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California Energy Commission  
**STAFF REPORT**

# Forms and Instructions for Submitting Electricity Resource Plans

Prepared in Support of the *2019 Integrated Energy  
Policy Report*

California Energy Commission  
Edmund G. Brown Jr., Governor



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# California Energy Commission

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# ABSTRACT

These ~~electricity resource plan~~ are forms and instructions ~~cover~~ for load-serving entities to report their electricity resource plans for forecast years ~~2017~~ 2019 through ~~2026~~ 2030 and historical years ~~2015~~ 2017 and ~~2016~~ 2018. Load-serving entities in California are required to submit plans showing how demand for energy and their annual peak load will be met by specific supply resources. These forms and instructions ~~were adopted~~ may be considered for adoption by the California Energy Commission at a business meeting in ~~December 2016~~ November 2018.

**Keywords:** Electricity resource plans, supply forecasts, resource adequacy, forms and instructions, California load serving entities, 2017 2019 *Integrated Energy Policy Report*

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## EXECUTIVE SUMMARY

This report describes information for electricity planning that is needed by the California Energy Commission to prepare the *2019 Integrated Energy Policy Report*. This report also provides forms with instructions that define the electricity resource planning and procurement information that must be submitted by load-serving entities, using common terms and conventions.

California Public Resources Code Sections 25300—25323 direct the Energy Commission to regularly assess all aspects of energy demand and supply. These assessments will be included in the *2017-2019 Integrated Energy Policy Report*, or in supporting reports, and will provide a foundation for policy recommendations to the Governor, Legislature, and other agencies. The broad strategic purpose of these policies is to conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The forms and instructions described in this report ~~were adopted by the Energy Commission in December 2016~~ may be considered for adoption at the November 2018 business meeting.

To carry out these energy assessments, the Energy Commission is authorized to require California market participants to submit historical data, forecast data, and assessments. California Public Resources Code Sections 25216 and 25216.5 provide broad authority for the Energy Commission to collect data and information “on all forms of energy supply, demand, conservation, public safety, research, and related subjects.”

These electricity planning assessments will provide a foundation for recommendations in the *2017-2019 Integrated Energy Policy Report*. Resource plans from the investor-owned utilities may serve simultaneously as system resource plans to be considered by the California Public Utilities Commission to align procurement plans with local area reliability needs. Many resource plans by load-serving entities, individually and collectively, are expected to inform controlled grid studies by the California Independent System Operator and other regional balancing authorities.

# General Instructions

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Reporting requirements are largely unchanged from those adopted in December ~~2014~~2016. The forms, however, are revised and users should always submit the most recently adopted version. ~~Required Tables have been rearranged so that requirement information on bilateral contracts (both capacity and power purchase agreements (PPAs energy) is to be provided in a single table, rather than on individual forms for each contract/agreement, as submitted in now on the past. Narrative S-1 Form and resource planning and procurements supply information (both capacity and energy) is not being requested in this now on the S-2 Form. Hydroelectric capacity resources will now be listed individually rather than aggregated. Certain data requirement fields in the S-5 Bilateral Contracts Table were deleted. In an effort to align these supply reporting eyeforms with the demand reporting forms, and to help track progress towards achieving key state energy and environmental policy goals, a forecast horizon to year 2030 has been requested.~~

## Who Must File What by When

In adopting these forms and instructions, the California Energy Commission specifically requires load serving entities (~~LSEs~~LSE) other than investor-owned utilities (~~IOUs~~IOU) to file certain electricity resource planning information by Friday, April ~~21, 2017~~19, 2019; the IOUs are required to file resource planning information by Friday, April ~~28, 2017~~26, 2019. Except for files clearly marked as confidential, the data submitted will be ~~distributed~~docketed to the *Integrated Energy Policy Report (IEPR)* service list.

LSEs that require additional time may request an extension by submitting a written request to the Executive Director, as described in California Code of Regulations (CCR), Title 20, Article 2, and Section 1342. ~~Please copy requests to John Hingtgen, John.Hingtgen@energy.ca.gov, and David Vidaver, David.Vidaver@energy.ca.gov~~Copy requests to Robert Kennedy at Robert.Kennedy@energy.ca.gov.

The electricity supply resource plan information to be provided by LSEs is identified on the following forms, which are included with these instructions:

- CEC Form S-1 Capacity ~~Resource Accounting Table~~Energy Procurement Requirement Form
- CEC Form S-2 Capacity/Energy ~~Balance Accounting Table~~Supply Resources Form
- CEC Form S-3 ~~2016~~2018 Small ~~publicly owned utility~~Publicly Owned Utility Hourly Loads
- CEC Form S-5 Bilateral Contracts and Power Purchase Agreements

Electricity supply forms are required from every utility that has electric end-use customers in California. ~~They~~Utilities are ~~in~~organized into two groups, ~~large and small~~:

- Large utilities are those with annual peak loads equal to or larger than 200 megawatts (MW) in either ~~2015~~2017 or ~~2016~~2018.
- Small utilities are those with annual peak ~~load~~loads less than 200 MW in both ~~2015~~2017 and ~~2016~~2018.

As in recent *IEPR* cycles, five organizations are requested to file certain forms either for others or themselves, even though they are not required to file. ~~They are~~:

1. The Northern California Power Agency (NCPA) is requested to file on behalf of the 10 LSE members of the NCPA Pool. The 10 NCPA members are:
  - Alameda Municipal Power
  - City of Biggs
  - City of Gridley
  - City of Healdsburg
  - Lodi Electric Utility
  - City of Lompoc
  - City of Palo Alto
  - Plumas-Sierra Rural Electric Cooperative
  - Port ~~of~~ Oakland
  - City of Ukiah
2. The California Department of Water Resources:
3. The City of Vernon:
4. The City and County of San Francisco, ~~(~~even though its firm end-use customer peak loads did not exceed 200 MW in ~~2015~~2017 or ~~2016~~2018)
5. The Western Area Power Administration (WAPA) ~~is~~has requested to file for publicly ~~-~~owned distribution utilities that rely on WAPA. Doing so enables WAPA to meet its “full requirements” to these customers.

~~Table 1 provides form filing requirements and requests by LSE type and size.~~

### **Filing Electricity Resource Plans with the Energy Commission**

~~Load-serving entities~~LSEs are required to submit electricity resource plans electronically using the Energy Commission’s e-filing system. A user’s guide to the e-filing system is posted at <http://www.energy.ca.gov/e-filing/>. After logging in as a registered user, select

the proceeding, ~~which will be opened (19-IEPR-02)~~ for the ~~2017~~2019 Integrated Energy Policy Report (~~2017-2019~~ IEPR) Electricity Resource Plans.

~~Please include~~Include the LSE's name in all file names. Attachments and cover letters should be submitted as separate files and clearly identified. Cover letters that ~~merely~~ identify the documents that are part of the filing are unnecessary.

Files are required in these formats:

- Numerical data on specified forms using Microsoft® Excel®
- Narratives and cover letters in Microsoft Word® or Adobe Acrobat®

Table 1 provides form filing requirements and requests by LSE type and size.

**Table 1: CEC Energy Commission Forms Filing Requirements and Requests**

Key:	X in gray cell means required R in gray cell means requested		Form			
			S-1	S-2	S-3	S-5
LSE Type and Size	Peak Load Years to Determine Size	Load and Resource Data Years	Capacity Resource Accounting Table	Energy Balance Accounting Table	2016 Small Publicly Owned Utility Hourly Loads Table	Bilateral Contracts and/or Power Purchase Agreements
IOU - Large	2015 or 2016	2015 - 2026	X	X	Not Req'd	X
IOU - Small	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
PQU - Large	2015 or 2016	2015 - 2026	X	X	Not Req'd	X
<del>PQU - Small</del>	<del>2015 &amp; 2016</del>	<del>2015 - 2017</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>Not Req'd</del>
ESP - Large	2015 or 2016	2015 - 2019	X	X	Not Req'd	X
ESP - Small	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
CCA - Large	2015 or 2016	2015 - 2026	X	X	Not Req'd	X
CCA	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
<b>Requested to File</b>						
NCPA (for 10 LSEs)	Not Applicable	2015 - 2026	R	R	R	R
California DWR	Not Applicable	2015 - 2026	R	R	R	R
City of Vernon	Not Applicable	2016 - 2026	R	R	R	R
San Francisco	Not Applicable	2017 - 2026	R	R	R	R
WAPA <sup>1</sup>	Not Applicable	2015 - 2017	R	R	R	R

Key:	X in gray cell means required R in gray cell means requested		Form			
			S-1	S-2	S-3	S-5
<b>LSE Type and Size</b>	<b>Peak Load Years to Determine Size</b>	<b>Load and Resource Data Years</b>	<b>Capacity/Energy Procurement Requirement Table</b>	<b>Capacity/Energy Supply Resources Table</b>	<b>2018 Small Publicly Owned Utility Hourly Loads Table</b>	<b>Bilateral Contracts and/or Power Purchase Agreements</b>
IOU - Large	2017 or 2018	2017-2028	X	X	Not Req'd	X
		2029-2030	R	R	Not Req'd	R
IOU - Small	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
POU - Large	2017 or 2018	2017-2028	X	X	Not Req'd	X
		2029-2030	R	R	Not Req'd	R
<del>POU - Small</del>	<del>2017 &amp; 2018</del>	<del>2017-2019</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>Not Req'd</del>
ESP - Large	2017 or 2018	2017-2023	X	X	Not Req'd	X
ESP - Small	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
CCA - Large	2017 or 2018	2017-2028	X	X	Not Req'd	X
		2029-2030	R	R	Not Req'd	R
CCA	Not Applicable	Not Applicable	Not Req'd	Not Req'd	Not Req'd	Not Req'd
<b>Requested to File</b>						
NCPA (for 10 LSEs)	Not Applicable	2017-2030	R	R	R	R
California DWR	Not Applicable	2017-2030	R	R	R	R
City of Vemon	Not Applicable	2018-2030	R	R	R	R
San Francisco	Not Applicable	2019-2030	R	R	R	R
WAPA <sup>1</sup>	Not Applicable	2017-2019	R	R	R	R

<sup>1</sup> For publicly owned distribution utilities that rely on WAPA, WAPA's assistance is requested to enable its "full requirements" publicly owned distribution utility customers to submit Forms S-1, S-2, S-3, and S-5, including load and resource data for ~~2015~~2017 through ~~2017~~2019.

## Requesting Confidentiality

If requesting confidentiality for any parts of a filing, ~~please~~ read and follow the instructions in **Appendix A**.

For confidentiality applications that require document signatures, the words "Original signed by" and the signee's typed name can serve in lieu of a "wet" signature. Yellow fill should be used to highlight ~~all~~ cells for which the LSE is requesting confidentiality. Energy Commission staff will use color coding to track ~~these~~ requests and to protect data determined to be confidential.

## Use the New Forms

The data forms have changed since the ~~last~~2017 IEPR cycle. Do not update old forms from the last cycle, ~~previous~~ versions will not be accepted.

New templates for the data forms are available either on the Energy Commission website at <http://www.energy.ca.gov/energypolicy/> under the 19-IEPR-2 Docket, or from ~~John Hingtgen~~Robert Kennedy at [John.Hingtgen@energy.ca.gov](mailto:John.Hingtgen@energy.ca.gov)Robert.Kennedy@energy.ca.gov or (916) ~~657-4046654-~~5180.

Upon submission, Energy Commission staff will incorporate filed forms into a database. Following these spreadsheet guidelines facilitates the process of entering the information into the database:

- Do not delete any columns:
- Do not delete any rows:
- Do not change headers:
- Do not re-order the rows:
- Where more than one item is requested in the same cell, use a **semicolon** to delimit the data. Other delimiters, such as commas, are not accepted by the database.
- Additional rows may be inserted in the same category. For example, under Total Renewable Contract Supply, rows inserted below line 18d will have the same formatting as line 18d.
- If a row is not used, leave the cells blank. ~~Again, this~~This facilitates database entry.

## Electricity Resource Planning Forms: Administrative Information

### Preparer

The first tab on the file provides information about who prepared the forms, when they were completed, and contact information.

### Name of LSE

This is the legal or business name of the LSE. Entries on this tab will copy automatically to subsequent tabs.

### Name of Resource Planning Coordinator

For larger utilities, this is the person responsible for responding to this data submittal requirement and/or transmitting the forms.

### Name and Title of Persons Who Prepared Supply Resource Forms

~~This is the~~The person responsible for the accuracy and completeness of the forms.

### Contact Information

Accurate contact information facilitates review of the filing.

**Date Completed**

~~This is the~~The date the form was completed.

**Date Updated by LSE**

This line is for subsequent updates or revisions that may be provided by the LSE.

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# Forms S-1, S-2, S-3, and S-5

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## Introduction

Form S-1 is the Capacity ~~Resource Accounting Table. It is~~ Energy Requirement Form used by the LSE to project expected ~~capacity, in MW, to meet expected~~ peak loads: in megawatts (MW). It also ~~provides~~ shows the LSE's forecast of total annual energy demand in gigawatt-hours (GWh). The time frame of the projection is from 2019 through 2030. It ~~also shows actual load for years 2017 and 2018.~~

Form S-2 is the Capacity/Energy Supply Resources Form to provide the types of resources and, where known, the particular resource, such as a solar generation plant. The time frame of the projection is from ~~2017~~ 2019 through ~~2026~~ 2030. It also shows actual ~~loads and resources~~ supply for years ~~2015~~ 2017 and ~~2016~~ 2018.

~~Form S-2 is the Energy Balance Accounting Table. It is similar to the S-1 form, but shows the LSE's forecast of total energy demand, in gigawatt hours (GWh). The time frames of the S-2 are the same as those of the S-1.~~

~~For consistency in data collection and analyses, the S-2 form and instructions have been renumbered to match comparable lines on the S-1 form. This should provide an easier way to input and use the data. Instructions that apply to both S-1 and S-2 are combined in the line-by-line instructions.~~

~~For years 2015 and 2016, there~~ There is one important difference ~~between the S-1 and S-2 forms. On the S-1 form~~ with how capacity and energy are treated in the S-2 Form for 2017 and 2018. ~~For capacity,~~ LSEs are to show capacity supply resources that were, ~~at the start of prior years, expected to be~~ available to meet the forecast 1-in-2 peak loads. ~~On the S-2 form~~ For energy, LSEs are required to show actual amounts of energy supply that were procured to meet energy requirements in calendar years ~~2015~~ 2017 and ~~2016~~ 2018.

Form S-3 applies to small publicly owned utilities (POUs) only and is a simplified version of the demand form. By filing Form S-3, small POUs are not required to file any of the demand forms. They are required to report hourly historical loads for the previous calendar year according to language in Section 1346 on Electricity Resource Adequacy (~~CC~~ California Code Regulations, Title 20, Division 2, Chapter 3, Article 2).

Form S-5 is for Bilateral Contracts and Power Purchase Agreements. This information is used to assess characteristics of statewide supply and demand balances related to contracts with in-state and out-of-state capacity ~~California loads~~, whether the supplier has control of a resource; or will in the future, and circumstances of resource unavailability during peak hours. ~~Under what~~ In the S-5 Form, general terms ~~does the are listed that explain how a~~ contract may provide qualifying capacity for LSEs serving loads within the California Independent System Operator's (California ISO) Balancing

Authority Area (control area) or provide dependable capacity for LSEs serving loads in other balancing areas?

## Forms S-1 and S-2

### General Instructions for Forms S-1 and S-2

Forms S-1 and S-2 demonstrate how the LSE expects to serve end-use loads and meet other firm obligations. ~~Data on Form S-1 should, in most cases, correspond with matching data (line by line) on Form S-2. If a capacity-only resource is listed on Form S-1, this same resource should appear on Form S-2 with zero values for expected annual energy supply. On the new template, the name of a specific supply resource entered on Form S-1 will copy automatically to a matching line on Form S-2. There are some lines that apply to one but not the other, such as Form S-1, Line 6 through 9 that do not apply to Form S-2. The lines exist on S-2, but are noted as not applying. The one exception to directly corresponding lines is Line 26 "Specified Planning Reserve Margin" on Form S-1. It does not have a corresponding line because reserve margins do not apply to energy. The S-1 forms show an LSE's requirements in terms of energy and capacity. The S-2 forms show how an LSE may meet its requirements through resources, contracts, and market purchases.~~

~~For any cell where more than one datum is requested on the same line, separate the data using a semicolon. For example, in line 12c, separate the fuel and the resource by a semicolon. This will help to fill in data when a database is created.~~

LSEs are expected to have increasingly large open positions for capacity and energy during the later years of the reporting period due to existing resources retiring, contracts and power purchase agreements (PPAs) expiring, and renewable resources that have yet to be procured to meet an increasing renewable portfolio standard (RPS).

While an LSE's planning efforts may have resulted in a preferred scenario in which certain generic resources are developed, the LSE is not required to demonstrate how it will fill these positions absent a strong likelihood that resources of a particular fuel type will be procured. Such resources, if part of the LSE's submitted resource plan, should be identified as "generic." Further discussion of this topic can be found in **Appendix B**.

### Instructions Specific to Form S-1

~~LSEs are required to~~In the S-1 Capacity/Energy Requirement Form, LSEs are required to enter estimates of peak load capacity requirements (in MW) as well as annual energy needs (in GWh). The load forecast (capacity and energy requirements) on Form S-1 shall be consistent and compatible with the demand forecast provided to the Energy Commission according to the requirements of Section 1345(a).

~~On a separate table below the main body of Form S-1 (lines 23-29), LSEs are required to report their actual peak loads in calendar years 2017 and 2018. However, LSEs are not required to show which resources were dispatched or available to serve those historic~~

peak-hour loads. Instead, in Form S-2, LSEs are to show the capacity resources that were expected to be available to meet the forecast 1-in-2 peak loads at the start of those years.

### **Instructions Specific to Form S-2**

In the S-2 the Capacity/Energy Supply Resources Form, LSEs are required to list resources and estimate how much capacity in MW is needed to serve calendar year annual peak retail customer load, plus reserves and other obligations. ~~The load forecast on Form S-1 shall be consistent and compatible with the Energy Commission's demand forecast according to the requirements of Section 1345(a).~~The table to the right with the orange header pertains to energy (in GWh) rather than capacity, and shows how much energy is expected to come from the same electricity supply resources listed.

Form S-~~1~~2 is used to show how much capacity is expected to be available to meet ~~an~~ LSE's annual peak ~~loads~~load using either net qualifying capacity (NQC) or peak dependable capacity as appropriate for the LSE. Form S-~~1~~2 should include all LSE-owned or controlled resources and all planned resources. Generic resources should be identified as such. The distinction between planned and generic resources is discussed in **Appendix B**.

~~The load forecast on Form S-1 shall be consistent and compatible with~~After listing the demand forecast provided to resource, input the Energy Commission ~~according to Plant/Unit Identifier (CEC ID) number in the requirements appropriate column. Out-of Section 1345(a):~~

~~On a separate table below the main body of Form S-1 (lines 27-33), LSEs are required to report their actual peak loads in calendar years 2015 and 2016. However, LSEs are not required to show which state resources were dispatched or are identified with an Energy Information Agency identification (EIA ID) number. If available to serve those historic peak-hour loads. Instead, in the main body of Form S-1, LSEs are to show the capacity, also input the California ISO ID number for resources that were expected to be available to meet are within the California ISO service territory. See the instructions below on how to obtain the forecast 1-in-2 peak loads at correct identifier number. Then select the start of those years.~~fuel type from the drop down menu in the fuels column.

Values reported on Form S-~~1~~2 should be consistent with year-ahead resource adequacy filings.<sup>1</sup> Do not use or report values for ~~nameplate capacity~~, installed capacity, or California ISO defined maximum power (~~PMAX~~) capacity on Form S-~~1~~2.

### **Plant/Unit Identifiers: CEC ID, California ISO Resource ID, EIA Number**

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<sup>1</sup> For ~~2017~~2019, the list of NQC values has been posted at the California ISO website at <http://www.caiso.com/Documents/FinalNetQualifyingCapacityList-2017.xlsxplanning/Pages/ReliabilityRequirements/Default.aspx>.

The rapid proliferation of small resources (1 MW-5 MW) providing wholesale energy has made it increasingly difficult to compile and maintain data on California's generation fleet, and how it is used to serve LSE loads and resource adequacy needs. Assigning identifying text strings to generation resources facilitates accurate identification of generation plants and units. There are three such text strings that are commonly assigned to power plants: The Energy Commission's identification code (CEC ID), the California ISO resource identification code (Resource ID), and the Energy Information Administration identification code (EIA ID). The LSE is to provide at least one of them for each power plant specified in the contract, preferably the CEC ID.

Generation resources interconnected to California balancing authorities, other than the California ISO, or dynamically scheduled into them, are assigned a CEC ID, which may be found in the Energy Commission Power Plant ID Cross Reference Table at [http://www.energy.ca.gov/almanac/electricity\\_data/web\\_qfer/](http://www.energy.ca.gov/almanac/electricity_data/web_qfer/).

Generation resources interconnected to the California ISO (or dynamically scheduled into the California ISO balancing area) are assigned a Resource ID by the California ISO. If the contract specifies such a resource or resources, this identifier should be provided here. It is contained in the California ISO's Master Generating Capability List, which can be found at <http://www.caiso.com/participate/Pages/Generation/Default.aspx>.

Generation resources that are planned or under construction in California will not have an assigned CEC ID. Those in the California ISO may or may not have an assigned Resource ID. If neither identifier has been assigned, enter "none."

Generation resources located in balancing authorities other than those in California (and not dynamically scheduled into a California balancing authority) will not have a Resource ID or a CEC ID. Existing out-of-state resources will have a EIA number, which can be found at <https://www.eia.gov/electricity/data/eia860/>.

For questions regarding these identifiers, contact Michael Nyberg at [Michael.Nyberg@energy.ca.gov](mailto:Michael.Nyberg@energy.ca.gov) or (916) 654-5968.

### **Resource Capacity and Adequacy**

The capacity of each resource, whether existing or planned, is a fundamental aspect of an LSE's electricity supply portfolio. For IEPR electricity resource purposes, there are two ways of measuring capacity—dependable and NQC. LSEs that provide end-use electrical services in the balancing area of the California ISO are required to report and use current NQC values for existing resources; and to project these values through the end of the forecast period. Other LSEs should use dependable capacity values for current and projected resources.

#### *Net Qualifying Capacity and Dependable Capacity*

LSEs that provide end-use electrical services in the California ISO's balancing area are required to use current NQC values. These values are determined annually and used by

the Energy Commission, the California Public Utilities Commission (CPUC), California ISO, and others for resource adequacy (RA) requirements and other uses.

LSEs serving end-use loads in other balancing areas are to use the dependable peak power capacity values they use for planning purposes. Dependable capacity is the amount of capacity from each generation source that is considered firm and reliable for meeting load forecasts occurring during the annual peak hour. This amount would be measurable at the busbar.<sup>2</sup> For variable energy resources without flexible dispatch (such as solar and wind), dependable capacity estimates should reflect the expected availability of energy from these resources at the time of the annual peak and the variable nature of this supply. Capacity values should not be adjusted for expected forced outage rates.

#### *Resource Adequacy*

Resource adequacy<sup>3</sup> is another aspect of an LSE's electricity supply portfolio. These resources provide additional electrical generation that can be called upon during periods when other resources in the portfolio are not available or demand exceeds the portfolio's regular resources, or both. California requires LSEs to maintain a portfolio of resources that is 115 percent of their expected annual peak load. One example of a RA resource adequacy requirement that a resource must meet is the ability to operate four consecutive hours for three consecutive days.

Resources used for RA resource adequacy, as shown in the forms, should count only inasmuch as their capacity can be relied upon to perform. For contractual resources, an LSE must use the capacity that is expected to be available to meet annual peak loads (either NQC or peak dependable capacity) depending on whether they are inside or outside the California ISO's balancing area. In addition, these resources must be available to the LSE throughout the forecast period.

### **Specific Form S-2 Instructions**

~~Form S-2, the Energy Balance Table, is similar to Form S-1, but it pertains to energy in GWh rather than capacity. LSEs are required to enter estimates of annual energy needs and how much energy is expected to come from various electricity supply resources. For large LSEs, the energy requirements forecast on Form S-2 shall be consistent and compatible with the demand forecast provided to the Energy Commission according to the requirements of Section 1345(a).~~

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<sup>2</sup> A system of electrical conductors in a generating or receiving station on which power is concentrated for distribution.

<sup>3</sup> Having sufficient power resources available when needed to reliably serve electricity demands across a range of reasonably foreseeable conditions.

# Form S-1 and Form S-2 Line-by-Line Instructions

## Line 1—Both Forms

### ~~Forms S-1 and S-2~~—Form S-1 Capacity/Energy Requirement Form

Instructions that apply to both tables on this form (one table is below the other on this form)

POUs are required to include service to new bundled customers in developing areas where POU and IOU service territories overlap, such as the Merced Irrigation District. For the Modesto Irrigation District, this amount will be listed in the migrating load forecast on Demand Form 1.3.

IOUs are instructed to include ~~on line 1~~ all the results of migrating load forecasts as listed on line 1 of Demand Form 1.3.

Southern California Edison Company (SCE) is required to include ~~on line 1~~ the self-supply load of the Metropolitan Water District (MWD) of Southern California (~~MWD~~), on line 1, since MWD's loads and resources are integrated with those of SCE for planning and scheduling purposes.

All LSEs are to include the effects of customer-owned generation that reduces their procurement obligations. (See instructions for lines ~~18b6e~~, Renewable Distributed Generation (DG), and ~~19b, Non-Renewable~~ 7f, Nonrenewable DG on the S-2 Form.)

Impacts from committed ~~nondispatchable~~ non-dispatchable programs should be reflected on line 1:<sup>4</sup>

and 12 in the S-1 Form.<sup>5</sup>

Update any automated formula cell if additional rows are added to list contracts or resources.

#### Line 1: Enter the forecast peak-hour 1-in-2 demand

All LSEs are required to forecast their total demand during their ~~(noncoincident)~~ **peak** hour for each year in the forecast period. The noncoincident peak is the peak load of an LSE that occurs at a different time than the system peak load. This number, in MW, must include all power needed to serve end-use loads along with the power needed to deliver

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<sup>4</sup> Non-dispatchable programs are not activated using a predetermined threshold condition but allow the customer to make the economic choice whether to modify its usage in response to ongoing price signals. All LSEs are asked to assume a reasonable level of effectiveness for price-responsive DR programs that may or may not correspond with adopted targets. This includes fixed time-of-use tariffs that result in demand reductions.

<sup>5</sup> Non-dispatchable programs are not activated using a predetermined threshold condition but allow the customer to make the economic choice whether to modify its usage in response to ongoing price signals. All LSEs are asked to assume a reasonable level of effectiveness for price-responsive demand response programs that may or may not correspond with adopted targets. This includes fixed time-of-use tariffs that result in demand reductions.

supplies to these loads. This includes transmission losses, distribution losses, energy needed to serve station loads of utility controlled resources, and unaccounted for energy ~~(UFE)~~. Do not include generator station ~~(parasitic)~~ loads. For these 1-in-2 end-use customer load forecasts, LSEs are required to use their best estimates about future customer loads. These estimates may be greater than or less than the current obligation to serve end-use customers.

**~~S-2, Line 12~~: Enter the forecast total energy demand/consumption**

All LSEs are to forecast total calendar year annual energy consumption, including demand by all retail customers. This total includes transmission losses, distribution losses, energy needed to serve station loads of utility controlled resources, and ~~UFE~~ **unaccounted for energy**. This total also includes energy consumption for utility use and by municipal self-supply end-use loads.

**~~Lines 2a through 2e—Both Forms and 13a through 13e (both tables)~~**

**Line 2a and 13a ESP Demand: Existing Customer Contracts**

Electric service providers (~~ESPs~~ **ESP**) are required to identify how their expected demand is divided between new and renewing customers, and to indicate the obligations to serve existing customer demand including contracts that have future start dates.

**Line 2b and 13b ESP Demand: New and Renewed Contracts**

All ESPs are required to estimate demand from new customers, plus future contract renewals or extensions to serve existing customers. This forecast should be the “most likely” case as judged by the ESP. The likely share of contract renewals and extensions should closely follow historical patterns, unless such a difference is warranted by a business model, forecast, or announcement that has been disclosed publicly. For ESPs, the sum of values on line 2b and line 2a should equal the number entered on line 1.

Likewise, the sum of values on line 13b and line 13a should equal the number entered on line 12.

**Line 2c and 13c ESP Demand in ~~PG&E~~ **Pacific Gas and Electric** Service Area**

~~S-1 and S-2~~ Capacity Procurement Requirement Table and Energy Procurement Requirement Table: Instructions that apply to both

The amounts on lines 2c, 2d, and 2e should equal the total shown on line 1. The amounts on lines 13c, 13d, and 13e should equal the total shown on line 12.

*S-1, Line 2c*

ESPs are required to estimate total energy demand during their ~~(noncoincident)~~ peak hour.

~~S-21, Line 2e~~ 13c

ESPs are required to estimate annual energy demand.

**Line 2d and 13d ESP Demand in ~~SC~~ **Southern California Edison** Service Area**

*S-1, Line 2d*

ESPs are required to estimate total energy demand during their ~~(noncoincident)~~ peak hour.

*S-21, Line ~~2d~~13d*

ESPs are required to estimate annual energy demand.

**Line 2e and 13e ESP Demand in ~~SDG&E~~San Diego Gas and Electric Service Area**

*S-1, Line 2e*

ESPs are required to estimate total energy demand during their ~~(noncoincident)~~ peak hour. ~~Annual energy demand (Form~~

~~S-2) in the service area of SDG&E.~~

*S-21, Line ~~2e~~13e*

ESPs are required to estimate annual energy demand.

**Line 3 and 14 Additional Achievable Energy Efficiency—~~Both Forms (both tables)~~**

IOUs, community choice aggregators (~~CCAs~~CCA), and POU are directed to estimate median values (stated as negative numbers) for cost-effective and achievable savings from future programs that are reasonably expected to be developed but are not yet implemented or funded. Enter this value as a negative number.

For large LSEs, this estimate of additional achievable energy efficiency should match the amount shown on Demand Form 3.2. Do not include the effects of energy efficiency programs that are already embedded in the LSE demand forecast (Demand Forms 1.1a and 1.1b) or in the LSE load forecast (Forms S-1 ~~and S-2~~, line 1 ~~and 12~~). Reported savings should include those that are expected to be achieved in pursuit of goals established by regulatory agencies for which final program design details have not yet been established. Enter amount of additional achievable energy efficiency (in terms of energy or capacity depending on the table) in parenthesis and it will appear as a red negative number.

**Line 4 and 15 Demand Response/Interruptible Programs—~~Both Forms (both tables)~~**

LSEs are required to enter the demand reduction amounts that are expected to be available from all dispatchable programs that reduce demand or interrupt non-firm demand.<sup>6</sup> Enter this value as a negative number.

Demand response (DR) encompasses a variety of programs, including traditional direct control (interruptible) programs counted as supply-side resources and price-responsive

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<sup>6</sup> Dispatchable programs are defined here as programs with triggering conditions that the customer does not control and cannot anticipate, such as direct control, interruptible tariffs, or demand bidding programs. Programs with triggering conditions are deemed dispatchable whether they have a day-of or day-ahead trigger, and whether the trigger is economic or physical. All price response programs that have specified triggering conditions should be treated as dispatchable. This includes critical peak pricing and real-time pricing.

programs that are accounted for in the demand forecast. Only interruptible load programs subject to LSE or balancing authority dispatch should be counted on line 4. As stated above, impacts from committed nondispatchable programs should be reflected on line 1 and 12. Price-sensitive DR goals for the IOUs were established in CPUC D.03-06-032 (p. 10). These amounts are 5 percent in 2011 and thereafter.<sup>7</sup>

LSEs serving loads in the California ISO balancing area are required to use the CPUC-adopted standards for counting DR qualifying capacity. This standard for year-ahead resource adequacy capacity should be applied to projected DR resources throughout the forecast period. For large LSEs, this estimate of DR should match the amount shown on Demand Form 3.4 for dispatchable programs. Enter amount of Demand Response/Interruptible Program (in terms of energy or capacity depending on the form) in parenthesis and it will appear as a red negative number.

**Line 5 and 16 Adjusted Demand: End-Use Customers—~~Both Forms~~ (form)**

~~This line~~ Line 5 automatically calculates the forecast demand of an LSE's end-use customers. It is the sum of lines 1, 3, and 4. Likewise, line 16 is the sum of lines of 12, 14, and 15.

**Line 6 Coincidence Adjustment—~~Form S-1~~ Capacity Procurement Requirement Table Only**

**S-1, Line 6**

~~An~~ Here an LSE is allowed to use an adjustment factor to reduce its forecast noncoincident annual non-coincidence peak load to determine its contribution to system peak load (coincident peak-hour demand by a factor such that it corresponds with the statistically probable LSE share of peak demand during peak-hour demand of the balancing area). Enter this MW coincidence adjustment factor value as a negative number in megawatts. This factor is provided to LSEs by the Energy Commission in July. For LSEs under CPUC jurisdiction, this coincidence adjustment promotes methodological and regulatory consistency between the near-term resource adequacy filing requirements and these long-term 10-year resource plans. ESPs and CCAs may use the August coincidence adjustment factors used for August in filings related to resource adequacy compliance. For questions regarding coincidence adjustment, contact Miguel Cerrutti at Miguel.Cerrutti@energy.ca.gov or (916) 654-4761.

**S-2, Line 6**

Not applicable.

**Line 7 Coincident Peak-Hour Demand—~~Form S-1~~ Only (capacity procurement requirement table only)**

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<sup>7</sup> It was further established in D.04-06-011 that interruptible and emergency programs do not qualify to satisfy these price-responsive demand goals.

### S-1, Line 7

This line automatically calculates the forecast coincident peak-hour demand of an LSE's end-use customers. It is the sum of lines 5 and 6.

### ~~S-2, Line 7~~

~~Not applicable.~~

### **Line 8 Required Planning Reserve Margin—~~Form S-1 Only~~ (capacity procurement requirement table only)**

#### S-1, Line 8

IOUs, CCAs, ESPs, and most POU are to enter an amount that equals 15 percent of line 7. Under D.04-101-050, IOUs, CCAs, and ESPs are required to meet a 15 percent month-ahead planning reserve margin. The year-ahead resource adequacy showing ~~for~~ summer months (May-September) is due September 30 in the year before (or as specified by the CPUC).<sup>8</sup> By extending this requirement to the entire forecast period, IOUs, CCAs, and ESPs are required to show how much capacity will be needed to reliably serve expected load obligations.

If a POU uses a planning reserve margin other than 15 percent for its resource planning, ~~then~~ that value should be used to calculate line 8. For example, the Los Angeles Department of Water and Power (LADWP), Burbank, and Glendale plan and procure for a reserve margin based on single or multiple contingency criteria, and this contingency reserve (in MW) is higher than 15 percent of forecast peak load.

### ~~S-2, Line 8~~

~~Not applicable.~~

### **Line 9 Credit for Imports That Carry Reserves—~~Form S-1 Only~~ (capacity procurement requirement table only)**

#### S-1, Line 9

Some LSEs have firm imports or other contractual resources that carry their own reserves with a specified delivery point. All such resources should be identified with a reference in the ~~Notes~~notes section (or with information on Form S-5). For these resources, LSEs should show a capacity credit on Form S-1, line 9 equal to 5 percent of that firm capacity. ~~This~~For example, this includes LSEs with an “all requirements” contract with WAPA or the Bonneville Power Administration (~~BPA~~). Enter this value as a negative number.

An LSE with a firm import supply ~~import~~ does not need to procure additional resources ~~that would to~~ cover ~~for~~ planned and forced outages from a specific generating resource. That combined planned and forced outage rate is assumed ~~here~~ to be about 5 percent.

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<sup>8</sup> Meeting this reserve requirement in 2008 was directed in R.04-04-003.

~~But~~However, an LSE with a 15 percent planning reserve margin will still need to procure enough supply over forecast peak load to cover an operating reserve margin (roughly 6 percent) and to cover normal forecast errors (roughly 4 percent).

**S-2, Line 9**

Not applicable.

**Line 10 and 17 Firm Sales Obligations—~~Both Forms~~ (both tables)**

List total amounts of firm wholesale electricity supply that the LSE has contracted to deliver to other parties, both within and outside the LSE's balancing area. Include line losses, station load, and 15 percent reserves for the share of sales obligations for which reserves are required.

**Line 11 and 18 Firm LSE Procurement Requirement—~~Both Forms~~**

This line automatically calculates the resource procurement requirement to meet firm demand by adding lines 5, 8, ~~and~~ 10, ~~and subtracting~~ 6 and 9. Line 22 is calculated by adding lines 6~~16~~ and 9~~17~~.

### **Lines 19 to 25**

All LSEs are required to calculate and report their actual noncoincident peak loads during calendar years 2017 and 2018. This annual peak-hour load for prior years includes all metered deliveries to the LSE's customers, plus firm and non-firm wholesale supply obligations. By definition, historic peak-hour load includes all the energy delivered to end-use customers, plus energy used by the utility (such as pumped storage), plus distribution losses, unaccounted for energy, and more. It may or may not include transmission losses.

Each LSE is required to show its annual noncoincident peak-hour load. Do not include a planning reserve margin or an operating reserve margin. Do not include an adjustment for coincidence in the balancing authority area. However, the 10 members of the NCPA Power Pool are asked to report the annual peak loads for each LSE and the coincident peak loads for the pool.

### **Line 12 through 19 Annual Peak Load/Actual Metered Deliveries**

Actual metered deliveries are the value commonly reported by many LSEs as their noncoincident annual peak load. For LSEs in the California ISO balancing area, this value for actual metered deliveries does not include transmission losses.

For this purpose, line 19 amounts for prior year loads includes long-term firm sales obligations (more than 91 day duration), but should not include short-term sales or spot market sales that may have been negotiated for that hour.

### **Line 20 Date of Peak Load for Annual Peak Deliveries**

Report the date in numeric format, such as 9/8/18 (for September 8, 2018).

### **Line 21 Hour Ending for Annual Peak Deliveries**

Report the hour during which average energy load was higher than any other hour that year. For example, show "16" for the 16th hour of the day that ends at 4 p.m. For summer days, report the hour using Pacific Daylight Savings Time. (This convention matches popular reporting in public media, though hourly metered load reports on Demand Form 1/Supply Form 3 use Pacific Standard Time for the entire year.)

### **Line 22 Interruptible Load That Was Called on During That Hour (Plus)**

Show a positive number for the amount of air conditioner cycling and other interruptible load that was curtailed during the hour when actual metered deliveries were at annual peak.

### **Line 23 Self-Generation and Distributed Generation Adjustments**

Show amounts of peak-hour supplies from customers with self-generation and distributed generation (DG)<sup>9</sup> resources. Amounts of DG supply that were available

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<sup>9</sup> Distributed generation employs small-scale technologies to produce electricity close the end users of power.

during the peak hour can be estimated for all utilities. Also, count any utility-owned DG that was in use during the peak hour. These local supplies (on line 23) are in addition to metered deliveries from the high-voltage grid, as shown on line 19.

#### **Line 24 Adjustments for Major Outages**

Estimate loads that were not served during the peak hour because of significant outages in the distribution system. Corrections or adjustments deemed necessary for a reasonably accurate calculation of annual peak load may also be recorded.

#### **Line 25 Adjusted Annual Peak Load**

The sum of lines 19, 20, 23, and 24 is calculated automatically.

The Energy Commission suggests using this number in load forecasting to positively incorporate the benefits and conventions of demand-side management (DSM) programs. Many LSEs have DSM programs that are expected to grow so that costs of meeting firm load can be reduced by asking certain loads to participate in curtailments. Without these DSM programs, the annual peak for actual metered deliveries would be measurably higher for many LSEs.

Actual hourly demand (average energy consumption over the hour) should be reported in MW, beginning with the hour that ended at 1 a.m. on January 1, 2018. The time basis should be Pacific Standard Time.

Show the load measured at the balancing area take-out point.

For its total requirements, LSEs in the California ISO balancing area, WAPA should report hourly load for each LSE separately (Trinity Public Utility District, Lassen Municipal Utility District, etc.).

Demand Form 1.6a requires larger distribution utilities to report distribution system losses, historical outages, and demand response/interruptible resources that were called on in each hour. Small POUs are not asked to report these data categories with due consideration for the size of loads, utility staffing levels, and the relative importance on system assessments and reliability planning.

### **Form S-2 Capacity/Energy Supply Resources Form**

**Instructions that apply to both tables on this form (tables are side by side on this form)**

The table on the left in green heading denotes the amount of dependable capacity expected to be available during the peak hour in MW. The table to the right in orange heading denotes forecasted total resource supply annually in GWh, unless specifically noted, all instructions below apply to both tables. Where applicable, state the plant name and unit number(s), the appropriate identifier ID, and then select the fuel type from the drop down menu to the right.

**Line 12a1a Total Fossil Fuel Supply—Both Forms (both tables)**

This section requires forecast data on fossil resources that the LSE owns or controls, with NQC or dependable peak capacity being provided on ~~Form S-1~~the Capacity Supply Resources table and annual energy on ~~Form S-2~~the Energy Supply Resources table. Line ~~12a1a~~ automatically calculates the sum of individual fossil resources listed on subsequent lines.

**Line ~~12b1b~~ Fossil Unit 1—Both Forms**

Beginning on line ~~12b1b~~, submit one row of forecast data for each utility owned or utility controlled fossil plant. ~~State the fuel type first, then the plant name and unit number(s); on both tables.~~

A listing of individual generating units may be provided but is not required. ~~If individual generating units are listed on Form S-1 they should also be listed on Form S-2, and vice-versa.~~ Multiple units may be combined according to utility preference and convention, such as LADWP Haynes 8, 9 & 10 ~~€€~~combined cycle.

Use separate lines if one generating unit is expected to retire or be repowered, and if multiple new units are expected to come ~~on-line~~online in different years.

Leave this line blank if the LSE has no fossil resources. Line 12b is needed for the formulas on line 12a to work.

**Line ~~12e1c~~ Fossil Unit 2—Both Forms**

Add lines to ~~Forms S-1 and Form~~ S-2 as needed ~~to list for~~ every utility owned or utility controlled fossil resource.

**Line ~~12d1d~~ Fossil Units—Both Forms**

List ~~any~~ planned fossil resources after listing existing resources. This should be a specifically planned and named resource with an identified location even if permitting or financing is not yet complete. Denote this resource as planned when stating the resource name.

The capacity and energy associated with “generic” fossil resources should be included on line ~~25 (Generic Non-Renewable Supply)~~13 (generic non-renewable resources), with an entry in the ~~Notes~~notes section identifying what resources are included on line ~~25~~13. A generic fossil resource differs from a planned fossil resource in that the LSE is committed to procurement of the latter, and its location and type (for example, combined cycle or peaker) are known. ~~There is neither commitment to nor greater uncertainty about a generic resource development that may simply be suggested by analysis done as part of an LSE’s integrated resource planning efforts, and the location and exact technology of which are yet to be determined.~~ Should the LSE prefer to include one or more generic fossil resources on line ~~121~~, it should follow the existing and planned resources, be identified as generic in the plant name, and not be included on line ~~25~~13.

**Line ~~13a2a~~ Total Nuclear Supply—Both Forms**

This line automatically calculates the sum of nuclear resources listed on subsequent lines.

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**Line ~~13b2b~~ Nuclear Unit 1—Both Forms**

Beginning on line ~~13b2b~~, submit one row of forecast data for each nuclear generating unit ~~that the LSE owns~~owned or ~~controls~~controlled.

Leave this line blank if the LSE has no nuclear resources. Line ~~13b2b~~ is needed for the formulas on line ~~13a2a~~ to work.

**Line ~~13e2c~~ Nuclear Unit 2—Both Forms**

Utilities may add lines to list each nuclear generating unit.

**Line ~~14a3a~~ Total Hydroelectric Supply—Both Forms**

This line automatically calculates the sum of line ~~14b3b~~ and line ~~14e3c~~.

~~Unlike the section on fossil plants, LSEs are not asked to report capacity estimates for individual hydroelectric generating plants that they own or control. However, additional lines may be added to Forms S-1 and S-2 in this section to list hydroelectric capacity and energy supplies that traditionally merit reporting as distinct categories, such as LADWP's Gorge and Aqueduct plants.~~

List individual hydroelectric plants. Add lines as needed.

If individual LSEs use a significantly different definition of rated or dependable capacity, provide an explanation in the Notes section of Form S-~~1~~2.

Except for Hoover Dam capacity, use 1-in-5 dry year hydrological conditions for those plants where capacity is affected by year-to-year variations in rainfall and snowpack. If historical data is used as a proxy, ~~LSEs should~~ use generation numbers that were exceeded in 4 of the last 5 years, or 16 of the last 20 years, or some similar series ~~the LSE considers~~considered appropriate.

**Line ~~14b~~~~Total~~~~3b~~ Hydro Supply from Plants Larger Than 30 MW—Both Forms**

~~S-1~~Capacity Supply Resources Table, Line ~~14b3b~~

Provide the ~~total~~ 1-in-5 dependable capacity of utility-~~owned~~ and utility-~~controlled~~ ~~hydro~~hydroelectric resources that are ~~each~~ larger than 30 MW nameplate. This distinction follows Federal Energy Regulatory Commission (~~FERC~~) definitions of large and small ~~hydro~~hydroelectric facilities.

The United States Bureau of Reclamation (USBR) publishes 24-month forecasts of capacity and energy from ~~hydro~~hydroelectric plants on the Lower Colorado River. ~~Therefore~~, LSEs with Hoover, Davis, and Parker entitlements should use the latest USBR forecast for ~~2017~~2019 and ~~2018~~2020, followed by 1-in-5 dry year estimates for ~~2019~~2021 and beyond.

~~S-2~~Energy Supply Resources Table, Line ~~14b3b~~

On line ~~14b3b~~, provide the 1-in-2 estimate of all utility-~~owned~~ and utility-~~controlled~~ ~~hydro~~hydroelectric resources that are larger than 30 MW nameplate.

On ~~Form S-2~~, lines ~~14b3b~~ and ~~14c3c~~, energy production estimates should use median (1-in-2) hydrological conditions, with one exception. LSEs with Hoover, Davis, and Parker entitlements should use the latest USBR forecast for ~~2017~~2019 and ~~2018~~2020, followed by 1-in-2 estimates for ~~2019~~2021 and beyond.

For hydroelectric facilities with reversible turbines, only include estimates of energy production. Energy ~~that is~~ consumed during pumping operations should be included in demand forecasts.

**Line ~~14c~~3c Hydro Supply from Plants 30 MW or Less—Both Forms**

~~S-1~~Capacity Supply Resources Table, Line 14c

Provide the ~~total~~listing for hydroelectric capacity under 1-in-5 dry year hydrological conditions for all ~~hydro~~hydroelectric resources that are each equal to or less than 30 MW nameplate. Add lines as needed.

~~S-2~~Energy Supply Resources Table, Line ~~14c~~3c

Estimate totalFor each hydroelectric capacity, input the hydroelectric energy production under 1-in-2 year hydrological conditions from all LSE-owned or utility-~~controlled~~ hydro resources equal to or less than 30 MW nameplate. Add lines as needed.

**Line ~~15a~~4a Total Utility controlled Renewable Supply—Both Forms**

This line automatically calculates the sum of individual resources listed below. This requires forecast data on renewable resources that are under LSE ownership or control (other than small hydro).

**Line ~~15b~~4b Renewable Plant 1—Both Forms**

List each utility-~~owned~~ or utility-~~controlled~~ generating plant using renewable fuel starting on line ~~15b~~. ~~Please state~~4b. Select the fuel type first (geothermal, solar, wind, and so forth) followed by the plant or project name. Listings of individual generating units may be provided but are not required. ~~Please use~~Use separate lines if multiphase projects will come ~~on-line~~online in different years.

List peak dependable or NQC values for each plant, project, or utility-~~controlled~~ program ~~(such as feed-in tariffs)~~. An example would be a greater than 1 MW nameplate power plant.

For dual-fuel power plants that can burn natural gas or biomethane (or biogas), ~~please~~ list the same plant in both sections for fossil fuel and renewable resources, with its capacity and energy allocated to the two fuel types.

Leave ~~this~~ line 4b blank if ~~the LSE has~~there are no utility-~~controlled~~ renewable resources.

~~Line 15b is needed for the formulas on line 15a to work.~~

**Line ~~15c~~4c Renewable Project 2—Both Forms**

Add lines as needed ~~to list for~~ each renewable energy resource or project under utility ownership or control.

**Line ~~15d4d~~ Renewable Project N—Both Forms**

~~Please list any~~List contracts for planned renewable projects last. This should be a specific, named renewable project with an identified location ~~or locations,(s)~~, even if permitting or financing are not yet completed. Denote in the name of the planned renewable project name that this is a contract.

Should ~~the LSE prefer to include~~ one or more generic utility ~~-~~controlled renewable resources be included on line ~~154~~, it should follow the existing and planned resources, be identified as generic in the plant name, and not be included on line ~~2412~~.

**Line ~~17a5a~~ Total Qualifying Facility Contract Supply—Both Forms**

~~Both, Line 17a5a~~

This line automatically calculates the sum of individual resources listed below. This section refers to supply contracts for capacity from qualifying facilities (~~QFs~~QF), as defined by the Public Utilities Regulatory Policy Act (PURPA).

For consistency with supply forms submitted in prior years, IOUs may continue to include in the QF categories listed below those generating facilities for which the PURPA purchase requirement has been terminated, and the facility continues as a supply resource according to new standard offer power purchase ~~agreements;~~agreement (PPA), newly negotiated contracts, or CPUC-approved settlement agreements.

~~S-1~~Capacity Supply Resources Table, Line 17a5a

IOUs are required to indicate the NQC expected from QFs through ~~2026~~. ~~As existing contracts expire, many of these generating resources will likely remain available to IOUs under new contract terms.~~

~~S-2, Line 17a~~

~~IOUs are required to indicate the annual energy expected from QFs through 2026~~2030. As existing contracts expire, many of these generating resources will likely remain available to IOUs under new contract terms.

~~Energy Supply Resources, Line 17b5a~~

~~IOUs are required to indicate the annual energy expected from QFs through 2030. As existing contracts expire, many of these generating resources will likely remain available to IOUs under new contract terms.~~

**Line ~~5b~~ Biofuels—Both Forms**

IOUs are required to provide expected NQC and annual energy ~~from~~ supply from QF resources powered by biofuels. This is a generic term including landfill gas, forest products, almond shells, dairy waste, and so forth.

**Line ~~17e5c~~ Geothermal—Both Forms**

Provide the expected NQC of and annual energy from geothermal QF resources.

**Line ~~17d5d~~ Small Hydro—Both Forms**

~~S-1~~ *Capacity Supply Resources Table, Line ~~17d5d~~*

Provide the expected dependable capacity of and annual energy from small ~~hydro~~hydroelectric QF resources, meaning only those plants rated 30 MW nameplate or less. ~~On Form S-1, provide~~ Provide a derated qualifying capacity<sup>10</sup> total showing what can be expected in a 1-in-5 dry year.

~~S-2~~

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<sup>10</sup> The effective capacity that can be expected from this resource as determined by methodologies prescribed by the California Public Utilities Commission.

*Energy Supply Resources Table, Line ~~17d~~5d*

Provide the expected annual energy from small ~~hydro~~hydroelectric QF resources, meaning only those plants rated 30 MW nameplate or less. Provide an estimate of energy expected in the current year, and for 1-in-2 median hydrological conditions in future years.

**Line ~~17e~~5e Solar—Both Forms**

Provide the total supply from solar QF resources. Include only the output of solar QF facilities injected into distribution or transmission systems that will serve annual IOU peak loads. Do not include solar generation that only reduces end-use demand.

**Line ~~17f~~5f Wind—Both Forms**

Provide the total supply from existing wind QF resources. New wind resources are not expected to have QF contracts.

**Line ~~17g~~5g Natural Gas—Both Forms**

Provide the total supply from all QF resources powered by natural gas.

**Line ~~17h~~5h Other—Both Forms**

Provide a total for all other nonrenewable generating resources under QF contracts, if any. This ~~total~~ may include resources that ~~once~~ had QF eligibility according to PURPA but now supply capacity and energy under new standard offer ~~power purchase agreements~~PPA, newly negotiated contracts, or CPUC-approved settlement agreements.

**Line ~~18a~~6a Total Renewable Contract Supply—Both Forms**

This line automatically calculates the sum of contractual renewable supply resources listed below it. Contracts with durations longer than three consecutive months should be named and listed on separate lines beginning with line 18c. Renewable contracts that provide less than 1 MW of supply may be aggregated by fuel type.

**Line ~~18b~~6b Renewable DG Supply—Both Forms**

LSEs are required to show amounts of existing and expected renewable ~~distributed generation~~(DG) supply that is surplus to customer consumption during the peak hour. Do not include DG output that is produced and consumed on the ~~customer's~~customer side of the meter. Include only amounts of DG injections that would otherwise be supplied by the LSE.

Show only renewable DG amounts that include procurement of renewable attributes from the end-use customer. If the customer retains ownership of renewable attributes, the DG supply should be listed on line ~~19b~~7f.

DG supply is listed here with other renewable contractual supplies as a matter of convenience. LSEs may use other lines for specifically named renewable DG programs or projects.

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**Line ~~18e6c~~ Renewable Contract 1—Both Forms**

List individual renewable energy contracts, ~~stating~~selecting the fuel type first (geothermal, solar, wind, ~~and so forth~~),etc.), then the contract name. It may be useful to add the supplier name, if different. The contract name (or acronym) entered ~~on Form S-1~~ will automatically populate a matching listing on Form S-2 ~~and on Form S-5~~.

Contracts that individually provide less than 1 MW may be aggregated. These contracts do not require a corresponding entry on Form S-5.

**Line ~~18d6d~~ Renewable Contract 2—Both Forms**

~~State~~Select the fuel type first, then state the contract name. Add lines as needed.

**Line ~~18e6e~~ Renewable Contract N—Both Forms**

List any planned renewable contracts last. Select the fuel type, then state that this is a planned renewable contract with its name. This should be a specific, named renewable project with an identified location and/or supplier, even if permitting or financing are not yet completed. ~~To be listed in this section as a planned resource, contract negotiations or utility planning commitments to such a contract must be well advanced.~~

Should the LSE prefer to include one or more generic renewable contracts on line ~~18e6~~, it should follow the existing and planned renewable contracts, be identified as generic in the contract name, and not be included on line ~~2412~~.

Some renewable energy supply contracts will expire during the forecast period. If the ~~LSE expects to renew or renegotiate a particular~~ contract is renewed or renegotiated with the same ~~counterparty~~party, it is appropriate to ~~continue listing~~list specific capacity values on the same line. ~~The~~Enter the expiration date of the contract ~~should be entered~~ in the Contract Expiration Date~~contract expiration date~~ column of Form S-5; ~~with. Indicate in~~ the Notes~~notes~~ column ~~indicating that the LSE expects to renew~~renewal or ~~renegotiate the contract upon its expiration~~renegotiation is expected.

**Line ~~19a7a~~ Total Other Bilateral Contract Supply—Both Forms**

This line automatically calculates the sum of supply resources listed below it.

**Line ~~19b Non-Renewable~~ ~~7b Nonrenewable~~ DG Supply—Both Forms**

Provide total amounts of existing and expected ~~nonrenewable~~non-renewable DG supply that is surplus to the amount the DG customer consumes. Include only amounts of DG output injected into the distribution system for other end-use customers, amounts that would otherwise be supplied by the LSE.

**Line ~~19e7c~~ Other Bilateral Contract 1—Both Forms**

Use line ~~19e7c~~ to ~~begin listing all other~~list bilateral contracts and PPAs with durations longer than three consecutive months. List ~~all such~~ supplies that are not reported in other sections. Each bilateral contract should be named and listed on a separate line. It may be useful to add the supplier name, if different, in parentheses.

The contract name (or acronym) entered on Form S-~~1~~2 will automatically populate a matching listing on Form S-~~2~~ ~~and on Form S-~~5. If this is a capacity-only contract for resource adequacy, enter zero for the energy amounts on ~~Form S-2~~energy supply resources table. If this is a contract that does not provide firm capacity during the peak hour, enter the resource supply name on ~~Form S-1~~capacity supply resources table and enter zero for the capacity amounts under the years covered by the contract.

Contracts that provide less than 1 MW may be aggregated. These contracts do not require a corresponding Form S-5.

**Line ~~19d~~7d Other Bilateral Contract 2—Both Forms**

~~S-1~~Capacity Supply Resources Table, Line ~~19d~~7d

Enter the contract name and the appropriate capacity under the years covered by the contract.

~~S-2~~Energy Supply Resources Table, Line ~~19d~~7d

Enter the contract name and the appropriate energy amounts under the years covered by the contract.

**Line ~~19e~~7e Other Bilateral Contract 3—Both Forms**

Add lines as needed.

**Line ~~19f~~7f Other Bilateral Contract N—Both Forms**

List ~~any~~ planned contracts for planned resources last. Denote that this is a planned contract when listing its name. Select the projected fuel type. For new or repowered generating facilities, this should be a specific, named project with an identified location and supplier even if permitting or financing is not yet completed.

Should the LSE prefer to include one or more generic bilateral contracts for energy or capacity from ~~non-renewable~~nonrenewable resources on line ~~197~~, it should follow the existing and planned contracts, be identified as generic in the contract name, and not be included on line ~~25~~13.

Many bilateral supply contracts will expire during the forecast period. If the LSE expects to renew or renegotiate a particular contract with the same ~~counterparty~~party, it is appropriate to continue listing specific capacity values on the same line. ~~The~~Enter the expiration date of the contract ~~should be entered~~ in the Contract Expiration Date~~contract expiration date~~ column of Form S-5, with the ~~Notes~~notes column indicating that the LSE expects to renew or renegotiate the contract upon its expiration.

**Line ~~19n~~ Planned Resources—Both Forms**

~~List each planned resource on a separate line inserted below line 19n:~~

**Line ~~208~~ Short-Term and Spot Market Purchases (and Sales)—Both Forms**~~sales)~~

~~Both, Line ~~208~~~~

Forecast values for ~~Short-Term~~short-term and ~~Spot Market Purchases~~spot market purchases (and ~~Sales~~sales) on both ~~Forms S-1 and S-2~~tables should represent an expected reliance on such resources, and not merely entered to “eliminate” open positions. Where integrated resource planning or reliability studies have resulted in a “preferred scenario” in which specific amounts (MW) of generation capacity using a specified technology or fuel type are procured (for example, a gas-fired combined cycle to replace an expiring coal contract), but the new plant is otherwise unidentified, the LSE may include this as a generic resource with capacity and energy included in line ~~24~~12 or ~~25~~13 (or enter it on line ~~12, 15, 18~~1, 4, 6, or ~~19~~7, as appropriate). In general, however, the LSE is encouraged to leave the position open, indicating that there is uncertainty about which resource(s) will fill it.

~~S-1~~Capacity Supply Resources Table, Line 208

List capacity the LSE expects to procure during the forecast period through short-term or spot market purchases. Short-term purchases are defined here to include all procurement of more than two ~~days~~days’ duration and fewer than 92 consecutive days. Spot market purchases are defined here to include all procurement that is two days or fewer in duration.

For ~~2015~~2017 and ~~2016~~2018, include capacity procurement amounts to serve annual peak loads that were open positions one month (or more) prior to the peak month in each year.

~~S-2~~Energy Supply Resources Table, Line 208

~~For~~ Net ~~Surplus~~surplus (or ~~Need~~need) is expected to equal zero GWh for years ~~2015~~2017 and ~~2016~~2018. That is, actual energy procurement should equal the energy requirement for each prior year. To reach that result, LSEs should enter positive or negative values for ~~Short-Term~~short-term and ~~Spot Market Purchases~~spot market purchases in ~~2015~~2017 and ~~2016~~2018. Negative values represent sales were greater than purchases in this broad category. If the LSE purchased renewable energy and sold null power, the sales should be included in line ~~20 on Form S-28 on the energy supply resources table~~ even if the sales agreement extended beyond 92 days.

**Line ~~219~~ Total: Existing and Planned Supply—Both Forms**

The sum on line ~~219~~ is calculated automatically from existing and planned electricity supply resources entered in earlier sections: line ~~12a~~1a (fossil fuel dependable capacity), ~~13a~~2a (nuclear), ~~14a~~3a (hydroelectric), ~~15a~~4a (utility controlled renewables), ~~17a~~5a (QF capacity), ~~18a~~6a (renewable energy contracts), ~~19a~~7a (other bilateral contracts), and ~~208~~ (short-term and spot market purchases).

**Line ~~2210~~ Firm LSE Procurement Requirement—Both Forms**

The sum on line ~~2210~~ from the capacity supply resources table is automatically repeated from line 11 in the capacity procurement requirement table. The sum on line

10 from the energy supply resources table is automatically repeated from line 22 in the energy procurement requirement table.

**Line ~~2311~~ Net Surplus (or Need) —Both Forms**

*Both, Line ~~2311~~*

The difference between line ~~219~~ and line ~~2210~~ is calculated automatically. A negative number indicates a net-open position and will appear in red. A positive number on line ~~2311~~ indicates a net-surplus position.

*~~S-1Capacity Supply Resources Table, Line 2311~~*

Since capacity values shown for ~~20152017~~ and ~~20162018~~ represent expectations at the start of those years, a negative number is possible for any given year on ~~Form S-1the capacity supply resources table.~~

*~~S-2Energy Supply Resources Table, Line 2311~~*

Line ~~2311~~ is expected to equal zero GWh for years ~~20152017~~ and ~~20162018~~, as actual energy procurement would equal the ~~Firmfirm LSE Procurement Requirementprocurement requirement~~ in prior years. (In this context, the ~~Firmfirm LSE Procurement Requirement ex postprocurement requirement expos~~ would include non-firm day-ahead energy sales and other short-term contractual agreements.) Adjustments to line ~~208~~ may be needed for the result in line ~~2311~~ to equal zero GWh in ~~20152017~~ and ~~20162018~~.

**Line ~~2412~~ Generic Renewable Supply—Both Forms**

Enter the aggregate capacity (dependable capacity or NQC) and energy that is expected from any renewable resources that have yet to be procured and whose exact location is unknown, but whose likely addition to the LSE's portfolio is, for example, indicated by recent resource planning activities.

The capacity value for generic renewable resources on ~~Form S-1the capacity supply resources table~~ should correlate with the forecast of generic renewable energy procurement shown on ~~Form S-2; boththe energy supply resources table. Both~~ entries should be explained in the ~~Notesnotes~~ section.

The capacity and energy of generic resources included on lines ~~154~~ or ~~186~~ are not included here.

Approved programs designed to procure, for example 25 MW of small-scale wholesale solar photovoltaic under a feed-in tariff, should be treated as planned resources even if a large share, if not all of the capacity has yet to be identified or procured.

**Line ~~2513~~ Generic ~~Non-RenewableNonrenewable~~ Supply—Both Forms**

Enter the capacity (dependable or NQC) and energy the LSE reasonably expects from any ~~non-renewablenonrenewable~~ resources that have yet to be procured and whose exact location is unknown, but whose likely addition to the LSE's portfolio is, for example, indicated by recent resource planning activities. As on line ~~2412~~, the capacity value for

on ~~Form S-1~~ the capacity supply resources table should correlate with the forecast of energy shown on ~~Form S-2~~; both the energy supply resources table. Both entries should be explained in the Notes section.

The capacity and energy of generic resources included on lines 12 or 19 should not be included here.

**Line 2614 Specified Planning Reserve Margin—Form S-1 Only (capacity supply resources table only)**

Every LSE in California ISO has adopted a “year-ahead” planning reserve margin stated as a percentage of forecasted peak loads. On line 2614, state the percentage (such as 15 percent) if the LSE has adopted a percentage number as its planning reserve margin. This is the number that was used to calculate the actual amount of capacity on line 8 (from S-1 capacity procurement requirement table) and does not include a reduction for coincidence. This cell does not influence the value in any other cell. For most LSEs this number will be a constant for the planning horizon.

If the LSE’s planning reserve margin is a MW value based on a contingency reliability criteria (such as N minus 1), enter this number. Burbank, Glendale, and LADWP in the LADWP Balancing Authority Area have adopted a contingency-based planning reserve margin that would still provide for adequate operating reserves (under 1-in-10 load probabilities), even with the loss of the largest generation or import (transmission) resource.

**Lines 27 to 33—Form S-1 Only**

~~All LSEs are required to calculate and report their actual noncoincident peak loads during calendar years 2015 and 2016. This annual peak-hour load for prior years includes all metered deliveries to the LSE’s customers, plus firm and non-firm wholesale supply obligations. By definition, historic peak-hour load includes all the energy delivered to end-use customers, plus energy used by the utility (such as pumped storage), plus distribution losses, UFE, and more. It may or may not include transmission losses.~~

~~Each LSE is required to show its annual noncoincident peak-hour load. Do not include a planning reserve margin or an operating reserve margin. Do not include an adjustment for coincidence in the balancing authority area. However, the 10 members of the Northern California Power Agency (NCPA) Power Pool are asked to report the annual peak loads for each LSE and the coincident peak loads for the NCPA Power Pool.~~

**Line 27 Annual Peak Load/Actual Metered Deliveries—Form S-1 Only**

~~Actual metered deliveries are the value commonly reported by many LSEs as their noncoincident annual peak load. For LSEs in the California ISO balancing area, this value for actual metered deliveries does not include transmission losses.~~

For this purpose, line 27 amounts for prior year loads includes long-term firm sales obligations (more than 91 days duration) but should not include short-term sales or spot market sales that may have been negotiated for that hour.

**Line 28 Date of Peak Load for Annual Peak Deliveries—Form S-1 Only**

Report the day in numeric format, such as 9/8/16 (for September 8, 2016).

**Line 29 Hour Ending (HE) for Annual Peak Deliveries—Form S-1 Only**

Report the hour during which average energy load was higher than any other hour that year. For example, show “16” for the 16th hour of the day that ends at 4 p.m. For summer days, report the hour using Pacific Daylight Savings Time. (This convention matches popular reporting in public media, though hourly metered load reports on Demand Form 1/Supply Form 3 use Pacific Standard Time for the entire year.)

**Line 30 Interruptible Load That Was Called on During That Hour (Plus)—Form S-1 Only**

Show a positive number for the amount of air conditioner cycling and other interruptible load that was curtailed during the hour when actual metered deliveries were at annual peak.

**Line 31 Self-Generation and DG Adjustments—Form S-1 Only**

Show amounts of peak-hour supplies from customers with self-generation and DG resources. Amounts of DG supply that were available during the peak hour can be estimated for all utilities. Also, count any utility-owned DG that was in use during the peak hour. These local supplies on line 31 are in addition to metered deliveries from the high-voltage grid, as shown on line 27.

**Line 32 Adjustments for Major Outages—Form S-1 Only**

Estimate loads that were not served during the peak hour because of significant outages in the distribution system. LSEs may also record corrections or adjustments deemed necessary for a reasonably accurate calculation of annual peak load.

**Line 33 Adjusted Annual Peak Load—Form S-1 Only**

The sum of lines 27, 30, 31, and 32 is calculated automatically.

The Energy Commission suggests using this number in load forecasting to positively incorporate the benefits and conventions of demand-side management (DSM) programs. Many LSEs have DSM programs that are expected to grow in size and importance so that costs of meeting firm load can be reduced by asking certain loads to participate in curtailments. Without these DSM programs, the annual peak for actual metered deliveries would be measurably higher for many LSEs.

Actual hourly demand (average energy consumption over the hour) should be reported in MW, beginning with the hour that ended at 1 a.m. on January 1, 2016. The time basis should be Pacific Standard Time throughout the year.

Show the load measured at the balancing area take-out point.

For its total requirements LSEs in the California ISO balancing area, WAPA should report hourly load for each LSE separately (Trinity Public Utility District, Lassen Municipal Utility District, and others).

Demand Form 1.6a requires larger distribution utilities to report distribution system losses, historical outages, and demand response/interruptible resources that were called on in each hour. Small POUs are not asked to report these data categories with due consideration for the size of loads, utility staffing levels, and the relative importance on system assessments and reliability planning.

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# Form S-3: 2016 Small Publicly Owned Utility Hourly Loads

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## Scope and Purpose of Regulatory Oversight

Prior requests to POUs elicited narrative information about their strategies and plans to remain resource adequate. From these filings, the Energy Commission reported on elements that have become standard and explicit, along with elements that are significantly diverse or implicit.

All POUs, without regard to the balancing areas in which they serve load, are directed by Assembly Bill 380 (Núñez, Chapter 367, Statutes of 2007) to "...prudently plan for and procure resources that are adequate to meet its planning reserve margin and peak demand and operating reserves, sufficient to provide reliable electric service to its customers." This statute recognizes that locally managed public electric utilities have some variability and discretion about what constitutes reliable and affordable electric service for their local customers. This relatively autonomous responsibility includes decisions about what planning strategies and procurement options are appropriate for implementing a desired level of customer service.

Small POUs (those with annual peak loads no larger than 200 MW in either ~~2015~~2017 or ~~2016~~2018) are required to report hourly historical loads for the previous calendar year according to Section 1346 on Electricity Resource Adequacy (~~CCRC~~California Code Regulations, Title 20, Division 2, Chapter 3, Article 2). Form S-3 is a much simplified version of Demand Form 1.6a. By filing Form S-3, small POUs are not required to file any of the demand forms.

Large LSEs (with annual peak loads greater than 200 MW) are required to provide 10-year resource plans covering ~~2017~~2019 through ~~2026~~2028. Large LSEs are requested to provide a forecast of an additional two years to 2030. The 10-year resource plans from large POUs are compatible and comparable in all respects with the year-ahead resource adequacy filings from small POUs. In effect, the first-year projections can be summarized to provide a statewide snapshot of all POU loads and resources for ~~2017~~2019, along with some long-term assessments of supply trends for the large POUs.

Actual hourly demand (average energy consumption over the hour) should be reported in MW. Begin with the hour that ended at 1 a.m. on January 1, ~~2016~~2018. The time basis should be Pacific Standard Time throughout the year.

Show the load measured at the balancing area take-out point.

WAPA should report hourly load for each LSE separately (Trinity Public Utility District, Lassen Municipal Utility District, and others) for its total requirements in the California ISO balancing area.

Demand Form 1.6a requires larger distribution utilities to report distribution system losses, historical outages, and demand response/interruptible resources that were called on in each hour. Small POUs are not asked to report these data categories with due consideration for the size of loads, utility staffing levels, and the relative importance on system assessments and reliability planning.

More specific questions about resource adequacy may be directed to [John Hingtgen at John.Hingtgen@energy.ca.gov](mailto:John.Hingtgen@energy.ca.gov) or (916) 657-4046 [Robert Kennedy at Robert.Kennedy@energy.ca.gov](mailto:Robert.Kennedy@energy.ca.gov) or (916) 654-5180.

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# Form S-5: Bilateral Contracts

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## Scope and Purpose

The information on Form S-5 is needed to assess the following characteristics of statewide supply and demand balances:

- Does the contract encumber in-state capacity or is it likely to do so?
- Does the contract encumber out-of-state capacity for service to California loads?
- Is the supplier in control of a physical resource or likely to be?
- Under what circumstances, if any, may the energy or capacity associated with the contract be unavailable during peak hours?
- Under what general terms does the contract provide qualifying capacity for LSEs serving loads within the California ISO Balancing Authority Area (control area) or provide dependable capacity for LSEs serving loads in other balancing areas?

## Relationships with Other Forms

Form S-5 ~~uses~~ information from ~~Forms S-1 and Form~~ S-2, lines ~~18e6b~~ through ~~18e6d~~, and ~~19e7b~~ through ~~19f7e~~ as the starting point.

## Information Format Requirements

LSEs with existing ~~(current)~~ bilateral contracts or PPAs are required to submit applicable information on Form S-5, unless they are exempt as shown in Table 1. Some of the required information is categorical or descriptive, and some is numeric. Information is needed for each bilateral contract supplier (or seller in a PPA) that provides capacity in amounts greater than 1 MW.

LSEs requesting confidentiality for certain information must be sure the specific data cells or information categories are clearly marked and identified with yellow highlight fill color. An ESP may have many procurement contracts with the same supplier; these different contracts may specify a small MW share of output from the same generating unit (or firm supply from unspecified generation). ESPs may aggregate such contracts for reporting on Form S-5 even if delivery periods and specific terms will vary among the contracts.

~~Please use~~Use “Not Specified,” “None,” or “Not Applicable (N/A)” as appropriate to the contract terms.

## Contracts Covered and Not Covered by This Requirement

LSEs are required to provide a few standard types of information regarding existing (current) bilateral contracts or PPAs that have been signed with suppliers of capacity and/or energy. A current contract or PPA is one that ~~was in effect~~commenced on January 1, ~~2017~~2019, or by the date of resource plan submittal to the Energy Commission. This reporting requirement includes signed contracts for supplies that are not yet being delivered or from generating facilities that are not yet ~~on-line~~online. This reporting requirement includes each contract and agreement in effect for at least 92 consecutive days. Do not include short-term contracts with durations of 91 days or fewer. Aggregations of supply contracts that individually are less than 1 MW are acceptable.

For every bilateral contract that specifies a supply to the LSE of energy or capacity (1.0 MW or larger) and lasting more than 91 days, LSEs must provide the information described below as a line item on Form S-5. There are six exceptions to this requirement:

1. QF contracts, which may be aggregated by fuel type
2. Aggregations of supply contracts, each of which is less than 1 MW
3. Contracts that expired prior to January 1, ~~2017~~2019
4. Supplemental or related contracts for the shaping and/or firming of wholesale energy delivered to the LSE
5. Contracts for the purchase of tradable renewable energy credits without energy
6. Contracts for ancillary services, for balancing authority services, or for transmission services; this exception includes agreements that may include terms related to energy procurement to compensate for transmission losses

## Line-by-Line Instructions

### Lines ~~18e6b~~ through ~~18e6d~~, and ~~19e7b~~ through ~~19f7e~~

Use information from the corresponding lines in both the ~~S-1 and S-2~~ formsform to fill in lines ~~18e6b~~ through ~~18e6d~~ and lines ~~19e7b~~ to ~~19f7e~~ in the S-5 form. The ~~Contract Name~~contract name (as entered on the ~~S-1~~ form) will automatically populate to Form S-5. For all other listed contractual supplies ~~please~~ enter the ~~S-1~~ line number and ~~Contract Name~~contract name or add an appropriate formula to enter the data.

### Contract Name

Provide the name given to the bilateral contract or power purchase agreement as shown on Form ~~S-1 and Form S-2~~.

On the S-5 form, ~~copyselect~~ the fuel type information from ~~column B and enter that information in column I. If the Supplier Name is shown in column B as part of the Contract Name, copy that information and enter it~~drop down menu in column C.

For ~~hydro~~hydroelectric resources under contract that are aggregated with ~~Total Hydroelectric Supply~~total hydroelectric supply on line ~~14a3a~~ of the ~~S-1 and S-2 forms~~form, enter the ~~Contract Name~~contract name on a new line. This includes Hoover entitlements, Parker-Davis, and shares of the federal Central Valley Project hydroelectric generation that are marketed by WAPA. If this supply is entirely from ~~hydro~~hydroelectric plants larger than 30 MW enter "~~14b3b~~" in column A. If this supply is entirely from ~~hydro~~hydroelectric plants 30 MW or less enter "~~14e3c~~" in column A. Otherwise leave column A blank for this line on the S-5 form.

### **Supplier/Seller**

Name the contracted supplier, producer, or seller of capacity and/or energy, which may be identical to the ~~Contract Name~~contract name. The supplier or seller's name is usually the counterparty name on the contract or agreement. If the name of the supplier/seller is confidential, the ~~Contract Name~~contract name should be different as it appears on the ~~S-1, S-2;~~ and S-5 forms to facilitate public disclosure and cross-referencing among these forms.

If there is an intermediate party that may have had a role in development or procurement, such as the Southern California Public Power Authority (~~SCPPA~~), list the generator name as the actual supplier of capacity or energy.

### **Unit Contingent/~~LD~~ Contract**

LSEs are asked to distinguish between supplies from specifically named generating units ("unit contingent" or "unit contingent with firming"), those supplies that are from a portfolio of generation resources, or provide system power.

If delivery is contingent upon the availability of a specific unit or units, enter "unit contingent" and provide information regarding the unit(s) in ~~Columns~~columns E through I.

If the contract calls for deliveries from a particular unit or units, when available and requires the seller to provide backup power from unspecified sources, enter "unit contingent with firming" and provide information regarding the unit(s) in Columns E through I. This designation would be appropriate for contracts that identify one or more specific variable energy resources (for example, wind), but require the seller to provide a fixed amount of energy in each hour.

In some contracts the portfolio of supply resources is known only generally without an obligation to generate from specific power plants, in which case "portfolio" should be entered. This is intended to reflect purchases from a supplier who owns or controls a larger set of generating resources, such as those of California Air Resources Board (~~ARB~~)-designated "asset-controlling suppliers (BPA, PowerEx, Tacoma Power)," WAPA's

~~CVP~~Central Valley Project resources, and so forth. Contracts providing energy from a small (two to four) set of specific resources should be treated as unit-contingent with unit-specific information being provided in columns E through I.

If the contract does not specify or limit the generating sources to be used, enter “system power.”

### **Generating Unit(s) Specified**

If the contract/~~power purchase agreement~~PPA provides for energy from a specific generation resource or resources, name all power plants and/or generating units identified in the contract. If the supplier will provide energy from a small, defined set of resources, identify each resource, using the ~~Notes~~notes column if necessary. Where “portfolio” has been entered in the ~~Unit-Contingent/LD Contract~~unit contingent contract column, a description should be entered here, such as “BPA portfolio” or “CVP generation” (for a slice of the Central Valley Project hydro generation). Where the contract is for system power, enter “system power,” “none,” “N/A,” or leave the field empty.

### **~~Plant/Unit Identifiers: CEC ID, California ISO Resource ID, U.S. EIA Number~~**

~~The rapid proliferation of small resources (1 MW – 5 MW) providing wholesale energy has made it increasingly difficult to compile and maintain data on California’s generation fleet and how it is encumbered to serve LSE loads and resource adequacy needs. Assigning identifying text strings to generation resources facilitates accurate identification of generation plants and units. There are three such text strings that are commonly assigned to power plants, the Energy Commission’s identification (ID) (CEC ID), the California ISO resource identification, and the U.S. Energy Information Administration identification (U.S. EIA ID). The LSE is to provide at least one of them for each power plant specified in the contract, preferably the CEC ID.~~

~~Generation resources interconnected to California balancing authorities, other than the California ISO, or dynamically scheduled into them, are assigned an Energy Commission CEC ID, which may be found in the Energy Commission Power Plant ID Cross-Reference Table at [http://energyalmanac.ca.gov/electricity/web\\_qfer/](http://energyalmanac.ca.gov/electricity/web_qfer/).~~

~~Generation resources interconnected to the California ISO (or dynamically scheduled into the California ISO balancing area) are assigned a “resource ID” by the California ISO. If the contract specifies such a resource or resources, this identifier should be provided here. It is contained in Master California ISO Control Area Generating Capability List, which can be most easily found and downloaded using an internet search.~~

~~Generation resources that are planned or under construction in California will not have an assigned CEC plant ID; those in the California ISO balancing authority may or may not have an assigned California ISO resource ID. If neither identifier has been assigned, enter either “none.”~~

~~Generation resources located in balancing authorities other than those in California (and not dynamically scheduled into a California balancing authority) will have neither a California ISO resource ID nor CEC ID. Existing out-of-state resources will have a U.S. EIA number; this can be found at <https://www.eia.gov/electricity/data/eia860/>.~~

~~For questions regarding these identifiers, contact Michael Nyberg at [Michael.Nyberg@energy.ca.gov](mailto:Michael.Nyberg@energy.ca.gov) or (916) 654-5968.~~

### **Generating Unit(s) Status**

~~Where a specific generating unit (or units) are identified, indicate whether the unit is “existing” (or, equivalently, “operational”), “under construction” or “planned.” Possible contracts/power purchase agreements for products or services from generic resources should not be listed. See **Appendix B** for a discussion of planned and generic resources.~~

### **City or Locality of Specified Unit(s)**

~~Name the city or locality that is nearest to the specified generating units. This information is especially needed and useful for identifying out-of-state and out-of-country supply resources under contract. The locality is often an unincorporated area within a named county.~~

### **Fuel Type**

~~If the contract identifies one or more specific generating units, identify the primary fuel used for generation. If additional fuels or hybrid fuels are used or likely to be used in other than de minimis amounts, identify the proportions expected to be used in meeting contract obligations.~~

#### **Supply Resource(s) Balancing Area**

~~If the contract identifies one or more specific generating units or a generation portfolio, identify the balancing area(s) to which they are interconnected. If a resource is physically located in one balancing area but dynamically scheduled into another, indicate this in this column. For example, “dynamically scheduled into California ISO.”~~

~~Enter either “not applicable” or “N/A” if the contract is for system power.~~

### **Supply Resource(s) Delivery Zone/Point**

~~For contracts that specify the generation resource(s) or portfolio from which energy is to be provided, indicate the balancing area (or interchange) and, if specified, the California ISO transmission zone and/or substation to which the energy is to be delivered. If there are multiple delivery points, indicate whether buyer or seller has the option.~~

~~For contracts for system power, indicate the balancing authority or interchange (and, if specified, California ISO transmission zone and/or substation) at which the buyer takes delivery.~~

### **Contract Start Date**

State the initial date of availability or delivery for the capacity and/or energy product(s) being purchased. For products from specified generation resources that are under construction or planned, uncertainty may be stressed by indicating that the date is an estimate; for example, “12/31/~~1820~~ estimated ~~Commercial Operation Date (COD)~~.”commercial operation date.”

### **Contract Expiration Date**

Provide the date of final availability or delivery of the product(s) being purchased. If this date is contingent upon future actions by parties, market conditions, or other future events before the inception of the contract, this should be explained here ~~(for. An~~ example, of a suitable explanation is “20 years from ~~COE~~”commercial operation date” or any additional context in the ~~Notes~~notes column. Information regarding the ability of one party to unilaterally terminate the contract after its inception for reasons other than nonperformance should be entered under ~~Termination~~termination and ~~Extension~~Rightextension rights column.

### **Capacity under Contract (MW)**

For each contract or agreement, enter the nameplate or rated capacity under contract. If the capacity under contract changes from one year to another, for example, due to planned phased expansion of the specified generating resource(s), provide the appropriate dates and quantities here or in the ~~Notes~~notes column. If the capacity available under the contract varies across the year, this variation should be described in the ~~Availability~~availability of ~~Products~~products column.

#### **Contract/Agreement Products**

Indicate the commodity and service products for which delivery is being contracted. Examples include as available energy, tolling agreement, seasonal energy exchange, resource adequacy contract (“~~RA~~resource adequacy only”), and so on.

#### **~~Availability of Products~~**

~~Indicate periods during which product will be available. Examples include:~~

- ~~• 7x24~~
- ~~• 6x16 (Monday-Saturday, 6 a.m.-10 p.m., excluding the six NERC holidays)~~
- ~~• Q3, 7 x 8 (third quarter, 7 days a week), 12:01 p.m. to 8 p.m.~~
- ~~• Months 5-10, max 50 hours/month, (May-October, up to 50 hours per month)~~
- ~~• 100 MW off-peak (year-round, all hours not covered by 6x16)~~

#### **Must-Take**

If applicable, indicate must-take characteristics of the contract. Examples include:

- Yes (for energy contract, all energy indicated jointly by MW and availability)
- Minimum 30,000 MWh monthly

### **Firm**

“Yes” indicates that seller can only fail to provide replacement power under force majeure provisions or to avoid involuntary load curtailments in another balancing area.

“No” indicates non-delivery may occur for other reasons, such as market conditions or transmission congestion. Contracts without firm delivery requirements typically include provisions for liquidated damages. Add comments if appropriate to clarify.

### **Firming or Shaping for Variable Energy Resources**

Describe the contract terms that allow for or require acceptance (taking ownership) of real-time power production and the subsequent transmission or delivery of purchased power during different periods. This information category reflects the importance of arrangements that facilitate procurement of firm capacity concomitant with procurement of renewable energy from resources that may be intermittent, non-dispatchable, and otherwise difficult to predict and schedule. For contracts that specify one or more intermittent (variable) energy resources, enter “No” if the LSE receives energy on an “as generated” basis. If energy is firming or shaped, the pattern of deliveries (for example, “10 MW in every hour”) should be described. If the contract for firming and shaping is separate from the contract for energy, and it has a different expiration date, this should be indicated in the Notes column.

For contracts that identify dispatchable (for example, gas-fired) generation units, leave this field empty.

### **Termination and Extension Rights**

LSEs should indicate which party or parties have the right to unilaterally terminate or extend the contract (for reasons other than nonperformance of the other party):

For termination rights, indicate the possible termination dates, notification requirements, and, if specified, allowable circumstances:

For extension rights, indicate the possible extension dates, length of extension, notification requirements, and, if specified, allowable circumstances.”

### **Notes (1) and (2)**

Include any clarifying or explanatory statements required or considered appropriate.

## ACRONYMS

ACRONYM	DEFINITION
BPA	Bonneville Power Administration
California ISO	California Independent System Operator
CCA	Community choice aggregator
<del>COBCCR</del>	<del>Commercial operation date</del> <u>California Code of Regulations</u>
CPUC	California Public Utilities Commission
DG	Distributed generation
DR	Demand response
DSM	Demand-side management
<del>EE</del>	<del>Energy efficiency</del>
<del>ESP</del>	<del>Electric service provider</del>
<del>FERC</del>	<del>Federal Energy Regulatory Commission</del>
GWh	Gigawatt-hour
IEPR	Integrated Energy Policy Report
IOU	Investor-owned utility
<del>LADWP</del>	<del>Los Angeles Department of Water and Power</del>
LSE	Load serving entity
<del>LTPP</del>	<del>Long term procurement planning</del>
MW	Megawatt
MWD	Metropolitan Water District of Southern California
NCPA	Northern California Power Agency
<del>NOC</del>	<del>Net qualifying capacity</del>
PG&E	Pacific Gas and Electric Company
<del>PMaxPPAs</del>	<del>Maximum power</del> <u>Power purchase agreements</u>
POU	Publicly owned utility/Publicly owned electric utility
PURPA	Public Utilities Regulatory Policy Act
QF	Qualifying facility
SCE	Southern California Edison Company
<del>UFESDG&amp;E</del>	<del>Unaccounted for energy</del> <u>San Diego Gas &amp; Electric</u>
USBR	United States Bureau of Reclamation
WAPA	Western Area Power Administration

# APPENDIX A:

## Confidentiality Applications

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Information submitted to the Energy Commission can be deemed confidential without the need for a new application under CCR, Title 20, Sections 2505(a)(1)(G) and 2505(a)(4) if you file a certification under penalty of perjury that the new information is substantially similar to the previously granted confidentiality.

### Repeated Applications for Confidentiality

In this case, your current application will serve as your certification and the designation of confidentiality will be under the same terms as the prior designation. The information will remain confidential under the same terms as the prior designation for the same or comparable period of time identified by the applicant in the application.

### How to Request Confidentiality

The ~~Executive Director~~executive director of the Energy Commission has responsibility for determining what information submitted with an application for confidentiality will be deemed confidential. Parties who seek such a designation for data they submit must make a separate, written request that identifies the specific information and provides a discussion of why the information should be protected from release, the length of time such protection is sought, and whether the information can be released in aggregated form. The term of confidentiality is granted on a case-by-case basis.

Certain categories of data provided to the Energy Commission, when submitted with a request for confidentiality, will be automatically designated as confidential and do not require an application. The types of data that are eligible and the process for obtaining this confidential designation are specified in CCR, Title 20, Section 2505(a) (5). The ~~Energy~~ Commission has its own regulations distinct from those governing the CPUC; ~~and~~, CPUC determinations on confidentiality are not applicable to data submitted to the ~~Energy~~ Commission.

Parties should be aware that some confidential data may be disclosed after aggregation according to CCR, Title 20, 2507(d) or (e). Both historical and forecast energy sales data may be disclosed if reported at the following levels:

- For individual LSEs, data may be aggregated at the statewide level by major customer sector.
- For the sum of all LSEs, data may be aggregated at the service area, planning area, or statewide levels by major customer sector.
- For the total sales of the sum of all electric retailers, data may be aggregated at the county level by major generator, utility, and ESP groups as these groups are

defined by the U.S. Census Bureau in their North American Industry Classification System ~~DWR~~Department of Water Resources tables.

Data that are not included in these categories, but that the filer believes are entitled to confidential treatment, should be submitted when due along with an application for confidential designation so that the ~~Executive Director~~executive director can make a determination about its confidential status. To do this, follow the “General Instructions” at the beginning of this document. Due dates are listed there.

## What a New or Repeated Confidentiality Application Must Have

Applications for confidentiality and the confidential documents must be uploaded directly to Dockets through the Energy Commission’s e-filing system. Paper copies or CDs do not need to be submitted. Links to the e-filing system are provided on each proceeding’s webpage under “Submit e-filing.” Registration is necessary the first time documents are uploaded. Once registration is complete, submit a confidential filing by selecting “Quick Actions” from the Dashboard then selecting “Submit Confidential e-filing” from the dropdown tab. Upload the application first and then any confidential materials. The application will then be reviewed by the ~~Executive Director~~executive director in consultation with the ~~Chief Counsel~~chief counsel. **Table A-1** shows three *IEPR* subdockets that are applicable to plans and demand forecasts.

**Table A-1 ~~2017~~2019 *IEPR* Subdockets**

<del>17</del> <u>19</u> -IEPR-01	General/Scope
<del>17</del> <u>19</u> -IEPR-02	Electricity Resource Plans
<del>17</del> <u>19</u> -IEPR-03	Electricity and Natural Gas Demand Forecast

Source: California Energy Commission Staff

Source: [http://www.energy.ca.gov/2019\\_energypolicy/](http://www.energy.ca.gov/2019_energypolicy/).

A signed “penalty of perjury certification” must be included in the application. Suggested language is as follows:

I certify under penalty of perjury that the information contained in this application for confidential designation is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to make the application and certification on behalf of (ABC Utility or Corporation).

For ~~electronic~~e-filings containing a signature, including submissions into electronic data bases requiring a signature as attestation of information, the signature may be in electronic form and represented as a scanned signature graphic, or “Original Signed By,” an “/S/” or similar notation followed by a typewritten name.

## What a New or Repeated Confidentiality Application Must Include, In General

A complete application for confidentiality contains the following:

- Identification of the information being submitted, including docket number, title, date, and size (for example, pages, sheets, megabytes).
- Description of the data or information for which confidentiality is being requested (for example, particular electricity supply contract categories for particular years).
- On forms submitted with prospectively confidential data, identification of specific cells using yellow fills that are consistent with the confidentiality application.
- A clear description of the period for which confidentiality is being sought for each information category (for example, until December 31, 2017/2019).
- An appropriate justification for each confidential data category request, including applicable provisions of the California Public Records Act (Government Code Section 6250 et seq.) and/or other laws.
- A statement attesting that a) the specific records to be withheld from public disclosure are exempt under provisions of the Government Code government code, or b) the public interest in nondisclosure of these particular facts clearly outweighs the public interest in disclosure.

## What Happens If a New or Repeated Application Is Incomplete?

Applications that have been docketed will be reviewed by Energy Commission staff within 30 calendar days of receipt for clarity, completeness, content, and context. If the application is incomplete or ambiguous in one or more respects, or if the data are incomplete or questionable, staff will contact the filer to resolve uncertainties or obtain additional information.

Applications deemed incomplete may result in a delay in processing until the deficiency is corrected. The filer will be notified by staff about deficient attributes and has 14 calendar days to submit an amended application to the Energy Commission.

## Determinations and Additional Information for New Applications

The ~~Executive Director~~ executive director signs confidentiality determination letters in response to ~~New Applications~~ new applications for ~~Confidentiality~~ confidentiality. The applicant has 14 calendar days to appeal the decision.

An applicant can request confidentiality at any time, but once information is publicly released, confidentiality cannot be granted. Information that is public elsewhere cannot be granted confidentiality. The Energy Commission strongly encourages filers to provide data and confidentiality requests concurrently.

More specific questions about confidentiality may be directed to ~~Michelle Chester at [Michelle.Chester@energy.ca.gov](mailto:Michelle.Chester@energy.ca.gov) or (916) 651-2935, or to~~ Jared Babula at [Jared.Babula@energy.ca.gov](mailto:Jared.Babula@energy.ca.gov) or (916) 651-1462.

DRAFT

# APPENDIX B:

## Data Collection Public Purposes

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### Definitions

For existing and planned electricity supply resources, all LSEs in California must use reasonably consistent and compatible terms and counting conventions. This consistency is needed to facilitate a general evaluation of statewide supply adequacy. This evaluation includes some limited assessments of coincident peak supply needs within specific balancing areas, primarily that of the California ISO.

*Existing DSM programs* that are not dispatchable are incorporated into the demand forecast and are not considered to be supply resources.

*Existing resources* are generating resources that are on-line and available to the LSE, including all contracts/PPAs.

*Under-construction resources* under contract to be reported are those for which a contract/PPA has been signed, all regulatory permits and approvals have been obtained, construction has begun, and sufficient financing has been obtained by the developer to enable completion.

*Utility controlled resources* are those that an IOU or POU can dispatch or schedule and then integrate in real time. This category includes all forms of ownership and joint powers authority. Resource data about facilities controlled by one LSE but owned by another, such as an irrigation district, should be reported by the controlling utility. LSEs have the reporting responsibility for generating resources owned by non-LSE irrigation and water districts. For example, PG&E should include Placer County Water Agency, Nevada Irrigation District, and other irrigation districts and water agencies with generation that is dispatched or integrated by PG&E.

*Planned resources* are those that an LSE deems highly likely additions to its portfolio, but about which there is uncertainty due to regulatory, financial, or legislative risks. For IOUs, planned resources are those specific facilities and signed power purchase agreements or facility construction contracts that have not yet been formally approved by the CPUC, or have been approved but face one or more regulatory or legal hurdles that have delayed the start of construction or brought it to a halt. For other LSEs, planned resources include signed agreements, approved contracts, and supplies for which the LSE has a reasonable expectation of commitment. Such reasonable expectation would include the name, fuel type, and location for planned utility owned resources, and other attributes to be reported on Form S-5 for planned contractual resources.

*Generic resources* include generating resources needed to serve forecast demand, including utility owned facilities and PPAs that are not specifically identified at this time

by resource type or location. The capacity and energy associated with such resources should be included on lines 2412 and 2513 of ~~Forms S-1 and Form~~ S-2 and discussed in the ~~Notes~~notes section.

A more complete set of definitions may be found in the Energy Commission's regulations governing data collection for the IEPR (CCR, Title 20, Section 1301 et seq. and 1340 et seq.), regulations implementing the ~~Energy~~Commission's complaint and investigation process (CCR, Title 20, Section 1230 et seq.), and regulations governing the disclosure of ~~Energy~~Commission records (CCR, Title 20, Section 2501, et seq.). The definitions are found in Chapter 3, Article 1, Section 1302.

## **General Purposes, Assumptions, and Considerations**

These forms and instructions provide the Energy Commission with a better understanding of LSE planning assumptions and resource adequacy commitments. From this information, the Energy Commission will assess current conditions in electric generation system infrastructure and identify major statewide trends affecting electricity supply and reliability.

The Energy Commission has regulatory authority to require long-term supply forecasts from LSEs with annual peak loads greater than 200 MW. In the Title 20 regulations on public utilities and energy, Section 1347 states, "Each LSE shall submit its 10-year resource plan for meeting forecasted demand according to forms and instructions adopted by the Commission." That forecast from each LSE shall include "a description of existing and projected sources of supply, including generation projects and purchases from other utilities or elsewhere." ~~Forms S-1 and Form~~ S-2 ~~are~~is designed to collect these categorical and quantitative descriptions of ~~forecast~~forecasted LSE electricity supplies. While Section 1347 refers to "each LSE" being subject to a Commission data request, Section 1350 specifically exempts a small LSE from this requirement "if it provides the information required by Section 1346."

For all LSEs not under jurisdiction of the CPUC for resource adequacy purposes, Section 1346 states those LSEs shall submit to "quantitative documentation of its load forecasts and resource plans, and narrative descriptions of its procurement activities that will enable it to have adequate electricity supplies to serve forecasted loads."

Section 1346 also authorizes the Energy Commission to require "for the most recent calendar year, historic hourly loads, and for each month, peak demand and resource utilization to satisfy customer demand, operating reserves, and other planning obligations of that month." Based on this authority, small publicly owned LSEs are required to provide their hourly loads for ~~2016~~2018 on Form S-3. All LSEs are required to report their historical annual peak demand. These data are to be reported on Form S-1 for ~~2015~~2017 (the most recent year when these instructions are scheduled for adoption) and for ~~2016~~2018 (which will be the most recent year when the forms are due from LSEs). All LSEs are also required to report on Form S-2 how annual customer demand in ~~2015~~2017 and ~~2016~~2018 was served by the LSE's supply resources. This

information will be used to assess (as well as forecast) energy supply as authorized by California Public Resources Code Sections 25303 and 25305, with an emphasis on evaluating the adequacy and availability of existing electricity supplies, and identifying progress to date in reducing statewide greenhouse gas emissions.

## Needed Capacity, Retirements, and Repowering

All large utilities are required to identify existing and planned capacity that will meet forecasted end-use loads ~~over the next 10 years through 2026~~through 2028. These forms and instructions are requesting that large utilities to list existing and planned capacity to meet forecasted loads through 2030. The continued need for existing utility owned generation, along with potential retirement and repowering possibilities, will be part of this demonstration.

Large ESPs are required to identify how their contractual obligations to direct access customers will be met ~~over the next five years~~ through ~~2019~~2023. ESPs are also required to identify their expected new and renewing customer loads for the next five years, using protocols set by the CPUC.

LSEs are required to enumerate their annual peak loads. Utilities are also required to identify, if applicable, other forecasted loads included within their distribution systems. These load forecasts will help enumerate how the interconnected LSEs will likely serve their local and zonal loads in the coming five years. The supply components of these resource plans will help assess the scope and temporal context of LSE open positions. Some of these open positions are subject to load migration uncertainties. In broad terms, the aggregate of these open positions will indicate where, when, and for whom new physical or contractual resources will be needed.

## Planning Reserve Margin Assumptions

These instructions direct IOUs, CCAs, and ESPs to apply the 15 percent planning reserve margin to the entire planning horizon (10 years for IOUs and CCAs, 5 years for ESPs) except for the one option listed below. This amountIt is requested that IOUs and CCAs submit a planning horizon of 12 years. The required planning reserve margin is included on the template for Form S-1, line 8. All IOUs, all ESPs, and most POUs have used a 15 percent planning reserve margin in their previous resource plan and resource adequacy filings with the Energy Commission.

Some POUs have adopted a different planning reserve margin based on their portfolio contingencies or reliability goals. POUs are directed to apply either the 15 percent planning reserve margin or their own adopted planning reserve criteria for ~~all 10 years~~ in the entire planning horizon.

None of the ESPs and very few utilities have secured all the generating resources needed to meet forecasted loads for the next 10 years. In the resource plans that are due in early ~~2017~~2019, most large LSEs will have open positions by ~~2026~~2028 for capacity to meet their annual peak loads. A standardized application of the 15 percent planning

reserve margin allows the open positions of individual LSEs to be compared and summed using common assumptions.

In their month-ahead resource adequacy filings, LSEs under CPUC jurisdiction have been authorized to use a “peak coincidence” adjustment. This adjustment factor effectively reduces the 15 percent planning reserve margin by about 2.5 percent. For consistency with the resource adequacy filing requirements for LSEs under CPUC jurisdiction, all LSE resource plans may incorporate an adjustment for peak coincidence. A forecast of noncoincident peak-hour demand of end-use customers is required on line 5 of the S-1 form. Line 6 of this form allows an LSE to reduce that forecast peak hour demand by a factor that corresponds with a statistically probable LSE share of peak demand during the system (balancing area) coincident peak-hour demand.

## **Loading Order Considerations**

As with data submittal requirements for past *IEPRs*, LSEs are instructed to include realistic estimates of capacity and energy to be achieved from loading order programs. Do not assume that officially prescribed or formally adopted targets will be met precisely on schedule. These estimates affect the calculation of net short capacity and open energy positions.

The resource plan is meant to be a practical guide based upon reasonable expectations, limitations, and contingencies as known. LSEs are expected to meet service obligations at reasonable cost, to generate within environmental permits, and to contract for deliveries within prudent risk tolerances. If a deficiency or contract problem with preferred resources has become apparent, the LSE must fill that need from other long-term or short-term procurement options. If particular loading order targets adopted for LSE procurement will likely not be met, the LSE is asked to footnote the S-1 and S-2 forms to flag that discrepancy with some attribution regarding probable cause.

# APPENDIX C: Electricity Supply Resource Plans

State of California					
California Energy Commission					
<b>ELECTRICITY RESOURCE PLANNING FORMS</b>					
<b>Administrative Information</b> (issued 12/2016)					
					
<b>Name of Load Serving Entity ("LSE")</b>	LSE Name on Admin Tab				
<b>Name of Resource Planning Coordinator</b>					
<b>Persons who prepared Supply Forms</b>	<b>S-1 CRATS</b>	<b>S-2 Energy Balance</b>	<b>S-3 Small POU Hourly Loads</b>	<b>S-5 Bilateral Contracts</b>	<b>Application for Confidentiality</b>
Name:					
Title:					
E-mail:					
Telephone:					
Address:					
Address 2:					
City:					
State:	CA	CA			
Zip:					
Date Completed:					
Date Updated by LSE:					
<b>Back-up / Additional Contact Persons for Questions about these Forms (Optional):</b>					
Name:					
Title:					
E-mail:					
Telephone:					
Address:					
Address 2:					
City:					
State:					
Zip:					

State of California  
 California Energy Commission  
**ELECTRICITY RESOURCE PLANNING FORMS**  
**CEC Form S-1: Capacity Resource Accounting Table** (issued 12/2016)



LSE Name on Admin Tab

Yellow fills indicate confidentiality is being requested pursuant to Appendix A.  
 2018 MW numbers are illustrative.

Where cell specifies more than one datum, separate data with a semicolon.

**Bold font cells sum automatically.**

Data input by User are in dark green font.

line	Capacity Resource Accounting Table (MW)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	<b>PEAK LOAD CALCULATIONS</b>	(↓ Prior Forecasts ↓)		(Forecast Supply ⇒)									
1	Forecast Total Peak-Hour 1-in-2 Demand				7,500								
2a	ESP Demand: Existing Customer Contracts												
2b	ESP Demand: New and Renewed Contracts												
2c	ESP Demand in PG&E service area												
2d	ESP Demand in SCE service area												
2e	ESP Demand in SDG&E service area												
3	Additional Achievable Energy Efficiency (-)												
4	Demand Response / Interruptible Programs (-)				(100)								
5	<b>Adjusted Demand: End-Use Customers</b>	0	0	0	7,400	0	0	0	0	0	0	0	0
6	Coincidence Adjustment (-)				(50)								
7	<b>Coincident Peak-Hour Demand</b>	0	0	0	7,350	0	0	0	0	0	0	0	0
8	Required Planning Reserve Margin	0	0	0	1,103	0	0	0	0	0	0	0	0
9	Credit for Imports That Carry Reserves (-)				(7)								
10	Firm Sales Obligations												
11	<b>Firm LSE Procurement Requirement</b>	0	0	0	8,446	0	0	0	0	0	0	0	0
	<b>CAPACITY SUPPLY RESOURCES</b>												
12a	<b>Total Fossil Fuel Supply</b>	0	0	0	2,200	0	0	0	0	0	0	0	0
12b	[state fuel; then list each resource, e.g., Fossil Unit 1]				1,000								
12c	[state fuel; then list each resource, e.g. Natural Gas; Fossil Unit 2]				750								
12d	[state fuel; then list each resource, e.g. Natural Gas; Fossil Unit N; list planned resources last]				450								
13a	<b>Total Nuclear Supply</b>	0	0	0	1,000	0	0	0	0	0	0	0	0
13b	[Nuclear Unit 1]				500								
13c	[Nuclear Unit 2]				500								
14a	<b>Total Hydroelectric Supply</b>	0	0	0	1,000	0	0	0	0	0	0	0	0
14b	Total: Hydro Supply from Plants larger than 30 MW				900								
14c	Total: Hydro Supply from Plants 30 MW or less				100								

line	Capacity Resource Accounting Table (MW)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
15a	<b>Total Utility-Controlled Renewable Supply</b>	0	0	0	400	0	0	0	0	0	0	0	0
15b	[state fuel; then list each resource, e.g., Renewable Plant 1]				250								
15c	[state fuel; then list each resource, e.g. Geothermal: Renewable Project 2]				130								
15d	[state fuel; then list each resource, Wind: Renewable Project N; list planned resources last]				20								
17a	<b>Total Qualifying Facility (QF) Contract Supply</b>	0	0	0	800	0	0	0	0	0	0	0	0
17b	Biofuels				100								
17c	Geothermal				300								
17d	Small Hydro				50								
17e	Solar				50								
17f	Wind				50								
17g	Natural Gas				200								
17h	Other				50								
18a	<b>Total Renewable Contract Supply</b>	0	0	0	750	0	0	0	0	0	0	0	0
18b	Renewable DG Supply				50								
18c	[state fuel; then Renewable Contract 1 (Supplier Name)]				350								
18d	[Small Hydro; then Renewable Contract 2 (Supplier Name)]				200								
18e	[Solar; then Renewable Contract N, list planned resources last]				150								
19a	<b>Total Other Bilateral Contract Supply</b>	0	0	0	1,325	0	0	0	0	0	0	0	0
19b	Non-Renewable DG Supply				50								
19c	[state fuel if known; then name Other Bilateral Contract 1 (Supplier Name)]				450								
19d	[state fuel; then list each resource, e.g. Natural Gas: Other Bilateral Contract 2 (Supplier Name)]				350								
19e	[Portfolio: Other Bilateral Contract 3 (Supplier Name)]				250								
19f	[System: Other Bilateral Contract N (Supplier Name)]				75								
19n	Planned Resources: list each on lines inserted below this line.				100								
20	<b>Short-Term and Spot Market Purchases (and Sales)</b>				50								

CAPACITY BALANCE SUMMARY													
21	<b>Total: Existing and Planned Supply</b>	0	0	0	7,525	0	0	0	0	0	0	0	0
22	Firm LSE Procurement Requirement	0	0	0	8,446	0	0	0	0	0	0	0	0
23	<b>Net Surplus (or Need)</b>	0	0	0	(921)	0	0	0	0	0	0	0	0
24	Generic Renewable Supply				25								
25	Generic Non-Renewable Resources				60								
26	Specified Planning Reserve Margin				15%								

line	Historic LSE Peak Load:	MW	MW
		Year 2015	Year 2016
27	Annual Peak Load / Actual Metered Deliveries		
28	Date of Peak Load for Annual Peak Deliveries	/15	/16
29	Hour Ending (HE) for Annual Peak Deliveries		
30	Interruptible Load called on during that hour (+)		
31	Self-Generation and DG Adjustments		
32	Adjustments for Major Outages		
33	Adjusted Annual Peak Load	0.0	0.0

**Lines Notes**

x	
x	

State of California  
 California Energy Commission  
**ELECTRICITY RESOURCE PLANNING FORMS**  
**CEC Form S-2: Energy Balance Table** (issued 12/2016)



LSE Name on Admin Tab

Yellow fills indicate confidentiality is being requested pursuant to Appendix A.  
 2018 GWh numbers are illustrative.

Where cell specifies more than one datum, separate data with a semicolon.

**Bold font cells sum automatically.** Data input by User are in dark green font.

line	Energy Balance Table (GWh)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	<b>ENERGY DEMAND CALCULATIONS</b>	(↓ Actual Supply ↓)		(Forecast Supply ⇒)									
1	Forecast Total Energy Demand / Consumption				40,000								
2a	ESP Demand: Existing Customer Contracts												
2b	ESP Demand: New and Renewed Contracts												
2c	ESP Demand in PG&E service area												
2d	ESP Demand in SCE service area												
2e	ESP Demand in SDG&E service area												
3	Additional Achievable Energy Efficiency (-)												
4	Demand Response / Interruptible Programs (-)				(200)								
5	<b>Adjusted Demand: End-Use Customers</b>	0	0	0	39,800	0	0	0	0	0	0	0	0
6	Coincidence Adjustment [does not apply to S-2 form]												
7	Coincident Peak-Hour Demand [does not apply to S-2]												
8	Required Planning Reserve [does not apply to S-2]												
9	Credit for Imports That Carry Reserves [does not apply]												
10	Firm Sales Obligations				0								
11	<b>Firm LSE Procurement Requirement</b>	0	0	0	39,800	0	0	0	0	0	0	0	0
	<b>ENERGY SUPPLY RESOURCES</b>												
12a	<b>Total Fossil Fuel Supply</b>	0	0	0	15,000	0	0	0	0	0	0	0	0
12b	[state fuel; then list each resource, e.g., Fossil Unit 1]				8,000								
12c	[state fuel; then list each resource, e.g. Natural Gas; Fossil Unit				4,000								
12d	[state fuel; then list each resource, e.g. Natural Gas; Fossil Unit N; list planned resources last]				3,000								
13a	<b>Total Nuclear Supply</b>	0	0	0	7,000	0	0	0	0	0	0	0	0
13b	[Nuclear Unit 1]				3,500								
13c	[Nuclear Unit 2]				3,500								
14a	<b>Total Hydroelectric Supply</b>	0	0	0	1,500	0	0	0	0	0	0	0	0
14b	Total: Hydro Supply from Plants larger than 30 MW				1,400								
14c	Total: Hydro Supply from Plants 30 MW or less				100								

line	Energy Balance Table (GWh)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
15a	<b>Total Utility-Controlled Renewable Supply</b>	0	0	0	1,000	0	0	0	0	0	0	0	0
15b	[state fuel; then list each resource, e.g., Renewable Plant 1]				400								
15c	[state fuel; then list each resource, e.g. Geothermal: Renewable Project 2]				350								
15d	[state fuel; then list each resource, Wind: Renewable Project N; list planned resources last]				250								
17a	<b>Total Qualifying Facility (QF) Contract Supply</b>	0	0	0	4,000	0	0	0	0	0	0	0	0
17b	Biofuels				300								
17c	Geothermal				1,200								
17d	Small Hydro				400								
17e	Solar				450								
17f	Wind				400								
17g	Natural Gas				1,200								
17h	Other				50								
18a	<b>Total Renewable Contract Supply</b>	0	0	0	5,750	0	0	0	0	0	0	0	0
18b	Renewable DG Supply				300								
18c	[state fuel; then Renewable Contract 1 (Supplier Name)]				3,500								
18d	[Small Hydro; then Renewable Contract 2 (Supplier Name)]				1,800								
18e	[Solar; then Renewable Contract N, list planned resources last]				150								
19a	<b>Total Other Bilateral Contract Supply</b>	0	0	0	2,665	0	0	0	0	0	0	0	0
19b	Non-Renewable DG Supply				140								
19c	[state fuel if known; then name Other Bilateral Contract 1]				1,100								
19d	[state fuel; then list each resource, e.g. Natural Gas: Other Bilateral Contract 2 (Supplier Name)]				850								
19e	[Portfolio: Other Bilateral Contract 3 (Supplier Name)]				450								
19f	[System: Other Bilateral Contract N (Supplier Name)]				125								
19n	Planned Resources: list each on lines inserted below this line.				100								
20	<b>Short Term and Spot Market Purchases (and Sales)</b>				2,300								
<b>ENERGY BALANCE SUMMARY</b>													
21	<b>Total: Existing and Planned Resources</b>	0	0	0	39,215	0	0	0	0	0	0	0	0
22	<b>Firm LSE Procurement Requirement</b>	0	0	0	39,800	0	0	0	0	0	0	0	0
23	<b>Net Surplus (or Need)</b>				(585)	0	0	0	0	0	0	0	0
24	Generic Renewable Supply				0								
25	Generic Non-Renewable Supply				135								

line **Notes**

x	
x	



**ELECTRICITY RESOURCE PLANNING FORMS**

**CEC Form S-3: 2016 SMALL POU HOURLY LOADS** (issued 12/2016)

LSE Name on Admin Tab

For Publicly Owned LSEs with Annual Peak Loads under 200 MW not submitting demand forms

Scheduling coordinators reporting load for multiple LSEs should report load for each entity separately.

Report actual hourly demand in calendar year 2016, in megawatts, for each hour of each day.

Add rows to report all 8,784 hours in 2016 (including February 29).

Begin with the hour that ended at 1 a.m. on January 1, 2016.

Show the load measured at the balancing authority load take-out point (or points).

Add columns for any additional metered take-out points.

The time basis should be Pacific Standard Time (PST) throughout the entire year.

Scheduling Coordinators should report demand for each utility within a SCID separately.

*Note: This form is a truncated version for printing and review purposes.*

Date (PST)	Hour Ending (PST)	Recorded Demand at Take Out (MW)
1/1/2016	1	100
1/1/2016	2	
1/1/2016	3	
1/1/2016	4	
1/1/2016	5	
1/1/2016	6	
1/1/2016	7	
1/1/2016	8	
1/1/2016	9	
1/1/2016	10	
1/1/2016	11	
1/1/2016	12	
1/1/2016	13	
1/1/2016	14	
1/1/2016	15	
1/1/2016	16	
1/1/2016	17	
1/1/2016	18	
1/1/2016	19	
1/1/2016	20	
1/1/2016	21	
1/1/2016	22	
1/1/2016	23	
1/1/2016	24	

Sample value shown

Total MWh	100	Sample value shown
Maximum	100	Sample value shown
Average	100	Sample value shown
Minimum	100	Sample value shown

State of California  
 California Energy Commission  
**ELECTRICITY RESOURCE PLANNING FORMS**  
**CEC Form S-5: Bilateral Contracts Table** issued 12/2016. Revised 3/2017.  
 Do not delete any rows or columns or change headers.  
 LSE Name on Admin Tab  
 Where cell specifies more than one datum, separate data with a semicolon. Yellow fills indicate confidentiality is being requested pursuant to Appendix A.

Contract Name:	Supplier / Seller:	Unit Contingent / LD Contract:	Generating Unit(s) Specified	Plant/Unit Identifier- CAISO Resource ID	Plant/Unit Identifier- CEC ID	Plant/Unit Identifier- EIA Plant ID
[state fuel; then Renewable Contract 1 (Supplier Name)]						
[Small Hydro; then Renewable Contract 2 (Supplier Name)]						
[Solar; then Renewable Contract N, list planned resources last]						
[state fuel if known; then name Other Bilateral Contract 1 (Supplier Name)]						
[state fuel; then list each resource, e.g. Natural Gas; Other Bilateral Contract 2 (Supplier Name)]						
[Portfolio; Other Bilateral Contract 3 (Supplier Name)]						
[System; Other Bilateral Contract N (Supplier Name)]						



Generating Unit(s) Status (Operational, Under Construction, Planned)	City or Locality of Specified Unit(s)	Fuel Type	Supply Resources(s) Balancing Area	Supply Resource(s) Delivery Zone/Point	Contract Start Date	Contract Expiration Date	Capacity (MW) Under Contract:	Contract / Agreement Products	Availability of Products	Must Take	Firm	Firming or Shaping for Variable Energy Resources	Termination & Extension Rights:	Notes (1):	Notes (2):

State of California					
California Energy Commission					
<b>ELECTRICITY RESOURCE PLANNING FORMS</b>					
<b>Administrative Information</b> (issued 12/2018)					
					
<b>Name of Load Serving Entity ("LSE")</b>	LSEName on Admin Tab				
<b>Name of Resource Planning Coordinator</b>					
<b>Persons who prepared Supply Forms</b>					
	<b>S-1 Requirement</b>	<b>S-2 Supply</b>	<b>S-3 Small POU Hourly Loads</b>	<b>S-5 Bilateral Contracts</b>	<b>Application for Confidentiality</b>
Name:					
Title:					
E-mail:					
Telephone:					
Address:					
Address 2:					
City:					
State:	CA	CA			
Zip:					
Date Completed:					
Date Updated by LSE:					
<b>Back-up / Additional Contact Persons for Questions about these Forms (Optional):</b>					
Name:					
Title:					
E-mail:					
Telephone:					
Address:					
Address 2:					
City:					
State:					
Zip:					

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DRAFT



LSE Name on Admin Tab

Yellow fills indicate confidentiality is being requested pursuant to Appendix A.

**Bold font cells sum automatically.** Data input by User are in dark green font.

line	Capacity Procurement Requirement (MW)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	<b>PEAK LOAD CALCULATIONS</b>	(↓ Actual Load ↓)		(Forecast Load ⇌)											
1	Forecast Total Peak-Hour 1-in-2 Demand														
2a	ESP Demand: Existing Customer Contracts														
2b	ESP Demand: New and Renewed Contracts														
2c	ESP Demand in PG&E service area														
2d	ESP Demand in SCE service area														
2e	ESP Demand in SDG&E service area														
3	Additional Achievable Energy Efficiency (-)														
4	Demand Response / Interruptible Programs (-)														
5	Adjusted Demand: End-Use Customers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Coincidence Adjustment (-)														
7	Coincident Peak-Hour Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Required Planning Reserve Margin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Credit for Imports That Carry Reserves (-)														
10	Firm Sales Obligations														
11	Firm LSE Procurement Requirement	0	0	0	0	0	0	0	0	0	0	0	0	0	0

  

line	Energy Procurement Requirement (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	<b>ENERGY DEMAND CALCULATIONS</b>	(↓ Actual Load ↓)		(Forecast Load ⇌)											
12	Forecast Total Energy Demand / Consumption														
13a	ESP Demand: Existing Customer Contracts														
13b	ESP Demand: New and Renewed Contracts														
13c	ESP Demand in PG&E service area														
13d	ESP Demand in SCE service area														
13e	ESP Demand in SDG&E service area														
14	Additional Achievable Energy Efficiency (-)														
15	Demand Response / Interruptible Programs (-)														
16	Adjusted Demand: End-Use Customers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Firm Sales Obligations														
18	Firm LSE Procurement Requirement	0	0	0	0	0	0	0	0	0	0	0	0	0	0

line	Historic LSE Peak Load:	MW	MW
		Year 2017	Year 2018
19	Annual Peak Load / Actual Metered Deliveries		
20	Date of Peak Load for Annual Peak Deliveries	/17	/18
21	Hour Ending for Annual Peak Deliveries		
22	Interruptible Load called on during that hour (+)		
23	Self-Generation and DG Adjustments		
24	Adjustments for Major Outages		
25	Adjusted Annual Peak Load	0.0	0.0

**Lines Notes**

x	
x	



State of California

California Energy Commission

**ELECTRICITY RESOURCE PLANNING FORMS**

**CEC Form S-3: 2018 SMALL POU HOURLY LOADS**



LSE Name on Admin Tab

For Publicly Owned LSEs with Annual Peak Loads under 200 MW not submitting demand forms

If load is reported for more than one LSE, load for each LSE should be reported in a separate column

Report actual hourly demand in calendar year 2018, in megawatts, for each hour of each day.

Add rows to report all 8,760 hours in 2018.

Begin with the hour that ended at 1 a.m. on January 1, 2018.

Show the load measured at the balancing authority load take-out point (or points).

Add columns for any additional metered take-out points.

The time basis should be Pacific Standard Time (PST) throughout the entire year.

Adjustments for spring and fall daylight saving time have already been included in the form below.

Total MWh	0
Maximum	0
Average	0
Minimum	0

Date (PST)	Hour Ending (PST)	Recorded Demand at Take Out (MW)
1/1/2018	1	
1/1/2018	2	
1/1/2018	3	
1/1/2018	4	
1/1/2018	5	
1/1/2018	6	
1/1/2018	7	
1/1/2018	8	
1/1/2018	9	
1/1/2018	10	
1/1/2018	11	
1/1/2018	12	
1/1/2018	13	
1/1/2018	14	
1/1/2018	15	
1/1/2018	16	
1/1/2018	17	
1/1/2018	18	
1/1/2018	19	
1/1/2018	20	
1/1/2018	21	
1/1/2018	22	
1/1/2018	23	
1/1/2018	24	



Revised 8/2018.

Yellow files indicate confidentiality is being requested pursuant to Appendix A.

S-2 Line	Contract Name:	Fuels	Supplier / Seller:	Unit/Contingent / LD Contract:	Generating Unit(s) Specified	Supply Resource(s) Balancing Area	Supply Resource(s) Delivery Zone/Point	Contract Start Date	Contract Expiration Date	Capacity (MW) Under Contract:	Contract / Agreement Products	Notes (1):	Notes (2):
6b	0												
6c	0												
6d	0												
7b	0												
7c	0												
7d	0												
7e	0												