



California ISO

Settlement User Group

April 24, 2024

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

Web Conference Information	Conference Call Information
<p>Web Address: https://caiso.webex.com/meet/settlementuser</p> <p>Meeting Number: 961 854 046</p> <p>Audio connection instructions will be available after connecting to the web conference. When prompted, select "Call me" and enter your phone number you will use during the call.</p>	<p>US Toll Free: 1-844-621-3956</p> <p>US Toll : 1- 650-479-3208</p> <p>Access Code: 961 854 046</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 publically available on the ISO web page for a limited time following the meeting. The recording, and any related transcriptions, should not be reprinted without the ISO's permission. Hyperlinks in blue in PDF version.</p> <p>The recording will be posted on our website and be available for a short period of time until May 8th, 2024. Please mute your phone while the discussion is going on in order to eliminate background noise, to unmute press and hold the spacebar to temporarily unmute, double mute. Calls are structured to stimulate an honest dialogue and engage different perspectives.</p> <p>To ask a question after each topic, unmute yourself before asking your question, or enter question on the chat</p> <p style="text-align: center;">please state your name and affiliation. Thank you.</p>	



[mute](#)

Settlement User Group Agenda

Wednesday, April 24, 2024

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

Time	Topic	Presenter
▪ 10:00 – 10:02	▪ Welcome and Introduction	▪ Massih Ahmadi
▪ 10:02 – 11:00	▪ Settlements <ul style="list-style-type: none">▪ Follow-up from last call▪ Summer 2024 Release▪ Market Sim Calendar▪ Advisory Shutdown Flag Data▪ Settlements Upgrade Project▪ PRR/BPM▪ Training▪ New caiso.com	<ul style="list-style-type: none">▪ Massih Ahmadi▪ Massih Ahmadi▪ Assad Al-Baijat▪ Melchor Ciubal▪ Trang Vo▪ Massih Ahmadi▪ Cynthia Hinman▪ Massih Ahmadi

Follow-up items from our last call

- PG&E asked if CAISO will implement SUP after DAME + EDAM?
 - SUP will likely be implemented after DAME + EDAM. We are still working on the schedule.

2024 Summer Settlements Release

- 2 Projects with direct settlement impact
 - **Transmission Exchange Agreement Renegotiation (TEA) from Western:**
 - **Transmission Service and Market Scheduling Priorities Phase 2 (TS+MSP)**
- 9 Non-Projects with direct settlement impact
 - **A/S SOC Retro Enhancement**
 - **Resolve WEIM Pumped Storage issue**
 - **Assistance Energy Transfer (AET)**
 - **Change to RT Congestion Pre-Calculation guide**
 - **Remove exclusion of NGR-REM from RAIM PC**
 - **Split Acquired Rights to two BDs**
 - **Hybrid TG**
 - **RT Energy PC**
 - **Advisory Shutdown Flag Data → New**

2024 Summer Settlements Release

- Release Scope:
 - 1st draft tech docs targeting: **2/12**, *TEA and TS MSP published already* → **Completed**
 - 1st draft config output file + release component summary posted: **3/4** → **Completed**
 - 2nd draft config output file + updated release component summary targeting: **3/27** → **Completed**
- BPM/PRR: **Posted on 3/25**
 - 8 PRRs posted
 - Scheduled to be discussed in **4/23 & 5/21** BPM calls
 - External notification was sent on 3/25 at 3:51pm
- Settlements Market Sim start:
 - **TSMSP2**: Start Date **4/30** with Start TD **4/30** – End Date **5/10** – Structured Simulation TD **4/30, 5/02**
 - **TEA**: Start Date **6/17** with Start TD **6/17** – End Date **7/05**
 - **A/S SOC**: Start Date **4/16**
- Pre-prod configuration output file + release artifacts target: **5/22**
- Anticipated prod deployment: **5/29**
- Prospective activation: **6/1**

Market Simulation Summer 2024 Calendar (MAP STAGE)



Market Simulation Summer 2024 Calendar (MAP STAGE) April 15, 2024 through May 10, 2024

Calendar Day	Day	CMRI T+1B	Submit Meter Data by T+2B 10:00 for Initial T+9B	Publish Initial Statement T+5B T+9B	Submit Meter Data by T+5B 18:00 for Recalc T+70B	Publish Recalc Statement T+8B T+70B	Publish Market Invoice
15-Apr-24	Monday						
16-Apr-24	Tuesday						
17-Apr-24	Wednesday	16-Apr					
18-Apr-24	Thursday		16-Apr				
19-Apr-24	Friday	18-Apr					
20-Apr-24	Saturday						
21-Apr-24	Sunday						
22-Apr-24	Monday		18-Apr				
23-Apr-24	Tuesday			16-Apr	16-Apr		
24-Apr-24	Wednesday	23-Apr					
25-Apr-24	Thursday		23-Apr	18-Apr	18-Apr		
26-Apr-24	Friday	25-Apr		Monthly Initial 16-Apr - 18-Apr		16-Apr	Daily Initial 16-Apr; Daily Initial 18-Apr ; Monthly Initial 16-Apr - 18-Apr;
27-Apr-24	Saturday						
28-Apr-24	Sunday						
29-Apr-24	Monday		25-Apr				
30-Apr-24	Tuesday			23-Apr	23-Apr	18-Apr	
01-May-24	Wednesday	30-Apr				Monthly Recalc 16-Apr - 18-Apr	Daily Recalc 16-Apr; Daily Recalc 18-Apr ; Monthly Recalc 16-Apr - 18-Apr;
02-May-24	Thursday		30-Apr	25-Apr	25-Apr		
03-May-24	Friday	2-May				23-Apr	
04-May-24	Saturday						
05-May-24	Sunday						
06-May-24	Monday		2-May				
07-May-24	Tuesday			30-Apr	30-Apr	25-Apr	
08-May-24	Wednesday	7-May		Monthly Initial 23-Apr - 30-Apr			Daily Initial 23-Apr; Daily Initial 25-Apr ; Daily Initial 30-Apr ; Monthly Initial 23-Apr - 30-Apr;
09-May-24	Thursday		7-May	2-May	2-May		
10-May-24	Friday	9-May				30-Apr	
11-May-24	Saturday						
12-May-24	Sunday						
13-May-24	Monday		9-May			Monthly Recalc 23-Apr - 30-Apr	Daily Recalc 23-Apr; Daily Recalc 25-Apr ; Daily Recalc 30-Apr ; Monthly Recalc 23-Apr - 30-Apr;
14-May-24	Tuesday			7-May	7-May	2-May	
15-May-24	Wednesday						
16-May-24	Thursday			9-May	9-May		
17-May-24	Friday			Monthly Initial 02-May - 09-May		7-May	Daily Initial 2-May; Daily Initial 7-May ; Daily Initial 9-May Monthly Initial 2-May - 9-May;
18-May-24	Saturday						
19-May-24	Sunday						
20-May-24	Monday						
21-May-24	Tuesday					9-May	
22-May-24	Wednesday					Monthly Recalc 02-May - 09-May	Daily Recalc 2-May; Daily Recalc 7-May ; Daily Recalc 9-May Monthly Recalc 2-May - 9-May;
23-May-24	Thursday						
24-May-24	Friday						



Advisory Shutdown Flag Data, Potential MLC Disqualification

Mel Ciubal
CAISO, Market Services

4/24/2024

Problem Statement & Resolution

- Problem:
 - Missing input data value for existing BD, BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG, prevents CAISO from qualifying Minimum Load Cost consistent with Tariff 11.17.2.1, even if Settlements formulations currently exist.
- Solution:
 - Work with upstream units to ensure advisory shutdown instruction data is broadcasted so that advisory shutdown flag BD can be created
 - Use the input and reflect Minimum Load Costs qualification in Settlements

Tariff 11.17.2.1

Disqualification Based on Advisory Schedules

From Dispatch Interval in which CAISO has determined $DOP \text{ minus Shut-Down State Variable} \leq \text{Minimum Load}$, and until **Shut-Down State Variable** is reset, IFM, RUC, or RTM Minimum Load Costs, will be disqualified from BCR.

DOP – dispatch operating point

BCR – bid cost recovery

IFM, RUC, RTM – markets/process

Shut-Down State Variable

- Keeps track of +UIE once an advisory Shut-Down Instruction is issued to a resource. Provides MWh cumulative over RTUC Intervals had resource followed Shut-Down Instruction.
- Begins to accumulate +UIE as soon as an advisory shutdown instruction exists w/in RTM dispatch horizon and continues to accumulate +UIE as long as (1) unit is On, and (2) Metered Energy less Regulation Energy less EE > Performance Metric Tolerance Band.
- Will be reset to zero when most recent RTUC run no longer has an advisory shutdown instruction w/in RTM dispatch horizon or when resource is Off.

+UIE – positive uninstructed imbalance energy

RTUC – Real-Time Unit Commitment

EE – expected energy

What's the Mitigation Measure?

- This Tariff section was included as part of implementing the Bid Cost Recovery Mitigation Measures initiative around 2014. Please refer to section 10 of [BCR Mitigation Measures initiative policy paper](#).
- Resources are encouraged to always follow CAISO dispatch.

Advisory Shutdown Data

- Advisory shutdown (yellow) w/in each RTUC run horizon (row) moves from RTUC to RTUC until later binds (in orange)

	Payload name	RTPD binding interval	RTPD 1st advisory	RTPD 2nd advisory	RTPD 3rd advisory	RTPD 4th advisory
RTUC A	Payload 1	09:00-09:15	09:15-09:30	09:30-09:45	09:45-10:00	10:00-10:15
RTUC B	Payload 2	09:15-09:30	09:30-09:45	09:45-10:00	10:00-10:15	10:15-10:30
RTUC C	Payload 3	09:30-09:45	09:45-10:00	10:00-10:15	10:15-10:30	10:30-10:45
RTUC D	Payload 4	09:45-10:00	10:00-10:15	10:15-10:30	10:30-10:45	10:45-11:00
RTUC E	Payload 5	10:00-10:15	10:15-10:30	10:30-10:45	10:45-11:00	11:00-11:15

- Scenario above shows advisory shutdown was maintained and CAISO didn't change its instruction to have a shutdown. It is possible for CAISO to change its instruction depending on optimization results from each RTUC run.
- Each row or RTUC run above is at least 15-minutes earlier than the first column RTPD binding interval.

Advisory Shutdown Flag Definition

- For each resource in an RTUC run output, create this flag with a value of 1, if there is an advisory shutdown for the resource within the RTUC horizon. Otherwise, the flag value is zero.
- We always associate this flag to RTPD (energy) binding interval timeframe (first column). We build such flag for each RTUC run, until such time that there is no longer an advisory shutdown within RTUC run horizon (set flag to zero, or not create at all).
- Binding shutdowns do not count since not considered advisory.
- The time of advisory shutdown, just advisory, can be within the RTUC run horizon or beyond.

Settlement Example, shutdown state variable, MLC disqualification

- Pmin = 20
- MLC = \$300 per shown 5-min intervals, HE9

Interval (5-min)	97	98	99	100	101	102	103	104	105	106	107	108
MLC	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300
Meter	30	30	30	30	30	30	30	30	30	30	30	30
TEE	25	25	25	25	25	25	25	25	25	25	25	25
UIE	5	5	5	5	5	5	5	5	5	5	5	5
Pos UIE	5	5	5	5	5	5	5	5	5	5	5	5
Advisory Shutdown Flag	1	1	1	1	1	1	1	1	1	0	0	0
UIE Cumulative (pos UIEs only)	5	10	15	20	25	30	35	40	45	0	0	0
TEE- UIE Cumulative	20	15	10	5	0	-5	-10	-15	-20	25	25	25
AdvisoryShutdownUIEFlag	1	1	1	1	1	1	1	1	1	0	0	0
Qualified MLC (\$)	0	0	0	0	0	0	0	0	0	300	300	300

The Shutdown state variable is closest to this UIE Cumulative (for positive UIEs only) in our BPM for Startup and Minimum Load Cost Precalc. Notice that it gets reset to 0 when advisory shutdown flag is 0.

Settlements configuration exists, though primary input data had no values

In the example above, the configuration formulas already exist. Now with the advisory shutdown instruction data flowing through, the input BD, BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG will be created correctly, so that the formulas can take effect.

Please refer to: [BPM PC Start-up and Minimum Load Cost](#) or any later versions of such BPM. Trace the variable BADispatchIntervalAdvisoryShutdownFlag in the formulas.

At a high level, see check for positive UIE. The accumulation (shutdown state variable) of such values when input advisory shutdown flag value is 1, or until accumulation resets to zero due to no advisory shutdown flag. See eventual qualification of IFM/RUC/RTM MLCs via penultimate variable, BASettlementIntervalAdvisoryShutdownUIEFlag.

Additional implementation details

1. A CMRI Report will be added to indicate advisory shutdown instructions used to create Advisory Shutdown Flag BD.
 - Per resource, indicates instruction time and corresponding time interval where an advisory shutdown flag will be applied.
2. Production effective date is **NLT Aug 1, 2024**. (Firmer date to be provided as we get closer.)
3. Unstructured market simulation prior to effective date.
4. ISO will be monitoring for incorrect usage of MLC and will take appropriate action if that behavior is observed, including referrals to DMM
5. RUG meeting presentation of this topic will be on April 30, 2024.
6. Training will be provided by Customer Service prior to market simulation.



California ISO

Settlement Upgrade Project

April 16, 2024

Settlement Upgrade Project – Overview

- The current settlement system, implemented in 2008 as part of the Market Redesign and Technology Upgrade (MRTU) implementation, is nearing its end of life. The CAISO is upgrading existing settlement applications to approved architectural and information security standards.
- Benefits for our customers include:
 - Improved business efficiency
 - Better gathering and analysis for data and front-end improvements for customers interacting with CAISO Settlement Systems
 - Increased transparency for some calculations
 - Accommodating data processing increases resulting from new market products and an increase in market participants
 - Ability to perform complex settlement calculations

Settlement Upgrade Project – Targeted Goals

- The ISO will work closely with our market participants to ensure seamless transition from e-terra 2.5 to 3.0 configuration output file.
- The ISO will leverage the Settlement User Group and Technical User Group for participants to ask more technical questions.
- The ISO will provide an environment with production-like data allowing customers to validate changes.
- The system will provide settlement outputs in various file formats, allowing all customers to access and use the data in day-to-day operations.
- The ISO will strive to make formulas and inputs transparent to enable market participants to monitor and/or validate settlement results.
- The ISO will provide market participants with an extended market simulation and timely support to the market participants and their vendors during the testing phase.

Settlement Upgrade Project – Targeted Goals (continued)

- From a vendor perspective:
- ISO will provide third party vendors with support during the transition period.
- ISO will provide an extended market simulation and/or parallel statements and invoices during the transition period so vendors can resolve defects on their systems.
- ISO will provide open communications to resolve settlement differences through a customer forum.

Settlement Upgrade Project – Targeted Goals (continued)

- From a vendor perspective:
- ISO will provide third party vendors with support during the transition period.
- ISO will provide an extended market simulation and/or parallel statements and invoices during the transition period so vendors can resolve defects on their systems.
- ISO will provide open communications to resolve settlement differences through a customer forum.

Settlement Upgrade Project – Status

- The ISO is reviewing the overall schedule for implementation. The current schedule is colliding with EDAM and DAME implementation.
- In order to allow customers to have the time to focus on the Settlement Upgrade Project, as well as EDAM and DAME, a new schedule will be developed.
- ISO will provide quarterly updates for the implementation for now and will ultimately increase the frequency of updates and the depth of information provided accordingly as we proceed
- The updates will be provided in the Release User Group and Settlement User Group
- To help ensure alignment of our communications between these two (2) forums, this same update will be provided in the next Settlement User Group call on April 24, 2024
- The next Settlement Upgrade Project update will be in July 2024
- For comments or questions, please submit CIDI cases

PRR/BPM for Summer Settlements Release

- We've posted 8 PRRs below for Summer Release:
 - **PRR 1559 for TEA:**
 - BPM - CG PC ETC TOR CVR Quantity_5.9.0a
 - **PRR 1560 for TSMSP:**
 - BPM - PC_Wheel_Export_Quantity_5.6
 - **PRR 1561 for AS SOC Retro:**
 - BPM - PC RTM Net Amount 5.37.1
 - BPM - PC RTM Net Amount 5.38.1
 - **PRR 1562 for WEIM Pump Storage:**
 - BPM - PC Real Time Energy Quantity
 - **PRR 1563 for AET:**
 - BPM - CC 6476 Real Time Assistance Energy Transfer Surcharge 5.1
 - BPM - CC 6479 Real Time Assistance Energy Transfer Allocation 5.1

PRRS for Summer Settlements Release

- **PRR 1564 for RT Congestion:**
 - BPM - PC Real Time Congestion 5.8

 - **PRR 1565 for Split Acquired Rights:**
 - BPM - CG PC RA Availability Incentive Mechanism_5.11

 - **PRR 1566 for Hybrid TG:**
 - BPM - CG CC 6475 Real Time Uninstructed Imbalance Energy Settlement_5.7
 - BPM - CG CC 6636 IFM Bid Cost Recovery Tier1 Allocation_5.5
 - BPM - CG CC 7077 Daily Flexible Ramp Up Uncertainty Award Allocation_5.5
 - BPM - CG PC Spin Non-Spin No Pay Quantity_5.24
 - BPM - CG PC Ancillary Services_5.12
 - BPM - CG CC 7087 Daily Flexible Ramp Down Uncertainty Award Allocation_5.5
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- Please review “Announcements” section of PRRs for more detail. Here is link to [BPM Library](#).

ISO Training Schedule

Training Course	Date and time
Pre-Market Simulation Webinar Training Import Allocation Automation	May 2, 2024 9:00am-10:00am
Customer Education Resource Operations Readiness Training Series: Session 1: Resource Performance Expectations Session 2: Battery Performance Expectations Session 3: Managing Intertie Transactions Session 4: WEIM Resource Performance Expectations	May 7, 2024 9:00 am -12:00 pm May 15, 2024 10:00 am -12:00 pm May 16, 2024 9:00 am -11:00 am May 22, 2024 9:00 am -11:00 am

New! Use our [Pre-Training Release Survey](#) to submit topics that you would like to see covered in the upcoming training.

Are you looking for more training?

The ISO Learning Center has computer based training available for lots of topics. Check out the Learning Center: <http://www.caiso.com/participate/Pages/LearningCenter/default.aspx>





A new **caiso.com** is coming in late May

Training sessions will be held on
May 23 from 9:00 a.m. – 10:00 a.m.
May 29 from 10:00 a.m. – 11:00 a.m.

Watch the Daily Briefing for details and
follow us on social media.

Next SUG Meeting: May 8th, 2024 at 10:00 A.M



Settlement User Group Calendar 2024

January						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

February						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
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18	19	20	21	22	23	24
25	26	27	28	29		

March						
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17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

May						
Su	Mo	Tu	We	Th	Fr	Sa
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26	27	28	29	30	31	

June						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
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23	24	25	26	27	28	29
30						

July						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
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21	22	23	24	25	26	27
28	29	30	31			


August						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
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11	12	13	14	15	16	17
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25	26	27	28	29	30	31


September						
Su	Mo	Tu	We	Th	Fr	Sa
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15	16	17	18	19	20	21
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29	30					

October						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

 Meeting

 Holiday

Settlement User Group

Thank you for participating in our call
