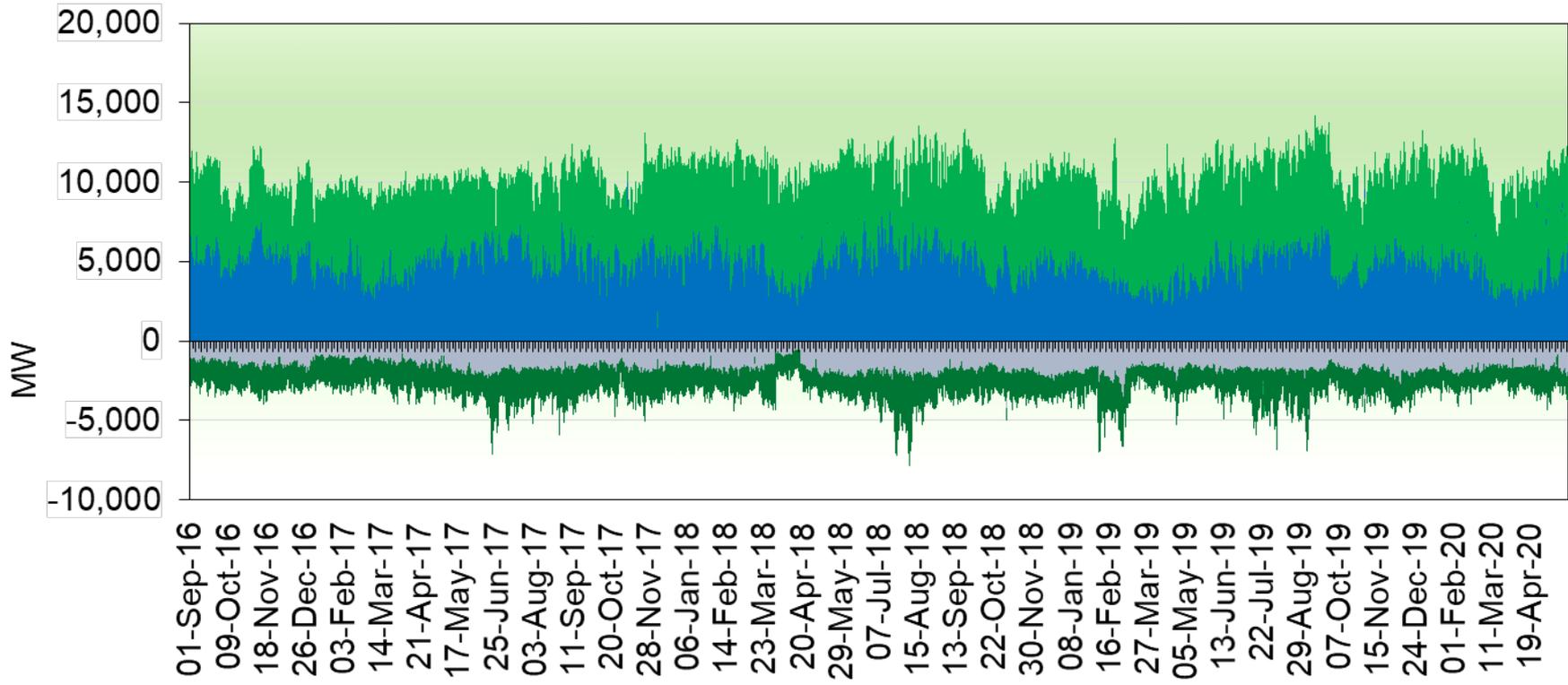


<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EFF75C2E-F28E-4087-B88B-8DFFAED828F8>

# Hourly distribution of maximum RTD renewable (VERS) curtailment in May

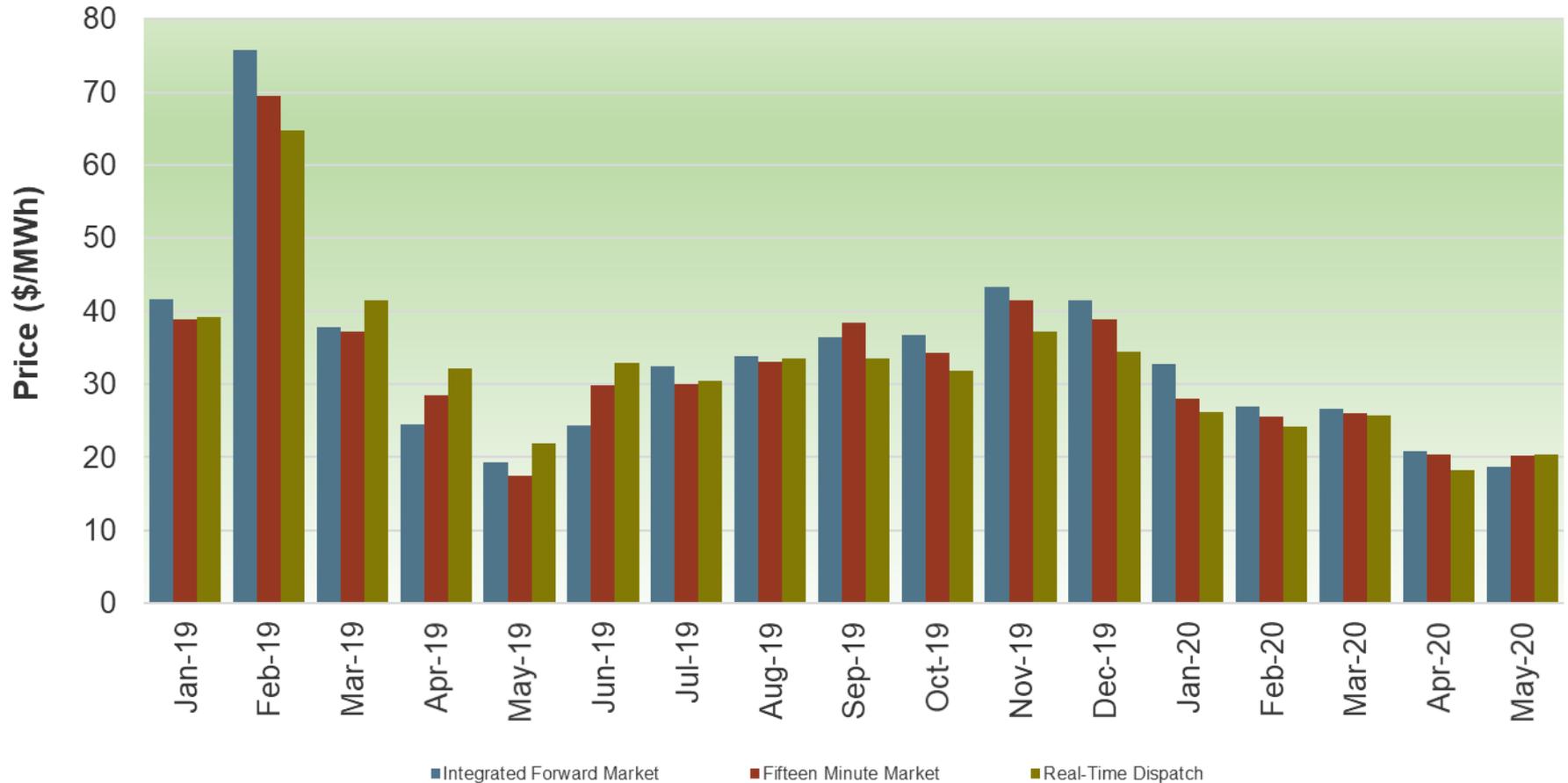


# Self scheduled interties in the real-time market remained at historical levels



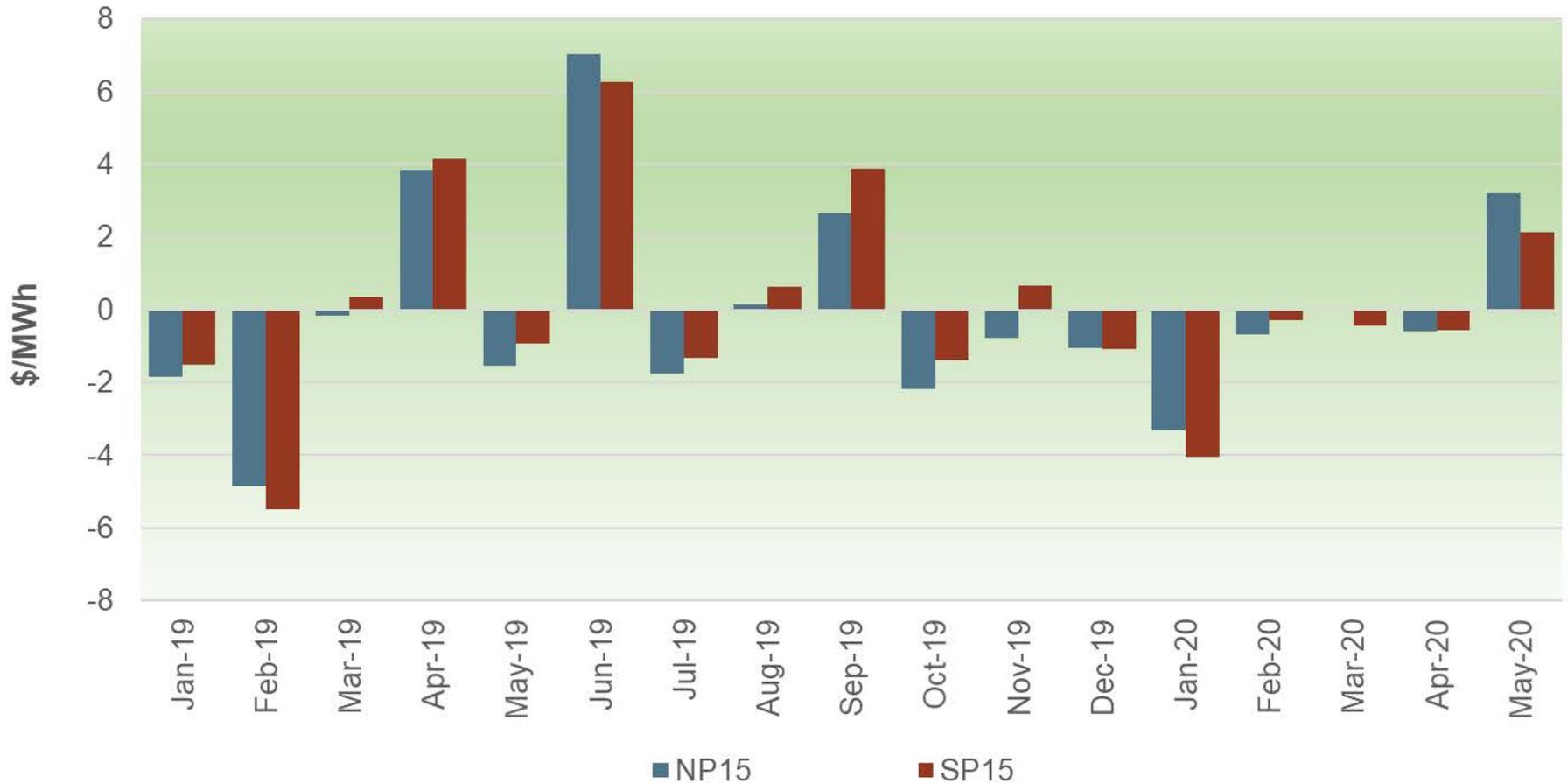
■ Self Sched Export    ■ Bid-In Export    ■ Self Sched Import    ■ Bid-in Import

# Good price convergence observed in recent months

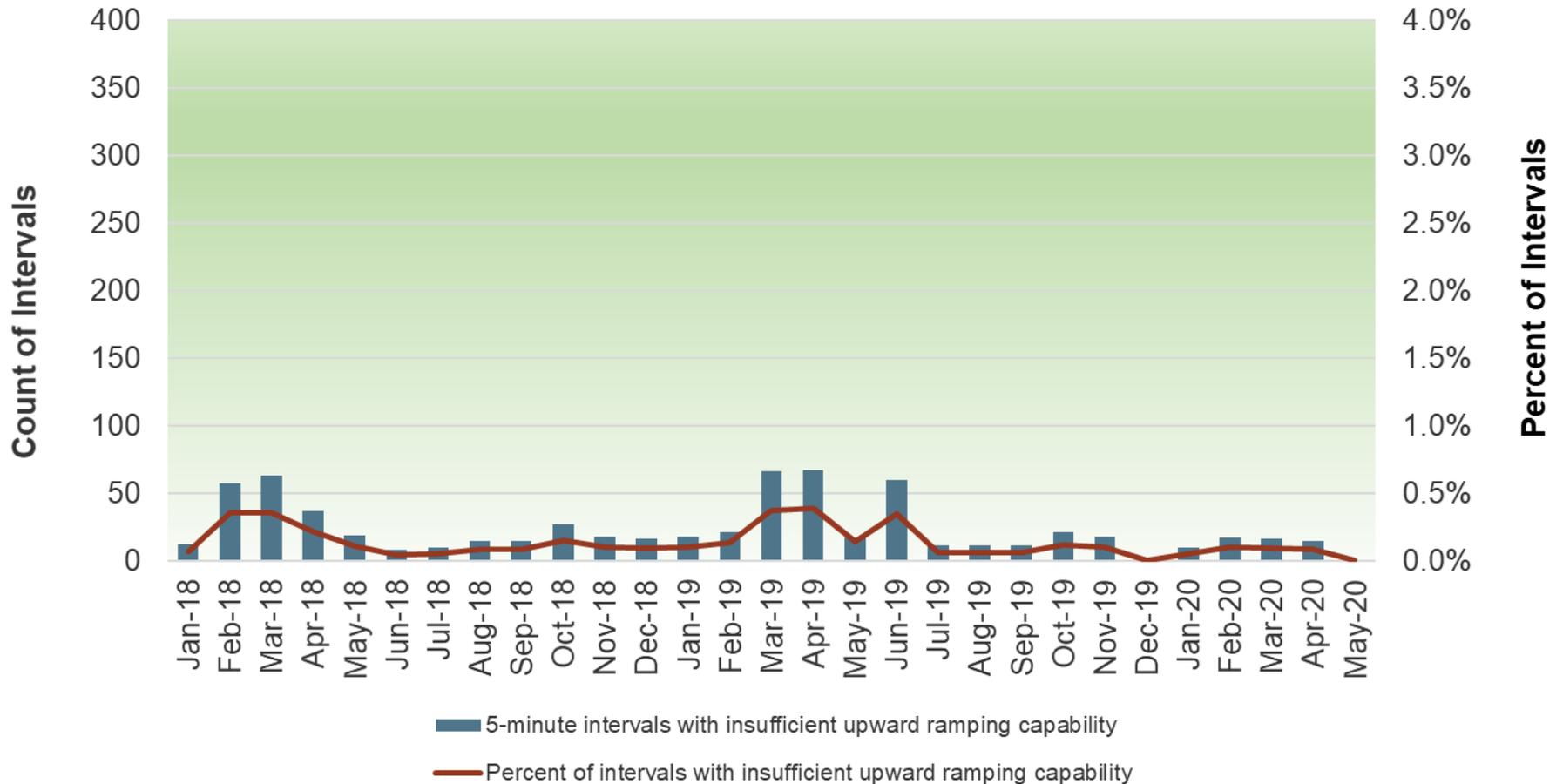


Note: Metric Based on System Marginal Energy Component (SMEC)

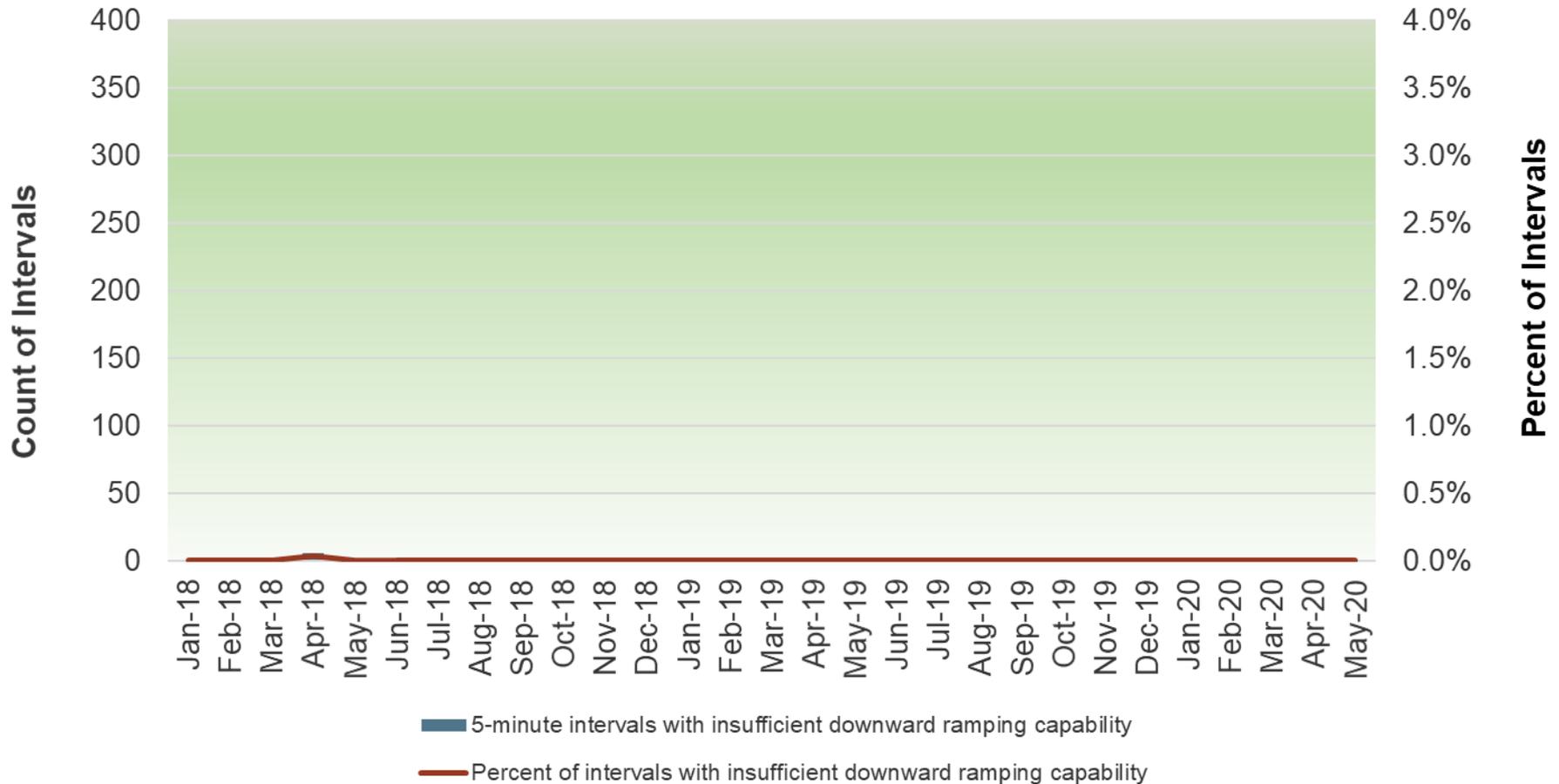
# RT prices slightly higher than DA prices in May



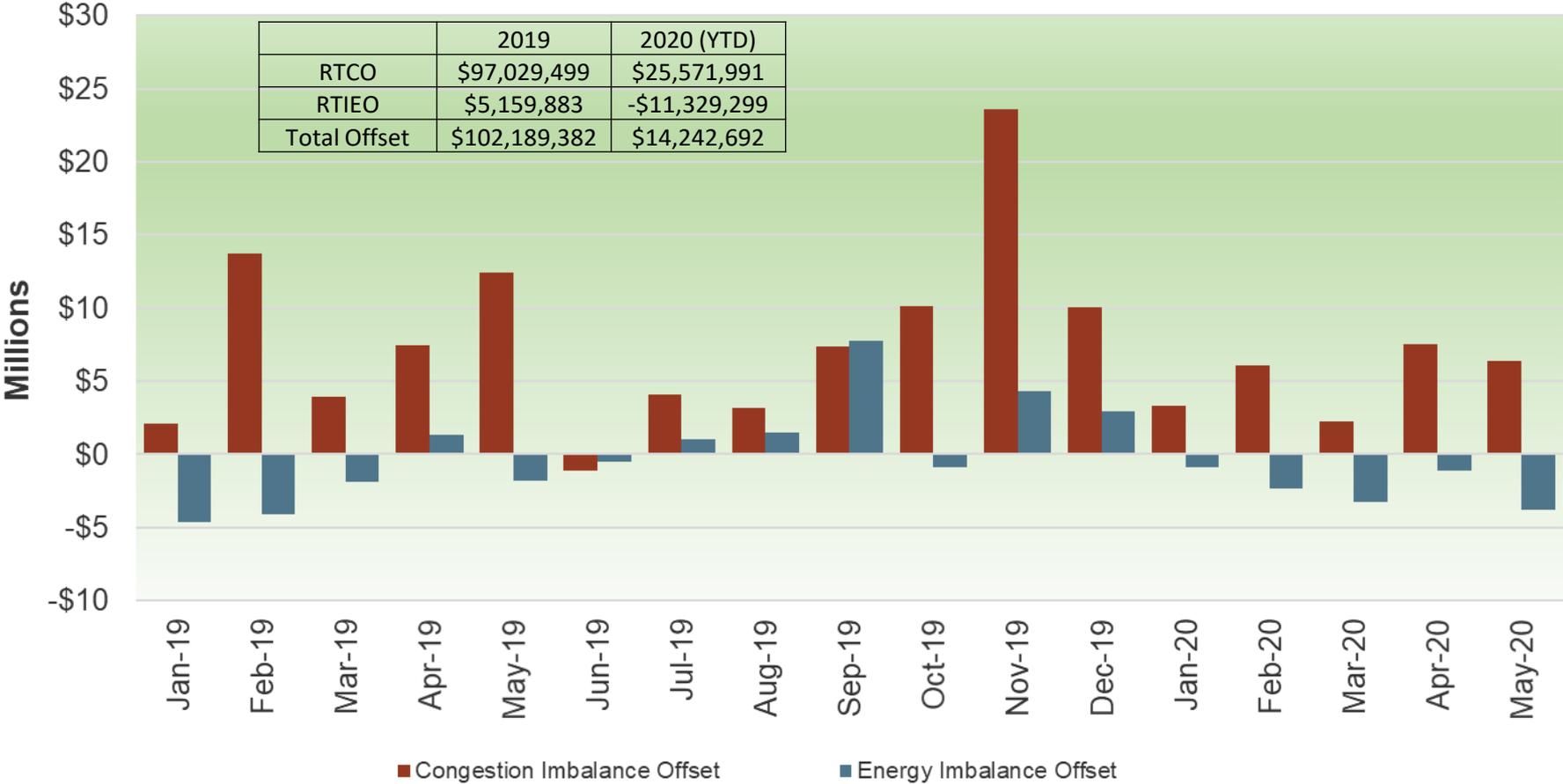
# Insufficient upward ramping capacity in ISO real-time remained low in March - May



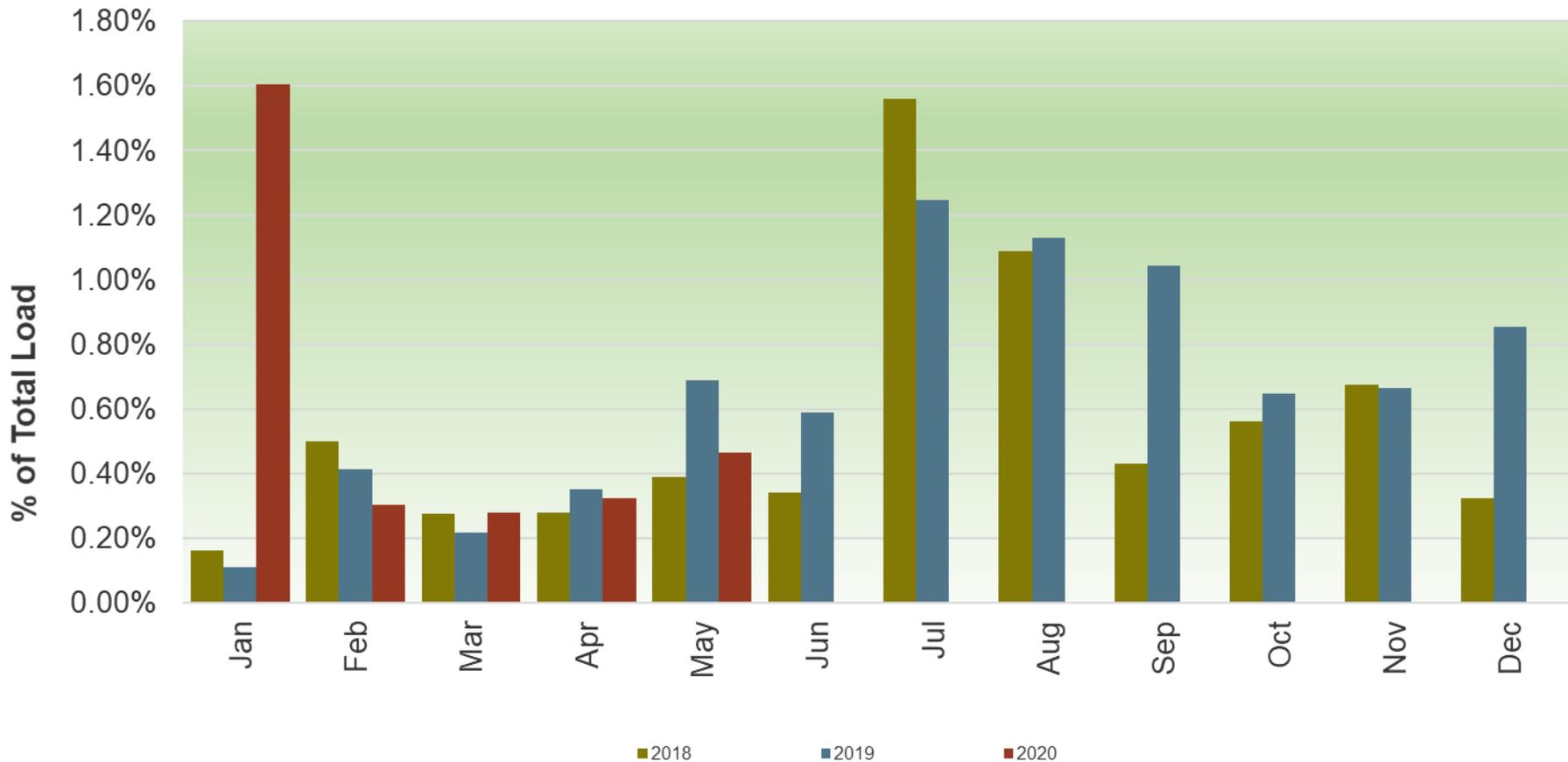
# Insufficient downward ramping capacity in real-time stayed low



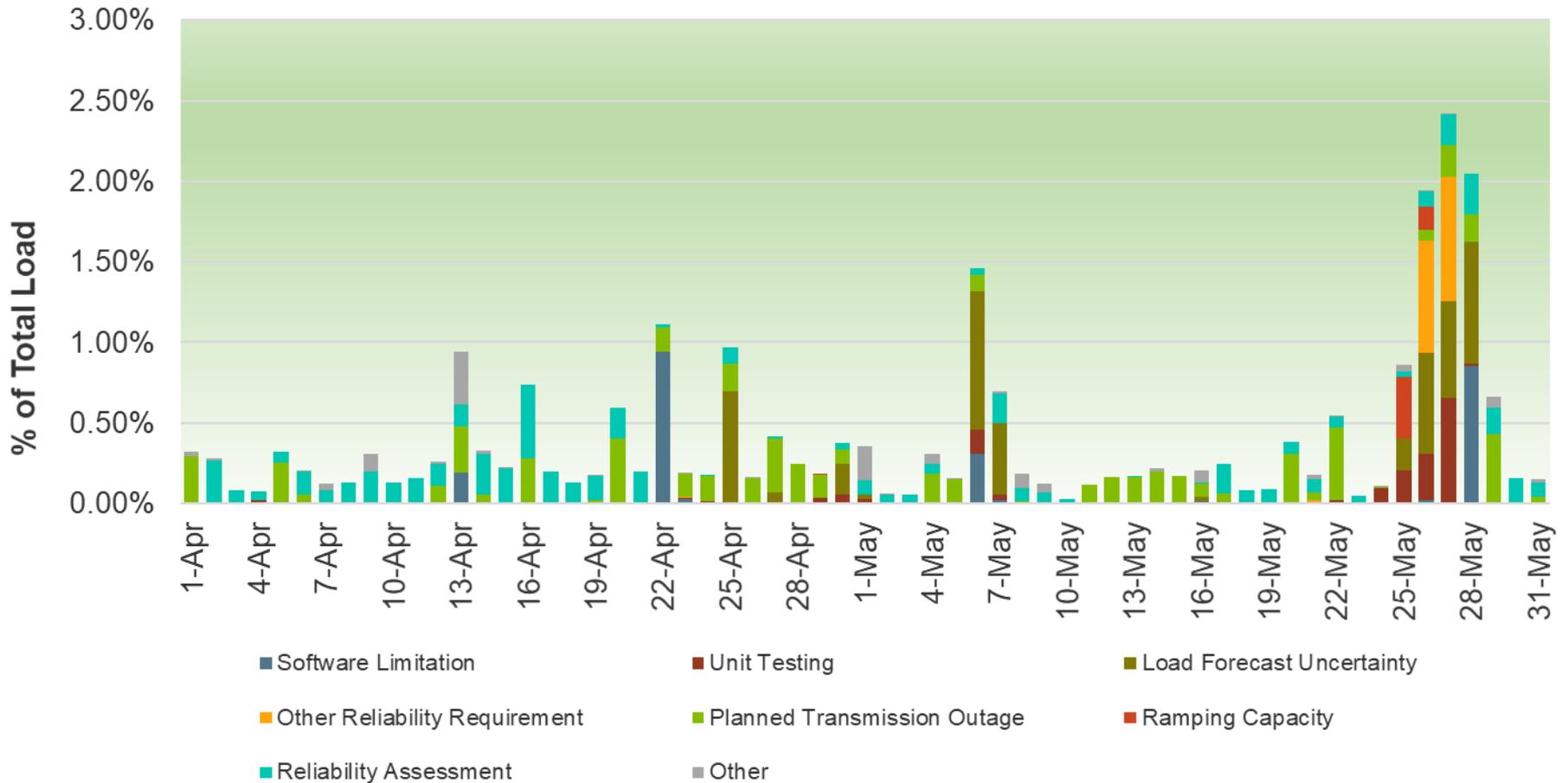
# ISO area RTCO trended downward since last November



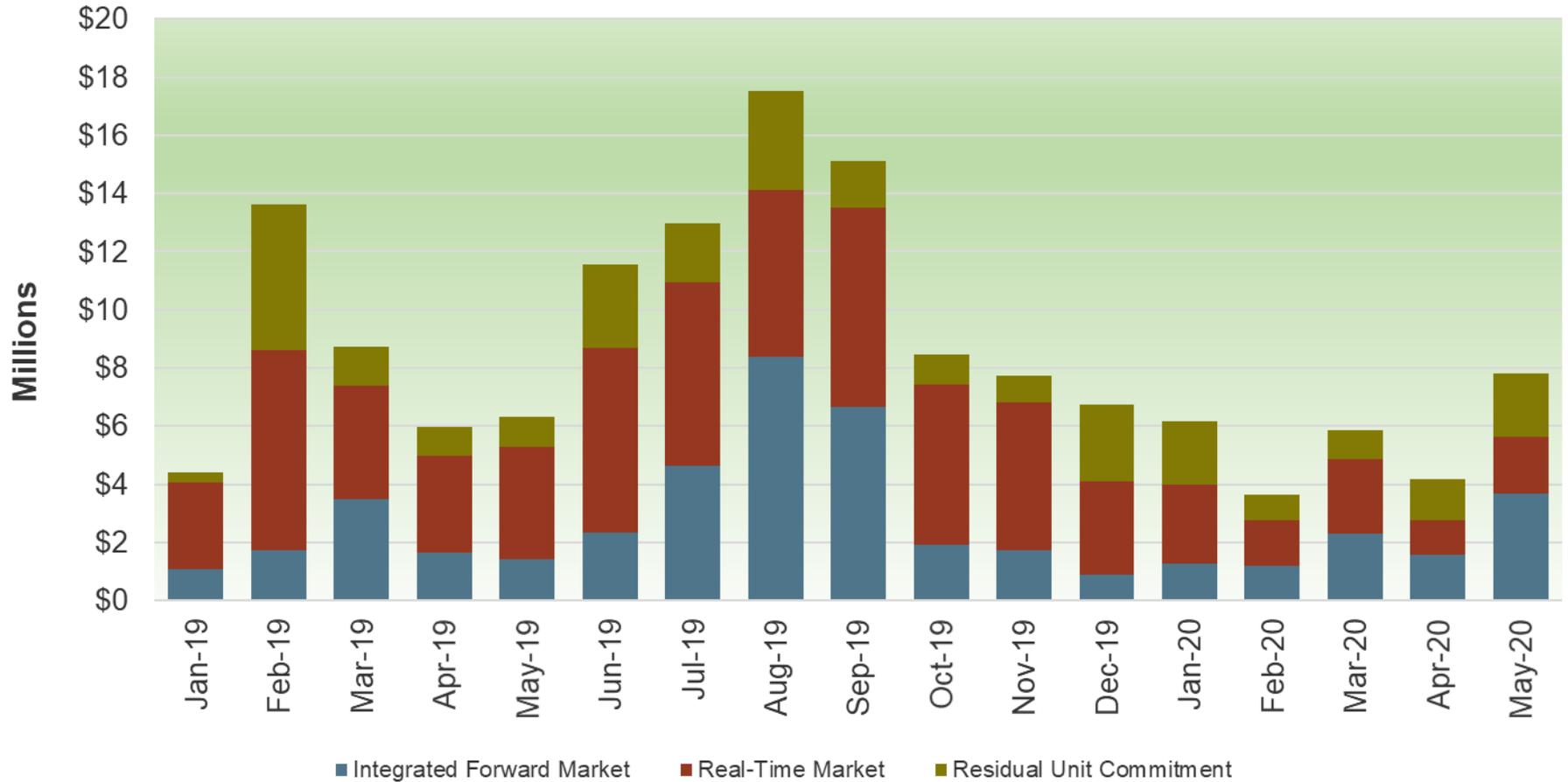
# Exceptional dispatch volume in the ISO area has remained at historical levels



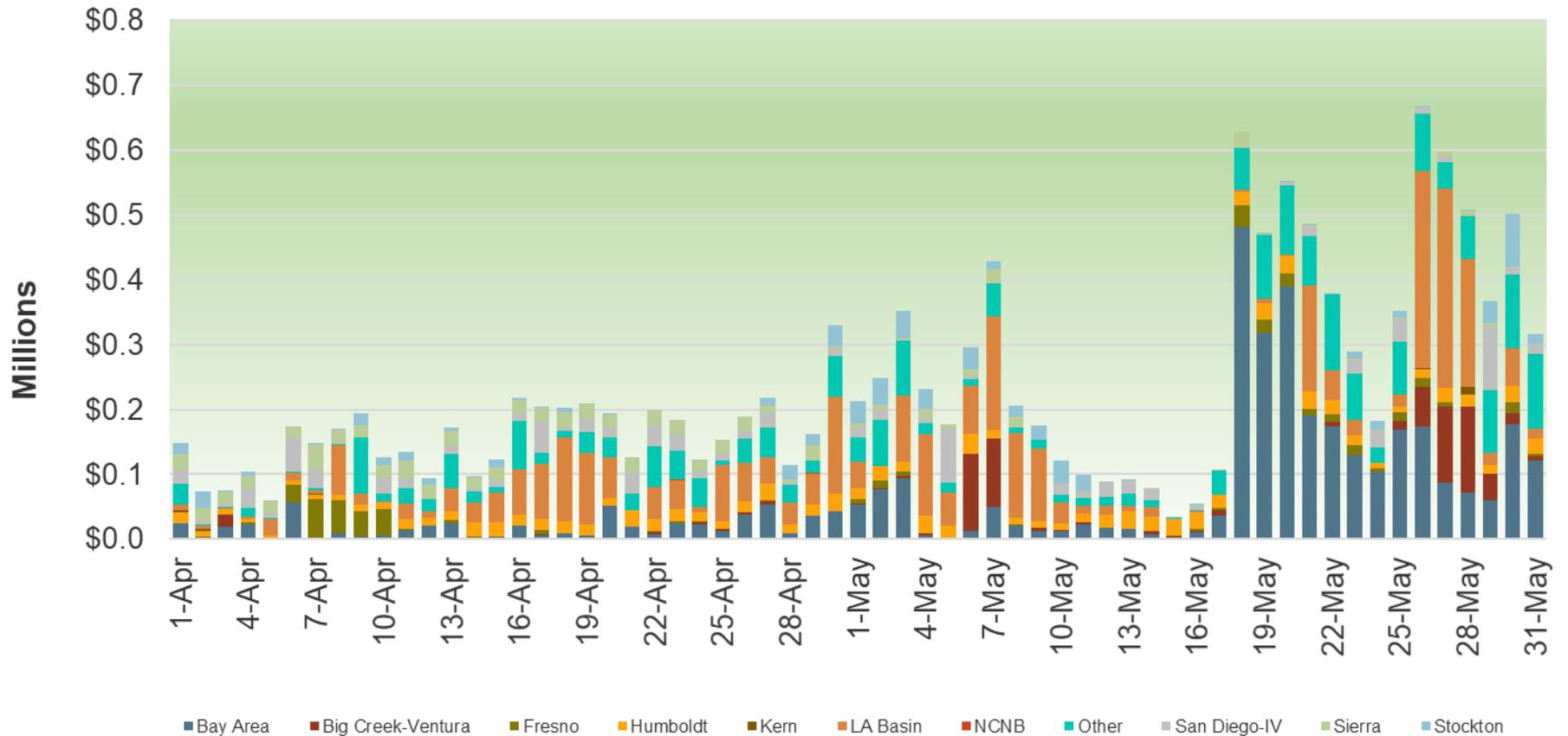
# Exceptional dispatches volume driven by a variety of reasons in April and May



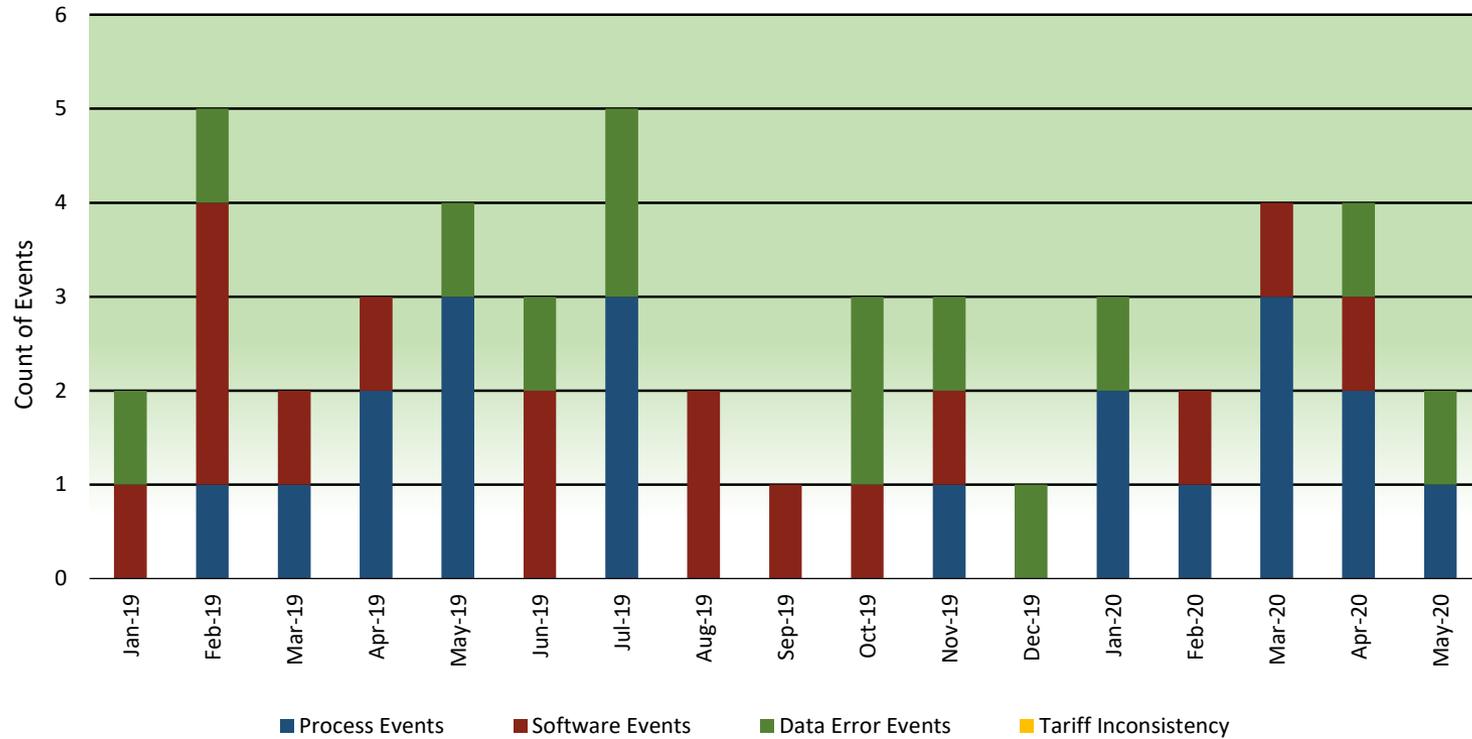
# Bid cost recovery rose in May



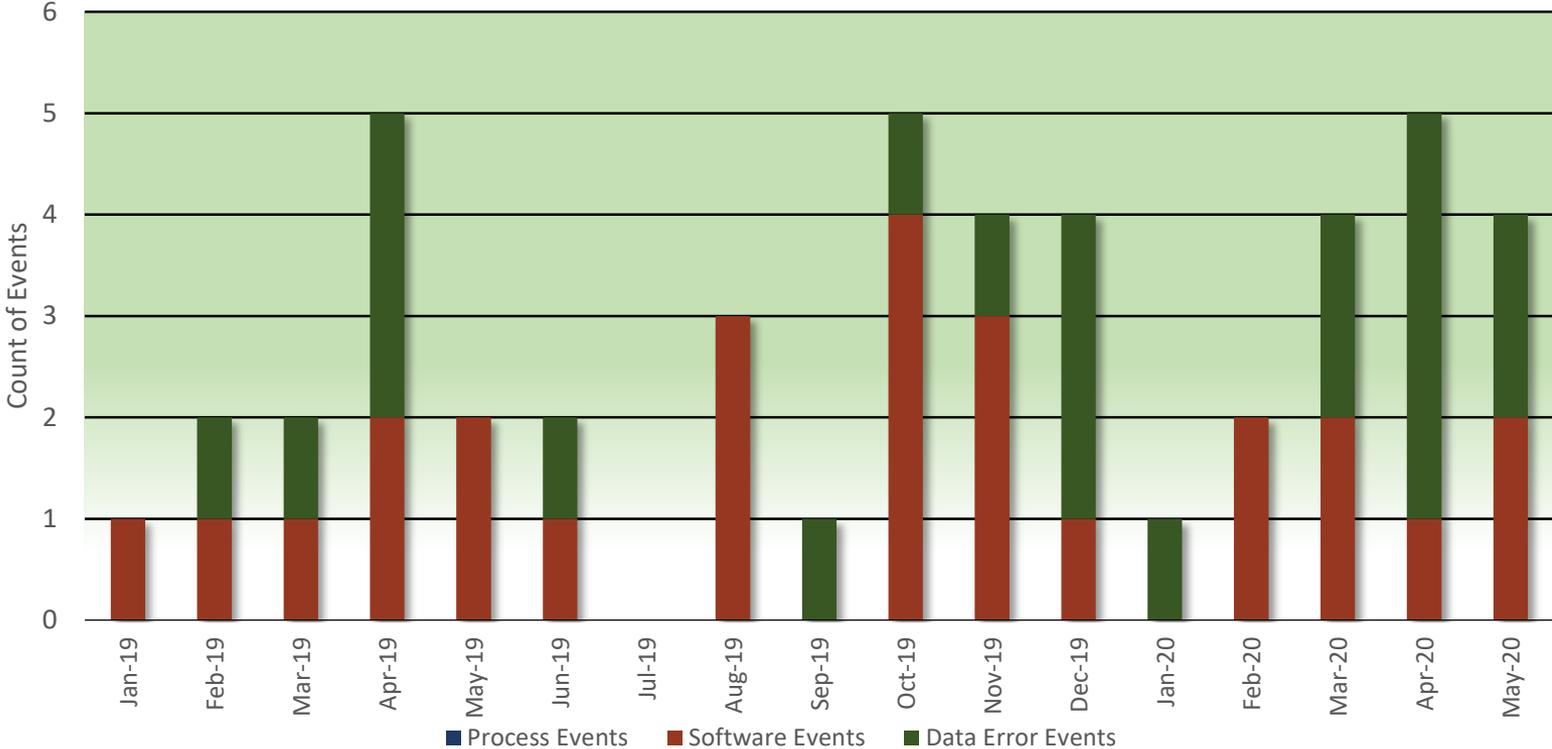
# Bid cost recovery (BCR) by Local Capacity Requirement area



# CAISO price correction events remain within historical levels

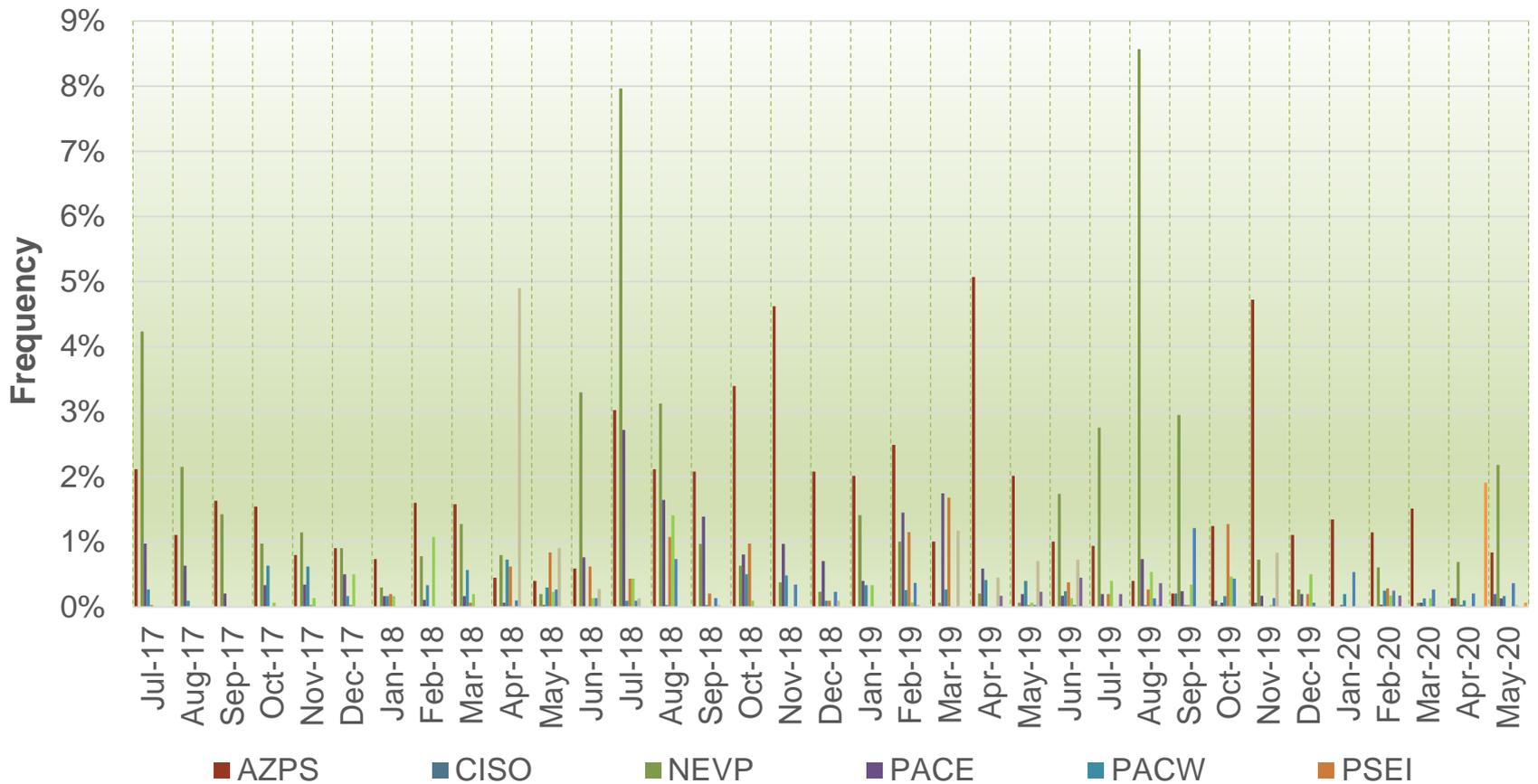


# EIM-related price corrections remain within historical levels



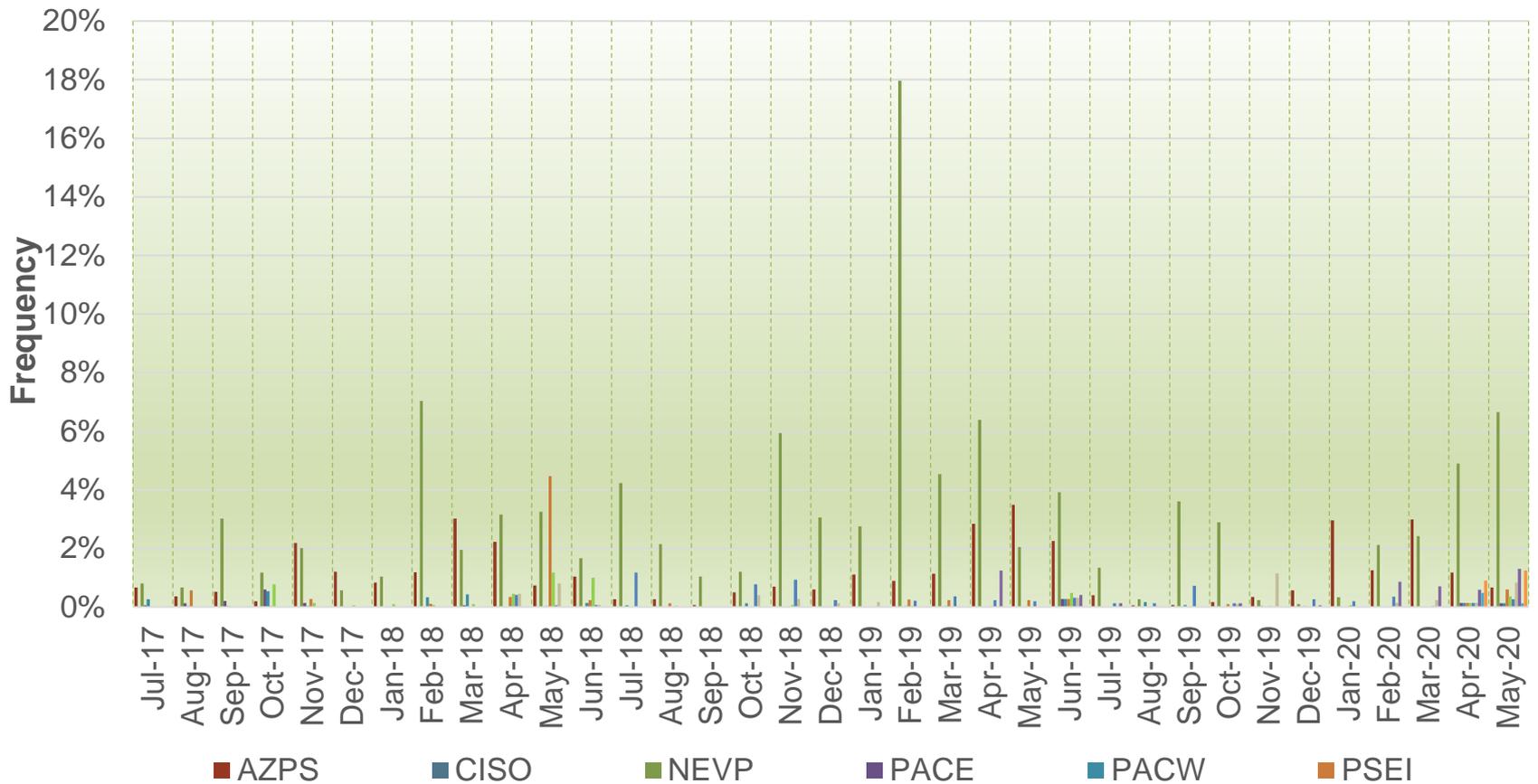
# Flexible Ramp Up Sufficiency Test Results

## Most BAAs Fail Flex Up Test less than 2% of intervals

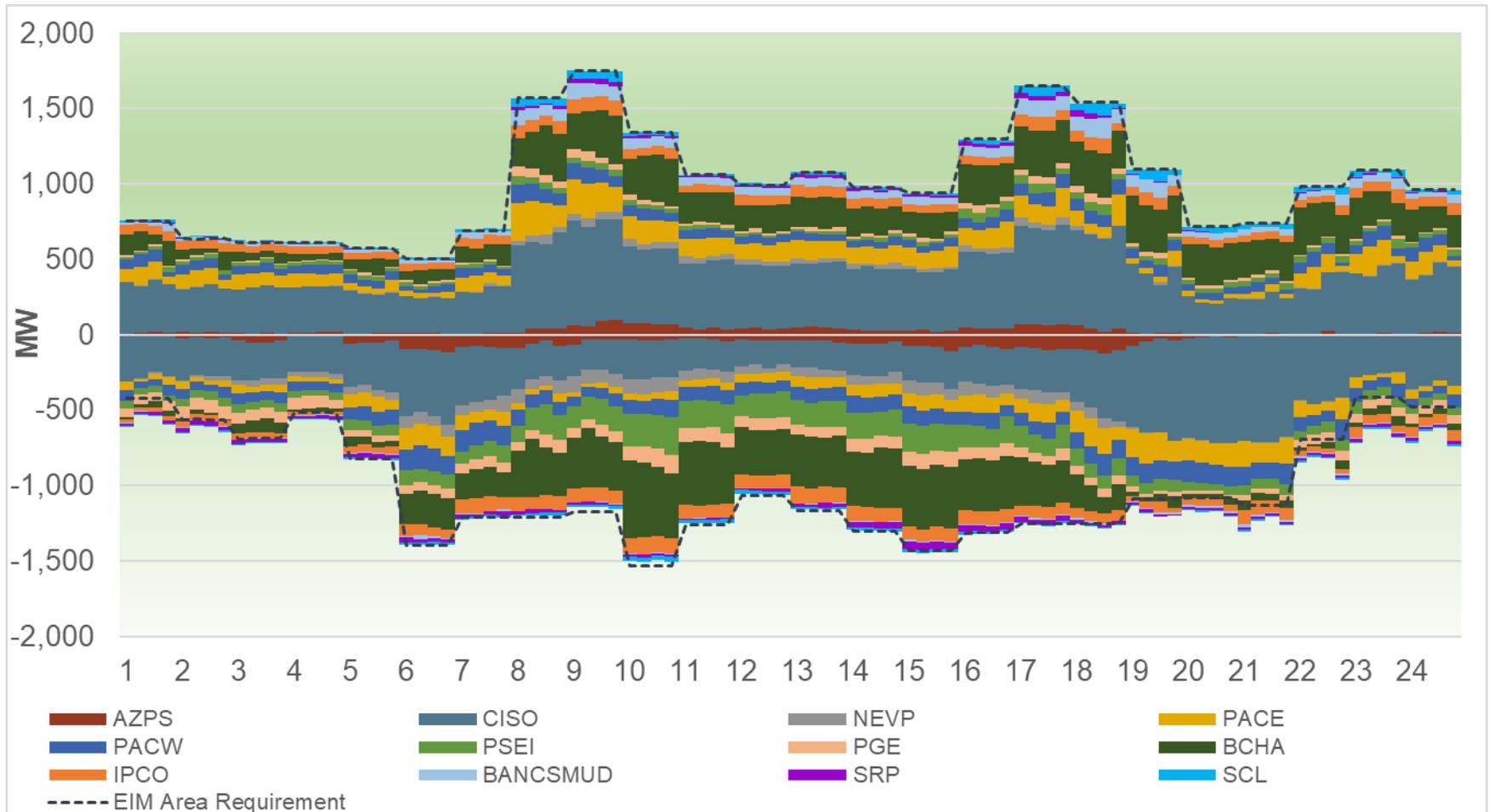


# Flexible Ramp Down Sufficiency Test Results

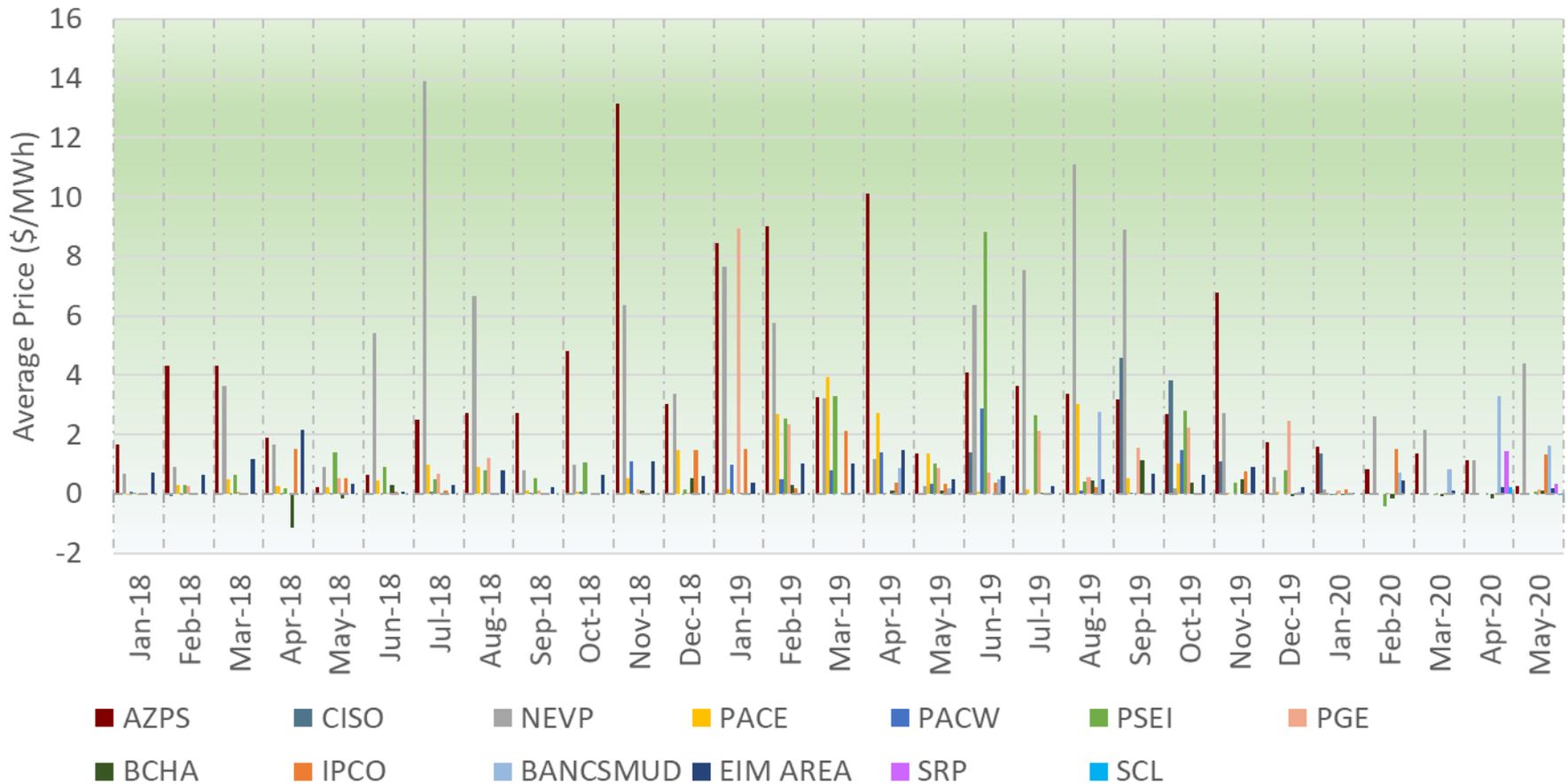
## Most BAAs Fail Flex Down Test less than 2% of intervals



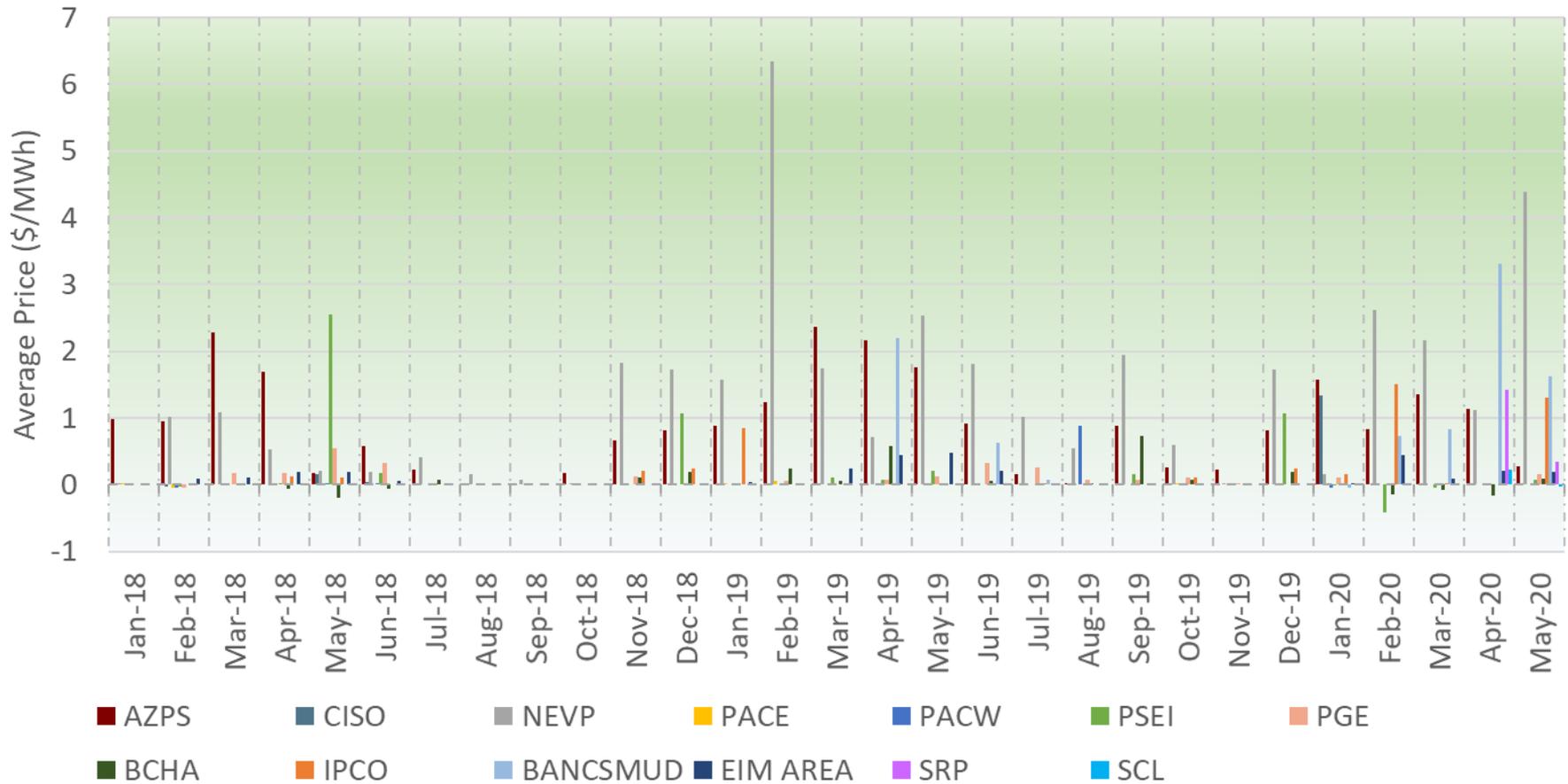
# Average Flexible Ramp Product Cleared Awards for each area with EIM Area Requirement - Apr to May 2020



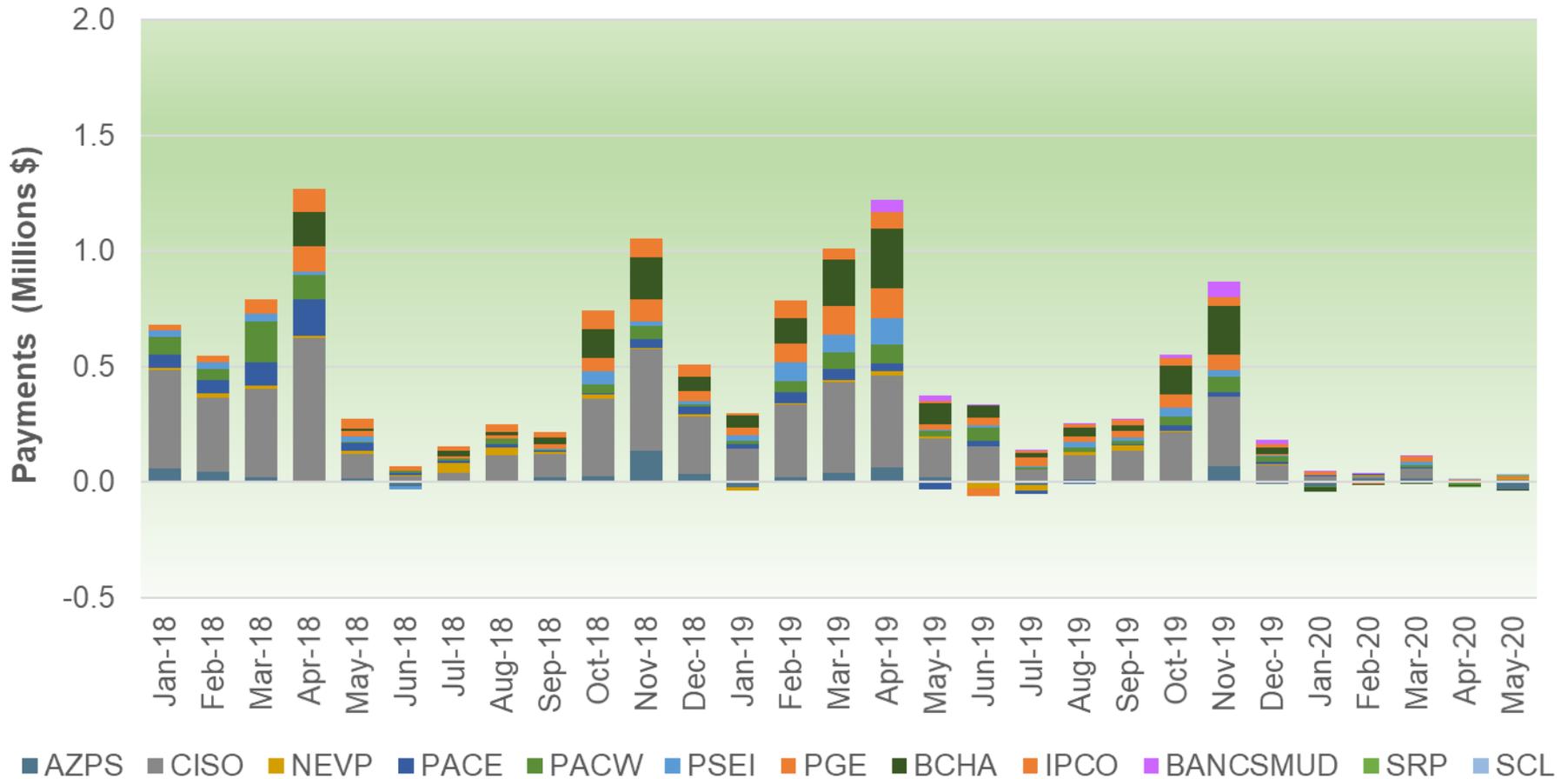
# Average Flexible Ramp Up Price (\$/MWh)



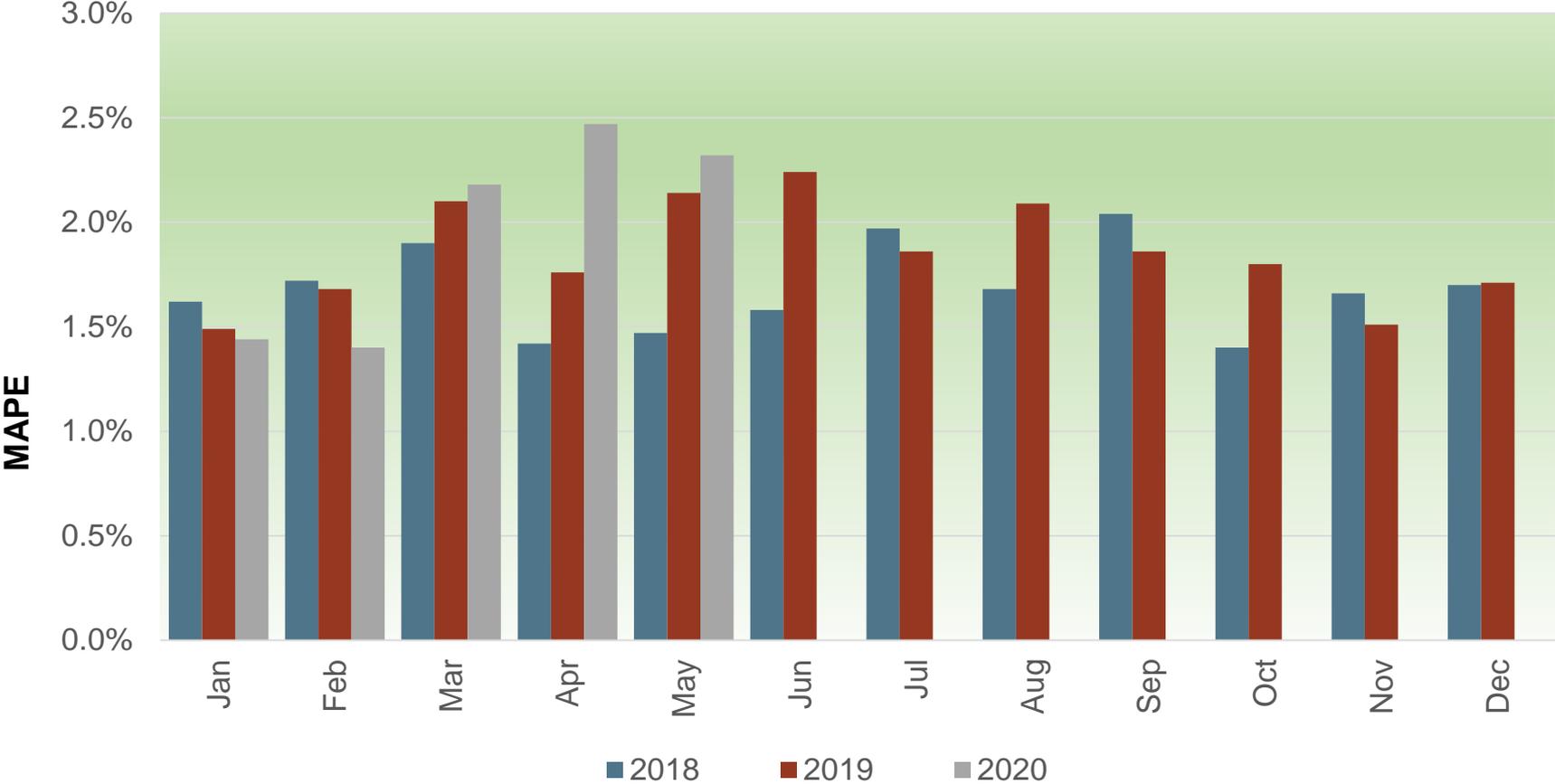
# Average Flexible Ramp Down Price (\$/MWh)



# Uncertainty Up Settlement Amount

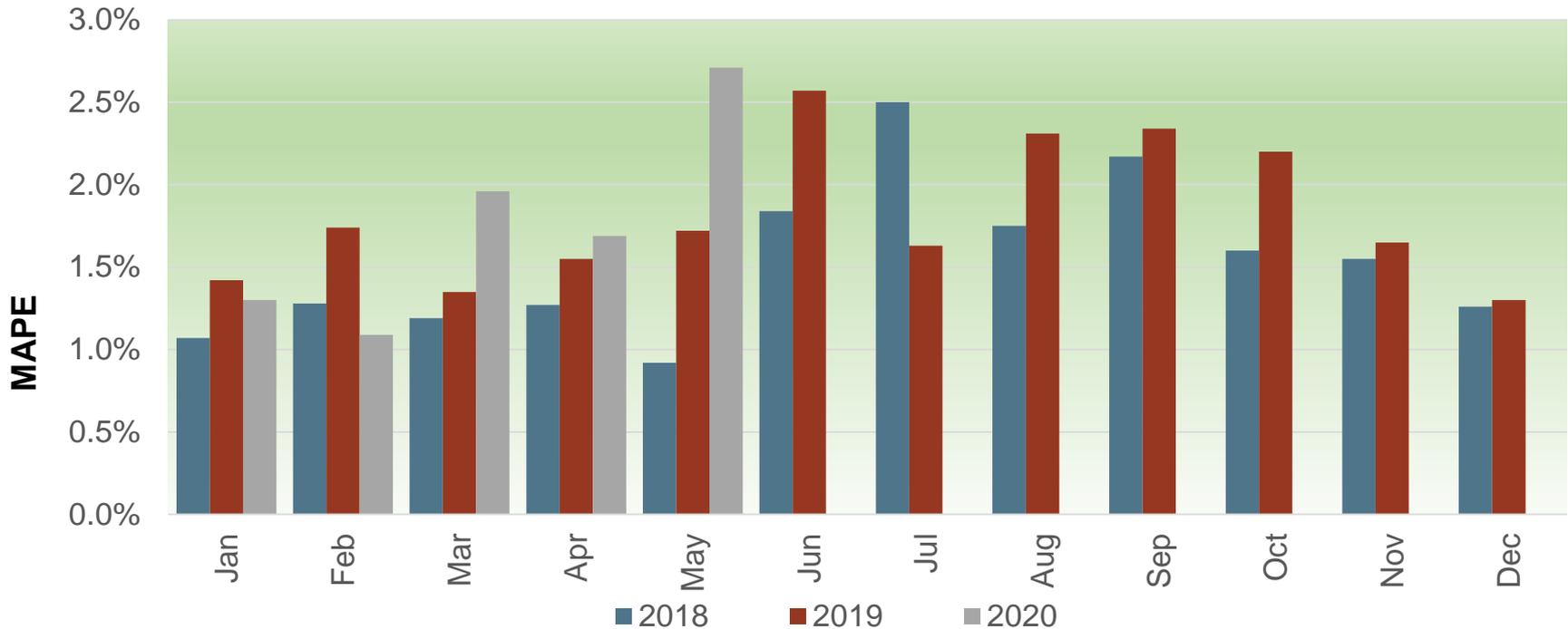


# Day-ahead load forecast



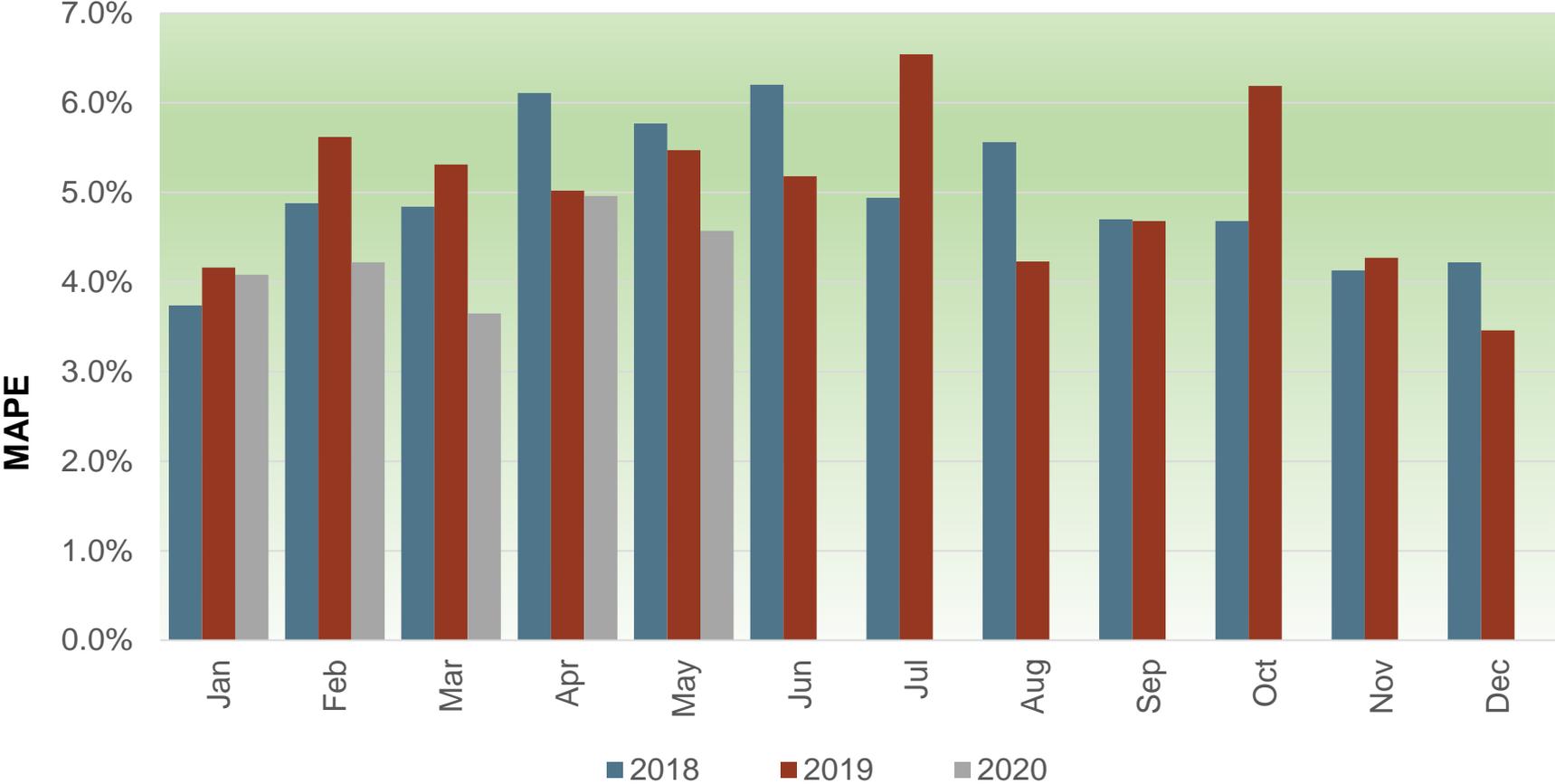
\*\*MAPE = abs(Forecast - Actual)/Actual

# Day-ahead peak to peak forecast accuracy



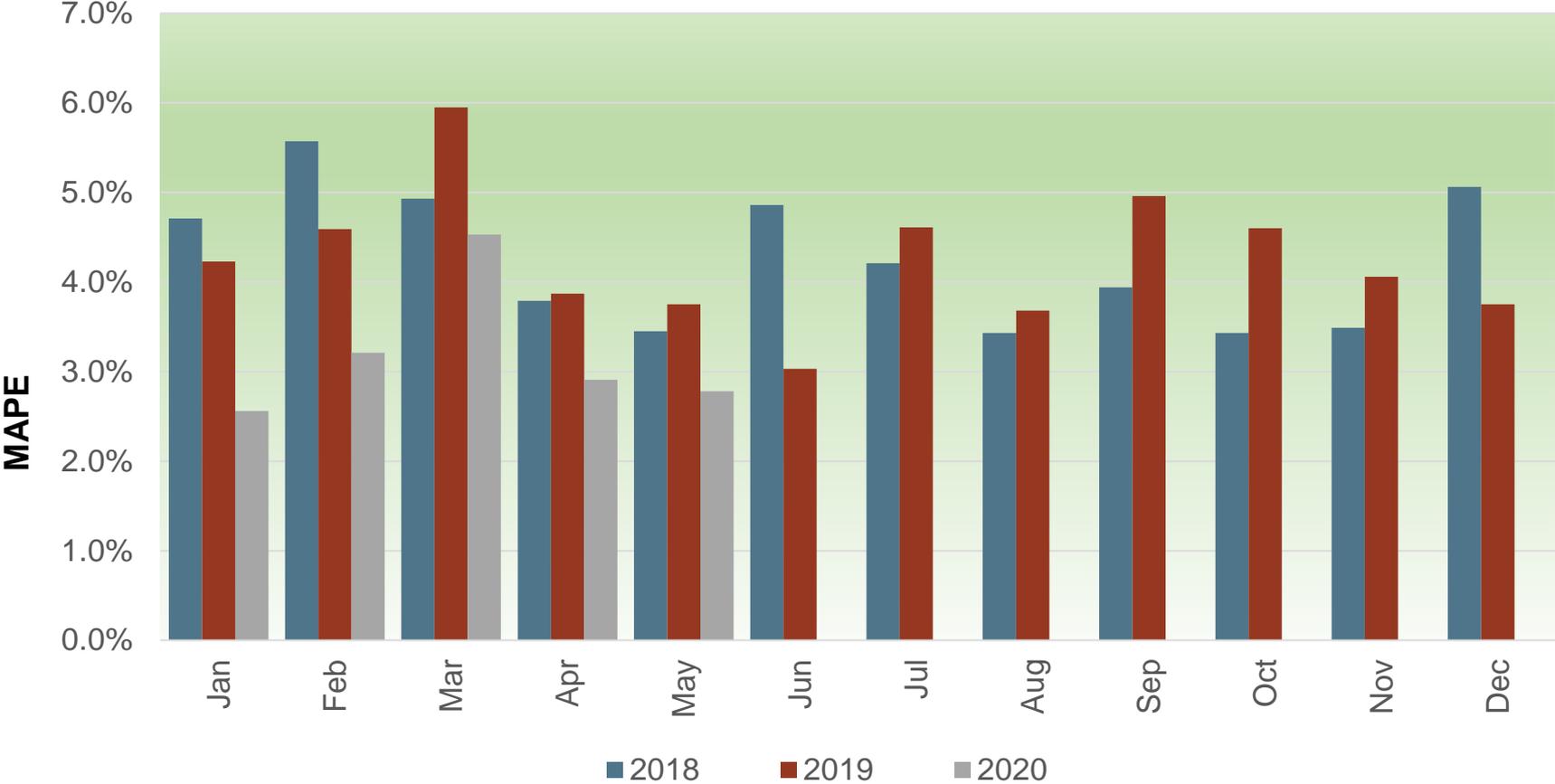
- Larger Peak Error seen in May 2020 due to days following the statewide heat-up at the end of May.
- 5/28 peak load was forecasted high due to continued hot temperatures and heat-buildup effects. Temperatures came in 5+ degrees cooler than expected in Coastal areas causing a significant over-forecast.

# Day-ahead wind forecast



\*\*The 2017 generation data used for accuracy calculation contains the economically dispatched MW.  
 \*\*MAPE = abs(Forecast - Actual)/Capacity

# Day-ahead solar forecast



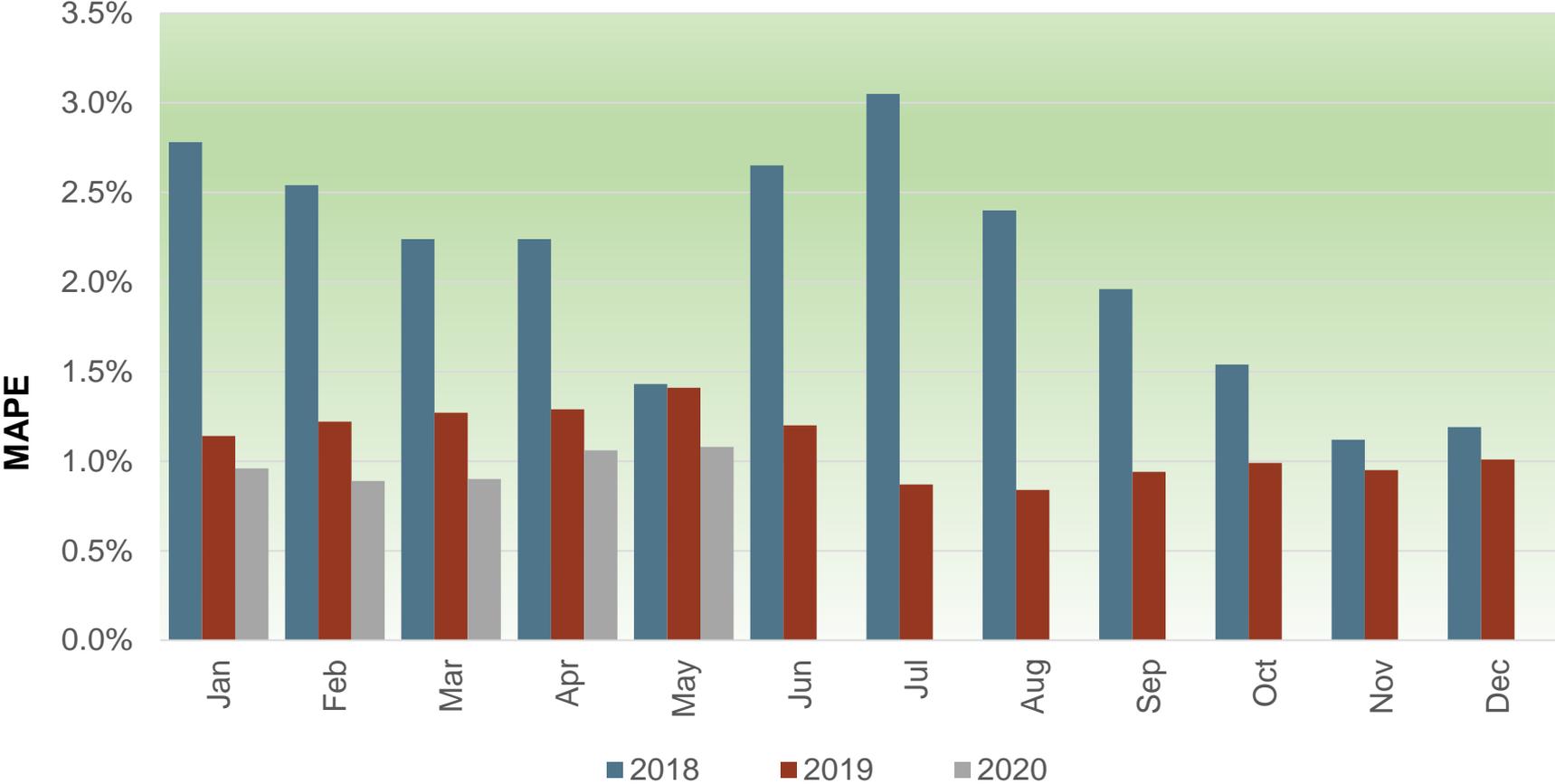
\*\*MAPE = abs(Forecast - Actual)/Capacity

# Real-time solar forecast



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

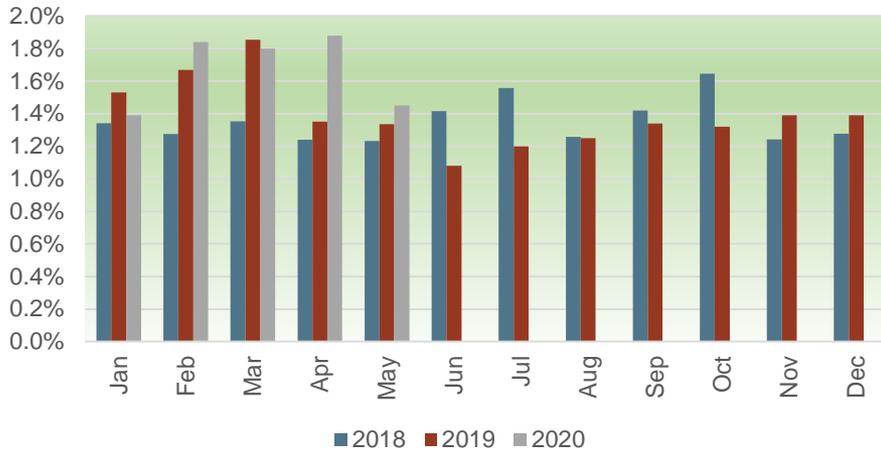
# Real-time wind forecast



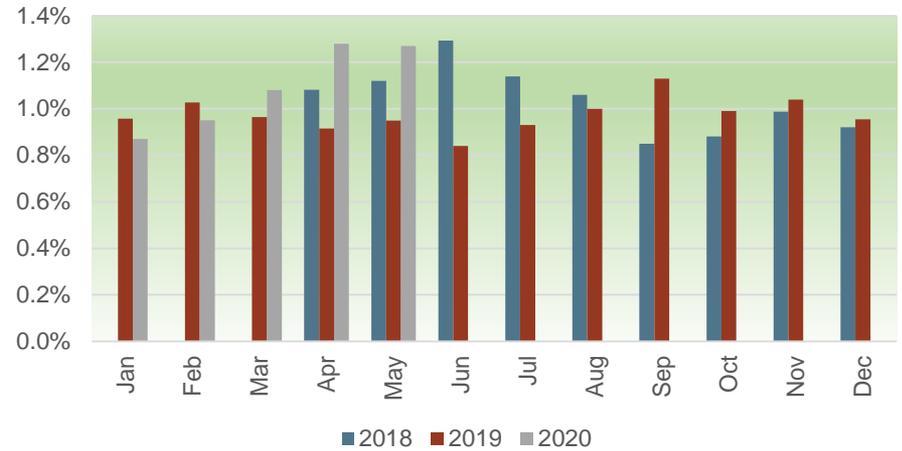
\*\*MAPE = abs(Forecast - Actual)/Capacity

# EIM T-60 Forecast

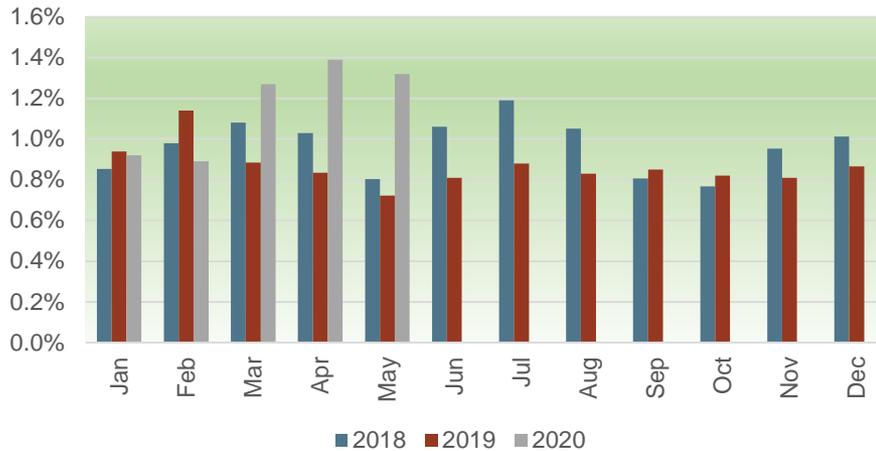
## AZPS T-60 Forecast



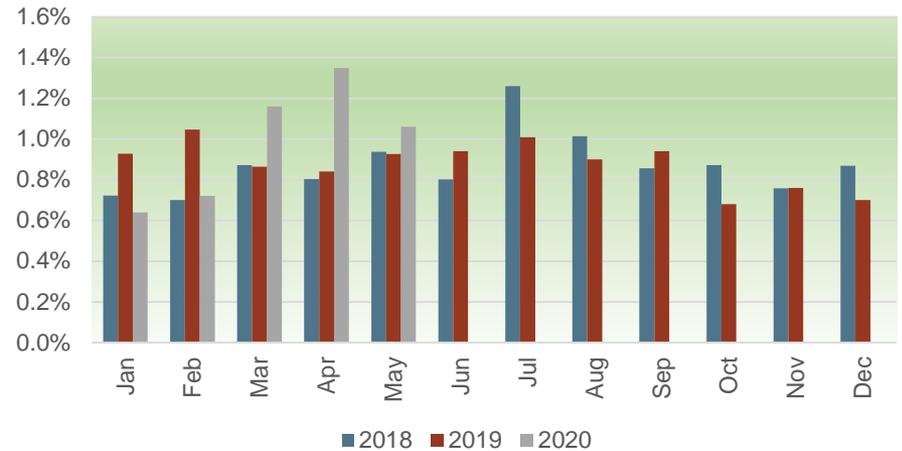
## IPCO T-60 Forecast



## PGE T-60 Forecast

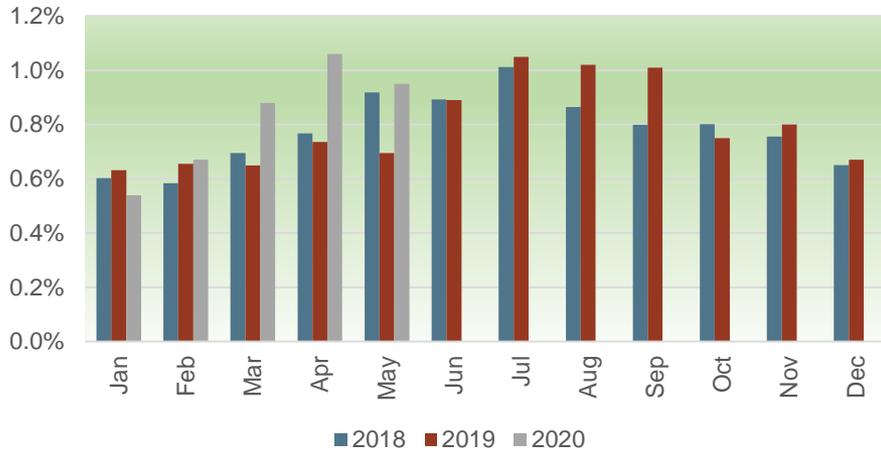


## NVE T-60 Forecast

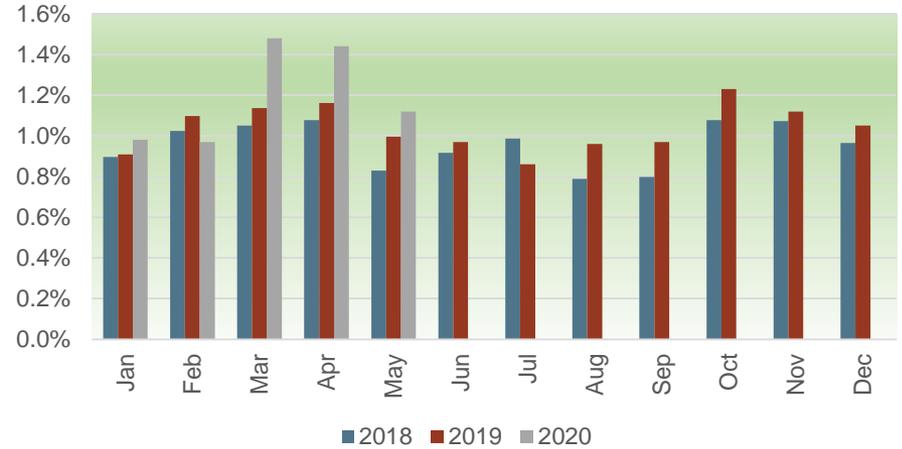


# EIM T-60 Forecast

## PACE T-60 Forecast



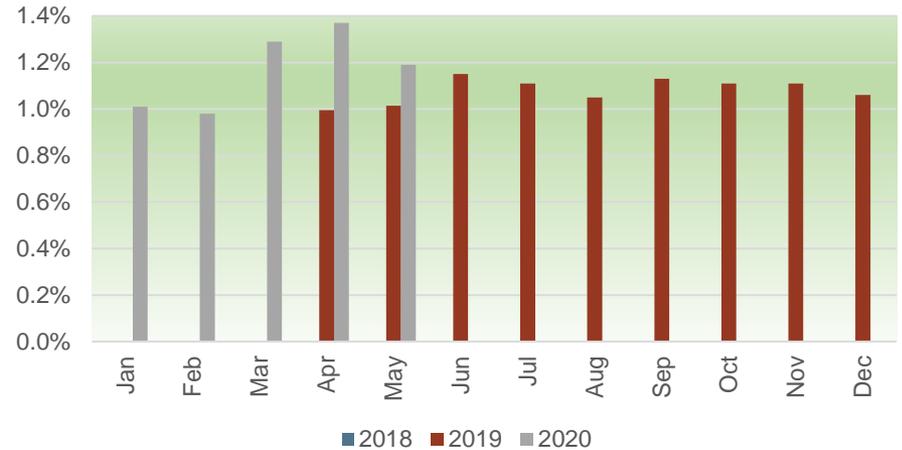
## PACW T-60 Forecast



## PSE T-60 Forecast

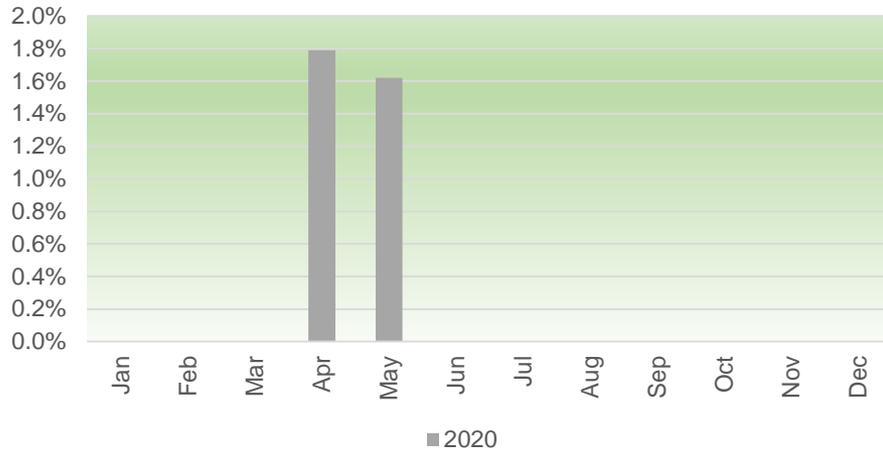


## SMUD T-60 Forecast

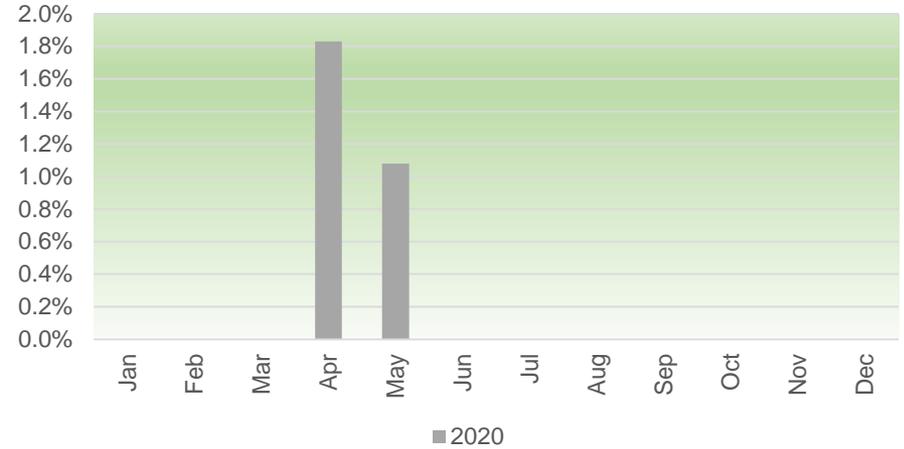


# EIM T-60 Forecast

## SRP T-60 Forecast



## SCL T-60 Forecast



# Policy Update

John Goodin

Senior Manager, Infrastructure & Regulatory Policy

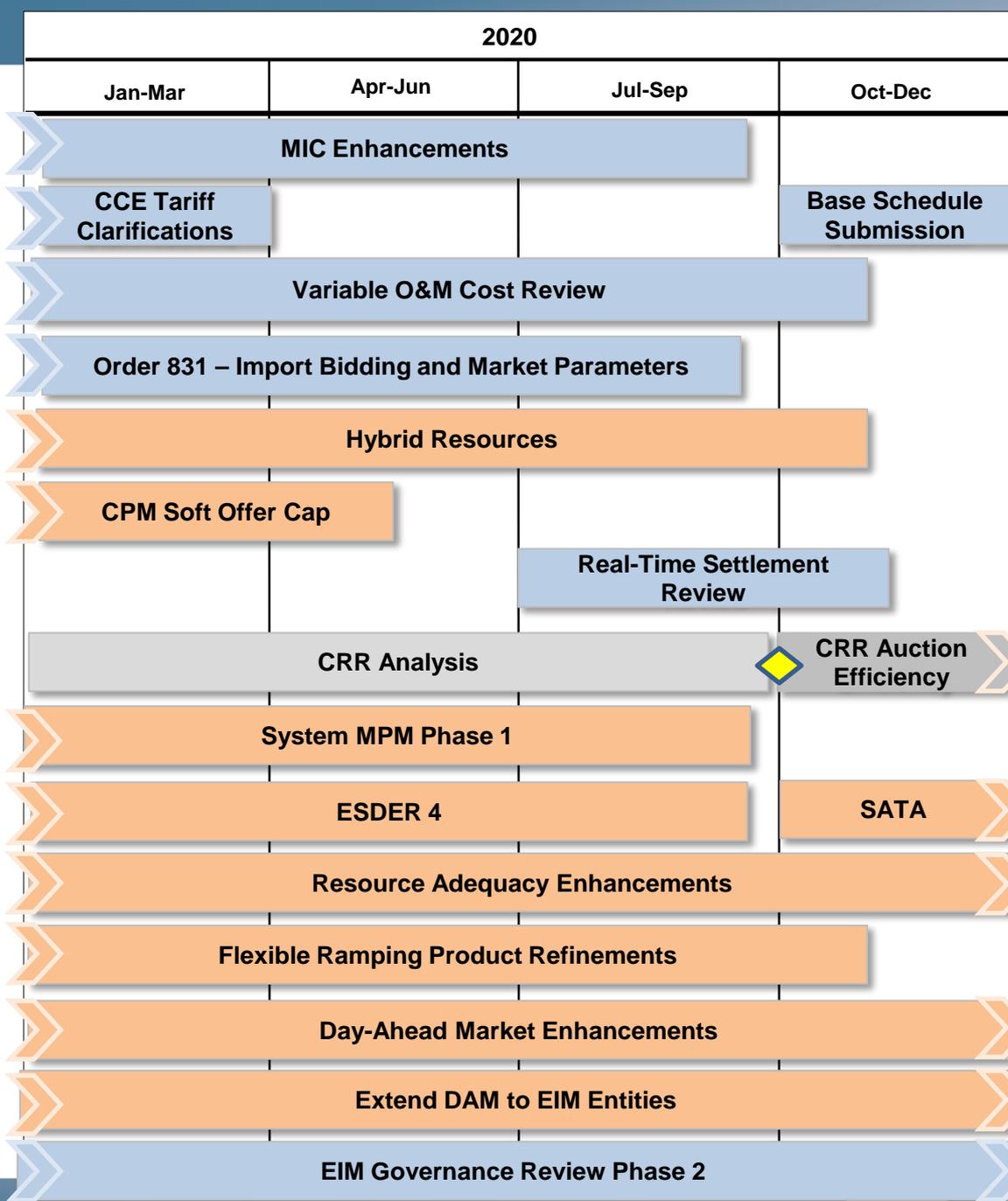
Brad Cooper

Senior Manager, Market Design Policy

# 2020 Annual Plan

\*Timeframes are approximate and subject to change

	Major Initiatives
	Initiatives
	Potential Initiatives
	Decision Point



# Energy Storage and Distributed Energy Resources –P4

- **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
  - Storage Default Energy Bid
  - 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:**
  - Draft Tariff to be posted July 21
  - September 19 EIM Governing Body briefing
  - September 30 ISO Board decision
- **Implementation:** Fall 2021

# Energy Storage and Distributed Energy Resources – Phase 4

- Scope: Enhancements to energy storage and distributed energy resource model and rules
- EIM Governing Body advisory role
- Status:
  - Draft Tariff to be posted July 21
  - September 19 EIM Governing Body briefing
  - September 30 ISO Board decision

# Proxy Demand Resource – resource adequacy clarifications

- Scope of combined initiatives:
  - Effective flexible capacity value for PDR initiative reconciles the tariff and business practices for setting EFC values for PDRs
  - Slow demand response initiative operationalizes slow DR providing local RA to ensure ISO can meet NERC standards for system rebalancing following a contingency
- No EIM Governing Body role
- Status:
  - PDR - May 27 tariff revision filed, requested Aug 1 effective date
  - Slow Demand Response - July 22 and 23 ISO Board briefing

# Hybrid Resources Initiative

- Scope: Enhance hybridized generation resource modeling
- Status
  - **Phase 1:** Refinement to maximize co-located hybrid resource output including an aggregate capability constraint
  - **Phase 2:** More extensive hybrid resource market refinements, including A/S participation, forecasting, dynamic limits, etc.
- EIM Governing Body advisory role
- Status:
  - June 30 EIM Governing Body briefing (Phase 1)
  - July 22 - 23 ISO Board decision (Phase 1)
  - November 4 EIM Governing Body briefing (Phase 2)
  - November 18 - 19 ISO Board decision (Phase 2)

## CCE3 Tariff Clarification

- Scope: Clarify RAAIM treatment for use limited and CAR resources, define run of river resources, and consider a counting methodology for hydro resources.
- No EIM Governing Body role
- Status:
  - ISO Board approved on March 25
  - Tariff changes filed with FERC April 2020 effective July 1
  - Final FERC order expected end of June
  - Implications for CPUC RA track 2 process on hydro counting

# 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:
  - Fifth revised straw proposal to be posted July 7
  - Stakeholder meeting on fifth revised straw proposal July 14-16
  - Q1 2021 ISO Board decision

# Flexible Ramping Product Enhancements

- Scope:
  - Deliverability
  - Eligibility to provide
  - Ramp management between 15- and 5-minute markets
- EIM Governing Body Role:
  - EIM Governing Body advisory role
- Status:
  - Draft final proposal posted on May 5
  - Tariff, business requirements, and BPM changes completed July - September
  - November 4 EIM Governing Body briefing
  - November 18 and 19 ISO Board decision

# 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:**
  - Stakeholder calls on revised straw proposal on June 15 and June 17
  - Comments due on July 6
  - Q2 2021 EIM Governing Body briefing and ISO Board decision

# 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:**
  - Straw proposal to be posted in July
  - Q2 2021 EIM Governing Body and ISO Board decisions

# 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:
  - Draft final proposal posted April 23
  - Revised draft final proposal to be posted July 14
  - Tariff and business requirements completed July - 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:
  - Draft final proposal posted on June 16
  - Stakeholder call on June 24
  - Comments due on July 8
  - Tariff and business requirements completed July - September
  - September 19 EIM Governing Body briefing
  - September 30 and October 1 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 to be posted August 10
  - Tariff and business requirements completed August - July
  - November 4 EIM Governing Body briefing
  - November 18 and 19 ISO Board decision

# Real-Time Settlement Review

- Scope:
  - Review real-time market settlement charges to ensure consistency with cost allocation principles
  - Address identified EIM settlement issue associated with wheeling
- EIM Governing Body advisory role TBD
- Status:
  - Issue paper/straw proposal to be posted in July
  - November 4 EIM Governing Body briefing/decision
  - November 18 and 19 ISO Board decision

# Release Plan Update

Adrian Chiosea

Senior Manager, Strategic Initiative Management

# The ISO offers innovative training programs

Date	Training courses and workshops
July 9	Welcome to the ISO Webinar
August 18 - 20	ISO Training Workshop <b>**ONLINE**</b>
	<i>Email us at <a href="mailto:CustomerReadiness@caiso.com">CustomerReadiness@caiso.com</a> for any training or readiness related questions</i>



[CustomerReadiness@caiso.com](mailto:CustomerReadiness@caiso.com)

## Computer Based Training

There are more than 20 computer based training modules on the ISO website covering:

- Markets and Operations
- Reference Materials
- Settlements and Metering
- Western Energy Imbalance Market

## New Modules (recorded webinar and slides)

You can find new initiatives training courses on the learning center web page below. More resources will be added throughout 2020 in accordance with project schedules.

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>

# Release Plan Summary: 2020

## Independent 2020

- Nodal Pricing Model – Advisory Service for PacifiCorp
- Hybrid Resources - Phase 1
- **Aliso Canyon Phase 5**
- **Slow Demand Response**

## Fall 2020 – Activation on Jul 1 (retroactive)

- Commitment Cost Enhancement Tariff Clarifications

## Fall 2020 – Activation on Oct 1

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- Energy Storage and Distributed Energy Resources Phase 3B
- Energy Imbalance Market (EIM) Enhancements 2020
- FERC Order 841 – Requested Adjustments
- FRP Improvements - Buffer and Min

## Fall 2020 – Activation on Nov 4

- Automated Dispatch System (ADS) User Interface (UI) Replacement
- Dispatch Operating Target Tariff Clarifications
- Intertie Deviation Settlement

## Fall 2020 – 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 Q3,2020 and implementation prior to Q3, 2021)
- Variable operations and maintenance cost review (BOG Nov 2020)

## Spring 2021

- 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
- Energy Imbalance Market (EIM) 2021 - Turlock Irrigation District
- Energy Imbalance Market (EIM) 2021 - BANC Ph 2/WAPA

## 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)
- Import Bidding and Market Parameters, (A.K.A. FERC Order 831) – July 2020 BOG
- Contingency Modeling Enhancements - Transmission
- Flexible Ramping Product Improvements – Deliverability (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

## TBD

- Day Ahead Market Enhancements (BOG 2021)
- Extend DA Market (BOG 2021)
- Commitment Costs and Default Energy Bid Enhancements Phase 2

# 2020 Independent

# 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 <a href="http://www.aiso.com/Pages/documentsbygroup.aspx?GroupID=E8304346-54B9-4473-9E45-9C282AAD1340">http://www.aiso.com/Pages/documentsbygroup.aspx?GroupID=E8304346-54B9-4473-9E45-9C282AAD1340</a>
Excerpt from the market notice:	<p>“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 <a href="http://www.aiso.com/informed/Pages/MeetingsEvents/MiscellaneousStakeholderMeetings/Default.aspx">http://www.aiso.com/informed/Pages/MeetingsEvents/MiscellaneousStakeholderMeetings/Default.aspx</a>.</p> <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>

Milestone Type	Milestone Name	Dates	Status
Tariff	FERC Approval	Feb 28, 2020	✓
Config Guides	Post Draft Config Guides	Aug 10, 2020	
Market Sim	Market Sim Window	Oct 05, 2020 - Nov 13, 2020	
Production Activation	Nodal Pricing Model – Advisory Service for PacifiCorp	Jan 15, 2021	

# 2020 – Aliso Canyon Ph5

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> This project will consider enhancements to the existing Dynamic Competitive Path Assessment (DCPA) and Gas Nomogram capabilities currently in production.</p> <p><b>IFM/RTN:</b> Formulate and solve the linear programming problem for maximizing the Residual Supplier Index (RSI) for each binding constraint that DCPA is applied.</p> <p><b>SMDM:</b> Enhance the User Interface to include “All Markets” when the user is defining “Market” within the Curtailment to Process section.</p> <p><b>SMDM:</b> Creation of error message if the RT curtail type “incremental” or “absolute” are used and total curtailment is left null.</p>
BPM Changes	<ul style="list-style-type: none"> <li>Managing Full Network Model</li> <li>Market Operations</li> </ul>
Tariff Changes	<ul style="list-style-type: none"> <li>N/A</li> </ul>

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 20, 2020	
External Training	Deliver External Training	N/A	
Market Sim	Market Sim Window	Sept 30, 2020 – Oct 14, 2020	
Production Activation	Aliso Canyon Phase 5	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  $BID\_DISP\_OPT \geq 15$  or startup time plus ramp time to Pmax  $\geq 20$*

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"><li>• Master File</li></ul>
BPM Changes	<ul style="list-style-type: none"><li>• Market Instruments Attachment B: Slow Demand Response resource definition</li></ul>
Tariff Changes	<ul style="list-style-type: none"><li>• No</li></ul>

# 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	TBD	Jul 27, 2020 - Sep 04, 2020	07/01/20 (Retroactive)
CCDEBE1	03/22/18	09/04/19	N/A	05/17/19		07/06/20 - Re-file	10/04/19	10/08/19	Jul 27, 2020 - Sep 04, 2020	10/01/20
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
EIM Enhancements 2020	N/A	03/24/20	N/A	05/29/20 07/02/20	06/12/20	N/A	07/20/20	07/23/20	Jul 27, 2020 - Sep 04, 2020	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
FRP Improvements - Buffer and Min	N/A	5/15/20	N/A	N/A	05/29/20	N/A	07/20/20	7/14/20	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	07/20/20	06/01/20 06/11/20 07/16/20	Jul 27, 2020 - Sep 04, 2020	11/04/20
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	07/20/20	07/16/20	Jul 27, 2020 - Sep 04, 2020	11/04/20
Intertie Deviation Settlement	02/07/19	03/02/20	05/28/20	N/A	06/12/20	05/22/20	07/20/20	7/20/20	Jul 27, 2020 - Sep 04, 2020	11/04/20
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 04, 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)

# Fall 2020 Release - Market Simulation Overview

Date	ISO	Market Participants
5/29	Publish Structured Scenarios Set 1, CGs, Tech Specs	Review Structured Scenarios Set 1, CGs, Tech Specs
6/12	Publish Structured Scenarios Set 2	Review Structured Scenarios Set 2
6/16	RUG updates	Provide scenario feedback for Set 1
6/18	Code Implementation & Environment Setup	<ul style="list-style-type: none"> <li>Environment Closure - MF UI &amp; API</li> </ul>
6/29	Code Implementation & Environment Setup	<ul style="list-style-type: none"> <li>Environment Closure (ADS, CMRI, OASIS, MF, DRRS, MRI-S, BAAOP, BSAP, SIBR)</li> <li>Draft Tariffs available</li> </ul>
6/30		Provide scenario feedback for Set 2
7/3		Deadline to register to participate in market simulation
7/6	Code Implementation & Environment Setup	Environment Closure (continued)
7/13	Code Implementation & Environment Setup	Environment Closure (continued)
7/20	Code Implementation & Environment Setup	<ul style="list-style-type: none"> <li>Environment Closure (continued)</li> <li>Mkt Sim Kick-Off Call</li> <li>BPMs available</li> <li>Training</li> </ul>

[Market Simulation Plan](#)

[Market Simulation Settlements Calendar](#)

# 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		Structured Scenarios	Current timeline	
4	8/17		Structured Scenarios	Current timeline	
5	8/24		<ul style="list-style-type: none"> <li>• Unstructured Simulation</li> <li>• MSTT cutover TD 8/25 (Corresponds to Production TD 1/1)</li> <li>• MSTT Structured Scenarios</li> </ul>	Current timeline	Current timeline + New MSTT timeline
6	8/31		<ul style="list-style-type: none"> <li>• Unstructured Simulation</li> <li>• MSTT Structured Scenarios</li> </ul>	Current timeline	Current timeline + New MSTT timeline

Settlements TDs Tue/Wed

Maintenance Friday

[Market Simulation Plan](#)

[Market Simulation Settlements Calendar](#)

# 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					
EIM2020		Tech Spec	RTM		Y	Tech Spec						Y	Y
FERC Order 841 – Requested Adjustment					Y	Tech Spec							
FRP Improvements - Buffer and Min			RTM	Tech Spec		Y							
ADS UI Replacement	Tech Spec												
DOTTC	Tech Spec		RTM										
IDS	Y				Y								
EBtMP				Tech Spec	Y				Tech Spec				
Market Settlement Timeline Transf.		Tech Spec		Tech Spec	Y				Y	Y	Y		

# 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
EIM Enh 2020	Y										
FERC 841	Y		Y				Y				
FRP Buffer & Min	Y	Y									
ADS UI Repl	Y	Y									
Dispatch Op Target Tariff Clarification	Y	Y									
Intertie Deviation Stlmt			Y								
Excess Behind Meter Prod			Y	Y			Y				
Mkt Stlmt Timeline Trans	Y		Y	Y		Y	Y	Y	Y	Y	

# 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 10/1/20	13.2
CCDEBE1	Modify	RetrieveCurrentBidResults_SIBRv5_AP RetrieveCurrentBidResults_SIBRv5_DocAttach_AP	✓ 10/16/19	✓ Deploy 3/26/20 Activation 10/1/20	13.2
CCDEBE1	Modify	SubmitRawBidSet_SIBRv5_AP SubmitRawBidSet_SIBRv5_DocAttach_AP	✓ 10/16/19	✓ Deploy 3/26/20 Activation 10/1/20	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 10/1/20	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 10/1/20	3.9.4  Release Notes 1.2

# Fall 2020 Release - System Interface Changes

ADS					
Project	Change Type	Summary	Technical Specifications	MAP Stage	Production
N/A	Decom	Decommission of deprecated versions	✓ 6/16/20, v8.1.0	7/27/20	10/1/20
ADS Replacement	New	APIWebService v8	✓ 6/16/20, v8.1.0	7/27/20	10/1/20
DOTTC		APIResponseWebService v8	✓ 5/21/20, v8.0.0		

DRRS					
Project	Change Type	Summary	Technical Specifications	MAP Stage	Production
ESDER3B	Modify	SubmitDRLocations_DRRSv2_AP	✓ 5/1/20, v3.2	7/27/20	Deploy 9/14/20
		SubmitDRLocations_DRRSv2_DocAttach_AP			
		SubmitDRRegistrations_DRRSv2_AP			
		SubmitDRRegistrations_DRRSv2_DocAttach_AP			
		RetrieveDRLocations_DRRSv2_AP			
		RetrieveDRLocations_DRRSv2_DocAttach_AP			
		RetrieveDRRegistrations_DRRSv2_AP			
		RetrieveDRRegistrations_DRRSv2_DocAttach_AP			

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	7/27/20	Activation 1/1/21

# Fall 2020 Release - System Interface Changes

Master File						
Project	Change	Change Type	Summary	Technical Specifications	MAP Stage	Production
ESDER3B	Add enumeration to GRDT: <a href="#">DR_TYPE of PDR_LSR</a>	Modify	RetrieveGeneratorRDT_MFRDv5 RetrieveGeneratorRDT_MFRDv5_DocAttach  SubmitGeneratorRDT_MFRDv5 SubmitGeneratorRDT_MFRDv5_DocAttach	✓ 6/12/20, v6.1 ✓ 5/28/20, v6.0	7/27/20	10/1/20
FERC841 RA	New GRDT attribute: <a href="#">Apply Wholesale Charge</a>					
EIM2020	New GRDT attribute: <a href="#">Meter Data Interval</a>					
Other	Remove from GRDT: <a href="#">MIN_DISP_LEVEL</a>					
CCE Tariff	New GRDT attribute: <a href="#">Run of River</a>					
Slow DR	New GRDT attribute: <a href="#">Slow DR</a>					

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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	✓ 5/29/20, v3.9.5	7/27/20	9/1/20
EIM2020	New	RetrieveEIMInfeasibility_CMRIv1_AP RetrieveEIMInfeasibility_CMRIv1_DocAttach_AP	✓ 5/29/20, v3.9.5	7/27/20	10/1/20
EIM2020	New	RetrieveLoadConforming_CMRIv1_AP RetrieveLoadConforming_CMRIv1_DocAttach_AP	✓ 5/29/20, v3.9.5	7/27/20	10/1/20
EIM2020	New	Available Balance Capacity *Includes updates to EIMInfeasibility & LoadConforming	7/2/20	7/27/20	10/1/20

OASIS					
Project	Change Type	Summary	Technical Specifications	MAP Stage	Production
N/A	Decom	Decommission of deprecated versions	✓ 5/29/20, v5.1.13	7/27/20	9/1/20
EBTMP	New	<b>ENE</b> _EBTMP_PERF_DATA	✓ 6/22/20 ✓ 5/29/20, v5.1.13	7/27/20	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	<ul style="list-style-type: none"> <li>• Master File</li> <li>• Settlements</li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• Market Instruments</li> <li>• Market Operations</li> <li>• Settlements &amp; Billing</li> <li>• Outage Management</li> <li>• Reliability Requirement</li> </ul>
Tariff Changes	<ul style="list-style-type: none"> <li>• Yes</li> </ul>

## Fall 2020 – CCE Tariff Clarification

Project will use a similar registration process to the one we used for Conditionally Available Resources (CARs) – see section 2.1.16 of the Market Operations BPM

A Scheduling Coordinator should submit a CIDI with the three items mentioned in the BPM

The effective date will be the first of the next month following the application – e.g. – submit a ticket by July 1 to be effective starting with the July RA month.

A preliminary draft excerpt from the BPM reads:

*“A Scheduling Coordinator must register its resource with the CAISO as a ROR for the resource to receive any special accommodations allowed to RORs under the tariff. To apply to register a resource as a ROR, the scheduling coordinator must submit a CIDI case with supporting documentation including, but not limited to, the following:*

- An affirmative statement from the Scheduling Coordinator that the resource has no water storage beyond whatever storage is necessary to maintain sufficient head pressure to operate consistent with good utility practice.*
- Documentation substantiating the statement. This can include environmental permits, operating manuals, site licenses, or aerial/satellite photography. The Scheduling Coordinator should include citations to the page numbers or section numbers in the supporting documentation.*
- Any additional data to help the CAISO to understand the requested registration.”*

# 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 - <i>Documentation Only</i>	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	✓
BPMs	Post Draft BPM changes – Market Operations	June 16, 2020	✓
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Implementation date	Oct 1, 2020	
	Effective Date	Jul 1, 2020	

# 2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

Project Info	Details/Date
Application Software Changes	<p><b><u>Scope:</u></b>            Enhances the ability to submit market-based commitment cost bids in order to reflect unique costs and volatility:</p> <ul style="list-style-type: none"> <li>• Ex-ante cost adjustment requests</li> <li>• Reference Level Adjustments to default commitment cost bids (start-up and minimum load costs) and default energy bids</li> <li>• Make Day Ahead Market process permanent</li> <li>• Make D+2 Process permanent</li> <li>• Use of indices clarification, and Monday Only in DAM and RTM, per LMPME</li> <li>• Conditionally Available Resources (CAR)</li> </ul> <p><b><u>Impacted Systems:</u></b></p> <ul style="list-style-type: none"> <li>• SIBR: Allow the submittal of Ex Ante cost adjustments.</li> <li>• CMRI: Provide additional source information for default bids.</li> </ul> <p>Submit requests through CIDI for manual consultation and ex-post default bid adjustments.</p>
BPM Changes	<ul style="list-style-type: none"> <li>• Market Instruments</li> <li>• Market Operations</li> </ul>
Business Process Changes	<ul style="list-style-type: none"> <li>• Maintain Major Maintenance Adders (MMG LIII)</li> <li>• Maintain Negotiated Default Energy Bids (MMG LIII)</li> <li>• Maintain Negotiated O_Ms (MMG LIII)</li> <li>• Manage Day Ahead Market (MMG LII)</li> <li>• Manage Market Billing Settlements (MOS LII)</li> <li>• Manage Real Time Hourly Market (RTPD) (MMG LII)</li> <li>• Manage Real Time Operations – Maintain Balance Area (MMG LII)</li> </ul>

# Fall 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 04, 2019	✓
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 06, 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 – Fall 2020	Jul 27, 2020 - Sep 04, 2020	
Production Activation	CCDEBE Phase 1	Oct 01, 2020	

# Fall 2020 – ESDER Phase 3b – Load Shift Product

Project Info	Details/Date		
<p>Application Software Changes</p>	<p><b><u>Scope:</u></b></p> <p>The ESDER 3b initiative will include two (2) demand response enhancements:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Enable sub-metered electric vehicles supply equipment (EVSE) to participate in load curtailment.</li> </ul> <p><b><u>Impacted Systems (Overview):</u></b></p> <p><b>Master File:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Two (2) Resource IDs will be assigned to the same Resource to allow Consumption versus Curtailment participation (PDR-LSR).</li> </ul> <p><b>DRRS:</b></p> <ul style="list-style-type: none"> <li>• New baseline methods for PDR-LSRs and EVSEs.</li> <li>• New attribute for locations to indicate an energy storage (ES) device or Electric Vehicle Supply Equipment (EVSE).</li> <li>• <b>DRRS URL Change:</b></li> </ul> <table border="1" data-bbox="450 903 1736 1019"> <tr> <td data-bbox="450 903 1124 1019">           Changing from- (existing)  <a href="https://portalmap.caiso.com/drrs">https://portalmap.caiso.com/drrs</a> → URL for mkt sim  <a href="https://portal.caiso.com/drrs">https://portal.caiso.com/drrs</a> → URL for prod         </td> <td data-bbox="1124 903 1736 1019">           To- (new)  <a href="https://drrs.map.caiso.com">https://drrs.map.caiso.com</a> → URL for mkt sim  <a href="https://drrs.prod.caiso.com">https://drrs.prod.caiso.com</a> → URL for prod         </td> </tr> </table> <p><b>CIRA:</b></p> <ul style="list-style-type: none"> <li>• Will prevent the request of NQC for PDR-LSR Consumption resources</li> </ul> <p><b>Settlements</b></p>	Changing from- (existing) <a href="https://portalmap.caiso.com/drrs">https://portalmap.caiso.com/drrs</a> → URL for mkt sim <a href="https://portal.caiso.com/drrs">https://portal.caiso.com/drrs</a> → URL for prod	To- (new) <a href="https://drrs.map.caiso.com">https://drrs.map.caiso.com</a> → URL for mkt sim <a href="https://drrs.prod.caiso.com">https://drrs.prod.caiso.com</a> → URL for prod
Changing from- (existing) <a href="https://portalmap.caiso.com/drrs">https://portalmap.caiso.com/drrs</a> → URL for mkt sim <a href="https://portal.caiso.com/drrs">https://portal.caiso.com/drrs</a> → URL for prod	To- (new) <a href="https://drrs.map.caiso.com">https://drrs.map.caiso.com</a> → URL for mkt sim <a href="https://drrs.prod.caiso.com">https://drrs.prod.caiso.com</a> → URL for prod		

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

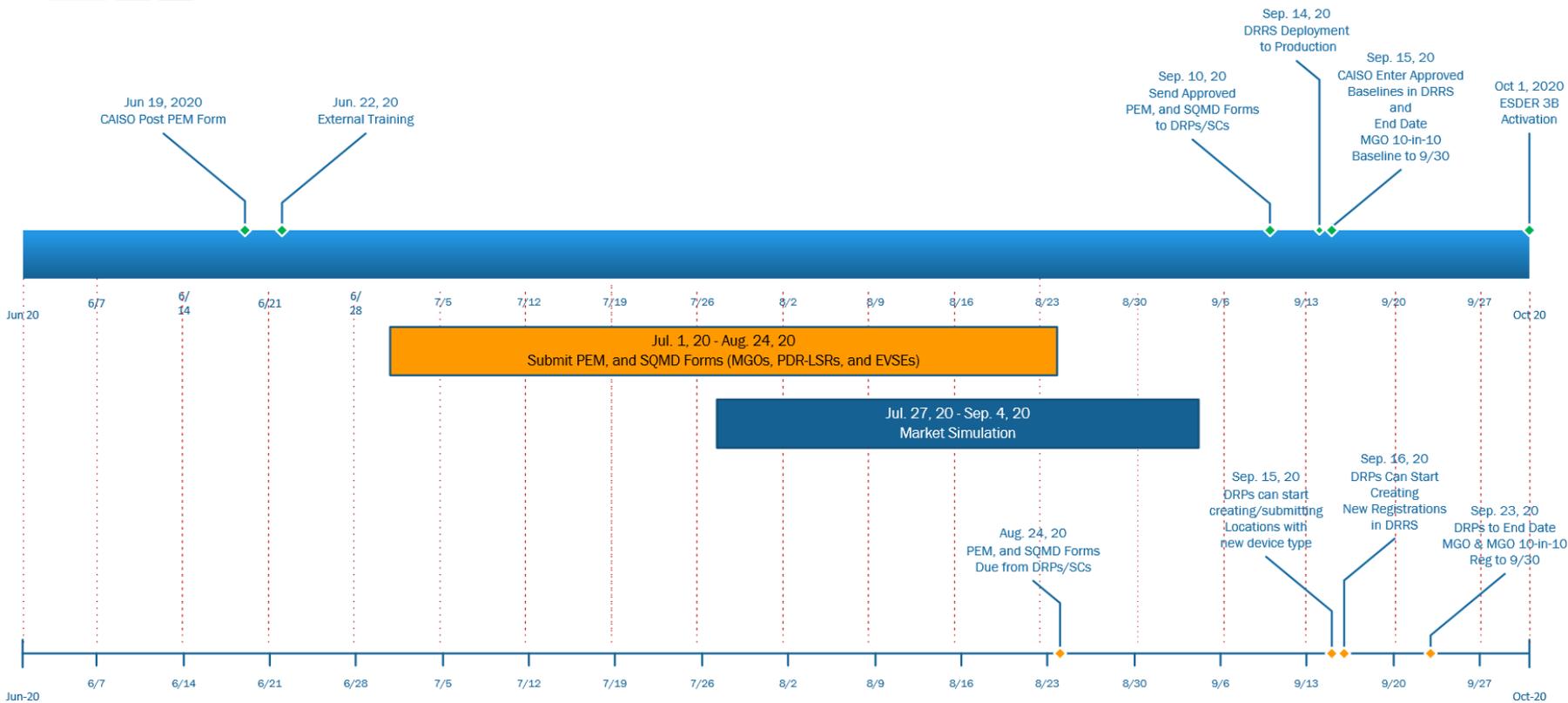
Project Info	Details/Date
BPM Changes	<ul style="list-style-type: none"> <li>Market Instruments, Market Operations, Outage Management, Reliability Requirement, Metering and Demand Response</li> </ul>
Tariff Change	Sections 4.13, 6.4, 6.5, 11.6, 11.8, 31.3, 34.1,34.4, 34.5, 30.7 and 34.8

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	Post Draft Tariff	May 20, 2020	✓
	File Tariff	Jul 14, 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 3 - DRRS	Sep 14, 2020	
	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	

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

## Energy Storage and Distributed Energy Resources Phase 3B – Transition Timeline

DRP/SC ISO Joint



**Note:** SC shall follow the normal Master File process. Master File may take up to 10 business days for processing.

# Fall 2020 – DRRS UI Look & Feel

As is:

The screenshot shows the current user interface of the Demand Response Registration System (DRRS). The header includes the California ISO logo and the title "Demand Response Registration System". Navigation tabs for "DRP VIEW", "UDC VIEW", "LSE VIEW", and "ADMINISTRATION" are present. A search bar contains filters for "LOC ID", "LOC Name", "SAN", "DRP", "UDC", "LSE", "SUBLAP", and "Defense Active". Action buttons include "Apply" and "Reset". A toolbar contains buttons for "Create", "Copy", "Delete", "Defend", "Withdraw", "Edit", "End Date", and "Register". The "Locations" table has a pagination control showing "1 - 25 of 423730" and a "Rows" dropdown set to "25". The "Registrations" table is also visible on the right.

To be:

The screenshot shows the proposed user interface for the DRRS. The layout is similar to the current version but with several changes. The search bar now includes an "Updated Since DateTime" field. The toolbar buttons are "Create", "Copy", "Delete", "Defend", "Withdraw", "Edit", "End Date", and "Register". The "Locations" table pagination control shows "4976 - 5000 of 147047" and a "5000" input field with a "GO" button. The "Registrations" table is also present on the right.

## Fall 2020 – DRRS Location IDs via APIs

Currently in production, DRRS assigns a ( $\geq$ ) 14digit numeric identifier for Location records submitted via the API

*Example:* 22893776000001, 22893776000002...

With the fall release 2020, it will be reduce down ( $\geq$ ) 8 digits

*Example:* 22893776, 22893777....

Any questions/concerns, please submit a CIDI ticket.

# Fall 2020 – EIM Enhancements 2020

Project Info	Details/Date
Application Software Changes	<p><b><u>Scope:</u></b>            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.</p> <p>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.</p> <p><b><u>Impacted Systems:</u></b>  <b>BAAOP</b></p> <ul style="list-style-type: none"> <li>• Allow EIM entity override activation for the contingencies up to 15 in NA contingency list</li> <li>• Add visibility of other adjacent BAA's ETSR locks and reasons</li> <li>• Add Static ETSR transfer data to RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer data to BAAOP ETSR Detail Display (in RTD)</li> <li>• Fix/Improve SVG One Lines. Request to be able to view SE and telemetry values for all substation flows and elements.</li> <li>• 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: <math>RTD\ UP\ Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch])</math>.</li> <li>• Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/RTPD Dispatch Control, add SUPP DOT column</li> <li>• 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</li> <li>• 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)               <ul style="list-style-type: none"> <li>• BAAOP Dynamic Limits</li> <li>• BAAOP RTIS</li> <li>• ALFS (load forecast and/or VER forecast)</li> <li>• ICCP link</li> </ul> </li> </ul>

# Fall 2020 – EIM Enhancements 2020 (cont.)

Project Info	Details/Date
Application Software Changes (cont.)	<p><b><u>Impacted Systems:</u></b></p> <p><b>BSAP</b></p> <ul style="list-style-type: none"> <li>• Add Manual Dispatch information to BSAP Resource Bal Viewer. Add any applicable deviations that used in the test to BSAP BAA Bal Viewer.</li> <li>• For the Bid Range Capacity Test Results report, Requirement Amount Column needs to publish the true requirement, not just the INCREMENTAL/DECREMENTAL requirement</li> </ul> <p><b>RTM</b></p> <ul style="list-style-type: none"> <li>• Publish the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD</li> <li>• Publish the effective load bias for the market run for RTPD and RTD</li> <li>• Publish the effective ETSR import and export limits for the market run for RTPD and RTD</li> <li>• Support Pump Storage for EIM BAAs</li> </ul> <p><b>CMRI</b></p> <ul style="list-style-type: none"> <li>• Display and publish, download the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD</li> <li>• Display and publish, download the data of the effective load bias for the market run for RTPD and RTD</li> <li>• 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.</li> </ul> <p><b>Settlements</b></p>
BPM Changes	Market Instruments
Tariff Change	N/A

## Fall 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	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec) CMRI tech spec	May 29, 2020	✓
	1. MW Infeasibility Report	May 29, 2020	✓
	2. EIM Entity Load Bias Report 3. Available Balance Capacity (ABC) Up and Down Dispatch Report by Resource, and updates to Infeasibility & LoadConforming	July 2, 2020	
Tariff	File Tariff	N/A	
BPMs	Draft BPM changes	Jul 20, 2020	
External Training	Deliver External Training	Jul 23, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	EIM Enhancements 2020	Oct 01, 2020	

# 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	<ul style="list-style-type: none"> <li>• Master File</li> <li>• Settlements</li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• Market Instruments</li> <li>• Metering</li> <li>• Settlements and Billing</li> </ul>
Tariff Changes	<ul style="list-style-type: none"> <li>• New Tariff Section 10.1.3.4</li> <li>• Updates to 4.6.11, 27.9, Appendix K</li> </ul>

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 – 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	<ul style="list-style-type: none"><li>• RTPD, RTD, STUC</li></ul>
BPM Changes	<ul style="list-style-type: none"><li>• Market Instruments</li><li>• Market Operations</li></ul>
Tariff Changes	<ul style="list-style-type: none"><li>• N/A</li></ul>

# Fall 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	Jul 14, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	FRP Improvements - Buffer and Min	Oct 01, 2020	

# Fall 2020 – ADS Replacement

Project Info		Details/Date	
Application Software Changes		<ul style="list-style-type: none"> <li>• Transition to web-based user interface to eliminate the need to install thick client</li> <li>• Transition ADS provisioning to the Access and Identity Management (AIM) application including Resource Level Access Controls (RACL) access</li> <li>• The query tool will provide 30 days of historical data</li> <li>• Various user interface enhancements adding content per Operation's request</li> <li>• ADS B2B services changes</li> </ul>	
BPM Changes		<ul style="list-style-type: none"> <li>• Market Instruments</li> <li>• Market Operations</li> </ul>	
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	✓
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 20, 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	
ADS CPG	ADS Customer Partnership Group Meeting	Jul 09, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production	ADS Parallel Operations	Sep 1, 2020 - Oct 30, 2020	
Production	ADS Replacement - Deployment	Nov 04, 2020	
Decommission	Old ADS Decommission	Feb 1, 2021	

# Fall 2020 – Dispatch Operating Target Tariff Clarification

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> Allow Energy Intermittent Resources (EIRs) to automate their response to operational instructions that require the resource not to exceed their Dispatch Operating Target.</p> <p><b>Impacted Systems:</b>  <b>RTM:</b> Operator can select EIR resources, system to send Operating instruction Flag to ADS  <b>ADS:</b> Receive Operating instruction flag for EIRs. Broadcast message to EIRs operator.</p>
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 20, 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	Nov 04, 2020	

# Fall 2020 – Intertie Deviation Settlement

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> Implement a new Under/Over Delivery Charge for intertie deviations from Market Schedule and After-The-Fact (ATF) E-Tag, to replace Decline charge</p> <p><b>Impacted Systems:</b> <b>Settlements</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>Remove the decline charge calculation and Decline Threshold</li> <li>Allocate Over/Under delivery charge to measured demand</li> </ul> <p><b>ADS</b> - display the HASP schedule, the scheduling coordinator accepted value, and the difference between the two</p> <p><b>RTM</b> - determine the 15-minute binding award for hourly intertie resources based on the E-Tag at T-40.</p>
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 Draft Config Guides	May 29, 2020	✓
Tech Spec	Publish Technical Specifications	N/A	
Tariff	Tariff Activities	May 22, 2020	✓
BPMs	Settlements and Billing Market Operations	May 29, 2020 Jul 20, 2020	✓
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Intertie Deviation Settlement	Nov 4, 2020	

# Fall 2020 – Excess Behind the Meter Production

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b></p> <ul style="list-style-type: none"> <li>• Clarify the Tariff definition of Gross Load per amended tariff definition</li> <li>• Establish how EBtMP will be submitted, reported, and settled</li> <li>• Provide option for entities with meter agreements existing prior to ISO to submit EBtMP interval meter data</li> <li>• Update definitions for Net Load and Unaccounted For Energy settlement calculations</li> <li>• Publish EBtMP performance to market participants</li> </ul> <p><b>Impacted Systems:</b></p> <p><b>MRI-S - Meter submission</b></p> <ul style="list-style-type: none"> <li>• Allow SC to submit Gross Load and EBtMP under the single Resource ID               <ul style="list-style-type: none"> <li>• New EBtMP measurement type for interval meter data submission; existing Load measurement type interval meter data submission with represent new Gross Load tariff definition                   <ul style="list-style-type: none"> <li>• Meter submission UI and API will accept the new EBtMP measurement type</li> </ul> </li> </ul> </li> </ul> <p><b>OASIS</b></p> <ul style="list-style-type: none"> <li>• Publish hourly aggregated EBtMP by TAC area once meter data submission deadline passes for settlement date</li> </ul> <p><b>Settlements</b></p> <ul style="list-style-type: none"> <li>• Modify Net Load and UFE calculations to align with tariff amendments:               <ul style="list-style-type: none"> <li>• <math>NET\ LOAD = GROSS\ LOAD\ METER - EXCESS\ BTMPRODUCTION\ METER</math></li> <li>• <math>UFE\ QUANTITY = GENERATION\ METER + INTERTIE\ IMPORT\ METER - (NET\ LOAD\ METER + EXPORT\ INTERTIE\ METER + RTD\ LOSS\ MW)</math></li> </ul> </li> <li>• New Excess Behind the Meter Production (EBtMP) metered value bill determinant will be provided (similar to metered Load today)</li> <li>• Modify follow charge codes to settle based on Gross Load (Reliability based charge codes, list may not be comprehensive – See updated Settlements Configuration Guides)               <ul style="list-style-type: none"> <li>• 372 High Voltage Access Charge Allocation (UDC gross load)</li> <li>• 382 High Voltage Wheeling Allocation (Non PTO load)</li> <li>• 383 Low Voltage Wheeling Allocation (Non PTO load)</li> <li>• 591 Emissions Cost Recovery (Measured Demand)</li> <li>• 1101 Black Start Capability Allocation</li> <li>• ...</li> </ul> </li> </ul>

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

Project Info	Details/Date
Application Software Changes (cont.)	<p><b>Impacted Systems:</b></p> <p><b>Settlements (continued);</b></p> <ul style="list-style-type: none"> <li>• Modify follow charge codes to settle based on Gross Load (Reliability based charge codes, list may not be comprehensive – See updated Settlements Configuration Guides)               <ul style="list-style-type: none"> <li>• 1302 Long Term Voltage Support Allocation</li> <li>• 1303 Supplemental Reactive Energy Allocation</li> <li>• 6090 Ancillary Service Upward Neutrality Allocation</li> <li>• 6194 Spinning Reserve Obligation Settlement</li> <li>• 6196 Spinning Reserve Neutrality Allocation</li> <li>• 6294 Non-Spinning Reserve Obligation Settlement</li> <li>• 6296 Non-Spinning Reserve Neutrality Allocation</li> <li>• 6594 Regulation Up Obligation Settlement</li> <li>• 6596 Regulation Up Neutrality Allocation</li> <li>• 6694 Regulation Down Obligation Settlement</li> <li>• 6696 Regulation Down Neutrality Allocation</li> <li>• 7256 Regulation Up Mileage Allocation</li> <li>• 7266 Regulation Down Mileage Allocation</li> <li>• 7896 Monthly CPM Allocation</li> </ul> </li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• <b>Definitions &amp; Acronyms:</b> <ul style="list-style-type: none"> <li>• Update definition of Gross Load</li> <li>• Add Excess Behind the Meter Production</li> </ul> </li> <li>• <b>Metering</b> <ul style="list-style-type: none"> <li>• Submission, retrieval of new measurement type (EBtMP)</li> </ul> </li> <li>• <b>Settlements &amp; Billing</b> <ul style="list-style-type: none"> <li>• See Settlements Configuration Guide for changes</li> </ul> </li> </ul>
Tariff Change	<ul style="list-style-type: none"> <li>• <b>Appendix A:</b> <ul style="list-style-type: none"> <li>• Clarify Gross Load definition, Update Demand definitions,</li> <li>• Add new term Excess Behind the Meter production</li> </ul> </li> <li>• <b>Section 11:</b> <ul style="list-style-type: none"> <li>• Update reliability based tariff reference sections to be based upon gross load</li> </ul> </li> </ul>

## 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	
	Publish Final Business Practice Manuals	Aug 13, 2020	
External Training	Deliver external training webinar	Jul 21, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Excess Behind the Meter Production Deployment	Oct 01, 2020	
	Excess Behind the Meter Production Effective Trade Date	Jan 01, 2021	

# Fall 2020 – Market Settlement Timeline Transformation

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul>
Application Software Changes (cont.)	<p><b>Impacted Systems:</b></p> <p><b>CIDI:</b></p> <p>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.</p> <p><b>CMRI:</b> Data retention impact due to reducing from 39 months to 27 months.</p> <p><b>MRI-S Metering:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Data submission/freeze timeline.</li> </ul> <p><b>MRI-S Settlements:</b></p> <ul style="list-style-type: none"> <li>• Update the Post Date calculation, as the payment calendar will change.</li> <li>• Auto scheduling for statement generation.</li> <li>• Statement posting.</li> </ul>

# Fall 2020 – Market Settlement Timeline Transformation (cont.)

Project Info	Details/Date	
Application Software Changes (cont.)	<p><b>Market Clearing:</b>            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 &amp; Monthly Extrapolation and credit calculation.</p> <p><b>Recalculation Log:</b>            Post update recalculation log.</p> <p><b>Payment Calendar:</b>            Post the payment calendar to reflect overlap between existing and new timeline.</p> <p><b>OASIS:</b></p> <ul style="list-style-type: none"> <li>• Data retention impact due to reducing from 39 months to 27 months.</li> <li>• FERC 841 related data availability needs to be vetted.</li> </ul>	
BPM Changes	Credit Management and Market Clearing Definitions & Acronyms Energy Imbalance Market Market Instruments Metering Reliability Requirement	Rules of Conduct Administration Settlements and Billing <ul style="list-style-type: none"> <li>• Section 2.3.2 – Schedule for Settlement Statement Publication</li> <li>• Section 2.3.5.1.1 – Dispute Timing</li> <li>• Section 2.3.6 – Billing &amp; Payment</li> <li>• Section 2.4 – Payment Calendars</li> </ul>
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

# 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 - <i>Documentation Only</i>	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	Jul 20, 2020	
External Training	Deliver External Training	Jul 20, 2020	
Market Simulation	Market simulation window	Jul 27, 2020 - Sep 18, 2020	
Production Activation	Market Settlement Timeline Deployment	Oct 01, 2020	
	Market Settlements Timeline Effective Trade Date	Jan 01, 2021	

# 2021 Spring Release

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

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

Milestone Type	Milestone Name	Dates	Status
Market Sim	Market Sim Window	December 2020 – January 2021	
Parallel Operations	Parallel Operations	February 2021 – March 2021	
Tariff	File Readiness Certification	March 2021	
Production Activation	EIM – PNM, LADWP, TID, NWE and BANC Phase 2	April 2021	

# 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](http://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
	5 WebCONF: Market Simulation 2:00pm - 3:00pm	6 Training: Get to Know the ISO - Day 1 9:00am - 4:00pm WebCONF: Imbalance Conformance Enhancements 10:00am - 12:00pm WebCONF: Technical User Group 10:00am - 11:00am	7 Deadline: Comments - Interconnection Process Enhancements 2018 - Issue Paper and Meeting Discussion Training: Get to Know the ISO - Day 2 9:00am - 4:00pm Meeting: Flexible Resource Adequacy Criteria Must Offer Obligation Phase 2 - Revised Draft Flexible Capacity Framework 10:00am - 4:00pm WebCONF: Market Settlement User Group 10:00am - 11:00am	8 Meeting: Audit Committee Teleconference (Executive) 3:30pm - 6:30pm Training: Settlements 101 9:00am - 4:00pm Meeting: 2017-2018 Transmission Planning Process 10:00am - 4:00pm WebCONF: Market Simulation 2:00pm - 3:00pm	9 Training: Settlements 201 9:00am - 4:00pm	10
11 WebCONF: Participating Transmission Owner Per Unit Cost Guides 10:30am - 12:00pm WebCONF: Market Simulation 2:00pm - 3:00pm	12 Meeting: Congestion Revenue Rights Auction Efficiency 10:00am - 4:00pm WebCONF: Release User Group 10:00am - 11:00am Call: Energy Imbalance Market Governing Body Teleconference (Executive) 11:30am - 12:30pm	13 Deadline: Submissions - April 2018 Monthly Resource Adequacy and Supply Plans Call: Congestion Revenue Rights 11:00am - 11:30am WebCONF: Outage Management System Customer Partnership Group 2:00pm - 3:00pm	14 Deadline: Comments - Review Transmission Access Charge Structure Straw Proposal and Meeting Discussion Call: Board of Governors Teleconference (General) 3:15pm - 6:00pm Call: Board of Governors Teleconference (Executive) 9:00am - 10:00am Call: Market Update 10:15am - 11:00am WebCONF: Market Simulation	15	16	17

Market Sim



WebCONF: Market Simulation  
2:00pm - 3:00pm

Market Sim



WebCONF: Market Simulation  
2:00pm - 3:00pm

Release Users Group (RUG)



WebCONF: Release User Group  
10:00am - 11:00am

# 2020 MPPF Schedule

Upcoming meetings:

- *Wednesday, September 9*
- *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](mailto:isostakeholderaffairs@caiso.com).