



California ISO

Market Performance and Planning Forum

March 9, 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



Market Performance and Planning Forum

Agenda – March 9, 2020

9 a.m. – 12 p.m.

Time:	Topic:	Presenter:
9:00 – 10:05	Introduction, Agenda	Kristina Osborne
9:05 – 11:00	Market Performance and Quality Update	Market Analysis and Forecasting
11:00 – 11:30	Policy Update	Brad Cooper Jill Powers
11:30 – 12:00	Release Update	Adrian Chiosea

Market Update

Market Analysis and Forecasting Department

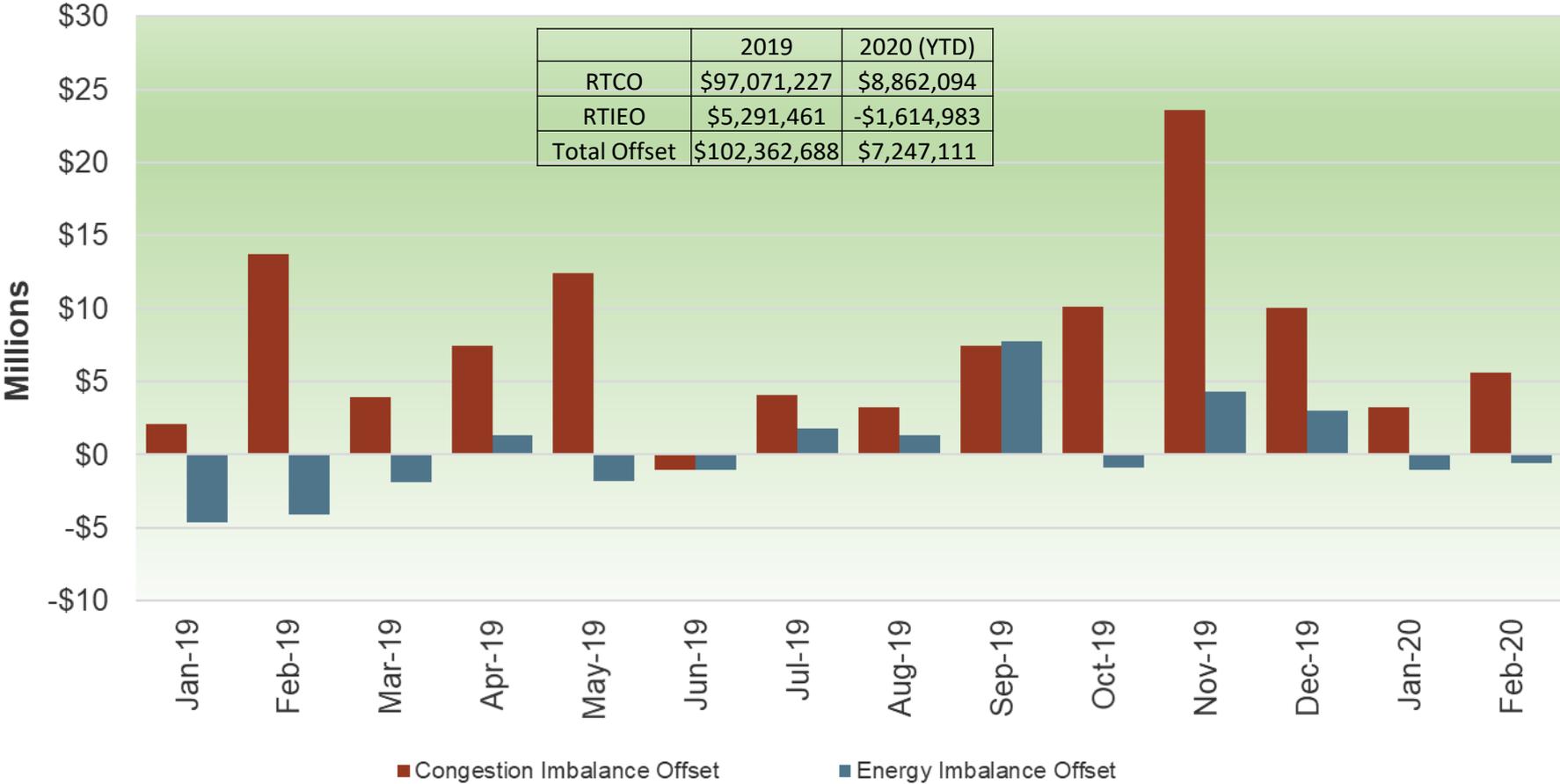
Market Issue process: 2018-2019 IFM Residual Supply Index (RSI) issue

- Due to a software defect, virtual supply was not included in the RSI calculation.
- IFM non-competitive constraints may have been overstated as more virtual supply pushes RSI over “1” and into the competitive range.
- IFM RSI in the 0.90 to 0.99 range (non-competitive) represented 3% of the total hours of mitigation for the time period. These hours are most likely impacted by the software issue.
- Issue impacted IFM trade dates from September 18, 2018 to April 19, 2019

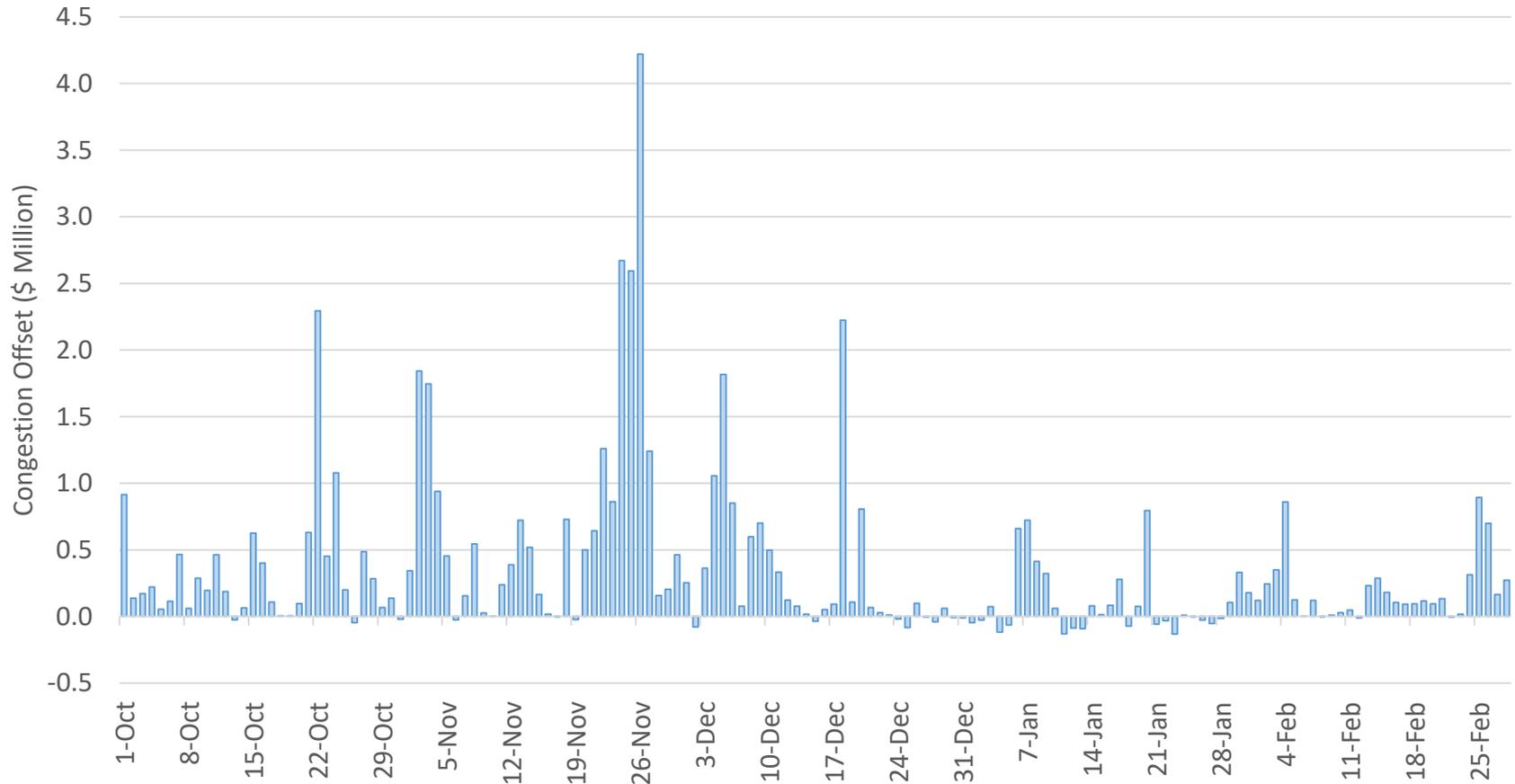
Market Issue process: FRP Duplicative BAA Shadow Price issue

- Software issue with the FRP constraint shadow price when upper side was binding and interplay with slack variables.
- For some EIM BAAs when EIM_AREA binding with a non-zero price, the BAA price should be the negative value of the EIM_AREA so that the BAA FRP price is \$0. The BAA price was non-negative due to the software defect.
- EIM BAA FRP prices were artificially high due to this defect.
- Price corrections to FRP prices made from Oct 22-Dec 17, 2019. Software issue fixed on 12/17/2019.

ISO area RTCO increased in November



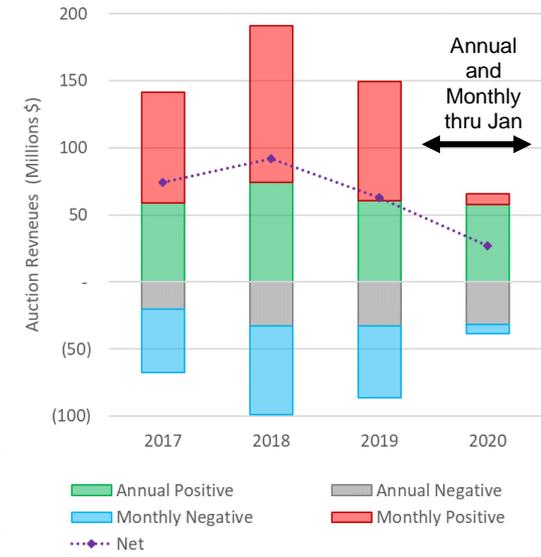
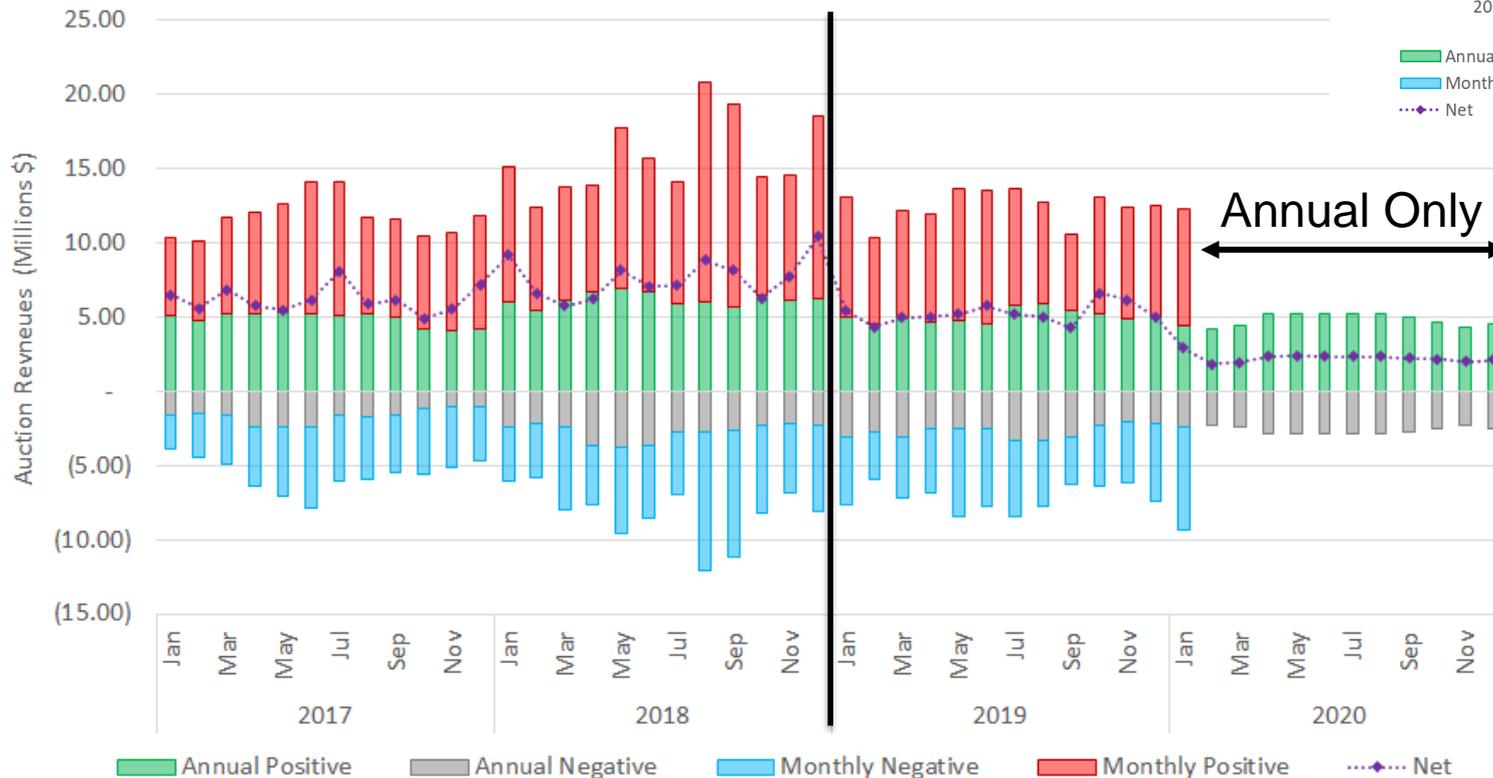
Daily Real Time Congestion Offset (RTCO) from October to February 2020



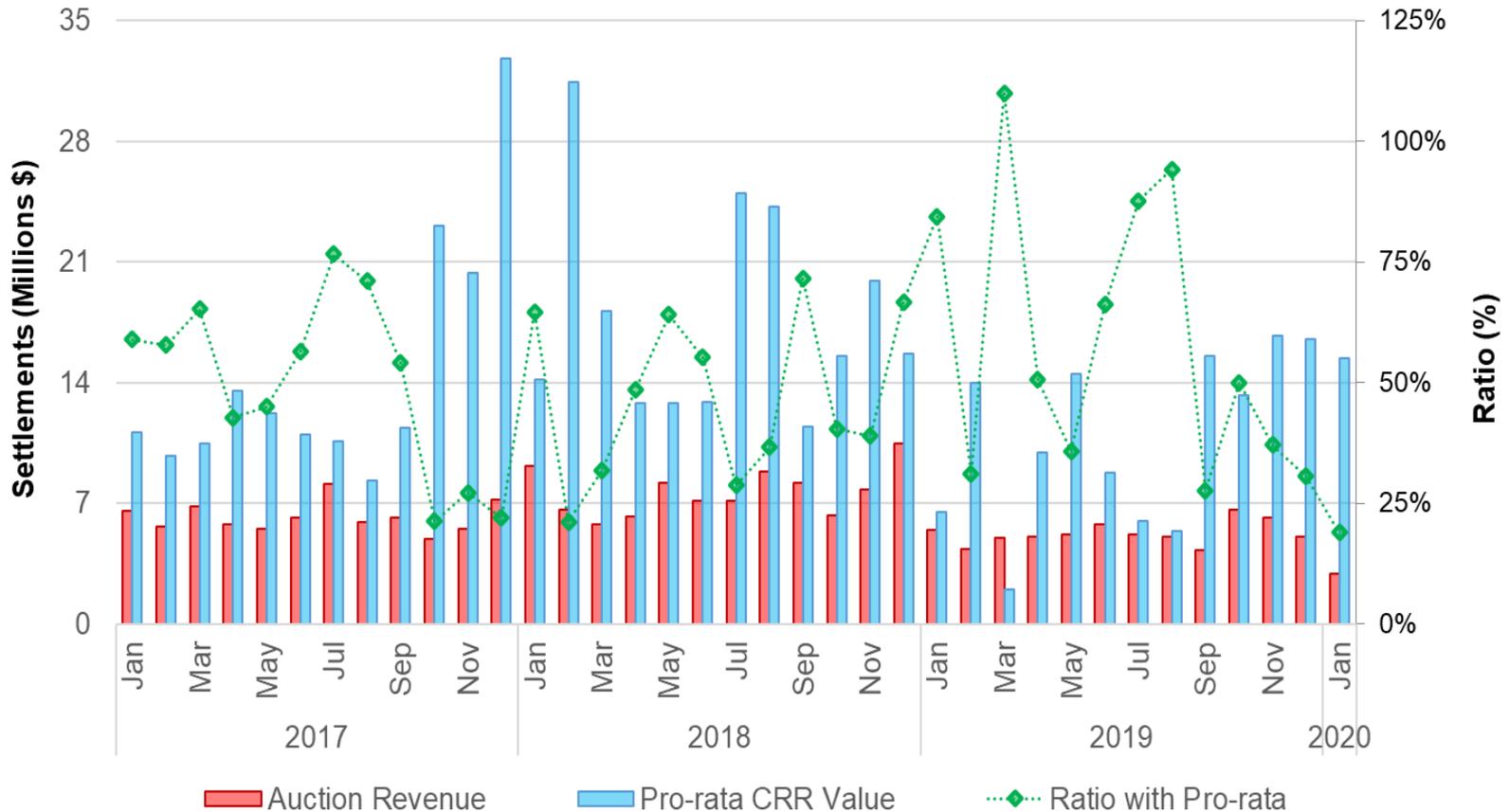
Constraints that have potential impact on RTCO

- 24132_SANBRNDO_230_24804_DEVERS_230_1_1 constraint binding in the RTD/FMM market due to an outage on Devers – Vista 230 kV line 1 and 2 (November 20 onwards).
- SYLMAR-AC_BG branch group was binding in early November due to outage on Sylmar 220 station (November 2 and 3).
- Nomograms in SDGE region due to an outage on East County – Imperial Valley 500 kV line on December 18 and East County – Miguel 500 kV line on February 25
- Barre – Lewis 230 kV line was binding on February along with Serrano 500/230 kV Transformer and San Bernardino – Devers 230 kV line on February 4. Barre – Lewis 230 kV line was binding due to an outage on Lewis North 220 kV line

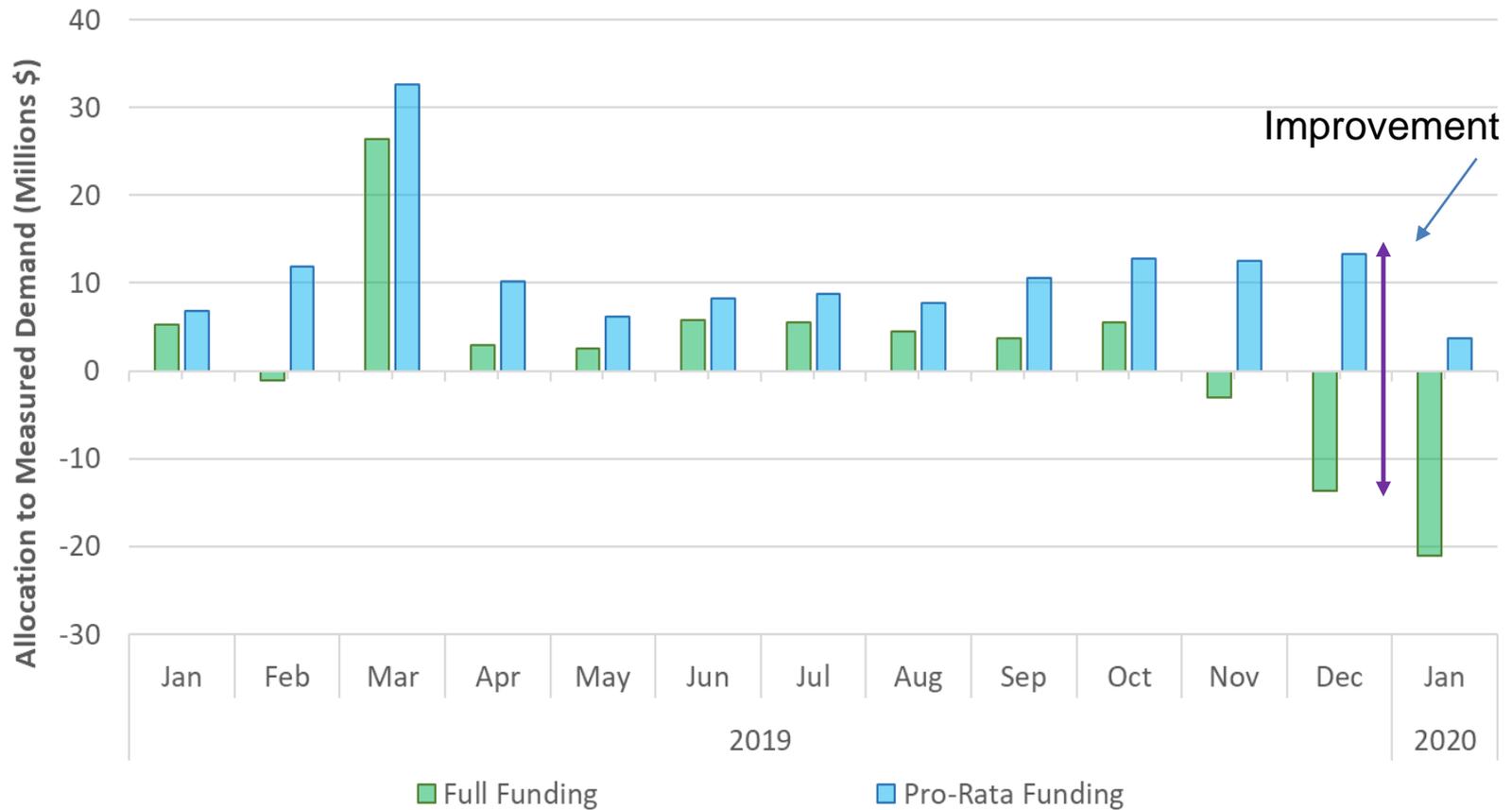
Overall trend of auction revenues has not changed significantly with the elimination of non-delivery paths since SCs still sell CRRs



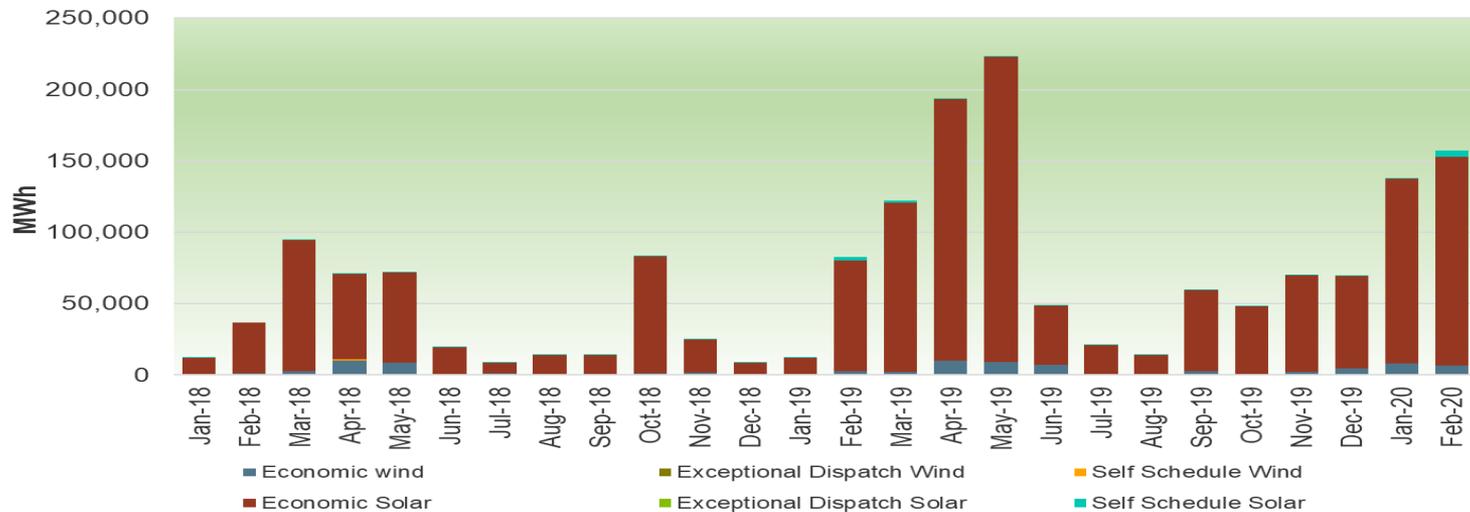
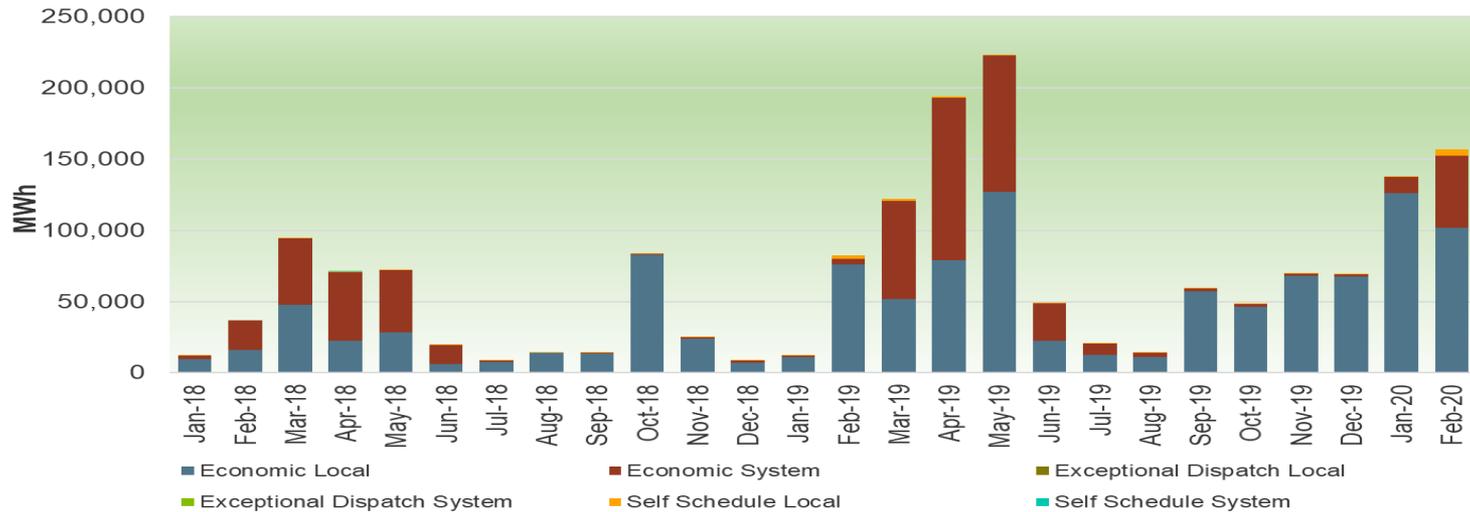
Pro-rata funding (phase 1B) has indirectly improved auction efficiency by about \$44 Million (12.6%)



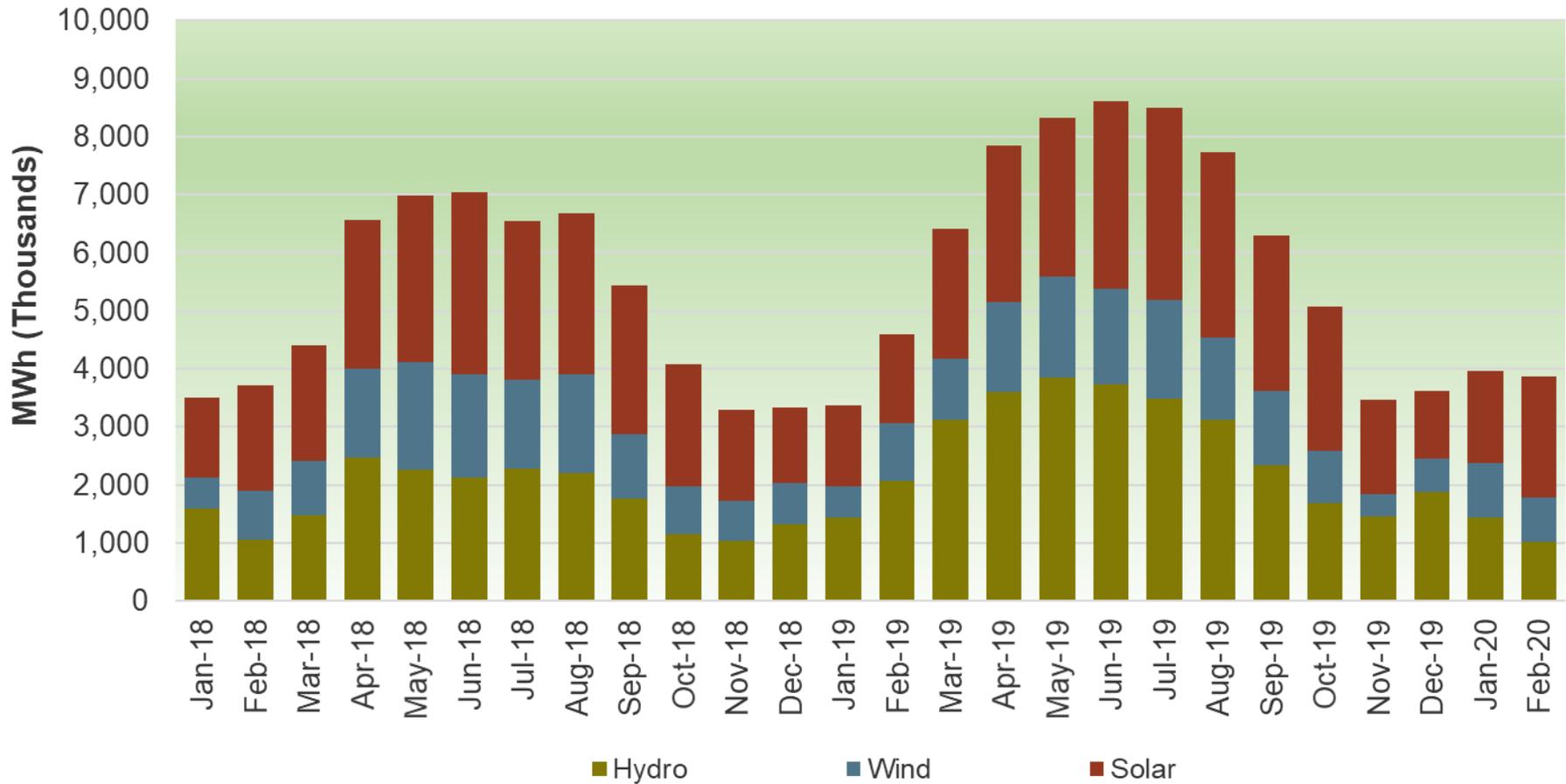
Implementation of pro-rata funding has eliminated CRR revenue shortfall, increasing revenues to LSEs by \$122 Million.



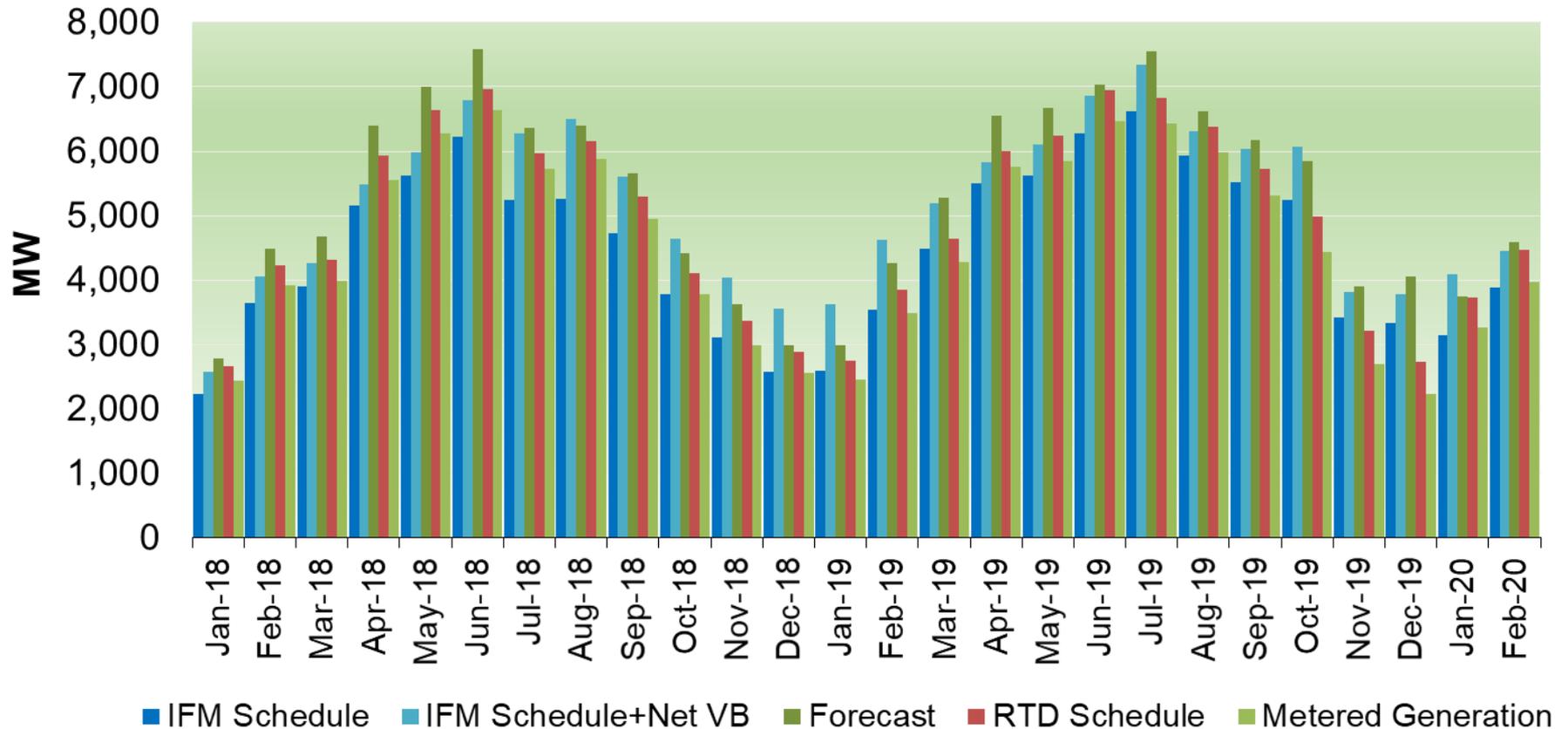
RTD renewable (VERs) curtailment rose since December



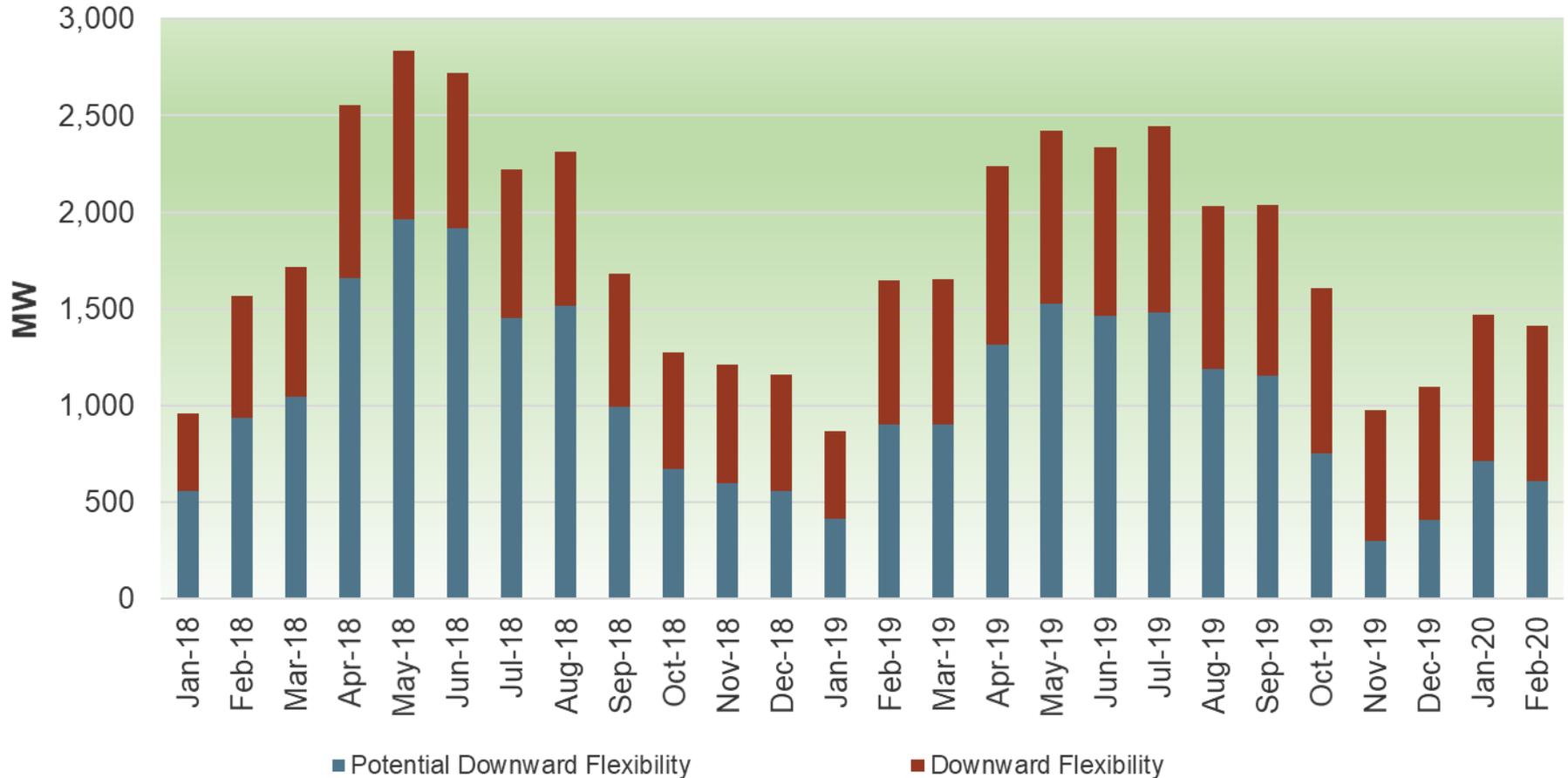
Hydro production lower in February than previous years



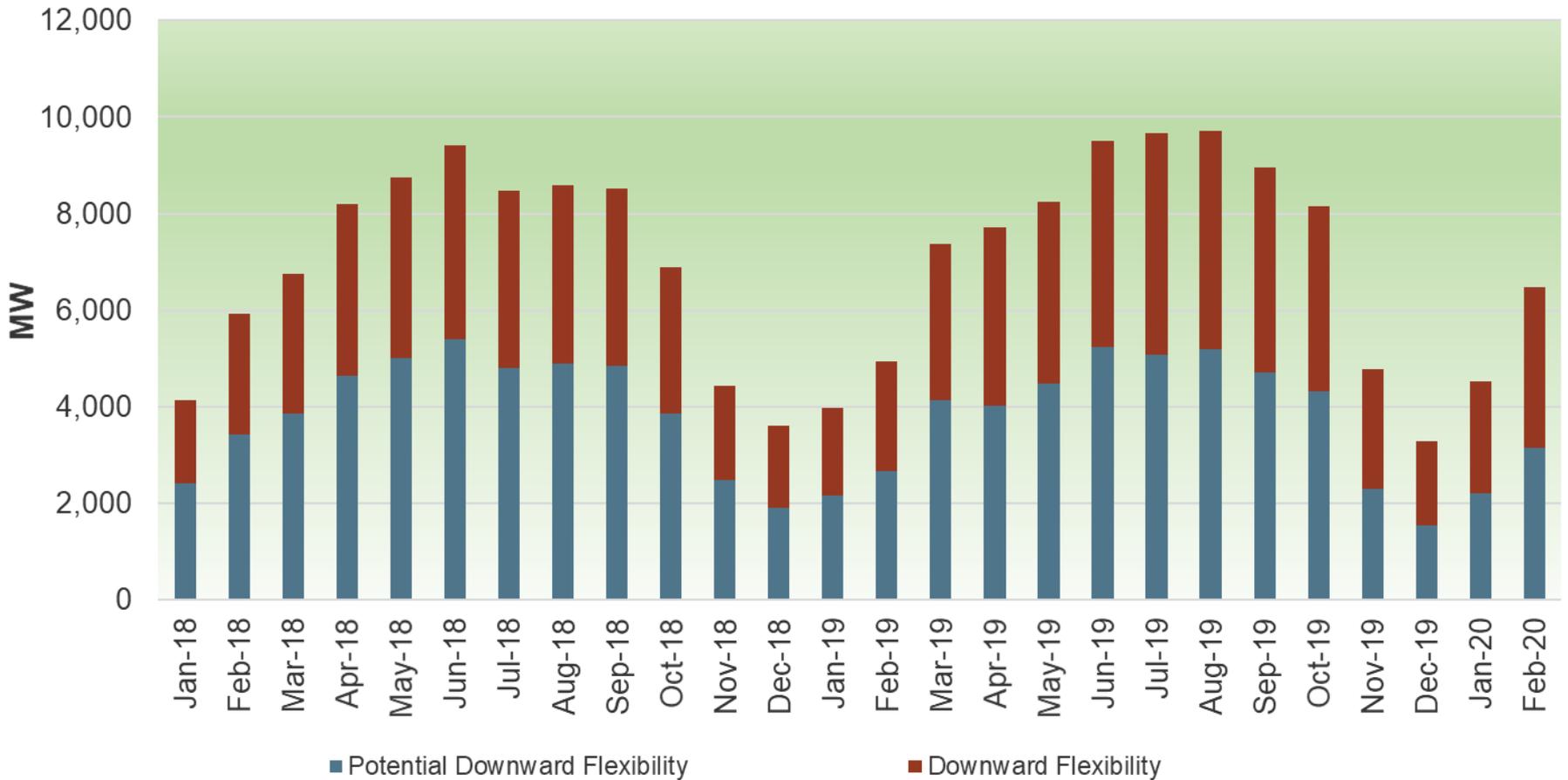
ISO total monthly VERS schedules and forecasts compared to actuals



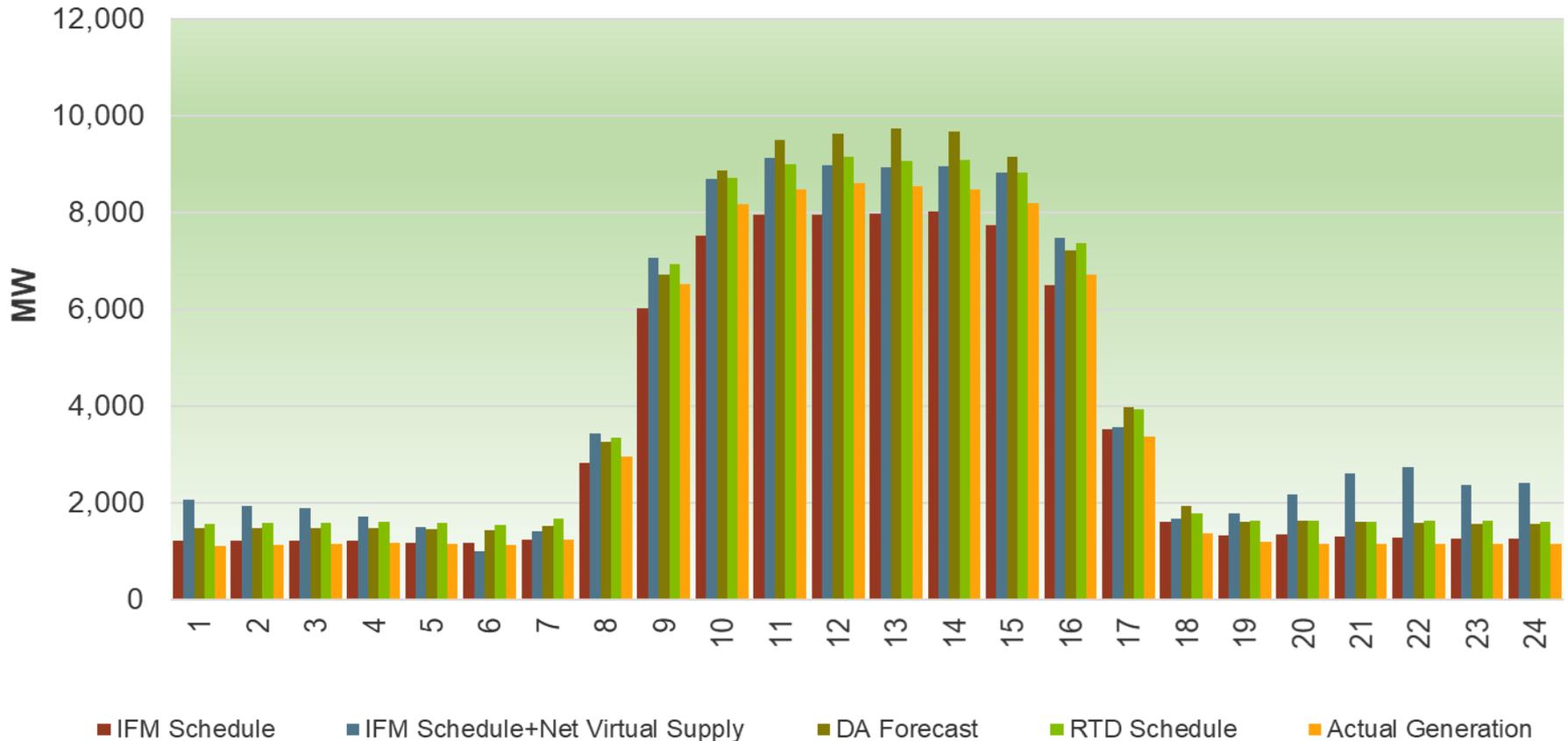
Monthly wind (VERs) downward flexibility in FMM



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

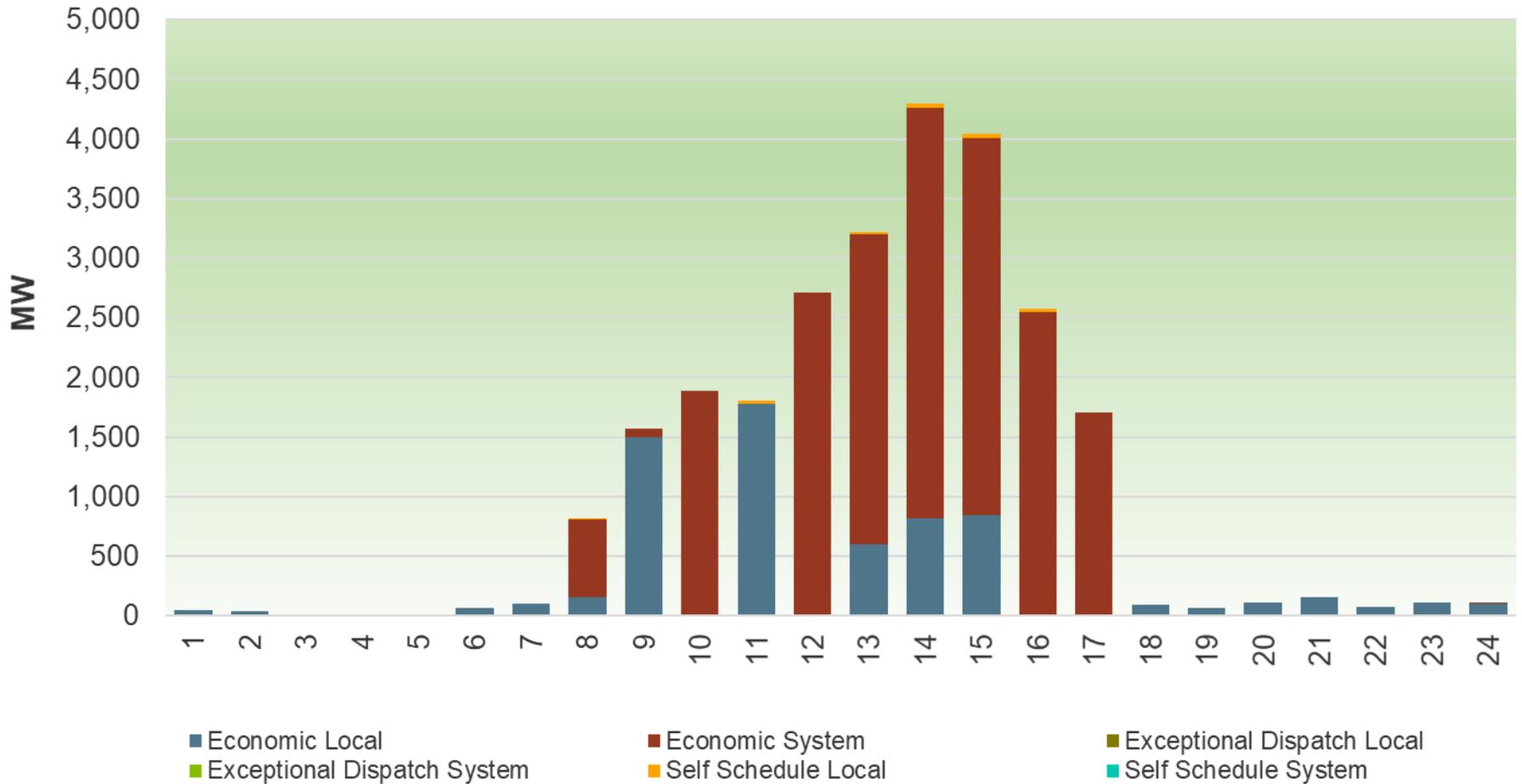


Renewable (VERs) schedules including net virtual supply aligns with VER forecast in January and February

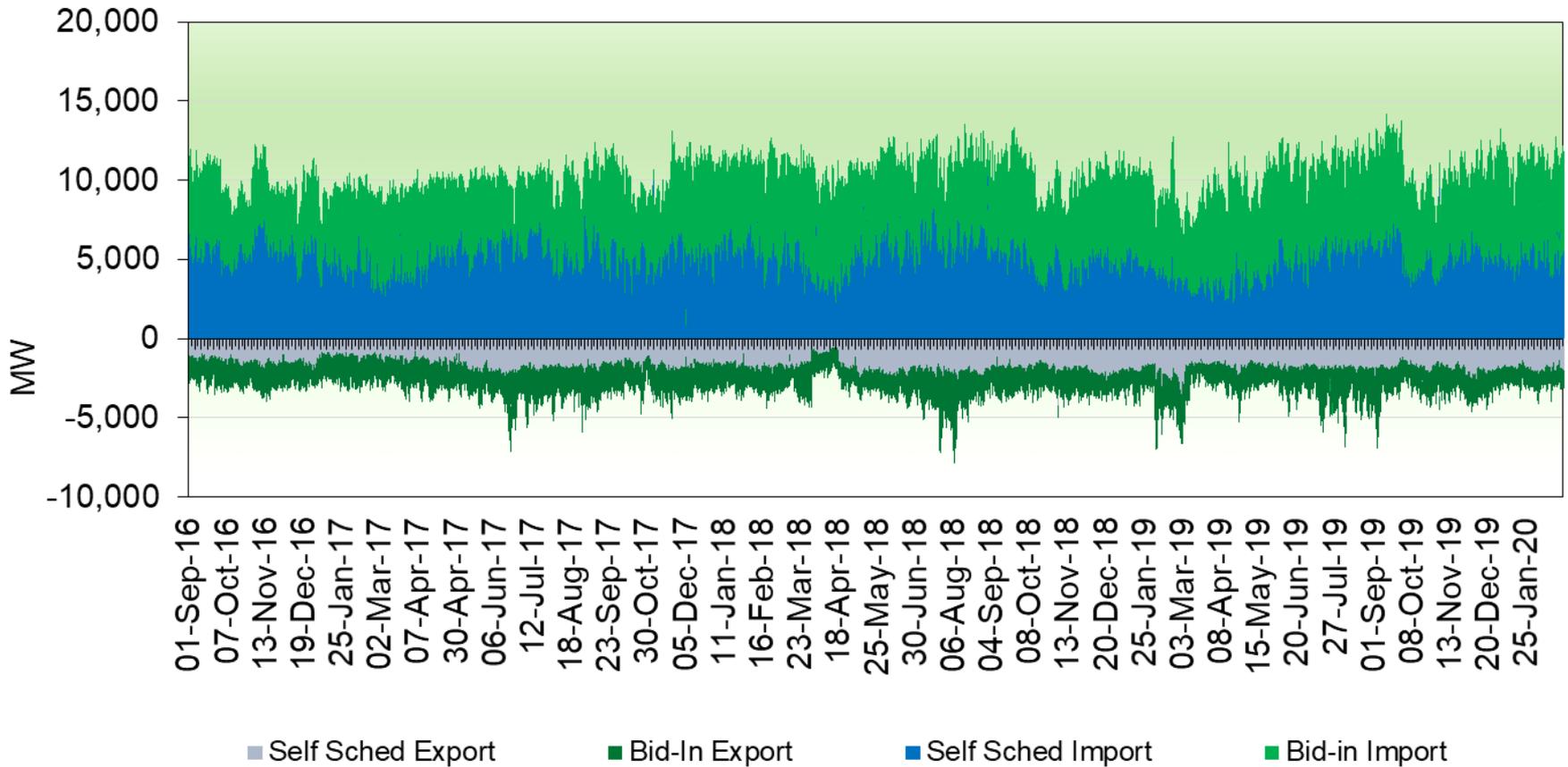


<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EFF75C2E-F28E-4087-B88B-8DFFAED828F8>

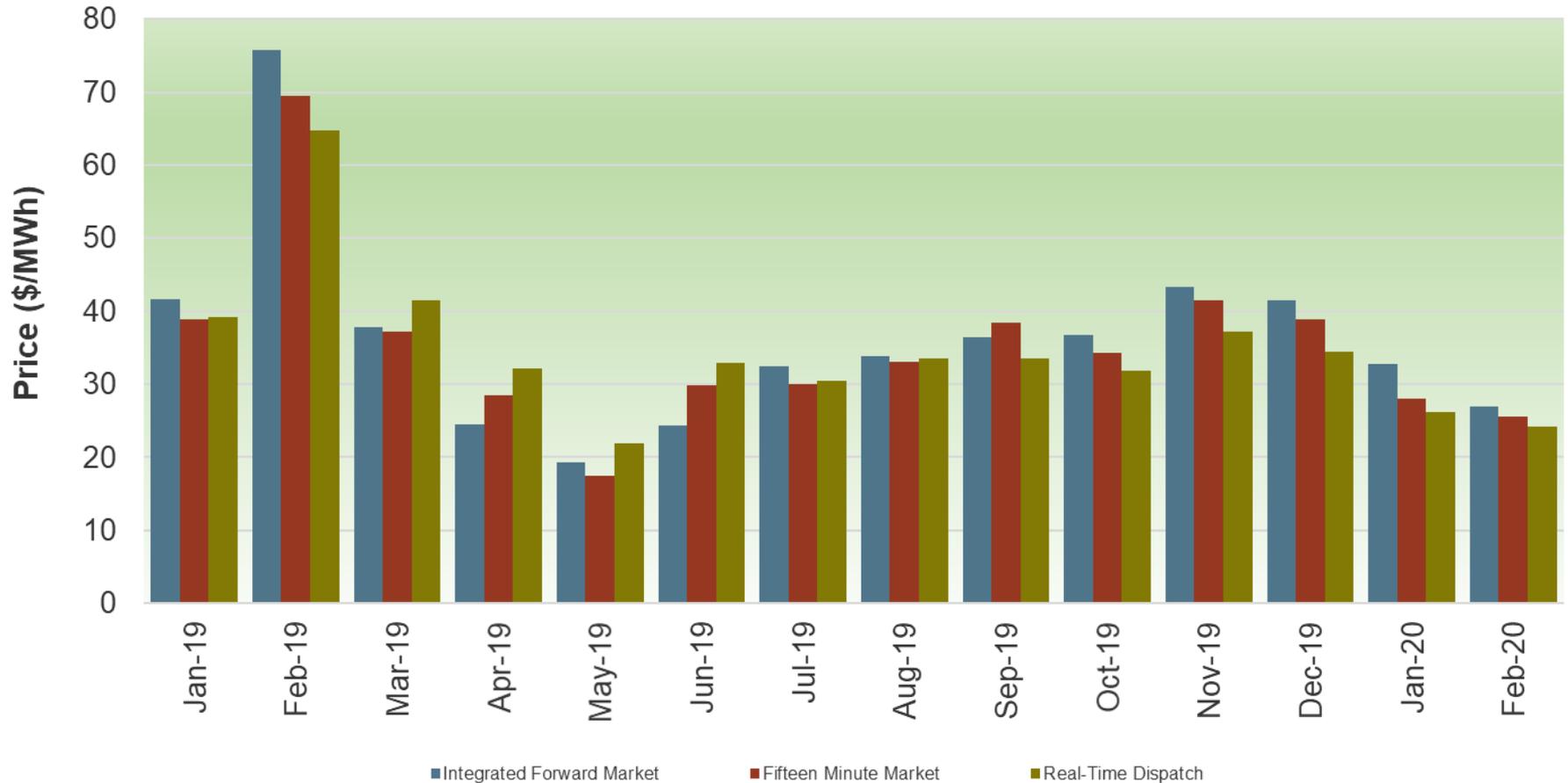
Hourly distribution of maximum RTD renewable (VERS) curtailment in February



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

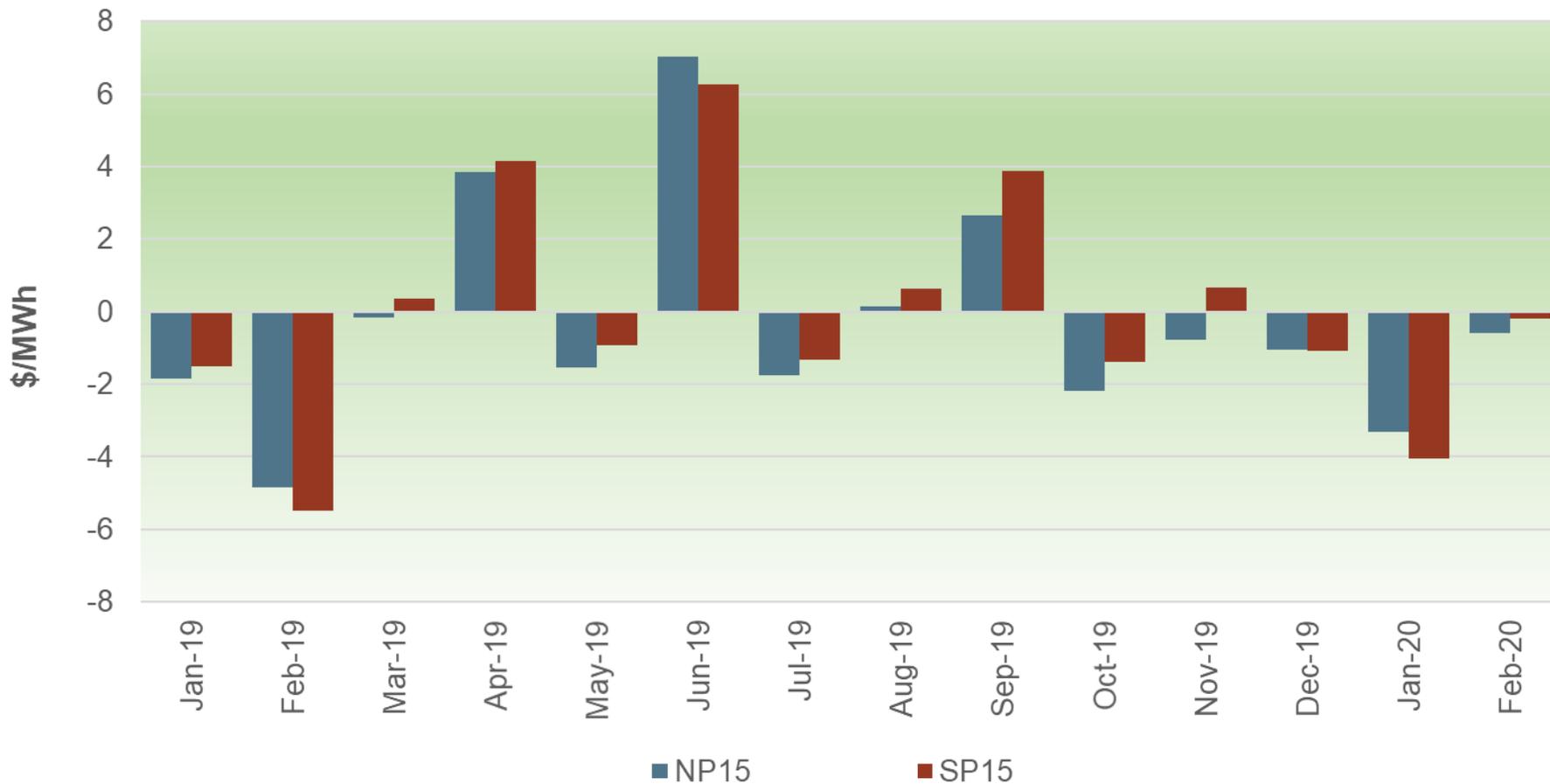


Improved price convergence in February

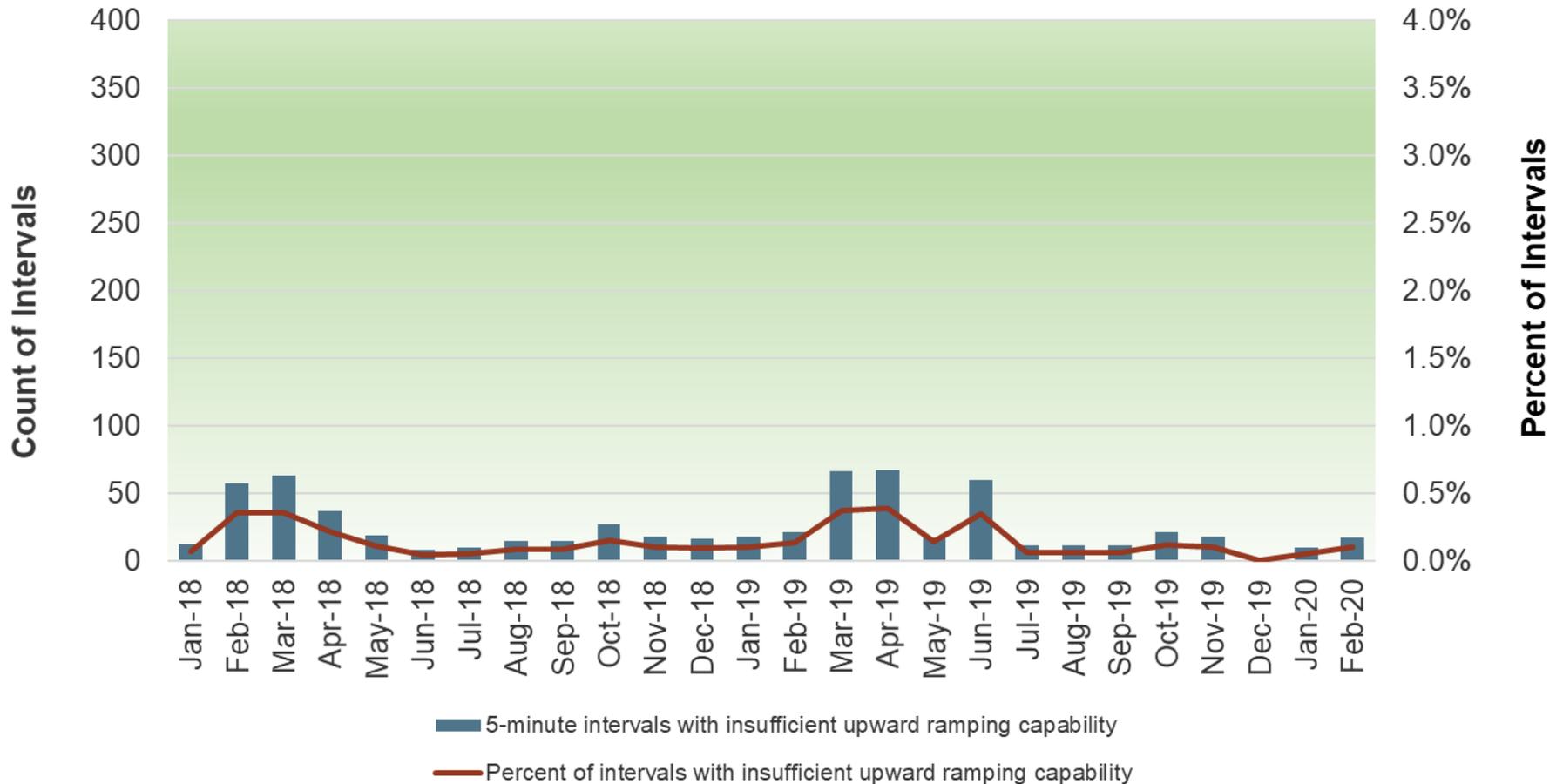


Note: Metric Based on System Marginal Energy Component (SMEC)

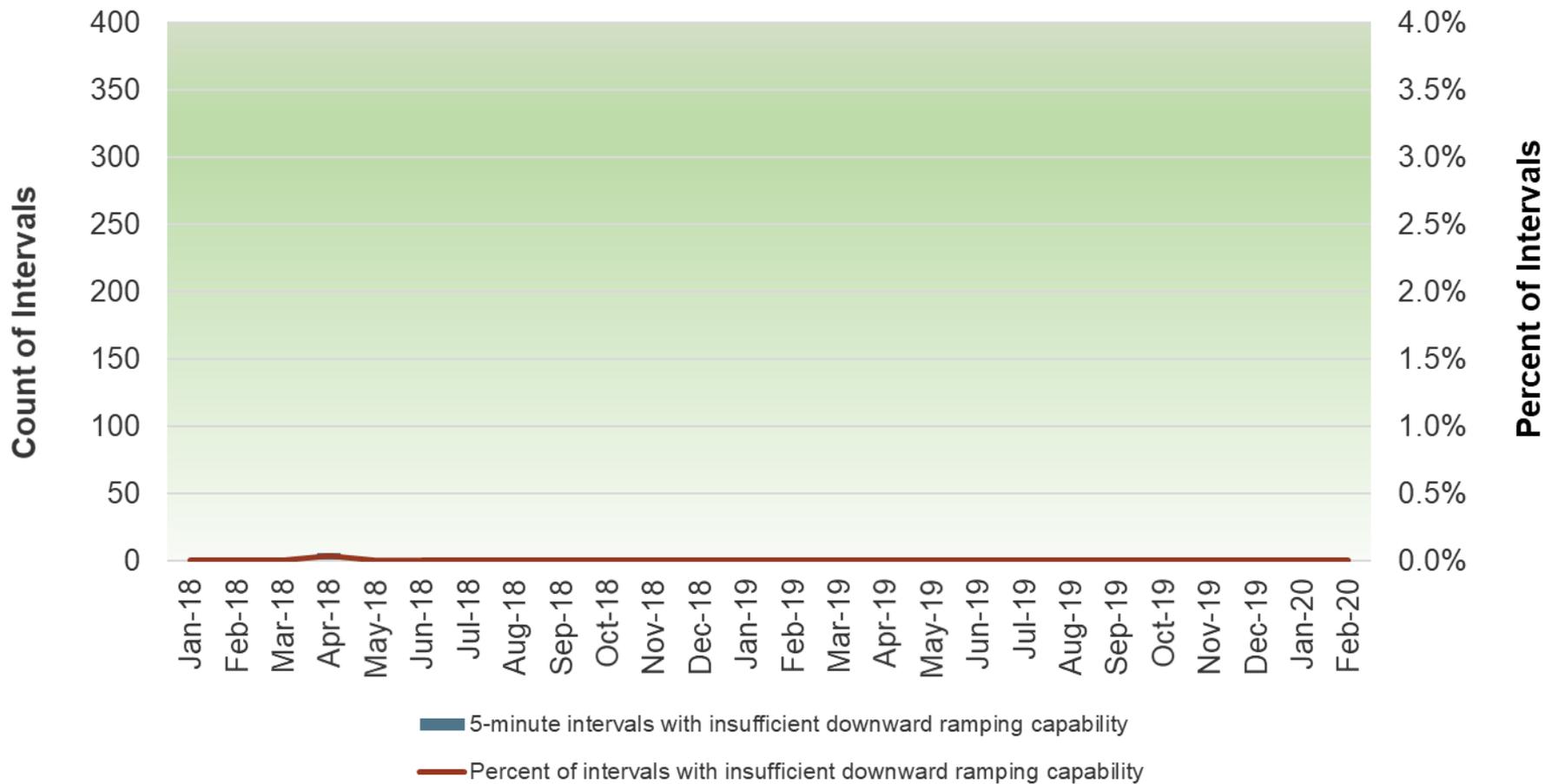
RT prices lower than DA prices since December



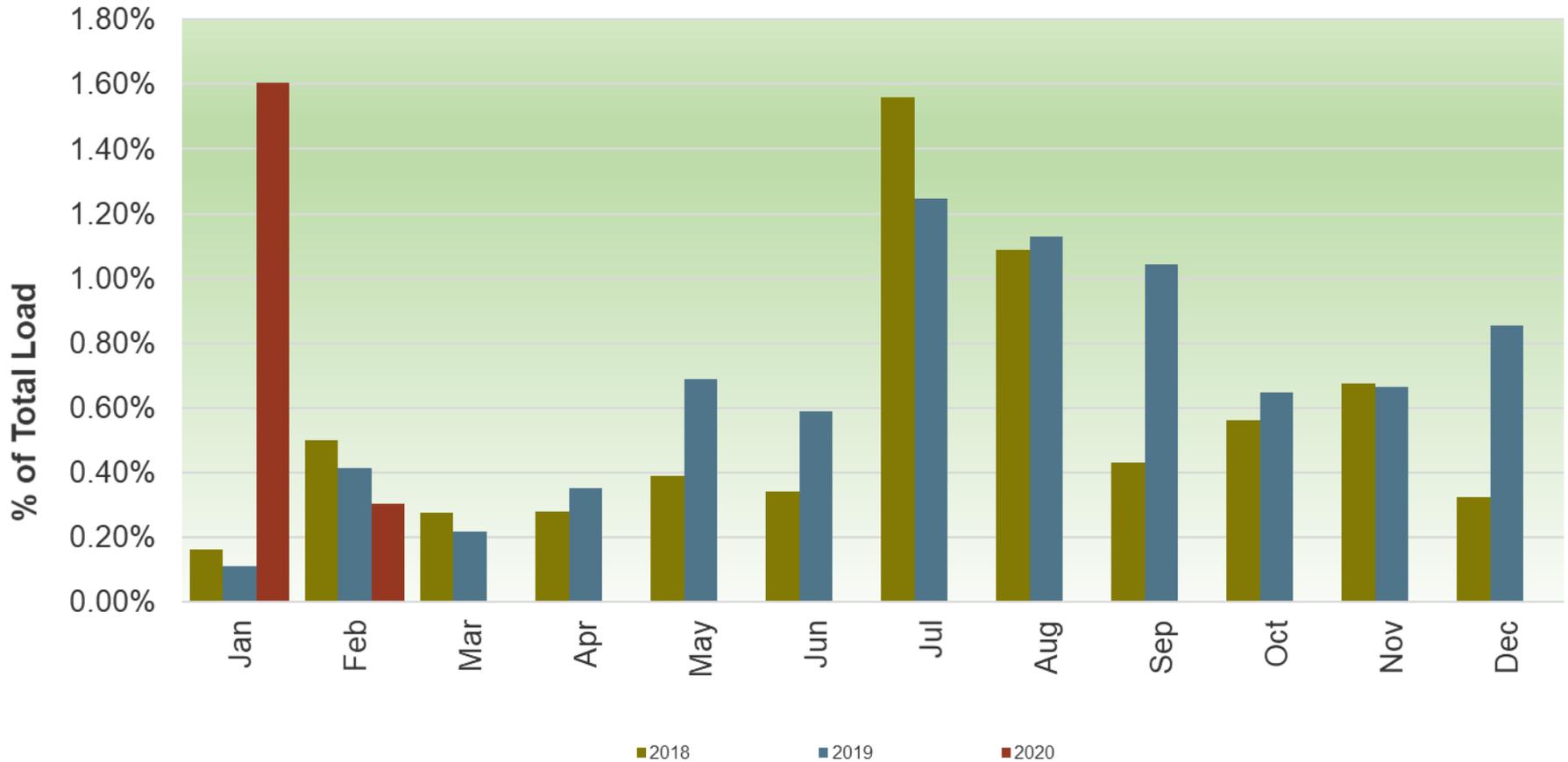
Insufficient upward ramping capacity in ISO real-time stayed low in January and February



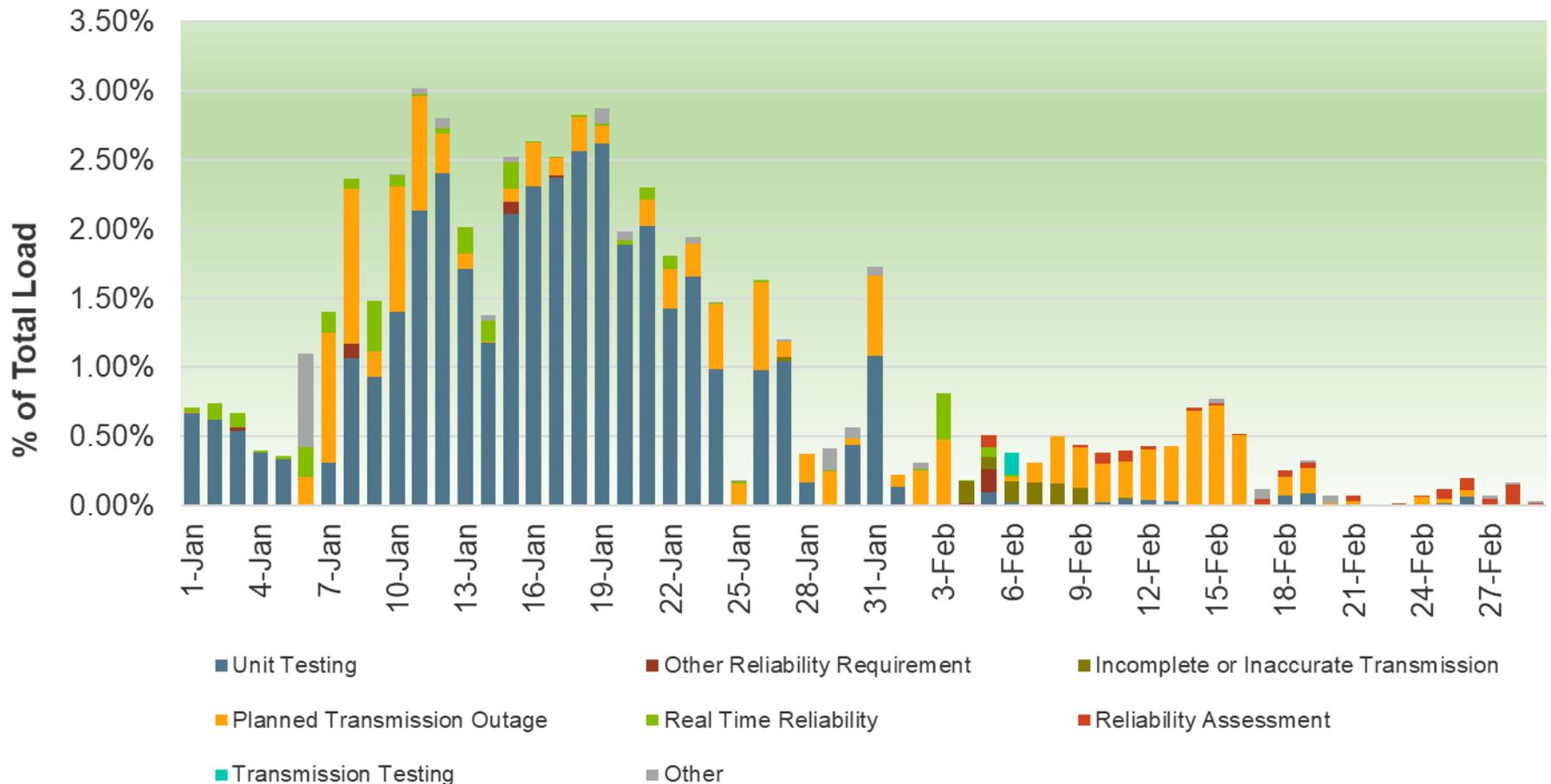
Insufficient downward ramping capacity in real-time remained low



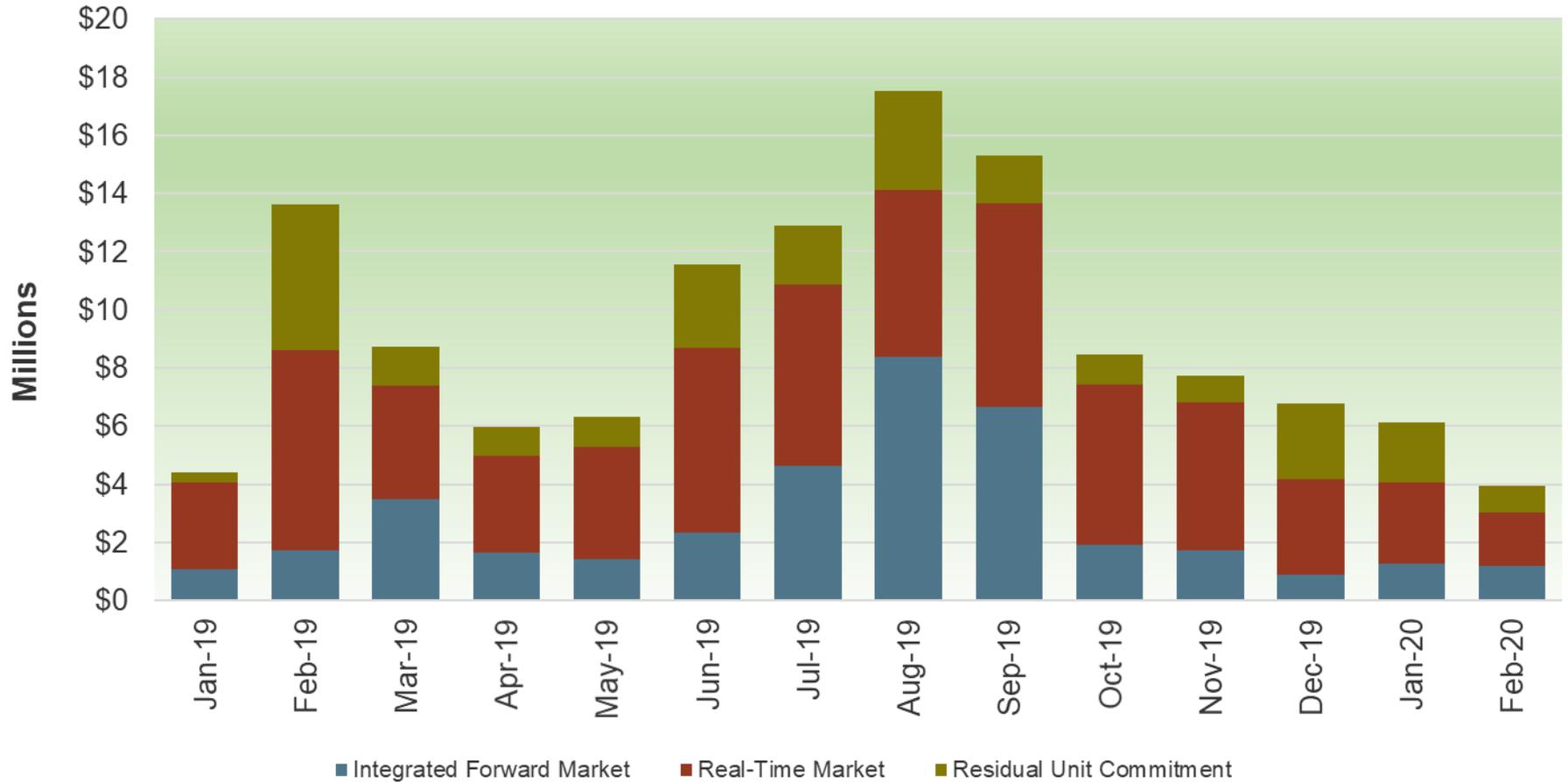
Exceptional dispatch volume in the ISO area was high in January driven by unit testing



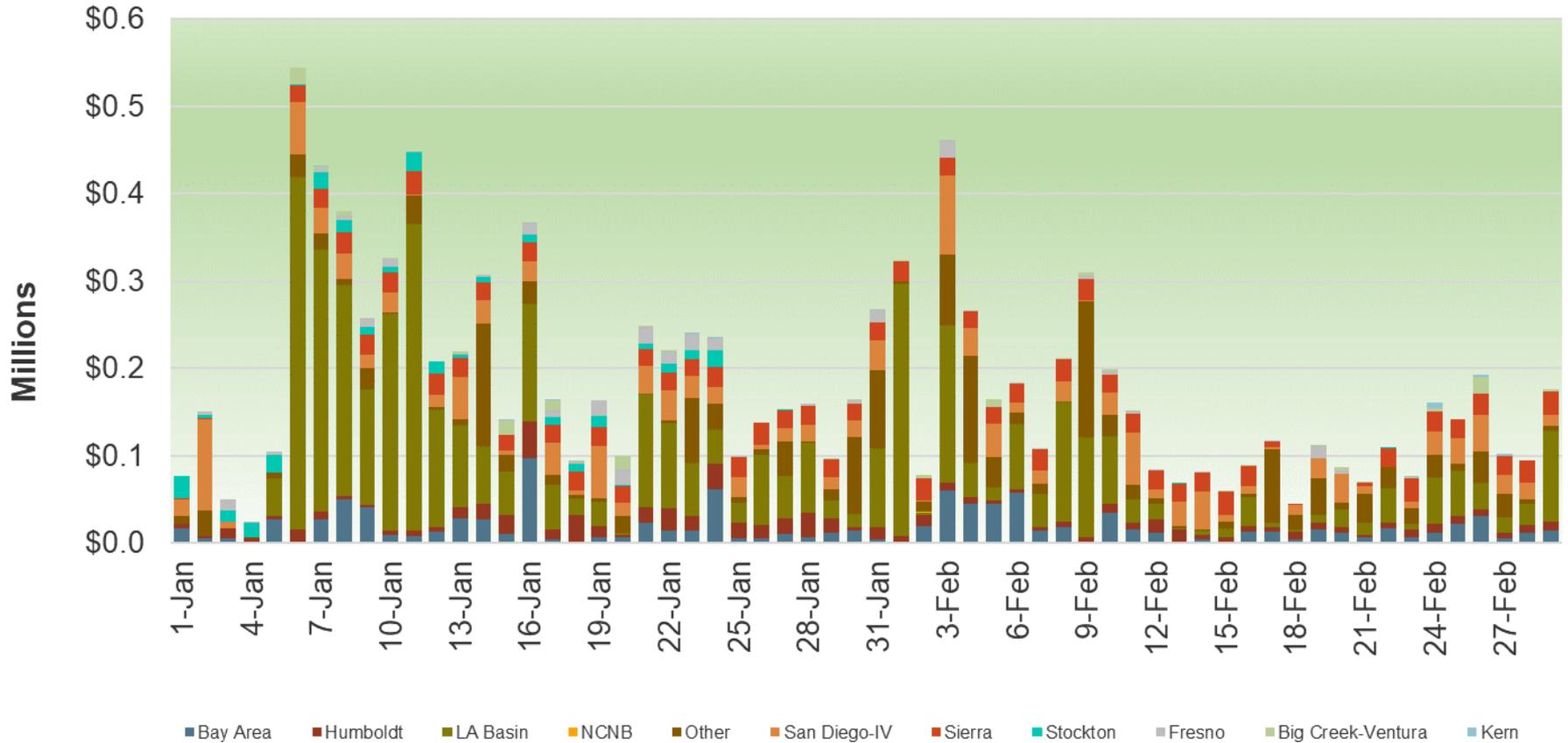
Exceptional dispatches volume driven by a variety of reason in October and November



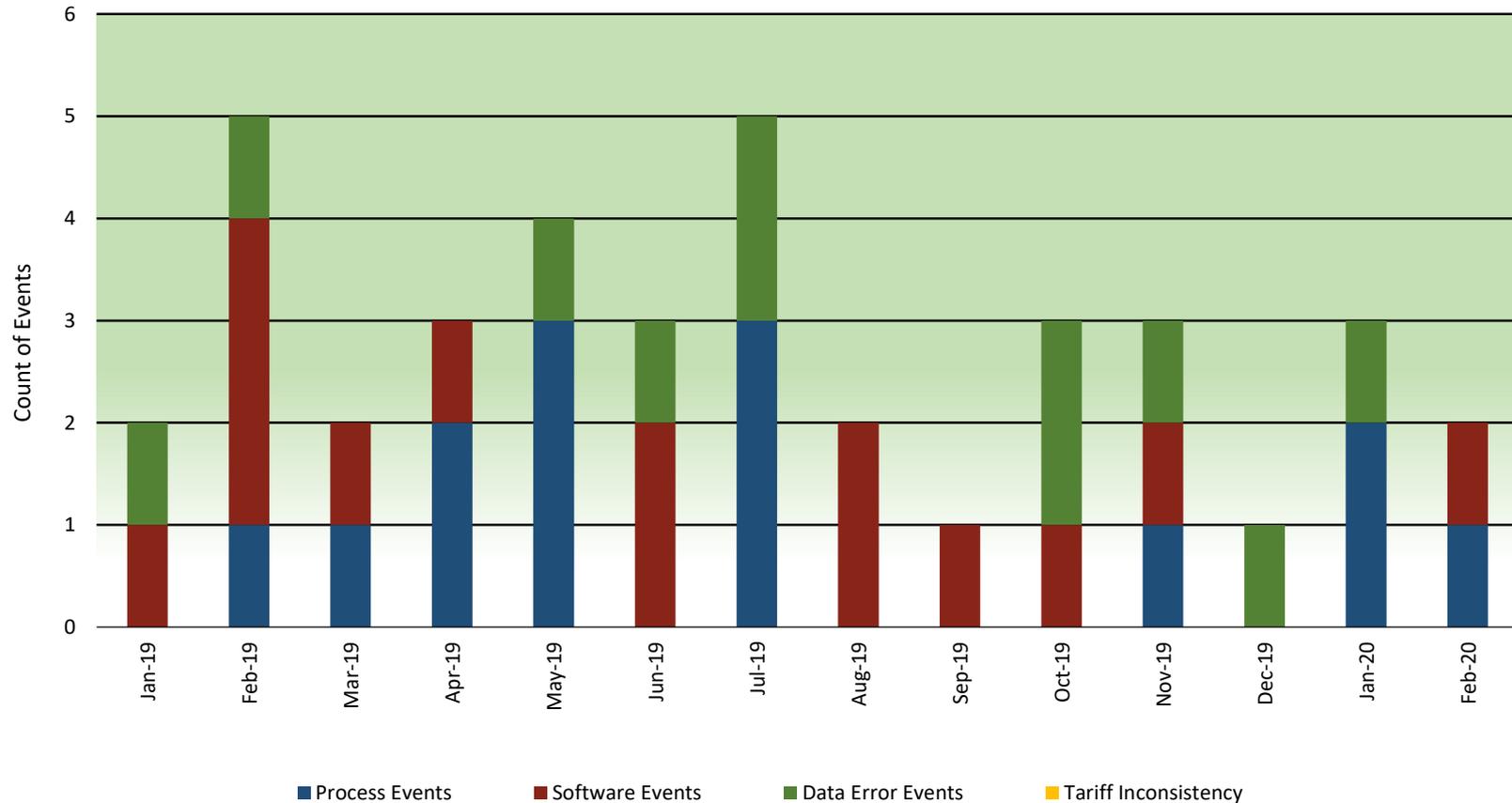
Bid cost recovery declined since last September



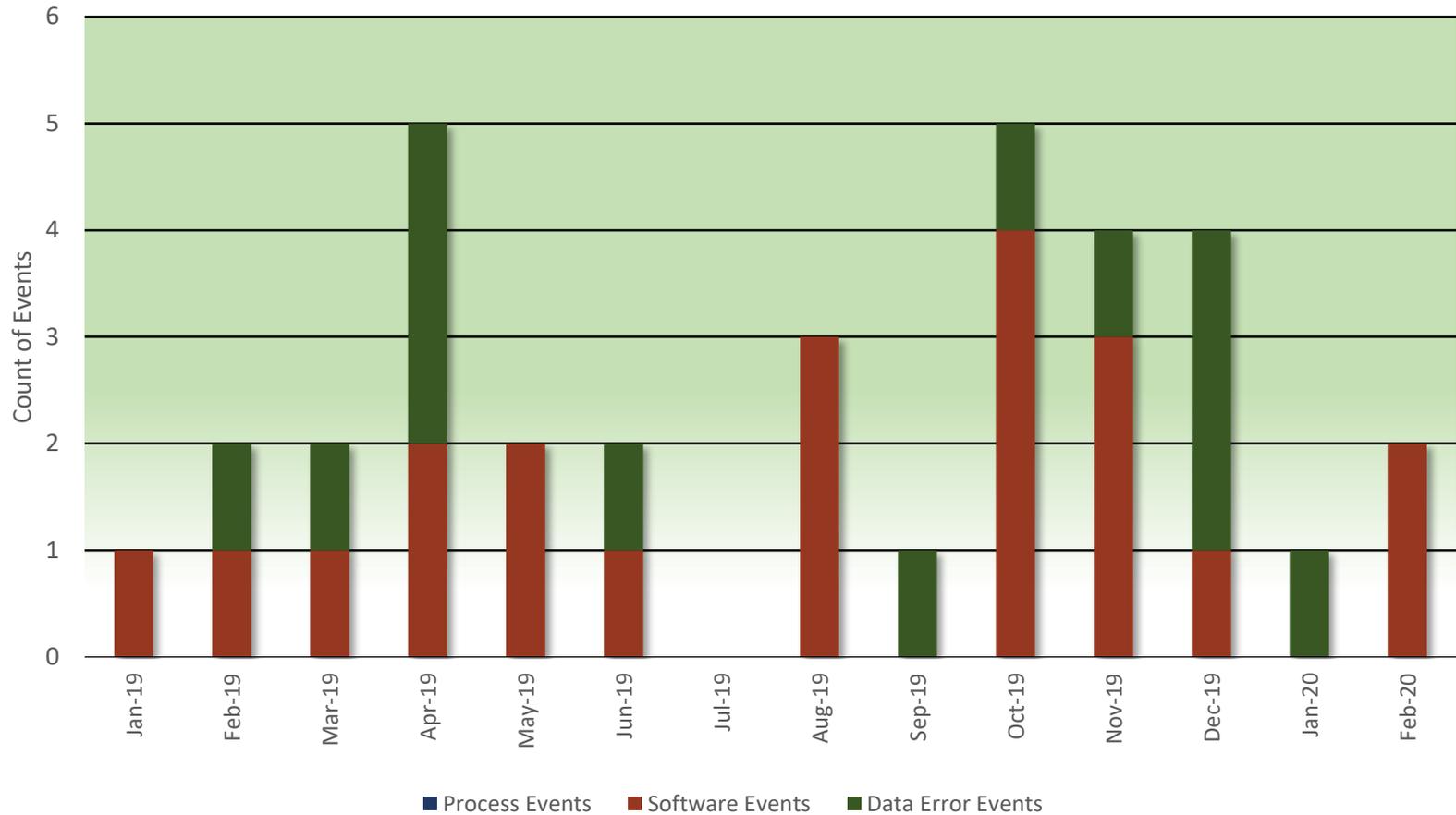
Bid cost recovery (BCR) by Local Capacity Requirement area



CAISO price correction events remained low

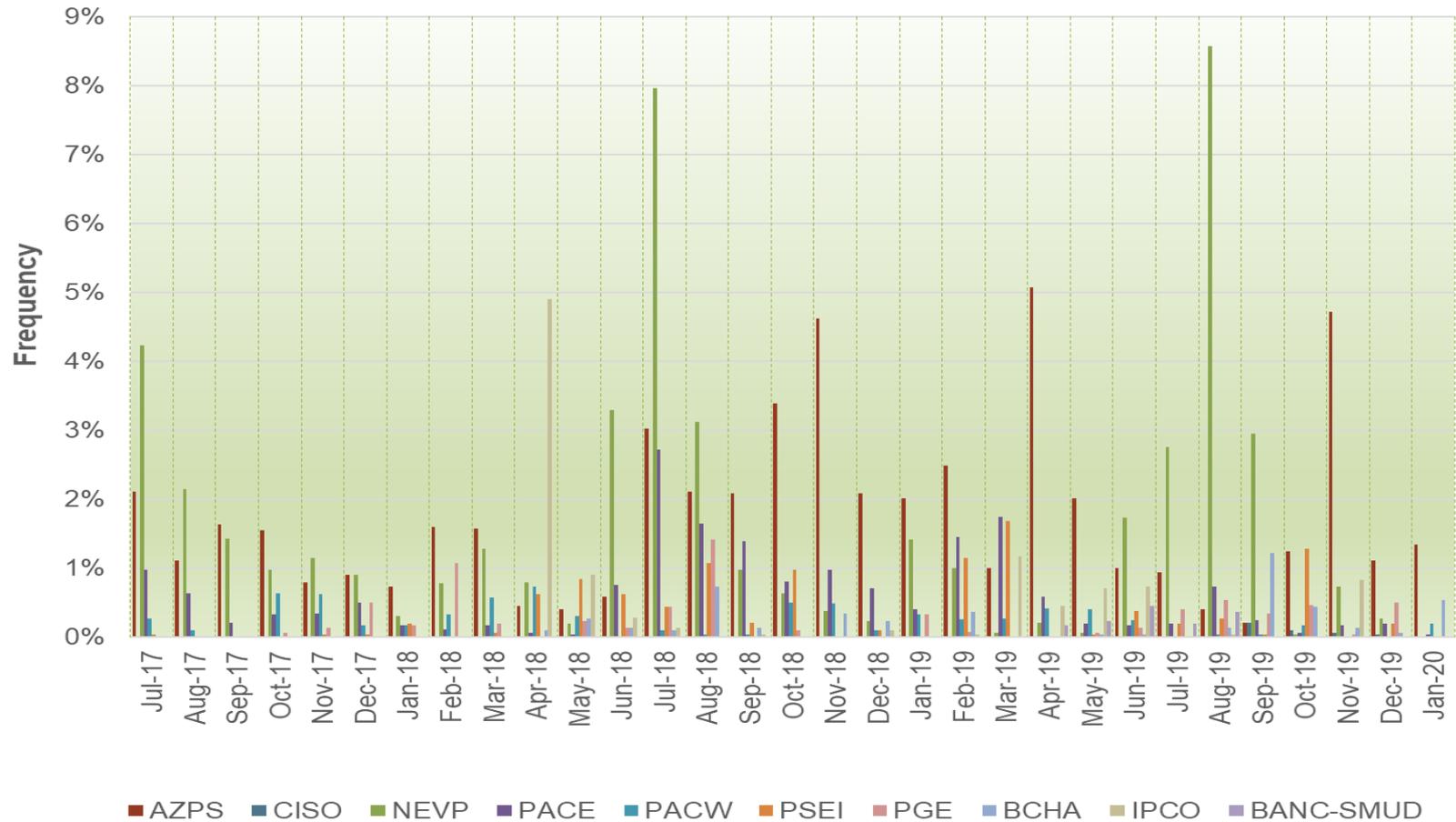


EIM-Related price correction decreased in the last two months



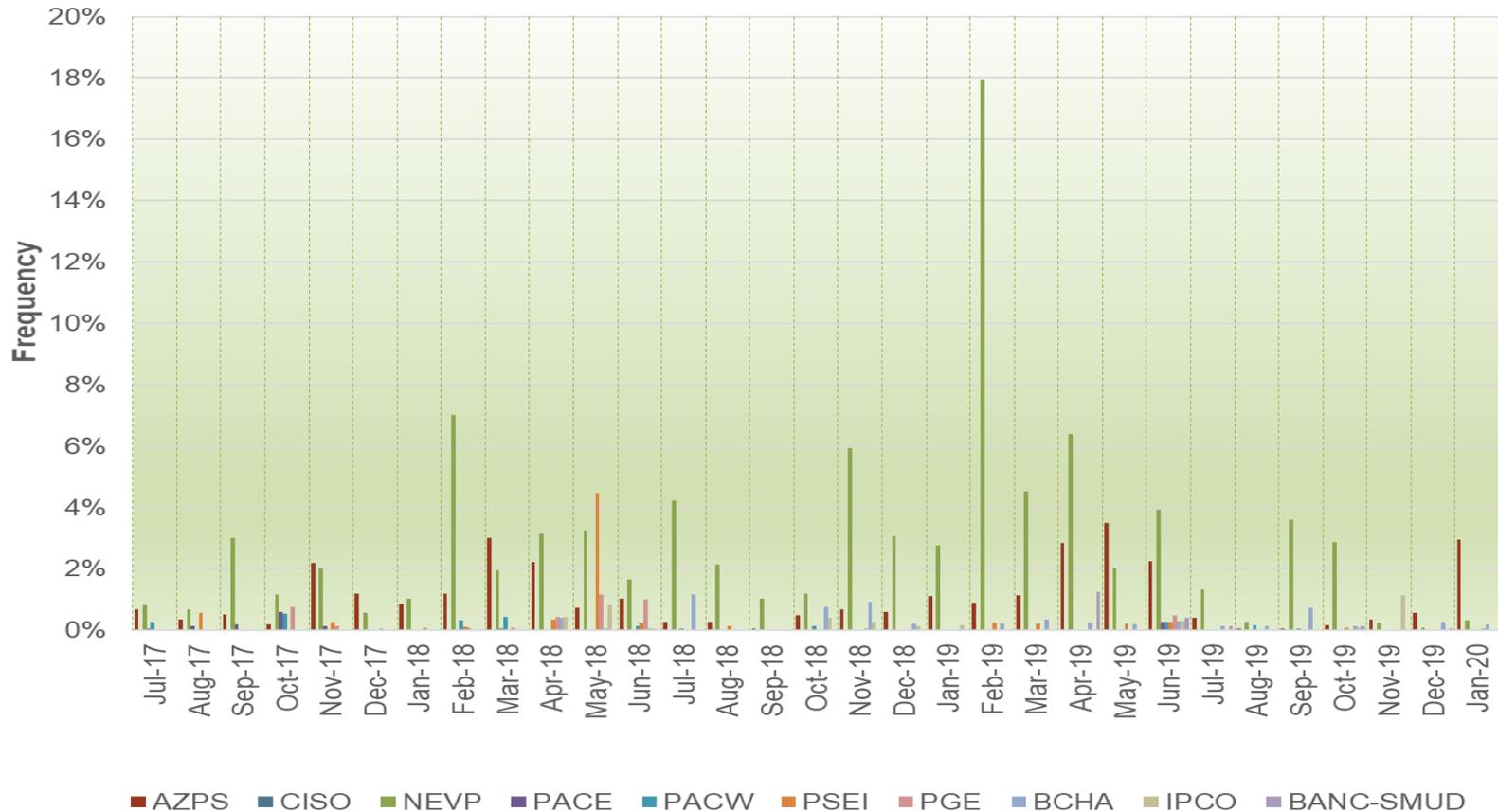
Flexible Ramp Up Sufficiency Test Results

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

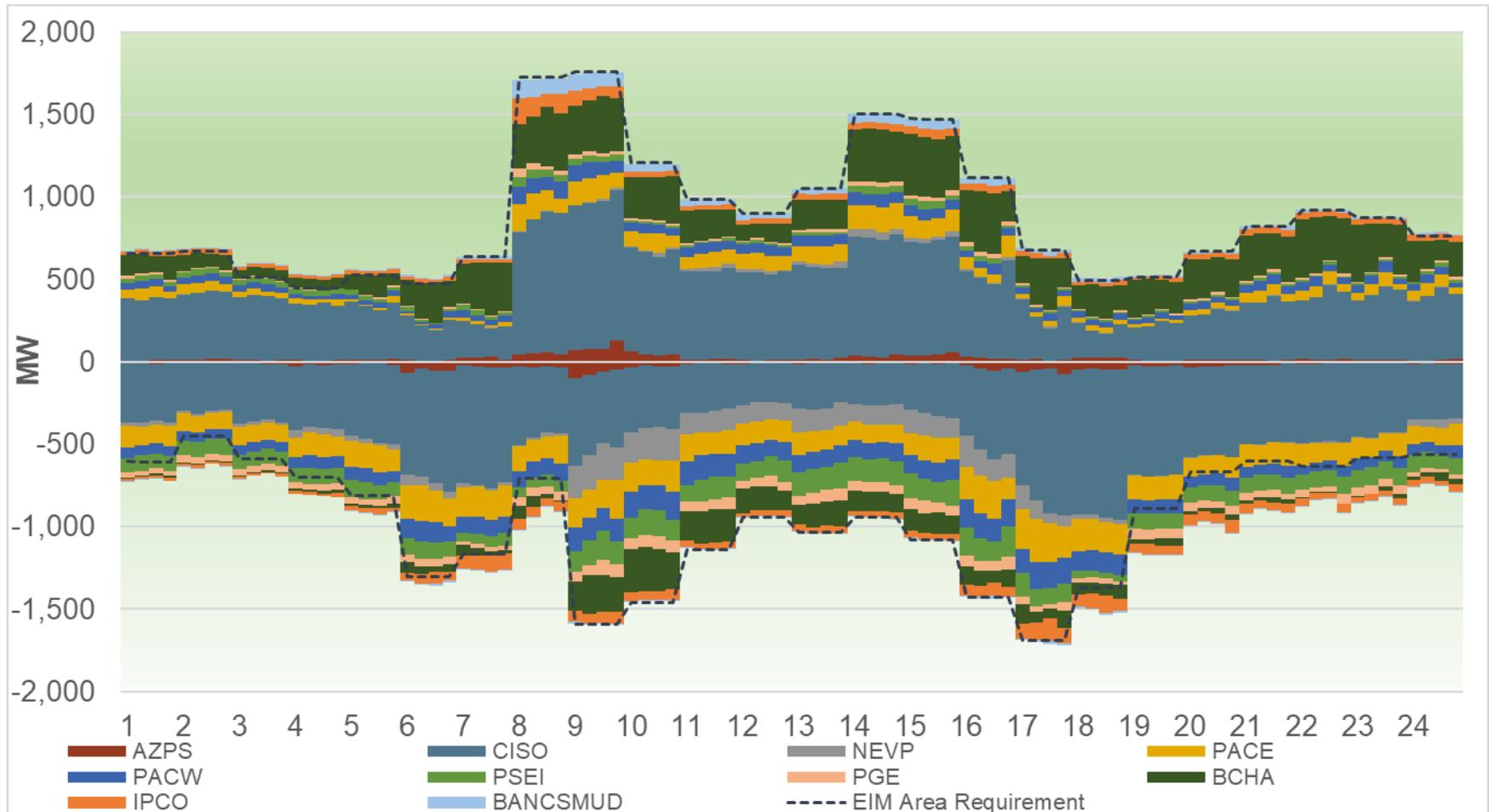


Flexible Ramp Down Sufficiency Test Results

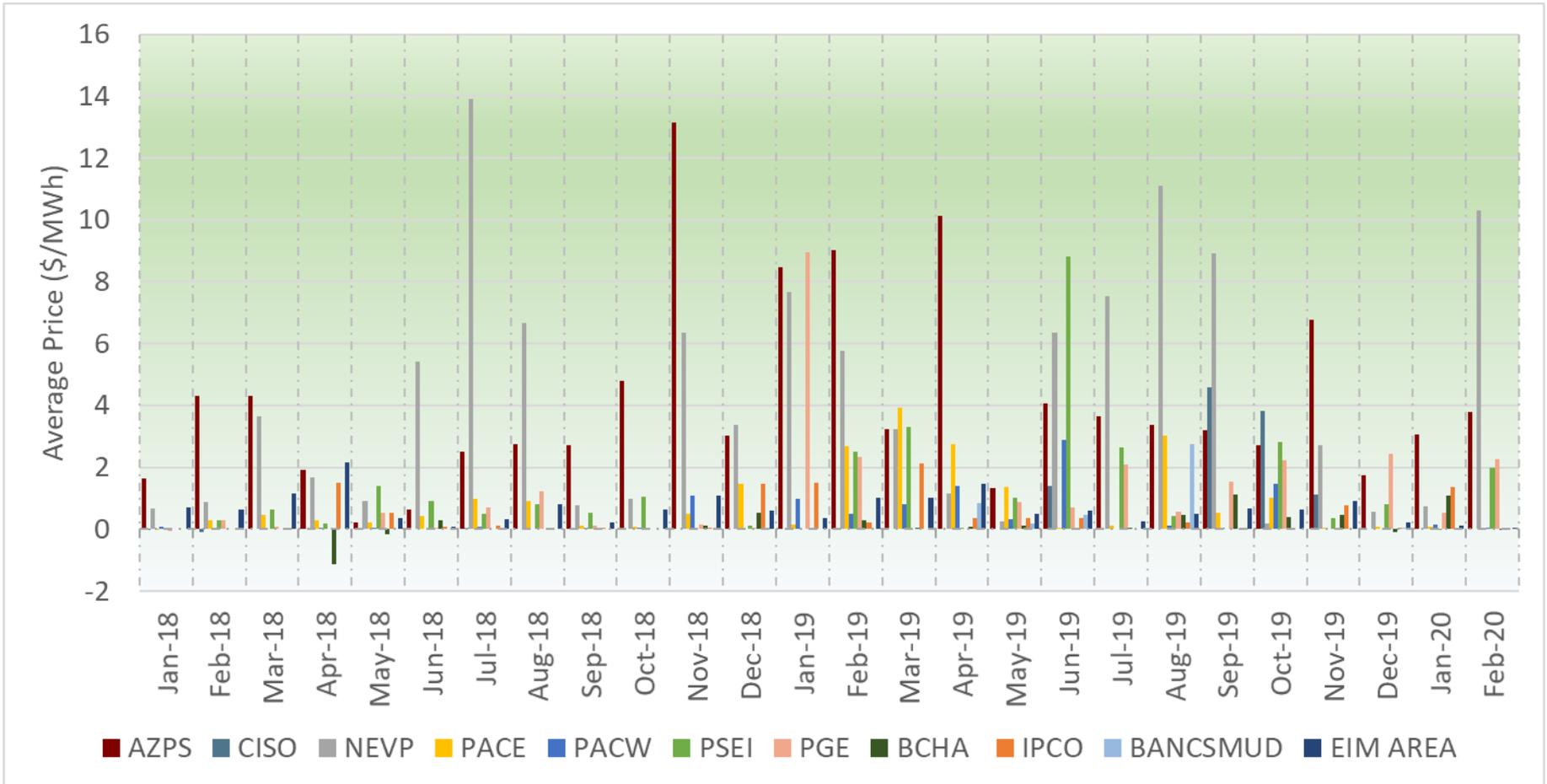
Most BAAs Fail Flex Down Test less than 2% of intervals



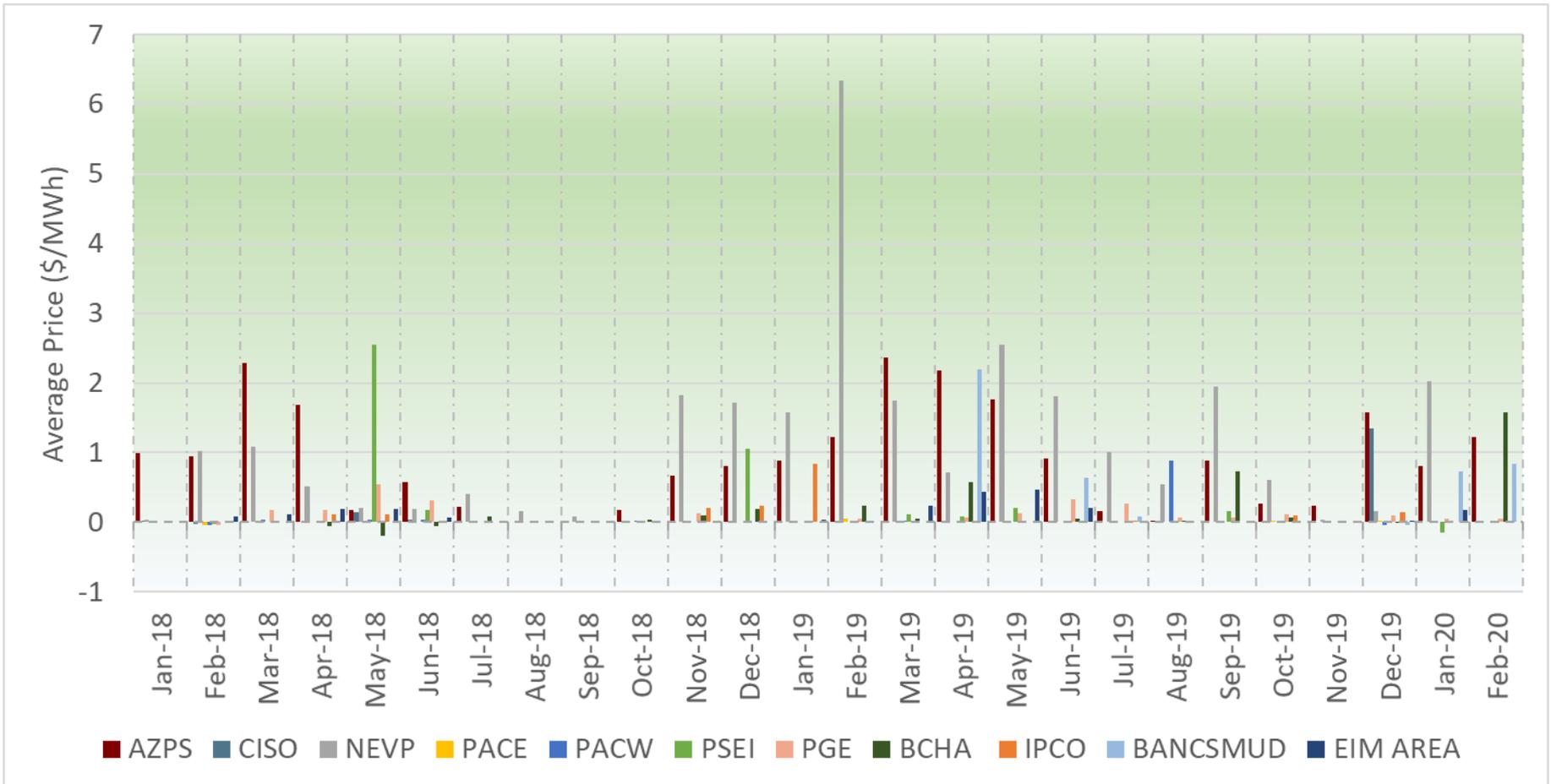
Average Flexible Ramp Product Cleared Awards for each area with EIM Area Requirement - Dec to Feb 2020



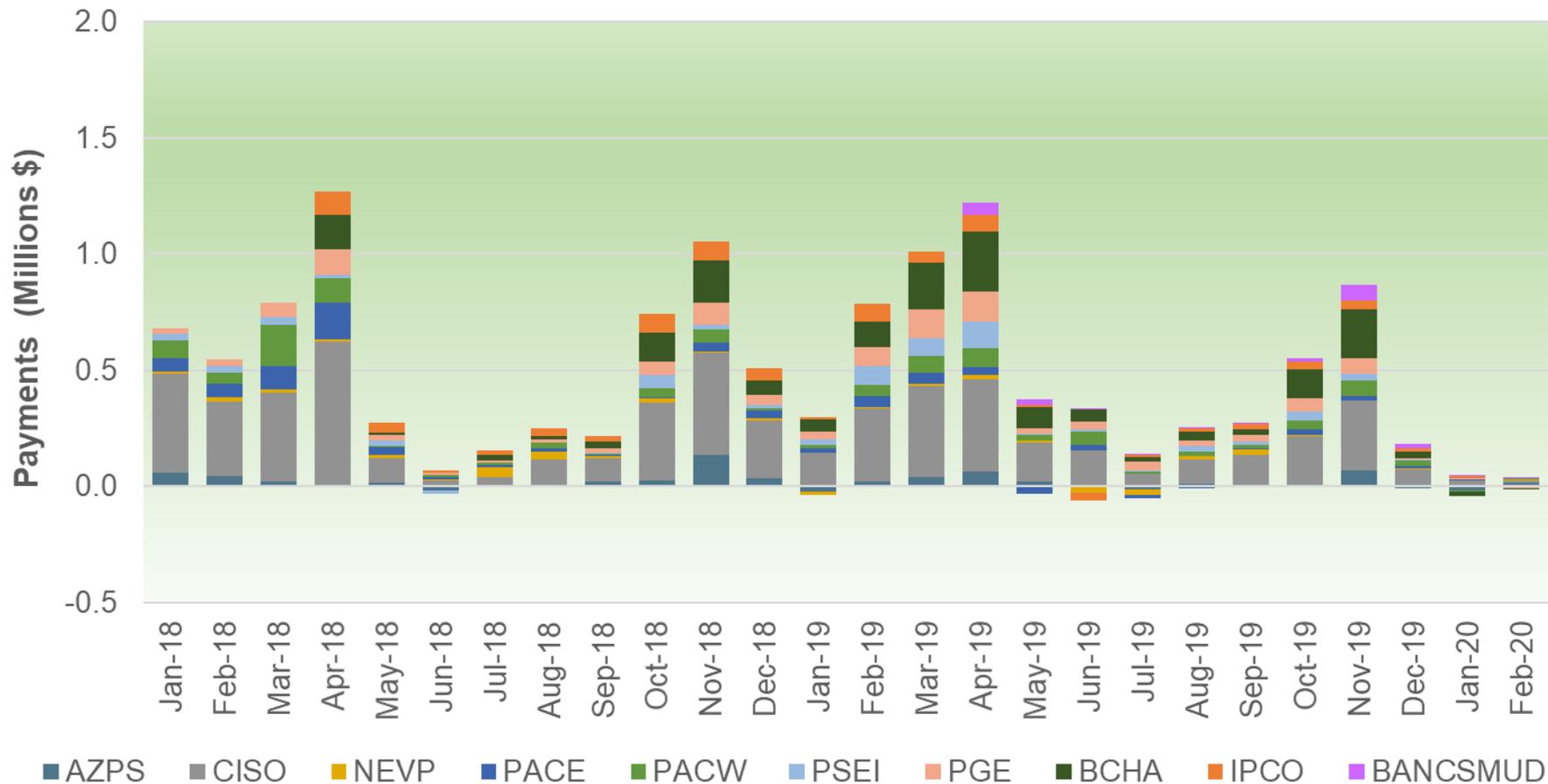
Average Flexible Ramp Up Price (\$/MWh)



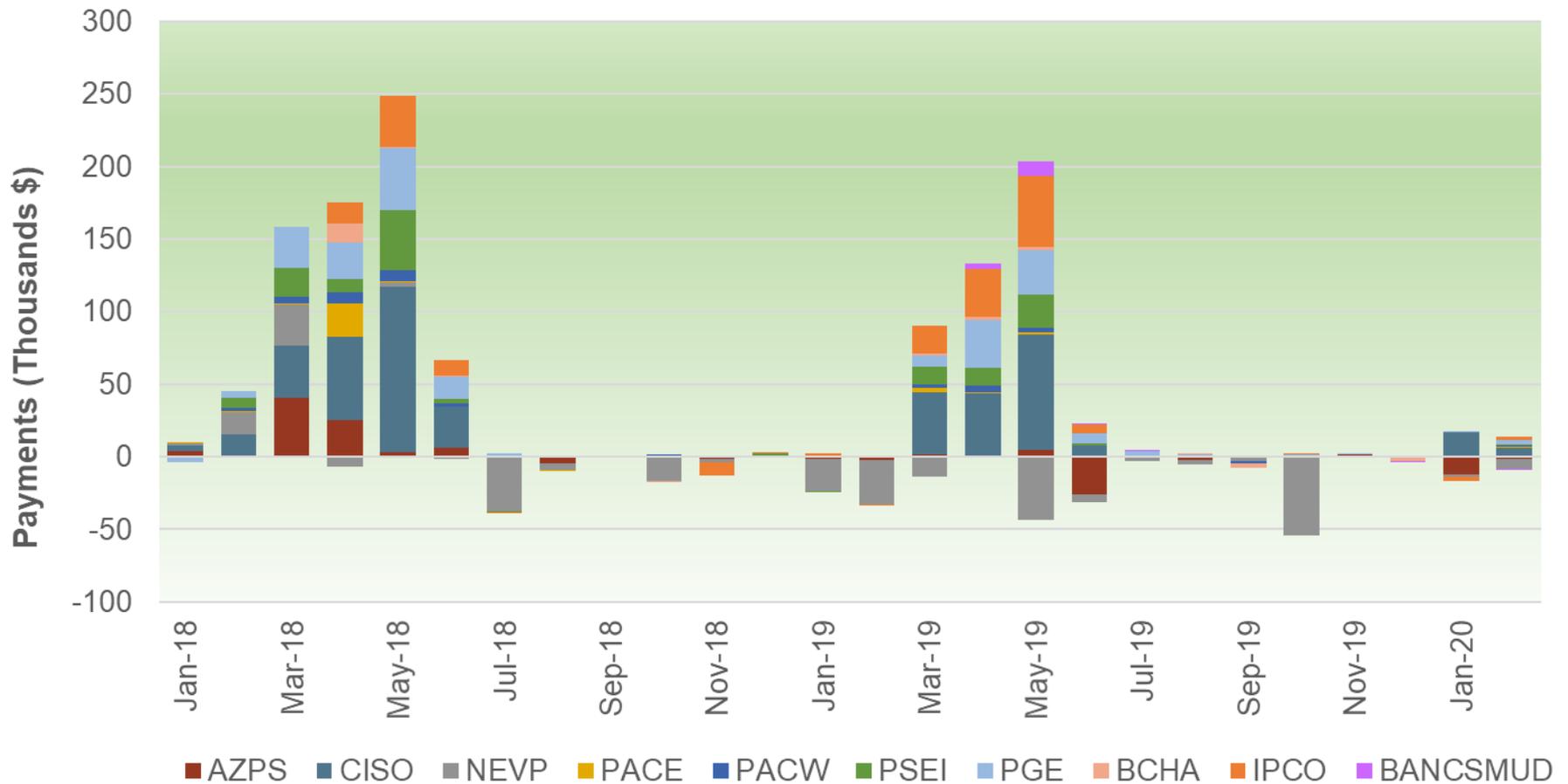
Average Flexible Ramp Down Price (\$/MWh)



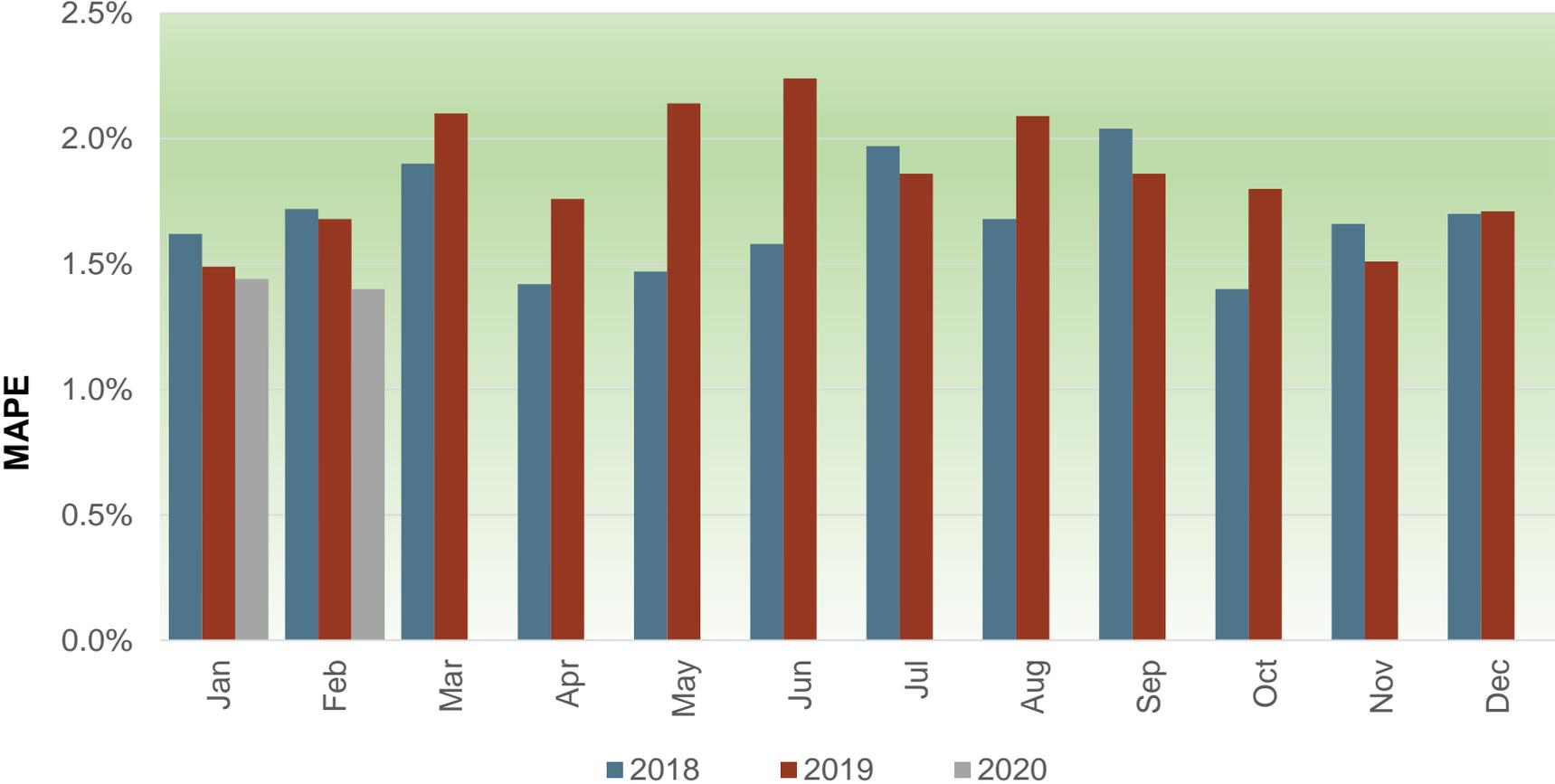
Uncertainty Up Settlement Amount



Uncertainty Movement Down Settlement

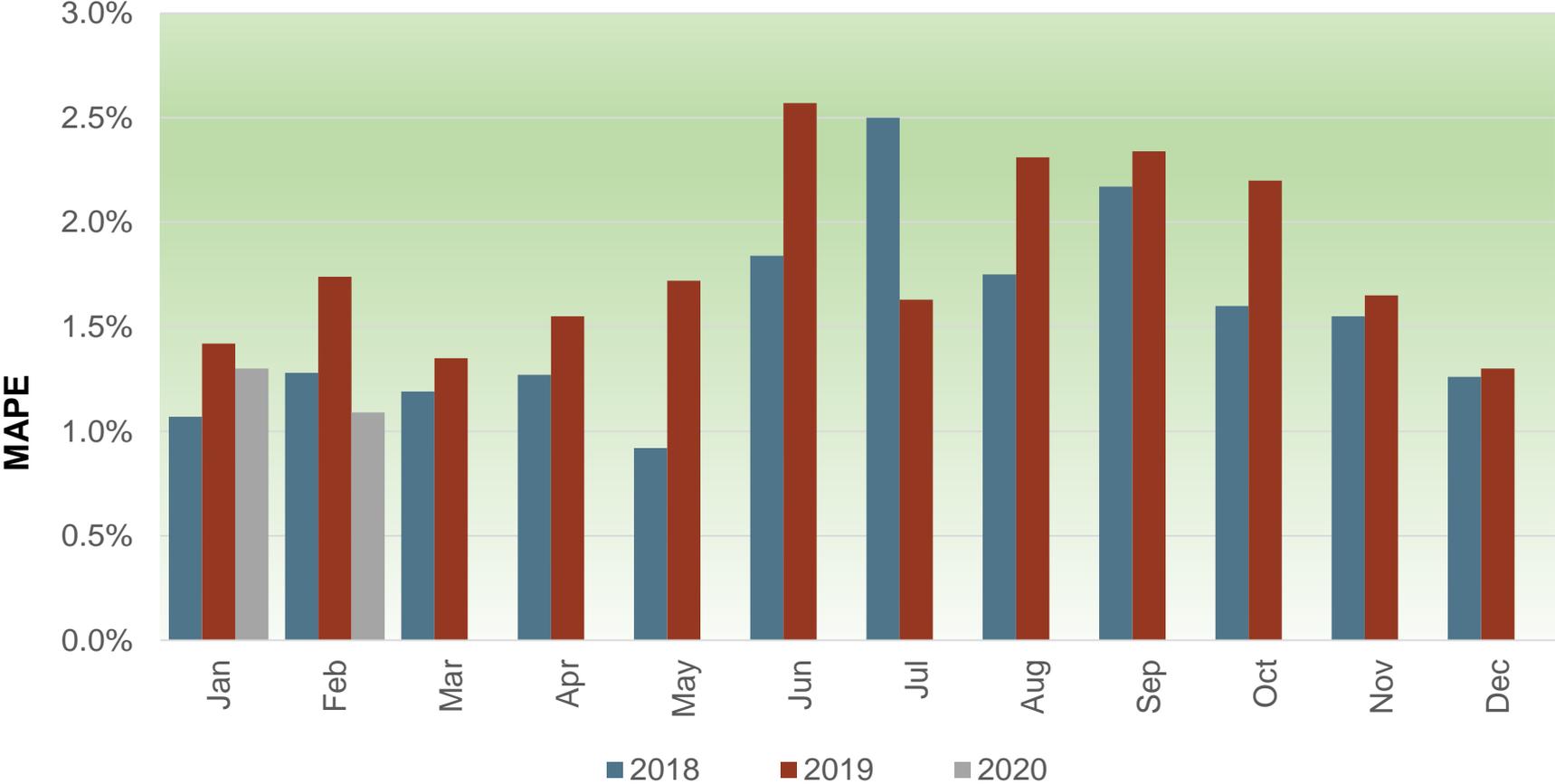


Day-ahead load forecast



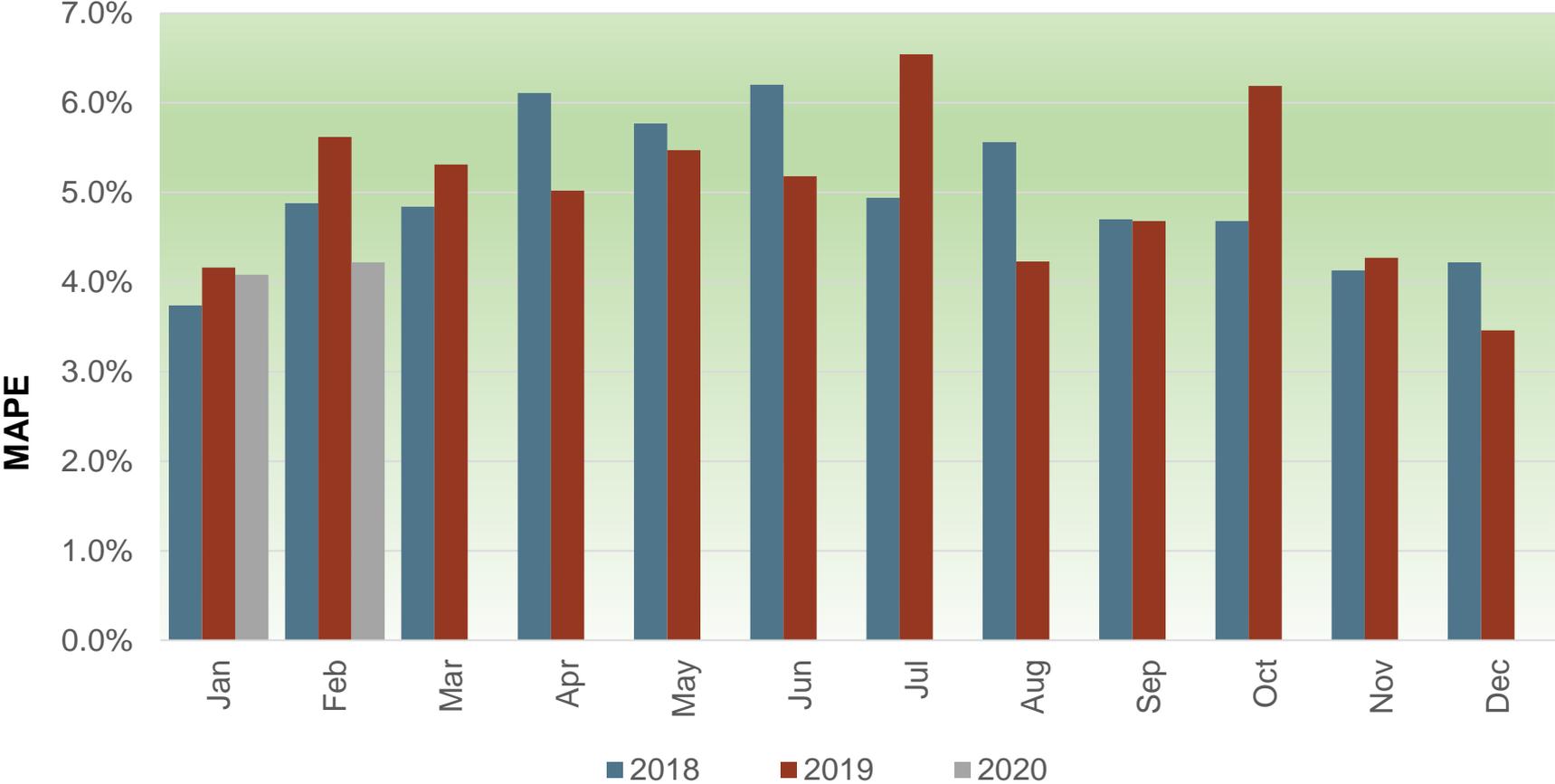
**MAPE = abs(Forecast - Actual)/Actual

Day-ahead peak to peak forecast accuracy



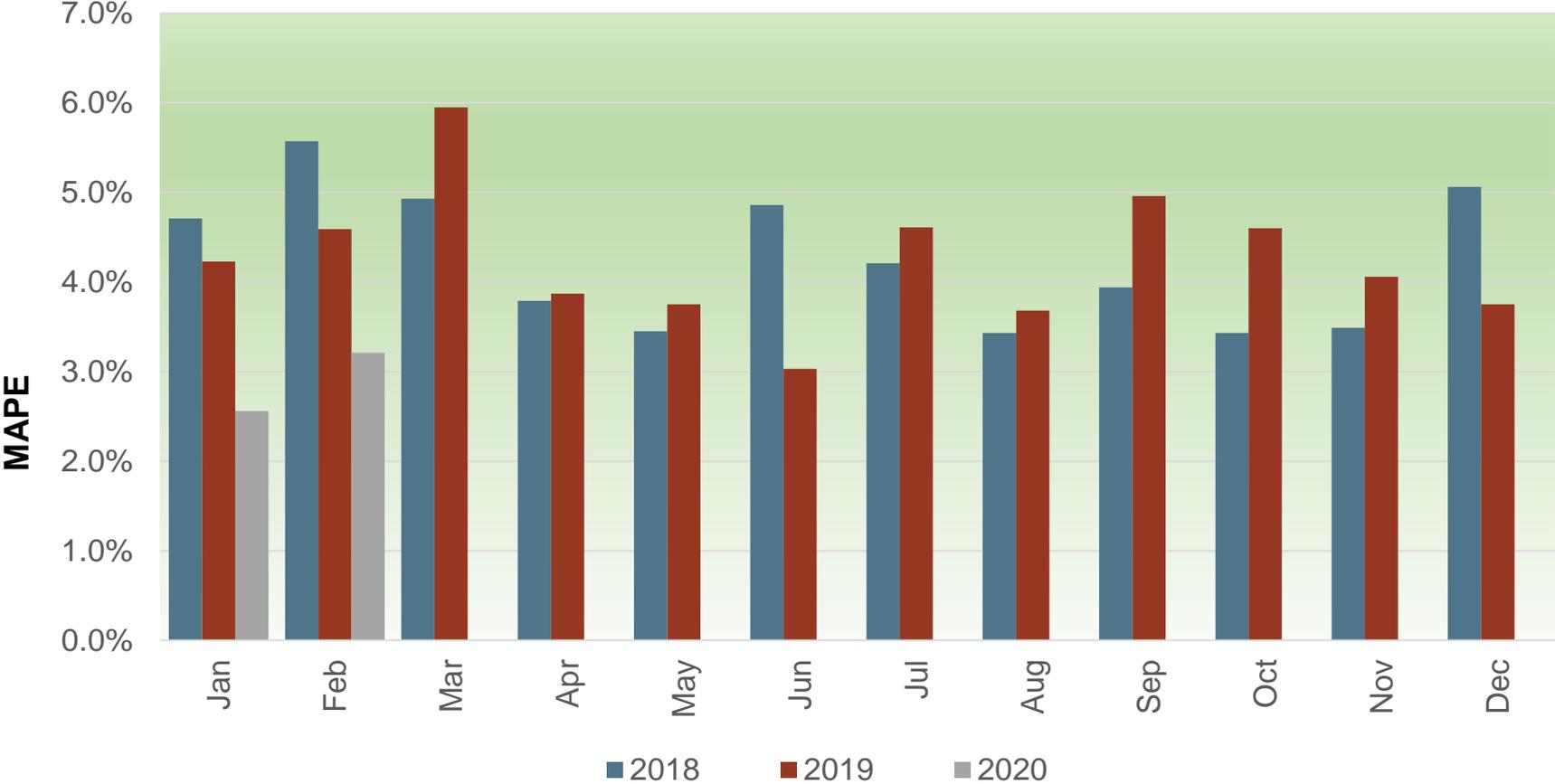
**MAPE = abs(Forecast - Actual)/Actual

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



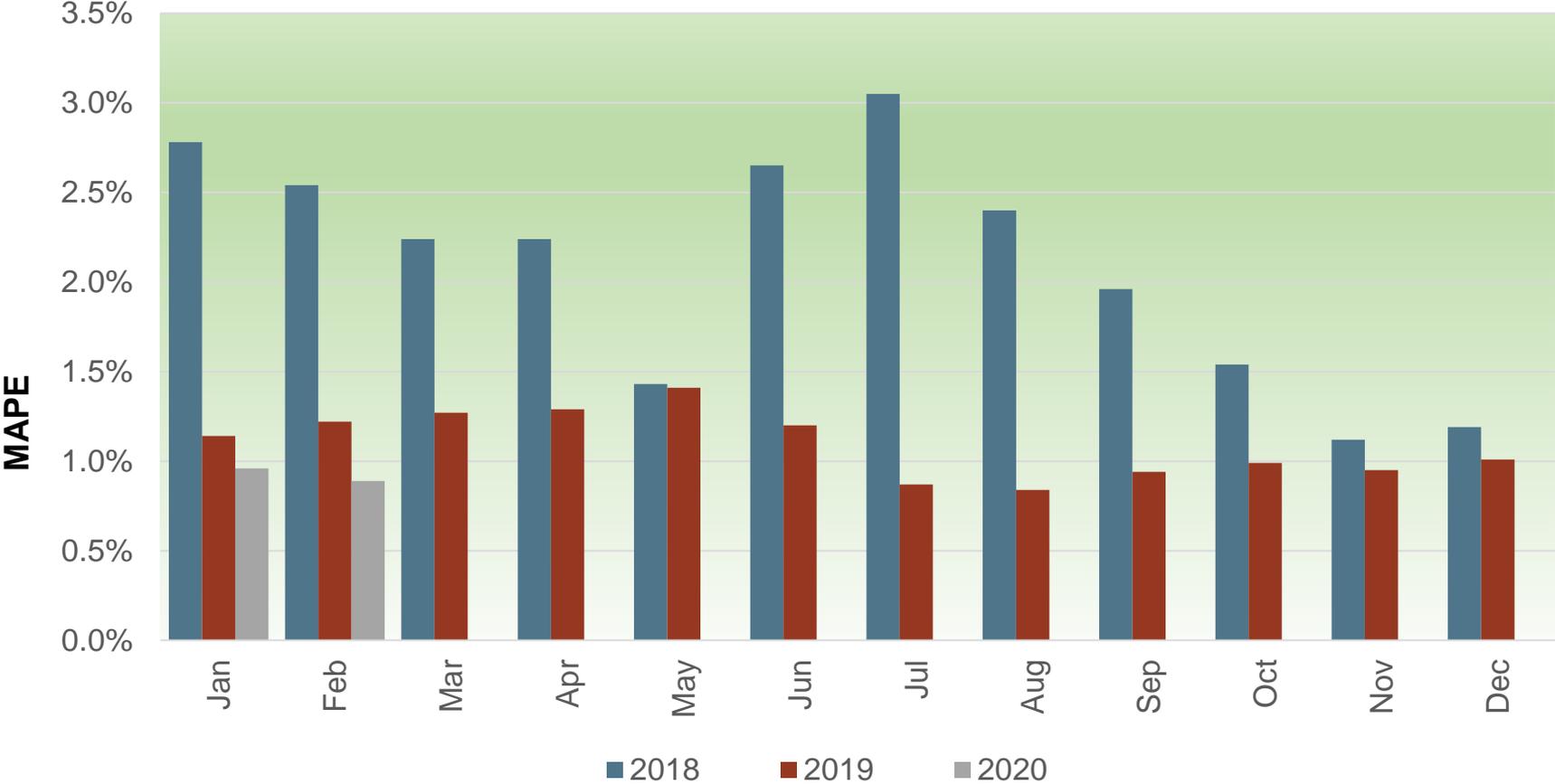
**MAPE = abs(Forecast - Actual)/Capacity

Real-time solar forecast



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

Real-time wind forecast



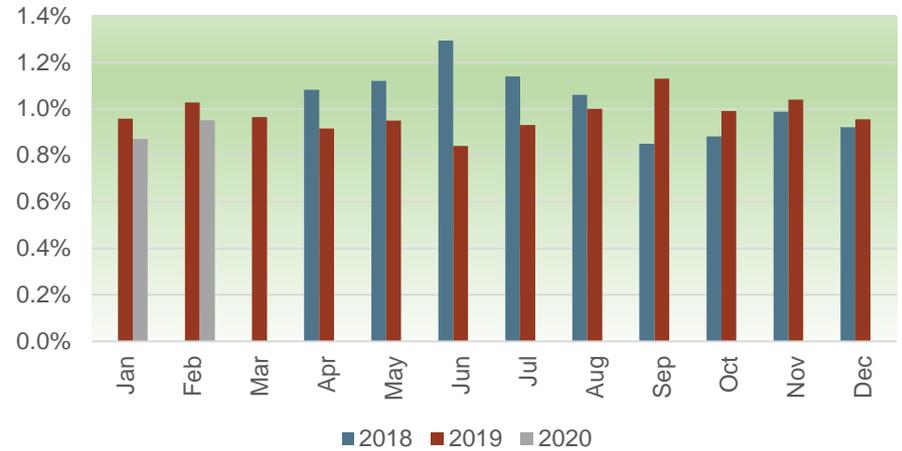
**MAPE = abs(Forecast - Actual)/Capacity

EIM T-60 Forecast

AZPS T-60 Forecast



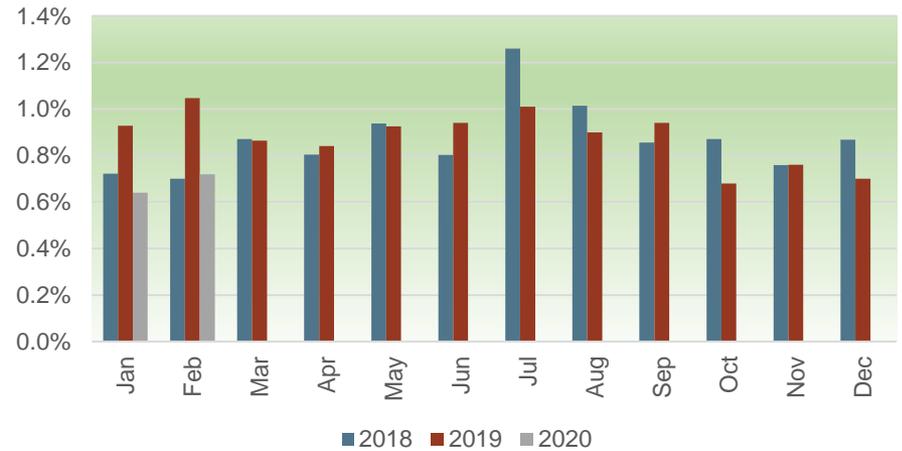
IPCO T-60 Forecast



PGE T-60 Forecast

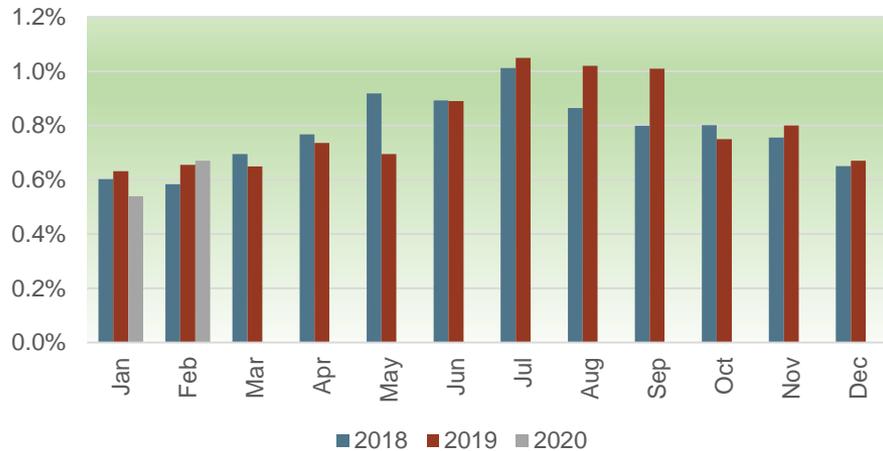


NVE T-60 Forecast

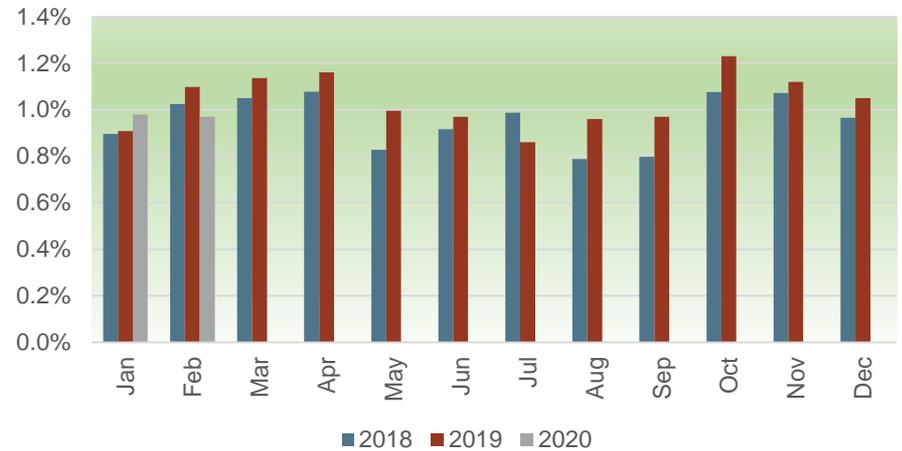


EIM T-60 Forecast

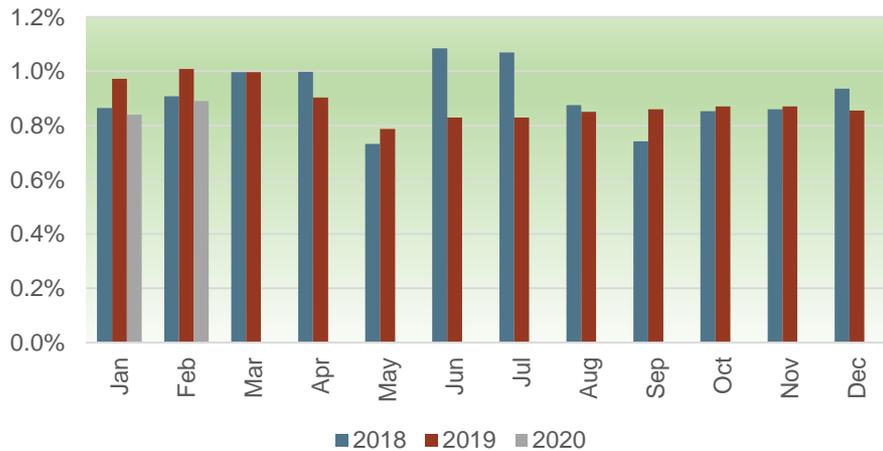
PACE T-60 Forecast



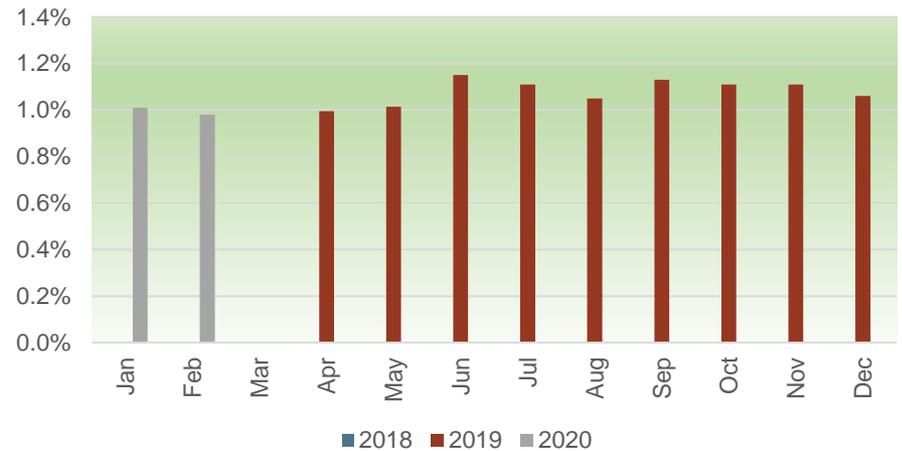
PACW T-60 Forecast



PSE T-60 Forecast



SMUD T-60 Forecast



Policy Update

Jill Powers

Infrastructure & Regulatory Policy Manager

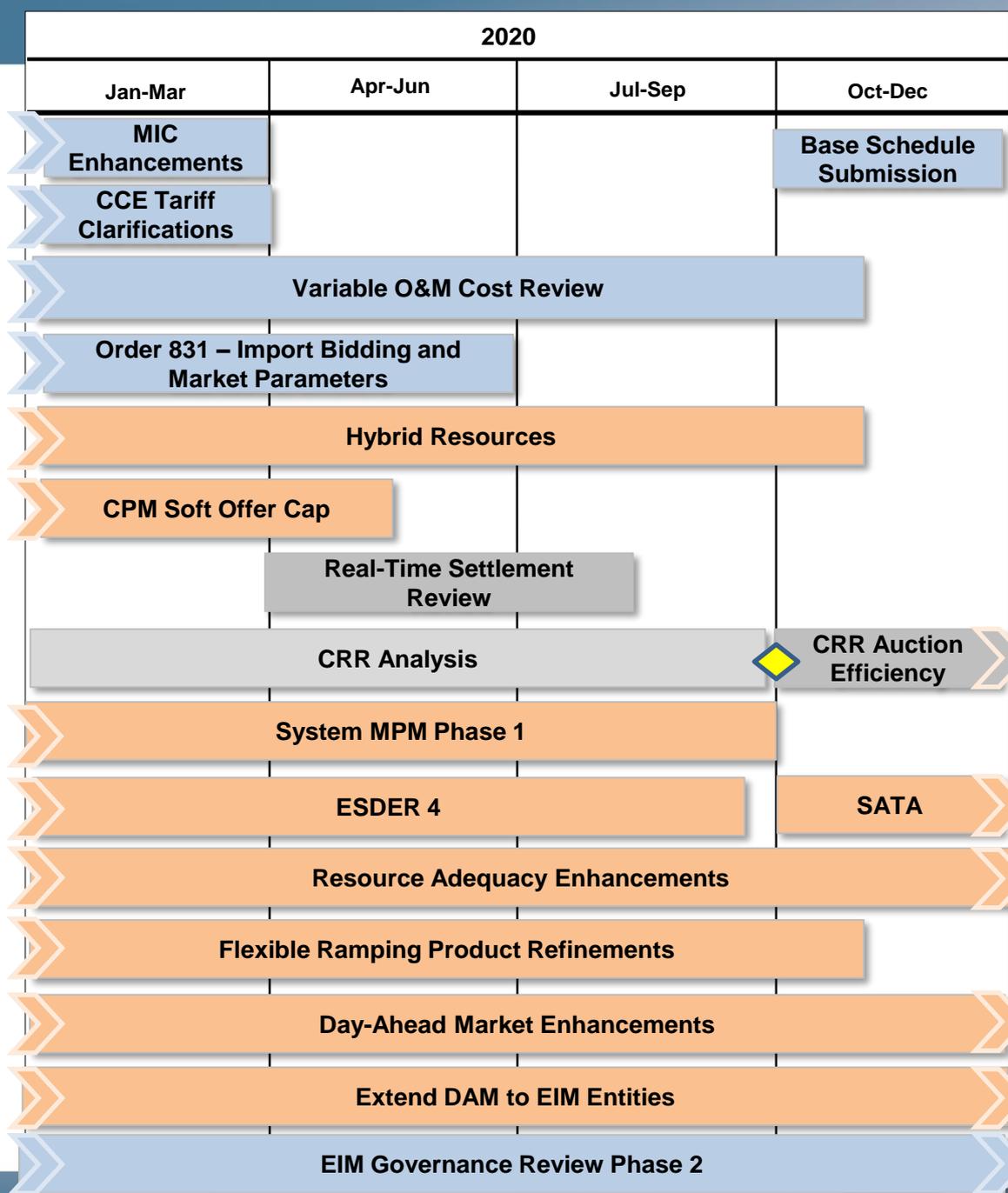
Brad Cooper

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 – Phase 4

- Scope:
 - Enhancements to energy storage and distributed energy resource model and rules
- EIM Governing Body advisory role
- Status:
 - 2nd Revised straw proposal and stakeholder meeting published on Feb 24, 2020
 - Stakeholder working group on 2nd RSP held March 2 & 3, 2020
 - Day 1 DR focus: ELCC DR study assumptions and preliminary results
 - Day 2 Energy Storage focus: proposal changes & additions
 - end-of-day & end-of-hour SOC, DEB development
 - Introduced new topic minimum charge requirement for discussion
 - September EIM Governing Body briefing and ISO Board decision

Hybrid Resources

- Scope: Enhance the registration and modeling of hybrid generation resources for effective ISO market operation.
 - Phase 1: Refinements to maximize output used by the CAISO markets
 - Phase 2: More extensive market refinements
- EIM Governing Body advisory role
- Status:
 - Revised straw proposal published and stakeholder meeting held December 2019
 - Second revised straw proposal April 22 and stakeholder meeting April 29
 - Phase 1: Draft final proposal on interim proposal items April 22
 - June EIM Governing Body briefing, July ISO Board decision
 - Phase 2: Draft final proposal on overall initiative July
 - Q4 2020 EIM Governing Body briefing and ISO Board decision

Capacity Procurement Mechanism - Soft Offer Cap

- Scope: review the capacity procurement mechanism soft-offer cap, compensation for 12-month CPM designations, and bids above the soft offer cap.
- No EIM Governing Body role
- Status:
 - Draft final proposal published January 2020
 - Stakeholder call January 2020
 - Tariff changes filed @ FERC February 2020

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:
 - Straw proposal published December 2019
 - Draft final proposal published January 2020
 - ISO Board decision March 2020
 - Tariff changes to be filed @ FERC April 2020
 - Implications for CPUC RA track 2 process on hydro counting

Resource Adequacy Enhancements

- 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:
 - Fourth revised straw proposal (part 1) March 16 and stakeholder call March 23 or 24 TBD
 - Stakeholder comments on 4th revised straw proposal due April 7
 - Fourth revised straw proposal (part 2) and stakeholder call May 2020
 - Draft final proposal Q3 2020 and ISO Board decision Q1 2021

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:
 - Revised straw proposal to be posted March 10
 - November 2020 EIM Governing Body briefing and 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:**
 - Straw proposal posted in February
 - Revised straw proposal to be posted in April
 - 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:**
 - Received comments on February workshops on March 4
 - Straw proposal to be posted early April
 - 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 to be published April 8
 - June 2020 EIM Governing Body briefing and July 2020 ISO Board decision

System Market Power Mitigation

- Scope:
 - Develop real-time market system-level market power mitigation for the CAISO balancing authority area
- EIM Governing Body advisory role
- Status:
 - Revised straw proposal to be posted March 31
 - September 2020 EIM Governing Body briefing and 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 June 15
 - November 2020 EIM Governing Body briefing and ISO Board decision

Release Plan Update

Adrian Chiosea

Manager, Strategic Initiative Management

The ISO offers innovative training programs

Date	Training courses and workshops
April 28	ISO Workshop - Introduction to ISO Markets (Folsom) (Registration is open)
April 29	ISO Workshop - Market Transactions (Folsom) (Registration is open)
April 30	ISO Workshop – ISO Settlements (Folsom) (Registration is open)
<i>Registration is open until April 21 or until the classes fill up.</i>	



CustomerReadiness@caiso.com

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.

Computer Based Training

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

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

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

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- Congestion Revenue Rights (CRR) Data Transparency Enhancements
- [Capacity Procurement Mechanism Soft Offer Cap](#)

Spring 2020

- Energy Imbalance Market (EIM) - 2020 Salt River Project
- Energy Imbalance Market (EIM) - 2020 Seattle City Light

Fall 2020

- Energy Storage and Distributed Energy Resources Phase 3B
- Dispatch Operating Target Tariff Clarifications
- Intertie Deviation Settlement
- Excess Behind the Meter Production
- Market Settlement Timeline Transformation
- Energy Imbalance Market (EIM) Enhancements 2020
- Automated Dispatch System (ADS) User Interface (UI) Replacement
- FERC Order 841 – Requested Adjustments

Release Plan Summary: 2021 - 2022

Independent 2021

- System Market Power Mitigation (BOG Q3,2020 and implementation prior to Q3, 2021)

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

- Day Ahead Market Enhancements (BOG 2021)
- Resource Adequacy (RA) Enhancements (BOG Q3/Q4 2020)
- Energy Storage and Distributed Energy Resources Phase 4 (BOG Sept 2020)
- Transmission Access Charge (TAC) Structure Enhancements (TBD)
- Import Bidding and Market Parameters, (A.K.A. Import Bid Cost Verification and FERC Order 831) – July 2020 BOG
- Contingency Modeling Enhancements – Transmission

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

Fall 2022 – tentative, subject to impact assessment

- Commitment Costs and Default Energy Bid Enhancements Phase 2
- Storage as a Transmission Facility

Release Schedule 2020

Date of Data Refresh: 3/6/2020



Legend	
Market Simulation	CA ISO Holiday
External Testing	Deployment Week

3/2/20 - 3/8/20	3/9/20 - 3/15/20	3/16/20 - 3/22/20	3/23/20 - 3/29/20	3/30/20 - 3/29/20	4/6/20 - 4/5/20	4/13/20 - 4/12/20	4/20/20 - 4/19/20	4/27/20 - 4/26/20	5/4/20 - 5/10/20	5/11/20 - 5/17/20	5/18/20 - 5/24/20	5/25/20 - 5/31/20	6/1/20 - 6/7/20	6/8/20 - 6/14/20	6/15/20 - 6/21/20	6/22/20 - 6/28/20	6/29/20 - 6/28/20	7/6/20 - 7/5/20	7/13/20 - 7/12/20	7/20/20 - 7/19/20	7/27/20 - 7/26/20	8/3/20 - 8/2/20	8/10/20 - 8/9/20	8/17/20 - 8/16/20	8/24/20 - 8/23/20	8/31/20 - 8/30/20	9/7/20 - 9/6/20	9/14/20 - 9/13/20	9/21/20 - 9/20/20	9/28/20 - 9/27/20	10/5/20 - 10/4/20	10/12/20 - 10/11/20	10/19/20 - 10/18/20	10/26/20 - 10/25/20	11/2/20 - 11/1/20	11/9/20 - 11/8/20	11/16/20 - 11/15/20	11/23/20 - 11/22/20	11/30/20 - 12/08/20	12/7/20 - 12/08/20	12/14/20 - 12/13/20	12/21/20 - 12/20/20	12/28/20 - 12/27/20
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MAP Stage Environment Window

CRR Data Transparency Enhancements - Market Sim	CRR Data Transparency Enhancements - Market Sim (03/03-03/31)	
ESDER Phase 3b - Load Shift Product - Market Sim	ESDER Phase 3b - Load Shift Product - Market Sim (07/27-09/04)	
Dispatch Operating Target Tariff Clarification - Market Sim	Dispatch Operating Target Tariff Clarification - Market Sim (07/27-09/04)	
Intertie Deviation Settlement - Market Sim	Intertie Deviation Settlement - Market Sim (07/27-09/04)	
Excess Behind the Meter Production - Market Sim	Excess Behind the Meter Production - Market Sim (07/27-09/04)	
Market Settlement Timeline Transformation - Market Sim	Market Settlement Timeline Transformation - Market Sim (07/27-09/04)	
EIM Enhancements 2020 - Market Sim	EIM Enhancements 2020 - Market Sim (07/27-09/04)	
ADS UI Replacement - Market Sim	ADS UI Replacement - Market Sim (07/27-09/04)	
FERC841 Requested Adjustments - Market Sim	FERC841 Adjustments - Market Sim (07/27-09/04)	
EIM - Public Service Company of New Mexico - Market Sim	EIM - Public Service Company of New Mexico - Market Sim (12/01-01/31)	
EIM - North-Western Energy - Market Sim	EIM - North-Western Energy - Market Sim (12/01-01/31)	
EIM - Los Angeles Dept. of Water & Power - Market Sim	EIM - Los Angeles Dept. of Water & Power - Market Sim (12/01-01/31)	
EIM - Turlock Irrigation District - Market Sim	EIM - Turlock Irrigation District - Market Sim (12/01-01/31)	
EIM - BANC Phase 2 / WAPA - Market Sim	EIM - BANC Phase 2 / WAPA - Market Sim (12/01-01/31)	

EIM Parallel Operations Environment Window

EIM - Salt River Project - EIM Parallel Operations	EIM - Salt River Project - EIM Parallel Operations (02/01-03/31)
EIM - Seattle City Light - EIM Parallel Operations	EIM - Seattle City Light - EIM Parallel Operations (02/01-03/31)

Production Environment Window

Fall 2019 Release CMRI, SIBR, BSAP Deployments	Fall 2019 Release CMRI, SIBR, BSAP Deployments (TBD)
EIM - Salt River Project	EIM - Salt River Project (04/01)
EIM - Seattle City Light	EIM - Seattle City Light (04/01)
CRR Data Transparency Enhancements	CRR Data Transparency Enhancements (04/15)
Settlements - Spring 2020 Release	Settlements - Spring 2020 Release (05/01)
CCDEBE Phase 1 Activation	CCDEBE Phase 1 (TBD May)
Capacity Procurement Mechanism Soft Offer Cap Effective Trade Date	Capacity Procurement Mechanism Soft Offer Cap Effective Trade Date (06/01)
ESDER Phase 3 - DRRS	ESDER Phase 3 - DRRS (09/09)
ESDER Phase 3b - Load Shift Product	ESDER Phase 3b - Load Shift Product (10/01)
Dispatch Operating Target Tariff Clarification	Dispatch Operating Target Tariff Clarification (10/01)
Intertie Deviation Settlement	Intertie Deviation Settlement (10/01)
Excess Behind the Meter Production Deployment	Excess Behind the Meter Production Deployment (10/01)
Market Settlement Timeline Transformation Deployment	Market Settlement Timeline Transformation Deployment (10/01)
EIM Enhancements 2020	EIM Enhancements 2020 (10/01)
ADS UI Replacement	ADS UI Replacement (10/01)
FERC841 Requested Adjustments	FERC841 Adjustments (10/01)
Excess Behind the Meter Production Activation Effective Trade Date	Excess Behind the Meter Production Activation Effective Trade Date (01/01)
Market Settlement Timeline Transformation Activation Effective Trade Date	Market Settlement Timeline Transformation Activation Effective Trade Date (01/01)

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



ISO PUBLIC

System Interface Changes

SIBR/BSAP

System	Project	Change Type	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
SIBR	CCDEBE1	Modify	RetrieveCleanBidSet_SIBRv5 RetrieveCleanBidSet_SIBRv5_DocAttach	Oct 16, 2019	Deployment Mar 2020 Activation May 2020	13.2
SIBR	CCDEBE1	Modify	RetrieveCurrentBidResults_SIBRv5 RetrieveCurrentBidResults_SIBRv5_DocAttach	Oct 16, 2019	Deployment Mar 2020 Activation May 2020	13.2
SIBR	CCDEBE1	Modify	SubmitRawBidSet_SIBRv5 SubmitRawBidSet_SIBRv5_DocAttach	Oct 16, 2019	Deployment Mar 2020 Activation May 2020	13.2
BSAP	EIM2019	Modify	RetrieveBalancingTestResults_BSAPv2 RetrieveBalancingTestResults_BSAPv2_DocAttach	Oct 16, 2019	Deployment Mar 2020 Activation Mar 2020	1.7.3

CMRI

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
LMPME CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Energy Bid Curves	RetrieveDefaultBidCurves_CMRIv2 RetrieveDefaultBidCurves_CMRIv2_DocAttach	LMPME - Sep 12, 2019 CCDEBE Nov 6, 2019	LMPME - Nov 13, 2019 CCDEBE – Deployment Mar 2020 Activation May 2020	3.9.3
CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Commitment Costs	RetrieveExternalDefaultCommitmentCost_CMRIv1 RetrieveExternalDefaultCommitmentCost_CMRIv1_DocAttach	Nov 11, 2019	Deployment Mar 2020 Activation May 2020	3.9.3

System Interface Changes (cont.)

MRI-S

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
MRI-S API AUP	AUP	N/A	Retrieve Services: RetrieveMeterData_STLMTv1_AP RetrieveMeterData_STLMTv1_DocAttach_AP	Dec 4, 2019	✓ Feb 26, 2020	2.3

OASIS

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
CRR Data Transparency Enhancements	Modify	Modify Congestion Revenue Rights > CRR Aggregated Revenue Adjustment Data	CRR_AGG_REV_ADJ Add 4 new columns: DIRECTION IFM_NET_FLOW_MW CLAWBACK_REV CIR_SCH_REV	Mar 03, 2020	Apr 15, 2020	5.1.11

MMD

Project	Change Type	CSV Change	Data Change	MAP Stage	Production Activation	Technical Specifications
CRR Data Transparency Enhancements	Data	No Changes to Shift Factors CSV Format/Structure - Same Columns/Column Names	Apnode shift factors will be delivered in the same file as the Pnode shift factors The value in the existing 'Node Name' column will have "-APND" at the end to identify Apnodes	N/A	Apr 15, 2020	N/A

2020 Independent

2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

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

2020 – Commitment Cost and Default Energy Bid Enhancements Ph1: FERC tariff approval response received

- **CCDEBE Changes**

- FERC rejected the CCDEBE-related changes, which consist of the automated and manual reference level change requests, after the fact cost recovery procedures, and other related provisions.
- However, FERC rejected these without prejudice - **except** for the proposal to include a 25% adder in the commitment cost bid caps in the context of a reference level change request. FERC did not reject or argue against the 10% adder.
- The refiling date will be determined and communicated in a future RUG session

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 revised external BRS v1.1	Jan 22, 2019	✓
	Publish External BRS v1.2: Phase 1/Phase 2, clarifications	Mar 29, 2019	✓
	Publish External BRS v1.3: Reference Level Adjustments	Apr 05, 2019	✓
	Publish External BRS v1.4 for CCDEBE tariff traceability	Jul 19, 2019	✓
	Publish External BRS v1.5: implementation notes & clarifications	Sep 04, 2019	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications	May 17, 2019	✓
	Publish Technical Spec. updates for CARs and Electric Pricing Hub weighting	Jun 28, 2019	✓
Tariff	File Tariff - CCDEBE Phase 1	Oct 11, 2019	✓
	FERC rejection with further guidance	Jan 21, 2020	
	Re-file Tariff	Early March	
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	✓
Production Activation	CCDEBE Phase 1	TBD (May 2020)	

2020 – CRR Data Transparency Enhancements

Project Info	Details/Date
Application Software Changes	<p><u>Scope:</u></p> <ul style="list-style-type: none"> • This Initiative involves data related to daily CRR payments and credits • Scope includes making available to Market Participants additional CRR settlement-related data to support Shadow Settlements <p><u>Impacted Systems:</u></p> <ul style="list-style-type: none"> • IFM: <ul style="list-style-type: none"> • Publish IFM calculated Net Flow per constraint, contingency and interval • Generate Directional Flag (+) (-) that reflects the prevailing direction of the IFM Net Flow and publish with associated IFM Net Flow MW value • Publish APNode shift factors • Clawback (Internal): <ul style="list-style-type: none"> • Calculate and publish a single value representing the sum total of the Clawback and Circular Scheduling MWs • OASIS: <ul style="list-style-type: none"> • Posting of IFM Net Flow and Directional Flag (+) (-) • Posting of single value representing the sum total of the Clawback and Circular Scheduling MWs • MPP Market Modeling Database (MMD): <ul style="list-style-type: none"> • Storage of APNode shift factors in NDA Folder • Manage authorized access to data through validation of appropriate credentials
BPM Changes	<ul style="list-style-type: none"> • Market Instruments • Congestion Revenue Rights
Tariff Changes	<ul style="list-style-type: none"> • N/A • No Tariff changes associated with this initiative. Relevant Tariff provisions made for CRR 1B project

2020 – CRR Data Transparency Enhancements (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Nov 12, 2019	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Post Interface Tech Spec - OASIS	Dec 27, 2019	✓
Tariff	File Tariff	TBD	
	File Tariff	N/A	
BPMs	Draft BPM changes Market Instruments	Jan 06, 2020	✓
	Draft BPM Change - CRR	Jan 16, 2020	✓
External Training	External Training Communication	Mar 06, 2020	
Market Sim	Market Sim Window	Mar 03, 2020 - Mar 31, 2020	
Production Activation	CRR Transparency Enhancements	Apr 15, 2020	

2020 – Capacity Procurement Mechanism Soft Offer Cap

Project Info	Details/Date
Application Software Changes	<p>Scope:</p> <ul style="list-style-type: none"> The scope of this initiative includes updating the Capacity Procurement Mechanism (CPM) soft offer cap and the consideration of payments for 12-month CPM designations. <p>Impacted Systems:</p> <ul style="list-style-type: none"> No system/application impacts
BPM Changes	<ul style="list-style-type: none"> Reliability Requirements
Tariff Changes	<ul style="list-style-type: none"> 43A.4.1.1.1 43A.5.4 43A.6.2

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Mar 2020	
External BRS	Milestone: Post External BRS	N/A	
Config Guides	Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	TBD	
BPMs	Draft BPM changes	TBD	
Training	Training	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	CPM Soft Offer Cap	Jun 01, 2020	

2020 Spring Release

Spring 2020 – EIM integrations for SCL and SRP

Project Info	Details/Date
Application Software Changes	Implementation of SCL and SRP as EIM Entities
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during implementation and feedback from SCL and SRP.
Market Simulation	December 2019 – January 2020
Parallel Operations	February 2020 – March 2020

Milestone Type	Milestone Name	Dates	Status
Market Sim	Market Sim Window	Dec 3, 2019 – Jan 31, 2020	✓
Parallel Operations	Parallel Operations	Feb 1, 2020 – Mar 31, 2020	
Tariff	File Readiness Certification	Feb 28, 2020	✓
Production Activation	EIM – SCL and SRP	Apr 1, 2020	

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
ESDER Phase 3b - Load Shift Product	09/05/18	07/18/19 02/14/20 (Revision)	05/29/20	05/06/20		03/30/20	06/26/20	06/22/20	Jul 27, 2020 - Sep 04, 2020	09/09/20 - DRRS 10/01/20
Dispatch Operating Target Tariff Clarification	07/26/18	12/26/18	N/A	TBD		09/04/18	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
Intertie Deviation Settlement	02/07/19	03/02/20	05/29/20	N/A		TBD	TBD	7/20/20	Jul 27, 2020 - Sep 04, 2020	10/01/20
Excess Behind the Meter Production	11/17/18	02/27/20	05/29/20	05/29/20		11/04/19	6/24/20	07/21/20	Jul 27, 2020 - Sep 04, 2020	01/01/21 (TD)
Market Settlement Timeline Transformation	11/14/19	02/06/20	05/29/20	N/A		06/26/20	07/20/20	07/20/20	Jul 27, 2020 - Sep 04, 2020	01/01/21 (TD)
EIM Enhancements 2020	N/A	03/20/20	TBD	TBD		TBD	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
ADS UI Replacement	N/A	08/06/18	N/A	05/29/20		N/A	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
FERC 841 – Requested Adjustments	N/A	3/31/20	4/21/20	TBD		1/21/20	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20

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
ESDER3B					Y	Y	Y	Y					
DOTTC	Y		RTM										
IDS	Y				Y								
EBtMP				Y	Y				Y				
Market Settlement Timeline Transf.		Y		Y	Y				Y	Y	Y		
EIM2020		Y	RTM	Y								Y	Y
ADS UI Replacement	Y												
FERC Order 841 – Requested Adjustment					Y	Y							

Fall 2020 Release - System Interface Changes *Draft*

ADS

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
ADS Replacement DOTTC	Modify	v7: Instructions to include Unannounced AS Test information	By May 29, 2020	Jul 27, 2020	Oct 01, 2020

DRRS

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
ESDER3B	Modify	DRRegistrationData xsd LSE for PDR Registrations	By May 29, 2020	Jul 27, 2020	Oct 01, 2020

MRI-S

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
Excess Behind the Meter Production	Modify	For: <ul style="list-style-type: none"> - 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	By May 29, 2020	Jul 27, 2020	Jan 01, 2021

Master File

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
Multiple - TBD	Modify	RDT	By May 29, 2020	Jul 27, 2020	Oct 01, 2020

Fall 2020 Release – BPM Impacts

	Market Instruments	Market Operations	Settlements & Billing	Definitions & Acronyms	Outage Management	Reliability Requirement	Metering	Credit Mgmt & Market Clearing	Energy Imbalance Market	Rules of Conduct Admin	Demand Response
ESDER Phase 3b - Load Shift Product	Y	Y			Y	Y	Y				Y
Dispatch Operating Target Tariff Clarification	Y	Y									
Intertie Deviation Settlement			Y								
Excess Behind the Meter Production			Y	Y			Y				
Market Settlement Timeline Transformation	Y		Y	Y		Y	Y	Y	Y	Y	
EIM Enhancements 2020	Y										
ADS UI Replacement	Y	Y									
FERC Order 841 – Requested Adjustment	Y		Y				Y				

Fall 2020 – ESDER Phase 3b – Load Shift Product

Project Info	Details/Date
Application Software Changes	<p><u>Scope:</u></p> <p>The ESDER 3b initiative will include two (2) demand response enhancements:</p> <ul style="list-style-type: none">• Addition of a Load Shift Product wherein demand response resources with behind the meter (BTM) storage devices can participate in both load consumption and load curtailment.• Enable sub-metered electric vehicles supply equipment (EVSE) to participate in load curtailment. <p><u>Impacted Systems (Overview):</u></p> <p>Master File:</p> <ul style="list-style-type: none">• Registration of new PDR Resource Types and business rules for PDRs with BTM storage devices and wanting to participate in both Load Curtailment and Consumption.• Two (2) Resource IDs will be assigned to the same Resource to allow Consumption versus Curtailment participation (PDR-LSR). <p>DRRS:</p> <ul style="list-style-type: none">• New baseline methods for PDR-LSRs and EVSEs.• New attribute for locations to indicate an energy storage (ES) device or Electric Vehicle Supply Equipment (EVSE). <p>CIRA:</p> <ul style="list-style-type: none">• Will prevent the request of NQC for PDR-LSR Consumption resources <p>Settlements</p>

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

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

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 05, 2018	✓
External BRS	Post External BRS v1.4	Jul 18, 2019	✓
	Post External BRS v1.5	Feb 14, 2020	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	May 06, 2020	
Tariff	Post Draft Tariff	Mar 30, 2020	
	File Tariff	Jun 11, 2020	
BPMs	Post Draft BPM changes	Jun 26, 2020	
External Training	External Training	Jun 22, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ESDER Phase 3 - DRRS	Sep 09, 2020	
	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	

Fall 2020 – Dispatch Operating Target Tariff Clarification

Project Info	Details/Date
Application Software Changes	<p>Scope: 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>Impacted Systems: RTM: Operator can select EIR resources, system to send Operating instruction Flag to ADS ADS: Receive Operating instruction flag for EIRs. Broadcast message to EIRs operator.</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	Milestone: Post External BRS	Dec 26, 2018	✓
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	Draft Tariff	Sep 04, 2018	✓
	File Tariff	Oct 29, 2018	✓
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Dispatch Operating Target Tariff Clarification	Oct 01, 2020	

Fall 2020 – Intertie Deviation Settlement

Project Info	Details/Date
Application Software Changes	<p>Scope: Implement a new Under/Over Delivery Charge for intertie deviations from Market Schedule and After-The-Fact (ATF) E-Tag, to replace Decline charge</p> <p>Impacted Systems:</p> <p>Settlements</p> <ul style="list-style-type: none"> • Calculate FMM binding intertie award, exclude Curtailment, calculate under/over delivery quantity as deviation of schedule and ATF E-Tag, Charge under/over delivery Charge at 50% of RTD LMP. • Remove the decline charge calculation and Decline Threshold • Allocate Over/Under delivery charge to measured demand <p>ADS</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	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	Tariff Activities	TBD	
BPMs	Post BPM Changes	TBD	
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Intertie Deviation Settlement	Oct 01, 2020	

Fall 2020 – Excess Behind the Meter Production

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

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

Project Info	Details/Date
Application Software Changes (cont.)	<p>Impacted Systems:</p> <p>Settlements (continued);</p> <ul style="list-style-type: none"> • 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"> • 1302 Long Term Voltage Support Allocation • 1303 Supplemental Reactive Energy Allocation • 6090 Ancillary Service Upward Neutrality Allocation • 6194 Spinning Reserve Obligation Settlement • 6196 Spinning Reserve Neutrality Allocation • 6294 Non-Spinning Reserve Obligation Settlement • 6296 Non-Spinning Reserve Neutrality Allocation • 6594 Regulation Up Obligation Settlement • 6596 Regulation Up Neutrality Allocation • 6694 Regulation Down Obligation Settlement • 6696 Regulation Down Neutrality Allocation • 7256 Regulation Up Mileage Allocation • 7266 Regulation Down Mileage Allocation • 7896 Monthly CPM Allocation
BPM Changes	<ul style="list-style-type: none"> • Definitions & Acronyms: <ul style="list-style-type: none"> • Update definition of Gross Load • Add Excess Behind the Meter Production • Metering <ul style="list-style-type: none"> • Submission, retrieval of new measurement type (EBtMP) • Settlements & Billing <ul style="list-style-type: none"> • See Settlements Configuration Guide for changes
Tariff Change	<ul style="list-style-type: none"> • Appendix A: <ul style="list-style-type: none"> • Clarify Gross Load definition, Update Demand definitions, • Add new term Excess Behind the Meter production • Section 11: <ul style="list-style-type: none"> • Update reliability based tariff reference sections to be based upon gross load

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	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	May 29, 2020	
Tariff	File Tariff	Apr 08, 2020	
	Tariff Stakeholder Walkthrough	Dec 04, 2019	✓
	Draft Tariff published	Nov 04, 2019	✓
BPMs	Post Draft BPM changes	Jul 20, 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 Activation Effective Trade Date	Jan 01, 2021	

Fall 2020 – Market Settlement Timeline Transformation

Project Info	Details/Date
Application Software Changes	<p>Scope:</p> <ul style="list-style-type: none"> • The California ISO is proposing changes to its market settlement timeline to reduce market participant financial exposure by producing initial settlement statements that will more closely approximate the final settlement, and allow sufficient time for CAISO and market participants to resolve disputes. • The California ISO's current settlement timeline is compressed, which places potentially avoidable burdens on CAISO and market participants. The compressed timeline causes CAISO to publish initial statements of lower financial quality and to sometimes delay the publication of its settlement statements. These inefficiencies impact market participants as they must bear a financial burden of varying magnitude for many business days. • The California ISO and market participants also devote a large level of effort to correct data, re-calculate, process, and validate relatively small financial adjustments associated with optional re-calculations long after the settlement trade date has passed. • To resolve inefficiencies and issues, CAISO proposes to calculate and publish two settlement statements within seventy (70) business days after a trade date and re-align the due dates for settlement quality meter data. • Additionally, and under certain defined circumstances, CAISO proposes to re-calculate and publish three settlement statements between seventy (70) business days after a trade date and twenty-four (24) months after a trade date thus reducing the normal settlement life cycle from thirty-six to twenty-four months.
Application Software Changes (cont.)	<p>Impacted Systems:</p> <p>CIDI:</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>CMRI: Data retention impact due to reducing from 36 months to 24 months.</p> <p>MRI-S Metering:</p> <ul style="list-style-type: none"> • Impacts to the external data submission windows that currently exist, as well as the data transfers from MV-90 to MRI-S Metering and MRI-S Metering to Settlements. • Data submission/freeze timeline. <p>MRI-S Settlements:</p> <ul style="list-style-type: none"> • Update the Post Date calculation, as the payment calendar will change. • Auto scheduling for statement generation. • Statement posting.

Fall 2020 – Market Settlement Timeline Transformation

Project Info (cont.)	Details/Date	
Application Software Changes (cont.)	<p>Market Clearing: Updates needed to the deviation Interest calculations and credit calculation functions. Updates needed for invoice clearing and interest calculations. Check PTB publication timeline for any updates. Will impact the Extrapolation Component (one of 16 EAL Components) for Daily & Monthly Extrapolation and credit calculation.</p> <p>Recalculation Log: Post update recalculation log.</p> <p>Payment Calendar: Post the payment calendar to reflect overlap between existing and new timeline.</p> <p>OASIS:</p> <ul style="list-style-type: none"> • Data retention impact due to reducing from 36 months to 24 months. • FERC 841 related data availability needs to be vetted. 	
BPM Changes	Credit Management and Market Clearing Definitions & Acronyms Energy Imbalance Market Market Instruments Metering Reliability Requirement	Rules of Conduct Administration Settlements and Billing <ul style="list-style-type: none"> • Section 2.3.2 – Schedule for Settlement Statement Publication • Section 2.3.5.1.1 – Dispute Timing • Section 2.3.6 – Billing & Payment • Section 2.4 – Payment Calendars
Tariff Change	Section 10: Metering Section 11: California ISO Settlements and Billing (Publication Contingency document) Section 12: Creditworthiness Section 13: Dispute Resolution	Section 26: Transmission Rates And Charges Section 27: California ISO Markets And Processes Section 29: Energy Imbalance Market Section 37: Rules Of Conduct

Fall 2020 – Market Settlement Timeline Transformation

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 Config Guides	May 29, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	Draft Tariff	Jun 26, 2020	
BPMs	Post Draft BPM changes	Jul 20, 2020	
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Market Settlement Timeline Deployment	Oct 01, 2020	
	Market Settlements Timeline Effective Trade Date	Jan 01, 2021	

Fall 2020 – EIM Enhancements 2020

Project Info	Details/Date
Application Software Changes	<p>Scope: Energy Imbalance Market Enhancements 2020, is to collectively address important issues identified by EIM market participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the visibility, functions and features in Energy Imbalance Market (EIM)</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 15 requests in EIM enhancement 2020 project.</p> <p>Impacted Systems: BAAOP</p> <ul style="list-style-type: none"> • Allow EIM entity override activation for the contingencies up to 15 in NA contingency list • Add visibility of other adjacent BAA's ETSR locks and reasons • Add Static ETSR transfer data to RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer data to BAAOP ETSR Detail Display (in RTD) • Fix/Improve SVG One Lines. Request to be able to view SE and telemetry values for all substation flows and elements. • In RTD/RTPD Dispatch Control display, in Dispatch Instruction Review table, add columns for UP and DN remaining ramp capacity (5/15 minute respectively). In addition, include the sum of these columns at bottom of table. Example Calculation: RTD UP Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch]). • Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/RTPD Dispatch Control, add SUPP DOT column • Fix the functionality for Manual Dispatches - users should be able to utilize MSG functions, such as designating a specific configuration, and users should be able to do commitment override • Utilize the "information" button in the market UI to connect to Knowledge Articles from CIDI for both ISO and EIM Operator • 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"> • BAAOP Dynamic Limits • BAAOP RTIS • ALFS (load forecast and/or VER forecast) • ICCP link

Fall 2020 – EIM Enhancements 2020 (cont.)

Project Info	Details/Date
Application Software Changes (cont.)	<p><u>Impacted Systems:</u></p> <p>BSAP</p> <ul style="list-style-type: none"> • Add Manual Dispatch information to BSAP Resource Bal Viewer. Add any applicable deviations that used in the test to BSAP BAA Bal Viewer. • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to publish the true requirement, not just the INCREMENTAL/DECREMENTAL requirement <p>RTM</p> <ul style="list-style-type: none"> • Publish the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Publish the effective load bias for the market run for RTPD and RTD • Publish the effective ETSR import and export limits for the market run for RTPD and RTD <p>CMRI</p> <ul style="list-style-type: none"> • Display and publish, download the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Display and publish, download the data of the effective load bias for the market run for RTPD and RTD • Display and publish, download the effective ETSR import and export limits for the market run for RTPD and RTD • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to display and publish, download the true requirement, not just the INCREMENTAL/DECREMENTAL requirement <p>OASIS</p> <ul style="list-style-type: none"> • The Net EIM transfer limit report in OASIS shall be available for download via API.
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 20, 2020	
Config Guides	Post Draft Config Guides	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	TBD	
BPMs	Draft BPM changes	TBD	
	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	EIM Enhancements 2020	Oct 01, 2020	

Fall 2020 – ADS Replacement

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> • Transition to web-based user interface to eliminate the need to install thick client • Transition ADS provisioning to the Access and Identity Management (AIM) application including Resource Level Access Controls (RACL) access • The query tool will provide 30 days of historical data • Various user interface enhancements adding content per Operation's request • ADS B2B services changes
BPM Changes	<ul style="list-style-type: none"> • Market Instruments • Market Operations
Tariff Changes	<ul style="list-style-type: none"> • N/A

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	✓
Config Guides	Config Guides	N/A	
Tech Spec	Publish Technical Specifications	May 29, 2020	
Tariff	Tariff Activities	N/A	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ADS Replacement	Oct 01, 2020	
Production Parallel Operations	ADS Parallel Operations	TBD	
Decommission	Old ADS Decommission	TBD	

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)

Next steps:

CAISO will evaluate the impact of FERC directed adjustments and identify the tariff, BPM, and system changes and communicate them to market participants in subsequent RUG updates.

Fall 2020 – FERC Order 841 – FERC requested adjustments

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

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Mar 31, 2020	
Config Guides	Post Draft Config Guides	Apr 21, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	Jan 21, 2020	✓
BPMs	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	FERC 841 - Requested Adjustments	Oct 01, 2020	

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 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

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) 8:30am - 9:30am 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) 8:15am - 9:00am 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



Market Sim



Release Users Group (RUG)



2020 MPPF Schedule

Upcoming meetings:

- *Thursday, June 25*
- *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.