
 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Table of Contents

PURPOSE.....	2
1. RESPONSIBILITIES	3
2. SCOPE/APPLICABILITY	4
2.1. Background.....	4
2.2. Scope/ Applicability	4
3. PROCEDURE DETAIL	4
3.1 Ancillary Service Resources.....	4
3.1.1 Testing Criteria	4
3.1.1.1 Conduct Performance Audits	5
3.1.1.2 Plan and Execute Unannounced Compliance Testing	6
3.1.1.2.1 Select and Schedule Resources for Testing.....	6
3.1.1.2.2 Conduct Compliance Tests	7
3.1.2 Results Evaluation	13
3.1.2.1 Evaluate Test Results.....	13
3.1.2.2 Send Warning Notice.....	15
3.1.2.3 Decertify a Resource	15
3.2 Reliability Demand Response Resource (RDRR)	16
3.2.1 Plan and Execute Unannounced Testing.....	16
3.2.2 Select and Schedule Resources for Testing	16
3.2.3 Conduct availability and performance Tests	17
3.2.4 Evaluate and Send Test Results	18
4. SUPPORTING INFORMATION	19
Operationally Affected Parties	19
References.....	19
Definitions	19
Version History	20
5. PERIODIC REVIEW PROCEDURE	22
Review Criteria & Incorporation of Changes.....	22
Frequency	22
APPENDIX	22

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Purpose

This operating procedure describes roles, responsibilities, and actions for conducting performance audits and unannounced compliance testing as defined in Sections 8.9 and 34.18.1 of the CAISO Tariff:

Section 8.9:


“Availability of contracted and Self-Provided Ancillary Services shall be verified by the ISO by unannounced testing of resources, by auditing of response to ISO Dispatch Instructions, and by analysis of appropriate Meter Data, or Interchange Schedules.”

Notes:

If a resource that offers Spin, Non-Spin, or Regulation fails a performance audit or an unannounced compliance test:

- *The ISO will issue a warning notice to the Scheduling Coordinator for the resource and the resource owner (see Tariff Section 8.9.16.1).*
- *On receipt of a warning notice, the resource owner, through its Scheduling Coordinator, may request the ISO to test the capability of the resource (see Tariff Section 8.9.16.2).*
- *A warning shall remain in effect until the resource 1) passes a capacity test requested by the respective Scheduling Coordinator, 2) passes an unannounced compliance test administered by the ISO, or 3) six months have elapsed since the notification was issued. Note that a subsequent, fully compliant response to an ISO dispatch instruction will not be considered a successful capacity or compliance test, and any warning(s) will remain in effect until resolved as described above (see Tariff Section 8.9.16.3).*
- *A resource that fails a second performance audit or unannounced compliance test during the period in which a warning is in effect will be disqualified immediately from providing Ancillary Services until the resource successfully completes the approval and certification process (see Tariff Section 8.9.16.4).*
- *The ISO may suspend the technical eligibility certificate of a Scheduling Coordinator for a resource that repeatedly fails to perform (see Tariff Section 8.9).*

A resource that fails an availability (unannounced compliance) test will be considered unavailable to provide the Ancillary Service concerned for the entire period the resource was committed to provide the service. The Scheduling Coordinator for a resource that fails an availability test shall not be entitled to a payment for the Ancillary Service concerned for the committed period and adjustments to reflect this shall be made in the calculation of payments to the Scheduling Coordinator (see Tariff Section 8.10.7).

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Section 34.22


“The CAISO may issue one (1) unannounced Exceptional Dispatch Instruction per year to each Reliability Demand Response Resource pursuant to Section 34.11.2 in order to test the availability and performance of the Reliability Demand Response Resource.”

Notes:

- *The Demand Response Provider (DRP) representing the Reliability Demand Response Resource may also test its Reliability Demand Response Resources in coordination with the ISO.*
- *Any Demand Response Provider initiated testing will not trigger any ISO settlement.*
- *When testing is initiated by the Demand Response Provider, the DRP shall submit their self-test results to the ISO as well as the LRA.*
- *When testing is initiated by the ISO, the ISO will share the results of those tests of the Reliability Demand Response Resource with the applicable Local Regulatory Authority.*
- *All tests of the Reliability Demand Response Resource shall count toward its RDRR Availability Limit.*
- *If, prior to the performance of an ISO unannounced yearly test, the Reliability Demand Response Resource provides Demand Response Services in that year, its provision of Demand Response Services will eliminate the need for that year’s test.*

1. Responsibilities

CAISO Resource Test Administrator	<ul style="list-style-type: none"> • Conduct performance audits of resources’ response during contingency dispatches for ancillary services. • Monitor unannounced performance and compliance testing. • Evaluate performance and compliance test results and send results to the respective SC and resource owner. • As needed, send warning and de-certification notices to the respective SC and resource owner. • Initiate decertification process for non-compliant resources.
CAISO Generation Dispatcher	Conduct compliance testing for a Generator, Dynamic, Load, or performance testing of a Reliability Demand Response Resource.
CAISO General Counsel	Advise regulatory agencies of any RA Resources that fail performance audits or unannounced compliance testing.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Transmission Dispatcher	Conduct compliance testing for a non-dynamic Intertie Resource.
CAISO Manager, Real-Time Operations	Select and schedule resources for unannounced compliance and performance testing.
Resource Operator	Operate resources as instructed by the CAISO.

2. Scope/Applicability

2.1. Background

The CAISO Tariff gives the **California ISO (CAISO)** the authority to audit and test resources that Bid or Self-Provide Ancillary Services (AS) or Reliability Demand Response Resources that provide Demand Response Services.

The CAISO must assure that resources providing services to the CAISO meet the CAISO's technical requirements and that Market Participants are fairly compensated for services provided.

2.2 Scope/ Applicability

This procedure applies to Reliability Demand Response Resources and all resources that Bid or Self-Provide Ancillary Services (AS). For the purposes of this procedure, the term "Test Resource" will refer to any Generating Unit, Participating Load, or System Resource that is subject to performance audits or unannounced compliance testing.

3. Procedure Detail


3.1 Ancillary Service Resources

3.1.1 Testing Criteria

Generating Unit

The performance audit for generation resources verifies a resource's ability to deliver its Ancillary Service Capacity in 10 minutes. For Generating Units providing Spinning or Non-Spinning Reserve, the CAISO will use the resource's telemetry data to measure performance. Ten minutes after the start of the contingency dispatch, the resource must respond and deliver, at least 90% of the amount of Energy requested in the dispatch.

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

For Generating Units providing Regulation Up and Regulation Down, the resource must reach a point of at least 90% of the highest or lowest set point sent to the resource during the period of an unannounced compliance test. For performance audits, evaluate the unit's performance monthly. The unit must have at least five (5) qualifying tests in the month for the service where a qualifying test meets these criteria: on AGC continuously during the test period, the unit MW output is < the 10% threshold of the unit's Regulation Range for Regulation Up or > the 90% threshold for Regulation Down, and the MW set point ramps from <=7% of the unit's Regulation Range to at least 93% for Regulation Up or from 93% down to at least 7% for Regulation Down. The test ends and the unit passes the qualifying test if its MW output reaches at least 90% of the Regulation Range for Regulation Up or 10% for Regulation Down within 16 minutes after the start of the set point ramp or within a minute after the set point no longer exceeds the set point threshold of 93% or 7% respectively. The fails the performance audit if it cannot reach the 90% or 10% MW output threshold during the qualifying test period. A resource must pass at least 90% of the qualifying tests in a month for the service to be considered as having passed the performance audit.

Participating Load

For Participating Loads, telemetry data will be used to audit the performance metric. Participating Loads must show a Load reduction of at least 90% of the amount requested in the contingency dispatch within 10 minutes.

System Resource


A system Resource, upon receipt of a contingency dispatch, is audited on its ability to deliver at least 90% of the amount requested within 10 minutes.

3.1.1.1 Conduct Performance Audits

Complete the following actions to conduct a performance audit:

CAISO Resource Test Administrator	
1. Review	the performance results of resources dispatched for Ancillary Services during the past week.
2. Evaluate	the performance results according to the performance metrics below for the respective resource type <u>and</u>
3. Determine	whether each resource achieved the stated performance metric in 3.1.1 above.
4. Document	the performance audit results, including the following information: <ul style="list-style-type: none"> • Trade date, operating hour, and time of Dispatch Instruction. • MW or MWh Amount of Dispatch Instruction. • Resource output based on telemetry, meter data, or Balancing Authority check-out values.

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Resource Test Administrator	
<ul style="list-style-type: none"> • Performance metric calculation. • Audit pass or fail. 	
5. Email the performance audit results to the SC and resource owner.	
<ul style="list-style-type: none"> • For Regulation Performance Audits, only email results of audit passes to entities that are in a Warning Notice period. 	
6. If the resource failed the performance audit,	
<ul style="list-style-type: none"> • Send a warning notice (See Section 3.1.2.2). 	
7. If a RA resource failed the performance audit test,	
<ul style="list-style-type: none"> • Notify CAISO General Counsel. 	
8. If the resource failed the performance audit during a period when a warning notice is in effect,	
<ul style="list-style-type: none"> • Immediately decertify the resource (See Section 3.1.2.3). 	


3.1.1.2 Plan and Execute Unannounced Compliance Testing

The CAISO periodically verifies the availability and performance of Awarded and Self-Provided Ancillary Services through unannounced compliance testing of resources.

3.1.1.2.1 Select and Schedule Resources for Testing

Complete the following actions to select a test resource for unannounced compliance testing:

CAISO Manager, Real-Time Operations
1. At any time when system conditions permit you may refer to any of the following: <ul style="list-style-type: none"> • Refer to the <u>Unannounced Testing report</u> sent from ASNotifications. <ul style="list-style-type: none"> ○ Resources on this report shall be given priority to test. ○ Select one or more resources from this list. • Refer to the <u>Unannounced Test List</u> sent from ASNotifications. • Ensure the following requirements are met: <div style="margin-left: 20px;"> <u>SPIN</u> <ul style="list-style-type: none"> ○ The resource must be on the list. ○ The resource must be online with available capacity in order to conduct the spin test. ○ Dispatched amount must be above 1 MW, within the normal capacity of the resource. </div> <div style="margin-left: 20px;"> <u>NON-SPIN</u> <ul style="list-style-type: none"> ○ The unit must be on the list. </div>

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	


CAISO Manager, Real-Time Operations
<ul style="list-style-type: none"> ○ For resources that are <u>not</u> on the testing report but are on the Testing List, check with Scheduling coordinator if resource is available for testing. (Start time may not necessarily be on the hour.) <ul style="list-style-type: none"> 1. Constraints that may be encountered include limited starts, fuel availability or staffing. 2. Dispatched amount must be above 1 MW, within the normal capacity of the resource. <p>Note: Give priority to those resources with the longest interval between the current date and the date logged as shown in the weekly Performance Verification List sent from ASNotifications. Additionally, Units on warning notice should be given priority to test above those that are not on warning notice.</p> <ul style="list-style-type: none"> • Confirm telemetry with the resource for the applicable resource type. • Schedule unannounced compliance testing. <p>2. Do <u>one</u> of the following:</p> <ul style="list-style-type: none"> • For non-dynamic inertia resources, <ul style="list-style-type: none"> ○ Notify the CAISO Transmission Dispatcher of the planned date and time for unannounced compliance testing. • For all other resource types, <ul style="list-style-type: none"> ○ Notify the CAISO Generation Dispatcher of the planned date and time for unannounced compliance testing.

3.1.1.2.2 Conduct Compliance Tests

Complete the following actions to conduct an unannounced compliance test:

CAISO Generation Dispatcher , CAISO Transmission Dispatcher
<ol style="list-style-type: none"> 1. Verify the test resource meets system conditions. 2. Verify the test resource is not affected by any outages/flow limits that prevent any resource from delivering AS services. 3. Verify the test resource has a Real-Time Ancillary Service Schedule. 4. Verify the telemetry of the test resource is complying with current Dispatch Instructions. 5. Verify that the unit is not on AGC if testing <u>SPIN</u>. <p>Note: Resources are not to be removed from regulation control to run an unannounced test.</p> <ol style="list-style-type: none"> 6. Verify the following if testing <u>NON-SPIN</u>. <ul style="list-style-type: none"> • Unit is shut down, Resource Terminal Voltage = 0

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Generation Dispatcher, CAISO Transmission Dispatcher

- Main breaker status is OPEN
 - Batteries/hybrids and some Hydro facilities may not fit the above criteria.
 - **Refer** to Spin criteria.
7. If the conditions specified in Steps 1 - 6 are satisfied:
- **Approve** the test resource for dispatch if system condition allows, or
 - **Cancel** the planned unannounced testing and
 - **Notify** the CAISO **Manager of Real-Time Operations**.

CAISO Generation Dispatcher

1. If the test resource approved for Dispatch, **is a Generator, Dynamic or Load and is available for a test of Spin or Non-Spinning reserve capability:**


- **Issue** an electronic AS Test Dispatch through the RTN software **using** the Contingency AS Testing tool to a MW value equal to their bid-in 10-minute ramping capability or the amount of the current AS award.
 - The new UI to issue AS testing instruction via market tool is available at:

Operations>Generation>Reserve management>Contingency AS testing


CAISO Generation Dispatcher must complete the following operations:

- **Select** the appropriate Resource ID from the drop down menu,
- **Enter** the Test MW bias and
- **Click** 'execute' button.
 - Test MW Bias is the actual go to MW for the test.
 - If an offline non-spin resource is chosen, AS test instruction in ADS will include a startup instruction for the unit to start up.
 - It is expected that the unit will meet the target go to MW within 10-minutes of the start time of the ASTEST instruction in the ADS.
- From a timing perspective, please **do not enter** an AS TEST instruction in the market when RTD is in the process of running.
- Please **enter** during the window RTD has finished and prior to next RTD run has kicked off.

Note: Ensure resources are appropriately accounted for in the EMS Reserve Monitor. A manual entry of negative offset may be necessary. The resource will be dispatched for Energy from the SPIN or NON-SPIN Capacity according to the Ramp Rate and Start-Up time specified in the Energy Bid submitted for that hour.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	


CAISO Generation Dispatcher
<p>If test cannot be performed using primary method then the following alternate dispatch method may be used:</p> <p>2. <u>Alternate Method</u>: If test resource approved for Dispatch, <u>is a Generator or Dynamic or Load and is for a test of Spin or Non-Spin reserve capability</u>:</p> <ul style="list-style-type: none"> • Call the SC for the resource and inform them that the CAISO is initiating an Unannounced AS Compliance Test. • Periodically ensure programmed phone numbers are correct. <ul style="list-style-type: none"> ◦ If using the SC contact list you must use the contacts marked as <u>24-hour contacts</u>. • Issue a verbal AS Test Dispatch to a MW value equal to their bid-in 10-minute ramping capability or the amount of the current AS award. "This is (<i>state your name</i>) from the California ISO. This is an Unannounced AS Compliance Test and I am initiating a verbal AS Test Dispatch on (<i>Resource ID</i>) for the (<i>SPIN/NSPN</i>) award in the amount of (<i>MW</i>). The test will begin at the conclusion of this phone call. We will contact you by phone to end the test. Please repeat back these instructions". • Record the Verbal Dispatch Instruction in the market ED tool, <ul style="list-style-type: none"> ◦ Using Instruction Type: ASTEST. <ul style="list-style-type: none"> ▪ Please note that the ED instruction for AS TEST <u>will NOT</u> be visible in ADS once the new enhancement is activated. • If the Market Software is unavailable, <ul style="list-style-type: none"> ◦ Log the Dispatch Instruction as: <ul style="list-style-type: none"> ▪ A Log Type: Generation Dispatcher ▪ Title: EDE Instructions for Generators/Correction-96 Hour and Exceptional Dispatch ▪ Using Instruction Type: ASTEST <p>Note: Ensure resources are appropriately accounted for in the EMS Reserve Monitor. A manual entry of negative offset may be necessary. The resource will be dispatched for Energy from the Spin or Non-Spin Capacity according to the Ramp Rate and Start-Up time specified in the Energy Bid submitted for that hour.</p> <p>3. If the test resource approved for Dispatch, <u>is a Generator, and is a test for AGC (Regulation) reserve capacity</u>: (The Generator must have been awarded sufficient regulation (by amount and duration) in order to be tested.</p> <ul style="list-style-type: none"> • Make a note of the CAISO Reg High and CAISO Reg Low parameters indicated on the AS Test display.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Generation Dispatcher
<ul style="list-style-type: none"> • Determine whether the Unit has sufficient room to move up or down by comparing the current MW value against the limits): <ul style="list-style-type: none"> ○ On an EMS Workstation, <ul style="list-style-type: none"> ▪ Call up the AGC Generation Summary • Search for the Generating Unit to be tested in the upper-left part of the Generation Summary display. • You can quickly find the Unit by: <ul style="list-style-type: none"> ○ Using the in-line filter on the Generation Summary display ○ Verify the current AGC status of the Unit as follows: <ul style="list-style-type: none"> ▪ Unit Ctrl Mode Column = AUTO ▪ Operating Mode Column = AUTO • Click on the pencil to edit • Under the User Ctrl Mode column, <ul style="list-style-type: none"> ○ Select “MBP” from the pull-down list. ○ Enter desired value in the MBP column, to reflect the target MW value to ramp the Unit either up or down. <ul style="list-style-type: none"> ▪ The MBP target value <u>must be</u> within the boundaries of the Reg Hi and Reg Low limits. ○ After updating User Ctrl Mode and MBP Columns, <ul style="list-style-type: none"> ▪ Click the Update button. ○ Make a note of the start time of the ramp. • When the Unit finishes ramping, <ul style="list-style-type: none"> ○ Enter the target MW value in the MBP column to ramp the Unit in the other direction. <ul style="list-style-type: none"> ▪ Make a note of the start time of the ramp. • When the ramping test is completed, <ul style="list-style-type: none"> ○ Place the User Ctrl Mode back to the original setting (i.e. AUTO). ○ Set the manually replaced value in the MBP column back to “0”.


CAISO Transmission Dispatcher
<ol style="list-style-type: none"> 1. If the test resource approved for Dispatch, <u>is a Static Intertie Resource, and is for test of Spin or Non-Spin reserve capability:</u> <ul style="list-style-type: none"> • Coordinate with the CAISO Generation Dispatcher to determine acceptable time to initiate AS Compliance Test. • Determine current NSI. This value will change when new test scheduled is implemented. • If the resource exists in the Contingency AS testing UI, <ul style="list-style-type: none"> ○ Use the UI to issue AS testing instruction. ○ Otherwise, call the SC for the resource <u>and</u>

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*


 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Transmission Dispatcher
<ul style="list-style-type: none"> ○ Inform them that the CAISO is initiating an Unannounced AS Compliance Test. <i>“This is (state your name) from the California ISO. This is an Unannounced AS Compliance Test and I am initiating a verbal AS Test Dispatch on (Resource ID) for the (SPIN/NSPN) award in the amount of (MW) on the (Tie Point Name) and for Hour Ending (HE). The test will begin at the conclusion of this phone call. We will contact you by phone if necessary to end the test. Please repeat back these instructions.”</i> • Issue a verbal AS Test Dispatch to a MW value equal to their current AS Award indicated on the E-Tag. • Remind the Scheduling Coordinator that the CAISO is expecting the capacity E-Tag to be updated with the corresponding energy MW amount required by the test as soon as possible but no later than ten minutes after the conclusion of the call. • Confirm implementation of E-Tag and verify Interchange transaction scheduler and WIT match <u>and</u> • Verify new NSI to EMS and <u>only</u> push to EMS when necessary <u>or</u> after abnormal delay. • Record the verbal Dispatch Instruction in the Market ED tool using Instruction Type: ASTEST. <ul style="list-style-type: none"> ○ Please note that the ED for AS TEST <u>will NOT</u> be visible in ADS. • If the Market Software is unavailable, <ul style="list-style-type: none"> ○ Log the Dispatch Instruction as <ul style="list-style-type: none"> ▪ A Log Type: Generation Dispatcher, ▪ Title: EDE Instructions for Generators/Correction-96 Hour and Exceptional Dispatch ▪ Using Instruction Type: ASTEST. <p>Note: The resource will be dispatched for Energy from the SPIN or NON-SPIN Capacity according to the Ramp Rate and Start-Up time specified in the E-Tag.</p>

Resource Operator
<ol style="list-style-type: none"> 1. Upon receiving an automated AS TEST instruction via ADS, the resource operator shall Ramp up the resource under test to the MW amount of the Dispatch Instruction <u>within 10-minutes</u> of the start time of the instruction. <ul style="list-style-type: none"> • For reference, the AS TEST instruction in ADS has a start time, end time and constraint MW which reflects the target MW.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Resource Operator
<p>2. Upon receiving a verbal AS Test Dispatch from an CAISO Generation Dispatcher or Transmission Dispatcher,</p> <ul style="list-style-type: none"> • Perform the actions below for the respective resource type (Generating Unit, Participating Load, or System Resource): <p>Note: As per Tariff Section 11.5.6.4, the resource owner will be compensated at the maximum of the applicable FMM or RTD LMP, or the Default Energy Bid Price, whichever is higher. However, the test resource will not set the LMP for any of the time intervals for which the unannounced AS compliance test is in effect.</p> <p><u>Generating Units (includes Dynamic System Resources)</u></p> <p><u>Generating Unit Dispatched from Spinning Reserve:</u></p> <ol style="list-style-type: none"> 1. Ramp up to the MW amount of the Dispatch Instruction in accordance with the resource's Bid for Energy within 10 minutes. 2. Deliver Energy, in MWh, in accordance with the start-up time and Ramp Rate in the resource's Bid for Energy. <p><u>Generating Unit Dispatched from Non-Spinning Reserve:</u></p> <ol style="list-style-type: none"> 1. Connect to the grid and 2. Ramp up to the MW amount of the Dispatch Instruction in accordance with the resource's Bid for Energy within 10-minutes. 3. Deliver Energy, in MWh, in accordance with the start-up time and Ramp Rate in the resource's Bid for Energy. <p><u>Participating Load Dispatched from Non-Spinning Reserve</u></p> <ol style="list-style-type: none"> 1. Reduce Demand to the MW amount of the Dispatch Instruction in accordance with the resource's Bid for Energy within 10-minutes. 2. Deliver reduction in Energy, in MWh, in accordance with the Ramp Rate in the resource's Bid for Energy. <p><u>System Resource Dispatched from Spinning or Non-Spinning Reserve</u></p> <ol style="list-style-type: none"> 1. Affirmatively respond to the MW amount of the Dispatch Instructions. 2. Update the capacity E-Tag (if any) to include energy profile MW amount as soon as possible, but no later than 10-minutes after the end of the call with the CAISO System Operator. 3. Deliver Energy, in MWh, in accordance with the Ramp Rate in the resource's Bid for Energy.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Generation Dispatcher, CAISO Transmission Dispatcher
<ol style="list-style-type: none"> Determine acceptable time to terminate AS Compliance Test. (Transmission Dispatcher to coordinate with Generation Dispatcher) <ul style="list-style-type: none"> If the <u>Primary Method</u> (Contingency AS Test from RTN Software) was used, the unannounced compliance testing ends at the expiration of the ADS AS Test instruction. <ul style="list-style-type: none"> A courtesy phone call should be made to the Test Resource at the conclusion of the test. If the <u>Alternate Method</u> (Verbal) was used, the unannounced compliance test ends by a Verbal Instruction to the Test Resource or continues until the end of the trade hour if Test Resource is on a tie. <p>Note: <i>Tariff Appendix K requires AS resources to be deliverable for a minimum of 30 minutes from the time the resource reaches its award capacity.</i></p> Send an email to the CAISO Manager of Real-Time Operations, the CAISO Resource Test Administrator (ASNotifications@caiso.com) and isopostprocessgroup@caiso.com <ul style="list-style-type: none"> Stating that compliance testing for each test resource has been completed. Be sure to include detailed notes regarding Start Time hh:mm:ss, End Time hh:mm:ss, Ancillary Service Type, Award MW and Go to MW (Target MW).


3.1.2 Results Evaluation

3.1.2.1 Evaluate Test Results


The CAISO Resource Test Administrator evaluates and documents the results of the compliance testing, and sends the tests results to the SC and test resource owner.

CAISO Resource Test Administrator
<ol style="list-style-type: none"> Evaluate the test results according to the performance metrics, outlined in Section 3.1.1 for the respective resource type and service, <u>and</u> Determine whether the resource passed or failed the compliance test. Document the test results, including the following information: <ul style="list-style-type: none"> Trade date, operating hour, and time of unannounced AS test Dispatch Instruction. MW or MWh Amount of Dispatch Instruction. Resource output based on telemetry, meter data, or Balancing Authority check-out values. Performance metric calculation. Compliance testing passed or failed

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Resource Test Administrator	
<p>4. If a resource provides SPIN and NON-SPIN services <u>and</u> the evaluated test is a passing NON-SPIN test.</p> <ul style="list-style-type: none"> • The results will constitute a passing performance verification for Spin. • Resource owners and Scheduling coordinators will be notified of this additional assessment. 	
<p>5. If a battery or other (hybrid, hydro) type of resource that would normally not disconnect provides SPIN and NON-SPIN services <u>and</u> the evaluated SPIN or NON-SPIN test has passing results.</p> <ul style="list-style-type: none"> • A successful SPIN test will constitute a passing performance verification for NON-SPIN. • A successful NON-SPIN test will constitute a passing performance verification for SPIN. • Resource owners and Scheduling coordinators will be notified of this additional assessment. 	
6. Email the compliance test results to the SC and resource owner.	
7. Update the Resource Performance Verification Database.	
8. If the resource failed the compliance test,	
<ul style="list-style-type: none"> • Send a warning notice (see Section 3.1.2.2). 	
9. If an RA resource failed the compliance test,	
<ul style="list-style-type: none"> • Notify CAISO General Counsel. 	
10. If the resource failed the compliance test during a period when a warning notice is in effect,	
<ul style="list-style-type: none"> • Immediately decertify the resource (see Section 3.1.2.3). 	

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

3.1.2.2 Send Warning Notice


Take the following actions if a SPIN, NON-SPIN or Regulation capacity resource fails a performance audit or an unannounced compliance test.

CAISO Resource Test Administrator
<p><u>Warning Notice:</u></p> <ol style="list-style-type: none"> Upon failing a performance audit or unannounced compliance test, <ul style="list-style-type: none"> Send a warning notice to the resource owner/operator, the Scheduling Coordinator for the resource, and the Scheduling Coordinator's CAISO Client Representative, along with the performance audit or compliance test results. <p><i>Note: The warning notice will remain in effect until: 1) the resource is re-tested for the Ancillary Service by request from the SC or by the CAISO as part of unannounced compliance testing or 2) six calendar months have elapsed since the notification was issued.</i></p> In the Resource Performance Verification Database, enter the date on which the resource was issued a warning notice (this is the date on which a warning is in effect for the resource). <p><i>Note: For resources failing a monthly performance audit of either Regulation Up or Regulation Down services, the start of the six month warning period will be the first full month that starts at least 30 days after receipt of the Warning Notice.</i></p>

3.1.2.3 Decertify a Resource

If a SPIN, NON-SPIN or Regulation capacity resource fails a performance audit or unannounced compliance test during the period when a warning notice for that resource is in effect, the CAISO will immediately begin the decertification process.

CAISO Resource Test Administrator
<ol style="list-style-type: none"> Send email to CAISO Management stating the resource is subject to immediate decertification (attach relevant resource information from the Resource Performance Verification Database). Upon receiving approval from CAISO Management, <ul style="list-style-type: none"> Decertify the resource (Complete the remaining actions below).

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

CAISO Resource Test Administrator
<ul style="list-style-type: none"> • Send a letter to the Scheduling Coordinator for the resource, the resource owner/operator, and the Scheduling Coordinator's CAISO Client Representative. <ul style="list-style-type: none"> ○ Stating that the CAISO has initiated the decertification process for the resource for the affected service, along with the performance audit or compliance test results. 3. In the Resource Performance Verification Database, <ul style="list-style-type: none"> • Enter the date on which the resource was issued the letter. 4. Open a Change Request, <ul style="list-style-type: none"> • Requesting that the AS Service Flag for the resource in Master File be set to "No". 5. Once Master File has been updated (AS Service Flag = No), <ul style="list-style-type: none"> • Update the Resource Performance Verification Database with the date on which the resource was decertified.

3.2 Reliability Demand Response Resource (RDRR)


3.2.1 Plan and Execute Unannounced Testing

The CAISO periodically verifies the availability and performance of Reliability Demand Response Resources through unannounced testing of resources.

3.2.2 Select and Schedule Resources for Testing

Complete the following actions to select a test resource for unannounced availability and performance testing:


CAISO Generation Dispatcher
1. At any time when system conditions permit: <ul style="list-style-type: none"> • Refer to the Unannounced Testing reports sent from AS Notifications. • Select one or more resources. • Schedule unannounced availability and performance testing.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

3.2.3 Conduct availability and performance Tests

Complete the following actions to conduct an unannounced availability and performance test:

CAISO Generation Dispatcher		
<ol style="list-style-type: none"> 1. Verify the test resource meets system conditions. 2. Verify the test resource is not effected by any outages/flow limits that prevent the resource from delivering Demand Response services. 3. If the conditions specified in Steps 1 and 2 are satisfied: <ul style="list-style-type: none"> • Approve the test resource for dispatch if system condition allows, <u>or</u> • Cancel the planned unannounced testing and notify the CAISO Manager of Real-Time Operations. 4. If the test resource is approved for Dispatch, <ul style="list-style-type: none"> • Enter the RDRR Test Dispatch to their stated demand response MW value using the ED Tool with Instruction Type 'Test'. • Follow up with a phone call to the SC for the resource <u>and</u> <ul style="list-style-type: none"> ○ Inform them that the CAISO is initiating an Unannounced RDRR availability and performance Test. ○ Inform them that the availability and performance test will be for at least the resource minimum run time, <ul style="list-style-type: none"> ▪ Or less if system conditions dictate. ▪ If the SC requests a self-test beyond the minimum run time, instruct the SC to put the resource on an outage for the duration of the self-test. 		
<table border="1"> <thead> <tr> <th>Example Communication with SC</th> </tr> </thead> <tbody> <tr> <td> <p><i>"This is (state your name) from the California ISO. I am informing you that I have initiated an Unannounced RDRR availability and performance Test and have issued an ED for RDRR Test Dispatch on (Resource ID) for the stated demand response value in the amount of (MW) for Hour Ending (HE). The planned duration of the test will be for at least the resource's minimum run time. We will contact you by phone if necessary to end the test sooner due to system conditions. If you wish to perform a self-test beyond the minimum run time, please place the resource on outage for that self-test. Please repeat back these instructions."</i></p> </td> </tr> </tbody> </table>	Example Communication with SC	<p><i>"This is (state your name) from the California ISO. I am informing you that I have initiated an Unannounced RDRR availability and performance Test and have issued an ED for RDRR Test Dispatch on (Resource ID) for the stated demand response value in the amount of (MW) for Hour Ending (HE). The planned duration of the test will be for at least the resource's minimum run time. We will contact you by phone if necessary to end the test sooner due to system conditions. If you wish to perform a self-test beyond the minimum run time, please place the resource on outage for that self-test. Please repeat back these instructions."</i></p>
Example Communication with SC		
<p><i>"This is (state your name) from the California ISO. I am informing you that I have initiated an Unannounced RDRR availability and performance Test and have issued an ED for RDRR Test Dispatch on (Resource ID) for the stated demand response value in the amount of (MW) for Hour Ending (HE). The planned duration of the test will be for at least the resource's minimum run time. We will contact you by phone if necessary to end the test sooner due to system conditions. If you wish to perform a self-test beyond the minimum run time, please place the resource on outage for that self-test. Please repeat back these instructions."</i></p>		

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	


Scheduling Coordinator
<ol style="list-style-type: none"> Upon receiving an ADS instruction, perform the actions below: <ul style="list-style-type: none"> Reduce Demand to the MW amount of the Dispatch Instruction within the notification time for that resource. Sustain for at least the minimum run time, unless notified verbally by the CAISO Generation Dispatcher to end the test sooner. <ul style="list-style-type: none"> If running a self-test beyond the minimum run time, submit an outage card for the duration of the self-test.

CAISO Generation Dispatcher
<ol style="list-style-type: none"> Determine acceptable time to terminate RDRR Performance Test after either the resource minimum run time has elapsed, or less as system conditions dictate. <ul style="list-style-type: none"> If system conditions require ending the RDRR Performance Test prior to elapse of resource minimum run time, <ul style="list-style-type: none"> Notify the Test Resource verbally <u>and</u> End the ED instruction in the ED Tool. Send an email to the CAISO Manager of Real-Time Operations and the CAISO Resource Test Administrator (ASNotifications@caiso.com), <ul style="list-style-type: none"> Stating that testing for each test resource has been completed. Be sure to include detailed notes regarding Resource_ID, Start Time hh:mm:ss, End Time hh:mm:ss, MW value and Go to MW (Target MW).

3.2.4 Evaluate and Send Test Results

The CAISO Resource Test Administrator evaluates and documents the results of the availability and performance testing upon availability of the information, and sends the tests results to the SC and test resource owner.

CAISO Resource Test Administrator
<ol style="list-style-type: none"> Determine the test results. Document the test results, including the following information: <ul style="list-style-type: none"> Trade date, operating hour, and time of unannounced test. Dispatch Instruction. MW or MWh Amount of Dispatch Instruction. Resource output based on meter data. Email the test results to the SC and LRA. Update the Resource Performance Verification Database.

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Note: If the DRP conducts their own test, the DRP shall submit their self-test results to the CAISO at ASNotifications@caiso.com as well as their LRA.

4. Supporting Information

Operationally Affected Parties

Shared with the Public.

References

Resources studied in the development of this procedure and that may have an effect upon some steps taken herein include but are not limited to:

CAISO Tariff	Sections 8.9, 8.10, and Appendix K
CAISO Operating Procedure	
NERC Requirements	
WECC Criterion	
Other References	


Definitions

Unless the context otherwise indicates, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have that meaning when capitalized in this Operating Procedure.

The following additional terms are capitalized in this Operating Procedure when used as defined below:

LMP	Locational Marginal Price
RA Resource	Resource Adequacy Resource
SC	Scheduling Coordinator
System Resource	An individual or group of resources located outside the CAISO Balancing Area capable of providing Energy and/or AS Capacity to the CAISO controlled grid

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*


 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Test Resource	Any Generating Unit, Dispatchable Load, or System Resource that is subject to Unannounced compliance or availability and performance testing
Unannounced Compliance Test	A test that is not announced prior to the dispatch of a Generating Unit, Participating Load, or System Resource for its ability to deliver the correct amount of Ancillary Service Capacity
Unannounced Availability and Performance Test	A test that is not announced prior to the dispatch of a Load or aggregation of Loads for its ability to deliver the correct amount of Demand Response Services
Reliability Demand Response Resource (RDRR)	A Load or aggregation of Loads that has the characteristics of a Reliability Demand Response Resource set forth in Section 4.13.5, satisfies all other requirements applicable to a Reliability Demand Response Resource set forth in the CAISO Tariff, and is capable of measurably and verifiably providing Demand Response Services pursuant to the Demand Response Provider Agreement, including but not limited to Sections 4.1 and 4.3 of the Demand Response Provider Agreement and excluding Section 4.2 of the Demand Response Provider Agreement.

Version History


Version	Change	Date
6.1	Section 3.2.2: Resource Operator Action Table: Updated note. Section 3.3: Corrected Note to match wording in the Notes area of the Purpose section.	8/25/17
6.2	Updated Section 3.2.2 Conduct Compliance Tests to clarify operator and resource owner role. Replaced A/S with AS. Minor format and grammar updates throughout. Removed version history prior to 3-years.	10/01/18
6.3	Updated Purpose with section references. Replaced Interchange Scheduler with Transmission Desk throughout. Section 2.1: Replaced AS references with services. Section 3.2.2: Updated to reflect changes within the new EMS. Minor grammar and format changes throughout.	10/02/19
7.0	Periodic Review: Purpose: Added Section 34.18.1 CAISO Tariff reference regarding RDRR.	3/11/20

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Version	Change	Date
	<p>Responsibilities: Updated ISO Resource Test Administrator, ISO Generation Desk and ISO Shift Manager Desk to include "Performance" testing.</p> <p>Section 2: Updated to include RDRR.</p> <p>Added 3.1 Ancillary Service Resources section title and renumbered following subsections.</p> <p>Added main Section 3.1 for Ancillary Service Resources title.</p> <p>Created Section 3.1.1 Testing Criteria to include all criteria that was originally under Section 3.1 Conduct Performance Audits and Step 3 for ISO Resource Test Administrator.</p> <p>Section 3.1.1.2.2: Added Step 5.</p> <p>Added Section 3.1.2 Results Evaluation title.</p> <p>Section 3.1.2.2: Added second note.</p> <p>Added 3.2 Reliability Demand Response (RDRR) section and all sub-sections within, including verbiage for operator phone calls to SC.</p> <p>Changed 'Compliance' to 'Availability and Performance' in all RDRR references.</p> <p>Definitions: Added Unannounced Availability and Performance Test and Reliability Demand Response Resource.</p> <p>Minor grammar and format changes throughout.</p>	
7.1	<p>Removed instances of RUC and RUC Capacity throughout.</p> <p>Purpose Section: Removed RUC Availability Payment, updated Tariff Section references, and updated remaining CAISO to ISO except when relating directly to the CAISO Tariff.</p> <p>Section 3.2, changed the test duration to 'resource minimum run time'. Any longer test requested by SC is considered a self-test, and instructs SC to put resource on outage for self-test duration.</p> <p>Section 3.2.3: Updated ISO Generation Desk and Scheduling Coordinator tasks.</p> <p>Section 3.2.4: Minor update.</p> <p>Section 5: Updated review frequency to every three years.</p>	5/07/20
7.2	Section 3.1.1.2.2: updated verify process for when units are on AGC.	10/02/20
7.3	<p>Section 3.1.1.2.1: Added instructions on selecting resources to test.</p> <p>Section 3.1.1.2.2: Updates made for AS Testing enhancement.</p> <p>Added clarification for conducting non-spin tests and added details regarding contact types used.</p> <p>Section 3.1.2.1: Made changes to evaluation of results based on specific criteria.</p> <p>Minor grammar and format edits.</p>	9/14/21

*This document is controlled when viewed electronically.
When downloaded or printed, this document becomes UNCONTROLLED.*

 California ISO	Operating Procedure	Procedure No.	5370
		Version No.	7.4
		Effective Date	9/11/23
Resource Performance Verification		Distribution Restriction: None	

Version	Change	Date
7.4	Periodic Review: Updated from Shift Manager to Manager, Real-Time Operations or Manager of Real-Time Operations, and updated from Generation and Transmission “Desk” to “Dispatcher”. Removed history prior to five years.	9/11/23

5. Periodic Review Procedure

Review Criteria & Incorporation of Changes

There are no specific criteria for reviewing or changing this document, follow instructions in CAISO Operating Procedure 5510.

Frequency

At least once every three years.

Appendix

No references at this time.