

**PUBLIC UTILITIES COMMISSION**

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



February 24, 2022

**Via E-mail and U.S. Mail**

Mr. John Spomer, Senior Counsel  
California Independent System Operator Corporation  
250 Outcropping Way  
Folsom, CA 95630  
[jspomer@caiso.com](mailto:jspomer@caiso.com)

**Re: Combined Subpoena for General RA information necessary for the CPUC to evaluate Resource Adequacy program and policies**

Dear Mr. Spomer:

The California Public Utility Commission's ("CPUC"), pursuant to its duties to establish and administer California's Resource Adequacy requirements for load serving entities under the CPUC's jurisdiction, subpoenas information and data in the possession of the California Independent System Operator ("CAISO"). The attached subpoena requests certain data and information necessary for the CPUC to evaluate the Resource Adequacy program and policies as detailed in Exhibit A.

This letter confirms that all confidential information contained in any documents produced by the CAISO in response to the above-referenced subpoena will be treated in accordance with the terms of the Confidentiality Letter Agreement between the Commission and the CAISO, dated April 28, 2004. If you have any questions or concerns, please feel free to contact me at (415) 696-7329.

Sincerely,

***Marybelle C. Ang***

Marybelle C. Ang  
Attorney

cc: Michele Kito, CPUC  
Natalie Guishar, CPUC

PUBLIC UTILITIES COMMISSION  
STATE OF CALIFORNIA  
505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102

## PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**Re: Combined Subpoena for General RA information necessary for the CPUC to evaluate Resource Adequacy program and policies**

**SUBPOENA OR  
SUBPOENA DUCES TECUM  
(Cal. Pub. Util. Code § 311)**

THE PEOPLE OF THE STATE OF CALIFORNIA,

**TO: The Custodian of Record for the California Independent System Operator Corporation, 250 Outcropping Way Folsom, CA 95630**

1. Pursuant to section 311(a) of the Public Utilities Code, you are ordered to appear before the California Public Utilities Commission, located at 505 Van Ness Avenue, San Francisco, California, 94102 to testify as a witness in this matter unless your appearance is excused as indicated in box 2c below or you make an agreement with the person named in item 4 below.
2. You are:
  - a.  Ordered to appear in person.
  - b.  Ordered to appear in person and produce the documents described in Exhibit A. The personal attendance of the custodian or other qualified witness and the production of the original records is required by this subpoena.
  - c.  Not required to appear in person if you produce copies of the documents described in Exhibit A to the persons named in item 4, below, and in Exhibit A, prior to the dates and times set forth in Exhibit A.
3. If you have been subpoenaed as a witness, you are entitled to witness fees and mileage actually traveled, as provided by law. You may request one day's witness and mileage fees for travel to and from the place you are required to appear. You may demand these fees at the time of service from the process server or from the party or attorney requesting the subpoena. If they are not paid or tendered at that time, or unless the subpoena was obtained by the Commission staff, you are not required to appear (Public Utilities Code Section 1791).
4. IF YOU HAVE ANY QUESTIONS ABOUT THIS SUBPOENA OR YOU WANT TO BE CERTAIN WHETHER YOUR PRESENCE IS REQUIRED, CONTACT THE FOLLOWING PERSON:


Name: Marybelle C. Ang

Telephone: (415) 696-7329

**DISOBEDIENCE OF THIS SUBPOENA MAY BE PUNISHED AS CONTEMPT BY THIS COMMISSION**

By Order of the Public Utilities Commission of the State of California.

Dated this 18<sup>th</sup> day of February 2022.

By:   
Rachel Peterson  
Title: Executive Director

**DECLARATION IN SUPPORT  
OF SUBPOENA DUCES TECUM**

I, Marybelle Ang declare as follows:

1. I am an attorney duly licensed to practice in the State of California and am employed as a staff attorney for the California Public Utilities Commission (hereinafter “CPUC”). My business address is 505 Van Ness, San Francisco, California. Good cause exists for the production of the documents requested in the Subpoena Duces Tecum issued by the CPUC to the California Independent System Operator Corporation (“CAISO”), as set forth with particularity in Exhibit A attached to the Subpoena Duces Tecum, in that the documents are material to the Commission’s on-going implementation of the Resource Adequacy Requirements in Rulemaking 14-10-010, pursuant to Public Utilities Code § 380, and implementation of General Order 167.

2. It is my understanding and belief that the documents requested are in the custody, control and/or possession of the CAISO.

Executed under penalty of perjury under the laws of the State of California, on this 24th day of February, 2022, at San Francisco, California.

/s/ Marybelle C. Ang  
Marybelle C. Ang

**Exhibit A to  
Subpoena for data and information necessary to evaluate  
Resource Adequacy program and policies**

**INSTRUCTIONS AND DEFINITIONS**

The following instructions and definitions apply to each Request for Production of Documents ("Request") herein, and each Request is to be responded to as if these instructions and definitions were set forth in full, with regard to it.

Each Request calls for all documents responsive to that Request that are in your possession, custody, or control, including documents in the possession of your attorneys, investigators, representatives or others acting on your behalf or under your direction or control. You must make a diligent search of your records and of other papers and any materials in your possession or available to you or to persons subject to your influence and control.

If you claim privilege as to any documents, state the nature of the privilege, all facts that support the claim of privilege, the person claiming the privilege and a full and complete description of the document, including its title, date, author, nature, the job titles of the document's author(s), recipients(s), and persons copied (e.g., "cc" or "bcc"), form (e.g., letter, memorandum, etc.), subject matter and the name and address of the present custodian of the original or any copies of the document known to you.

The singular number and masculine gender as used herein also mean the plural, feminine or neuter, as is necessary to give the broadest possible scope to each Request.

The following definitions apply to each Request for Production of Documents ("Request") herein, and each Request is to be responded to as if these definitions were set forth in full, with regard to it:

**“DOCUMENT”** means any written, printed, typed, recorded, magnetic, punched, copied, graphic or other tangible thing in, upon, or from which information may be conveyed, embodied, translated, or stored, including, but not limited to, papers, records, books, telegrams, telexes, dictation or other audio tapes, video tapes, computer tapes, computer disks, diskettes, CD ROMs, computer printouts, microfilm, microfiche, laser disks, diaries, calendars, photographs, charts, viewgraphs, drawings, sketches and all other writings or drafts thereof, as well as any other writings as defined in California Evidence Code Section 250. This definition expressly includes, without limitation, all originals, drafts, non-conforming copies, reproductions, facsimiles of written, typed or printed material of any kind, books, letters, contracts, minutes of meetings,

memoranda, notes on desk calendars and appointment books, canceled checks, invoices, correspondence, telegrams, telex messages, intra-office communications, electronic mail messages, photographs and films, art work and information stored on tape, computer disk or any other type of data storage device. If copies of a document are not identical by reason of hand notations, initials, identification marks or any other modification, each such non-identical copy is a separate document within the meaning of this definition.

**"PERSON"** means any natural person and any other cognizable entity, including without limitation, corporations, proprietorships, partnership, joint ventures, consortiums, Limited Liability Company, clubs, associations, foundations, governmental agencies or instrumentalities, societies, and orders. As used in the document requests, the acts and knowledge of a "person" are defined to include the acts and knowledge of that person's directors, officers, members, employees, licensees, representatives, agents, and attorneys.

**"RESPONDENT" and "CAISO or ISO"** refer to the California Independent System Operator Corporation (CAISO), its officers, directors, employees, agents, representatives, and attorneys, responding party (ies), their predecessor(s) and successor(s) in interest, their agents, employees, servants, officers, representatives, counsel, and anyone else acting on its behalf or at its request.

**"RELATE" and "RELATING TO"** mean consisting of, summarizing, identifying, explaining, reflecting, describing, discussing, pertaining to, containing, mentioning, concerning, illustrating, referring to, alluding to, responding to, commenting on, in respect of, about, regarding, discussing, involving, analyzing, constituting, or referring to in any way.

**"ANY"** includes and encompasses "all" and "all" includes and encompasses "any". "Or" includes and encompasses "and" and "and" includes or encompasses "or." Each of these terms shall be interpreted to give the broadest possible scope to each Request.

### **MATERIALITY**

Currently, the CAISO provides the CPUC with ongoing access to the CAISO Outage Management System (OMS) Web Client and to the CAISO Daily Outage Report, pursuant to a CPUC subpoena dated September 30, 2003. As described in that subpoena, the CPUC developed General Order 167 (GO 167) to meet its obligations under Public Utilities Code §761.3, which require the CPUC to, among other things, implement and enforce maintenance and operation standards for electric generating facilities. The CPUC's Safety and Enforcement Division (SED)

accesses OMS daily to obtain scheduling and outage information regarding individual generators.

California Assembly Bill 380, now PU Code §380, requires that the CPUC, in consultation with the CAISO, establish resource adequacy requirements for all load serving entities within the CPUC's jurisdiction. Per §380, RA requirements must facilitate the development of new generating capacity, equitably allocate the cost of generating capacity, and minimize enforcement requirements and costs. The CPUC's RA program annually establishes minimum capacity obligation requirements for CPUC jurisdictional load serving entities (LSEs) on a one year-ahead basis at both the system and local level. D. 05-10-043 established system RA requirements and D.06-06-064 established local RA requirements. The CPUC also adopted a flexible RA capacity requirement in D.13-06-024. Through R.19-11-009, the CPUC currently administers its Resource Adequacy (RA) program and requires all Load Serving Entities ("LSEs") to demonstrate compliance by entering capacity contracts with generators on a year-ahead and month-ahead basis, and in specific local areas. The CPUC's Energy Division (ED) administers the RA program, reviews all RA-related compliance filings, and advises the presiding Administrative Law Judge in the ongoing RA proceeding(s).

Since 2017, with the passage of SB 350, now PU code §454.51 and §454.52, the CPUC administers the Integrated Resource Planning program that among other things requires the CPUC to "Identify a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy in a cost-effective manner." This will require modeling of reliability and cost constraints on the electrical generators, and usage of accurate and detailed information about the CAISO's electric operations.

Finally, the CPUC is also tasked in PU Code §714 with studying the "feasibility of minimizing or eliminating use of the Aliso Canyon natural gas storage facility" and is ordered to use the best available data in making the determination of how to perform that study. For that reason, the data requested in this subpoena specifically will be used to inform modeling and analysis in the RA, IRP, and Aliso proceedings. If there are additional unanticipated uses, in accordance with Public Utilities Code sections 311 and 701, of this data that the CPUC encounters in the future, the CPUC will notify and confer with the CAISO on the scope of use for the data at issue.

This subpoena requests critical data and information which will allow the CPUC to evaluate the success of the RA program on an annual and monthly basis, and to determine whether program modifications could improve the CPUC's ability to fulfill its statutory duties in future program years. ED staff also requests the data in support of the IRP proceeding, the Aliso Canyon OII, and other modeling efforts. Specifically, ED staff uses plant specific information for generators that are dispatched to serve CAISO and other California electricity demand in simulating their dispatch over hourly and potentially sub-hourly time steps. Calculating, predicting, and planning for reliability, cost, and GHG impacts related to IRP procurement in the future, as well as possible curtailment of the Aliso Canyon gas storage field, requires ED staff to have accurate and complete resource specific operating characteristics of generating facilities. If ED staff needs to broaden the use of the requested data for additional purposes in accordance with Public Utilities Code Sections 311 and 701, it will notify and confer with the CAISO on the scope of use for the data at issue.

As such, this subpoena is meant to be an inclusive subpoena, renewed annually. The subpoena requests that the CAISO deliver data to the CPUC at scheduled intervals, to reflect the availability of the data at CAISO. The CPUC requests data in twenty-five broad categories: (1) RA import allocations, (2) Supply Plans Filed by generators and Monthly Supply Plan Validations for RA resources (3) List of Units Confirmed to Provide Resource Adequacy, (4) Economic Bids and Self-Schedules, (5) CAISO settlement quality meter data, (6) Access to OMS application, (7) Monthly Masterfile Data (8) Flexible Capacity Needs Assessment Data and Allocations, (9) Access to Customer Interface for Resource Adequacy (CIRA), (10) Energy Management Systems (EMS) data, (11a) Capacity Procurement Mechanism (CPM) and Capacity Solicitation Process (CSP) results, (11b) Capacity Procurement Mechanism (CPM) Settlement Data, (11c) Reliability Must Run (RMR) Cost Data, (12) Reliability Event Reports sent to WECC, (13) Demand Response (PDR/RDRR) and Non-generating Resource (NGR) Settlement Data Files, (14) CPUC Jurisdictional LSE Annual and Monthly Deficiency Notices, (15) Local Capacity Study Data, (16) Local Residual Analysis, (17) CPM and RMR Designation Capacity Costs and Allocations, (18) Notices of Intent to Retire, Mothball, or Return to Service, (19) CEC Subpoena Data, (20) Resource Adequacy Availability Incentive Mechanism (RAAIM) Data, (21) DR Registration System Information, (22) Price Taker Exports, (23) Use Limited Resource Information, (24) Wheeling Transactions, and (25) Counting Firm Load as Contingency

Reserves by Investor-Owned Utilities. The schedule for delivery of requested information is presented in Table 1.

The field names and date formats in the data files shall not be changed over the course of the year, or from one year to the next. CPUC requests that all data and notifications identified in this subpoena be sent to the following e-mail addresses: [RAFiling@cpuc.ca.gov](mailto:RAFiling@cpuc.ca.gov), [Natalie.Guishar@cpuc.ca.gov](mailto:Natalie.Guishar@cpuc.ca.gov), and [Eric.Dupre@cpuc.ca.gov](mailto:Eric.Dupre@cpuc.ca.gov).

## **DESCRIPTION OF DATA REQUESTED**

### **1. Resource Adequacy Import Allocations**

The CPUC now has access to CAISO's CIRA application and no longer needs the CAISO to provide this Import Allocation file. However, if CIRA becomes inaccessible or if the data contained therein becomes inaccurate, CAISO will provide the import allocation information to the CPUC at a time mutually agreeable by the parties.

Specifically, the CAISO will provide the final numerical values per branch group and per LSE of import allocations received by LSEs applicable for the 2022 and 2023 compliance years. Please format the information similar to the chart posted here, including the source data for previous steps in the import allocation process: <http://www.caiso.com/Documents/2022-Holders-of-Import-Capability.pdf>

### **2. Supply Plans Filed and Monthly Supply Plan Validations for RA resources**

The CPUC currently has access to supply plan validation files through the CIRA application. However, if CIRA becomes inaccessible or if the data contained therein becomes inaccurate, CAISO will provide to the CPUC, at a time mutually agreeable by the parties, two spreadsheets which show validation of Year Ahead, as well as monthly System, Local, and Flexible RA Filings by all LSEs serving load in CAISO. The CAISO will also include both the monthly supply files and the annual supply files submitted at the end of October. The validation spreadsheets will list all RA capacity committed to provide RA to any LSE. The CPUC specifically requests two sets of files, an initial validation, and a final validation. The initial validation is to be performed before any corrections or communications with suppliers is performed, to allow the CPUC to validate filings as of the RA Filing due date (currently at T-45 days before the beginning of the RA compliance or trade month). A second validation is to be performed after all corrections and re-filings have been performed. This is to ensure that after remediation by LSEs and suppliers, all RA Filings are ready for approval. In addition to these two sets, the CPUC requests that the ISO provide, on an as needed basis as requested by CPUC staff, any additional updated cross validation files between the T-45 and T-30 sets. Please provide a spreadsheet in MS Excel with a tab for all RA resources (both physical resources internal to CAISO and system resources external to CAISO) committed as RA, both those resources where suppliers confirmed RA capacity that was listed in RA Filings, and that capacity committed by suppliers as RA that did not match with any LSE RA Filing. Also note that this subpoena requests data for all system and flexible RA resources, including those resources listed



by non-CPUC jurisdictional LSEs. Within the System RA Validation file, please include the following columns:

**Columns for the System RA Validation File:**

RA Validation Status	“Passed” = LSE gets credit for RA Capacity MW “Error” = LSE does not get credit for RA Capacity MW
Supply Validation Status	“Pass” or “Warning” = Resource ID is committed for Supply Capacity MW “Error” = Resource ID is not committed for Supply Capacity MW
RA LSE	The name of the LSE claiming the facility as RA capacity
Resource ID	The facility’s identification used for scheduling
SCID/Scheduling Coordinator ID	The Scheduling Coordinator for the facility
Effective Start Date	When the RA Capacity MW starts
Effective End Date	When the RA Capacity MW ends
RA Capacity (MW)	RA Capacity shown on LSE’s RA plan
Supply Capacity (MW)	Total RA Capacity shown on supplier’s supply plan
Comments	Description of error or warning

Within the Flexible RA Validation file, please include the following columns:

**Columns for Flexible RA Validation File:**

RA Validation Status	“Passed” = LSE gets credit for RA Capacity MW “Error” = LSE does not get credit for RA Capacity MW
Supply Validation Status	“Pass” or “Warning” = Resource ID is committed for Supply Capacity MW “Error” = Resource ID is not committed for Supply Capacity MW
RA LSE	The name of the LSE claiming the facility as RA capacity
Resource ID	The facility’s identification used for scheduling

SCID/Scheduling Coordinator ID	The Scheduling Coordinator for the facility
Effective Start Date	When the RA Capacity MW starts
Effective End Date	When the RA Capacity MW ends
RA Flex Category	Flexible Capacity category shown on LSE's RA plan
Supply Flex Category	Flexible Capacity category shown on supplier's supply plan
RA Flexible Capacity (MW)	Flexible RA Capacity shown on LSE's RA plan
Supply Flexible Capacity (MW)	Flexible RA Capacity shown on supplier's supply plan
Comments	Description of error or warning

**Specifications of data:** The CAISO is requested to provide the data in MS Excel format. A template for the supply plan validation file is provided as Appendix A with a format for the CAISO to fill out and send to the CPUC. Please provide two files, one for the system RA validations and the other for the flexible RA validations. Please provide both files again for final validations.

**Dates covered by this item:** Year Ahead Filings for 2022 RA compliance year, as well as all month-ahead filings for the months of 2022. In addition, this subpoena requests access to the Year Ahead Filings of 2023 and the first Month Ahead Filings for January through March 2023.

### 3. List of Units Confirmed to Provide Resource Adequacy to the CAISO

The CPUC now has access to CAISO's CIRA application and no longer needs the CAISO to provide these files. However, if CIRA becomes inaccessible or if the data contained therein become inaccurate, CAISO will provide to the CPUC (1) a monthly list of all Resource IDs that are confirmed as RA capacity for the following operational month and (2) a spreadsheet in MS Excel with a tab for each month, adding information for each month as it becomes available after RA units are confirmed for the operational month. Within each tab, CAISO will create and fill in the following columns:

- a. **Resource Name** – all Resources confirmed to provide RA capacity that month
- b. **SCID for the Resource** – the SCID for the resource that is providing RA capacity
- c. **SCID for the LSE** that the resource is committed to provide RA capacity to
- d. **Resource ID** – the Resource ID of the unit providing RA
- e. **Supply RA Capacity** – Amount in MW of RA capacity that the unit has confirmed to provide to the CAISO

- f. **Scheduled Outage Replacement Capacity** – Amount in MW of replacement capacity on each unit that is being replaced for the month.
- g. **Start and End Dates** of confirmed capacity or replacement capacity on same line as the capacity

#### 4. Economic Bids and Self-Schedules

In order to evaluate DRAM Resources in the CAISO Market, verify compliance with the CPUC Flexible, Local, and System RA compliance obligations, evaluate net qualifying capacity of combined heat and power (CHP) and biomass resources, assist staff in evaluating energy procurement and scheduling patterns, and enable staff to assess the interaction between market outcomes and reliability, the CPUC requests that the CAISO provide resource-specific hourly economic or self-schedule bid data for every generator and load, namely: generators, RDRR, PDR, imports, exports, and load that participates in the CAISO electricity market. CPUC staff must assess patterns in bidding or scheduling of import and export energy as staff develops import and export assumptions about future load and resource balance for IRP modeling. In addition, to better assess market outcomes, CPUC staff must be able to assess demand bids in the CAISO markets.

The following data can be provided in a single file. For bid segment data, the CPUC is requesting the max bid segment. On a case-by-case basis, however, the CPUC may request additional bid segments for a subset of information. These data allow the CPUC to analyze behavior of each individual generator, import or export energy resource, DR program, load, and aggregate quantities either economically bid or self-scheduled in the CAISO. All files will be in .csv format.

**Generator and Demand Response (PDR/RDRR)** – Information is requested for all of 2022 beginning on 1/1/2022 and continuing for each month through 2022, according to the timeline in Table 1.

**Imports** – The CPUC requests the following information for import energy resources that participate in the CAISO electricity market starting from January 1, 2022, through December 31, 2022, according to the timeline in Table 1. The CPUC will use the requested data to assess patterns in resource bidding and scheduling to enhance IRP modeling. CPUC will also use these data to adequately evaluate the current RA import rules (including qualifying capacity and Must Offer Obligation).

**Exports** – The CPUC requests the following information for exports from the CAISO electricity market starting from January 1, 2022, through December 31, 2022, according to the timeline in Table 1. CPUC will use these data to assess patterns in resource bidding and scheduling.

**Load** – The CPUC requests the following information for bid-in load in the CAISO electricity market starting from January 1, 2022, through December 31, 2022, according to the timeline in Table 1. CPUC will use these data to assess demand bidding patterns and to better understand market outcomes.

Multiple bid segments are noted below as “segment [X].”

<u>CPUC Field Name</u>	<u>ISO Native Field Name</u>
<b>Unit Type</b>	UNIT_TYPE
<b>Resource ID</b>	RESOURCE_NAME
<b>Scheduling Coordinator ID</b>	SCID
<b>Trade Date</b>	TRADE_DATE
<b>Trade Hour</b>	TRADE_HOUR
<b>Real Time Market Dispatch Quantity</b>	RTM_DISPATCH_QUANTITY
<b>Real Time Market Dispatch Price</b>	RTM_DISPATCH_PRICE
<b>Real Time Bid Segment [X] Quantity</b>	RTM_BID_QUANTITY
<b>Real Time Bid Segment [X] Price</b>	RTM_BID_PRICE
<b>Real Time Market Self-Schedule Capacity (MW)</b>	RTM_SELFCHEDMW
<b>RUC Dispatch Quantity</b>	RUC_DISPATCH_QUANTITY
<b>Day Ahead Market Dispatch Quantity</b>	DAM_DISPATCH_QUANTITY
<b>Day Ahead Market Dispatch Price</b>	DAM_DISPATCH_PRICE
<b>Day Ahead Bid Segment [X] Quantity</b>	DAM_BID_QUANTITY
<b>Day Ahead Bid Segment [X] Price</b>	DAM_BID_PRICE
<b>Day Ahead Market Self-Schedule Capacity (MW)</b>	DAM_SELFCHEDMW

Definition of each field name:

- a. **Unit Type** – To help differentiate generator, demand response, or import energy
- b. **Resource ID** – The Resource ID for each unit
- c. **Scheduling Coordinator ID** – The four letter SCID that represents the SC for the resource
- d. **Trade Date** – Please include every day of the month
- e. **Trade Hour** – Please include all 24 hours each day
- f. **Real Time Market Dispatch Quantity**– Please provide the hourly integrated MW quantity at which the resource was dispatched during the hour in the real time market.
- g. **Real Time Market Dispatch Price** – Please provide the hourly integrated dollar value dispatch price paid to the resource in the real time market.
- h. **Real Time Bid Segment [X] Quantity** – Please provide the MW range of each individual real time bid segment for the given hour in a separate field (replace “[X]” with “1,” “2,” etc.). If the resource does not bid, leave this field blank. Do not enter 0. The default request is for the max bid. On a case-by-case basis, the CPUC may request additional bid segments for a subset of information.
- i. **Real Time Bid Segment [X] Price** – Please provide the price of each individual real time bid segment for the given hour in a separate field (replace “[X]” with “1,” “2,” etc.). If the resource does not bid, leave this field blank. Do not enter 0.

The default request is for the max bid. On a case-by-case basis, the CPUC may request additional bid segments for a subset of information.

- j. Real Time Market Self-Schedule Capacity (MW)** – Please provide the MW quantity scheduled into the RTM if scheduled. If the resource bids and does not self-schedule leave this field blank. Do not enter 0.
- k. RUC Dispatch Quantity** – Please provide the hourly MW quantity committed for this resource via the RUC process. If CAISO did not commit capacity via the RUC process for the resource in a given hour, leave this field blank. Do not enter 0.
- l. Day Ahead Market Dispatch Quantity** – Please provide the hourly integrated MW quantity at which the resource was dispatched during the hour in the day ahead market.
- m. Day Ahead Market Dispatch Price** – Please provide the hourly integrated dollar value dispatch price the resource received in the day ahead market.
- n. Day Ahead Bid Segment [X] Quantity** – Please provide the MW range of each individual day ahead bid segment for the given hour in a separate field (replace “[X]” with “1,” “2,” etc.). If the resource does not bid, leave this field blank. Do not enter 0. The default request is for the max bid. On a case-by-case basis, the CPUC may request additional bid segments for a subset of information.
- o. Day Ahead Bid Segment [X] Price** - Please provide the price of each individual day ahead bid segment for the given hour in a separate field (replace “[X]” with “1,” “2,” etc.). If the resource does not bid, leave this field blank. Do not enter 0. The default request is for the max bid. On a case-by-case basis, the CPUC may request additional bid data for a subset of information.
- p. Day Ahead Market Self-Schedule Capacity (MW)** – Please provide the MW quantity scheduled into the IFM if scheduled. If the resource bids and does not self-schedule leave this field blank. Do not enter 0.

## **5. Settlement Quality Meter Data**

CPUC requests provision of settlement quality meter data from all generator and load resources that participate in the CAISO electricity market. CPUC staff requires access to these data in order to properly evaluate performance of LSE contracted generation, develop QC for CHP and biomass resources in the RA program, develop accurate production profiles for non-dispatchable resources in IRP and RA modeling, properly assess patterns of import and export to validate hourly modeling in the RA and IRP proceedings, and better understand and analyze market outcomes. CPUC staff are also evaluating patterns of energy flow and dispatch in order to inform long term procurement guidelines for LSEs and to inform our comments related to CAISO market design.

**Resources covered:** All generator types including (but not limited to) wind, hydro, solar, geothermal, biomass, cogeneration, import resources, and demand response. Also include load in, imports to, and exports from the CAISO market.

**Time period of data requested:** For 2022 data, the CPUC requests provision of the T+9B and T+70B Settlement Quality Meter Data from 1/1/22 through 12/31/22 for all resources. A detailed schedule is described in Table 1.

**Specifications of data:** The CAISO is requested to prepare either one or two settlement files, depending on whether supply and load settlement data must be reported separately in CAISO's system. (If not, one file is acceptable.) Supply settlement data should contain hourly (8,760 entries per year or 8,784 entries in a leap year) actual settlement quality meter data reported by all Resource IDs. Load settlement data should also contain hourly (8,760 entries per year or 8,784 entries in a leap year) actual settlement data for all loads. Each current supply and load Resource ID should be reported separately. Data should be listed using the current (*i.e.*, applicable in 2022) Resource ID; previous Resource IDs are not needed.

Data should be sent in a comma separated value (.csv) file. Six columns are needed:

- a. **Scheduling Coordinator ID** – the four letter SCID that represents the SC for the resource
- b. **Res\_ID** - Resource ID
- c. **Date** - The standardized date in the format MM/DD/YYYY
- d. **Hour** - The hour in which the MWh to be reported was generated. All hours should be in the hour-ending (1 through 24) format. For example, a data field with the number “4” will represent all the MWh produced in the hour from 0300 through 0359.59. There should be no adjustment for Daylight Savings Time. A year is presumed to have 8,760 hours occurring in it, except for leap years, which would have 8,784 hours.
- e. **MWh** - The total MWh metered (either positive for generation or negative for demand response) in the 60 minutes for the hour being reported. Missing data should be represented as a blank cell and periods of no generation should be marked as a zero.
- f. **Tie** – For imports and exports, report the intertie or scheduling point.

**Description of intended use** -The CPUC intends to use the requested data primarily for the purpose of preparing and posting to its website the following reports:

- a. Annual Net Qualifying Capacity Report for the subsequent compliance year: The CPUC or the CEC on the CPUC's behalf will use the settlement quality meter data to compute Qualifying Capacity values for intermittent resources subject to the CPUC counting conventions and will post the Net Qualifying Capacity totals on the CPUC website.
- b. Oversight of the DRAM Pilot: CPUC staff will use these data to oversee general DR program activities including the DRAM pilot.
- c. Assessment of market outcomes and reliability, which requires settlement data for all resources (including imports) and for both sides of the market (including exports and load settlements).

- d. The CPUC may retain these data and use it for other analytical purposes, although the CPUC will not publicly disclose the data in any other way without prior ISO notification and consultation.

## **6. Access to OMS application**

CPUC requests online access to transmission and generation outage information contained in the OMS application.

## **7. Monthly MasterFile data request**

The CPUC requests the CAISO to provide monthly updates of data entered by generators into the MasterFile database in order to monitor generator performance, reliability, and compliance with GO 167, and to implement key features of the RA Program related to system physical and operational needs. The CPUC is responsible for directing the construction of sufficient generating and transmission facilities in order to meet the CPUC's established reliability criteria in both the RA proceeding and the CPUC's Integrating Resource Planning (IRP) Proceeding. As more of the physical and operational needs of the system reflect specific performance qualities of specific plants (e.g., ancillary service capabilities, ramp rates, minimum start times etc.) for purposes of renewable integration, once through cooling mitigation, and general IRP system needs assessments, the CPUC will need to monitor the quality and level of operational flexibility particular to each plant and across the generation fleet in general.

The CPUC seeks access to all listings by all Scheduling Coordinator IDs (SCIDs). In particular, the CPUC requests data corresponding to all fields listed in (1) the "Intertie RDT - RESOURCE" tab and (2) the "Generator RDT - RESOURCE" tab in the most recent "GRDT and IRDT Definitions" table.<sup>1</sup> CPUC also requests SEGMENT data corresponding to the fields listed in Appendix B, referring also to the "GRDT and IRDT Definitions" document.

Energy Division will use these data for purposes of reliability modeling as well as other purposes of procurement oversight. The CPUC will publish a limited range of the unit specific data to the CPUC website to allow for stakeholders to understand the inputs to reliability modeling. The CPUC will maintain confidentiality for the MasterFile data.

**Specifications of data:** Please provide these files in .csv format. The CAISO is requested to submit data to the CPUC via the Commission's SFTP application, accessible via the link here: <https://cpucftp.cpuc.ca.gov/>.

## **8. 2023 Flexible Capacity Needs Assessment Data and Allocations**

The CPUC requests the CAISO provide the CPUC with the following information:

- a. Complete LSE responses to the CAISO data request made pursuant to Tariff section 40.10.1.2, asking for information on each wind, solar, and behind the

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<sup>1</sup> GRDT and IRDT Definitions file posted to the CAISO website here: <http://www.caiso.com/Documents/GRDTandIRDTDefinitions.xls>

meter resources owned, in whole or in part, by the LSE or entity under contractual commitment to the LSE for all or a portion of its capacity.

- b. Work papers used to add together wind, solar and behind the meter resources contained in the LSE data request responses.
- c. The time-shifted 2021 minute-by-minute variable energy output profiles used to calculate variable energy profiles. Please indicate which if any actual facilities are taken as models for the output data.
- d. Work papers used to scale the production data.
- e. The time-shifted 2021 minute-by-minute load data used to calculate the flexible capacity requirement.
- f. Work papers used to develop the monthly ISO minute-by-minute forecast from the CEC Integrated Energy Policy Report (IEPR) 1-in-2 monthly peak load forecast (Mid Demand Scenario, with mid AAEE) and/or from the CEC hourly load forecast (Mid Demand with mid AAEE and mid AAPV).
- g. The ISO's simulated minute-by-minute forecast of net load curves for the time frame of the annual study.
- h. Work papers used to calculate the minute-by-minute net load curves.
- i. The monthly peak load ratios used in the Flexible need equation.
- j. Work papers used to calculate the Seasonal Percentages Needed in each Category.
- k. Work papers used to allocate the CPUC its Flex RARs.
- l. Any new or additional data or workpapers in the 2023 assessment process that are not identified above and that would be considered necessary for Energy Division to review.

**Specifications of data:** Please provide the data listed above in MS Excel or SAS file format and include any additional information that would enable CPUC to understand and replicate the underlying calculations in the spreadsheets or data files.

## **9. Access to California ISO Interface for Resource Adequacy (CIRA) database**

CPUC staff requests live access to the CIRA database for a limited number of CPUC staff. This access is necessary (as opposed to requests for periodic data reports) in order to enable coordination with the CAISO Reliability Requirements process and to enable CPUC enforcement of RA program rules. Due to the complexity of the RA program, and differing submission requirements and formats, CPUC staff needs to verify the form and content of information submitted to the CAISO and to review automated or manual communication between the LSE and CAISO through the CIRA system.

### **Specifications of Data:**

CPUC staff requests the ability to do the following actions:

1. Log securely into the CIRA system as needed throughout the month.



2. Review and export uploaded RA Filing data (both year ahead and month ahead) from all SCs that submit RA Plan data to CAISO (both CPUC jurisdictional and non-jurisdictional) on as needed basis by CPUC staff.
3. Review and export supply plan data submitted by all SCs that submit supply plans for RA compliance to CAISO whether the LSE being supported is CPUC jurisdictional or non-jurisdictional.
4. Review and export CEC forecasts uploaded by CEC staff for all LSEs whether CPUC jurisdictional or non-jurisdictional. Review of all calculations performed in CIRA to calculate RA obligations for LSEs.
5. Review and export any filing status, cross validation results, error logs, or communication/compliance logs developed by CIRA pertaining to RA plan data submitted by any SC for an LSE to CAISO.

**Time period of data requested:**

CPUC staff expects the CAISO to provide ongoing access to CIRA.

**10. Energy Management System (EMS) Data**

The CPUC requests the CAISO provide the CPUC with monthly actual hourly EMS load data for each month of 2022.

**Specification of the Data:**

The monthly files should include actual hourly EMS load data for the subareas used in the CAISO internal load forecast process, including the following fields. Please do not include commas in load data.

<u>CAISO Data Field</u>	<u>Description</u>
Dates	Date and time as mm/dd/yyyy hh:00
Date	Date as mm/dd/yyyy
HR	Hour ending, as integer
PGE-BA w/o Pump Ld	PG&E Bay Area load without pump load
PGE-BA Pump Ld	PG&E Bay Area pump load
PGE-NBA w/o Pump Ld	PG&E non-Bay Area load without pump load
PGE-NBA Pump Ld	PG&E non-Bay Area pump load
SCE w/o Pump Ld	SCE load without pump load
SCE Pump Ld	SCE pump load
SDGE	SDG&E load
VEA	VEA load
CAISO Total	Total CAISO area load

**11a. Capacity Procurement Mechanism and Capacity Solicitation Process (CSP) results:**

The CPUC now has access to CAISO’s CIRA application and does not need the CAISO to provide this CSP result. However, if CIRA becomes inaccessible or if the data contained therein

becomes inaccurate, CAISO will provide the CSP information to the CPUC at a time mutually agreeable by the parties.

The CPUC requests the CAISO provide the CPUC with the monthly, intra-monthly and annual CSP and CPM data. The CPUC would like these data in order to identify if CAM resources are bidding into the CSP. Additionally, the CPUC would like to examine the effectiveness of the CSP as it relates to CPM designations. The CSP data will include all bids that were locked into the CSP after the adjustment period ended. This would be the finalized offer set that gets locked in after the CAISO validates that the offer is not shown on a supply plan. The CPM designation data may overlap with a CSP bid or they may be without one.

The CPUC requests three types of files:

- i. One annual file - The annual data should include any CPM designations that came out of the YA validation processes and all locked in CSP bids that were submitted in the YA CSP process.
- ii. Twelve monthly files - The monthly data should include any CPM designation, made in the prior month for the coming month, in addition to locked in CSP bids, submitted in the prior month for the coming month (whether they were designated or not).
- iii. Twelve intra-monthly files - These files will include the results of the CSP bids and CPM designations for the each identified time period. The intra-monthly data should include data from the prior month that was designated intra-monthly for the prior month.

**Specifications of data:** Please provide the data listed above in MS Excel format file. The format of the data should include the following fields:

- a.) **Resource ID** - this should include all resources that bid into the monthly CSP and any resource that was assigned a CPM designation that may have not bid into the CSP
- b.) **Type of CSP or CPM** (if resource did not submit through CSP) - monthly, intra-monthly, or annual
- c.) **System MW Amount** - the generic MW amount the resource bid into the CSP. If the resource did not bid in system MW, then leave blank
- d.) **Flexible MW Amount** - the flexible MW amount the resource bid into the CSP. If the resource did not bid in flexible MW, then leave blank
- e.) **Flexible Category** - the flexible category designation of the flexible MW entered in the bid. If the resource did not bid in flexible MW then leave blank.
- f.) **Bid Price** - reflect the price of the bid. If no bid was submitted, leave blank.
- g.) **Designated** - If the resource was designated a CPM, then select Y. If no, then select N.
- h.) **CPM Event Covered** - If the resource was designated, show the CPM event covered.

- i.) **Duration of the Designation** - If the resource was designated a CPM, reflect the duration of the designation. (e.g., 30 days, 60 days, 90 days)
- j.) **Date of the Designation** - reflect the date the designation was noticed
- k.) **Accepted or Declined CPM Designation** - reflect whether the resource's SC accepted or declined the designation. Only applies if the resource was exceptionally dispatched.

Note - If the CAISO is not able to access these data through CIRA, the CPUC requests access to any data that is available that would allow for an assessment of the CSP (e.g., data made available to DMM).

### **11b. Capacity Procurement Mechanism (CPM) Settlement Data:**

Please provide the CPUC with the following information for all CPM designations for 2022:

**Trade\_DATE** – In this data set, the only use of the Trade\_DATE is to track the month and year.

**Charge\_Name** – Has the following three categories:

**BA\_MTH\_RSRC\_CPM\_CAP\_HRLY\_AVG\_DESIGNATED@QUANTITY** –  
The MW quantity

**BA\_MTH\_RSRC\_CPM\_CAP\_PMT@PRICE** – The CPM price (\$/MW-year)

**BA\_MTH\_RSRC\_CPM\_STLMT@AMOUNT** – Total payment (price x quantity),  
expressed as a negative number

**Attribute1** - Business Associate ID (for CAISO Settlements use)

**SC\_ID** - SC Short Name that corresponds to Attribute1 (Business Associate ID)

**Attribute2** - Resource Name

**Attribute17** - Bill Period Start Date

**Attribute18** - Bill Period End Date

**Attribute22** – CPM Type

**Interval\_Total** – The total quantity, amount or price associated with Charge\_Name

### **11c. Reliability Must Run (RMR) Cost Data:**

The CPUC requests fixed and variable cost information related to all new RMR designations for 2021 and 2022. The CAISO does not have settlement data disaggregated in a way that currently meets the CPUC's request. The CPUC and CAISO staff will continue to discuss how to meet the CPUC's request.

## **12. Reliability Event Reports sent to WECC**

The CPUC requests that CAISO send to the CPUC the following three reliability event reports based on the specific event types listed for each:

- (a) Appendix C: Brief Template sent to WECC for all CPUC jurisdictional PTOs.
- (b) EOP-004 event reports sent to WECC for the following specific event types:
  - 1. BES Emergency requiring public appeal for load reduction
  - 2. BES Emergency requiring manual firm load shedding
  - 3. BES Emergency resulting in automatic firm load shedding
  - 4. Loss of firm load
  - 5. System separation (islanding)
  - 6. Generation loss
- (c) OE-417 report sent to WECC when initiated by the CAISO (rather than a single PTO) or if the event impacts more than one PTO for the following specific event types:
  - 1. Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident
  - 2. Load shedding of 100 Megawatts or more implemented under emergency operational policy
  - 3. Loss of electric service to more than 50,000 customers for 1 hour or more
  - 4. Fuel supply emergencies that could impact electric power system adequacy or reliability

Specifics of data: The completed event report sent to WECC following a reliability event.

## **13. Demand Response (PDR/RDRR) and Non-generating Resource (NGR) Settlement Data Files:**

The CPUC requests settlement data related to demand response resource performance covering 2022. CPUC requests a summary file of any PDR/RDRR resource payment or charge with these specifications (all at 5-minute granularity). CPUC also asks that non-generating resources (NGR) be included in this file. If it is possible to separate storage NGRs from other NGRs, CPUC requests that only the storage NGRs be included. If it is not possible to separate these resources, CPUC requests data for all participating NGRs.

### **Specifications of settlement data file (CAISO native field name in parentheses):**

- a.) Trade Date (TRADE\_DATE)
- b.) Scheduling Coordinator ID (BA\_ID, conversion to Scheduling Coordinator ID is provided separately)
- c.) Resource ID (ATTRIBUTE2)

- d.) Day-ahead scheduled quantity (DA\_SCH\_QUANTITY)
- e.) Day-ahead energy payment (DA\_AMOUNT)
- f.) Fifteen-minute market instructed imbalance energy (FMM\_IIE\_QUANTITY)
- g.) Fifteen-minute market instructed imbalance energy payment or charge (FMM\_IIE\_AMOUNT)
- h.) Five-minute market instructed imbalance energy (RTD\_IIE\_QUANTITY)
- i.) Five-minute market instructed imbalance energy payment or charge (RTD\_IIE\_AMOUNT)
- j.) Standard ramping energy (SRE\_QUANTITY)
- k.) Total expected energy (EXP\_ENRGY\_QUANTITY)
- l.) Uninstructed energy (UIE\_QUANTITY)
- m.) Uninstructed energy payment or charge (UIE\_AMOUNT)
- n.) Metered energy (METER\_QUANTITY)

Files will be provided in .csv format. To save space, if any of the fields from (d) through (n) are zero, the field will be omitted from the data file.

#### **14. CPUC jurisdictional LSE Annual and Monthly Deficiency Notifications**

The CPUC currently has access to CIRA as a Local Reliability Authority (LRA), which allows the CPUC to see LSE deficiencies directly after the submission deadlines. CPUC also receives direct notification of deficiencies, though CAISO and CPUC continue to coordinate which CPUC e-mail addresses should receive these notifications. If CIRA becomes inaccessible (or the data within CIRA become inaccurate) and if the direct notification functionality becomes inoperative, CPUC requests that CAISO notify CPUC of any LSE RA deficiencies as indicated in Table 1 at the end of this document.

Please provide a table containing the following information for LSEs with system RA deficiencies:

- a.) Month
- b.) SCID – SCID of deficient LSE
- c.) TAC – TAC in which deficiency exists
- d.) REQ – System RA requirement in TAC
- e.) DR – System DR credit in TAC
- f.) ADJ\_DR – Adjusted system DR credit in TAC
- g.) RMR – System RMR credit in TAC
- h.) CAM – System CAM credit in TAC
- i.) TOT\_ADJ – Total system credit adjustment in TAC
- j.) REQ+PRM – RA requirement in TAC, adjusted for PRM

- k.) ADJ\_OBL – REQ+PRM minus TOT\_ADJ
- l.) Local RA – Total local RA shown by LSE in the TAC
- m.) System RA – Total non-local system RA shown by LSE in the TAC
- n.) Total RA – Sum of Local RA and System RA

Please provide a table containing the following information for LSEs with local RA deficiencies:

- a.) Month
- b.) SCID – SCID of deficient LSE
- c.) TAC – TAC in which deficiency exists
- d.) REQ – Local RA requirement in TAC
- e.) DR – Local DR credit in TAC
- f.) CAM – Local CAM credit in TAC
- g.) TOT\_ADJ – Total local credit adjustment in TAC
- h.) ADJ\_OBL – REQ minus TOT\_ADJ
- i.) Local RA – Total local RA shown by LSE in the TAC

Please provide a table containing the following information for LSEs with flexible RA deficiencies. Please include all flex categories, even if LSE is not deficient in all categories.

- a.) Month
- b.) SCID – SCID of deficient LSE
- c.) TAC – TAC in which deficiency exists
- d.) CATEGORY – Flex category
- e.) OBL – Flexible RA requirement for given category
- f.) SHOW – LSE flexible RA showing for given category
- g.) QUAL – Qualified flexible RA showing for LSE in given category
- h.) SHORT/LONG – QUAL minus OBL

## **15. Local Capacity Study Data**

Access to the following data requires executing a separate non-disclosure agreement for qualified individuals. In order to better evaluate the results of CAISO’s annual Local Capacity Study, the CPUC requests that the CAISO send the following files. These files should be sent for the draft LCR study and the final LCR study, according to the schedule in Table 1. The term “LCR study” incorporates all timeframes for which CAISO assesses local capacity.

Dispatched base case PSLF files used for each local area and sub-area. This will include flat files of the generators and MW being dispatched in the power flow study to mitigate the N-1 and N-1-1 (or other studied) contingencies for each local area and sub-area in the draft and final studies.

## **16. Local Residual Analysis**

Access to the following data requires executing a separate non-disclosure agreement for qualified individuals. If the CAISO executes an annual year-ahead CPM, then the CPUC requests the CAISO provide the base case or proof of need for the impacted local area or sub-area.

## **17. CPM and RMR Designation Capacity and Costs Allocations**

Please provide the CPUC with the following information for all CPM and RMR resource adequacy credits for 2022 and year-ahead 2023, if any, that were not provided pursuant to the 2021 Subpoena:

- 1.) RA capacity allocations for each month of the designation.

CPUC requests allocations for individual jurisdictional LSEs to provide the allocations to LSEs for use in the RA compliance process.

CPUC believes that in order to fully analyze relative allocations and ensure fairness for California ratepayers, it is also necessary to have access to individual allocations for non-jurisdictional LSEs. CPUC and CAISO agree that they will continue to discuss a resolution to this request.

## **18. Notices of Intent to Retire, Mothball, or Return to Service**

From time to time, the CAISO receives notices from generating resources about the planned retirement or mothball of certain resources. The CAISO posts a list of these resources pursuant to its Generator Management Business Practice Manual. The list provides stakeholders with information regarding requests to change a resource status from active to retired, mothballed, or otherwise unavailable to the grid. In addition, there is an RSS feed available to the public which provides automatic notification when the list is updated. This is available at: <http://www.caiso.com/Pages/GlobalRSS.aspx>.

Under Section 41.2.1 of the CAISO Tariff, as approved by FERC on September 27, 2019, an intent to retire or mothball must be documented by a notarized affidavit (e.g., *Notice of Generating Unit Retirement or Mothball Including Rescission of Retirement or Mothball*) that provides the reason for the change in status, among other information. The CPUC requests these notarized affidavits as described in Table 1 at the end of this document.

Upon request by the CPUC, the CAISO will also provide the CPUC with copies of all letters or other notifications received from generating resources or the owners of generating resources related to the intent to retire the resource(s), mothball the resource(s), or return the resource(s) to service. This information will allow CPUC to remain apprised of market conditions affecting RA capacity as they arise.

## **19. CEC Subpoena Data**

Please provide the CPUC with all files sent to the California Energy Commission pursuant to the latter's subpoena of CAISO. This information will allow CPUC to more closely monitor CEC development of the RA load forecast, by ensuring CPUC has access to the same data as CEC.

## **20. Resource Adequacy Availability Incentive Mechanism (RAAIM) Data**

Please provide the CPUC with a list of resource adequacy availability incentive mechanism (RAAIM) Availability Incentive Payments and Non-Availability Charges assessed in 2021 and 2022.<sup>2</sup> The list should identify the month of the Availability Incentive Payments and Non-Availability Charges, the resource penalized or rewarded, and the amount of the Availability Incentive Payments and Non-Availability Charges.

The format of the data should include the following fields (but omit fields where the data is zero):

- a) SCID
- b) Resource ID
- c) Month
- d) Availability Incentive Payments or Non-Availability Charges

## **21. DR Registration System Information**

Energy Division seeks to better understand DR registration activity, particularly the frequency of movement of individual service accounts between Resource IDs. This information will aid in determining Net Qualifying Capacity values and in assessing total available capacity within a given month and between months. Given the volume of data, the CPUC will make specific tailored requests by Distribution Resource Provider (DRP) and month and year for a reporting of Location IDs (with service accounts and their effective dates), cross referenced with Registration IDs (with their effective dates) and Resource IDs.

## **22. Price Taker Exports**

CPUC requests the underlying data for analyses that the CAISO conducts regarding the resources supporting Price Taker (PT) exports. This information will enable CPUC to assess market conditions and identify potential concerns regarding export activity. Please provide these data upon request according to the schedule in Table 1. This information will be provided in Excel format, to the extent possible.

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<sup>2</sup> While most of the 2021 data was delivered pursuant to the prior year's subpoena, delivery for some of the data for the latter portion of 2021 fell in 2022. To ensure completeness, we are including the 2021 data in this subpoena request.



### **23. Use Limit Plan Data Template**

CPUC requests information associated with the “Use Limited Resource” flag in the MasterFile, for each resource that has this tag. This information will enable Energy Division to better understand the use limitations of resources and will also aid in refining the Maximum Cumulative Capacity Buckets.

### **24. Wheeling Transactions**

CPUC requests information regarding wheeling transactions through the CAISO Balancing Authority Area, which will enable CPUC to better understand imports and exports. Please provide an Excel file or PDF with the following information, according to the schedule in Table 1.

This request is divided into three parts.

#### **Part 1:** Identifying wheeling transactions in settlements data

The import and export legs of a wheel are already provided under item #5: Settlement Quality Meter Data. However, the import and exports pairs are not evident. The CPUC requests the CAISO to provide information that will identify the import and export legs of a wheel through the CAISO Balancing Authority Area. These data will be provided in an Excel File.

#### **Part 2:** Identifying priority wheels

Based on CAISO market policy proposed in 2021, scheduling coordinators must notify the CAISO 45 days ahead of the month with the MW quantity of the wheel for the month and confirm that the load serving entity has procured monthly firm peak transmission service to serve the contract to the CAISO boundary from an external balancing authority area. This will identify high priority wheeling transactions through the CAISO Balancing Authority Area. The CPUC requests a copy of such information provided by these scheduling coordinators. These data will be provided in Excel format.

#### **Part 3:** Request for analysis backup

CPUC requests the underlying data for public analyses that the CAISO conducts regarding wheeling transactions. Please provide these data upon request according to the schedule in Table 1. This information will be provided in Excel format to the extent possible.

### **25. Counting Firm Load as Contingency Reserves by Investor-Owned Utilities**

CPUC requests information regarding instances in which CAISO directs the investor-owned utilities to count firm load as contingency reserve under emergency conditions, after verifying the firm load shed is available within 10 minutes. This will enable CPUC to better understand market conditions during system contingencies. Please provide an Excel file with the following information upon CPUC request, according to the schedule in Table 1

Please provide a separate record for each investor-owned utility in each instance when one or more investor-owned utilities were directed to count firm load as contingency reserve.

**IOU:** Investor-owned utility that received the notice

**EVENT\_START:** Date and time of notice to start counting firm load as contingency reserve (mm/dd/yyyy hh:mm)

**EVENT\_END:** Date and time of notice to stop counting firm load as contingency reserve (mm/dd/yyyy hh:mm)

**MW:** Amount of firm load that investor-owned utility was directed to count as contingency reserve, in megawatts

**Schedule for Delivery of Requested Information**

Please provide the requested information to the CPUC, by the Close of Business (“COB”) according to the following schedule:

**Table 1 Submission Dates** (effective after the execution of subpoena and the due date for any objections to the production of responsive information has passed)

Item	Delivery Date to CPUC
1. Resource Adequacy Import Allocations	If CIRA access is not available or data in CIRA are inaccurate, please provide data within three business days of the date when CIRA becomes inaccessible, or the data become inaccurate.
2. Supply Plans Filed and Monthly Supply Plan Validations for RA resources	<p>If CIRA access is not available or data in CIRA are inaccurate, please provide data as follows:</p> <p>Monthly supply plan files and initial validation file within three calendar days of the RA Filing due date. Please provide final validation files no less than four calendar days before the start of the compliance (trade) month.</p> <p>For annual supply plans and supply plan validations, provide files at the following times:</p> <p>(1) within 10 calendar days after the annual RA submission filing due date, and</p> <p>(2) within 10 calendar days after the CAISO due date for revisions to annual supply plans.</p>
3. List of Units Confirmed to Provide Resource Adequacy to the CAISO	If CIRA access is not available or data in CIRA are inaccurate, please provide data within three business days of

Item	Delivery Date to CPUC															
	the date when CIRA becomes inaccessible, or the data become inaccurate.															
4. Economic Bids and Self-Schedules	<p>For 2022 economic bids and self-schedules, please provide data for all CAISO resources, including all generation, load, imports, and exports on a monthly basis, by the last day of the month (or the next business day) following the reporting month.</p> <p>On a case-by-case basis, the CPUC may request additional bid information, such as full bid segments during specified seven-day-twenty-four-hour periods. Delivery dates for such a request will be negotiated separately pursuant to the request.</p>															
5. Settlement Quality Meter Data	<p>Please provide data monthly, according to the schedule below.</p> <table border="1" data-bbox="634 842 1414 1818"> <thead> <tr> <th data-bbox="634 842 808 947">Trade Date</th> <th data-bbox="808 842 979 947">Resource</th> <th data-bbox="979 842 1153 947">Publication date</th> <th data-bbox="1153 842 1414 947">Delivery date</th> </tr> </thead> <tbody> <tr> <td data-bbox="634 947 808 1476">1/1/2022 – 12/31/2022</td> <td data-bbox="808 947 979 1476">CAISO generators, imports, exports, DR, load</td> <td data-bbox="979 947 1153 1476">T+9B</td> <td data-bbox="1153 947 1414 1476">           End of following month (or the next business day). For example:           <ul style="list-style-type: none"> <li>• First delivery: Jan 2022 Trade Dates by Mar 1, 2022</li> </ul>           Last delivery: Dec 2022 by Jan 31, 2023         </td> </tr> <tr> <td data-bbox="634 1476 808 1818">1/1/2022 – 12/31/2022</td> <td data-bbox="808 1476 979 1818">CAISO generators, imports, exports, DR, load</td> <td data-bbox="979 1476 1153 1818">T+70B</td> <td data-bbox="1153 1476 1414 1818">           Three months in arrears, by the end of the month (or the next business day). For example:           <ul style="list-style-type: none"> <li>• First delivery: Jan 2022 Trade</li> </ul> </td> </tr> </tbody> </table>				Trade Date	Resource	Publication date	Delivery date	1/1/2022 – 12/31/2022	CAISO generators, imports, exports, DR, load	T+9B	End of following month (or the next business day). For example: <ul style="list-style-type: none"> <li>• First delivery: Jan 2022 Trade Dates by Mar 1, 2022</li> </ul> Last delivery: Dec 2022 by Jan 31, 2023	1/1/2022 – 12/31/2022	CAISO generators, imports, exports, DR, load	T+70B	Three months in arrears, by the end of the month (or the next business day). For example: <ul style="list-style-type: none"> <li>• First delivery: Jan 2022 Trade</li> </ul>
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Item	Delivery Date to CPUC															
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6. Access to OMS Application	Ongoing, immediately															
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June 24	December 27															
8. 2022 Flexible Capacity Needs Assessment Data and Allocations	Please provide all data relative to the draft analysis (all items in Item 9) within 12 business days of posting the draft assessment. Please provide all data relative to the final assessment (all items in Item 9 that were modified since the draft assessment) within five business days of posting the final assessment.															
9. Access to California ISO Interface for Resource Adequacy (CIRA) database	Ongoing, immediately															
10. Energy Management System (EMS) Data	The monthly 2022 data should be provided to the CPUC by the 25 <sup>th</sup> of each month for the prior month.															
11a. Capacity Procurement Mechanism and Capacity Solicitation Process (CSP) results	If CIRA access is not available or data in CIRA are inaccurate, please provide data as follows:  Provide monthly CSP/CPM data on coming compliance month by the 4 <sup>th</sup> day of each month.  Provide annual data by November 14, 2022, for 2022 YA requirements  Provide intra-monthly data on the prior compliance month by the 4 <sup>th</sup> day of each month.															

<b>Item</b>	<b>Delivery Date to CPUC</b>
11b. Capacity Procurement Mechanism (CPM) Settlement Data	Please provide data quarterly, within 60 calendar days after the quarter. Provide the latest settlement statement available.
11c. Reliability Must Run (RMR) Settlement Data	Once CPUC and CAISO staff have resolved how to meet CPUC’s request, please provide data quarterly, within 60 calendar days after the quarter. Provide the latest settlement statement available.
12. Reliability Event Reports sent to WECC	Please provide WECC reliability reports to staff the next business day after delivery to WECC.
13. Demand Response (PDR/RDRR) and Non-generating Resource (NGR) Settlement Data Files	Please provide monthly by the last day of the month following the reporting month.
14. CPUC Jurisdictional LSE Annual and Monthly Deficiency Notifications	If CIRA access is not available (or data in CIRA are inaccurate) and if the direct notification functionality becomes inoperative, please provide data within five business days following the relevant annual or monthly RA filing deadline.
15. Local Capacity Study Data	For cases that are in PSLF format, data will be provided within one business day of posting the final draft. For cases that are in other formats (and thus require conversion), data will be provided within 10 business days of posting the final draft.
16. Local Residual Analysis	Provide information within 1 calendar week of posting CPM designation report.
17. CPM and RMR Designation Capacity Costs and Allocations	<ol style="list-style-type: none"> <li>1. For the year ahead RMR extension process, the CAISO will provide the resource adequacy credits prior to the annual resource adequacy showing deadline.</li> <li>2. For new RMR contracts (intra-year), the CAISO will provide the resource adequacy credits four business days after the Federal Energy Regulatory (FERC) filing or effective date, whichever is later.</li> <li>3. For year ahead CPM, or any other CPM that is effective a minimum of 90 days or longer, the CAISO will provide the resource adequacy credits prior to the T-45 filing</li> </ol>

Item	Delivery Date to CPUC											
	submission deadline for the month in which the credits will be active.											
18. Notices of Intent to Retire, Mothball, or Return to Service	Please provide a notarized affidavit (e.g., <i>Notice of Generating Unit Retirement or Mothball Including Rescission of Retirement or Mothball</i> ) within five business days of receipt by the CAISO Regulatory Contracts group. Upon request by CPUC, please provide other letters or notices to CPUC within five business days of receipt by the CAISO Regulatory Contracts group.											
19. CEC Subpoena Data	Please provide CEC Subpoena files to CPUC on the same schedule as CAISO provides the files to CEC.											
20. RAAIM Data	<p>Please provide Settlement Quality Meter Data for the remainder of 2021 and full year 2022 per the schedule below:</p> <table border="1" data-bbox="634 856 1414 1881"> <thead> <tr> <th data-bbox="634 856 821 947">Trade date</th> <th data-bbox="821 856 1008 947">Publication data</th> <th data-bbox="1008 856 1414 947">Delivery date</th> </tr> </thead> <tbody> <tr> <td data-bbox="634 947 821 1791">1/1/2021 – 12/31/2021</td> <td data-bbox="821 947 1008 1791">T+70B</td> <td data-bbox="1008 947 1414 1791">           Five months in arrears, by the end of the month (or the next business day). For example:           <ul style="list-style-type: none"> <li>• First delivery: Jan 2021 Trade Dates by May 31, 2021</li> <li>• Last delivery: Dec 2021 Trade Dates by May 2, 2022</li> </ul>           [Note: While most of the 2021 data was delivered pursuant to the prior year’s subpoena, delivery for the some of the data for the latter portion of 2021 fell in 2022. To ensure completeness, we are including the 2021 data in this subpoena request.]         </td> </tr> <tr> <td data-bbox="634 1791 821 1881">1/1/2022 – 12/31/2022</td> <td data-bbox="821 1791 1008 1881">T+70B</td> <td data-bbox="1008 1791 1414 1881">Five months in arrears, by the end of the month (or the</td> </tr> </tbody> </table>			Trade date	Publication data	Delivery date	1/1/2021 – 12/31/2021	T+70B	Five months in arrears, by the end of the month (or the next business day). For example: <ul style="list-style-type: none"> <li>• First delivery: Jan 2021 Trade Dates by May 31, 2021</li> <li>• Last delivery: Dec 2021 Trade Dates by May 2, 2022</li> </ul> [Note: While most of the 2021 data was delivered pursuant to the prior year’s subpoena, delivery for the some of the data for the latter portion of 2021 fell in 2022. To ensure completeness, we are including the 2021 data in this subpoena request.]	1/1/2022 – 12/31/2022	T+70B	Five months in arrears, by the end of the month (or the
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Item	Delivery Date to CPUC																	
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21. DR Registration System Information	Delivery time dependent upon data request volume. To be discussed pursuant to a CPUC request.																	
22. Price Taker Exports	Please provide, upon request, the underlying analysis CAISO used within three business days.																	
23. Use Limit Plan Data Template	Quarterly (January 25, May 24, July 25, October 24, 2022). <i>Dates are aligned between items 7, 23 and 24.2.</i>																	
24. Wheeling Transactions	<p><b><u>Part 1:</u></b> Identifying wheeling transactions in settlements data Information pairing the import and export legs of a wheeling transaction will be provided on the same timeline as the settlement data in #5.</p> <p><b><u>Part 2:</u></b> Identifying priority wheels The CPUC requests the CAISO provide information from scheduling coordinators on the following schedule, which is 5 business days after the T-45 resource adequacy and supply plans are due to the CAISO:</p> <table border="1" data-bbox="634 1335 1398 1837"> <thead> <tr> <th data-bbox="634 1335 857 1514">RA compliance month and year</th> <th data-bbox="857 1335 1109 1514">Submission deadline to the CAISO</th> <th data-bbox="1109 1335 1398 1514">Delivery date to the CPUC (5 business days later)</th> </tr> </thead> <tbody> <tr> <td data-bbox="634 1514 857 1587">July 2022</td> <td data-bbox="857 1514 1109 1587">05/17/2022</td> <td data-bbox="1109 1514 1398 1587">05/24/2022</td> </tr> <tr> <td data-bbox="634 1587 857 1661">August 2022</td> <td data-bbox="857 1587 1109 1661">06/17/2022</td> <td data-bbox="1109 1587 1398 1661">06/24/2022</td> </tr> <tr> <td data-bbox="634 1661 857 1766">September 2022</td> <td data-bbox="857 1661 1109 1766">07/18/2022</td> <td data-bbox="1109 1661 1398 1766">07/25/2022</td> </tr> <tr> <td data-bbox="634 1766 857 1837">October 2022</td> <td data-bbox="857 1766 1109 1837">08/17/2022</td> <td data-bbox="1109 1766 1398 1837">08/24/2022</td> </tr> </tbody> </table>			RA compliance month and year	Submission deadline to the CAISO	Delivery date to the CPUC (5 business days later)	July 2022	05/17/2022	05/24/2022	August 2022	06/17/2022	06/24/2022	September 2022	07/18/2022	07/25/2022	October 2022	08/17/2022	08/24/2022
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Item	Delivery Date to CPUC		
	November 2022	09/19/2022	09/26/2022
	December 2022	10/17/2022	10/24/2022
	January 2023	11/17/2022	11/28/2022
	February 2023	12/19/2022	12/27/2022
25. Counting Firm Load as Contingency Reserves by Investor-Owned Utilities	<p data-bbox="618 600 1430 632"><i>Dates are aligned between items 7, 23 and 24.2.</i></p> <p data-bbox="618 653 1430 684"><b>Part 3:</b> Request for analysis backup</p> <p data-bbox="618 705 1430 768">Upon CPUC request, please provide within three business days.</p> <p data-bbox="618 810 1430 957">For 2022, upon CPUC request, please provide data within ten business days of any instance in which one or more investor-owned utilities were asked to count firm load as contingency reserve.</p> <p data-bbox="618 978 1430 1115">Please provide data for January 1, 2021, through December 31, 2021, by May 28, 2022, or within five business days of closing of the period for objections to the subpoena, whichever is later.</p>		

Should full production of any information item not be possible within these time frames, please provide whatever partial information is available, together with a brief explanation of the circumstances preventing full production on that date, identify the date on which full production of the requested information will be made, and fulfill production of the remaining documents by such date.



## APPENDIX A

RA Validation Status	Supply Validation Status	RA LSE	Resource ID	SCID/Scheduling Coordinator ID	Effective Start Date	Effective End Date	RA Flex Category	Supply Flex Category	RA System/Flexible Capacity (MW)	Supply System/Flexible Capacity (MW)	Comments
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**APPENDIX B  
Generator RDT Definitions and Business Rules**

**Generator RDT - RESOURCE**

All Fields

**Operating Ramp Rate Curve - RAMPRATE**

Column Name	Column Code	Unit	Definition	Can be Null?	Business Rule A Ramp (RAMP) curve must exist for all Generators and TG resources	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE		RAMP	N		
Segment Number	SEG_NUM	Integer	Point numbers between the PMin and PMax of the Generating Unit output. The point numbering starts at 1. Up to 5 points allowed.	N	- First point must be 1 - Point numbering must be sequential - A minimum of 2 points is required - No more than 5 points (representing 4 segments) allowed	The RAMP curve refers to the set (all segments) of ramp data. Submit the RAMP curve data as it should look in its final form: - The RAMP curve in the uploaded GRDT will overwrite the entire existing RAMP curve in the database (if no validation errors occur)
Operating Level	RAMP_MW_OUTPUT	MW	The Generating Unit MW output of point i. The first point (1) of MW output must begin at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax.	N	- Value of the first point must equal MIN_GEN - Value of the last point must equal MAX_GEN	- <b>Delete a segment:</b> delete the row and renumber the remaining segments. - <b>Add a segment:</b> insert a new row with the required data (see business rules) and renumber the segments.
Worst Operational Ramp Rate	RAMP_MIN_RATE	MW/minutes	The maximum ramp rate under the worst operating condition of the Generating Unit between point (i) and the point (i+1). The minimum ramp rate of the last point should = the previous one. This requires providing the minimum ramp rate of the first point (1) at PMin and last point (n) at PMax.	N	- Must be <= RAMP_MAX_RATE for the same point - RAMP_MIN_RATE of the last 2 points must be equal	- <b>NOTE (1):</b> Do not cross out an existing segment to indicate it is unwanted; delete the row. - <b>NOTE (2):</b> The RAMP curve is required and cannot be deleted
Best Operational Ramp Rate	RAMP_MAX_RATE	MW/minutes	The maximum ramp rate under the best operating condition of the Generating Unit between point (i) and the point (i+1). The maximum ramp rate of the last point should = the previous one. This requires providing the maximum ramp rate of the first point (1) at PMin and last point (n) at PMax.	N	- Must be 0.1 or greater - Must be >= RAMP_MIN_RATE for the same point - Cannot be greater than the tested ramp rate (if unit was tested for Ancillary Services) - RAMP_MAX_RATE of the last 2 points must be equal	

**Heat Rate Curve - HEATRATE**

Column Name	Column Code	Unit	Definition	Can be Null?	Business Rule A Heat (HEAT) curve must exist for all Generators and TG resources	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	text	HEAT	N		

**APPENDIX B  
Generator RDT Definitions and Business Rules**

Segment Number	SEG_NUM	Integer		N	- First point must be 1 - Point numbering must be sequential - A minimum of 2 points is required - No more than 11 points allowed	The HEAT curve refers to the set (all segments) of heat data. Submit the HEAT curve data as it should look in its final form: - The HEAT curve in the uploaded GRDT will overwrite the entire existing HEAT curve in the database (if no validation errors occur)
			The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region.			
Heat Rate Operating Level	HEAT_MW_OUTPUT	MW	The Generating Unit output of point 1. The first point (1) of MW output must start at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax.	N	- Value of the first point must equal MIN_GEN - Value of the last point must equal MAX_GEN - A break-point cannot fall within a Forbidden region - A break-point cannot fall within a Regulation range	- Delete a segment: delete the row and renumber the remaining segments. - Add a segment: insert a new row with the required data (see business rules) and renumber the segments. - NOTE (1): Do not cross out an existing segment to indicate it is unwanted; delete the row. - NOTE (2): The HEAT curve is required and cannot be deleted
Heat Rate	HEAT_HEAT_RATE	BTU/KWh	For gas-fired units only, the average heat rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Heat rate must be provided at the first point (1) (PMin), the last point (n) (PMax). A heat rate segment may contain a Forbidden Region, but cannot overlap. If not a gas-fired unit, leave blank and instead complete the Average Heat Cost field. For NGR the field is not applicable and must be 0.	Y	- Heat Rate must be provided if FUEL_TYPE = GAS - Heat input must be monotonically increasing: [(HEAT_RATE * HEAT_MW_OUTPUT / 1000) in segment (i+1) must be greater than (HEAT_RATE * HEAT_MW_OUTPUT / 1000) in segment (i)]	
Heat Emission Rate	HEAT_EMISSION_RATE	lbs of NOx/MWh	The emission rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Emission rate must be provided at the first point (1) (PMin), the last point (n) (PMax). A heat rate segment may contain a Forbidden Region, but cannot overlap.	Y		
Average Cost	HEAT_AVG_COST	\$/MWh	Use this value for non-gas fired units instead of Heat Rate. The average cost of the Generating Unit on point (i) in \$. If value at point (i) is not available, linear interpolation can be used to approximate	Y	- Average Cost must be provided if FUEL_TYPE is not GAS.	

Startup Curve - STARTUP							
Column Name		Column Code	Unit	Definition	Can be Null?	Business Rule	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	Text		STRT	N		
Segment Number	SEG_NUM	Integer		The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	N	- First segment must be 1 - Segment numbers must be sequential	The STRT curve refers to the set (all segments) of startup data. Submit the STRT curve data as it should look in its final form: - The STRT curve in the uploaded GRDT will overwrite the entire existing STRT curve in the database (if no validation errors occur)
Registered Cooling Time	STRT_DOWN_TIME	Minutes		The amount of time the Generating Unit must be off (in minutes) within sequence (i). The first down time must be zero to account for a unit which has just shut down.	N	- Value in first segment must be 0 - Value must increase with each sequential segment (if more than one segment exists)	
Startup Time	STRT_STARTUP_TIME	Minutes		Startup Time is the time (in minutes) it takes a resource to achieve	N	- Value must increase with each	- Delete a segment: delete the row and

**APPENDIX B  
Generator RDT Definitions and Business Rules**

Startup Cost	STRT_STARTUP_COST	Dollars (\$)	The startup cost of non-natural gas fired Generating Units (in dollars) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup cost (in dollars) from cooling time (n) to infinity. For NGR the field is not applicable and must be 0.	Y	- Value must increase with each sequential segment - Either Startup Cost or Startup Fuel must be provided - May not exceed 150% of unit's projected gross startup cost if	renumber the remaining segments. - <b>Add a segment:</b> insert a new row with the required data (see business rules) and renumber the segments. - <b>NOTE (1):</b> Do not cross out an existing segment to indicate it is unwanted;
Start-Up Aux	STRT_STARTUP_AUX	MWh	The electrical power used by a Generating Unit during startup. The	Y		
Start-Up Fuel	STRT_STARTUP_FUEL	Million BTU	The fuel use (in mBTU per start) expected for the startup of a	Y	- Either Startup Fuel or Startup	
Start-Up Major Maintenance Adder	STRT_STARTUP_MMA		A resource-specific adder value per start-up, if applicable, determined by Potomac Economics	Y		

**Forbidden Operating Region - FORBIDDEN OPR REGION**

Column Name	Column Code	Unit	Definition	Can be Null? (If curve is defined)	Business Rule (If curve is defined)	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	text	FRBD for Forbidden Region <b>For NGR, Forbidden Region is not applicable.</b>	N		
Segment Number	SEG_NUM	Integer	This number represents a given forbidden region. Segment number 1 should be the forbidden region at the lowest level in the operating range. Segment numbers should correspond to sequential regions along the operating range, ending with segment (n) at the highest operating level.	N	- First segment must be 1 - Segment numbers must be sequential - No more than 4 segments (representing 4 forbidden regions are allowed)	<b>Deleting all forbidden regions for a resource cannot be done through the UI/API; a request must be submitted to RDT@caiso.com</b> The FRBD range data in the uploaded GRDT will overwrite the entire existing set of Forbidden ranges in the database (if no validation errors occur) - <b>Delete a range:</b> if more than one range exists and a range needs to be removed, this can be done by submitting the new set of forbidden ranges. - <b>Add a range:</b> insert a new row with the required data (see business rules) and renumber the segments. - <b>NOTE:</b> Do not cross out an existing
Lower MW of Forbidden Region	FRBD_LOW_MW_OUTPUT	MW	The lower MW output of the forbidden range of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: forbidden regions cannot include nor overlap regulation ranges or heat segments.	N	- Must be >= MIN_GEN+0.1 - A Heat curve break-point (Heat Rate Operating Level) cannot fall within a Forbidden region	
Upper MW of Forbidden Region	FRBD_HIGH_MW_OUTPUT	MW	The upper MW output of the forbidden region of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: Forbidden regions cannot include nor overlap regulation ranges or heat segments	N	- Must be <= MAX_GEN - 0.1	
Forbidden Region Crossing Time	FRBD_CROSSING_TIME	Minutes	The time in minutes a generator needs to move through the Forbidden Region.	N	- Must be an integer (whole number), 1 or greater	

**Regulation Range - REGULATION**

Column Name	Column Code	Unit	Definition	Can be Null? (If curve is defined)	Business Rule The Regulation (REG) curve must exist if CERT_REG is set to Y	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	text	REG for Regulation Range	N		
Segment Number	SEG_NUM	Integer	two are submitted, then segment number 1 must describe the lower range and segment number 2 must describe the upper range.	N	- First segment must be 1 - 2 segments allowed	A Regulation range cannot be removed through the UI/API. A request must be submitted to RDT@caiso.com
Lower MW for Regulation	REG_LOW_MW_OUTPUT	MW	Lower level of the Regulation Range.	N	- Must be >= MIN_GEN	
Higher MW for Regulation	REG_HIGH_MW_OUTPUT	MW	Higer level of the Regulation Range.	N	- Must be <= MAX_GEN	

**Regulating Ramp Rate - REG RAMP**

**APPENDIX B  
Generator RDT Definitions and Business Rules**

Column Name	Column Code	Unit	Definition	Can be Null? (If curve is defined)	Business Rule The Regulation Ramp (RREG) curve must exist if CERT_REG is set to Y	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	text	RREG for Regulation Range Ramp Rate	N		
Segment Number	SEG_NUM	Integer	One regulation ramp rate applies to both regulation ranges, if more than one regulation range exists.	N	- 1 Segment allowed	A Regulation ramp curve cannot be removed through the UI/API. A request must be submitted to RDT@caiso.com
Worst Regulation Ramp Rate	RREG_MIN_RATE	MW/Minute	The maximum Regulation Ramp Rate for the segment under the worst condition.	N	- Must be > 0	
Best Regulation Ramp Rate	RREG_MAX_RATE	MW/Minute	The maximum Regulation Ramp Rate for the segment under the best condition.	N	- Must be <= Best Operating Ramp Rate (RAMP curve) - Must be <= the tested Regulation ramp rate	

Operating Reserve Ramp Rate - OP RES RAMP						
Column Name	Column Code	Unit	Definition	Can be Null? (If curve is defined)	Business Rule The Operating Reserve Ramp (ROPR) curve must exist if any of these flags are set to Y: CERT_SPIN, CERT_NSPIN_DAM, or CERT_NSPIN_RTM	Tips for making a change (All changes should be made through the UI or API unless specified here)
Segment Type	SEG_TYPE	text	ROPR for Operating Reserve Ramp Rate	N		
Segment Number	SEG_NUM	Integer	One ramp rate range covers procurement of both Spinning and Non-Spinning reserve.	N	- 1 Segment allowed	An Operating Reserve Ramp curve cannot be removed through the UI/API. A request must be submitted to RDT@caiso.com
Worst Operating Res Ramp Rate	ROPR_MIN_RATE	MW/Minute	The maximum Operating Ramp Rate under the worst condition.	N	- Must be > 0	
Best Operating Res Ramp Rate	ROPR_MAX_RATE	MW/Minute	The maximum Operating Ramp Rate under the best condition.	N	- Must be <= Best Operating Ramp Rate (RAMP curve) - Must be <= the tested Spin or Non-Spin ramp rate	

## Appendix C

### Brief Report Template

Registered entities are requested to use the Brief Report template as a guideline for submitting event information to their applicable RE and NERC in accordance with **Appendix A** (Target Time Frames for Completion of Brief Reports, Event Analysis Reports, and Lessons Learned). The template may also be used for less significant events.

#### Template Instructions:

**Reported Event Title:** Provide a title that will be used to identify the event. The title should include the date of the event (YYYYMMDD), entity name, substation name, or location as appropriate.

**Submittal Date:** Date Brief Report was first submitted.

**Subsequent Submittal Date:** Date Brief Report was updated.

**Initial, Interim, or Final Report:** Identify if the Brief Report is the first (initial), interim, or a final report. The first report can be a final report in accordance with the timelines in Appendix A.

**Item 1 – Entity Name and NCR Number:** Entity name and NERC Compliance Registry (NCR) number submitting the report.

**Item 2 –** Provide contact information about the entity, a contact person.

**Item 3 –** Provide the local date, time, and time zone when the event occurred.

**Item 4 – Brief Description:** Provide a short summary of what happened, when it happened, and where, if applicable. This description is not intended to describe the causes and conditions surrounding the event.

**Item 5 – Proposed Event Categorization (e.g., 1a, 2b):** See the list of categories in Step 1 of the process.

**Items 6-12 and Questions 6–12:** If the event did not involve generation, frequency, transmission facilities, load, and/or inverters, questions 6–12 may be left blank.

**Item 6 – Generation Tripped Off-line:** Provide a total megawatt loss (gross).

**Item 7 – Frequency:** Provide the frequency prior to event, minimum and maximum frequency immediately following the event, and the settling frequency.

**Items 8-9 Load/Customers Impacted:** Provide the firm and interruptible MW amount of load impacted (if any). The load that was disconnected from the system by utility/entity equipment opening. Load loss due

to the response of voltage sensitive load and load that is disconnected from the system by end-user equipment is not included. Do not use change in area load as the load loss.

**Item 10 – List Transmission, Substation, Generation, and Demand that Experienced a Forced Outage (Excluding Successful Automatic Reclosing):** Provide start time, end time, and total outage time for each affected generation, substation equipment, transmission, and/or demand facilities. Describe the bus configuration (e.g. straight, ring, breaker and a half) and specify the voltage level for each substation equipment loss. Specify the voltage level for each transmission loss. Provide MW loss and Peak MW loss for generation loss and load loss, respectively.

**Item 11 – Describe any Emergency Actions Required to Maintain Reliability of the BES:** If an operating limit was exceeded, what actions were taken by the system operators to return the system to a secure state? For 1h EMS event, please include mitigating controls used to monitor the BPS including any notifications made to external entities (e.g. Reliability Coordinator, Balancing Authority, and/or neighboring Transmission Operators). Please advise if you contacted the vendor and what details they have provided.

**Item 12 – List Inverters that Experienced either Momentary Cessation or Tripping:** Please provide the affected facility name, the number of affected inverters, total MW loss, outage duration, and the type of loss (momentary cessation or tripping)

**Item 13 – Sequence of Events:** The sequence of events should provide a chronological timeline of the actions that took place leading up to and through the event. The sequence of events is intended to assist in causal analysis and should not include potential causes or narratives attempting to identify the impact of various activities throughout the event.

**Item 14 – Identify Contributing Causes of the Event to the Extent Known:** If the event consists of more than one event, please provide contributing causes to each event (e.g., Event 1: line-to-ground fault which was followed by Event 2: failure to trip). For every event, continue to ask ‘why’ to help determine the contributing causes. Consider design, equipment, human performance, management practices, procedures, communication, training, weather, configuration, vendor, or anything that may have contributed to the event(s).

**Item 15 – Identify any Protection System Misoperations to the Extent Known:** If a Protection System operated during the event, the operation should be reviewed to ensure the Protection System operated correctly. If it is believed that the Protection System did not operate as expected and possibly reported through PRC-004, it should be identified in this section. If the operation is still being analyzed, it should be noted. The outcome of that analysis should be used to update this report and the fact that a PRC-004 report was made when such information becomes known.

**Item 16 – Identify any GADS, DADS, TADS, or Misoperation Reports that Will Be Submitted:** Identify any loss of generation, demand, or BES Transmission lines related to the event that qualify for reporting through the Generator Availability Data System (GADS), Demand Response Availability Data System

(DADS), or Transmission Availability Data System (TADS). Also identify any Protection System misoperation reports that will be submitted.

**Item 17 – Narrative:** Provide a detailed description of the event utilizing the sequence of events, one-line diagrams, available data, and any assumptions, as necessary. The narrative should explain the what, when, how, and where aspects of the events in detail, as well as the impact. The narrative should describe the potential causes of events, measures that, if existed, could have prevented the event, corrective measures taken after the event, and any extent of condition<sup>1</sup> identified.

**Item 18 – If a One-line Diagram is Included, Please Provide an Explanation:** One-line diagrams and pictures streamline the review process and simplify understanding of events. Please provide where applicable.

**Item 19 – Identify the Significance and Duration of any Monitoring and Control Event (i.e., Loss of BPS Visibility, Loss of Data Links, etc.):** Provide the number of minutes control and/or monitoring was lost and the extent of the loss (e.g., complete loss of EMS, or lost 40 percent visibility and control).

**Item 20 – Provide any Corrective Actions that were Identified:** These are the things your company will do or has done to prevent a similar event from occurring in the future.

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<sup>1</sup>Reviewing the potential for identified problem to impact other processes or equipment.



## Brief Report Template

Reported Event Title:			
Event Date:		Submittal Date:	
Subsequent Submittal Date:		Initial, Interim or Final Report:	
Region(s):			
1. Entity Name:			
NCR Number:			
2. Contact Person:		Phone Number:	
Email:			
3. Date of Disturbance			
Time of Disturbance		Time Zone:	
4. Brief Description of Event			
5. Proposed Event Categorization: (e.g., 1a, 2b, 3c)			
6. Generation Tripped Off-line (MW)			
7. Frequency			
Just prior to disturbance (Hz)		Immediately following disturbance (Hz MAX)	
Settling (Hz)		Immediately following disturbance (Hz MIN)	
8. Demand Interrupted			
Firm (MW)			
Interruptible (MW)			
9. Number of affected customers			
Firm		Interruptible	
10. List Transmission, Substation, Generation, and Demand that Experienced a Forced Outage (Excluding successful automatic reclosing)			

<b>Transmission Lines</b>					
<u>Line Name</u>	<u>Voltage Level</u>	<u>Start time of outage</u>	<u>End time of outage</u>	<u>Total outage duration time</u>	
<b>Substation Equipment</b>					
<u>Station Name (including station configuration)</u>	<u>Type (e.g. breaker, transformer, bus, relay, CT, PT)</u>	<u>Voltage Level</u>	<u>Start time of outage</u>	<u>End time of outage</u>	<u>Total outage duration time</u>
<b>Generation Equipment</b>					
<u>Unit Name</u>	<u>Fuel Type</u>	<u>MW Loss</u>	<u>Start time of outage</u>	<u>End time of outage</u>	<u>Total outage duration time</u>
<b>Demand</b>					
<u>Peak MW Loss</u>	<u>Start time of outage</u>	<u>End time of outage</u>	<u>Total outage duration time</u>		
<p>11. Describe any Emergency Actions Required to Maintain Reliability of the BES            For 1h EMS event, please include mitigating controls used to monitor the BPS including any notifications made to external entities (e.g. Reliability Coordinator, Balancing Authority, and/or neighboring Transmission Operators). Please advise if you contacted the vendors and what details they have provided.</p>					

12. List Inverters that Experienced either Momentary Cessation or Tripping				
<u>Facility Name</u>	<u>Number of Affected Inverters</u>	<u>Note Momentary Cessation or Trip</u>	<u>Total MW Loss</u>	<u>Outage Duration</u>
13. Sequence of Events				
Time	Event			
14. Identify contributing causes of the event to the extent known				
15. Identify any Protection System Misoperations to the extent known				

16. Identify any GADS, DADS, TADS, or Protection System Misoperations Reports that will be submitted
17. Narrative Explain the what, when, how, and where aspects of the events in detail, as well as the impact. Describe the potential causes of events, measures that could have prevented the event, corrective measures taken after the event, and any extent of condition identified. <ul style="list-style-type: none"><li>• For 1h EMS event, please review <a href="#">Addendum for Category 1h Events</a></li><li>• If substation equipment failure occurred, please see the <a href="#">Failed Equipment Addendum</a>, fill out the appropriate section, and send it with the Brief Report</li></ul>
18. If a one-line diagram is included, please provide an explanation
19. Identify the significance and duration of any monitoring and control event, such as loss of BPS visibility, loss of data links, etc
20. Provide any corrective actions that were identified

**PROOF OF SERVICE BY MAIL/EMAIL**

I am employed with the California Public Utilities Commission and I am over 18 years of age. My business address is 505 Van Ness Avenue, San Francisco, California 94102.

On February 24, 2022 I caused to be sent by email and by U.S. Mail the following document(s):

**SUBPOENA DUCES TECUM**

by depositing in a U.S. mailbox in stamped sealed envelopes, and by sending via email to the address and email address below.

Mr. John Spomer. Senior Counsel  
California Independent System Operator Corporation  
250 Outcropping Way, Folsom CA 95630  
[jspomer@caiso.com](mailto:jspomer@caiso.com)

Executed under penalty of perjury under the laws of the State of California, on this 24th day of February, 2022 at San Francisco, California.

*/s/ Marybelle C. Ang*  
Marybelle C. Ang