



# Release User Group Agenda

May 7<sup>th</sup>, 2019

10:00 a.m.–11:00 a.m. (Pacific Time)

Web Conference Information	Conference Call Information
<p>Web Address: <a href="https://caiso.webex.com/meet/RUG">https://caiso.webex.com/meet/RUG</a> Meeting Number: 960 941 245</p> <p>Audio connection instructions will be available after connecting to the web conference. When prompted, select "Call me" and enter the phone number you will use during the call. You will be called by the conference shortly.</p>	<p>Dial-in Number: 866-528-2256 International Dial-in: 216-706-7052 Access Code: 291 426 5</p>
<p>Calls and webinars are recorded for stakeholder convenience, allowing those who are unable to attend to listen to the recordings after the meetings. The recordings will be publicly available on the ISO web page for a limited time following the meetings. The recordings, and any related transcriptions, should not be reprinted without the ISO's permission.</p>	

# Release User Group Agenda

May 7<sup>th</sup>, 2019

10:00 a.m. – 11:00 a.m. (Pacific Time)

<b>Time</b>	<b>Topic</b>	<b>Facilitator</b>
10:00 – 10:05	Agenda & ISO Roll call	Adrian Chiosea
10:05 – 10:45	Release Plan	Trang Deluca Cynthia Hinman Christopher McIntosh Jeremy Malekos Janet Morris

# The ISO offers innovative training programs

Date	Training courses and workshops
July 18	Welcome to the ISO webinar
July 30	Introduction to ISO Markets Workshop (ISO Headquarters)
July 31	Market Transactions Workshop (ISO Headquarters)
Aug 1	ISO Settlements



CustomerTraining@caiso.com

Computer Based Training	
There are 30 computer based training modules on the ISO website covering:	
<ul style="list-style-type: none"> <li>Markets and Operations</li> </ul>	<ul style="list-style-type: none"> <li>Settlements and Metering (<i>two new CBTs for Energy Settlements Validation and Commitment Costs</i>)</li> </ul>
<ul style="list-style-type: none"> <li>Congestion Revenue Rights</li> </ul>	<ul style="list-style-type: none"> <li>Western Imbalance Energy Market</li> </ul>
<ul style="list-style-type: none"> <li>Reference Materials</li> </ul>	

## 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 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: 2019

## Fall 2019

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- Energy Storage and Distributed Energy Resources Phase 3A
- RMR and CPM Enhancements (March 2019 BOG)
- Local Market Power Mitigation Enhancements (Mar 2019 BOG)
- EIM 2019 Enhancements
- **FERC Order 841 – Energy Storage Resources**
- **Real-Time Market Neutrality Settlement**

## Spring 2020

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

## Independent 2020

- Automated Dispatch System (ADS) User Interface (UI) Replacement

## Fall 2020

- ~~DAME 15 Minute Granularity – Phase 1 (Jul 2019 BOG)~~
- Commitment Costs and Default Energy Bid Enhancements Phase 2
- 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 (May 2019 BOG)

# Release Plan Summary: 2020 - 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

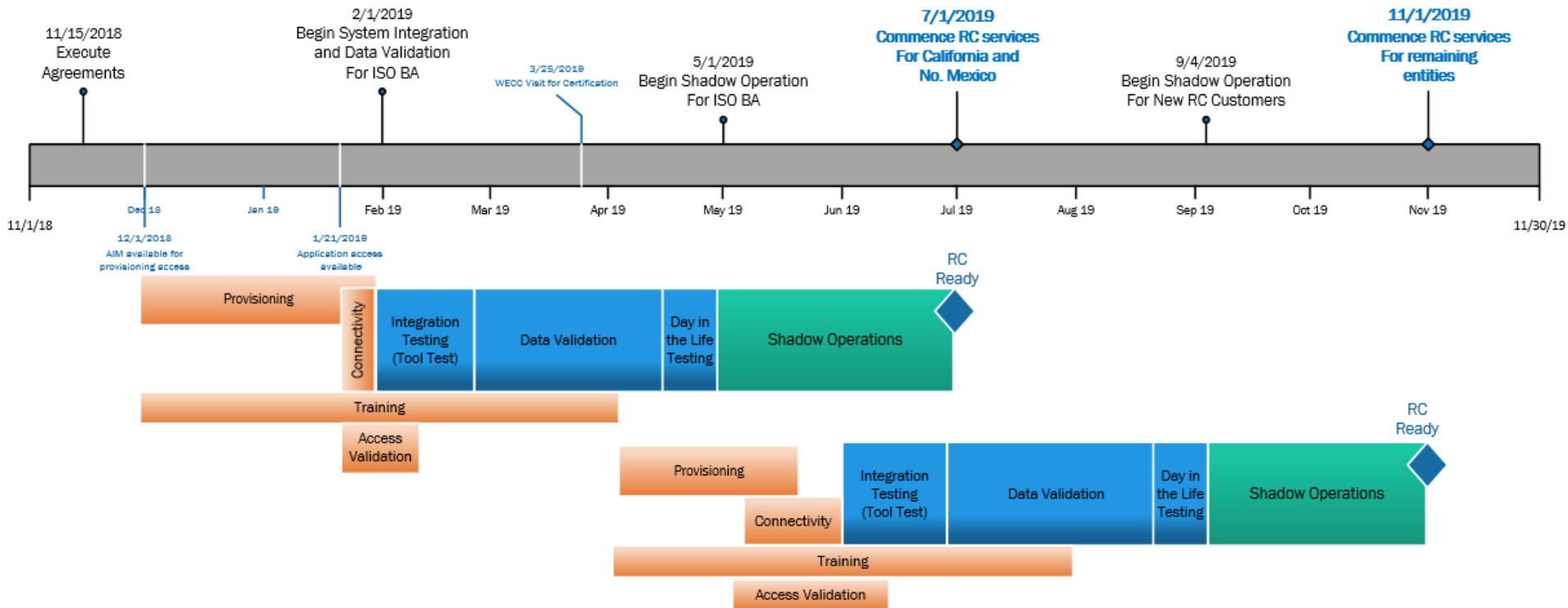
## Fall 2021 – tentative, subject to impact assessment

- DAME - Flexible Ramping Product (Nov 2019 BOG)
- RA Enhancements Track 2 (Nov 2019 BOG)
- Energy Storage and Distributed Energy Resources Phase 4 (Nov 2019 BOG)
- Storage as a Transmission Facility (BOG TBD)
- TAC Structure Enhancements (BOG TBD)

## Spring 2022

- Energy Imbalance Market (EIM) 2022 - Avista

# RC Participant Onboarding Timeline – please attend RC Onboarding webinars for more information.



# Release Schedule 2019

Date of Data Refresh: 5/6/19 5:37 PM



Legend	
Market Simulation	CA ISO Holiday
External Testing	Deployment Week

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

## Map Stage Environment Window

EIM Enhancements 2019	EIM Enhancements 2019 (09/03-10/11)
EIM Enhancements 2019 - Market Sim	EIM Enhancements 2019 - Market Sim (09/03-10/11)
CCDEBE	CCDEBE (09/03-10/11)
CCDEBE - Market Sim	CCDEBE - Market Sim (09/03-10/11)
LMPM - Enhancements	LMPM - Enhancements (09/03-10/11)
LMPM - Enhancements - Market Sim	LMPM - Enhancements - Market Sim (09/03-10/11)
FERC Order 841 - Energy Storage Resources	FERC Order 841 - Energy Storage Resources (09/03-10/11)
FERC Order 841 - Market Sim	FERC Order 841 - Market Sim (09/03-10/11)
Real-Time Market Neutrality Settlement	Real-Time Market Neutrality Settlement (09/03-10/11)
Real-Time Market Neutrality Settlement - Market Sim	Real-Time Market Neutrality Settlement - Market Sim (09/03-10/11)
RMR and CPM Enhancements	RMR and CPM Enhancements (09/03-10/11)
RMR and CPM Enhancements - Market Sim	RMR and CPM Enhancements - Market Sim (09/03-10/11)
ESDER 3a	ESDER 3a (09/03-10/11)
ESDER 3a - Market Sim	ESDER 3a - Market Sim (09/03-10/11)

## PROD Environment Window

Generator Contingency and RAS Modeling	Generator Contingency and RAS Modeling (08/30-08/30)
EIM Enhancements 2019	EIM Enhancements 2019 (11/13-11/13)
LMPM - Enhancements	LMPM - Enhancements (11/13-11/13)
RMR and CPM Enhancements	RMR and CPM Enhancements (11/13-11/13)
CCDEBE	CCDEBE (11/13-11/13)
FERC Order 841 - Energy Storage Resources	FERC Order 841 - Energy Storage Resources (11/13-11/13)
Real-Time Market Neutrality Settlement	Real-Time Market Neutrality Settlement (11/13-11/13)
ESDER 3a - IFM/RTN, Settlements, SIBR	ESDER 3a - IFM/RTN, Settlements, SIBR (11/13-11/13)

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

# 2019 Fall Release



# Fall 2019 Release – Overview

	Board Approval	External BRS	Config. Guide	Mkt Sim Scenarios	Draft Tariff**	BPMs	External Training	Market Sim	Production Activation
<b>Fall 2019 Release - Overview</b>		<b>04/01/19</b>	<b>05/17/19</b>	<b>05/17/19</b>	<b>07/14/19</b>	<b>08/26/19</b>	<b>08/26/19</b>	<b>09/03/19 – 10/11/19</b>	<b>11/13/19</b>
CCDEBE Phase 1	03/22/18	03/29/19	N/A	05/17/19	05/10/19	07/23/19	08/26/19	09/03/19 – 10/11/19	11/13/19
ESDER Phase 3A	09/05/18	03/20/19	05/17/19	05/17/19	05/15/19	06/20/19	08/26/19	09/03/19 – 10/11/19	11/13/19
RMR and CPM Enhancements	03/28/19	04/01/19	05/17/19	05/17/19	04/23/19 – FERC filing	07/12/19	TBD	09/03/19 – 10/11/19	11/13/19
LMPM - Enhancements	03/28/19	04/01/19	N/A	05/17/19	04/16/19	07/23/19	08/26/19	09/03/19 – 10/11/19	11/13/19
EIM Enhancements 2019	N/A	02/05/19	05/17/19	05/17/19	N/A	07/26/19	TBD	09/03/19 – 10/11/19	11/13/19
Real-Time Market Neutrality Settlement	7/24/19	TBD	TBD	TBD	TBD	TBD	TBD	09/03/19 – 10/11/19	11/13/19
FERC Order 841 – Energy Storage Resources	N/A	TBD	TBD	TBD	TBD	TBD	TBD	09/03/19 – 10/11/19	11/13/19

## Notes:

Items in **BLUE** are complete

Items in **PURPLE** indicate a new date.

Items in **RED** indicate a new date which is later than the target date listed on the overview line.

\*\*Draft Tariff dates have been updated to show only the draft tariff posting. FERC Filing dates can be seen on individual project slides.

\*\*\*Fall 2019 Release Technical Specifications will be published at <https://developer.caiso.com>; [this site requires sign-up for access](#)

# Fall 2019 Release – System Interface Changes (Preliminary)

System	Project	Change Type	Description	Tech Specs*	MAP Stage	Production Activation
CMRI	CCDEBE1	New	participant to retrieve final default commitment cost	TBD	Sep 03, 2019	Nov 13, 2019
CMRI	CCDEBE1	Modify	participant to retrieve default bid curve at hourly level and include DEB source (cost type/ exante process)	TBD		
CMRI	LMPME	Modify	DefaultBidCurves_v1 XSD change to remove enumeration from XSD	TBD		
CMRI	EIM 2019	Modify	include base schedule deviation in the balancing test results XSD	TBD		
DRRS	ESDER3A	New	DRRegistrationData	TBD		
MF	ESDER3A	Modify	GeneratorRDT_v4 XSD for additional bid dispatchable option for PDR	5/17/19		
MF	LMPME	Modify	GeneratorRDT_v4 XSD change to add default/alternate bilateral hub, max horizon cap value, and new DEB type	5/17/19		
SIBR	CCDEBE1	New	participant to submit exante bid and commitment	5/17/19		
SIBR	CCDEBE1	New	participant to retrieve submitted exante bid and commitment	5/17/19		
SIBR	CCDEBE1	New	participant to retrieve final exante bid and commitment	5/17/19		

\* Artifacts to be posted to <https://developer.caiso.com>

# Fall 2019 – Commitment Cost and Default Energy Bid Enhancements Ph1

Project Info	Details/Date
Application Software Changes	<p><b><u>Scope:</u></b>                      Enhances the ability to submit market-based commitment cost bids in order to reflect unique costs and volatility:</p> <ul style="list-style-type: none"> <li>• Support integration of renewable resources through incentivizing flexible resources participation during tight fuel supply</li> <li>• Account for costs of flexible resources (gas and non-gas) to reduce risk of insufficient cost recovery</li> <li>• Encourage participation of non-RA and voluntary EIM resources; compliance with FERC Order 831</li> <li>• Raises energy bid cap from \$1,000/MWh to \$2,000/MWh:</li> <li>• Requires supporting verified costs of energy bids above \$1,000/MWh</li> </ul> <p><b><u>Impacted Systems:</u></b></p> <ul style="list-style-type: none"> <li>• SIBR: Allow the submittal of Ex Ante cost adjustments. Increase energy bid caps, incorporate soft energy bid cap.</li> <li>• IFM/RTM: Recalibrate the penalty price parameters in response to raising energy bid cap to \$2,000/MWh.</li> <li>• CMRI: Provide additional source information for default bids.</li> <li>• CIDI: Submit requests for manual consultation and ex-post default bid adjustments.</li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• Market Instruments</li> <li>• Market Operations</li> </ul>
Business Process Changes	<ul style="list-style-type: none"> <li>• Maintain Major Maintenance Adders (MMG LIII)</li> <li>• Maintain Negotiated Default Energy Bids (MMG LIII)</li> <li>• Maintain Negotiated O_Ms (MMG LIII)</li> <li>• Manage Day Ahead Market (MMG LII)</li> <li>• Manage Market Billing Settlements (MOS LII)</li> <li>• Manage Real Time Hourly Market (RTPD) (MMG LII)</li> <li>• Manage Real Time Operations – Maintain Balance Area (MMG LII)</li> </ul>

# Fall 2019 – 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	Jan 22, 2019	✓
	Update External BRS: Reference Level Adjustments	Apr 05, 2019	✓
	Update External BRS: Phase 1/Phase 2, clarifications	Mar 29, 2019	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications – SIBR	May 17, 2019	
	Publish Technical Specifications – CMRI	TBD	
Tariff	Post draft tariff changes	May 10, 2019	
	File Tariff - CCDEBE Phase 1	Jun 14, 2019	
BPMs	Post Draft BPM changes	Jul 23, 2019	
External Training	Deliver External Training	Aug 26, 2019	
Market Simulation	Planned Market Sim Environment Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	CCDEBE	Nov 13, 2019	

# Fall 2019 – ESDER Phase 3a – Bid Dispatchable Option

Project Info	Details/Date
<p>Application Software Changes</p>	<p><b><u>Scope:</u></b>            The ESDER 3a scope of the larger ESDER3 initiative will include two (2) demand response enhancements:</p> <ul style="list-style-type: none"> <li>• New bid dispatchable options for demand response resources</li> <li>• Removal of single LSE requirement for PDR registrations &amp; removal of default load adjustment (DLA)</li> </ul> <p>Additionally, for ESDER2 Tariff Compliance, following is being implemented as part of this project</p> <ul style="list-style-type: none"> <li>• Customer Load Baseline Submittal</li> </ul> <p><b><u>Impacted Systems (Overview):</u></b></p> <p><b>Master File:</b></p> <ul style="list-style-type: none"> <li>• RDTs for PDR registrations in MF will require selection of an effective Bid Dispatchable Option to be used for market optimization and dispatch</li> </ul> <p><b>DRRS:</b></p> <ul style="list-style-type: none"> <li>• PDR registrations will not require all service accounts to have the same LSE</li> </ul> <p><b>SIBR:</b></p> <ul style="list-style-type: none"> <li>• Will apply Net Benefit Test price criteria for PDR bids and reject those not meeting the applicable criteria</li> <li>• Will not allow Bid Dispatchable Options to be changed in SIBR</li> </ul> <p><b>HASP/RTM:</b></p> <ul style="list-style-type: none"> <li>• Will use effective Bid Dispatchable Option registered in MF (e.g., 5-min, 15-min or Hourly) for market optimization and dispatch instructions</li> <li>• Will broadcast new PDR energy schedules/awards and instructions to downstream applications</li> </ul> <p><b>Settlements:</b></p> <ul style="list-style-type: none"> <li>• Will remove the default load adjustment (DLA) application</li> <li>• Will provide Bid Cost Recovery for PDRs with 15-Minute Bids but not Hourly Bids</li> </ul> <p><b>CMRI:</b></p> <ul style="list-style-type: none"> <li>• Will include energy schedules and awards for PDRs with new Bid Dispatchable Options (Existing)</li> </ul> <p><b>MRI-Settlements (ESDER2 Tariff Compliance):</b></p> <ul style="list-style-type: none"> <li>• New BASE measurement type for monitoring calculated baseline data</li> </ul>

## Fall 2019 – ESDER Phase 3a – Bid Dispatchable Option (cont.)

Project Info	Details/Date
BPM Changes	Market Operations, Market Instruments, Outage Management, Settlements and Billing
Tariff Change	4.13 and 11.6

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 05, 2018	✓
External BRS	Post External BRS	Feb 11, 2019	✓
	Post Revised External BRS	Feb 25, 2019	✓
	Post Revised External BRS as per scope change for Fall 2019	Mar 20, 2019	✓
Config Guides	Post Draft Config Guides	May 17, 2019	
Tech Spec	Publish Technical Specifications - MF	May 17, 2019	
	Publish Technical Specifications – DRRS	TBD	
Tariff	Post Draft Tariff	May 15, 2019	
	File Tariff	Jul 01, 2019	
BPMs	Post Draft BPM changes	Jun 20, 2019	
External Training	External Training	Aug 26, 2019	
Market Sim	ESDER 3a	Sep 03, 2019 - Oct 11, 2019	
Production Activation	ESDER 3a - DRRS	Oct 30, 2019	
	ESDER Phase 3a - Bid Dispatchable Option	Nov 13, 2019	

# Fall 2019 – RMR and CPM Enhancements

Project Info	Details/Date
<p>Application Software Changes</p>	<p><b><u>Scope:</u></b></p> <p>RMR and CPM Enhancements will address the following policy and tariff amendment scope:</p> <ul style="list-style-type: none"> <li>• Risk-of-Retirement will transition from CPM to RMR Tariff section</li> <li>• RMR units with new contracts shall:               <ul style="list-style-type: none"> <li>Have reliability capacity allocated by TAC Area (for PTOs, not LSEs), Flex RA credit shall be applied</li> <li>Receive Must-Offer Obligation (MOO)</li> <li>Subject to RAAIM</li> <li>Streamline RMR invoicing, settlement process through inclusion in ISO Settlement process</li> </ul> </li> </ul> <p>CPM units shall have pricing formulation for resources offering CPM above soft-offer cap</p> <p><b><u>Impacted Systems (Overview):</u></b></p> <p><b>Master File:</b></p> <ul style="list-style-type: none"> <li>• New resource RMR contract type flag to distinguish RMR units with contracts signed prior to (“pre-existing”) vs. after (“new”) the Interim RMR Agreement Tariff Amendment was enacted.</li> </ul> <p><b>CIRA:</b></p> <ul style="list-style-type: none"> <li>• New features to both qualify (e.g. confirm EFC is defined) and allocate System/Local/Flex reliability capacity by TAC Area (for PTOs) for RMR units with new contract type:               <ul style="list-style-type: none"> <li>• Apply Flex RA credit by TAC Area (for PTOs)</li> <li>• Perform RMR Substitution</li> <li>• Support RMR Risk-of-Retirement</li> </ul> </li> <li>• Like RA resources, new contract type RMR units will receive RAAIM status determination</li> </ul> <p><b>SIBR</b></p> <ul style="list-style-type: none"> <li>• Like RA resources, automatically generates cost-based energy bids for new contract type RMR units for un-submitted bid range below RMR contract capacity               <ul style="list-style-type: none"> <li>• Bids will reflect applicable GHG Compliance costs, SC charges, Major Maintenance Adder (MMA), or Opportunity Costs (OC); Note: MMA and OC will only be applied for Unit Commitment/Economic Dispatch decisions in market (will not be recovered in settlement)</li> </ul> </li> <li>• Removes self-schedule requirement for new contract type RMR units scheduled/dispatched in Day-Ahead Market</li> </ul>

## Fall 2019 – RMR and CPM Enhancements (cont.)

Project Info	Details/Date
Application Software Changes	<p><b><u>Impacted Systems (Continued):</u></b></p> <p><b>IFM/RTM:</b></p> <ul style="list-style-type: none"> <li>• Unit Commitment, Economic Dispatch decisions will include applicable MMA and OC</li> <li>• Like RA resources, new contract type RMR units will have automatic RA Obligation (\$0/MWh bids in RUC)</li> </ul> <p><b>Settlements:</b></p> <ul style="list-style-type: none"> <li>• RMR units under new contract type will receive: <ul style="list-style-type: none"> <li>• Replacement of existing RMR invoice and settlement with standard ISO settlement process</li> <li>• Monthly RMR capacity payment (by resource) and cost allocation (by PTO)</li> <li>• RAAIM settlement/allocation</li> <li>• Bid Cost Recovery (does not include MMA or OC)</li> <li>• True-ups for RMR Condition 2 overpayment (does not include MMA or OC)</li> </ul> </li> <li>• CPM units with offers above soft-offer cap may receive true-up based on CPM pricing formulation (<a href="#">formulation TBD</a>)</li> </ul>
BPM Changes	Reliability Requirements, Market Operations, Market Instruments, Settlements and Billing
Tariff Change	11.13, 31.2.2, 34.1, 40.9, 41, 43, 43A, Appendix G

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	Mar 28, 2019	✓
External BRS	Post External BRS	Apr 01, 2019	✓
Config Guides	Publish Config Guide	May 17, 2019	
Tech Spec	Publish Technical Specifications	N/A	
Tariff	File Tariff w/ FERC	Apr 23, 2019	✓
BPMs	Post Draft BPM changes	Jul 12, 2019	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	RMR and CPM Enhancements	Nov 13, 2019	



# Fall 2019 – Local Market Power Mitigation Enhancements

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> Prevent Flow reversal, Limits transfer, DEB for Hydro, Reference level adjustment process, Gas price Indices</p> <p><b>Impacted Systems:</b></p> <p><b>RTM: Prevent flow reversal</b>            Eliminate rule mitigate in FMM carry to RTD            Eliminate rule mitigate for balance of hour for FMM, balance 15 minute for RTD            Use current market competitive LMP for mitigation            Add a nominal parameter to mitigated bids            Mitigated bid = MAX (DEB, Competitive LMP + \$0.xx parameter)</p> <p><b>RTM: Limit transfers to limit Economic Displacement</b>            Optional rule for EIM BAA            Limit transfers to the greater of exports in MPM and flexible ramping requirements            Export Limit = MAX [ExportsBase, ExportsMPM, <math>\Sigma FRUMPMAward</math>]            The exporting BAA will receive congestion rents created by this proposed rule</p> <p><b>OASIS:</b> Publish EIM transfer limit</p> <p><b>CMRI:</b> Display new Hydro DEB type</p> <p><b>Master File:</b> Option to limit transfer per a defined rule            Manage Hydro DEB eligibility at resource level            New field to select and rank hydro DEB option            Store resource's maximum storage horizon            Identify default trading hubs for hydro resources, requests changes to additional hubs            Ability to view parameters and ranking of approved hydro DEBs</p>
BPM Changes	Market Operations, Market Instruments
Tariff Change	Section 29.39, 31.2.1, 39.7

## Fall 2019 – Local Market Power Mitigation Enhancements (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	Mar 28, 2019	✓
External BRS	Post External BRS	Apr 01, 2019	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Publish Technical Specifications – MF	May 17, 2019	
	Publish Technical Specifications – CMRI	TBD	
Tariff	File Tariff	Jun 14, 2019	
BPMs	Post Draft BPM changes	Jul 23, 2019	
External Training	Deliver External Training	Aug 26, 2019	
Market Sim	Market Sim Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	LMPM - Enhancements	Nov 13, 2019	

# Fall 2019 – Energy Imbalance Market Enhancements 2019

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> Implement 21 EIM enhancements requested by EIM entities through Customer Inquiry, Dispute and Information system (CIDI)</p> <p><b>Impacted Systems:</b>  <b>BAAOP:</b> Add displays for BAA overview, Unit deviations, Load Bias, transfer limits, contingency flag, timestamps, and other identified items. Enhance sorting and layouts ability. Enhance alarm ability for market thresholds.  <b>BSAP:</b> Enhance capability for Base schedule modification, Add aggregated BS deviation in API.  <b>OASIS or CMRI:</b> <del>Display ROC limits</del> Display 5-min market transmission Loss  <b>RTM:</b> prevent ETSR swing using explicit triggers.  <b>ADS:</b> Publish current DOP in the MSG transition period.  <b>Settlement:</b> Publish data for UFE shadow calculation; Settle EIM Resource Deviation within Regulation/ABC range as instructed regulation energy.  <b>CMRI:</b> Publish resource limit values</p>
BPM Changes	Market Instruments, Energy Imbalance Market

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Feb 05, 2019	✓
Config Guides	Publish Config Guides	May 17, 2019	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	Jul 26, 2019	
External Training	External Training Webinar	TBD	
Market Sim	Market Sim Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	EIM Enhancements 2019	Nov 13, 2019	

# Fall 2019 – Real-Time Market Neutrality Settlement

Real-time market neutrality is currently calculated as the sum of instructed imbalance energy, uninstructed imbalance energy, unaccounted for energy, and greenhouse gas (GHG) awards. To allocate the real-time market neutrality, an offset is calculated for components of the locational marginal price. This initiative proposes modifications to the calculation of the real-time imbalance energy offset to improve the accuracy of the offset by balancing authority area

Policy Milestone	Dates	Status
Post Issue Paper/Straw Proposal	Apr 24, 2019	✓
Stakeholder Conference Call	May 1, 2019	✓
Stakeholder Comments Due	May 13, 2019	
Post Draft Final Proposal & Tariff	May 21, 2019	
Stakeholder Conference Call	May 28, 2019	
Stakeholder Comments Due	Jun 6, 2019	
EIM Governing Body Decision	Jun 28, 2019	
Board of Governors Consent Agenda	Jul 24-25, 2019	

Project Info	Details/Date
Application Software Changes	TBD
BPM Changes	TBD
Tariff Change	TBD

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	TBD	
Config Guides	Publish Config. Guides	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	Tariff filing	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	External Training Webinar	TBD	
Market Sim	Market Sim Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	EIM Enhancements 2019	Nov 13, 2019	

# Fall 2019 – FERC 841 Energy Storage Resources

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> FERC issued Order 841 to remove the barriers to the participation of electric storage resources in the capacity, energy and ancillary service markets operated by RTOs and ISOs.</p> <p>CAISO will achieve compliance with Order 841 through implementation of two (2) specific scope items:</p> <ul style="list-style-type: none"> <li>• Reduce the minimum capacity for participating Generators to 100kW for storage resources</li> <li>• Remove Transmission Access Charge (TAC) for Pumped-Storage Hydro Units</li> </ul> <p><b>Impacted Systems:</b></p> <p><b>RIMS:</b> No changes to system. Registration process change to allow minimum rated capacity of 100kW for storage resources</p> <p><b>Settlements:</b> Revision to charge codes to remove TAC for Pumped-Storage Hydro Units</p>
BPM Changes	Market Operations, Market Instruments, Settlements and Billing
Tariff Change	4.6.3.2 – Exemption for Generating Units of Less Than One (1) MW 26.1 – Transmission Rates and Charges Appendix A – Definition Change for Participating Generator

Milestone Type	Milestone Name	Dates	Status
External BRS	Post external BRS	TBD	
Config Guides	Publish Config. Guides	May 17, 2019	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	Original tariff filing	Dec 3, 2018	
	Answers to FERC comments	Feb 27, 2019	
	Response to deficiency letter	May 1, 2019	
BPMs	Post Draft BPM changes	TBD	
External Training	External Training Webinar	TBD	
Market Sim	Market Sim Window	Sep 03, 2019 - Oct 11, 2019	
Production Activation	EIM Enhancements 2019	Nov 13, 2019	

# 2020 Spring Release

# Spring 2020 – EIM integrations for SCL, LADWP and SRP

Project Info	Details/Date
Application Software Changes	Implementation of SCL, LADWP 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, LADWP and SRP.
Market Simulation	December 2019 – January 2020
Parallel Operations	February 2020 – March 2020

Milestone Type	Milestone Name	Dates	Status
Tariff	File Readiness Certification	March 2020	
Market Sim	Market Sim Window	December 2019 – January 2020	
Parallel Operations	Parallel Operations	February 2020 – March 2020	
Production Activation	EIM – SCL, LADWP and SRP	April 2020	

# 2020 Independent



# 2020 – ADS Replacement

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

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Post External BRS	Aug 06, 2018	✓
ADS Update	ADS Update Meeting	Aug 15, 2018	✓
Config Guides	Design review - BPM and Tariff SMEs	TBD	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff	TBD	
BPMs	Post Draft BPM changes	TBD	
Market Sim	Market Sim Window	Q3 2020	
Production Activation	ADS Replacement	Q3 2020	
Production	ADS Parallel Operations	Q3 2020	
Decommission	Old ADS Decommission	TBD	

# 2020 Fall Release

# Fall 2020 – Commitment Cost and Default Energy Bid Enhancements Ph2

Project Info	Details/Date
Application Software Changes	<p><b><u>Scope:</u></b> Enhances the ability to submit market-based commitment cost bids in order to reflect unique costs and volatility:</p> <ul style="list-style-type: none"> <li>• Introduces market power mitigation (MPM) measures for commitment costs.</li> </ul> <p><b><u>Impacted Systems:</u></b></p> <ul style="list-style-type: none"> <li>• SIBR: Incorporate negotiated default commitment bids. Increase commitment cost caps. Allow for hourly submittal of minimum load bids into day-ahead market.</li> <li>• IFM/RTM: Add MPM tests for commitment costs. Mitigate commitment costs where tests indicate market power. Incorporate MPM (both energy and commitment) in short term unit commitment process.</li> <li>• CMRI: Provide resource-specific reporting on mitigation results for commitment costs.</li> <li>• MQS/PCA: Incorporate mitigation of commitment costs for specific exceptional dispatch (ED) types. Incorporate bid locking of commitment costs for ED instructions and for certain cases where resources are uneconomic to operating.</li> <li>• Master File: Allow submittal of resource-specific minimum load costs for costs that are independent of the Pmin level. Add the ability to indicate preference for new negotiated cost basis type. Provide a view of resource-specific scalars used for validating Ex-Ante cost adjustments.</li> <li>• CIDI: Incorporate templates for submitting requests for manual consultation and ex-post default bid adjustments.</li> </ul>

## Fall 2020 – Commitment Cost and Default Energy Bid Enhancements Ph2

Project Info	Details/Date
BPM Changes	<ul style="list-style-type: none"> <li>Market Instruments</li> <li>Market Operations</li> </ul>
Business Process Changes	<ul style="list-style-type: none"> <li>Maintain Major Maintenance Adders (MMG LIII)</li> <li>Maintain Negotiated Default Energy Bids (MMG LIII)</li> <li>Maintain Negotiated O_Ms (MMG LIII)</li> <li>Manage Day Ahead Market (MMG LII)</li> <li>Manage Market Billing Settlements (MOS LII)</li> <li>Manage Real Time Hourly Market (RTPD) (MMG LII)</li> <li>Manage Real Time Operations – Maintain Balance Area (MMG LII)</li> </ul>

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Mar 22, 2018	✓
External BRS	Publish external Business Requirements Specification (BRS)	Apr 05, 2019	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff (if needed)	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Simulation	Planned Market Sim Environment Window	TBD	
Production Activation	CCDEBE	Oct 01, 2020	

# Fall 2020 – Day-Ahead Market Enhancements Phase 1

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b>  <b>Phase 1: 15-minute Granularity DAM</b></p> <ul style="list-style-type: none"> <li>• 15 minute bids in DAM and RTM</li> <li>• 15 minute scheduling and settlement in DAM</li> <li>• 15 minute Base schedule in RTM</li> </ul> <p><b>Impacted Systems:</b>  <b>ALFS:</b> 15 minute Load and VER forecasts  <b>SIBR:</b> SC submit bids for energy, AS in 15 min interval in DAM and RTM, InterSC Trade is in 15 minute  <b>MPM:</b> Market Power Mitigation in 15 minute in DAM  <b>ETCC:</b> <i>Transmission Contract limits in 15 minute interval for DAM</i>  <b>IFM/RUC:</b></p> <ul style="list-style-type: none"> <li>• Calculate AS (RegU, RegD, Spin, NSP) requirements in 15 minute interval</li> <li>• Co-optimize Energy, AS, TD: 15 minute interval</li> <li>• TD+X: hourly intervals, need normalize the cost for mixed intervals</li> <li>• Hourly Block energy scheduling constraint for eligible resources elect the block option, intertie, RDRR and PDR.</li> <li>• AS on interties can only be procured from 15-minute dispatch-able resources</li> </ul> <p><b>BSAP:</b> <i>Submit Base Schedules in 15 minute interval, energy and AS</i>  <b>BASI:</b> <i>Balance test, capacity test, and sufficiency test are in 15 minutes in RTM</i>  <b>RTM:</b> Receive DAM 15 minute award Energy, AS; Receive EIM BAA submit 15 minute base Schedule.  <b>CMRI:</b> report 15 minute IFM awards, include Energy and AS. Base schedule test results by 15 minute interval  <b>OASIS:</b> Display IFM Energy and AS requirements and results in 15 minute intervals; 15-Minute RTM LAP Price report  <b>Settlement:</b></p> <ul style="list-style-type: none"> <li>• All energy, include physical energy supply, virtual supply/demand, load from all resources are settled at the LMP: <math>\lambda + MCC + MLC</math> in 15 minute interval</li> <li>• AS is settled in 15 minute interval</li> <li>• CRR Settled at DAM congestion cost component in 15-minute interval</li> <li>• GMC \$1 divided by 4 for IST</li> <li>• GMC market service portion will apply to AS bids</li> <li>• Administrative price use relevant DAM 15 minute price.</li> <li>• Make whole payment for price correction made to load and block export.</li> <li>• 15 minute bidding exports get BCR</li> </ul> <p><b>EMS:</b> receive DAM schedule in 15 minute interval</p>
BPM Changes	Market Instruments, Market Operations, Energy Imbalance Market (EIM), Settlements & Billing
Tariff Change	Yes

# Fall 2020 – Dispatch Operating Target Tariff Clarification

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

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Jul 26, 2018	✓
External BRS	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	File Tariff	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	Dispatch Operating Target Tariff Clarification	Oct 01, 2020	

# Fall 2020 – Intertie Deviation Settlement

Project Info	Details/Date
Application Software Changes	<p><b>Scope:</b> Implement a new Under/Over Delivery Charge for intertie deviations from Market Schedule and After-The-Fact (ATF) E-Tag, to replace Decline charge</p> <p><b>Impacted Systems:</b> <b>Settlements</b></p> <ul style="list-style-type: none"> <li>• Calculate FMM binding intertie award, exclude Curtailment, calculate under/over delivery quantity as deviation of schedule and ATF E-Tag, Charge under/over delivery Charge at 50% of RTD LMP.</li> <li>• Remove the decline charge calculation and Decline Threshold</li> <li>• Allocate Over/Under delivery charge to measured demand</li> </ul>
BPM Changes	Settlements and Billing
Tariff Change	Section 11.31

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	Feb 07, 2019	✓
External BRS	Post External BRS	TBD	
Config Guides	Post Draft Config Guide	TBD	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	Intertie Deviation Settlement	Oct 01, 2020	

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

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



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

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 05, 2018	✓
External BRS	Post External BRS	TBD	
	Post Revised External BRS	TBD	
	Post Revised External BRS as per scope change for Fall 2019	TBD	
Config Guides	Post Draft Config Guides	TBD	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	Post Draft Tariff	TBD	
	File Tariff	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	

# 2021 Spring Release

# Spring 2021 – EIM integrations for PSC-NM, LADWP and NWE

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

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

# Stay Informed

# Ways to participate in releases

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

# What to look for on the calendar...

## Calendar of Meetings, Training and Events

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

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