



Market Enhancements for Summer 2021 Readiness – Part 2

Cynthia Hinman
Lead Client Trainer

April 29, 2021

Updated 4/29/2021

The information contained in these materials is provided for general information only and does not constitute legal or regulatory advice. The ultimate responsibility for complying with the ISO FERC Tariff and other applicable laws, rules or regulations lies with you. In no event shall the ISO or its employees be liable to you or anyone else for any decision made or action taken in reliance on the information in these materials.

Agenda

In this training, you will learn about the following elements:

- Import Incentives During Tight System Conditions
- Real-Time Scarcity Price Enhancements
- New OASIS Report
- CIRA Notification



Acronyms

Abbreviation	Definition
CIRA	CAISO Interface for Resource Adequacy
ETC	Existing Transmission Contracts
FMM	Fifteen-Minute Market
HASP	Hour Ahead Scheduling Process
HE	Hour Ending
LRA	Local Regulatory Authority
LSE	Load Serving Entity
MSS	Metered Sub-System
OASIS	Open Access Same Time Information System
RA	Resource Adequacy
SC	Scheduling Coordinator
TOR	Transmission Ownership Rights



IMPORT MARKET INCENTIVES DURING TIGHT SYSTEM CONDITIONS

Basic questions

- Why is this being implemented?
 - To provide improved incentives for import supply to be available during tight system conditions because the current settlement rules may pay imports less than bid, and this risk can be exacerbated under tight supply conditions
- What are the current settlement rules?
 - ISO **schedules** block imports based on HASP
 - ISO **settles** block imports based on FMM
 - SCs may end up getting paid less than bid

Proposal

- During normal system conditions hourly block imports will continue to be cleared in HASP and settled at the FMM prices
- During very tight system conditions the ISO will provide bid cost make-whole payments for real-time hourly block economic imports

What is eligible?

- Real-time market import amounts that are incremental to any import amount scheduled in the day-ahead market
- Real-time market import amounts that are the result of an export scheduled in the day-ahead market and reduced in the real-time market

How are the make-whole payments calculated?

- It is the positive difference between an SC's bid price and the hourly average FMM locational marginal price for each of the applicable hours in which the ISO identifies tight system conditions will exist

What are tight system conditions?

- Tight system conditions are hours for which the ISO issues:
 - An alert notice by 3 p.m. the day before an operating day stating the ISO anticipates an operating reserve deficiency for specified hours, or
 - A warning notice or emergency notice during an operating day stating the ISO anticipates or is experiencing an operating reserve deficiency during specified hours

Next let's look at two examples. Assume there are tight system conditions for both.

Example A

- SC submits import bid:

Quantity	Price
0 – 50 MW	\$100/MWh
50 – 100	\$150/MWh

- HASP price is \$175/MWh
 - SC's import is scheduled for 100 MW

- FMM prices:

:00 - :15	:15 - :30	:30 - :45	:45 - :00
\$85	\$85	\$95	\$95

- Average price = \$90/MWh
- Calculation for make-whole payment
 - $50 \text{ MW} * (\$100/\text{MWh} - \$90/\text{MWh}) + 50 \text{ MW} (\$150/\text{MWh} - \$90/\text{MWh}) = \$3,500$ or \$35/MWh

Example B

- SC has 100 MW export scheduled in the day-ahead market
- SC rebids the export in real-time market

Quantity	Price
0 – 100 MW	\$100/MWh

- HASP price is \$130/MWh
 - SC Export is reduced to 0 MW
 - Looks like a 100 MW import

- FMM prices

:00 - :15	:15 - :30	:30 - :45	:45 - :00
\$85	\$85	\$95	\$95

- Average price = \$90/MWh
- Calculation for make-whole payment
 - 100 MW * (\$100/MWh – \$90/MWh) = \$1,000 or \$10/MWh

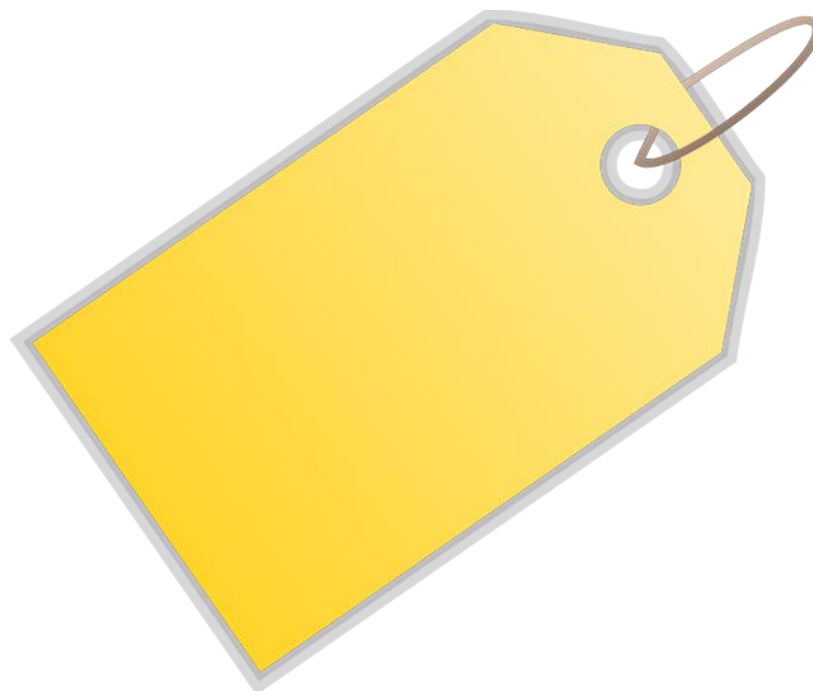
Settlements details

- Allocation
 - CAISO measured demand (metered demand and exports) less valid and balanced ETCs and TORs
 - Metered Sub-System (MSS) aggregation net measured demand for MSS that have elected net settlement
 - Net negative deviation for load-following MSS
- Charge codes
 - 6483 – Hour Ahead Scheduling Process Uplift Settlement
 - 6484 – Hour Ahead Scheduling Process Uplift Settlement Allocation

Other key points

- What if imports are awarded but are not delivered?
 - Subject to intertie deviation settlement rules
 - Not eligible for make-whole payments
- What if an import is subject to the HASP reversal rule?
 - Not eligible for make-whole payments
- What about wheel through transactions?
 - Not eligible for make-whole payments
- ISO can suspend the make-whole payment rule provisions if warranted

Questions



REAL-TIME SCARCITY PRICE ENHANCEMENTS

Why is this being implemented? What was the problem?

- During Stage 2 emergencies, when contingent reserves are released and their energy bids are added to the market, it may lower the price that clears the market
- Gives the wrong market signal when the market actually needs more generation

Proposal

- Price energy at the energy bid cap that is from generation the ISO is releasing from contingency reserves to serve load
 - Release both contingent and non-contingent operating reserves at the bid cap price rather than at bid cost.
 - These bids must clear the market to set the price
- Only when ISO is “arming load”
 - In a Stage 2 Emergency
 - The process where ISO system operators inform load-serving entities to make all preparations necessary to be able to drop load in a controlled manner if a generation contingency were to occur

Example

- A Scheduling Coordinator submits a bid for spinning reserve for HE10 and it is awarded
 - They submit a bid for energy in real-time as required at \$30/MWh
- A Stage 2 Emergency is called for HE10
 - The Scheduling Coordinator's energy bid is set at the bid cap instead of \$30/MWh

Questions



OASIS REPORT

Proposal – New OASIS Report

- Calculate and publish gross import and export schedules by intertie for the CAISO balancing authority area
- Reports the import and export schedule breakdown by intertie and by direction for the day-ahead and real-time markets

Example – Schedule by Tie

Date From: 04/19/2021 To: 04/19/2021 Market/Process: RTD BAA Group ID: CISO

Download XML Download CSV

Schedule By Tie

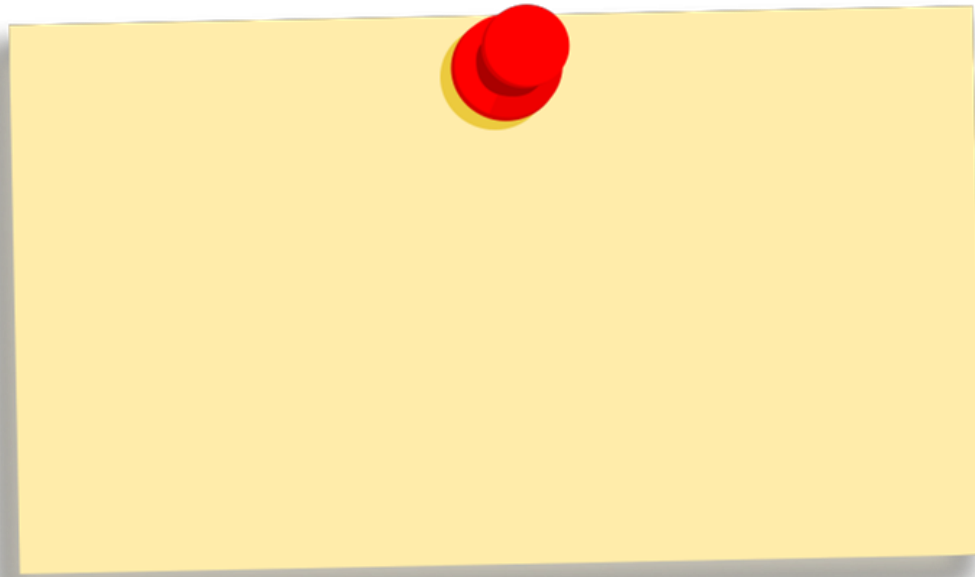
1 - 2 of ???

Market	Opr Date	Balancing Authority Area Group ID	Tie	Direction	Opr Interval	HE01	HE02	HE03	HE04	HE05	HE06	HE07	HE08	HE09	HE10	HE11	HE12	HE13	HE14
RTD	04/19/2021	CISO	MALIN500	Export	1	1.11	2.11	3.11	4.11	5.11	6.11	7.11	8.11	9.11	10.11	11.11	12.11	13.11	14.11
RTD	04/19/2021	CISO	MALIN500	Import	1	1.10	2.10	3.10	4.10	5.10	6.10	7.10	8.10	9.10	10.10	11.10	12.10	13.10	14.10

Report Generated: 04/26/2021 14:50:36

This is a draft version of the report. The final report may be somewhat different.

Questions



CIRA NOTIFICATIONS

What does this cover?

- Local regulatory authorities will receive an automated email from the ISO if one or more of their load serving entities have a late or missing RA plan
- Includes annual and monthly plans
 - Notifications are currently set to send
 - 60 days prior to the start of the year
 - 43 days prior to the start of the month

To: LRA Contact

From: CAISO

This is to notify you that one or more of your Load Serving Entities have some missing/late plans for [*insert month or year here*].

Please access the following url for more information:

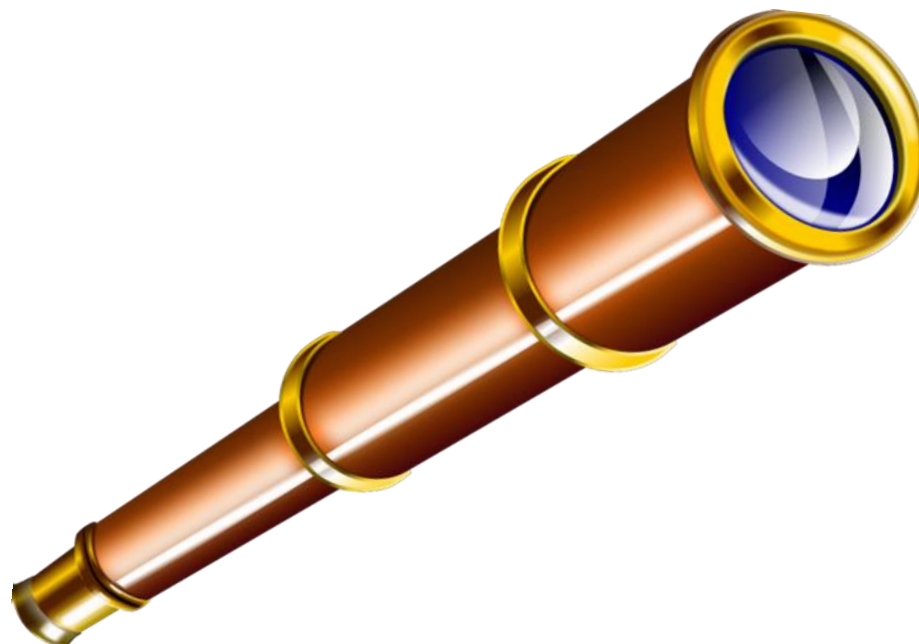
<https://portal.caiso.com/cira/>

New Check Box in CIRA

- SC of LSE that has an RA obligation but is not committing RA capacity for the month will have a checkbox in CIRA to note their situation in lieu of submitting a blank RA plan
- This includes those that currently submit blank RA Plans because they have RA credits



Questions



TODAY'S OUTLOOK AND ISO TODAY ENHANCEMENTS

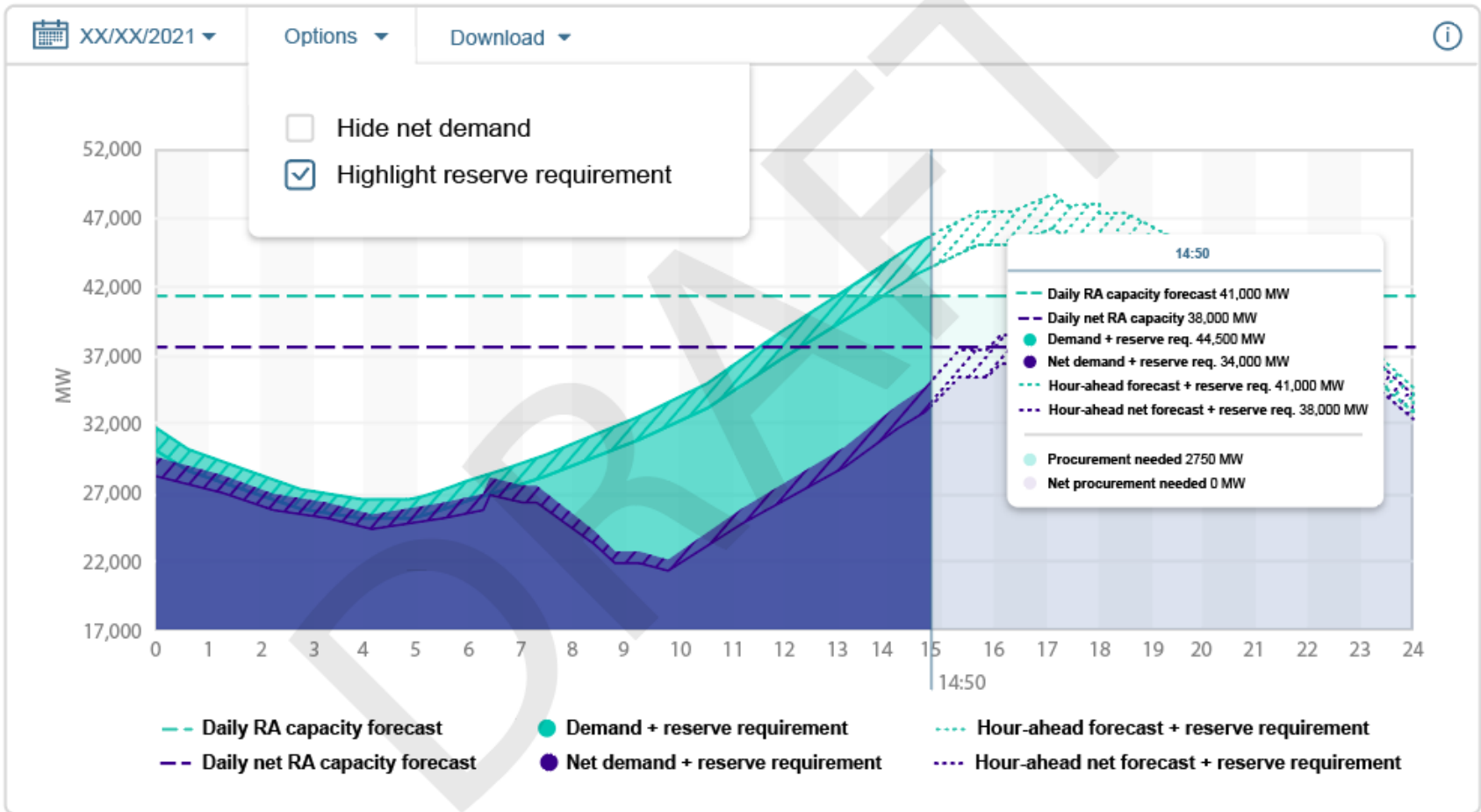
New page focusing on capacity

- Two new charts
 - Resource Adequacy Capacity Trend
 - Resource Adequacy Capacity 7 Day-Forecast trend
- New charts display:
 - Demand and net demand with daily Resource Adequacy capacity forecast
 - Daily RA capacity and daily net RA capacity forecast
 - Reserve requirement (next version)

Let's take a look at some draft versions of these charts...

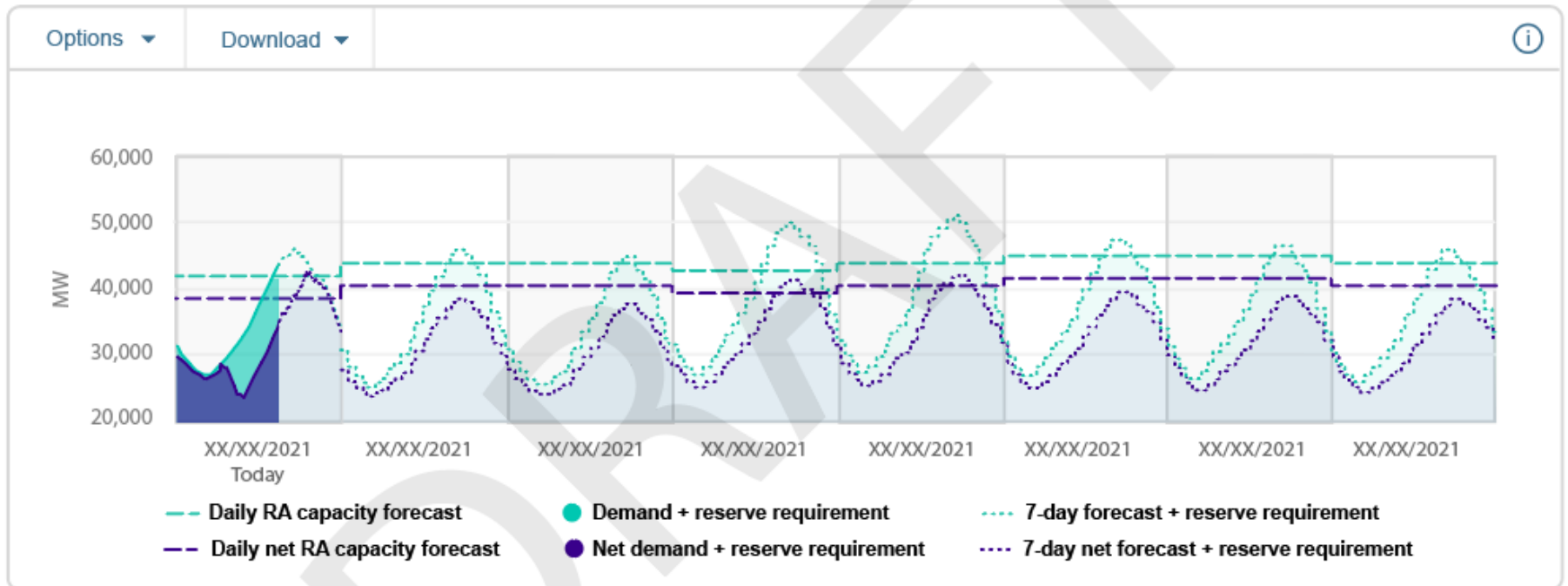
RA capacity trend

Energy needed over RA capacity must be procured in the real-time market to meet the demand and reserve requirements.



RA capacity 7-day forecast trend

RA capacity forecast for the next 7 days, in megawatts, compared to demand forecast plus reserve requirements.



MARKET SIMULATION

Market participant pre-market simulation actions

- Market simulation structured scenarios provide customers with the ability to preview and test new functionality from bid to bill
- Attend the Market Simulation calls to stay informed on the timing of activities for this and other releases
- Send registration request to the MarketSim@caiso.com mailbox
 - Register for **Resource Adequacy Enhancements: Track 1** project by **April 26, 2021**
 - Register for **Summer 2021 Readiness** project by **May 6, 2021**

Market Sim Scenarios

Scenario Number	Scenario Execution Trade Date: TBD	
1	Description	RTM Import & Export Market Incentives during Tight System Conditions
	ISO Actions	CAISO will set up a scenario where: <ul style="list-style-type: none"> o Tight system conditions exist. (CAISO to create conditions in RTM conducive to buying energy at relatively high prices.) o CAISO issues an "Operating Reserve Deficiency" AWE for specific hours in DA and RT. o CAISO market systems will schedule incremental imports and decremented exports in HASP, consistent with the tight system conditions. o CAISO will perform price corrections as necessary to simulate lower prices in FMM relative to HASP, i.e. well below the \$100 bid price
	EIM Market Participant Actions	
	ISO Market Participant Actions	SC's submit bids in RTM for block interties for several hours, around \$100, to either increase the import relative to DA schedule or decrease the export relative to DA schedule.
	Expected Outcome	
	Anticipated Settlement Outcome	Verify make-whole settlements for RTM Import & Export.
	Expected Settlement Outcome	<ul style="list-style-type: none"> • CAISO will execute settlements calculations. • SCs will validate their statements.

Market Sim Scenarios

Scenario Number	Scenario Execution Trade Date: TBD	
2	Description	Release of All Applicable (Contingent & non-Contingent) Operating Reserves at the Bid Cap Price
	ISO Actions	CAISO will set up a scenario where: <ul style="list-style-type: none"> o Tight system conditions exist. (CAISO to create conditions in RTM conducive to buying energy at the bid cap.) o CAISO issues an “Operating Reserve Deficiency” AWE for specific hours in DA and RT. o Operator released operating reserve at bid cap price. o CAISO market systems will dispatch resources into their ancillary services capacity range if the local price reaches or exceeds the bid cap.
	EIM Market Participant Actions	
	ISO Market Participant Actions	Resources submit competitive energy bids for capacity covered by ancillary services.
	Expected Outcome	Verify that at times during the tight system conditions period, resources are dispatched into their ancillary services capacity range and their resource-specific price is at or above the bid cap. Verify that at times during the tight system conditions period, expected energy allocated within the ancillary services capacity range is priced at the bid cap instead of at their originally submitted energy bid price.
	Anticipated Settlement Outcome	N/A
	Expected Settlement Outcome	<ul style="list-style-type: none"> • CAISO will execute settlements calculations. • SCs will validate their statements.

Final Questions



For more detailed information on anything presented, please
visit our website at:

www.caiso.com

Or send an email to:
CustomerReadiness@caiso.com