



California ISO

Market Performance and Planning Forum

December 11, 2019

ISO PUBLIC

Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2019 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 – Dec 11, 2019

9 a.m. – 12 p.m.

Time:	Topic:	Presenter:
9:00 – 9:05	Introduction, Agenda	Jimmy Bishara
9:05 - 10:50	Market Performance and Quality Update	Market Analysis and Forecasting
10:50 – 11:20	Policy Update	Brad Cooper John Goodin
11:20 – 12:00	Release Update	Trang Deluca

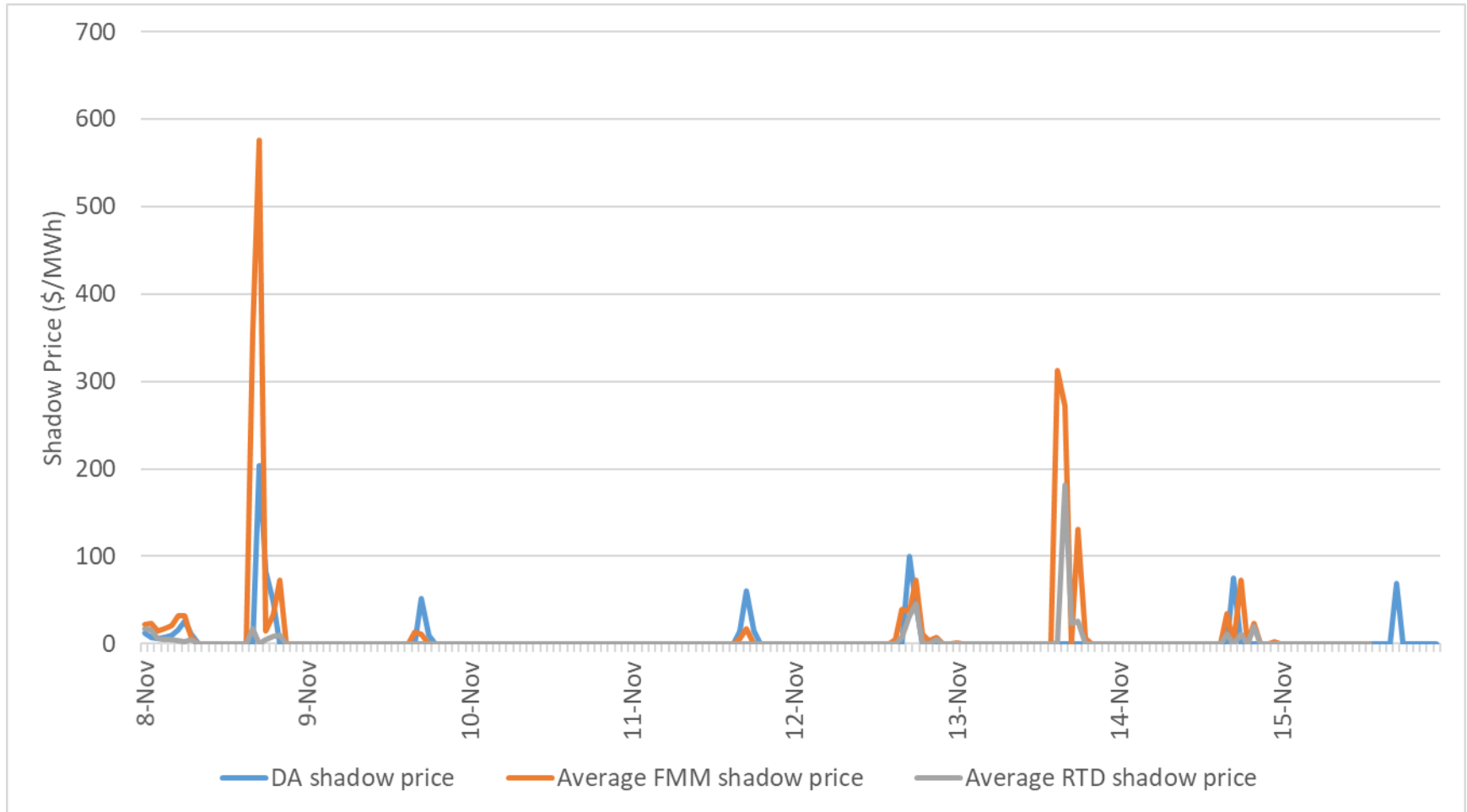
Market Update

Market Analysis and Forecasting Department

Maximum Gas-burn Nomogram Enforced in the markets in October and November

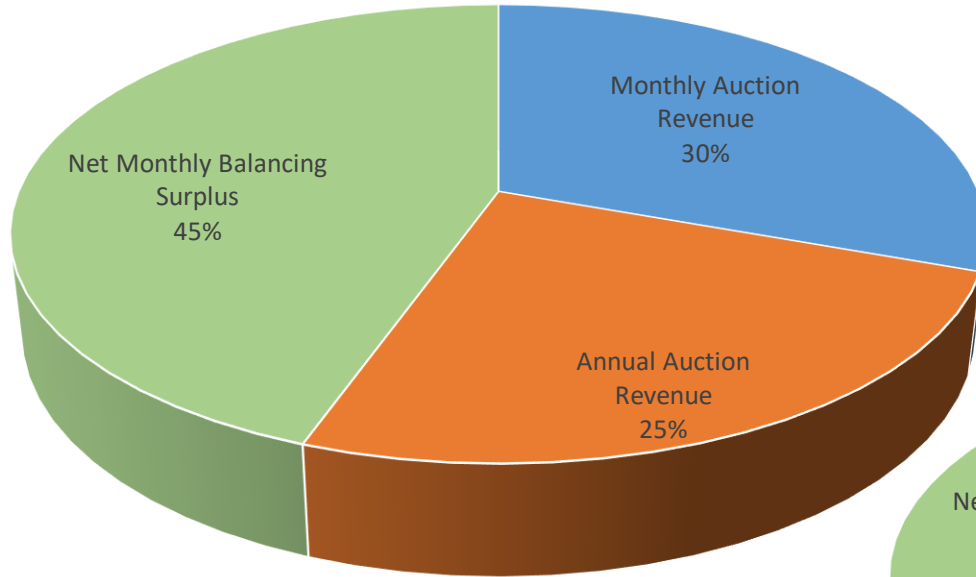
- Planned SDG&E system-wide gas curtailment of CAISO Dispatchable Electric Generation was in effect for some days in October and November
- Maximum Gasburn Nomogram was enforced for SDGE area for the following dates
 - October 2019
 - October 14 – 18 in DA market (binding in one hour on October 18 in DA market)
 - October 14 – 17 in RT market (not binding)
 - November 2019
 - November 8 – November 15 in DA and RT market

Gas Nomogram was binding economically during the evening peak hours in all the markets in November

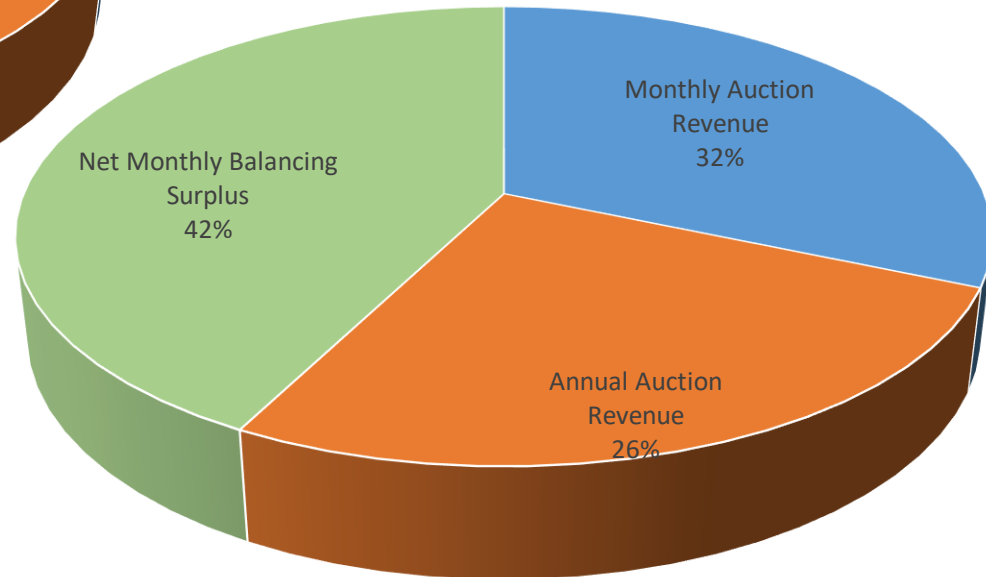


Total CRR payment after pro-rata adjustments

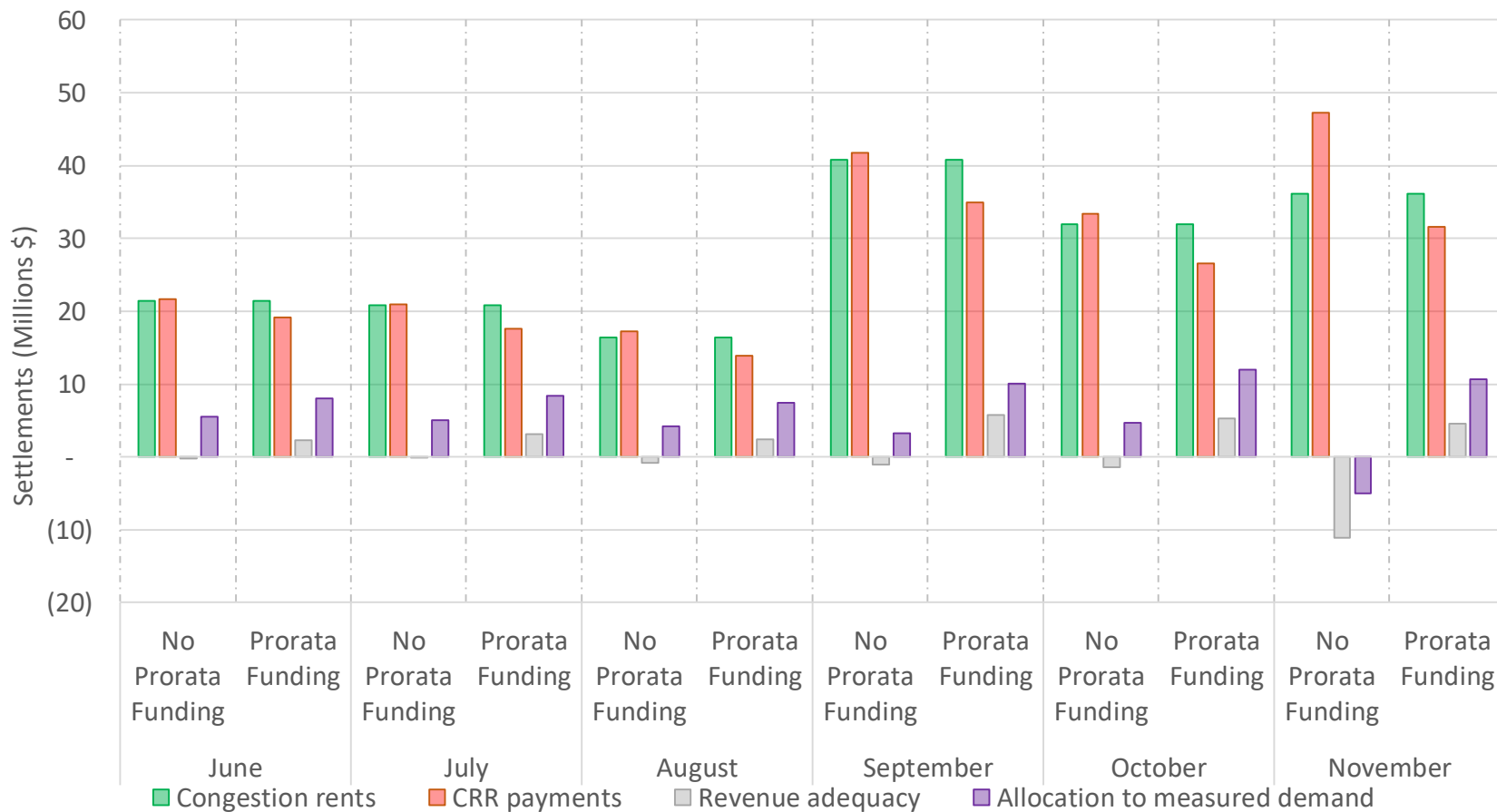
October - Total Balancing Account (~11million)



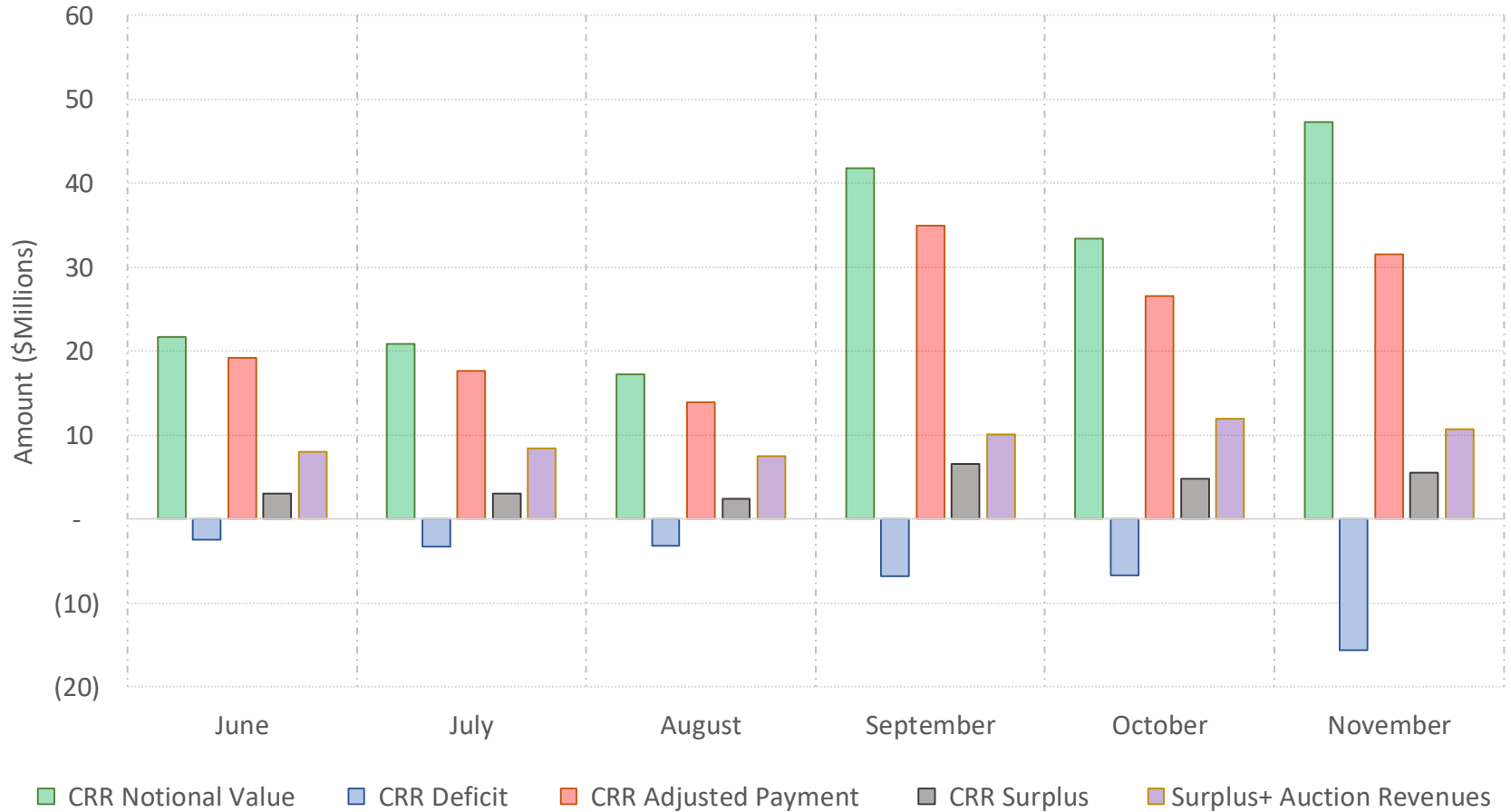
November - Total Balancing Account (~10million)



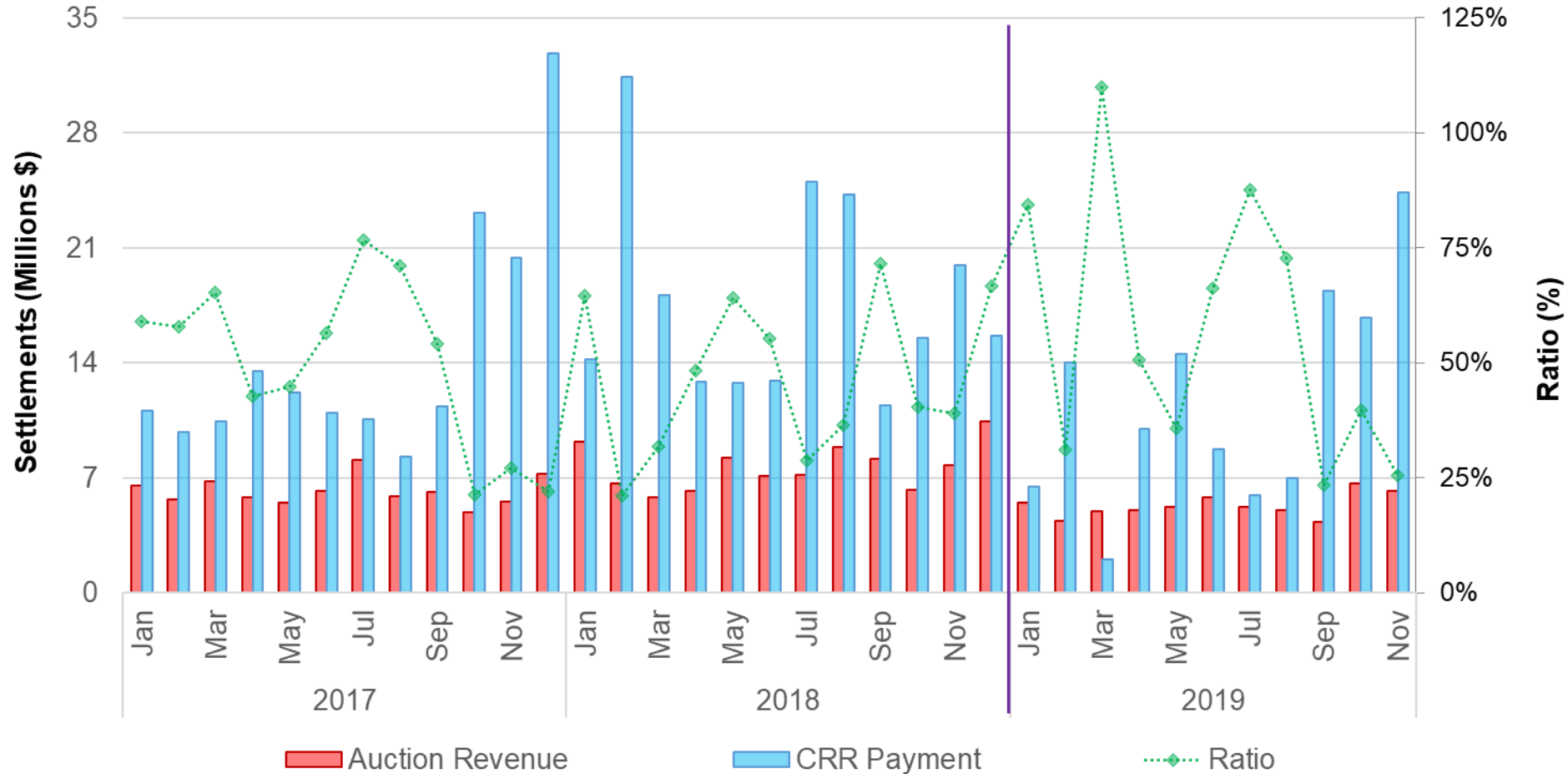
Total CRR surplus includes both auction revenues and balancing surpluses, and all of that is allocated to measured demand



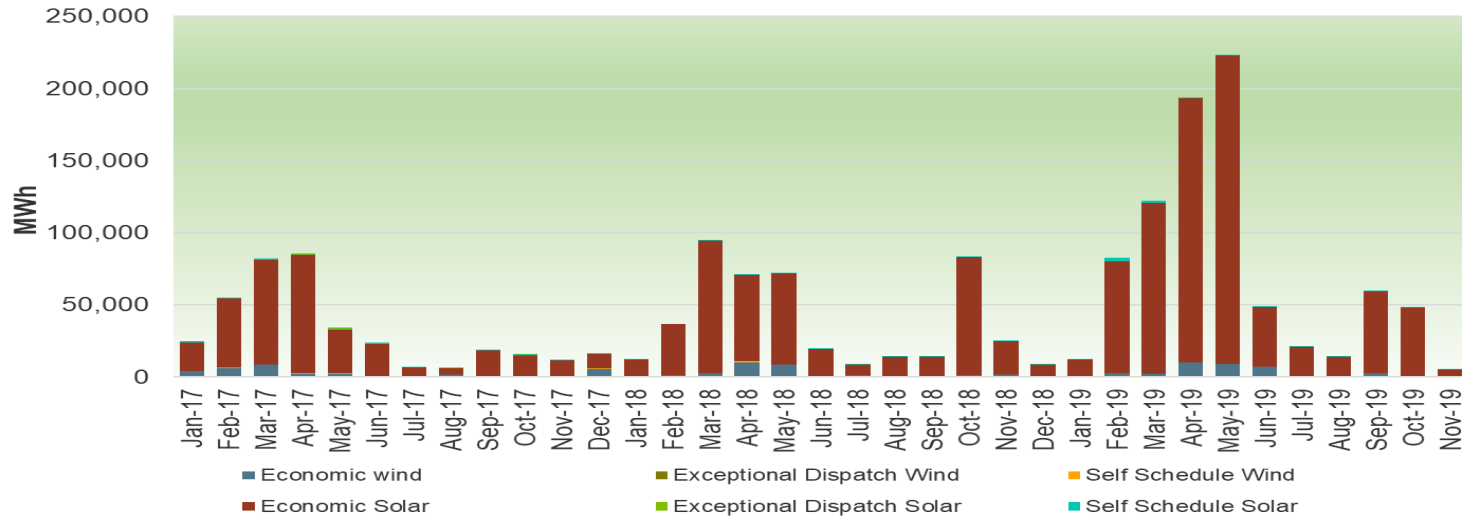
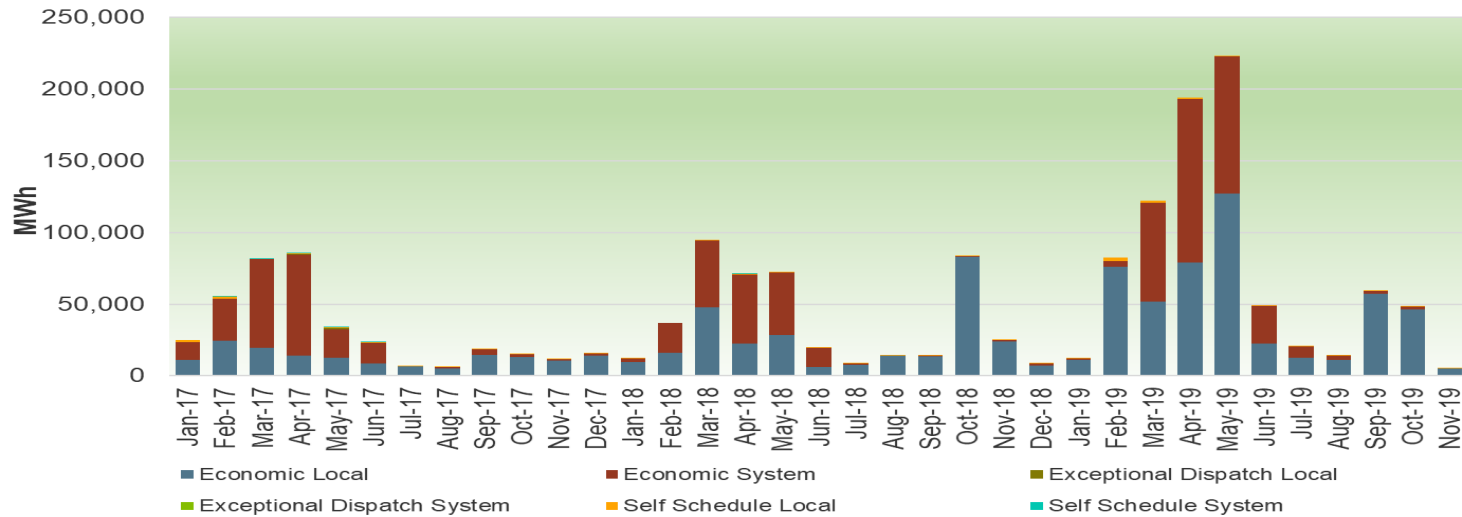
Steady surplus was observed in the last three months of 2019



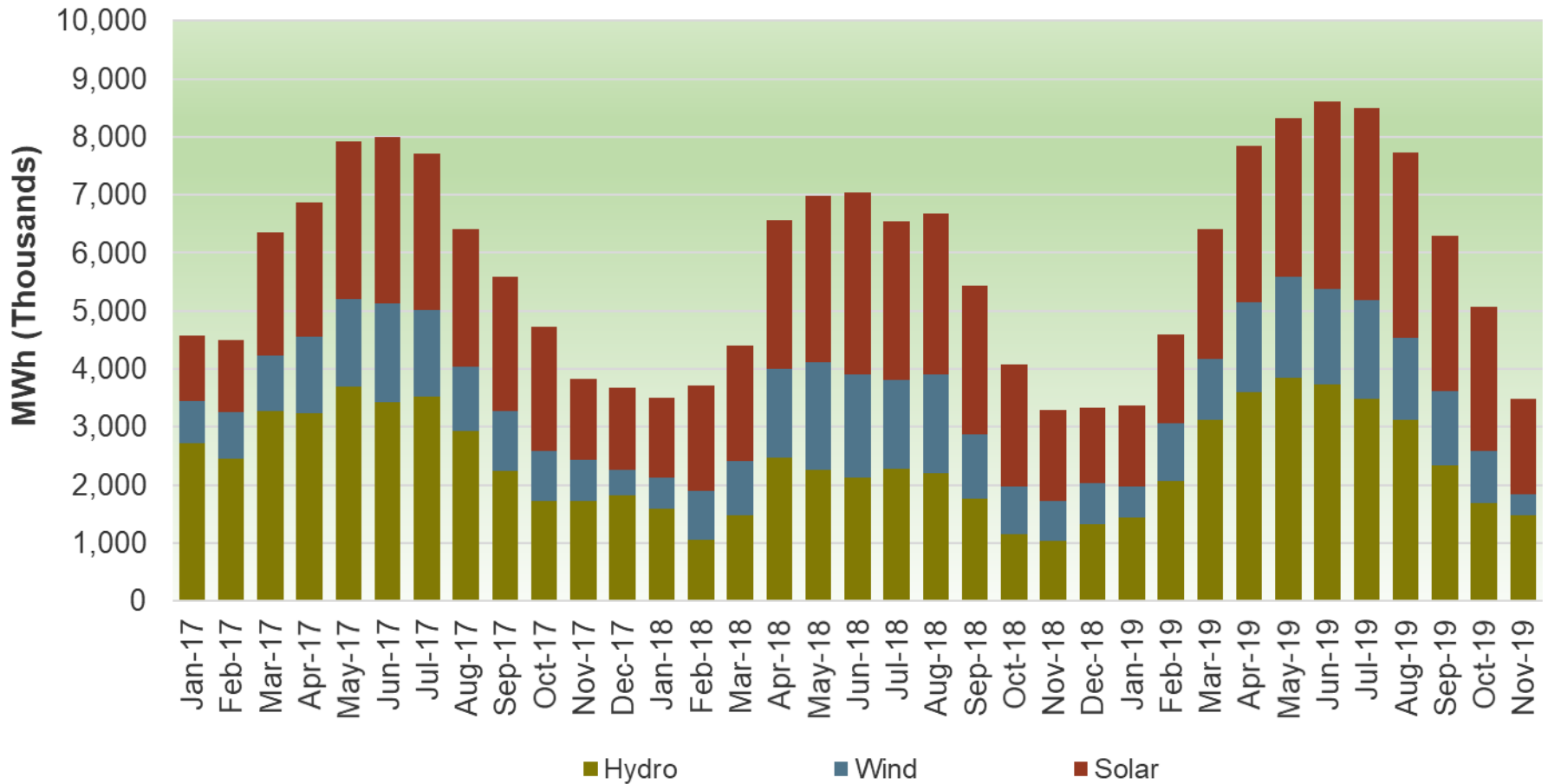
Auction revenue shortfall in 2019 has shown mixed results



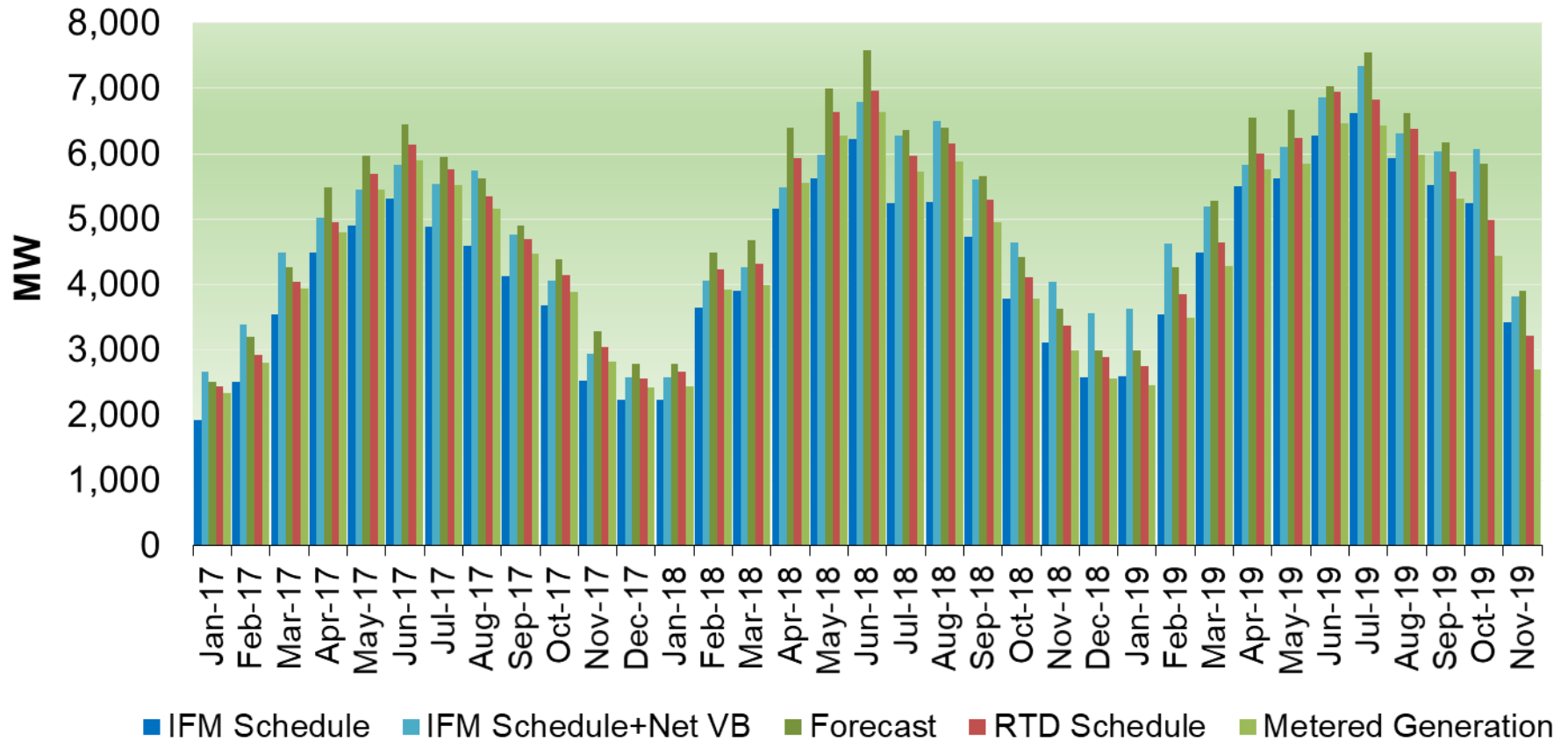
RTD renewable (VERs) curtailment stayed low since May



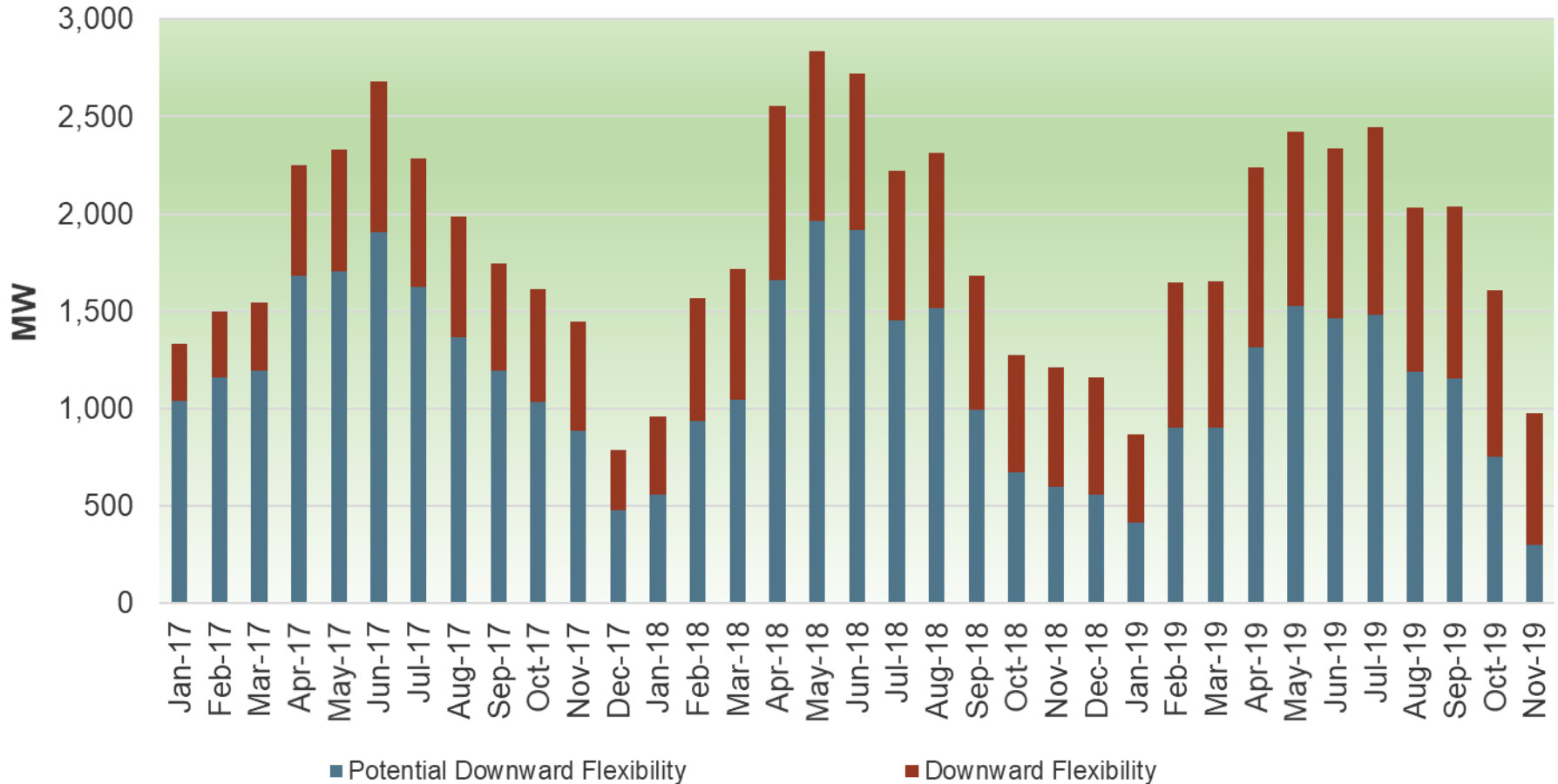
Hydro production higher than previous year in October and November



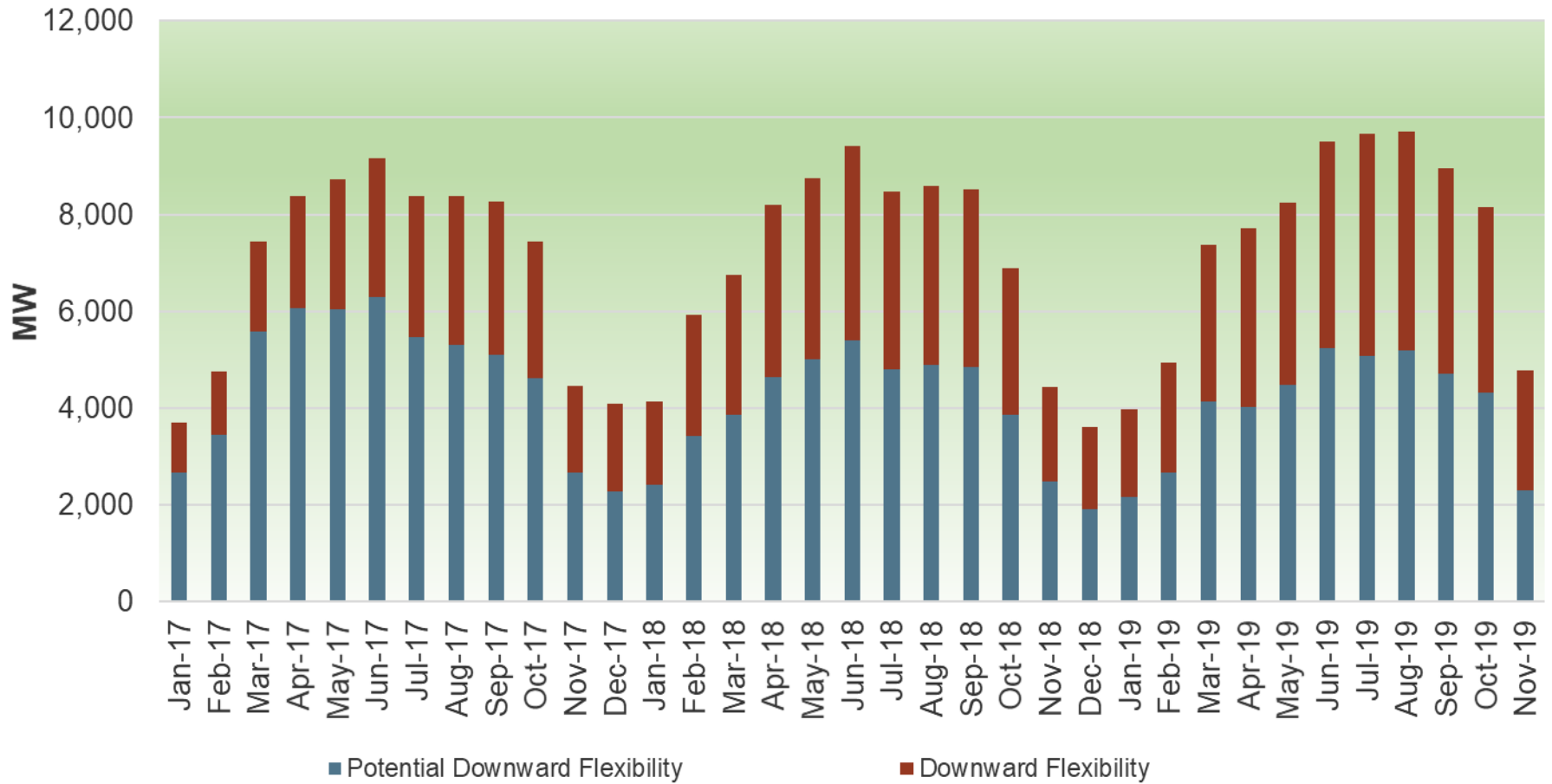
ISO total monthly VERS schedules and forecasts compared to actuals



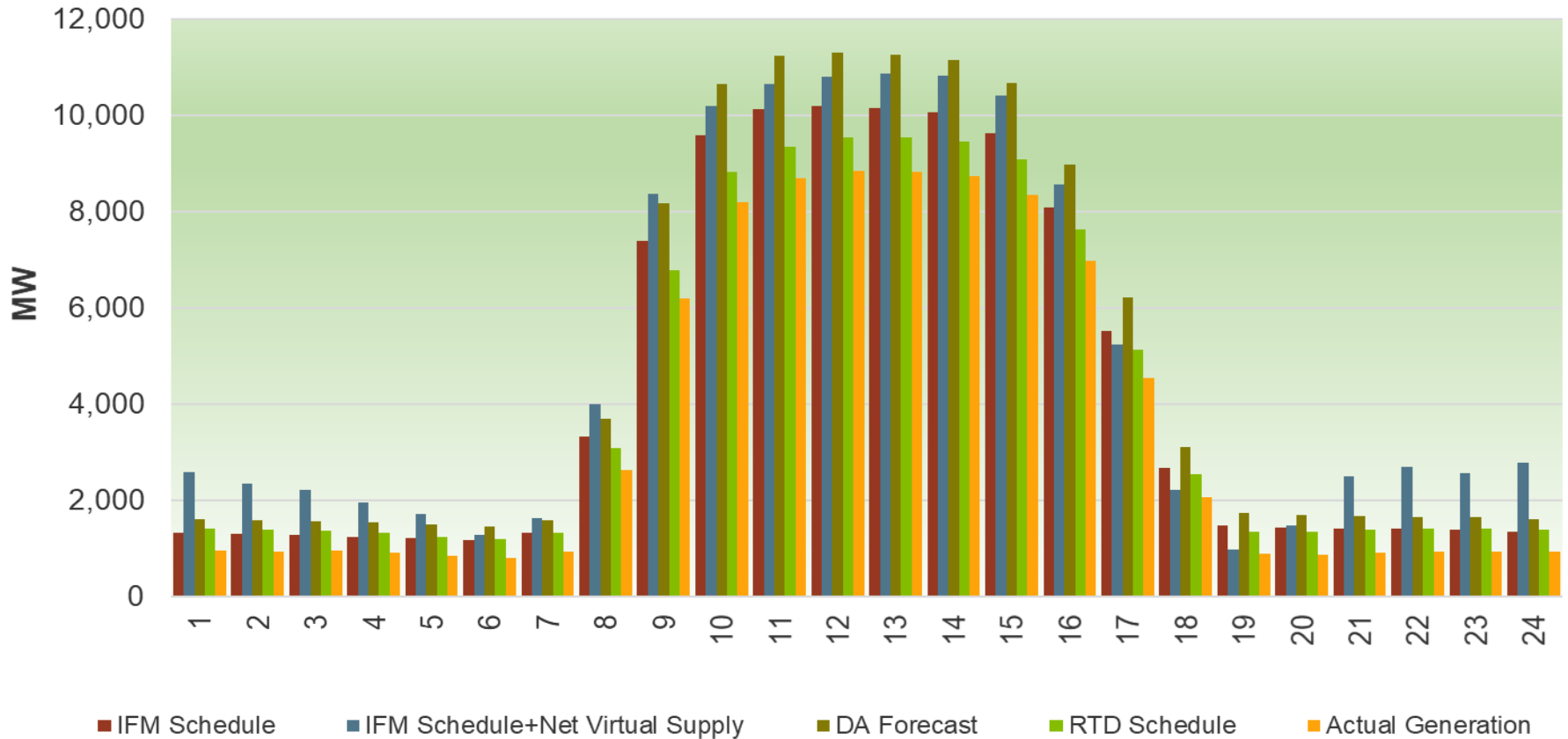
Monthly wind (VERS) downward flexibility in FMM



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

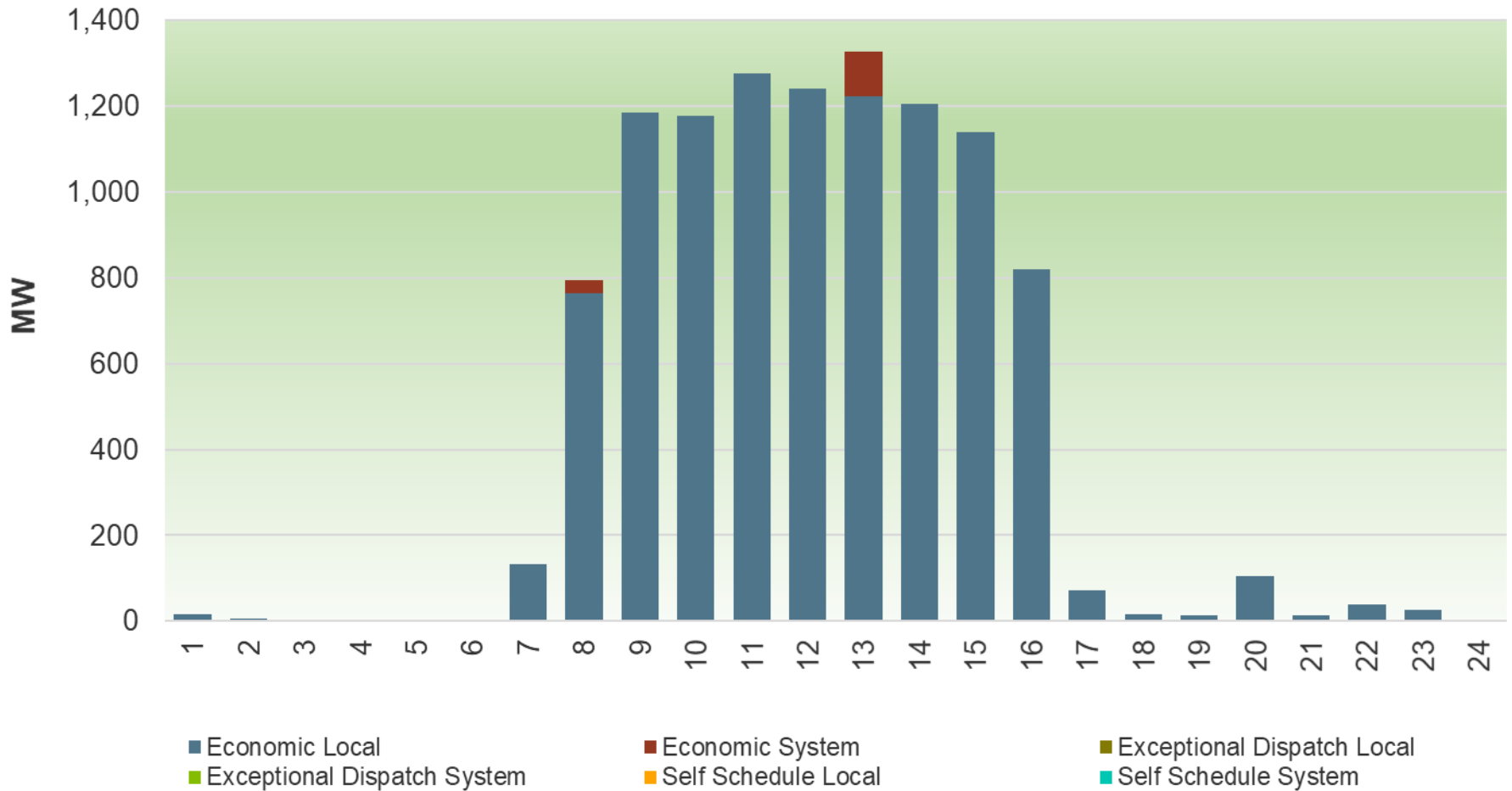


Renewable (VERS) schedules including net virtual supply aligns with VER forecast in October and November

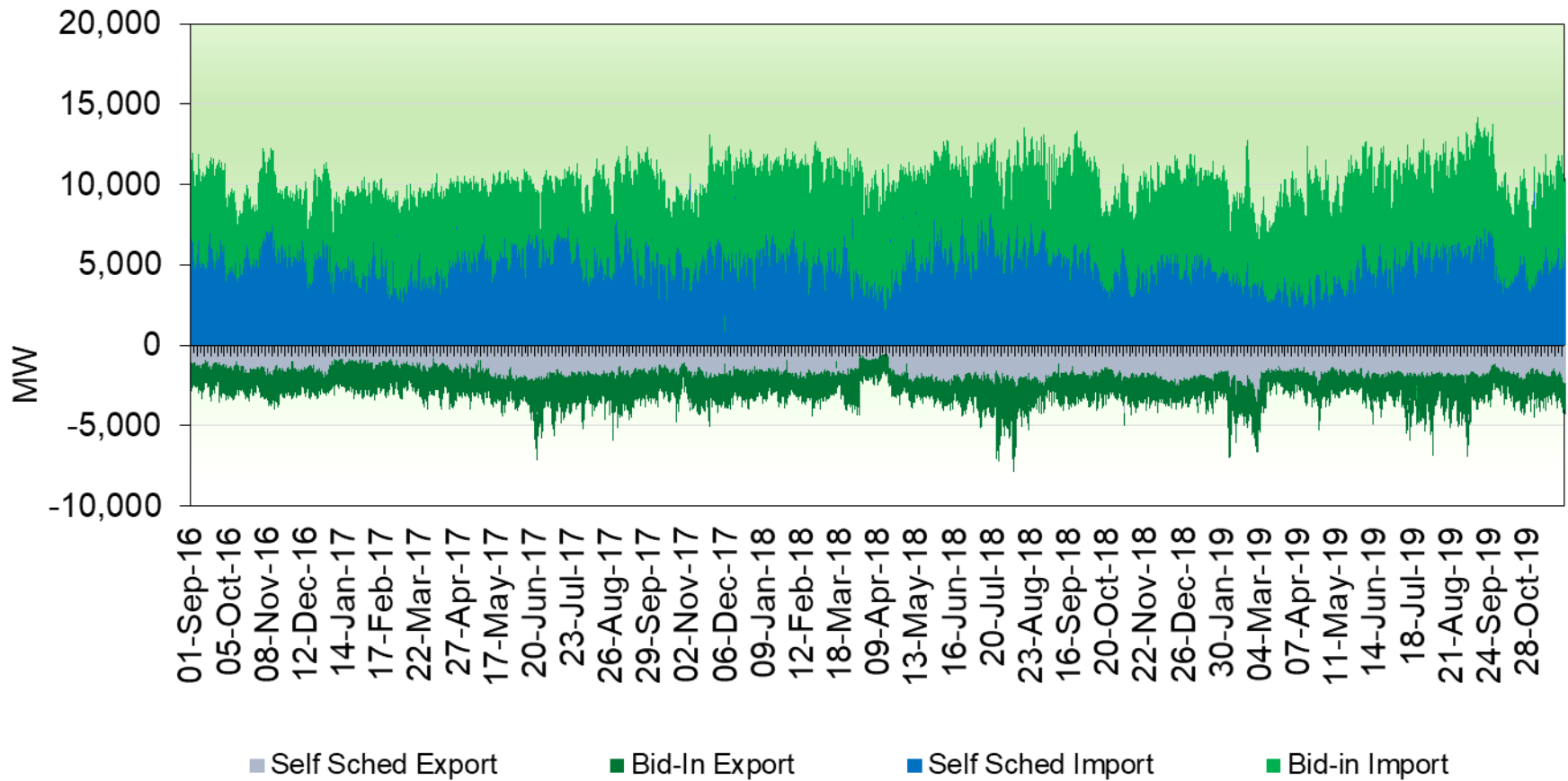


<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EFF75C2E-F28E-4087-B88B-8DFFAED828F8>

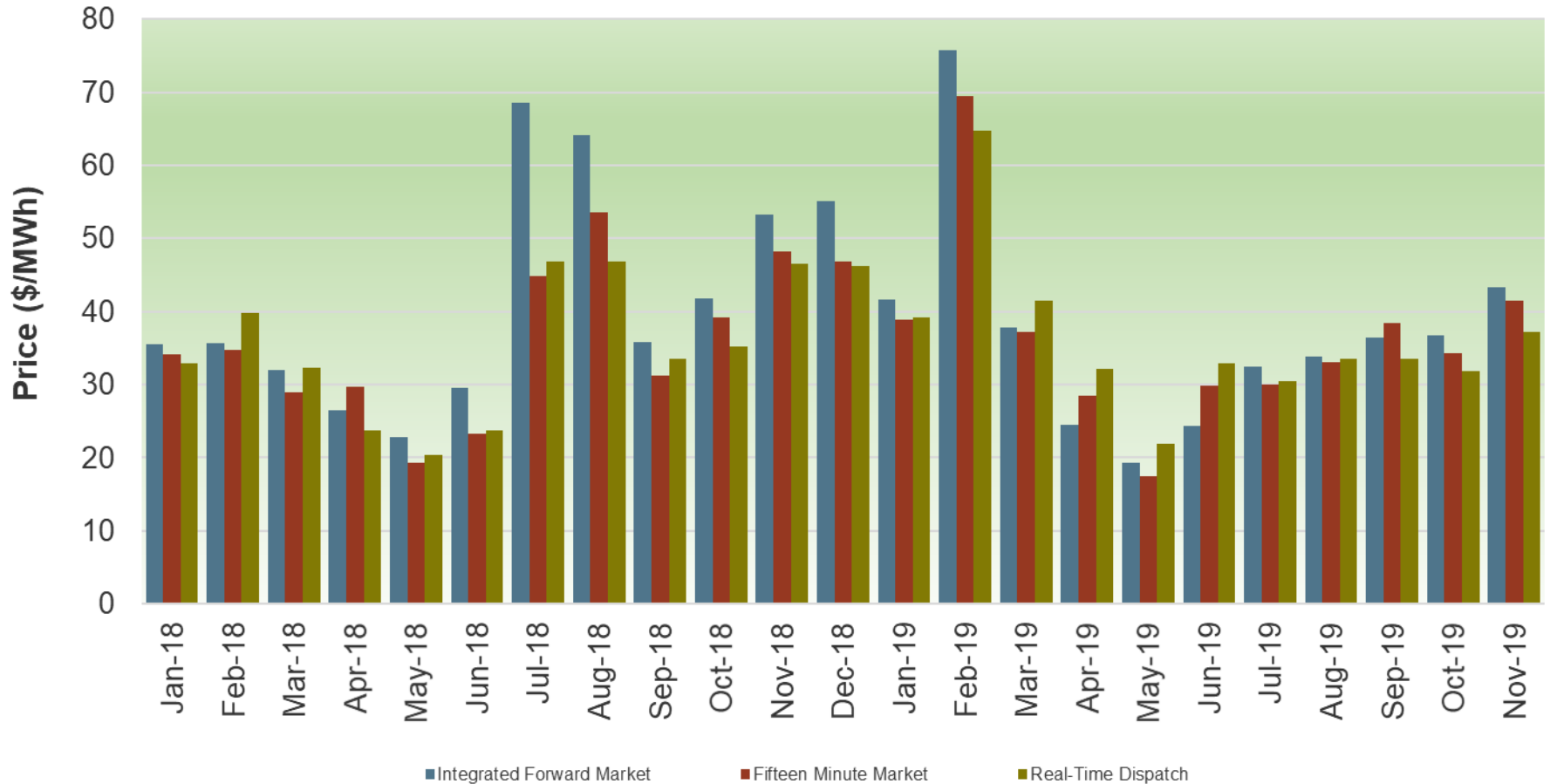
Hourly distribution of maximum RTD renewable (VERS) curtailment in November



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

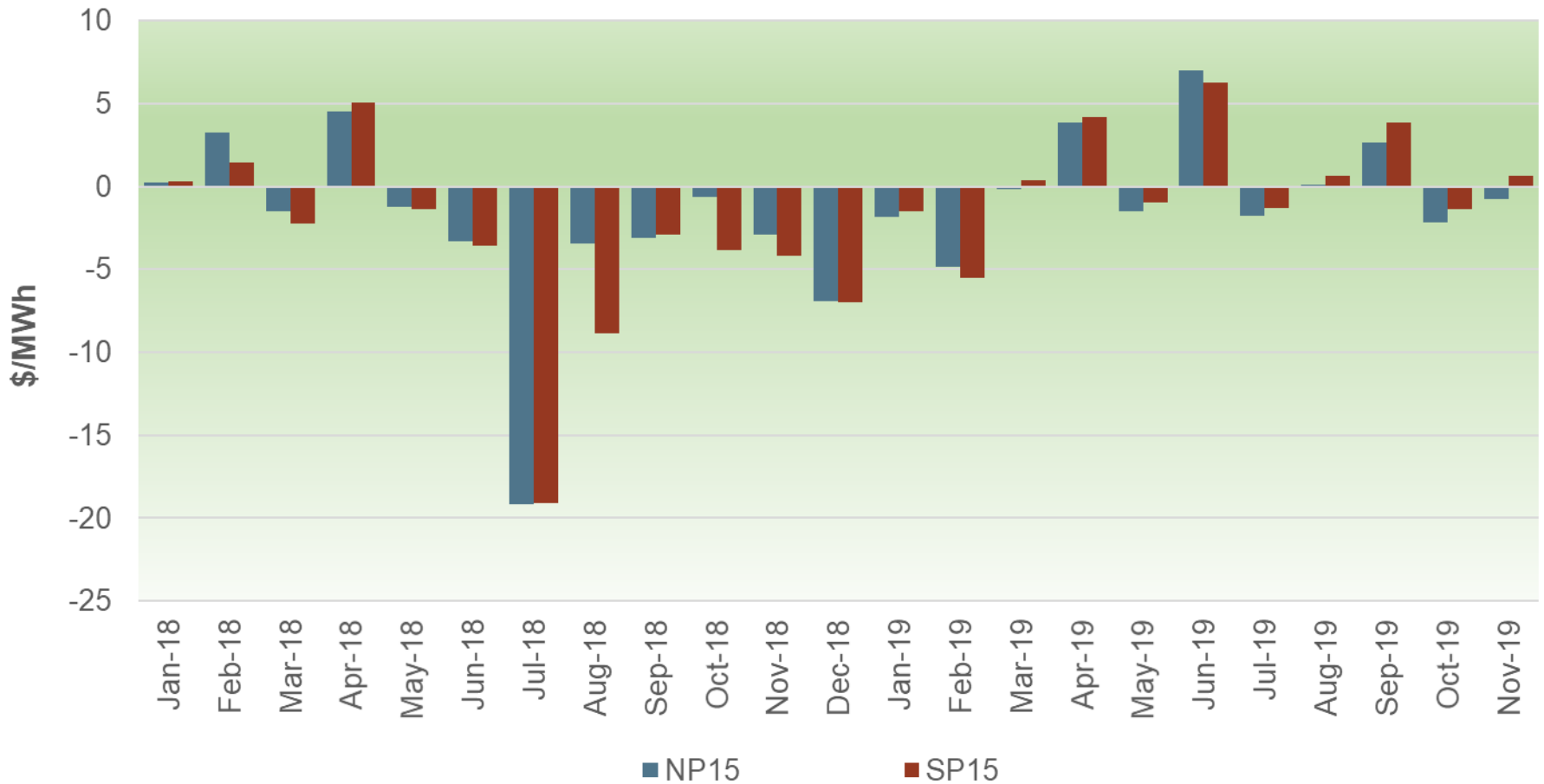


Higher DA price in October and November

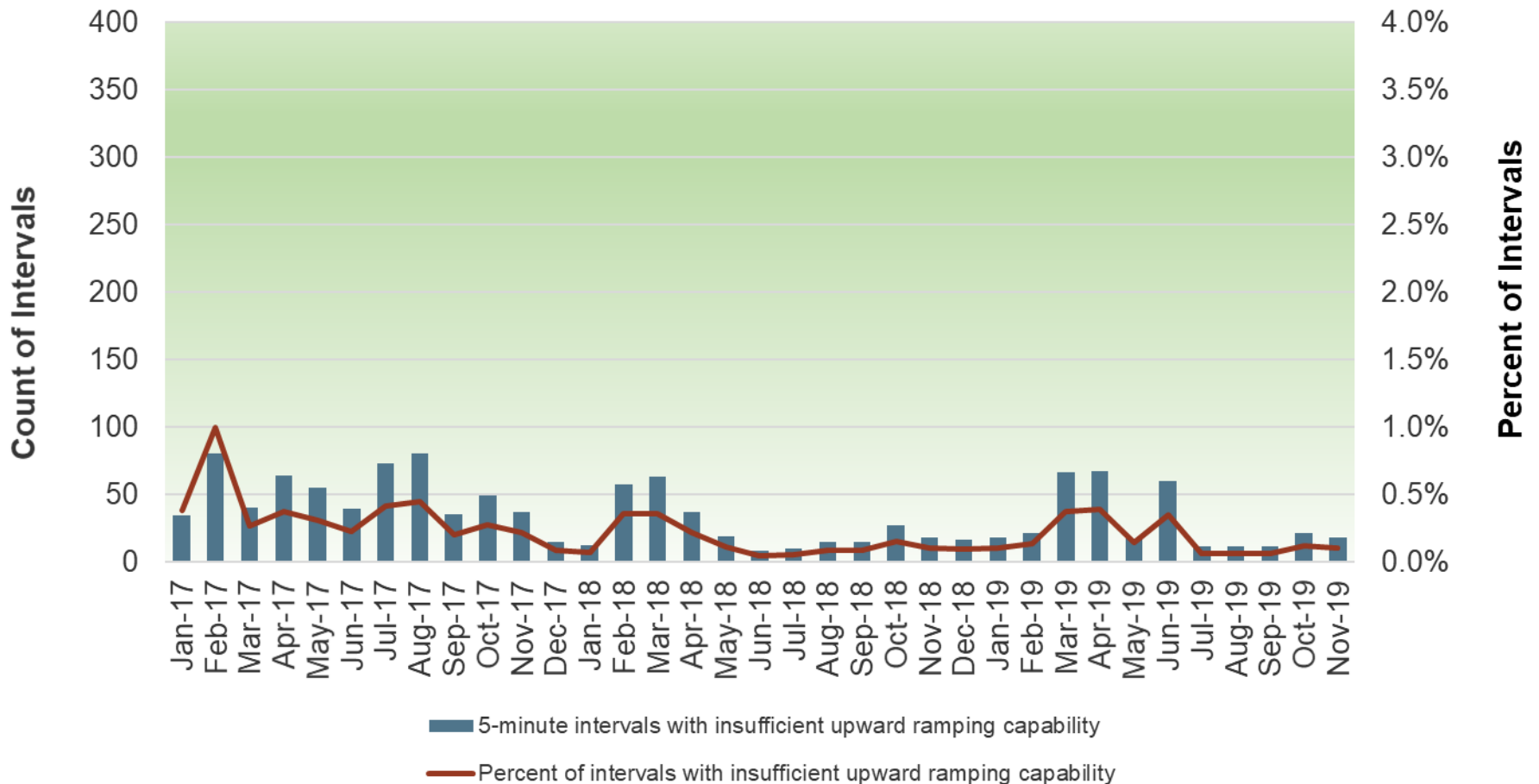


Note: Metric Based on System Marginal Energy Component (SMEC)

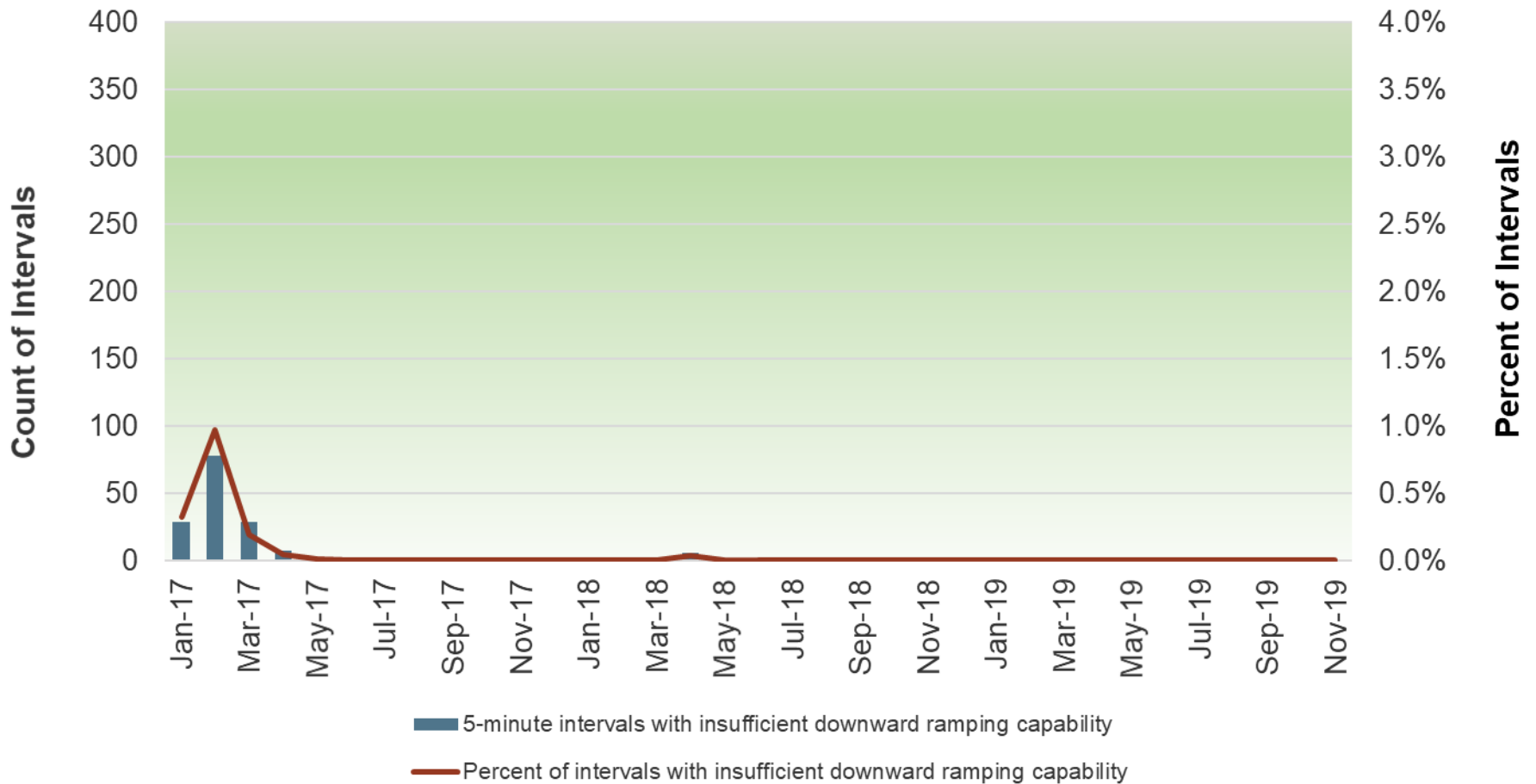
RT prices lower than DA prices for NP15 in October and November



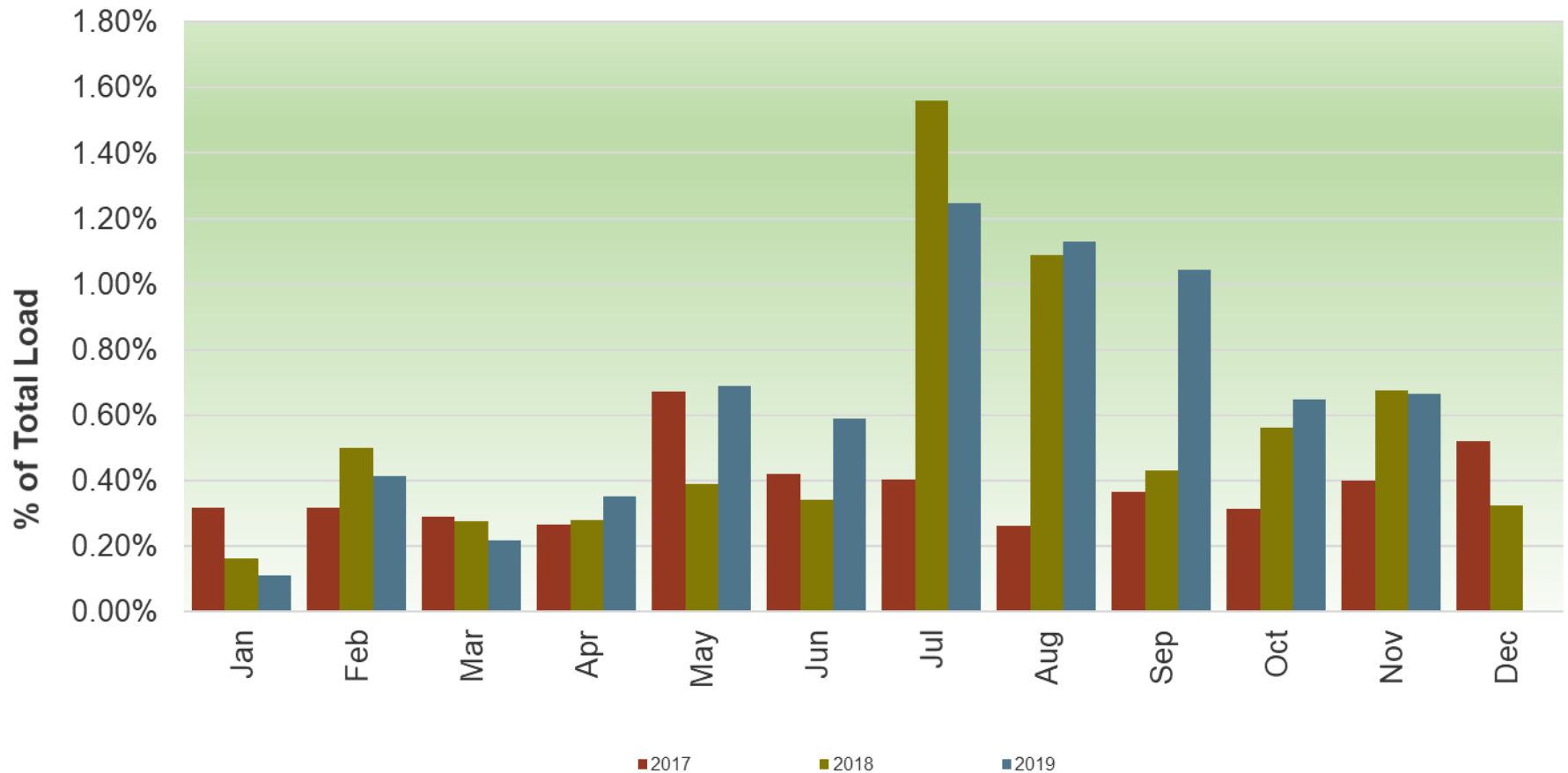
Insufficient upward ramping capacity in ISO real-time declined since June



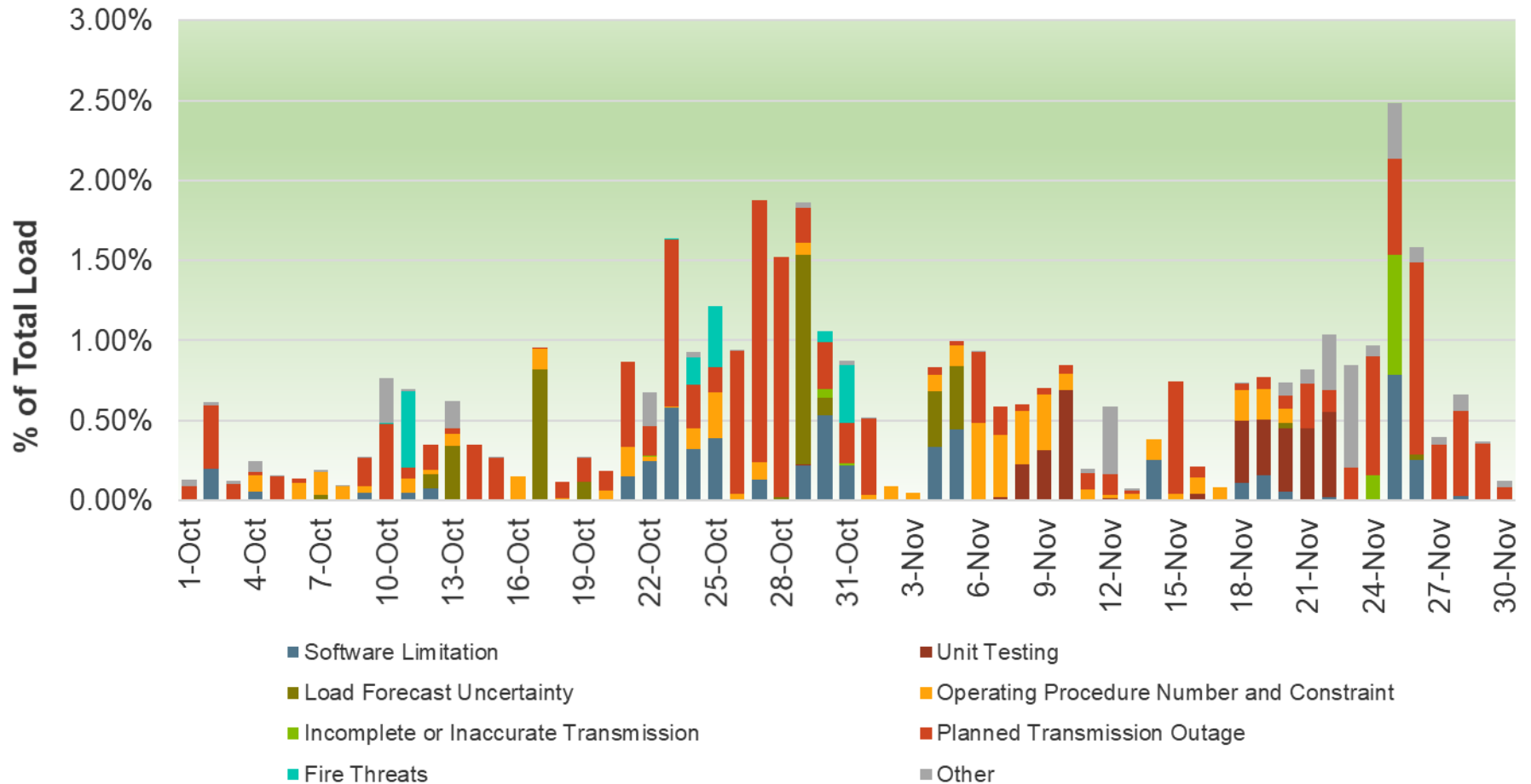
Insufficient downward ramping capacity in real-time remained low



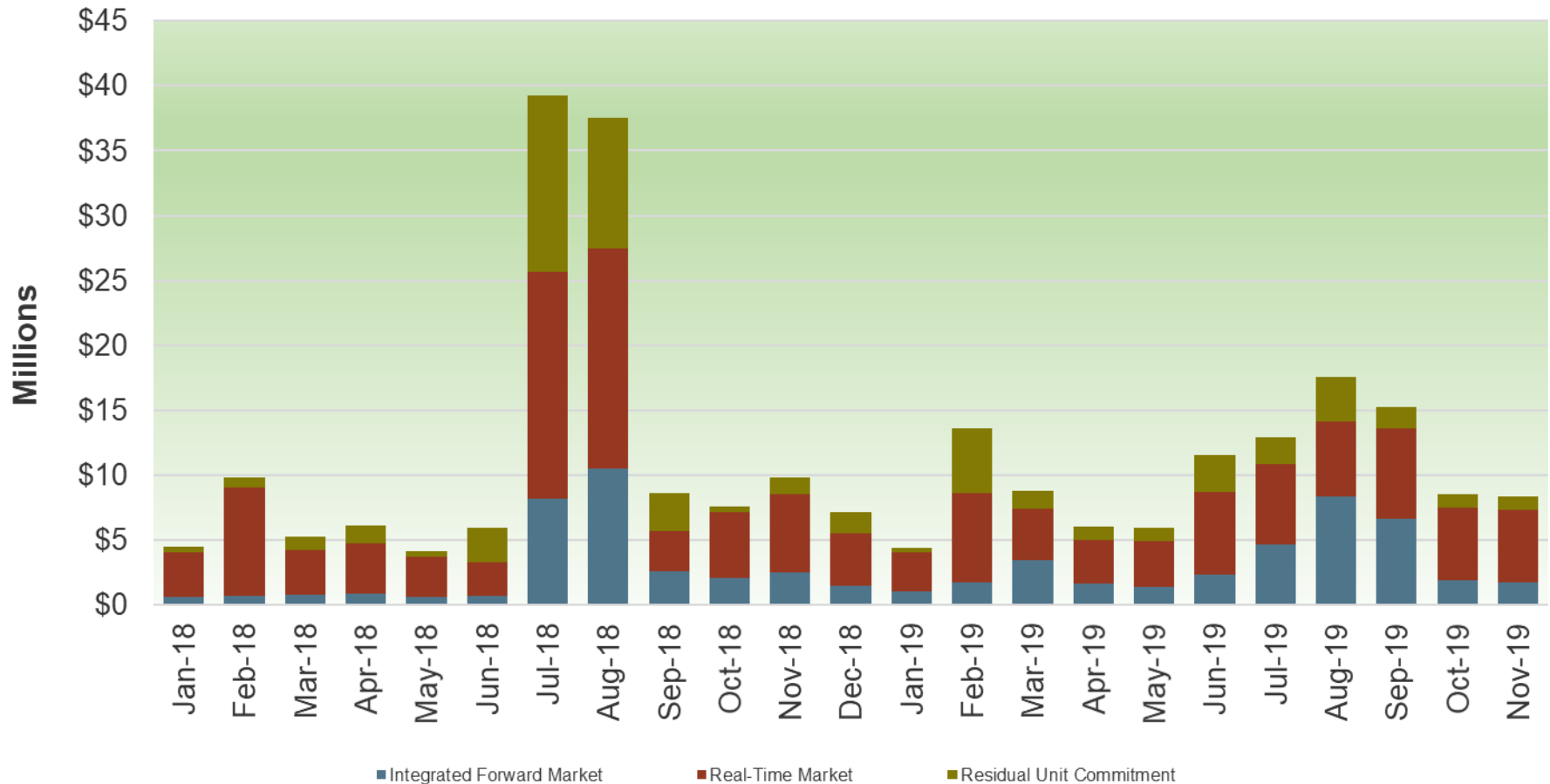
Exceptional dispatch volume in the ISO area has been trending downward since July



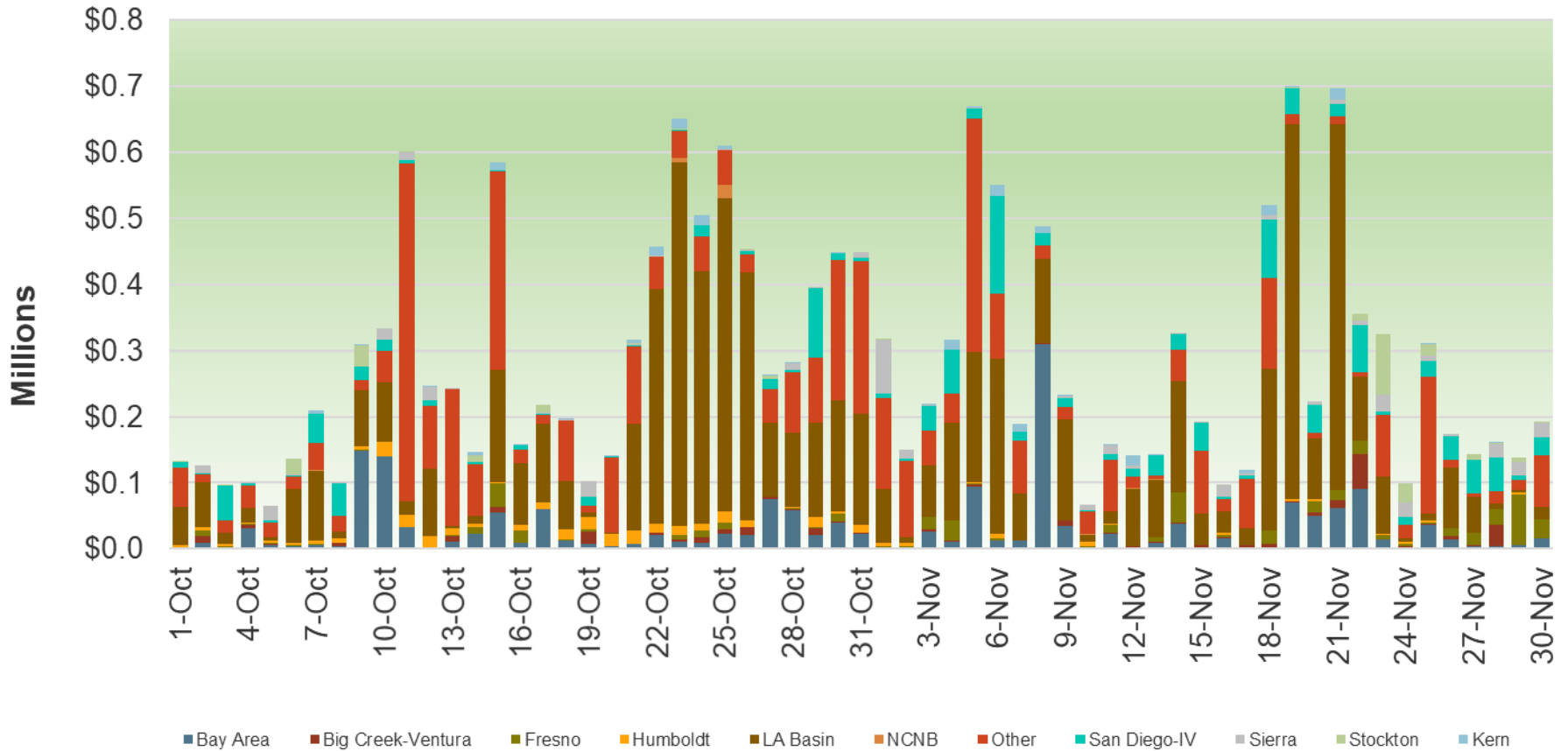
Exceptional dispatches volume driven by a variety of reason in October and November



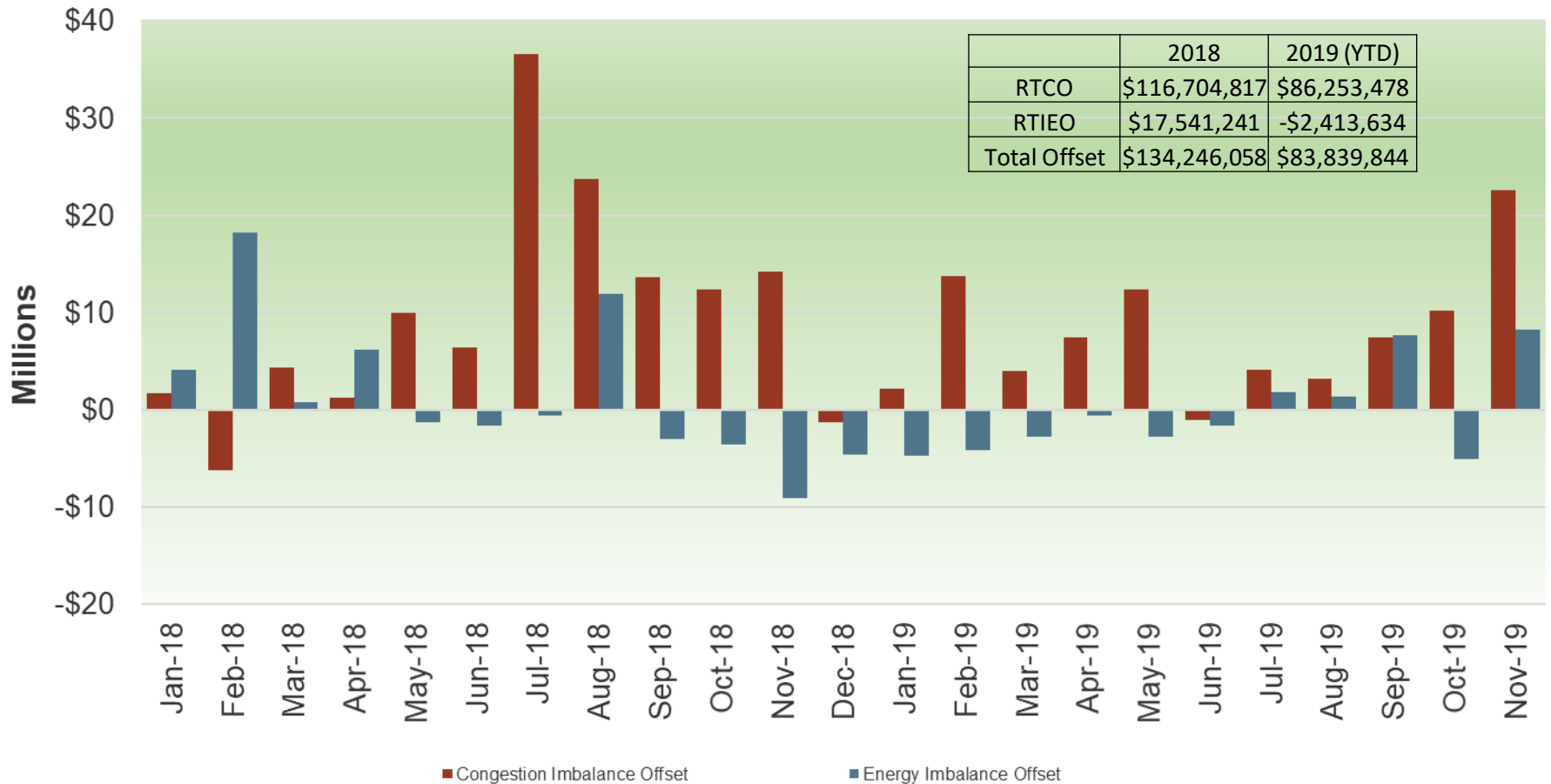
Bid cost recovery remained at low levels



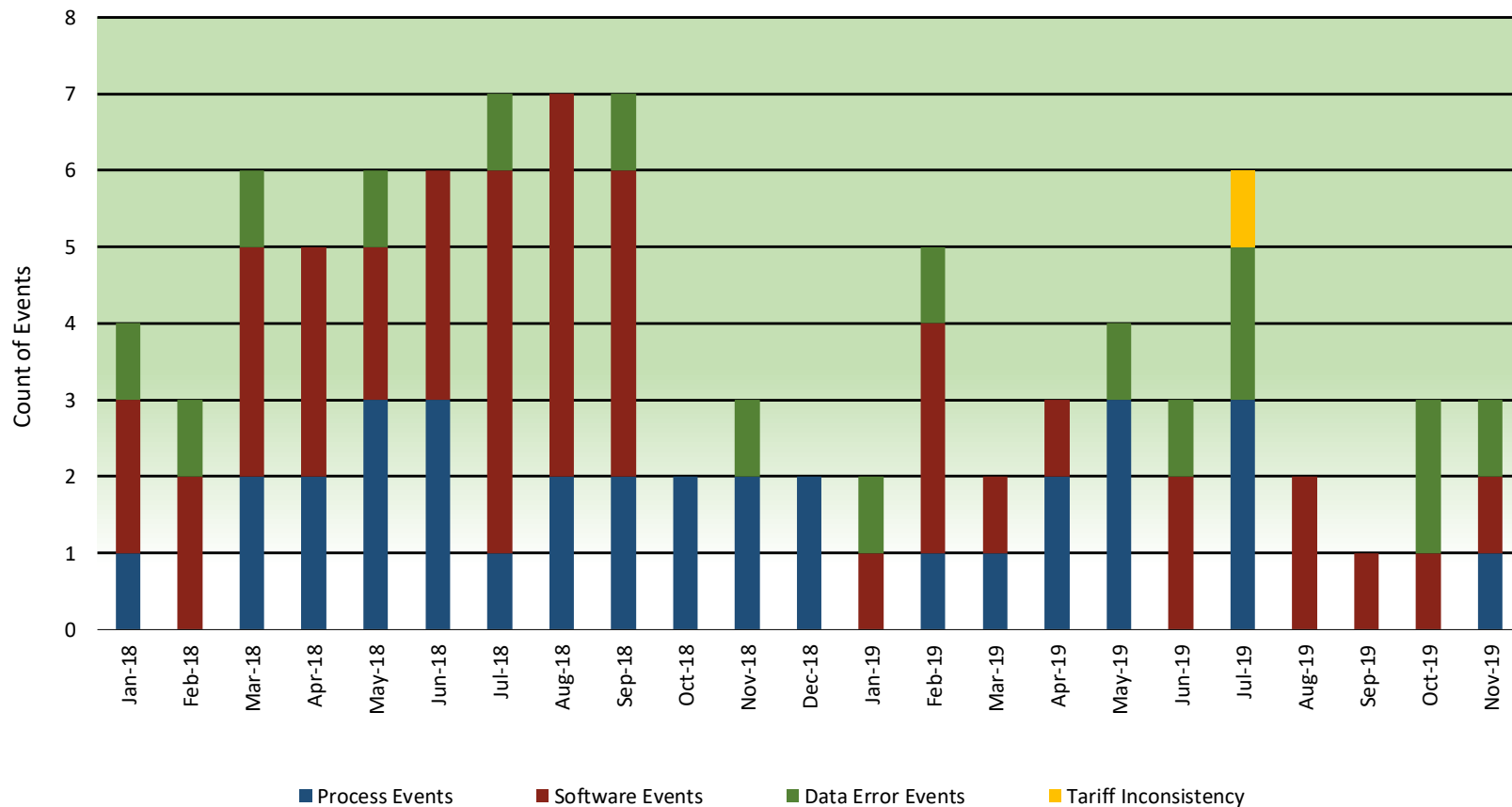
Bid cost recovery (BCR) by Local Capacity Requirement area



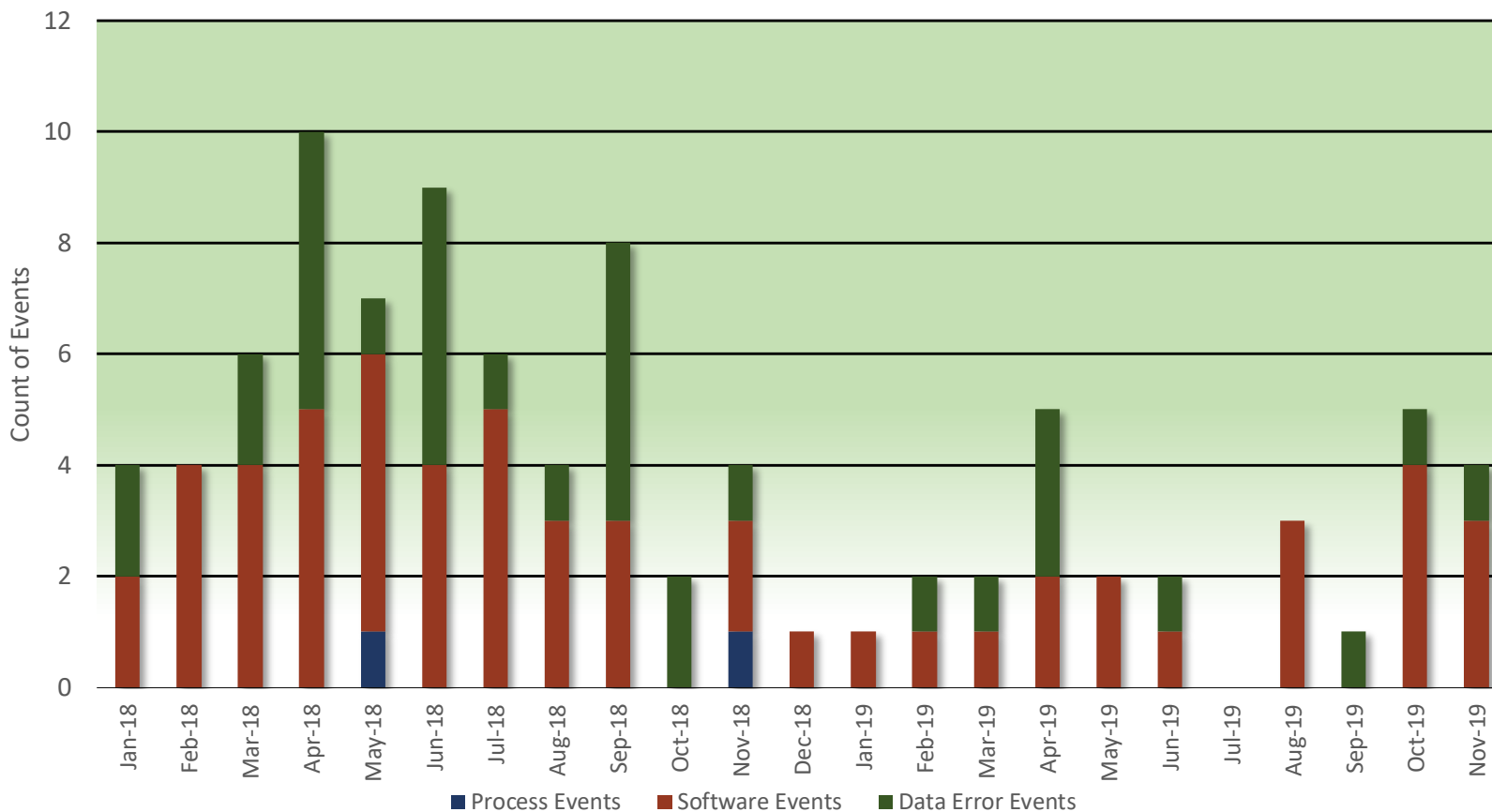
ISO area RTCO and RTIEO rose in November



CAISO price correction events increased in October and November

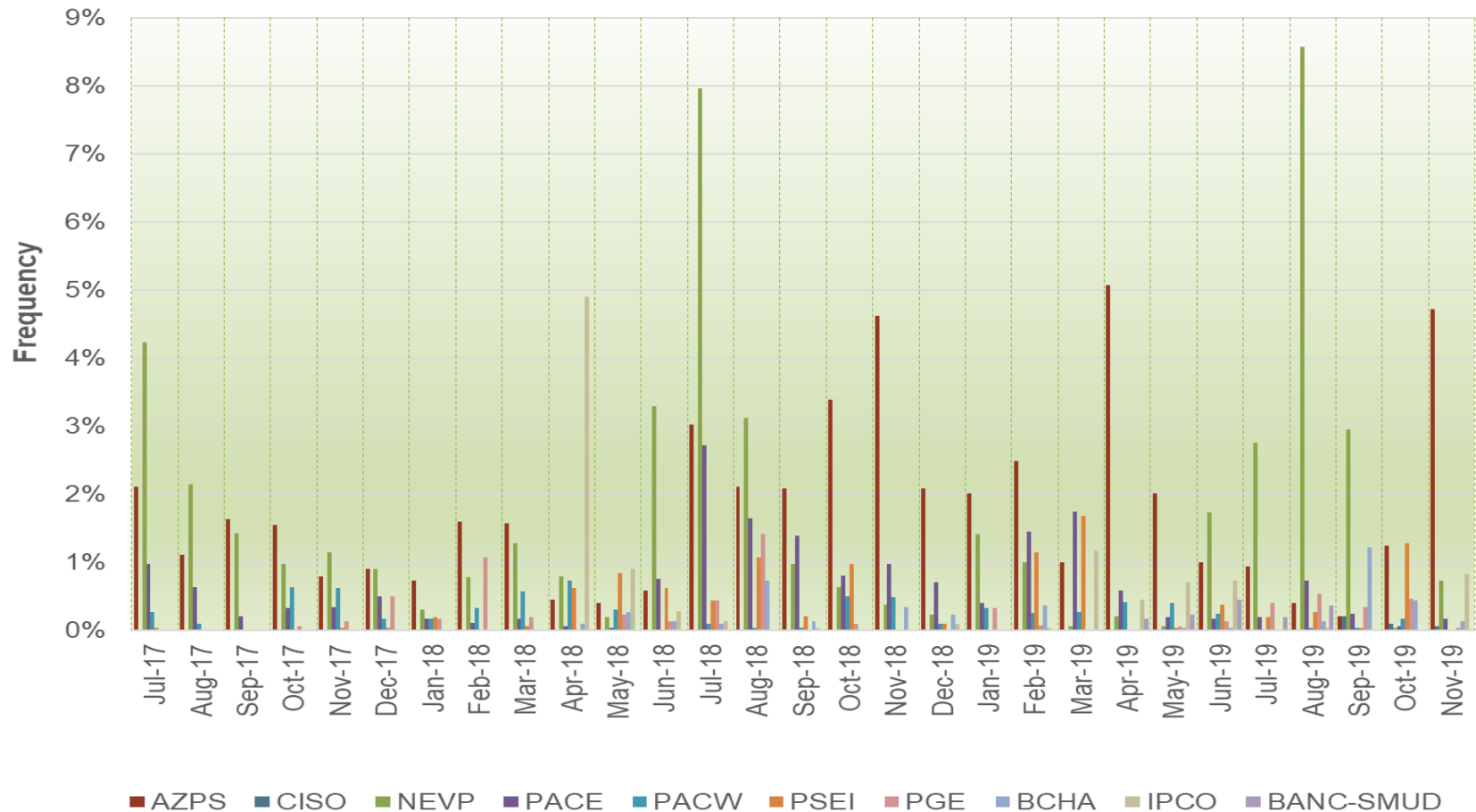


EIM-Related price correction events increased in October and November



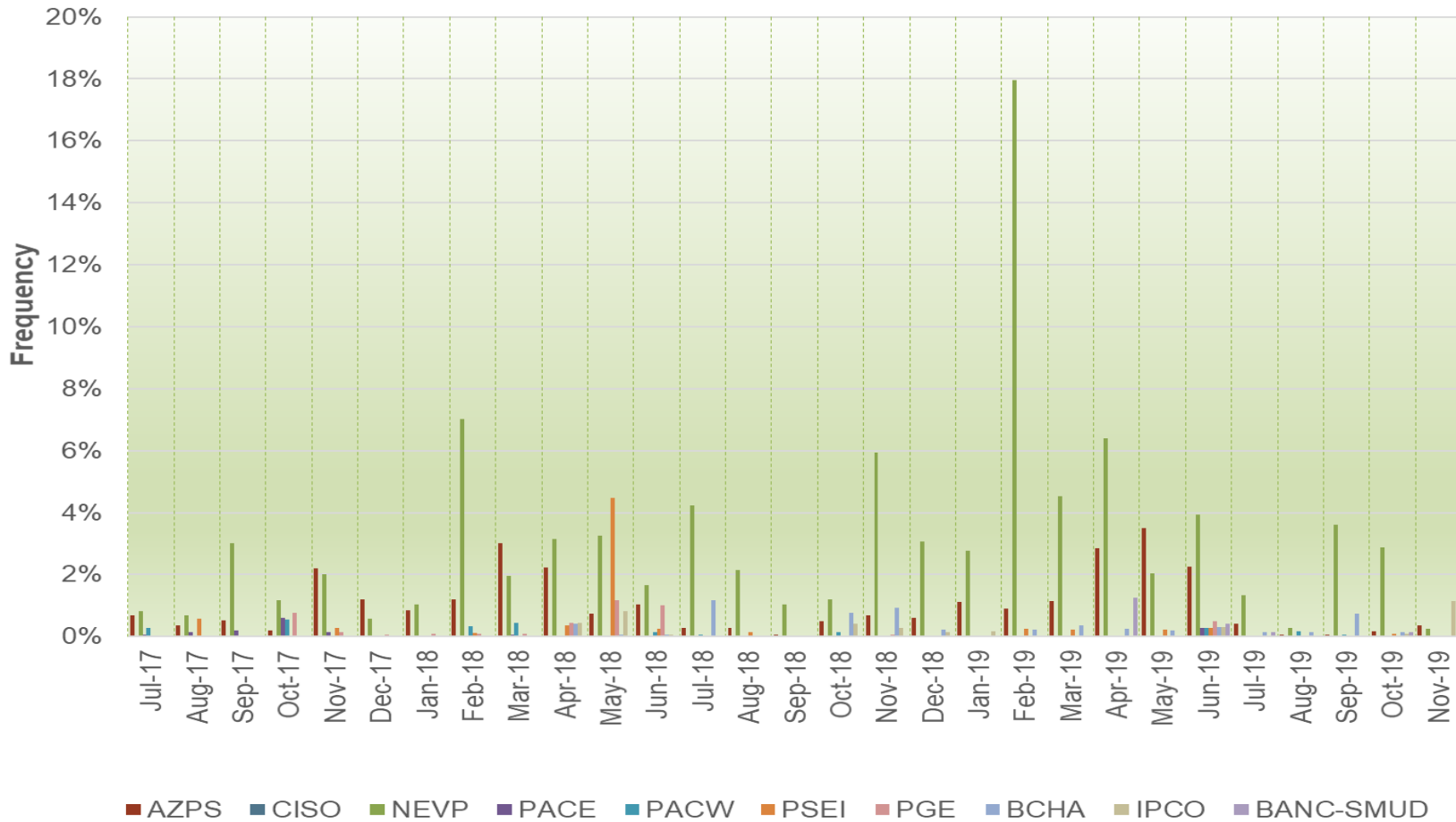
Flexible Ramp Up Sufficiency Test Results

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

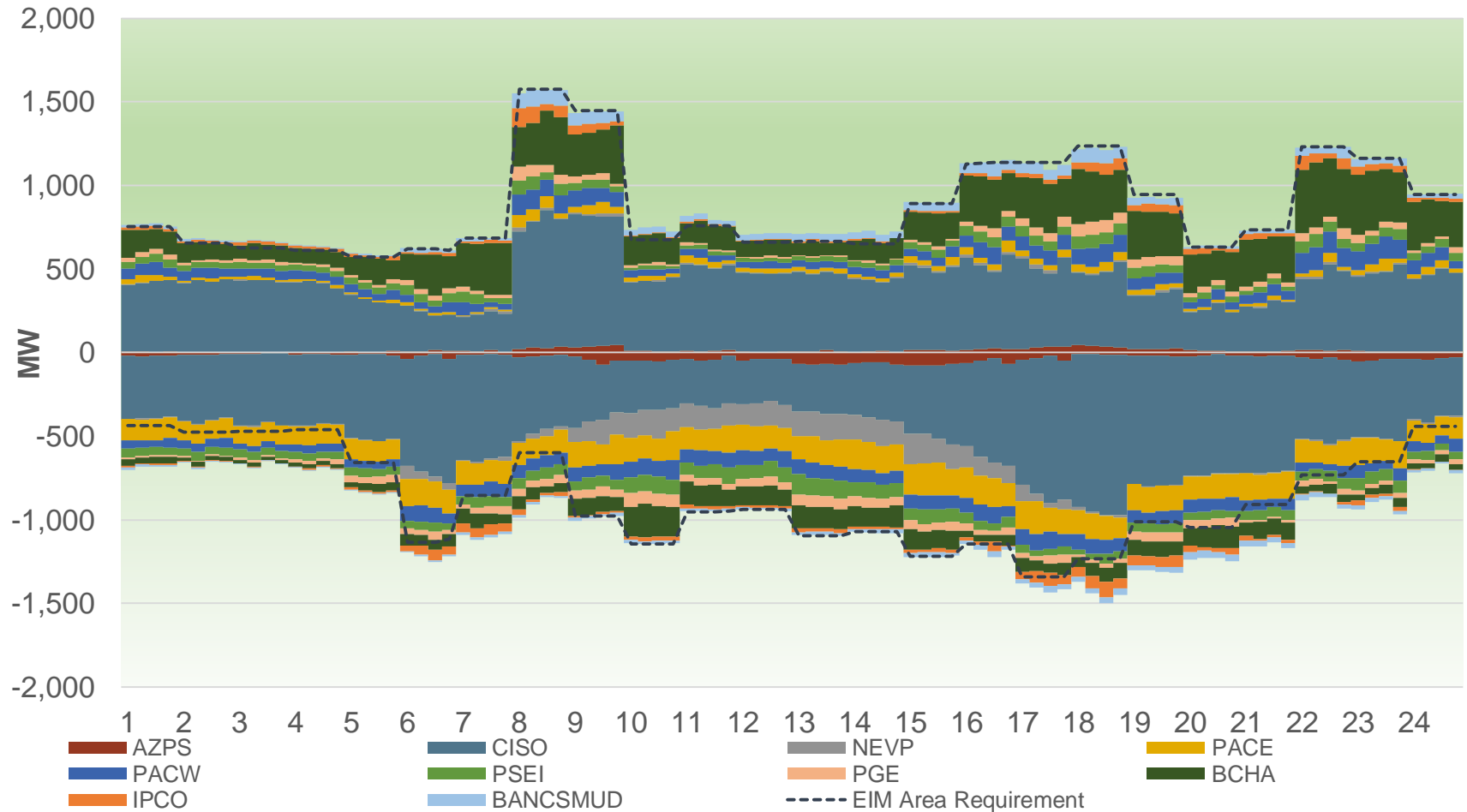


Flexible Ramp Down Sufficiency Test Results

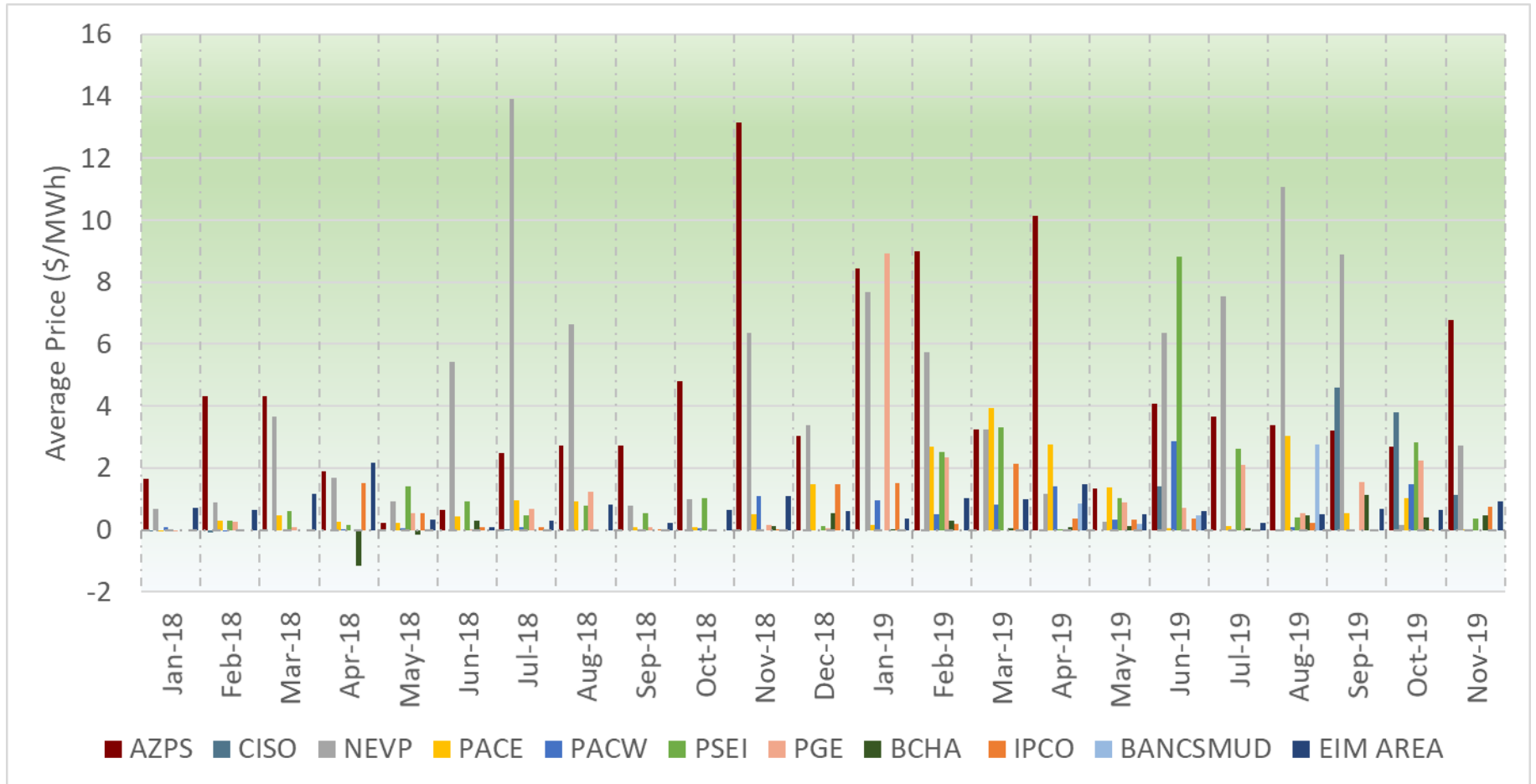
Most BAAs Fail Flex Down Test less than 2% of intervals



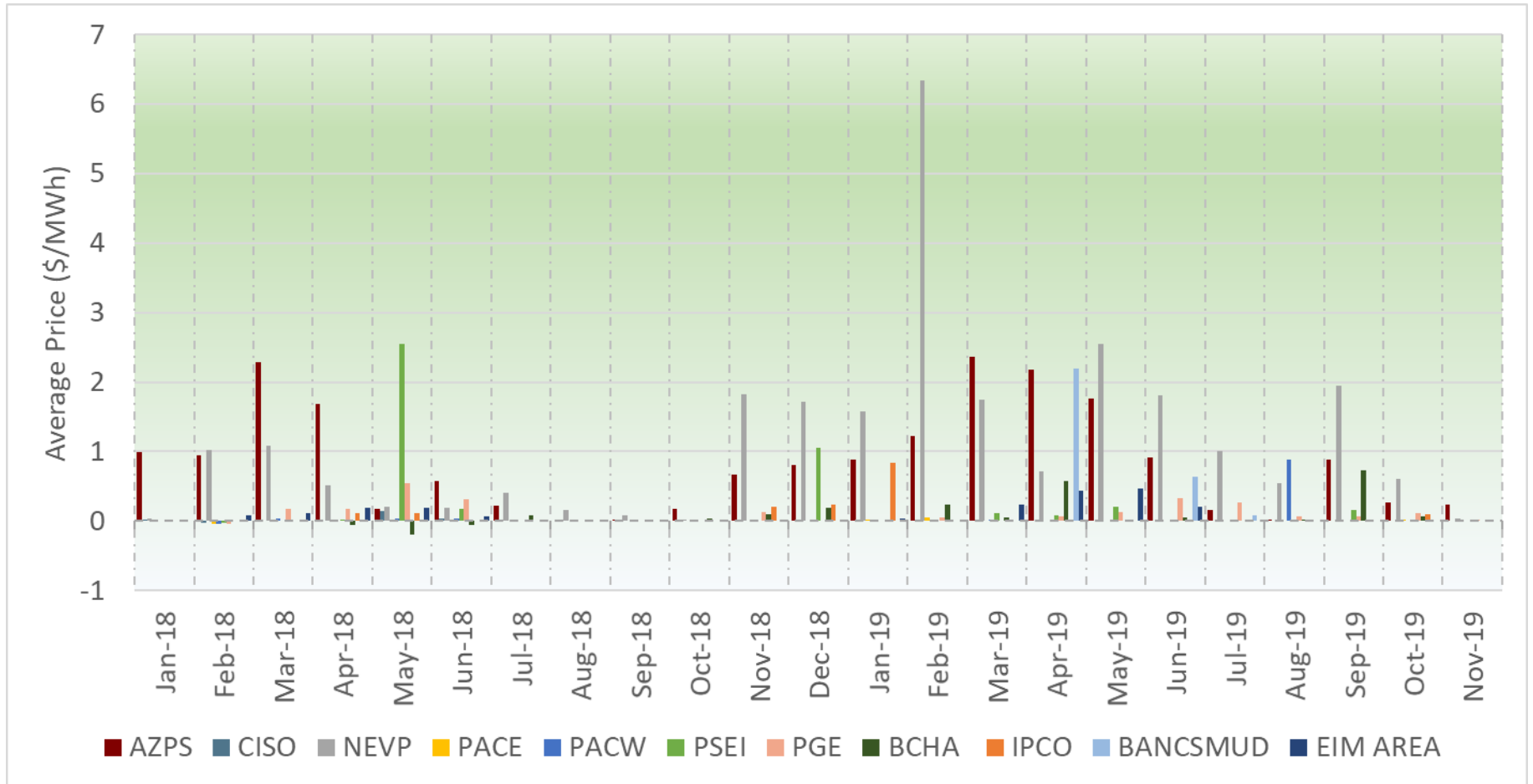
Average Flexible Ramp Product Cleared Awards for each area with EIM Area Requirement - Oct to Nov 2019



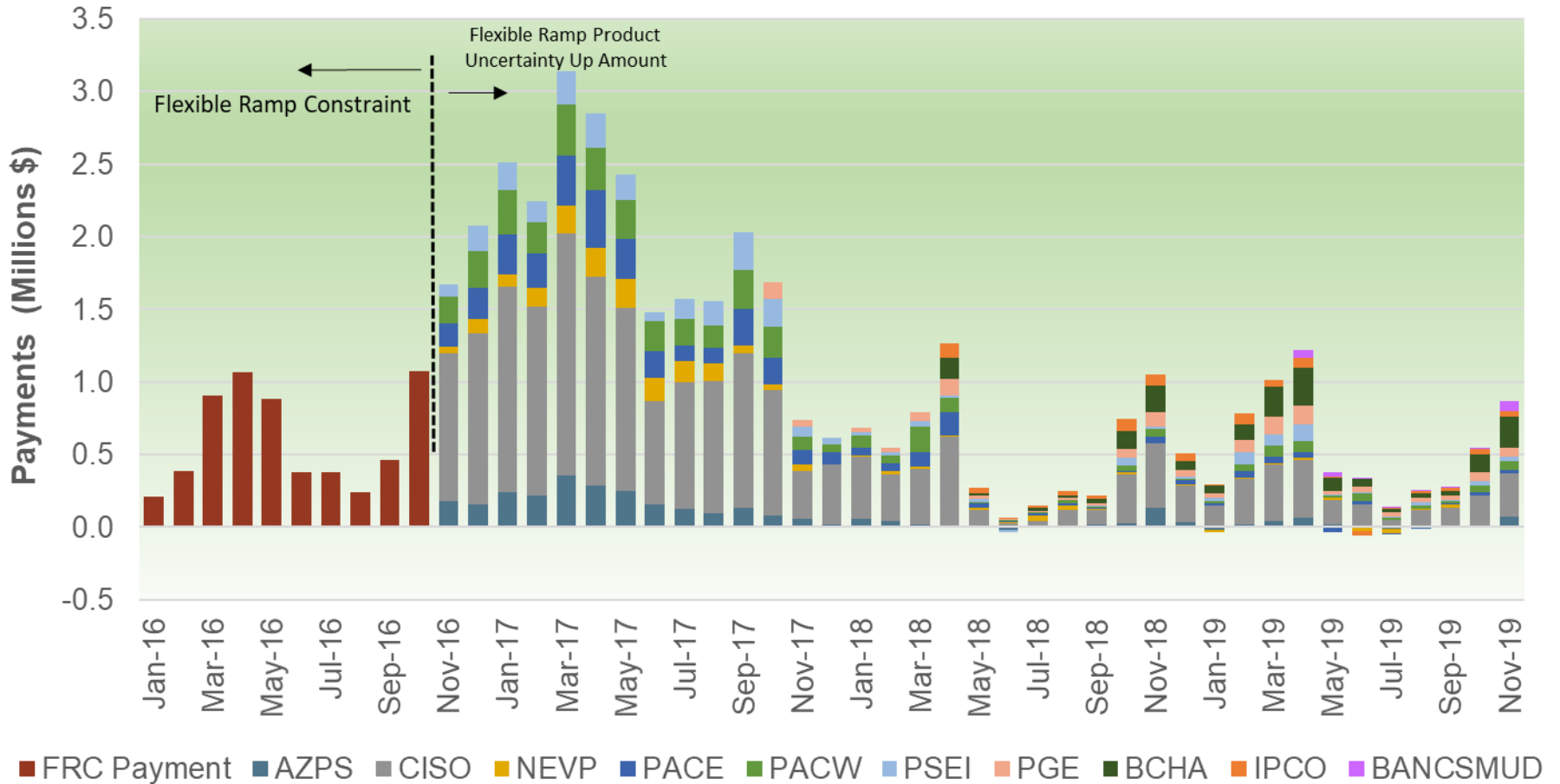
Average Flexible Ramp Up Price (\$/MWh)



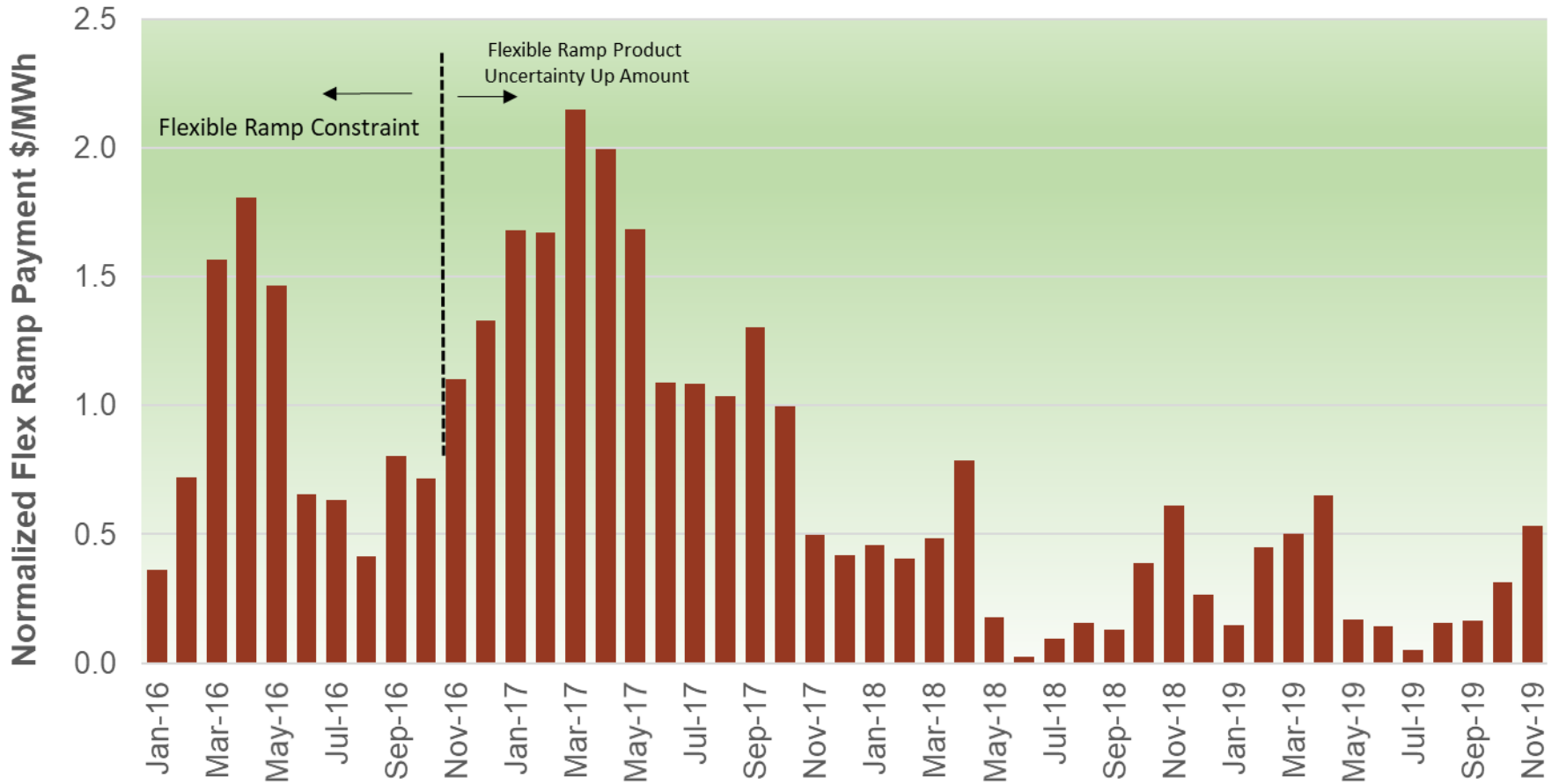
Average Flexible Ramp Down Price (\$/MWh)



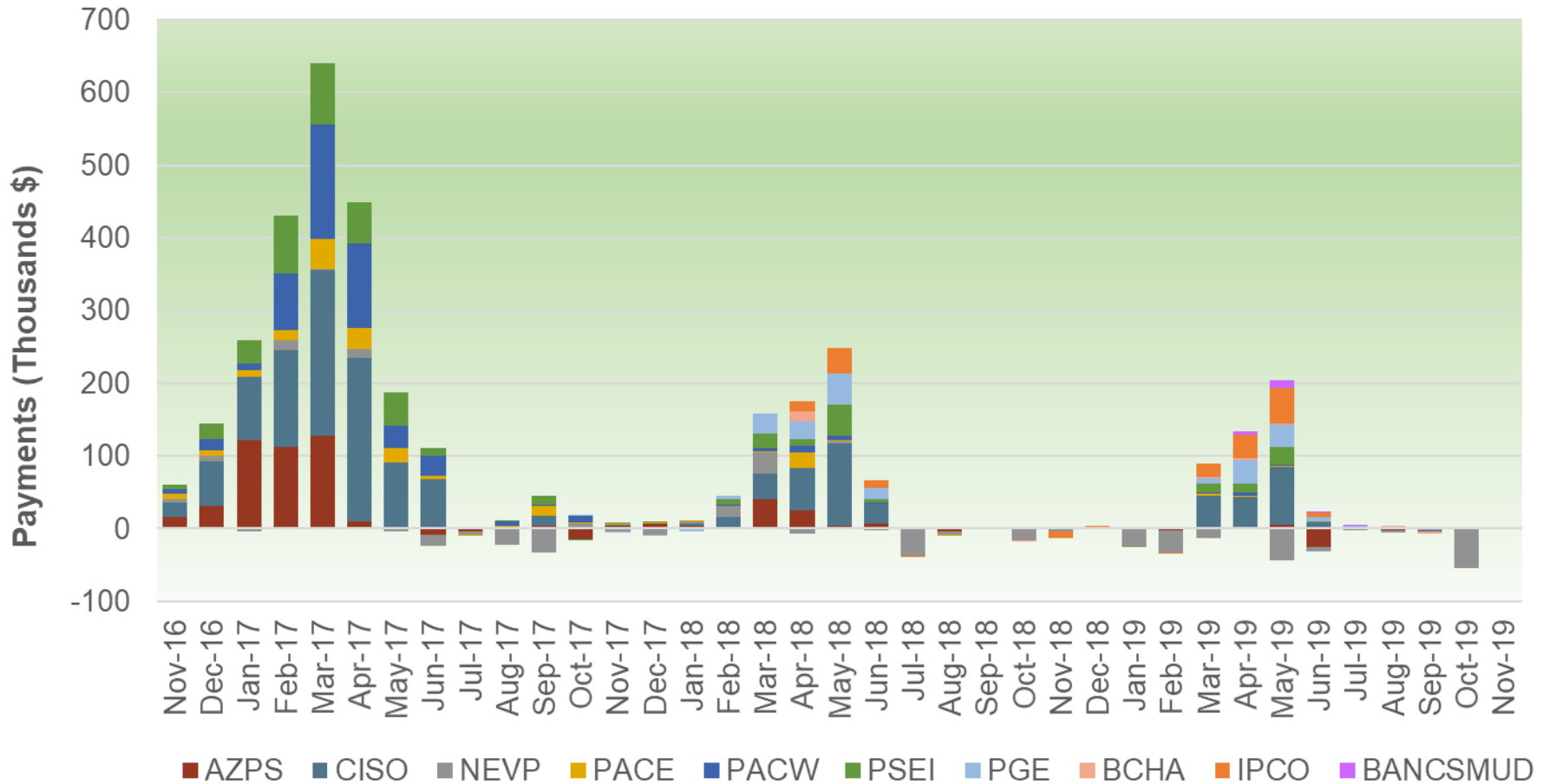
Uncertainty Up Settlement Amount



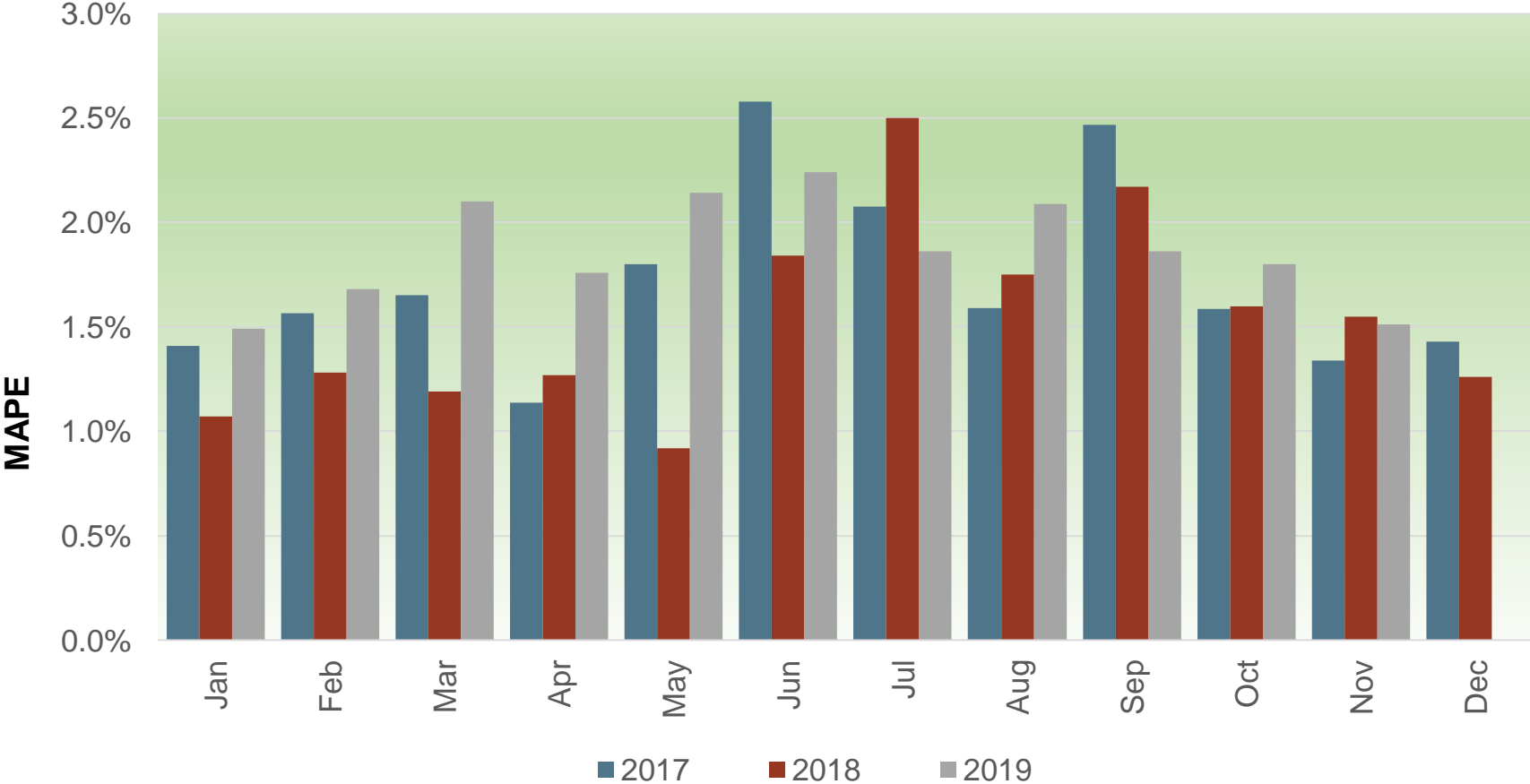
Normalized Flex Ramp Up Payment



Uncertainty Movement Down Settlement

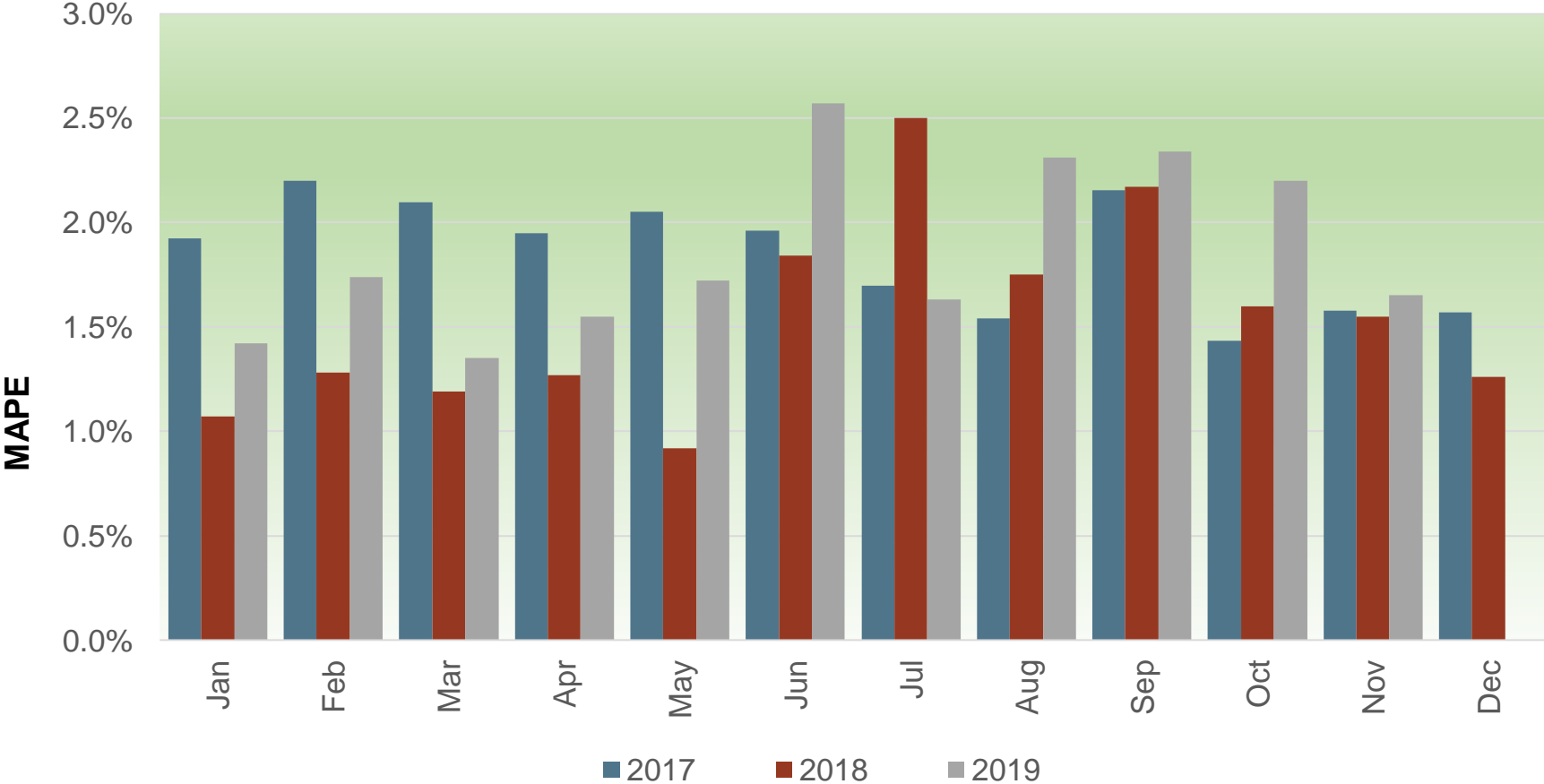


Day-ahead load forecast



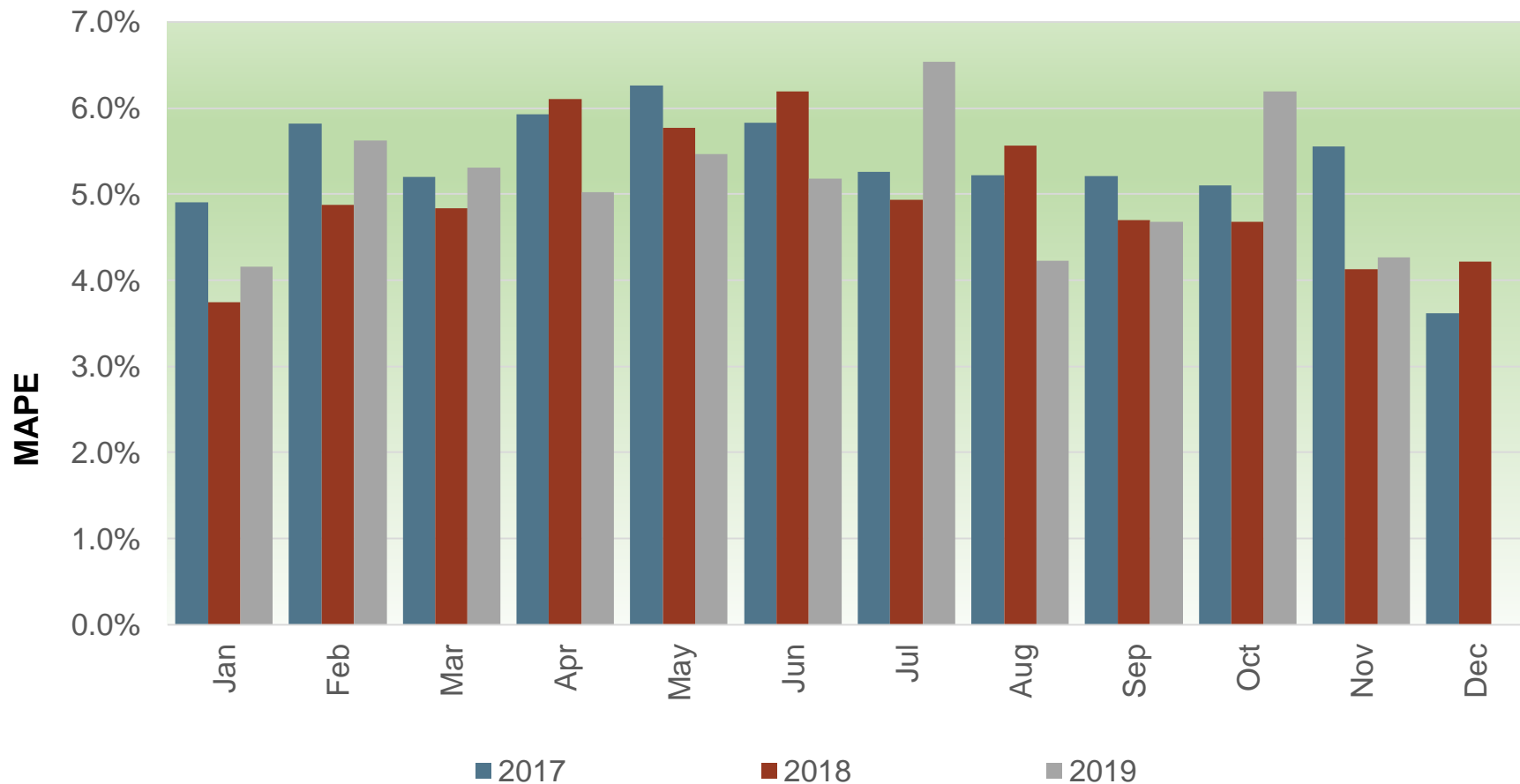
**MAPE = abs(Forecast - Actual)/Actual

Day-ahead peak to peak forecast accuracy



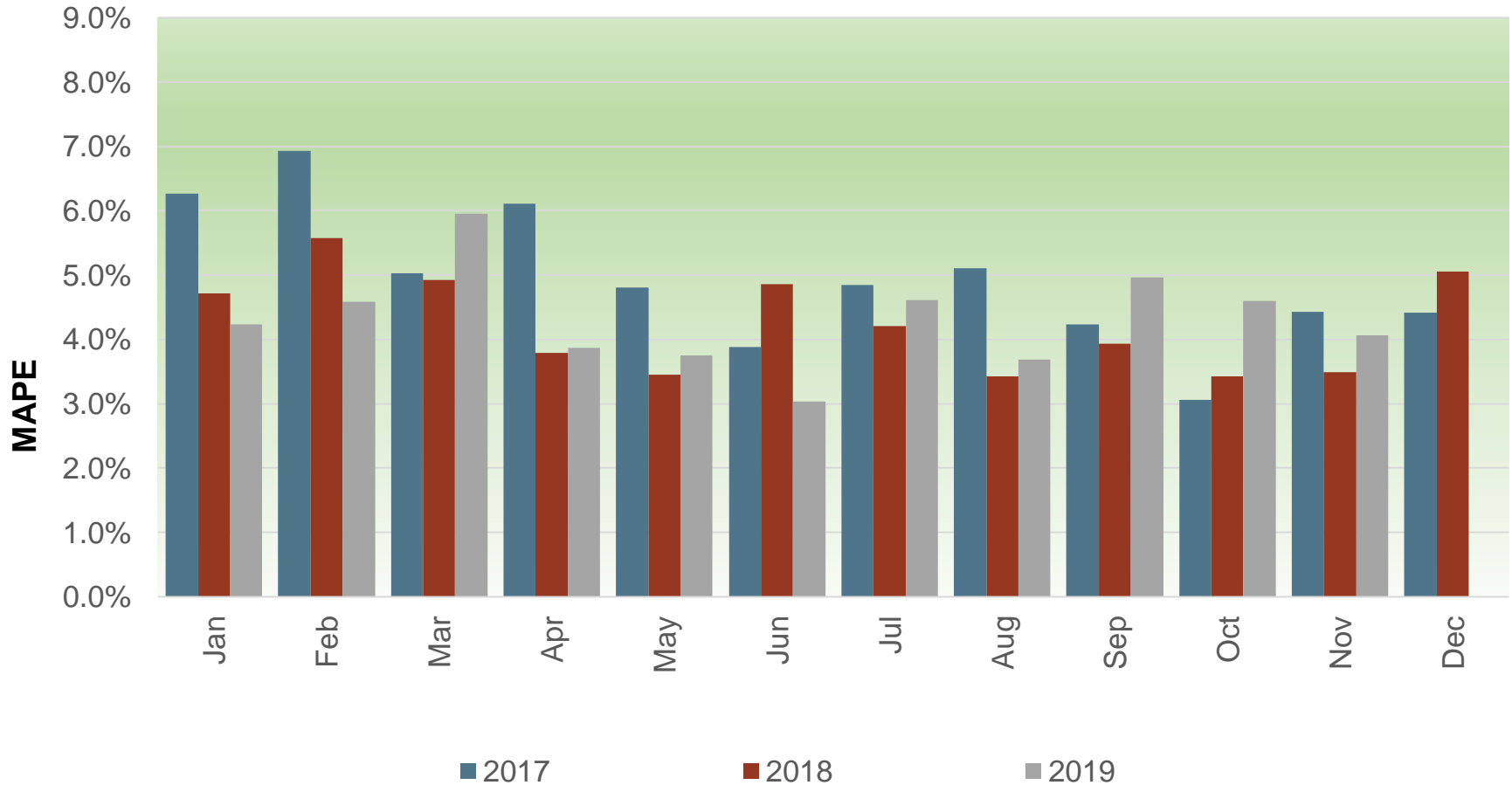
**MAPE = abs(Forecast - Actual)/Actual

Day-ahead wind forecast



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

Day-ahead solar forecast



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

Real-time wind forecast



The 2017 generation data used for accuracy calculation contains the economically dispatched MW.
 **This forecast accuracy is pulled directly from the CAISO Forecasting System.
 **MAPE = abs(Forecast - Actual)/Capacity

Real-time solar forecast



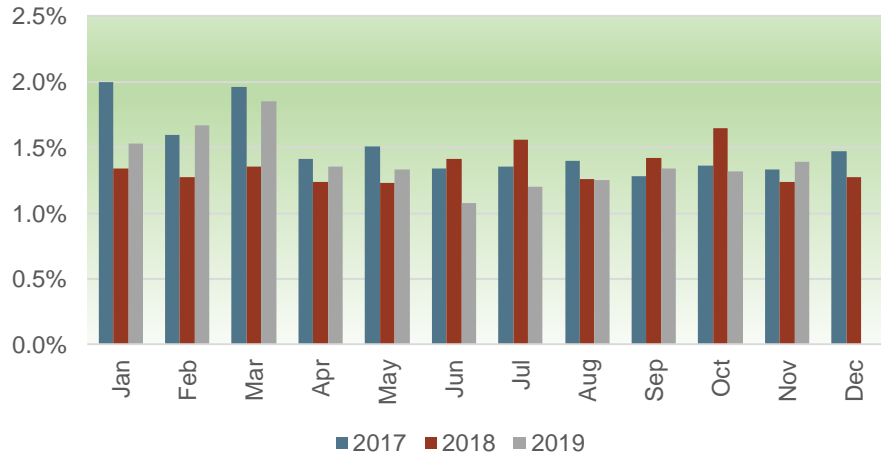
**2017 has been changed to track the RTD accuracy, i.e. the forecast made 7.5 minutes before the binding interval. The 2017 generation data used for accuracy calculation contains the economically dispatched MW.

**This forecast accuracy is pulled directly from the CAISO Forecasting System.

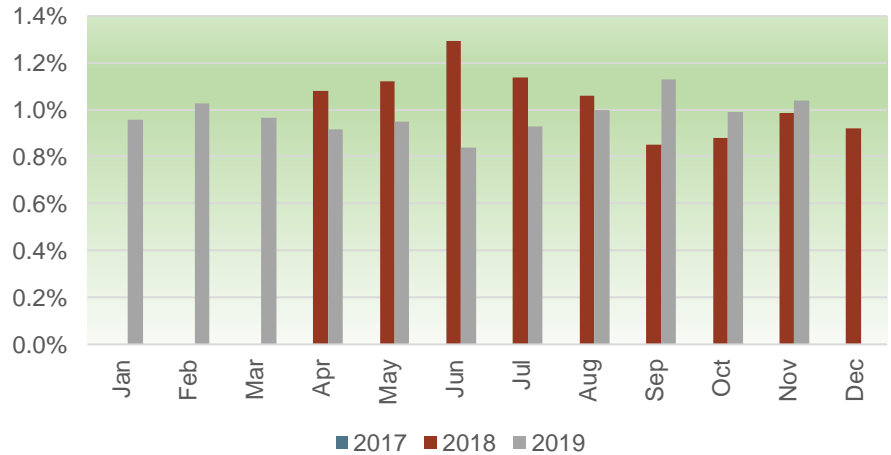
**MAPE = $\text{abs}(\text{Forecast} - \text{Actual}) / \text{Capacity}$

EIM T-60 Forecast

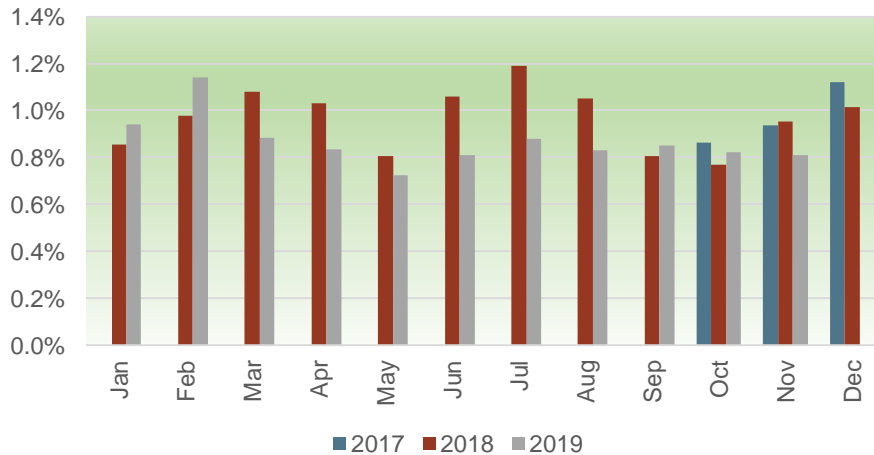
AZPS T-60 Forecast



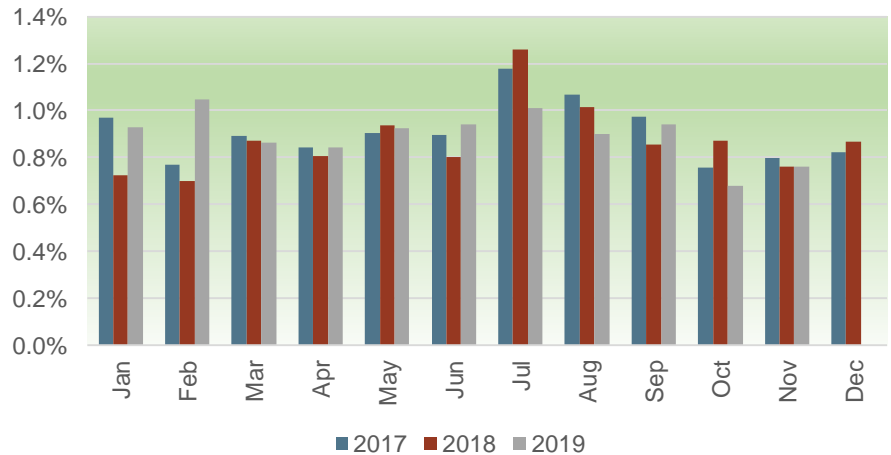
IPCO T-60 Forecast



PGE T-60 Forecast

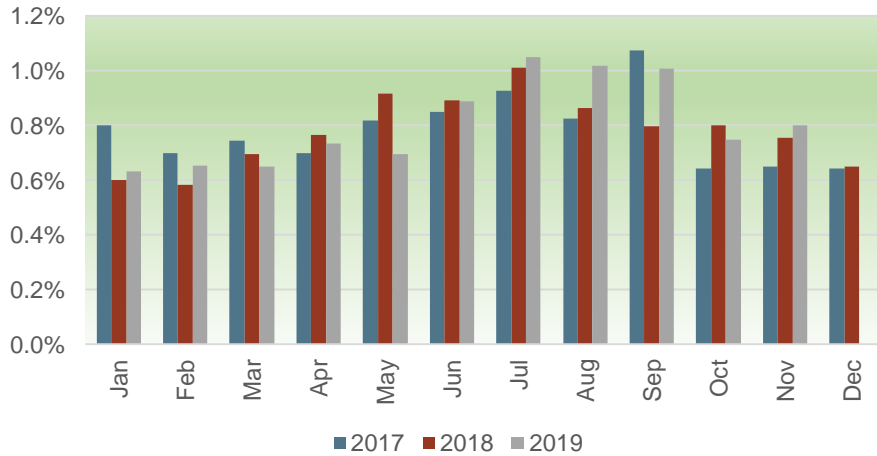


NVE T-60 Forecast

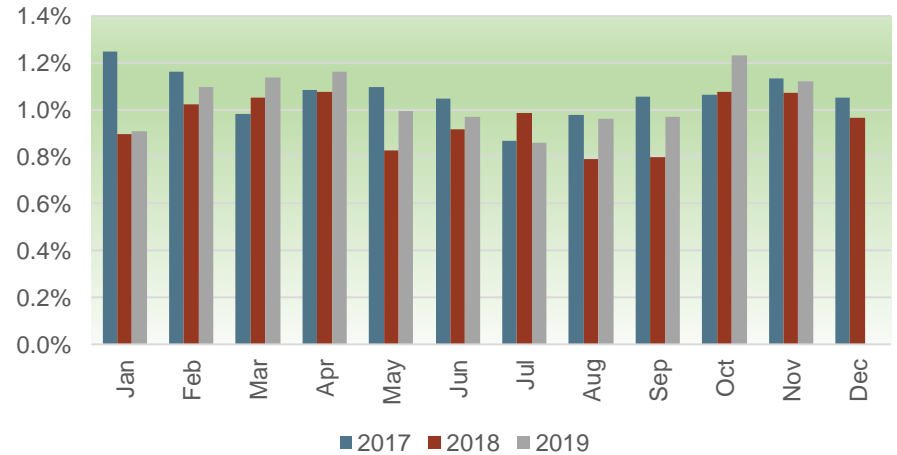


EIM T-60 Forecast

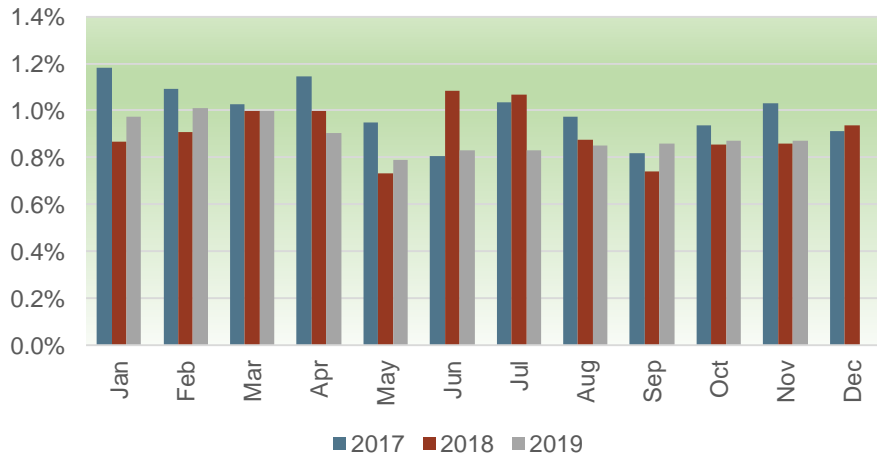
PACE T-60 Forecast



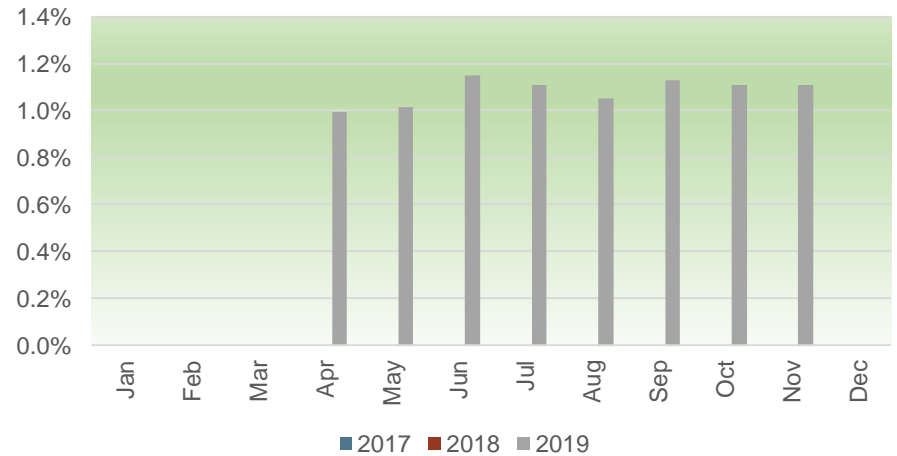
PACW T-60 Forecast



PSE T-60 Forecast



SMUD T-60 Forecast



October Load and Renewable Accuracy

- Impact of PSPS Events on Day Ahead Load Forecasting

	DA
2019-Oct	
With PSPS	2.64%
NO PSPS	1.80%

- In the month of October increased down-time coming from the renewable resource RIGs impacted renewable forecasting accuracy

Policy Update

John Goodin

Senior Manager, Infrastructure & Regulatory Policy

Brad Cooper

Senior Manager, Market Design Policy

Energy Storage and Distributed Energy Resources

– Phase 4

- Scope:
 - Enhancements to energy storage and distributed energy resource model and rules
- EIM Governing Body advisory role
- Status:
 - 2nd Revised straw proposal and stakeholder meeting schedule for Feb 2020
 - Held Stakeholder working group on storage DEB on Dec 3, 2019
 - ELCC DR study and further storage DEB development in upcoming straw proposals
 - Q3 2020 EIM Governing Body briefing and ISO Board decision

Hybrid Resources

- Scope: Explore how hybrid generation resources can be registered and configured to operate effectively within the ISO market.
- EIM Governing Body advisory role
- Status:
 - Revised straw proposal published on December 10
 - Stakeholder meeting on straw proposal December 17
 - Comment on revised straw proposal due January 14
 - Second revised straw proposal in March 2020
 - ISO Board decision Q2 2020

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.
- EIM Governing Body advisory role
- Status:
 - Straw proposal published December 2019
 - Draft final proposal published January 2020
 - ISO Board decision March 2020
 - Tariff changes filed @ FERC April 2020

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:
 - Stakeholder meeting held on Second RSP October 9; comments due 24
 - Third Revised Straw Proposal in December
 - ISO Board decision Q3/4 2020

Flexible Ramping Product Enhancements

- Scope:
 - Deliverability
 - Eligibility to provide
 - Ramp management between RTUC and RTD
- EIM Governing Body Role:
 - EIM Governing Body advisory role
- Status:
 - Issue proposal and stakeholder call November 2019
 - Comments due December 5
 - Straw proposal published January
 - Implementation Fall 2021

Day-Ahead Market Enhancements

- Scope:
 - Co-optimizing supply based on 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:
 - Revised straw proposal to be posted in January
 - 2021 EIM Governing Body briefing and ISO Board decision

Extended Day-Ahead Market

- Scope:
 - Extending day-ahead market to EIM entities
- EIM Governing Body Role:
 - EIM Governing Body Charter specifies role only for components that change real-time market rules
 - However, Management will request that the CAISO Board of Governors give the EIM Governing Body joint approval authority for entire initiative
- Status:
 - Stakeholder call on issue paper held October 17
 - Commence series of workshops in February 2020
 - 2021 EIM Governing Body briefing and ISO Board decision

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:
 - Stakeholder call on straw proposal held December 5
 - Comments due on December 19
 - May 2020 EIM Governing Body briefing and ISO Board decision

System Market Power Mitigation

- Scope:
 - Develop system-level market power mitigation processes for CAISO balancing authority area
- EIM Governing Body advisory role
- Status:
 - Stakeholder meeting on straw proposal on December 16
 - May 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
January 28	ISO Workshop - Introduction to ISO Markets (Folsom)
January 29	ISO Workshop - Market Transactions (Folsom)
January 30	ISO Workshop – ISO Settlements (Folsom)



CustomerTraining@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 2019/2020 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

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- CRR Data Transparency Enhancements

Spring 2020

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

Fall 2020

- Contingency Modeling Enhancements - Transmission
- 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 (BOG Nov 2019)
- EIM Enhancements 2020
- Import Bidding and Market Parameters, (A.K.A. Import Bid Cost Verification and FERC Order 831) – June 2020 BOG
- Automated Dispatch System (ADS) User Interface (UI) Replacement

Release Plan Summary: 2021 - 2022

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 Q4 2020)
- RA Enhancements (BOG May/June 2020)
- Energy Storage and Distributed Energy Resources Phase 4 (BOG Q1 2020)
- Storage as a Transmission Facility (BOG TBD)
- TAC Structure Enhancements (Q4 - BOG)

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

Release Schedule 2019-2020

Date of Data Refresh: 12/3/2019



California ISO

Legend	
Market Simulation	CA ISO Holiday
External Testing	Deployment Week

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

EIM - Salt River Project - Market Sim	EIM - Salt River Project - Market Sim (12/03-01/31)	
EIM - Seattle City Light - Market Sim	EIM - Seattle City Light - Market Sim (12/03-01/31)	
MRI-S API Acceptable Use Policy - Market Sim (TBD)	MRI-S API Acceptable Use Policy (TBD)	
CRR Data Transparency Enhancements - Market Sim (TBD)	CRR Data Transparency Enhancements - Market Sim (TBD)	
API Standardization of Time Format - Market Sim		API Standardization of Time Format - Market Sim (07/27-09/04)
Contingency Modeling Enhancements -Transmission - Market Sim		Contingency Modeling Enhancements -Transmission - Market Sim (07/27-09/04)
ESDER Phase 3b - Load Shift Product - Market Sim		ESDER Phase 3b - Load Shift Product - Market Sim (07/27-09/04)
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)
Import Bidding & Market Parameters - Market Sim		Import Bidding & Market Parameters - Market Sim (07/27-09/04)
ADS Replacement - Market Sim		ADS Replacement - Market Sim (07/27-09/04)

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

FERC 841 Effective Date	FERC 841 Effective Date (12/03)
EIM Enhancements 2019 - BSAP (TBD)	EIM Enhancements 2019 - BSAP (TBD)
RMR/CPM Effective Date	RMR/CPM Effective Date (01/01)
MRI-S API Acceptable Use Policy (TBD)	MRI-S API Acceptable Use Policy (TBD)
CRR Data Transparency Enhancements (TBD)	CRR Data Transparency Enhancements (TBD)
EIM - Salt River Project	EIM - Salt River Project (04/01)
EIM - Seattle City Light	EIM - Seattle City Light (04/01)
CCDEBE Phase 1 (TBD)	CCDEBE Phase 1 (TBD)
Settlements - Spring 2020 Release	Settlements - Spring 2020 Release (05/01)
API Standardization of Time Format	API Standardization of Time Format (10/01)
Contingency Modeling Enhancements -Transmission	Contingency Modeling Enhancements -Transmission (10/01)
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	Excess Behind the Meter Production (10/01)
EIM Enhancements 2020	EIM Enhancements 2020 (10/01)
Import Bidding & Market Parameters	Import Bidding & Market Parameters (10/01)
ADS Replacement	ADS Replacement (10/01)
Market Settlement Timeline Transformation (TBD)	Market Settlement Timeline Transformation (TBD)

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

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	2020	13.2
SIBR	CCDEBE1	Modify	RetrieveCurrentBidResults_SIBRv5 RetrieveCurrentBidResults_SIBRv5_DocAttach	Oct 16, 2019	2020	13.2
SIBR	CCDEBE1	Modify	SubmitRawBidSet_SIBRv5 SubmitRawBidSet_SIBRv5_DocAttach	Oct 16, 2019	2020	13.2
BSAP	EIM2019	Modify	RetrieveBalancingTestResults_BSAPv2 RetrieveBalancingTestResults_BSAPv2_DocAttach	Oct 16, 2019	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 - 2020	3.9.3
CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Commitment Costs	RetrieveExternalDefaultCommitmentCost_CMRIv1 RetrieveExternalDefaultCommitmentCost_CMRIv1_DocAttach	Nov 11, 2019	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	TBD	2.3

OASIS

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
CRR Data Transparency Enhancements	TBD	TBD	TBD	TBD	TBD	TBD – publish 12/13

DRRS

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
N/A – Incremental Data Retrieve	New	TBD	TBD	TBD	TBD	TBD

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 response timeline

- CAISO responded to FERC deficiency letter 22-Nov, per RUG update on Tuesday 19-Nov
- FERC has up to 60 days to respond with a decision
- CCDEBE's revised implementation date is estimated to be approximately +3 months from the date of FERC's response
- CAISO continuing to resolve Known Issues for SIBR
- Market Simulation unstructured testing for original 12/4 scope ended 26 November
- Participants leveraging existing scheduled EIM Settlements Statement run dates to validate results

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 (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	File Tariff - CCDEBE Phase 1	Oct 11, 2019	✓
	Draft Tariff published	May 13, 2019	✓
	Tariff stakeholder walkthrough conference call	Jun 11, 2019	✓
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	April 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
External BRS	Publish external BRS v1.0	Nov 12, 2019	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications - OASIS	Dec 13, 2019	
Tariff	Tariff	N/A	
BPMs	BPM: Market Instruments	TBD	
	BPM: Congestion Revenue Rights	TBD	
External Training	External Training	TBD	
Market Sim	Market Sim Window	TBD - January	
Production Activation	CRR Transparency Enhancements	TBD - February	

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	Mar 1, 2020	
Production Activation	EIM – SCL and SRP	Apr 1, 2020	

2020 Fall Release

Fall 2020 Release – Overview

	External BRS	Config Guide	Tech Spec	Mkt Sim Scenarios	Draft Tariff*	BPMs	External 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
Contingency Modeling Enhancements - Transmission								Jul 27, 2020 – Sep 4, 2020	10/01/20
ESDER Phase 3b - Load Shift Product	07/18/19	05/29/20	03/31/20		03/30/20	05/27/20	06/22/20	Jul 27, 2020 – Sep 4, 2020	10/01/20
Dispatch Operating Target Tariff Clarification	12/26/18				09/04/18			Jul 27, 2020 – Sep 4, 2020	10/01/20
Intertie Deviation Settlement								Jul 27, 2020 – Sep 4, 2020	10/01/20
Excess Behind the Meter Production								Jul 27, 2020 – Sep 4, 2020	10/01/20
Market Settlement Timeline Transformation	02/05/20	05/29/20	05/29/20		06/26/20	07/20/20	07/20/20	Jul 27, 2020 – Sep 4, 2020	<i>TBD</i>
EIM Enhancements 2020								Jul 27, 2020 – Sep 4, 2020	10/01/20
Import Bidding and Market Parameters								Jul 27, 2020 – Sep 4, 2020	10/01/20
ADS UI Replacement	08/06/18							Jul 27, 2020 – Sep 4, 2020	10/01/20

Fall 2020 Release – System Impacts

Fall 2020 Release	ADS	CMRI	IFM / RTM	OASIS	OMS	Settlements	FODD	MF	DRRS	CIRA	MRI-S Metering	MRI-S Settlements	CIDI	Monthly Report [®] www.caiso.com	BAAOP	BSAP
CME-T	Y	Y	Y	Y	Y	Y	Y									
ESDER3B	Y							Y	Y	Y						
DOTTC	Y		RTM													
IDS	Y					Y										
EBtMP						Y	Y				Y			Y		
Market Settlement Timeline Transformation		Y		Y						Y	Y	Y	Y			
EIM2020		Y	RTM	Y											Y	Y
Import Bidding and Market Parameters (TBD)																
ADS UI Replacement	Y															

Fall 2020 Release – BPM Impacts

	Market Instruments	Market Operations	Settlements & Billing	Definitions & Acronyms	Outage Management	Reliability Requirement	Metering	Credit Management & Market Clearing	Energy Imbalance Market	Rules of Conduct Administration
Fall 2020 Release										
Contingency Modeling Enhancements – Transmission	Y	Y	Y	Y	Potential	Potential				
ESDER Phase 3b - Load Shift Product	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
EIM Enhancements 2020	Y									
Import Bidding and Market Parameters (TBD)										
ADS UI Replacement	Y	Y								

Fall 2020 – Contingency Modeling Enhancements - Transmission

Project Info	Details/Date
Application Software Changes	<p>Scope:</p> <ul style="list-style-type: none">Resolve temporal transmission system reliability constraints in the market:<ul style="list-style-type: none">Improve economic dispatchReduce reliance on ED and MOC constraintsAppropriately value capacity needed to resolve actual transmission system reliability constraintsIntroduces the preventive-corrective constraint for use in the marketPositions available resources so that the ISO has sufficient capability to respond to contingency events and return facilities to normal ratings within the emergency rating time frameEnhances the LMP formulation to provide market price signal related to this reliability constraintCreates a Locational Marginal Capacity Price (LMCP) which reflects:<ul style="list-style-type: none">A resource's opportunity costsMarginal congestion cost savings, and/orThe marginal capacity value to follow dispatchPays resource for reserving the capacity at the LMCPResource paid for Out-Of-Merit (OOM) dispatch to reserve corrective capacity <p>Impacted Systems:</p> <p>ADS: Modified to display corrective capacity awards similar to AS.</p> <p>CMRI: New or modified reports to display LMCP prices and awards</p> <p>IFM/RTM:</p> <ul style="list-style-type: none">Model preventive-corrective constraint for use in the market, and newModel new capacity awards and Locational Marginal Capacity Price (LMCP).Market App implement validation and exceptions to support Market Validation ToolsUpdate IFM/RTM MPM rules for new corrective capacity commodity market. <p>OASIS: New or modified reports to display LMCP prices and awards</p> <p>OMS: Potential Impact</p> <p>Settlements:</p> <ul style="list-style-type: none">New or modified DA and RT charge code(s)/pre-calcs to pay for awarded corrective capacity at LMCP.Modify DA and RT BCR charge code(s)/pre-calcs to include revenue received from corrective capacity awards at LMCP.Potential No-Pay changes and charge code(s)/pre-calcs.Potential; changes to Neutrality charge code(s).Potential inclusion of performance metrics to support Settlements application.Change CRR settlements charge code(s)/pre-calcs. <p>FODD: Report new prices and awards to FERC.</p>

Fall 2020 – Contingency Modeling Enhancements – Transmission (cont)

Project Info	Details/Date
BPM Changes	Market Instruments (Include CMRI & OASIS changes) Market Operations Settlements & Billing Definitions & Acronyms (New commodity for Corrective Capacity) Outage (Potential) Reliability Requirement (Potential)
Tariff Change	Section 27.1 CAISO Markets And Processes

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">• Allow two resource IDs to be selected for registrations with LSR baseline methods• New baseline methods for PDR-LSRs and EVSEs• New attribute for locations to indicate BTM device <p>CIRA:</p> <ul style="list-style-type: none">• Will prevent the request of NQC for PDR-LSR Consumption resources

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 and Metering
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	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	Mar 31, 2020	
Tariff	Post Draft Tariff	Mar 30, 2020	
	File Tariff	Jun 11, 2020	
BPMs	Post Draft BPM changes	May 27, 2020	
External Training	External training	Jun 22, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	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	Jul 20, 2020	
External Training	Deliver External Training	Jul 20, 2020	
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 11.31

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: <ul style="list-style-type: none"> • Is the instantaneous amount of energy that is delivered to Loads and Scheduling Points by generation, transmission or distribution facilities, and • Should not be net of excess behind the meter production. • Establish a new tariff definition for EBtMP: <ul style="list-style-type: none"> • Energy from an End-Use Customer in excess of its onsite Demand. • Establish how EBtMP will be reported and settled: <ul style="list-style-type: none"> • EBtMP will be paid the locational price where it is reported. • EBtMP will not be 'grossed up' to include losses. • EBtMP will use the same resource ID as load. • Determination for Unaccounted For Energy will also need to be updated: <ul style="list-style-type: none"> • $UFE\ QUANTITY = GENERATION\ METER + INTERTIE\ IMPORT\ METER - ((GROSS\ LOAD\ METER - EXCESS\ BTM\ PRODUCTION\ METER) + EXPORT\ INTERTIE\ METER + RTD\ LOSS\ MW)$. • Applying both loss factors associated with the losses (Distribution Loss Factor DLF) from the transmission-distribution interface and the avoided losses from excess behind the meter production: <ul style="list-style-type: none"> • $Gross\ Load\ (with\ Gross\ Up) = (Gross\ Load * (1 + DLF)) - (EBtMP * DLF)$. • Report Gross Load (with Gross Up) and EBtMP under same load resource ID for the DLAP or CLAP, using channel 1 for EBtMP, channel 4 for Gross Load. • Publish the EBtMP every other month.

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

Project Info	Details/Date
Application Software Changes (cont.)	<p><u>Impacted Systems:</u></p> <p>Settlement - Recognize EBtMP as a measurement type</p> <ul style="list-style-type: none"> • Associated resource ID, meter data for EBtMP, and Gross Load • Settle net of gross load and EBtMP as the measured demand • No change for MSS • Modify Calculation UFE: <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) • Modify follow charge codes to settle based on Gross Load (Reliability based charge codes) <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 • 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

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

Project Info	Details/Date
Application Software Changes (cont.)	<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"> • Add new measurement type: EBtMP • New measurement type: EBtMP will be used for EBtMP • Measurement type:Load will be used for Gross Load (gross-up) • Meter submission UI and API will accept the new measurement type: EBtMP • Publish gross load data and EBtMP to ALFS • The SC will be submitting the data as two separate measurement type • Identify data volume handling for all Settlement systems, ALFS <p>Monthly report at www.caiso.com</p> <ul style="list-style-type: none"> • Access gross load and EBtMP through settlement database • Publish aggregated EBtMP every other Month under Market Report <p>FODD</p> <ul style="list-style-type: none"> • Report to FERC data include Gross load and EBtMP
BPM Changes	<p>Definitions & Acronyms:</p> <ul style="list-style-type: none"> • Update definition of Gross Load • Add Excess Behind the Meter Production <p>Metering</p> <p>Settlements & Billing</p>
Tariff Change	<p>Appendix A :</p> <ul style="list-style-type: none"> • Clarify Gross Load definition, Update Demand definitions, • Add new term Excess Behind the Meter production <p>Section 11:</p> <p>Update reliability based tariff reference sections to be based upon gross load</p>

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: The settlements calendar will need to be modified and scripts modified to accommodate the changes.</p> <p>CIRA: Data payload timing modification: RAAIM Outage curtailment – DA, RT, T+9 & T+ 67 run</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. <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.

Fall 2020 – Market Settlement Timeline Transformation

Project Info (cont.)	Details/Date
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 (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 14, 2019	✓
External BRS	Post External BRS	Feb 05, 2020	
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	May 29, 2020	
Tariff	File 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 Transformation	TBD	

Fall 2020 – Market Settlement Timeline Transformation (cont.)

Options

- Option 1: Trade Date Specific Cutover

TRADE DATES	3B	9B	12B	55B	70B	9M	11M	18M	21M	24M	33M	36M
12/1/2020-forward												
11/30/2017 - 11/30/2020												

- Option 2: Hybrid Trade Date Cutover

TRADE DATES	3B	9B	12B	55B	70B	9M	11M	18M	21M	24M	33M	36M
12/1/2020-forward												
10/1/2020 - 11/30/2020												
3/1/2020- 9/30/2020												
6/1/2019 - 2/28/2020												
11/1/2017 - 5/31/2019												

Option 1: Trade Date Specific Cutover

- **Benefits:**
 - Straight forward (clean cut) transition
- **Challenges:**
 - Transition completes in end of year 2023
 - Overlap processing and publication timeline (old and new)
 - 3 years data storage required

Option 2: Hybrid Trade Date Cutover

- **Benefits:**

- Transition to the new and improved timeline sooner
- Maintain two timelines for 2 years rather than 3 years (completes in mid-year 2022)
- Fewer statements to be downloaded, validated, and processed.
- Resolve disputes and issues sooner (will not have to wait for the T+33).
- Total number of statements will be reduced
- Reduction of data storage to 2 years instead of 3 years

- **Challenges:**

- Will have to pay close attention to the payment calendar. Not as straight forward when the next statement will be posted.

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 – Import Bidding and Market Parameters

Project Info	Details/Date
Application Software Changes	<u>Scope:</u> TBD <u>Impacted Systems:</u> TBD
BPM Changes	TBD
Tariff Change	TBD

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 - TBD.
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	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ADS Replacement	Oct 01, 2020	
Production	ADS Parallel Operations	TBD	
Decommission	Old ADS Decommission	TBD	

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

Next year, these meetings will be held in-person and via webinar on a quarterly basis or as needed. The 2020 schedule is as follows:

- *Monday, March 9*
- *Thursday, June 25*
- *Wednesday, September 9*
- *Tuesday, December 15*

A market notice with additional details will be issued soon. 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.