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California Energy Commission
COMMISSION REPORT

**FORMS AND INSTRUCTIONS FOR
SUBMITTING ELECTRICITY
RESOURCE PLANS**

Prepared in Support of the *2011 Integrated Energy Policy Report*

DECEMBER 2010

CEC-200-2010-009-CMF

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ABSTRACT

These proposed electricity supply forms and instructions by staff of the California Energy Commission cover forecast years 2011 through 2020 and historical years 2009 and 2010. Load-serving entities in California are asked to submit plans showing how demand for energy and annual peak load will be met by specific supply resources.

Keywords: Electricity resource plans, electricity supply forecasts, resource adequacy, resource plan forms and instructions, California load-serving entities, *2011 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 its *2011 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.

The Energy Commission is directed by Public Resources Code Sections 25300-25323 to regularly assess all aspects of energy demand and supply. These assessments will be included in the *2011 Integrated Energy Policy Report* or in supporting reports. These assessments 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. This report is scheduled for adoption by the Energy Commission in December 2010.

To carry out these energy assessments, the Energy Commission is authorized to require California market participants to submit historical data, forecast data, and assessments. 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 of the *2011 Integrated Energy Policy Report*. Resource plans from the investor-owned utilities may simultaneously serve as system resource plans to be considered by the California Public Utilities Commission to align long-term procurement plans with local area reliability needs. (R. 10-05-006; see <http://docs.cpuc.ca.gov/efile/RULINGS/118671.pdf>) Many resource plans by load-serving entities, individually and collectively, are expected to inform controlled grid studies by the California Independent System Operator and by other regional balancing authorities.

General Instructions

Who Must File What by When

In adopting these forms and instructions, the California Energy Commission specifically requires the load-serving entities (LSEs) to file certain electricity resource planning information by Friday, April 29, 2011. The data do not have to be distributed 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, Title 20, Article 2, Section 1342.

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

- S-1 Capacity Resource Accounting Table
- S-2 Energy Balance Accounting Table
- S-3 Hourly Loads in 2010 for POUs with less than 200 megawatts (MW) Annual Peak
- S-4 Wind Resource Nameplate Capacity
- S-5 Bilateral Contracts and Power Purchase Agreements

Electricity supply forms are required from every publicly owned utility (POU) that has electric end-use customers in California.

POUs with annual peak load less than 200 MW in both 2009 and 2010 must file Supply Forms S-1 and S-2 including load and resource data for 2009, 2010, and 2011. These “small” LSEs are also required to provide Supply Form S-3. If a small POU has a wind resource in its portfolio, then the S-4 supply form must be provided; if it has a bilateral contract or purchase power agreement, the S-5 supply form is required.

POUs with annual peak loads larger than 200 MW in either 2009 or 2010 must file Supply Forms S-1 and S-2 including load and resource data for 2009 through 2020. Again, if a POU has a wind resource in its portfolio, then the S-4 supply form must be provided; if it has a bilateral contract or purchase power agreement, the S-5 supply form is required.

Similar requirements apply to an investor-owned utility (IOU) that had peak loads for its California customers larger than 200 MW in either 2009 or 2010. These “large” LSEs must file Supply Forms S-1 and S-2 including load and resource data for 2009 through 2020. Data

submittals are not required from small IOUs (those with peak loads less than 200 MW in either 2009 or 2010).

For an electric service provider (ESP) that had peak loads for its California customers larger than 200 MW in either 2009 or 2010, the expected forecast period is shorter by half. These ESPs must file Supply Forms S-1 and S-2 including load and resource data for 2009 through 2015. Large IOUs and ESPs are also required to provide Supply Forms S-4 and S-5, except that an ESP with no wind resources in its portfolio is not required to file the S-4 form. Data submittals are not required from small ESPs.

The city of Vernon is asked to file Supply Forms S-1 and S-2 including load and resource data for 2009 through 2020 comparable to its resource plan submittal in 2009, even though Vernon's peak load did not exceed 200 MW in 2009 or 2010.

Every POU must provide narrative information related to electricity resource adequacy. The required information is described in the last section of these instructions and is essentially unchanged from 2007 and 2009. If a POU's resource adequacy standards and procurement protocols have not changed from a previously completed information filing, no additional information is required.

Submittal Format Requirements

For all filings, parties are requested to submit a brief cover letter or transmittal email. The Energy Commission encourages data filing by e-mail attachment. When naming your attached file of 4 megabytes or less, please include your name or your organization's name. Submittals that do not have a request for confidentiality may be sent by electronic mail to:

- Docket@energy.state.ca.us

In the subject line, please include "Docket #11-IEP-1B [LSE Name] Resource Plan."

If you are requesting confidentiality for any part of your submittal, please read and carefully follow the instructions in Appendix 1. 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.

Electronic information files are requested in these formats:

- Data on specified forms using Microsoft Excel®
- Reports, narratives, and cover letters in Microsoft Word® or Adobe Acrobat®

An Excel template with data forms is available on the Energy Commission website at [http://www.energy.ca.gov/2011_energypolicy/documents/index.html] and by request. This

template is the preferred format. For a permanent record of data submittals, participants may provide a file in Adobe Acrobat that duplicates information shown on an Excel file.

General questions about these forms or instructions may be directed to Jim Woodward at jwoodwar@energy.state.ca.us or (916) 654-5180.

Supply Form Administrative Information

The first tab on the Excel file is new this year. It provides information about who prepared the supply forms, when they were completed, and appropriate contact information.

Name of Load Serving Entity ("LSE")

This should be the legal or business name of the load-serving entity. Entries on this tab will copy automatically to all subsequent tabs.

Name of Resource Planning Coordinator

For larger utilities, this is the person responsible for managing work to respond to this data request or to transmit the supply forms to the Energy Commission.

Name and Title of Persons Who Prepared Supply Resource Forms

Please provide the name of the person responsible for the accuracy and completeness of individual form.

Contact Information

Provide this information to facilitate review of the filing.

Date Completed

Please write out the date the form was completed such as February 17, 2011.

Date Updated by LSE

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

Supply Form S-1: Capacity Resource Accounting Table

Scope

LSEs are asked to estimate how much power in megawatts (MW) is needed to serve annual peak retail customer load, plus reserves and other obligations. LSEs are also asked to identify how much power will come from various electricity supply resources. These estimates are required for 2011 through 2020 for larger utilities, for 2011 through 2015 for ESPs, and only for 2011 for small POUs (See page three for definitions). The load forecast on

Form S-1 shall be consistent with 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, all LSEs are required to report their actual peak loads (including unserved demand) in calendar years 2009 and 2010. However, LSEs are not required to show which resources were dispatched or available to serve those historic peak-hour loads. Instead, the main body of Form S-1 asks LSEs to show capacity resources that were, at the start of those years, expected to be available to meet the forecast 1- in-2 peak loads.

Form S-1, with the other supply forms and related narratives, comprise a resource plan by which each LSE shall demonstrate how the LSE can meet its obligations to serve end-use loads and to meet other firm obligations. In general, the data submitted by each LSE on Form S-1 should correspond one-to-one with the data submitted on the Energy Balance table, Form S-2.

The public purposes served by this data collection project are presented in Appendix 2 along with a brief discussion of planning reserve margin assumptions and loading order considerations.

Net Qualifying Capacity or Dependable Capacity

LSEs that provide end-use electrical services in the California ISO balancing area are asked to report supply resources using net qualifying capacity (NQC) values for 2011, and to project these NQC values through the end of the forecast period. The values reported on Form S-1 should be consistent with year-ahead resource adequacy filings.¹

Please report the amount of capacity from each generation source that is considered firm and reliable for meeting loads forecast to occur in the annual peak hour. This amount would be measurable at the busbar. For intermittent resources without flexible dispatch (such as wind), dependable capacity estimates should reflect the non-firm nature of this supply. Capacity values should not be adjusted for expected forced outages.

If there is a difference between NQC and dependable capacity values for a particular resource, LSEs are asked to use the lower number on the S-1 form, though the higher number may be used if an explanatory footnote is provided. Do not use or report values for nameplate capacity, installed capacity, or Pmax capacity (unencumbered capacity).

¹ For 2011, the list of NQC values was posted August 25, 2010, at <http://www.caiso.com/1796/179688b22c970.html>.

Resource Adequacy Counting Rule Issues

Resources should count only as far as their capacity can be relied upon to perform. For contractual resources, show how much capacity will be available to the LSE throughout the forecast period. In general, a resource must be able to operate for four consecutive hours for three consecutive days at the capacity listed on Form S-1 unless otherwise specified by the CPUC, the California ISO, the Energy Commission, or the LSE's adopted counting conventions.² The listings on Form S-1 should include all LSE-owned or controlled resources, and all planned resources. The distinction between planned and generic resources is defined in Appendix B.

It is reasonable to count all generation as deliverable by assuming that transmission upgrades will be completed by participating transmission owners. For LSEs not under CPUC jurisdiction, dependable capacity for exchanges and imports is the amount that can be counted on with high certainty for meeting the LSE's non-coincident peak demand.

Peak Load Calculations (Line 1 to 17 Instructions)

Line 1—Forecast Total Peak-Hour 1-in-2 Demand

On line 1, all LSEs are asked to forecast their total non-coincident demand during the annual peak hour for each year in the forecast period. This number, in MW, must include all power needed to serve end-use loads along with the power needed to deliver supplies to these loads. Therefore, the annual peak hour estimates must include allowances for transmission losses, distribution line losses, 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 their future customers and their loads. These estimates may be greater than or less than the current obligation to serve end-use customers.

For each year in the forecast period, the largest annual Forecast Total Peak Load on line 1 of the S-1 form should correspond to or correlate with the LSE peak load previously reported on demand Form 1.3.

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

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

² For IOUs and ESPs, capacity values should be consistent with D.10-06-036 issued June 24, 2010, posted at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/119856.htm. Capacity values for wind and solar resources should be based on the 70 percent exceedance methodology specified in Appendix B.

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

On line 1, all LSEs are asked include the effects of private supply that are reasonably expected to occur, customer-owned generation that reduces the procurement obligations of LSEs. This includes distributed generation (DG) and self-generation facilities. It also includes programs to implement the California Solar Initiative (CSI), and the Self-Generation Incentive Program (SGIP) administered by the CPUC. LSEs submitting demand forecasts show private supply amounts of capacity and energy on Demand Forms 1.7a through 1.7d. Supplies of DG power that are surplus to customer needs should be reported on Supply Form S-1 below on line 18b (renewable DG) or line 19b (non-renewable DG).

Peak Load estimates on line 1 should not include capacity amounts needed for a planning reserve margin (shown on line 9), or for firm wholesale obligations of the LSE (shown on line 10).

For years 2009 and 2010 show the amounts of load and resources that were expected for those years. List individual capacity resources were expected to be available to serve peak-hour load. For LSEs in the California ISO balancing area, this listing for 2009 and 2010 should include those resources named in the year-ahead local resource adequacy filings or in the month-ahead resource adequacy filings for the peak month. What is NOT requested in these columns is an enumeration of resources that were actually committed and dispatched (in varying amounts) to meet actual coincident or non-coincident peak-hour loads in 2009 or 2010.

Line 2a—ESP Peak Load: Existing Customer Contracts

ESPs are asked to identify how their expected loads are divided between new and renewing customers. On line 2a, ESPs are asked to indicate the load obligations to serve existing customers under contract, along with contracts that have future start dates.

Line 2b—ESP Peak Load: New and Renewed Contracts

On line 2b, ESPs are asked to estimate total annual capacity needs that arise 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 publicly disclosed. For ESPs, the sum of values on line 2b plus line 2a should equal the annual peak load number entered on line 1.

Line 2c—ESP Peak Load in PG&E Service Area

On line 2c, ESPs are asked to estimate non-coincident peak loads for Pacific Gas and Electric's service area in Northern California. The amounts on lines 2c, 2d, and 2e should equal the total shown on line 1.

Line 2d—ESP Peak Load in SCE Service Area

On line 2d, ESPs are asked to estimate non-coincident peak loads in the service area of Southern California Edison.

Line 2e—ESP Peak Load in SDG&E Service Area

On line 2e, ESPs are asked to estimate non-coincident peak loads in the service area of San Diego Gas & Electric.

Line 3—Uncommitted Energy Efficiency (Minus)

On line 3, IOUs and POUs are asked to estimate median values for achievable and cost-effective savings from future programs that are not yet implemented or funded. For the IOUs, committed conservation programs are those programs funded through 2012.

Do not include the effects of energy efficiency programs that are already embedded in the LSE demand forecast (Demand Forms 1.1) or in the LSE load forecast (Supply Form S-1, line 1).

Section 1345 of the Energy Commission’s regulations (found in Title 20 of the California Code of Regulations) requires that demand forecasts are to account for all conservation “reasonably expected to occur.” Since the *1985 Electricity Report*, reasonably-expected-to-occur conservation programs have been split into two types: committed and uncommitted. That distinction is continued in these instructions. Committed programs are defined as programs that have been implemented or for which funding has been approved. While conservation “reasonably expected to occur” includes both committed and uncommitted programs, only the effects of committed programs should be included in the demand forecast.

Utilities are asked to estimate energy savings after 2012 from programs that are currently uncommitted. Uncommitted effects are defined as the incremental impacts of post-2012 programs, impacts of future unfunded programs, and impacts from expansion of currently funded programs.

On line 3, IOUs are asked to estimate annual peak-hour load reductions reasonably expected from future efficiency programs. For each of the IOUs, the CPUC established energy efficiency targets for both peak demand and energy. CPUC specified these targets in D.04-09-060. Realistic estimates of energy savings as reported on line 3 may vary from program targets.

For POUs, supporting studies may not be available to predict energy efficiency reductions to load that would be listed on line 3. Where studies to identify a reasonable offset are lacking, enter zero. Where studies have identified potential energy efficiency programs, POUs should assume that these programs are funded and implemented and become reasonably effective. For publicly owned utilities, “committed” means the governing board for a municipal utility has authorized spending for at least a preliminary program plan from which impacts can be quantified.

Line 4—Demand Response/Interruptible Programs (Minus)

On line 4, LSEs are asked to enter the load reduction amounts (stated as negative numbers) that are expected to be available from all dispatchable programs to reduce demand or to interrupt non-firm demand.³ Only interruptible load subject to LSE or balancing authority dispatch should be counted on line 4.

IOUs are expected to provide demand response (DR) load impact projections through 2020 as filed in the long-term procurement plan (LTPP) process under Decision (D.) 08-04-050 and D.10-06-036.⁴

The term “demand response” (DR) encompasses a variety of programs including traditional direct control (interruptible) programs counted as supply side resources, and price responsive programs that are accounted for in the demand forecast. Impacts from committed *nondispatchable* programs should be included in the demand forecast and in the peak-hour load forecast on line 1 of this form.⁵ Price-sensitive DR goals for the IOUs were established in CPUC D.03-06-032 (p. 10). These amounts are 5 percent in 2009 and thereafter.⁶

Dispatchable DR programs are activated using a predetermined threshold such as interruptible residential air conditioner loads. All dispatchable demand response resources should be included on line 4.

LSEs serving loads in the California ISO balancing area are asked to use the CPUC-adopted standards for counting DR qualifying capacity. “The Commission determined that DR resources should be available at least 48 hours each summer season to count as qualifying capacity, and that DR resources that operate two hours per day should be eligible but subject to a limit of 0.89 percent of monthly peaks.” (D.04-10-035, pp. 26-27 and D.04-10-035,

3 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.

4 The load impacts were filed in Rulemaking (R.) 07-01-041.
<http://docs.cpuc.ca.gov/published/proceedings/R0701041.htm>.

5 Nondispatchable 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 load reductions.

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

quoted in D.05-10-042). This standard for year-ahead resource adequacy capacity should be applied to projected DR resources throughout the forecast period.

For example, in the California ISO balancing area, many LSEs can cycle power to residential air conditioners during Stage 2 emergencies to avoid reaching a Stage 3 emergency with forced load shedding. To count as DR resources, interruptible and emergency programs need only be dependable for two consecutive hours in a month.

Line 5—Adjusted Peak-Hour Demand: End-Use Customers

On the Excel spreadsheet, this line automatically calculates the forecast non-coincident peak-hour demand of an LSE's end-use customers. It is the sum of lines 1, 3, and 4.

Line 6—Coincidence Adjustment (minus)

Line 6 of this form allows an LSE to reduce their forecast non-coincident annual 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 system (balancing area). For LSEs under CPUC jurisdiction, this coincidence adjustment promotes methodological and regulatory consistency between in the near-term resource adequacy filing requirements and these long-term 10-year resource plans.

Line 7—Coincident Peak-Hour Demand

On the Excel spreadsheet, 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.

Line 8—Required Planning Reserve Margin

IOUs, ESPs, and most POUs will enter an amount on line 8 that equals 15 percent of line 7. Under D.04-101-050, IOUs and ESPs are now 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).⁷ By extending this requirement to the entire forecast period, IOUs and ESPs are asked to show how much capacity will be needed to reliably serve expected load obligations.

The Energy Commission encourages POUs to use the same 15 percent planning reserve margin unless their local governing authority has adopted a different standard. If a POU consistently uses a different number for its resource planning and procurement responsibilities, then that number should be used to calculate line 8. For example, 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. If a POU is using a planning reserve margin that is less than 15 percent, this fact should be clearly stated and explained in its adopted resource adequacy policies and protocols.

Line 9—Credit for Imports That Carry Reserves (Minus)

⁷ Meeting this reserve requirement in 2006 was directed in R.04-04-003.

Some LSEs have firm imports or other contractual resources that carry their own reserves with a specified delivery point. All such resources should be clearly identified and referenced with a footnote (or with information on the S-5 bilateral contracts form). For these firm supply resources, LSEs may show a capacity credit on line 9 equal to 5 percent of that firm capacity. This includes LSEs with an “all requirements” contract with Western or Bonneville Power Administration (BPA). Another example would be a Northern California POU that has a contract for 60 MW of firm supply delivered to NP15. That POU would show a 3 MW credit on line 9. However, a firm import to an LSE in the California ISO balancing area must also have the capacity counting rights as established by the ISO.

An LSE with a firm supply import does not need to procure additional resources that would cover for planned and forced outages from a specific generating resource. That combined planned and forced outage rate is arbitrarily assumed here to be about 5 percent. But 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 (6+ percent) and to cover normal forecast errors (~4 percent).

Line 10—Firm Sales Obligations

On line 10, list total amounts of firm capacity that the LSE has contracted to deliver to other parties, both within the LSE’s balancing area and beyond. If this capacity obligation is measured at some distant delivery point, add an appropriate amount to accommodate line losses and station load. Please include 15 percent reserves for the share of sales obligations for which reserves are required.

Line 11—Firm LSE Peak-Hour Resource Requirement

On the Excel spreadsheet, this line automatically calculates the peak-hour resource procurement requirement. This results from adding lines 7, 8, and 10 and subtracting line 9.

Capacity Supply Resources (Line 12 to 20 Instructions)

Line 12a—Total Fossil Fuel Dependable Capacity

This section asks for forecast data on fossil resources that the LSE owns or controls. On the Excel spreadsheet, this line automatically calculates the sum of individual fossil resources listed on subsequent lines.

Line 12b—Fossil Unit 1

Beginning on line 12b, submit one row of capacity forecast data for each utility-owned or controlled fossil plant. Please state the fuel type first (gas, coal), then the plant name and unit number.

Individual generating units should be listed separately such as SCE’s coal: Four Corners 4, and coal: Four Corners 5. Multiple units may be combined according to utility preference and convention such as Los Angeles Department of Water and Power’s gas: Haynes 8, 9 & 10 CC. Use separate lines if one generating unit is expected to retire (such as Imperial

Irrigation District's El Centro #3) or be repowered, and if multiple new units are expected to come on-line in different years.

Leave this line blank on the Excel form if the LSE has no fossil resources. (Line 12b is needed for the formulas on line 12a to work. This same rule applies to line ##b in subsequent sections.)

Line 12c—Fossil Unit 2

Add lines as needed to list every utility-owned or controlled fossil resource. Please delete this line and the next if unused.

Line 12d—Fossil Unit N

Please list any planned fossil resources last. This should be a specifically planned and named resource with an identified location even if permitting or financing is not yet underway.

Line 13a—Total Dependable Nuclear Capacity

On the Excel spreadsheet, this line automatically calculates the sum of nuclear resources listed on subsequent lines.

Line 13b—Nuclear Unit 1

Beginning on line 13b, submit one row of capacity forecast data for each nuclear generating unit that the LSE owns or controls such as Diablo Canyon Units 1 and 2 owned by PG&E. Other LSEs will delineate ownership shares and contractual rights to the output from San Onofre Nuclear Generating Station (SONGS) Units 2 and 3, and from Palo Verde Units 1, 2, and 3.

Line 13c—Nuclear Unit 2

LADWP, Riverside, and SCE will add lines to list each nuclear generating unit. Please delete line 13c if unused.

Line 14a—Total Dependable Hydroelectric Capacity

On the Excel spreadsheet, this line automatically calculates the sum of line 14b plus line 14c.

Line 14b—Total Hydro Plants Larger Than 30 MW

On line 14b, provide the 1-in-5 dependable capacity of all utility-owned and controlled hydro resources that are each larger than 30 MW nameplate. Unlike the section on fossil plants above, LSEs are not being asked to report capacity estimates for individual hydroelectric generating plants that they own or control.

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 considered most appropriate.

The U.S. Bureau of Reclamation (USBR) publishes highly reliable forecasts of Hoover Dam capacity and energy looking forward 24 months. Therefore, LSEs with Hoover entitlements should use the latest USBR forecast for 2011 and 2012 and use 1-in-5 Dry Year estimates for 2013 and beyond.

In general, a hydro resource must be able to operate during four super-peak hours for three consecutive days for capacity in that month to count. If individual LSEs use a significantly different definition of qualifying or dependable capacity (such as Castaic for LADWP), they are asked to provide a footnote to these numbers with explanatory information as they have done in past years.

Line 14c—Total: Hydro Plants 30 MW or Less

On line 14c, provide the total capacity for all hydro resources that are each equal to or less than 30 MW nameplate. Again, use 1-in-5 Dry Year hydrological conditions.

Line 15a—Total Utility-Controlled Renewable Capacity

On the Excel spreadsheet, this line automatically calculates the sum of individual resources listed below. This section asks for forecast data on individual renewable resources (other than hydro) that are under LSE ownership or control.

Line 15b—Renewable Plant 1

List each utility-owned or controlled generating plant using renewable fuel starting on line 15b. Please state the fuel type first (wind, solar, biomass, etc.) followed by the plant or project name. Listings of individual generating units may be provided but is not required. Please use separate lines if multi-phase projects will come on-line in different years.

Line 15c—Renewable Project 2

Add lines as needed to list each renewable energy resource or project under utility ownership or control. Please delete lines 15c and 15d if unused.

List dependable or Net Qualifying Capacity values for each plant or project. For each wind resource 1.0 MW or larger, a Form S-4 providing nameplate capacity is also required.

Line 15d—Renewable Project N

Please list planned renewable projects last. This should be a specific, named renewable project with an identified location even if permitting or financing are not yet underway.

Line 16a—Total Capacity from DWR Contracts

On the Excel spreadsheet, this line automatically calculates the sum of individual resources listed below. This section refers to supply contracts signed in 2001 by the California Energy Resources Scheduling Office of the California Department of Water Resources (DWR).

Line 16b—DWR Contract 1

Beginning on line 16b, the state's three major IOUs are asked to report expected Net Qualifying Capacity from individual DWR contracts. Name the contract for the unit-specific source of generation (preferred) or counterparty supplier followed by other essential

identifying descriptors. Each contract name should match the “Supplier Name” at the top of the Form S-5 for a particular resource.

Line 16c—DWR Contract 2

IOUs will add lines as needed.

Line 16d—DWR Contract N

POUs and ESPs are asked to delete lines 16c and 16d.

Line 17a—Total Qualifying Facility (QF) Capacity

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

IOUs are asked to indicate the amounts of capacity expected from QFs through 2020. As existing contracts expire, many of these generating resources will likely remain available to IOUs under new contract terms. Some QF owners may win new contracts in competitive renewable solicitations. Other QF owners may negotiate tolling agreements or new dispatch terms that would increase capacity ratings of the resource in return for capacity payments.

IOUs need not assume that existing QF contracts will be renewed or extended beyond those terms for which an extension has already been mandated, requested, or approved. So far as an IOU assumes current QF resources will continue to be available, these resources should be included in the aggregate lists on lines 17b through 17h.

Line 17b—Biofuels

Beginning on line 17b, IOUs are asked to provide an amount of QF capacity aggregated by fuel or technology type. This form does not ask IOUs for data about specific QF contracts or individual QF generating resources.

Line 17b asks for the total capacity of QF resources powered by biofuels. This is a large generic term including landfill gas, forest products, almond shells, dairy waste, and discarded fast food cooking oils.

Line 17c—Geothermal

Line 17c asks for the total capacity of all types of geothermal production including dry vapor and dual-flash systems.

Line 17d—Small Hydro

Line 17d asks for the total capacity of small hydro QF, meaning only those plants rated 30 MW nameplate or less. Provide a derated qualifying capacity total showing what can be expected for a 1-in-5 dry year.

Line 17e—Solar

Line 17e asks for the total dependable capacity from all types of solar QF resources, including photovoltaic and gas-assisted central station plants. Include only the output of

solar facilities injected into distribution or transmission systems that will help serve annual IOU peak loads. Do not include solar generation that only reduces end-use demand.

Line 17f—Wind

Line 17f asks for a summary of existing and planned wind QF resources that the IOU knows or expects will be under QF contract terms. New wind resources are not expected to have new QF contracts.

List dependable or Net Qualifying Capacity values for each plant or project. For each wind resource 1.0 MW or larger, a Form S-4 providing nameplate capacity and owner information is also required.

Line 17g—Natural Gas

Line 17g asks for the total capacity of all QF resources powered by natural gas.

Line 17h—Other

Line 17h reports all other non-renewable generating resources under QF contracts, including resources that once had QF eligibility according to PURPA.

Line 18a—Total Capacity From Renewable Energy Contracts

On the Excel spreadsheet, this line automatically calculates the sum of contractual renewable supply resources listed below. Contracts with durations longer than three consecutive months should be named and listed on separate lines beginning with line 18c.

LSEs with a large number of renewable contracts may list them on a separate spreadsheet. Individual renewable contracts that provide less than 1 MW of supply may be aggregated by fuel type.

Line 18b—Renewable DG Supply

LSEs are asked show on line 18b amounts of existing and expected renewable 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 side of the meter. Include only amounts of DG injections that can supply other connected loads.

Only show 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 below.

DG supply is listed here with other renewable contractual supplies as a matter of convenience. While all end-use customers with DG facilities must sign interconnection agreements, development of these resources does not result from RFOs, bilateral negotiations, or other typical contracting activities.

Line 18c—Renewable Contract 1

Use line 18c to begin listing individual renewable energy contracts. Please state the fuel type first (wind, solar, and so forth), then the contract name. It may be useful to add the supplier name, if different, in parentheses. The contract name (or acronym) should match the

comparable listing on Form S-2 and the corresponding Form S-5. For a Banning contract, it would be geothermal: Heber South (SCPPA). For Truckee Donner, wind: Pleasant Valley (UAMPS). For Burbank, wind: Milford (UPC).

Line 18d—Renewable Contract 2

Please state fuel type first, then the contract name. Add lines as needed. Delete lines 18d and 18e if unused.

List dependable or Net Qualifying Capacity values for each plant or project. For each wind resource 1.0 MW or larger, a Form S-4 providing nameplate capacity and owner information is also required.

Line 18e—Renewable Contract N

Please list any planned renewable contracts last. This should be a specific, named renewable project with an identified location and/or supplier even if permitting or financing are not yet underway. To be listed in this section as a planned resource, contract negotiations must be well advanced, and this listing must be matched to a reasonably complete bilateral contract S-5 form. That form may reveal that certain contractual terms are still being negotiated, and specific details on both forms may be a proper subject for a confidentiality determination.

Some renewable energy supply contracts will expire during the forecast period. If the LSE expects to renew or renegotiate a particular contract with the same counterparty, it is appropriate to continue listing specific capacity values on a new line with an appropriate name and an explanatory footnote.

Line 19a—Total Capacity From Other Bilateral Contracts

On the Excel spreadsheet, this line automatically calculates the sum of individual supply resources listed below.

Line 19b—Non-Renewable DG Supply

LSEs are asked to show total amounts of existing and expected non-renewable DG supply that is surplus to the amount the DG customer consumes. Only include amounts of DG output injected into the distribution system for other end-use customers, amounts that would otherwise be supplied by the LSE.

Line 19c—Other Bilateral Contract 1

Use line 19c to begin listing all other bilateral contracts and individual power purchase agreements with durations longer than three consecutive months. List all such supplies if they are not reported in earlier sections.

Each bilateral contract should be named and listed on a separate line beginning on line 19c. It may be useful to add the supplier name, if different, in parentheses. The name should match a comparable listing on Form S-2. (If this is a capacity only contract for resource adequacy, the energy amounts on Form S-2 will be zero.)

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

Line 19d—Other Bilateral Contract 2

This contract name should also match the contract name at the top of a related Form S-5.

Line 19e—Other Bilateral Contract 3

Add lines as needed. Delete unused lines 19c through 19f.

Line 19f—Other Bilateral Contract N

Please list any planned contracts last. For new or repowered generating facilities, this should be a specific, named project with an identified location and supplier even if permitting or financing are not yet underway. To be listed in this section as a planned resource, contract negotiations must be well advanced, and this listing must be matched to a reasonably complete bilateral contract S-5 form. That form may reveal that certain contractual terms are still being negotiated, and specific details on both forms may be a proper subject for a confidentiality determination.

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, it is appropriate to continue listing specific capacity values on a new line with an appropriate name and an explanatory footnote.

Line 20—Short-Term and Spot Market Purchases

On line 20, 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 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 2009 and 2010, 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.

Capacity Balance Summary (Line 21 to 26 Instructions)

Line 21—Total: Existing and Planned Capacity

On the Excel template, the sum on line 21 is calculated automatically. This line sums existing and planned electricity supply resources counted in earlier sections: line 12a (fossil fuel dependable capacity), 13a (nuclear), 14a (hydroelectric), 15a (utility-controlled renewables), 16a (DWR contracts), 17a (QF capacity), 18a (renewable energy contracts), 19a (other bilateral contracts), and 20 (short-term and spot market purchases)

Line 22—Firm LSE Peak-Hour Requirement

On the Excel template, the sum on line 22 is automatically repeated from line 11.

Line 23— (Capacity Need) or Capacity Surplus

On the Excel template, the difference between line 21 and line 22 is calculated automatically. A negative number indicates a net-open position and will appear in red font on the Excel template. A positive number on line 23 indicates a net-surplus capacity position.

Since capacity values shown for 2009 and 2010 represent expectations at the start of those years, a negative number is possible for any given year.

A net-open capacity position will be filled in future years by one or more procurement actions including new bilateral contracts, planned additions for utility-controlled capacity, short-term contracts, and spot market purchases. In some instances, LSEs have committed to specific but yet-to-be-built physical resources. All announced projects with plant names and known physical locations should be listed in earlier sections on utility-controlled or contractual resources.

Line 24— Generic Renewable Resources

On line 24, enter the aggregate or dependable capacity reasonably expected from newly added but unspecified renewable resources. The capacity values for generic renewable resources should correlate with the forecast of generic renewable energy procurement shown on line 20 on Form S-2, though this need not be a formulaic or absolute relationship.

LSEs may identify particular generic renewable projects by adding additional lines (24b, 24c, and so on) below line 24. These added lines can be used to identify general expectations of particular renewable programs and to describe, at least partially, planned renewable projects that do not yet have firm commitments.

Line 25— Generic Non-Renewable Resources

On line 25, enter the additional capacity (dependable or NQC) the LSE reasonably expects will be needed after accounting for generic renewable resource additions. Amounts shown on line 25 plus line 24 should always be greater than or equal to any negative amounts shown on line 23 (net open positions).

Line 26— Specified Planning Reserve Margin

On line 26, 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 and does not include a reduction for coincidence. This cell does not feed any other cell. For most LSEs this number will be a constant for the planning horizon.

Every LSE in California ISO has adopted a “year-ahead” planning reserve margin stated as a percentage of forecasted peak loads.

If the LSE’s planning reserve margin is based on a contingency reliability criteria (such as N-1), state this number in megawatts. 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.

Historical LSE Peak Load (Line 27 to 33 Instructions)

All LSEs are asked to calculate and report their actual non-coincident peak loads during calendar years 2009 and 2010. This annual peak-hour load for prior years includes all wholesale metered deliveries to the LSE 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 (unaccounted for energy), and more. It may or may not include transmission losses.

Each LSE is asked to show its annual non-coincident 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 also the coincident peak loads for the Power Pool.)

Line 27— Annual Peak Load / Actual Metered Deliveries

Actual metered deliveries are the value commonly reported by many LSEs as their non-coincident 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 firm sales obligations, 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

Please report the day in numeric format, such as 8/25/10 or 9/27/10.

Line 29— Hour Ending (HE) for Annual Peak Deliveries

Please 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)

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

On line 31, LSEs are asked to show amounts of peak-hour supplies from customers with self-generation and distributed generation (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

On line 32, LSEs are asked to 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

On the Excel template, 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.

Supply Form S-2: Energy Balance Table

Scope

LSEs are asked to estimate how much annual energy in gigawatt-hours (GWh) is needed to serve forecast needs and how much energy will come from various electricity supply resources. These estimates are required for 2011 through 2020 for larger utilities, for 2011 through 2015 for ESPs, and only for 2011 for small POUs. The energy requirements forecast on Form S-2 shall be consistent with and compatible with the demand forecast provided to the Energy Commission according to the requirements of Section 1345(a).

All LSEs are required to show actual amounts of energy supply to meet requirements in calendar years 2009 and 2010.

Form S-2 with the other supply forms and related narratives comprise a resource plan by which each LSE shall demonstrate how the LSE can meet the energy needs of its customers and other firm obligations throughout the year. In general, the data submitted by each LSE on Form S-2 should correspond one-to-one with the data submitted on the Capacity

Resource Accounting Table, Form S-1. Instructions for individual lines on Form S-2 often repeat those provided for matching lines on Form S-1. This repetition is meant to provide clarity and convenience for people who will be completing these forms. Most supply data categories on the two forms are identical.

Energy Demand Calculations (Line 1 to 13 Instructions)

Line 1—Forecast Total Energy Demand/Consumption

On line 1, all LSEs are asked to forecast total 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 unaccounted for energy.

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

On line 1, all LSEs are asked include the effects of private supply that are reasonably expected to occur, customer-owned generation that reduces the procurement obligations of LSEs. This includes all DG and self-generation facilities. It also includes programs to implement the California Solar Initiative (CSI), and the Self-Generation Incentive Program (SGIP) administered by the CPUC. LSEs submitting demand forecasts show private supply amounts of capacity and energy on Demand Forms 1.7a through 1.7d. Supplies of DG power that are surplus to customer needs should be reported on Supply Form S-1 below on line 14b (renewable DG) or line 15b (non-renewable DG).

Line 2a—ESP Energy Demand: Existing Customer Contracts

ESPs are asked to identify how their expected loads are divided between new and renewing customers. On line 2a, ESPs are asked to estimate total annual energy needs of their existing customers. Energy totals on line 2a should include only obligations for current contract service periods.

Line 2b—ESP Energy Demand: New and Renewed Contracts

On line 2b, ESPs are asked to estimate total annual energy needs that arise from new customers, plus contract renewals and extensions to serve existing customers. This forecast should be the "most likely" case. Enter the amount of energy needed to serve new customers plus existing customers who are expected to renew or extend ESP service. The amount on line 2b should equal the amount on line 1 less the amount on line 2a.

Line 2c—ESP Energy Demand in PG&E Service Area

On line 2c, ESPs are asked to estimate total annual energy needs in Northern California. The amounts on lines 2c, 2d, and 2e should equal the total shown on line 1.

Line 2d—ESP Energy Demand in SCE Service Area

On line 2d, ESPs are asked to estimate total annual energy needs in the service territory of Southern California Edison Co.

Line 2e—ESP Energy Demand in SDG&E Service Area

On line 2e, ESPs are asked to estimate total annual energy needs in the service territory of San Diego Gas & Electric Co.

Line 3—Uncommitted Energy Efficiency (minus)

On line 3, IOUs and POUs are asked to estimate amounts of achievable, cost-effective savings from future programs that are not yet implemented or funded. Do not include the effects of energy efficiency programs that are already embedded in the LSE demand forecast (Demand Form 1.3 and Supply Form S-2, line 1).

Utilities are asked to estimate energy savings after 2012 from programs that are currently uncommitted. For each of the IOUs, the CPUC established energy efficiency targets for both peak demand and energy. CPUC specified these targets in D.04-09-060. In 2005, the three large IOUs were asked to assume these targets will be precisely met in supply-and-demand forecasts. This is not the case in 2011. Realistic estimates of energy savings may vary from program targets. (See the instructions on forecasting capacity from uncommitted conservation programs. A few definitions and examples are provided in the instructions for this subject on the Supply Form S-1, line 3.)

For POUs, supporting studies may not be available to predict energy efficiency savings from utility-sponsored programs. Where studies do not identify a reasonable offset, enter zero. Where studies have identified potential EE programs, POUs should assume that these programs are funded and implemented and become reasonably effective. If future programs already have a funding commitment established in rates, the EE reductions should be embedded in the load forecast.

Line 4—Demand Response/Interruptible Programs (minus)

On line 4, LSEs are asked to enter the modest reduction in energy demand (stated as negative numbers) expected to result from dispatchable demand reduction programs. Only interruptible load subject to LSE or balancing authority dispatch should be counted on line 4. Dispatchable programs are defined and discussed in the instructions for line 4 on the S-1 form.

The energy demand forecast on Form S-2, line 1, should already include adjustments for committed demand response (DR) programs that are not dispatchable by the LSE, as explained in the instructions for Form S-1. A non-dispatchable DR program allows customers to make economic choices whether to modify usage, such as response to ongoing price signals.

Line 5—Adjusted Energy Demand/Consumption

On the Excel spreadsheet, this line automatically calculates the net energy demand for end-use customers. It is the sum of lines 1, 3, and 4.

Line 6—Firm Sales Obligations

On line 6, list total amounts of firm energy that the utility has contracted to deliver to other parties, both within the LSE's balancing area and beyond. If this energy supply obligation is measured at some distant delivery point, add an appropriate amount to accommodate line losses and station load.

Line 7—Firm LSE Energy Requirement

On the Excel spreadsheet, line 7 automatically calculates the firm LSE energy requirement, the sum of lines 5 and 6.

Energy Supply Resources (Line 8 to 16 Instructions)**Line 8a—Total Fossil Energy Supply**

This section asks for forecast data on fossil resources that the LSE owns or controls. On the Excel spreadsheet, this line automatically calculates the sum of individual fossil resources listed on subsequent lines.

Line 8b—Fossil Unit 1

Beginning on line 8b, submit one row of forecast energy production for each utility-owned or controlled fossil plant. Please state the fuel type first (gas, coal), then the plant name and unit number. In general, individual generating units should be listed separately though multiple units may be combined according to utility preference and convention. 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 in different years.

Do not provide the maximum potential energy output from a fossil resource unless that amount is expected from a baseload resource that is fully committed, scheduled, and dispatched whenever it is available.

Leave this line blank on the Excel form if the LSE has no fossil resources. (Line 8b is needed for the formulas on line 8a to work. This same rule applies to line ##b in subsequent sections.)

Line 8c—Fossil Unit 2

Add lines as needed to list every utility-owned or controlled fossil resource. Please delete this line and the next if unused.

Line 8d—Fossil Unit N

Please list any planned fossil resources last. This should be a specifically planned and named resource with an identified location even if permitting or financing is not yet underway.

Line 9a—Total Nuclear Energy Supply

On the Excel spreadsheet, this line automatically calculates the sum of nuclear resources listed on subsequent lines.

Line 9b—Unit 1

Beginning on line 9b, submit one row of energy forecast data for each nuclear generating unit that the LSE owns or controls such as Diablo Canyon Units 1 and 2 owned by PG&E. Other LSEs will delineate ownership shares and contractual rights to the output from San Onofre Nuclear Generating Station (SONGS) Units 2 and 3, and from Palo Verde Units 1, 2, and 3.

Line 9c—Unit 2

LADWP, Riverside, and SCE will add lines to list each nuclear generating unit. Please delete line 9c if unused.

Line 10a—Total Hydroelectric Energy Generation

On the Excel spreadsheet, this line automatically calculates the sum of line 10b and line 10c.

Line 10b—Total Energy: Hydro Plants Larger Than 30 MW

On line 10b, provide the 1-in-2 estimate of all utility-owned and controlled hydro resources that are larger than 30 MW nameplate. This distinction follows Federal Energy Regulatory Commission (FERC) definitions of large and small hydro.

For lines 10b and 10c, energy production estimates should use median (1-in-2) hydrological conditions, with one caveat. The U.S. Bureau of Reclamation (USBR) publishes highly reliable 24-month forecasts of capacity and energy for the lower Colorado River. Therefore, LSEs with Hoover, Davis, and Parker entitlements may use the latest USBR forecast for 2011 and 2012 on lines 10b, followed by 1-in-2 estimates for 2013 and beyond.

Amounts of hydroelectric generation may diminish as a result of new FERC license conditions and from mandatory conditions set by the State Water Resources Control Board (SWRCB) for water quality certification according to Section 404 of the federal Clean Water Act. LSEs are instructed to identify and incorporate any reductions in energy production considered most probable.

For 2009 and 2010, LSEs are asked to show actual amounts of annual energy generation on lines 10a, 10b, and 10c. (The 1-in-5 Dry Year rows 10d and 10e are grayed out for these years because a “hindsight forecast” is not requested.)

Line 10c—Total Energy: Hydro Plants 30 MW or Less

On line 10c, estimate total hydroelectric energy production from all LSE-owned or controlled hydro resources equal to or less than 30 MW nameplate. This value will automatically copy to line 22 in the section on renewable energy accounting. On the S-2 form, all generation from utility-controlled small hydro is considered to be “renewable energy” for all LSEs. Note, however, there are technical limitations and eligibility restrictions in statutes too numerous and complex to describe in these instructions.

Line 10d—Hydroelectric Energy in Dry-Year Conditions

If feasible, use historical production data adjusted to current operating constraints and license conditions. If those conditions are expected to change during the forecast period,

2011-2020, adjust the averages accordingly so that this number represents what might be expected during a 1-in-5 dry year. Do not derate amounts of energy from Hoover Dam for 2011 or 2012. Instead, use the latest 24-month forecast by the USBR.

This estimate is for comparative analysis and systemwide assessments. The numbers on this line stand alone; they are not added to other numbers on the form.

Line 10e—Hydroelectric Energy in Wet-Year Conditions

On line 10e, utilities are also asked to estimate the amount of generation from hydroelectric facilities in a “wet year,” defined as 1-in-5 hydrological conditions that have a 20 percent chance of being exceeded every year. If historical data is used as a proxy, LSEs should use generation numbers that were exceeded in just 1 of the last 5 years, or 4 of the last 20 years. (As with the request for dry year energy estimates, do not increase amounts of energy from Hoover Dam above those shown in the latest 24-month forecast by USBR.)

This estimate is for comparative analysis and systemwide assessments. The numbers on this line stand alone; they are not added to other numbers on the form.

Line 11a—Total Utility-Controlled Renewable Energy

On the Excel spreadsheet, this line automatically calculates the sum of individual resources listed below. This section asks for forecast data on individual renewable resources (other than hydro) that are under LSE ownership or control.

Line 11b—Renewable Plant 1

List each utility-owned or controlled generating plant using renewable fuel starting on line 11b. Please state the fuel type first (wind, solar, biomass, and so forth) followed by the plant or project name. Listings of individual generating units may be provided but are not required. Please use separate lines if multiphase projects will come on-line in different years.

Line 11c—Renewable Project 2

Add lines as needed to list each renewable energy resource or project under utility ownership or control. Please delete lines 11c and 11d if unused.

Line 11d—Renewable Project N

Please list planned renewable projects last. This should be a specific, named renewable project with an identified location even if permitting or financing are not yet underway.

Line 12a—Total Energy Supply From DWR Contracts

On the Excel spreadsheet, this line automatically calculates the sum of individual resources listed below. This section refers to supply contracts signed in 2001 by the California Energy Resources Scheduling Office of the California Department of Water Resources (DWR).

Line 12b—DWR Contract 1

Beginning on line 12b, the State’s three major IOUs are asked to report expected annual energy supply from individual DWR contracts. Each contract name should correspond to a

line on Form S-1 and to “Supplier Name” at the top of the Form S-5 for that particular resource.

Line 12c—DWR Contract 2

IOUs will add lines as needed.

Line 12d—DWR Contract N

POUs and ESPs are asked to delete lines 12c and 12d.

Line 13a—Total Energy Supply From QF Contracts

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

IOUs are asked to indicate the amounts of annual energy expected from QFs through 2020. As existing contracts expire, many of these generating resources will likely remain available to IOUs under new contract terms. Some QF owners may win new contracts in competitive renewable solicitations. Other QF owners may negotiate tolling agreements or new dispatch terms that would increase capacity ratings of the resource in return for capacity payments.

IOUs need not assume that existing QF contracts will be renewed or extended beyond those terms for which an extension has already been mandated, requested, or approved. So far as an IOU assumes current QF resources will continue to be available, these resources should be included in the aggregate lists on lines 13b through 13h.

Line 13b—Biofuels

Beginning on line 13b, IOUs are asked to provide an amount of annual energy aggregated by QF fuel or technology type. This form does not ask IOUs for data about specific QF contracts or individual QF generating resources.

Line 13b asks for the total annual energy from QF resources powered by biofuels. This is a large generic term including landfill gas, forest products, almond shells, dairy waste, and discarded fast food cooking oils.

Line 13c—Geothermal

Line 13c asks for the total annual energy from all types of geothermal production including dry vapor and dual-flash systems.

Line 13d—Small Hydro

Line 13d asks for the total annual energy from small hydro QF resources, meaning only those plants rated 30 MW nameplate or less.

Line 13e—Solar

Line 13e asks for the total annual energy from all types of solar QF resources, including photovoltaic and gas-assisted central station plants. Include only the generation from solar facilities injected into distribution or transmission systems that will help meet annual IOU energy requirements.

Line 13f—Wind

Line 13f asks for a summary of existing and planned wind QF resources that the IOU knows or expects will be under QF contract terms. New wind resources are not expected to have new QF contracts.

Line 13g—Natural Gas

Line 13g asks for the total annual energy from all QF resources powered by natural gas.

Line 13h—Other

Line 13h reports all other non-renewable generating resources under QF contracts, including resources that once had QF eligibility according to PURPA.

Line 14a—Total Energy Supply From Renewable Contracts

On the Excel spreadsheet, this line automatically calculates the sum of contractual renewable supply resources listed below. Contracts with durations longer than three consecutive months should be named and listed on separate lines beginning with line 14c.

LSEs with a large number of renewable contracts may list them on a separate spreadsheet. Individual renewable contracts that provide less than 1 MW of supply may be aggregated by fuel type.

Line 14b—Renewable DG Supply

LSEs are asked show on line 14b amounts of existing and expected renewable energy from DG facilities that can supply other connected loads.

Only show 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 15b below.

Line 14c—Renewable Contract 1

Use line 14c to begin listing individual renewable energy contracts. Please state the fuel type first (wind, solar, etc.), then the contract name. It may be useful to add the supplier name, if different, in parentheses. The contract name (or acronym) should match the comparable listing on Form S-1 and the corresponding Form S-5.

Line 14d—Renewable Contract 2

Please state fuel type first, then the contract name. Add lines as needed. Delete lines 14d and 14e if unused.

Line 14e—Renewable Contract N

Please list any planned renewable contracts last. This should be a specific, named renewable project with an identified location and/or supplier even if permitting or financing are not yet underway. To be listed in this section as a planned resource, contract negotiations must be well-advanced, and this listing must be matched to a reasonably complete bilateral contract S-5 form.

Some renewable energy supply contracts will expire during the forecast period. If the LSE expects to renew or renegotiate a particular contract with the same counterparty, it is appropriate to continue listing specific annual energy values on a new line with an appropriate name and an explanatory footnote.

Line 15a—Total Energy Supply From Other Bilateral Contracts

On the Excel spreadsheet, this line automatically calculates the sum of individual supply resources listed below.

Line 15b—Non-Renewable DG Supply

LSEs are asked to show total amounts of existing and expected non-renewable DG supply that is surplus to the amount the DG customer consumes. Only include amounts of DG energy injected into the distribution system for other end-use customers, amounts that would otherwise be supplied by the LSE.

Line 15c—Other Bilateral Contract 1

Use line 15c to begin listing all other bilateral contracts and individual power purchase agreements with durations longer than three consecutive months. List all such supplies if they are not reported in earlier sections.

Each bilateral contract should be named and listed on a separate line beginning on line 15c. It may be useful to add the supplier name, if different, in parentheses. The name should match a comparable listing on Form S-1. (If this is a capacity only contract for resource adequacy, the energy amounts on Form S-2 will be zero.)

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

Line 15d—Other Bilateral Contract 2

This contract name should also match the contract name at the top of a related Form S-5.

Line 15e—Other Bilateral Contract 3

Add lines as needed. Delete unused lines 15c through 15f.

Line 15f—Other Bilateral Contract N

Please list any planned contracts last. For new or repowered generating facilities, this should be a specific, named project with an identified location and supplier even if permitting or financing are not yet underway. To be listed in this section as a planned resource, contract negotiations must be well-advanced, and this listing must be matched to a reasonably complete bilateral contract S-5 form. That form may reveal that certain contractual terms are still being negotiated, and specific details on both forms may be a proper subject for a confidentiality determination.

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, it is appropriate to continue listing annual energy values on a new line with an appropriate name and an explanatory footnote.

Line 16—Short-Term and Spot Market Purchases

On line 16, list annual energy amounts the LSE expects to procure through short-term or spot market purchases under average or expected conditions. This line is intended to represent a small residual “open position” of end-use customer need.

Short-term purchases are defined here to include all procurement of more than two days duration and less than 92 consecutive days. Spot market purchases are defined here to include all procurement that is two days or fewer in duration.

For 2009 and 2010, provide a total for all short-term and spot market energy purchases as actually occurred during those calendar years. Do not include amounts related to “economy energy” purchases.

Energy Balance Summary (Line 17 to 21 Instructions)**Line 17—Total Energy From Existing and Planned Resources**

On the Excel template, the sum on line 17 is calculated automatically. This line sums existing and planned electricity supply resources counted in earlier sections: line 8a (fossil fuel energy supply), 9a (nuclear), 10a (hydroelectric), 11a (utility-controlled renewables), 12a (DWR contracts), 13a (QF energy supply), 14a (renewable energy contracts), 15a (other bilateral contracts), and 16 (short-term and spot market purchases).

Line 18—Firm LSE Energy Requirement

On the Excel template, the sum on line 18 is automatically repeated from line 7.

Line 19—(Energy Need) or Energy Surplus

On the Excel template, the difference between line 17 and line 18 is calculated automatically. A negative number indicates a net-open position and will appear in red font on the Excel template. A positive number on line 19 indicates a net-surplus energy position.

On the Energy Balance Accounting Table, Form S-2, the prior year totals of actual energy requirements and actual supplies are expected to balance. Therefore, lines 19, 20, and 21 on the Excel template have been grayed out for calendar years 2009 and 2010.

For future years, a net-open position will be filled by one or more procurement actions including new bilateral contracts, planned additions for utility-controlled capacity, short-term contracts, and spot market purchases. In some instances, LSEs have committed to specific but yet-to-be-built physical resources. All announced projects with plant names and known physical locations should be listed in earlier sections on utility-controlled or contractual resources.

Line 20—Generic Renewable Energy

On line 20, identify new renewable energy supplies that will be needed to meet adopted renewable energy targets and which the LSE expects to procure. Enter the aggregate amounts of energy reasonably expected from newly added but unspecified renewable

resources. All announced projects with names and locations should be listed in earlier sections on utility-controlled or contractual resources.

The annual energy amounts from generic renewable resource procurement should correlate with the forecast of expected capacity shown on Form S-1 line 24, though this need not be a formulaic or absolute relationship.

Include only energy with all its renewable attributes (not stripped of renewable energy credits [RECs]), energy that the LSE expects to procure and which is deliverable to its end-use customers. (Deliverability here includes shaping and firming delivery contracts without limit. For additional definitions of deliverability see Appendix 2.)

Line 20 estimates about renewable generation performance should reflect realistic appraisals of likely outcomes from authorizations, solicitations, direct investments, regulatory incentives, and many other decisions too numerous to list here. The obligation and opportunity to acquire new renewable resources vary among different LSEs and across different classes of LSEs (IOUs, POU, and ESPs). Most LSEs have a policy preference to acquire more renewable energy in proportion to annual retail energy sales. With targets such as these foremost in mind, these instructions do not ask LSEs to anticipate the location, technologies, fuel types, or generating performance attributes likely associated with generic new renewable resources.

LSEs may wish to add lines (20b, 20c, 20d and so on) to identify particular renewable projects still considered conceptual. These added lines can be used to provide some description of expected renewable resource additions, and to indicate planning efforts toward future renewable energy procurement goals. For any such listings please include a note of explanation below the table where clarity would be helpful. Notes may include links and citations to other renewable energy procurement plans.

Line 21 – Generic Non-Renewable Energy

On line 21, enter the amount of all non-renewable baseload, load-following, and peaking generation needs that LSE reasonably expects to procure during the forecast period.

The totals on line 21 plus amounts on line 20 should always be greater than or equal to any negative amounts shown on line 19 (net open positions).

Renewable Energy Accounting (Line 22 to 33 Instructions)

This section of the S-2 form is separate from the energy balance calculations above, though most lines repeat or sum data shown in the preceding section. This section compiles historic data and forecast information showing trends in renewable energy generation and procurement. This information will be used to assess how different classes of LSE expect to use renewable energy resources to serve their forecasted loads over time, and what shares these resources represent in comparison to retail sales.

Line 22— Utility-Controlled Small Hydro

On the Excel template, the sum on line 22 is automatically repeated from line 10c.

Line 23— Other Hydroelectric Energy Deemed Renewable

On line 23 LSEs may include amounts of renewable energy from facilities that meet statewide or locally adopted renewable energy eligibility criteria. This would include renewable energy from large hydroelectric resources, such as utility-owned shares of Hoover generation for Riverside, and energy from Owens Valley Gorge and Los Angeles Aqueduct power plants for LADWP. Please include a note of explanation for any amounts listed on line 23. It could also include energy gains from efficiency improvements to existing hydroelectric facilities of any nameplate rating.

Line 24— Utility-Controlled Renewable Resources (non-hydro)

On the Excel template, the sum on line 24 is automatically repeated from line 11a.

In general, forecast amounts of energy from renewable facilities and renewable contracts are expected to meet the state’s definition of an eligible renewable energy resource. This assumption does not necessarily mean the energy is (or will be) from a “certified” or “precertified” eligible renewable energy resource, especially for POUs.

Line 25— QF Renewable Contract Resources for IOUs

On the Excel template, the total on line 25 is automatically calculated as the sum of all QF renewable resources (lines 13b through 13f).

Line 26— Renewable Energy Contractual Resources

On the Excel template, the sum on line 26 is automatically repeated from line 14a.

Line 27— Other LSE-Defined Renewable Energy

On line 27, LSEs may report expected energy procurement amounts from renewable sources and technologies that do not fit categories already described. This would include amounts of electricity that LADWP produces from digester gas that are pumped directly into combustion boilers at Scattergood. It would also include energy from landfill gas that is delivered via natural gas pipelines for combustion in a nominated utility-controlled power plant that primarily burns fossil fuels.

Please include a note of explanation below the table for any amounts listed on line 27. Add additional lines (27b, 27c, etc.) as needed to clearly report individual sources of renewable energy.

Line 28— Private Supply Renewable Resources

On line 28, an LSE may count energy from rooftop photovoltaic and other renewable generation produced on the customer side of the meter. LSEs may also count central station renewable facilities in which retail customers are share-owners, such as SMUD’s SolarSharesSM program. LSEs may only count self-generation and distributed renewable resources to the extent the LSE has or expects to have contractual agreements or

interconnection protocols in place that convey ownership of renewable attributes (RECs) to the LSE.

Amounts on line 28 must be entered directly. Large LSEs may count reasonably expected amounts of private supply energy that is reported on Demand Forecast Form 1.7a or Form 1.7d. Small POUs are asked to provide a note that ascribes reported values to specific programs including the California Solar Initiative.

Line 29— Tradable REC Purchases

On line 29, provide a total for tradable Renewable Energy Certificates that were actually purchased in 2009 and 2010 if these purchases were designated for counting toward the LSE's renewable portfolio goals. A forecast of such purchases should include the LSE's assumptions about statutory and regulatory conditions in the future, and the extent that RPS targets can be met or might best be met through REC purchases.

Do not include tradable RECs purchased as part of a green energy marketing program with voluntary customer participation. Please include relevant historical and forecast data about such voluntary programs in a note below the table.

Line 30— Generic Renewable Energy Additions

On the Excel template, the sum on line 30 is automatically repeated from line 20.

Line 31— Total Actual / Expected Renewable Energy

On the Excel template, the total on line 31 is automatically calculated as the sum of lines 22-30.

Line 32— Total Retail Sales

On line 32, report or forecast the amount of energy sold to retail customers. For historical calendar year 2009, this value should match the annual amount shown on Schedule 2A: Retail Sales (*Annual Report to the California Energy Commission: Power Source Disclosure Program*). Please indicate with a footnote if calendar year 2009 amounts are subject to further verification checks. Estimates of retail sales in 2010 are not expected to include settlement quality final data. For large LSEs, total retail sales shown line 32 should be consistent with total retail sales shown on Demand Forecast Form 1.1.

Line 33— Renewable Energy as a Percentage of Retail Sales

On the Excel template example for 2011, the percentage on line 33 is automatically calculated as line 31 divided by line 32. This format can be copied onto other cells in line 33.

Supply Form S-3: Small POU Hourly Loads in 2010

Small POUs are required to report hourly historical load for the previous calendar year according to language in Section 1346 on Electricity Resource Adequacy (California Code of

Regulations, Title 20, Division 2, Chapter 3, Article 2). Supply Form S-3 is a much simplified version of Demand Form 1.6a. By filing Supply Form S-3, small POUs are not required to file any of the Demand forms. Each publicly owned LSE with annual peak loads less than 200 MW is asked to complete this form to report hourly loads in 2010.

Actual hourly demand (average energy consumption) should be reported in MW. Begin with the hour that ended at 1 a.m. on January 1, 2010. The time basis should be Pacific Standard Time (PST) throughout the year.

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

For the “total requirements” LSEs in the California ISO balancing areas, the Scheduling Coordinator (Western) should report hourly load for each LSE separately (Trinity PUD, Lassen PUD, and others).

The form is to be completed for each LSE. If an LSE serves load in more than one control area or in more than one transmission access charge (TAC) area (for loads in the California ISO balancing area), an S-3 form is to be completed for each transmission area. Identify the balancing area and (if appropriate) the TAC area at the top of the form.

Demand Form 1.6a asks 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.

Supply Form S-4: Wind Resource Nameplate Capacity

This form asks LSEs to identify nameplate capacities for wind resources listed on their S-1 or S-2 supply forms. On Form S-4, column widths can be modified as desired.

Wind Energy Project Names

List each wind-powered electricity supply resource that is part of the LSE’s portfolio. Please use the facility name as shown on the S-1 or S-2 supply forms. Utility-owned resources should be listed first, followed by joint-ownership projects, then contractual resources. Include projects under development and existing individual QF resources. Include all utility-owned resources and all contractual resources sized 1.0 MW nameplate or larger.

Physical Location of Project

Provide a brief description of where generation projects are located including county names. If available, please provide an address or the latitude and longitude coordinates.

Interconnection Point (Substation and State)

Provide the substation name or Western Electricity Coordinating Council Bus ID for the project's first point of interconnection to the high voltage grid or utility distribution system. For planned resources, please clarify if the expected substation exists, would be new, or is unknown. If the interconnection point is unknown or does not yet exist, provide latitude and longitude coordinates for the project. Provide the county and state where the existing or planned resource is located.

Project Nameplate Capacity as of 1/1/11

Provide the Generator Nameplate Capacity (installed) as defined by the U.S. Energy Information Administration.⁸ This is the maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.

Non-Operating Nameplate MW as of 1/1/11

Provide the nameplate capacity for wind turbines in the project that are no longer in operating condition. Do not include generators that were offline for planned, forced, or maintenance outages of fewer than 92 days.

LSE's Nameplate MW as of 1/1/11

Provide the nameplate capacity expressed in MW that is part of the LSE's portfolio.

Dependable MW for LSE as of 1/1/11

Provide the dependable capacity expressed in MW, or Net Qualifying Capacity if available, that represents the value for meeting the LSE's peak load obligations. This value should match the listing on the S-1 supply form except for aggregate totals for QF wind resources.

Expected Project Nameplate MW by 1/1/16

Provide the expected nameplate capacity for each wind project resource that the LSE reasonably expects will be on-line by the end of 2015.

Owner's Name

Provide the name of the owner(s) of the generating facility.

Owner's Address

Please provide a current address for the facility owner(s).

Owner's Contact Information

Please provide a phone number or email address for an individual who can be contacted about the energy production at this facility.

⁸ http://www.eia.doe.gov/glossary/index.cfm?id=G#gen_nameplate

Supply Form S-5: Bilateral Contracts and Power Purchase Agreements

Scope and Purpose

All LSEs are asked to provide a few standard types of information regarding existing bilateral contracts or power purchase agreements that have been signed with suppliers of capacity and/or energy. This also includes signed contracts for supplies that are not yet being delivered, and from generation that is not yet on-line. This 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 10 MW are acceptable.

This 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 so?
- 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)?
- Under what general terms does the contract provide dependable capacity for LSEs serving loads in other balancing areas?

Information Format Requirements

All LSEs are asked to submit the required information on Electricity Resource Planning Form S-5: Bilateral Contracts and Power Purchase Agreements. A sample template is provided in Excel format. Some of the information requested is categorical, and some is numeric. Several topics are primarily descriptive. A separate form is needed for each bilateral contract supplier (or seller in a power purchase agreement) that provides capacity in amounts over 10 MW. LSEs are asked to provide a separate tab for each bilateral supply contract.

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 one Form S-5 or several, even if delivery periods and specific terms will vary among the individual contracts.

An LSE with more than 100 individual supply contracts that can each provide at least 1 MW may aggregate reporting on a table using Form S-5 attributes as column headings.

Please use “Not Applicable” or “Not Available” or “None” as appropriate to complete an entry for each cell.

Contracts Covered and Not Covered by This Request

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 and shown on an individual Form S-5. There are five exceptions to this requirement:

- QF contracts
- DWR contracts
- Aggregations of supply contracts, each of which is less than 10 MW
- Contracts that expired prior to January 1, 2011
- Supplemental or related contracts for the shaping and/or firming of wholesale energy delivered to the LSE

Line-by-Line Instructions

Contract Name

Provide the name given to the bilateral contract or power purchase agreement as shown on Form S-1 and Form S-2. This is one of two new information categories on Form S-5 in 2010. LSEs that submitted S-5 forms in 2009 may resubmit those forms, appropriately updated and by adding these two categories.

Supplier/Seller

Name the contracted supplier, producer, or seller of energy and/or capacity that may be identical to the Contract Name. The supplier or seller’s name is usually the counterparty name on the contract or agreement.

Start Date

State the initial delivery date of the product(s) being purchased. If this is contingent upon future actions by parties, or market conditions, or other future events, this should be stated or explained in notes appended to the form.

Expiration Date

Provide the date for final 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 contract's inception, this should be explained in notes appended to the form. Information regarding the ability of one party to unilaterally terminate the contract after its inception should be entered under Performance Requirements and Termination/Extension Clauses and Rights, or in notes appended to the form.

Contract/Agreement Capacity (MW)

For each contract or agreement, list the Net Qualifying Capacity (NQC)⁹ or dependable capacity (for LSEs outside the California ISO balancing area). (Note: An NQC estimate on these forms does not constitute a commitment to make that resource available to the California ISO.)

If the available MW varies over time, this variation should be described under Availability below. If capacity that will be available to the LSE is determined somewhere other than the busbar nearest a named generator, name that location.

Scheduling Coordinator

For each contract or agreement, specify which party will serve as scheduling coordinator (which may not be specified for LSEs outside the California ISO balancing area).

Fuel Type

If the contract identifies a specific generating unit, identify the primary fuel used for generation. If dual fuels or hybrid fuels are used or likely to be used, identify the proportions expected to be used in meeting contract obligations.

Delivery Points

First, identify the balancing area and transmission zone to which energy can be delivered (for example, California ISO NP15). Second, name the point(s) at which energy can be delivered to substation or buss (for example, Tracy or Lugo substation). If there are multiple delivery points, indicate whether buyer or seller has the option.

Locational Attributes of Unit

First, identify the balancing area and transmission zone if the contract identifies a specific generating unit. Second, identify more specific locational attributes such as load pocket, sub-pocket, and city.

Contract/Agreement Products

Indicate the commodity and service products for which delivery is being contracted. Examples include tolling agreement, forward energy purchase, seasonal energy exchange, qualifying capacity to meet resource adequacy requirements, a physical call (or put) option for capacity or energy, a financial call (or put) option, other market-contingent products,

⁹ The most recent NQC values posted by the California ISO on August 25, 2010, are at <http://www.caiso.com/1796/179688b22c970.html>.

structured transactions (combining one or more product types, varying expiration dates, tiered prices, and so forth), and ancillary services.

Availability of Products

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

- 7 x 16 (5,840 hours per year)
- 6 x 16 (Monday-Saturday, 6 a.m.-10 p.m., excluding the 6 NERC holidays)
- Q3, 7 x 8 (third quarter, 7 days a week), 1:00 p.m. to 8:00 p.m.
- Mos. 5-10, max 50 hrs/mo, (May-October, up to 50 hours per month)
- 100 MW off-peak (year-round, all hours not covered by 6 x 16)

Describe any limitations on the LSE related to scheduling or dispatch for the contract products during the contract period. Identify any contingent or residual obligations related to availability of contract products. For example, if the contract product is used for year-ahead resource adequacy reporting, to what extent must these products be made available to the California ISO?

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)
- Min 30,000 MWh monthly

Generating Units Specified

Name or describe all individual power plants and/or generating units identified in the contract. If the supplier will provide energy from a portfolio of resources, identify each resource and proportion of energy that each is likely to contribute on an annual basis.

Capacity of the Units

For each power plant identified in the contract, list the maximum qualifying capacity (preferred) or dependable capacity (for LSEs outside the California ISO balancing area).

Availability of the Units

Describe any limitations on LSE scheduling or dispatch of the units during the contract period. If this is a unit-contingent contract, indicate what rights the buyer has to dispatch the units.

Identify any contingent or residual obligations on the buyer related to availability of the units. For example, if the generating units will be used for demonstrating year-ahead local

or month-ahead system resource adequacy, to what extent must these units be made available to the California ISO? Enter “same as availability of contract products,” if true.

Unit Contingent/LD Contract

LSEs are asked to distinguish between supplies from specifically named generating units and those supplies that are “portfolio” or “system power.” If delivery is contingent upon the availability of a specific unit or units, enter “unit contingent” and name the indicated power plant or unit(s).

If supplies are required to be delivered from a portfolio of physical assets under the control of the counterparty, enter “portfolio” and provide an appropriate description or reference.

If the contract states a preference for a particular unit when it is available and requires the seller to provide backup power from unspecified sources, enter “unit contingent with firming” and describe the obligation on the seller.

If the contract allows the seller to optimize economic dispatch, or does not specify the generating sources to be used, enter “system power.”

Firm

Yes/No. “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 nondelivery 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

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 is new in 2010 and reflects the importance of these arrangements that facilitate procurement of firm capacity concomitant with procurement of renewable energy from sources that may be intermittent, non-dispatchable, and otherwise difficult to predict and schedule. Firming and shaping contracts also facilitate efficient use of transmission resources and contribute positively to system reliability of balancing authority areas. There are public policy concerns in California and elsewhere that may limit future firmed and shaped imports, so these details about existing contracts are of topical importance.

If a firming and shaping contract is separate from a power purchase contract, that distinction should be noted, but the delivery requirement should nonetheless be summarized here. If contracts do not include terms for firming or shaping, enter “None.”

Contract/Agreement Type

Enter the mechanism used to determine energy payments under the contract. This may be a fixed price contract (“Fixed”), a “Tolling agreement,” an “Exchange Agreement” or some other type. If the supply is an energy exchange agreement, describe the return requirements in the Notes.

Transmission Contingent and Path

Please enter “contingent” if the seller was assumed to have control of transmission rights, or if the seller will be required to demonstrate such as a condition of the contract. If transmission will be provided by seller, specify typical paths.

If seller was not and will not be required to demonstrate control of capacity and transmission rights as a condition of the contract, enter “No.”

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 non-performance of the other party).

For termination rights, indicate the possible termination dates, notification requirements, and allowable circumstances. For example, “Seller may terminate on January 1 of each year beginning 1/1/2013 with 90 days prior notice.”

For extension rights, indicate the possible extension dates, length of extension, notification requirements, and allowable circumstances. For example, “From 7/1/2011 until 1/1/2014, buyer may extend contract for six months with 30 days prior notice, provided that energy purchases have exceeded 80,000 MWh in each of the three preceding calendar quarters.”

Performance Requirements

Indicate circumstances under which buyer can terminate contract for non-performance. For example, “Buyer may terminate contract for non-performance if wind energy delivered at the busbar fails to meet at least 80 percent of specified targets for each of three consecutive quarters. Thirty days notice is required.”

Notes

Include any clarifying or explanatory statements required or considered appropriate.

Publicly Owned Utility Resource Adequacy

Summary and Context

Assembly Bill 380 (Núñez, Chapter 367, Statutes of 2005), created Public Utilities Code Section 9620. It requires local POUs to undertake and accomplish certain resource adequacy

protocols. AB 380 assigned the Energy Commission with responsibilities to oversee these activities and to periodically report to the Legislature via the biennial *IEPR*. To accomplish this requirement, the Energy Commission is authorized to collect resource adequacy data from individual POUs.

A generalized process to collect such data, implementing this aspect of AB 380, has been included in regulations that were adopted in mid-2007.¹⁰ For the 2007 *IEPR*, Energy Commission staff embarked on a collaborative project with POUs in advance of formal rulemaking. A statewide summary with a description of the continuing progress by each POU to remain resource adequate was published as a final staff report in May 2008 and is posted at: <http://www.energy.ca.gov/2007publications/CEC-200-2007-016/CEC-200-2007-016-SF.PDF>. As part of data collection in support of the 2011 *IEPR*, POUs are asked to provide updates to these published summaries of planning and procurement protocols.

Energy Commission data regulations exempt “small” load-serving entities (LSEs) from most of the data reporting requirements associated with the biennial *IEPR*.¹¹ Small LSEs are exempt from filing 10-year resource plans that show supply and demand balances. This exemption, however, depends on an expectation that small LSEs will provide the resource adequacy data and information requested by the Energy Commission.

Background and Previous Data Collection

Resource adequacy activities have been underway in California since the California ISO’s initial proposal surfaced as part of its Market Design 2002 (MD02) in early 2002. A broader proposal from FERC surfaced in 2003, which ignited strong opposition from northwestern and southeastern states and from congressional representatives. FERC agreed to allow states to establish resource adequacy requirements.

The CPUC established key dimensions of a resource adequacy program for investor-owned utilities (IOUs) and electric service providers (ESPs) under its jurisdiction in D.04-01-050, D.04-10-035, D.05-10-042, D.06-06-064, D.06-07-031, and D.08-06-031.¹² The California ISO established some elements of these requirements as tariff requirements for POUs within its balancing area, established through its Interim Reliability Requirements Program (IRRP) which was approved by FERC order dated May 12, 2006.

10 California Code of Regulations, Title 20, Article 2, Section 1346 on Electricity Resource Adequacy.

11 California Code of Regulations, Title 20, Article 2, Section 1350 on Exemptions.

12 For an authoritative history of the resource adequacy program administered by the CPUC see http://www.cpuc.ca.gov/PUC/energy/Procurement/RA/ra_history.htm.

Because there were some questions about the CPUC's authority to establish resource adequacy requirements for ESPs, legislative proposals concerning resource adequacy surfaced in 2005. AB 380 was adopted, confirming CPUC jurisdiction over all LSEs (including ESPs) that operate in IOU distribution service areas. A companion provision established an oversight role for the Energy Commission regarding POU resource adequacy activities.

Once AB 380 was signed into law in 2005, the previous collaborative efforts between Energy Commission staff and the California Municipal Utilities Association (CMUA) again proved beneficial by facilitating Energy Commission staff data requests to POUs in 2006 and 2007.¹³

Beginning in February 2006, resource adequacy requirements became functional for the IOUs and ESPs in the California ISO balancing area. Filing requirements applying to POUs were approved in May 2006. All types of LSEs in the California ISO balancing area must now meet the same basic month-ahead and year-ahead filing requirements. However, POUs retain some discretion under the California ISO's IRRP tariff, appropriately, in three areas:

- For establishing a planning reserve margin (if different than a 15 percent planning reserve margin).
- For adopting other counting conventions for qualifying capacity (if different than those specified in the IRRP tariff).
- For choosing a demand forecast method.

Consequently, there is still a diversity of approaches to resource adequacy among different classes of LSEs in the California ISO balancing area.

Scope and Purpose of Regulatory Oversight

This request to POUs aims to elicit narrative information about their strategies and plans to remain resource adequate. From these filings, the Energy Commission will report on elements that have become standard and explicit, along with elements that are significantly diverse or implicit.

¹³ In February 2006, the Executive Director sent a formal data request to each of the 13 POUs with ≥ 200 MW peak demand that had provided information for the 2005 *IEPR* proceeding requesting updates of loads and resources for 2006. All 13 responded, and these data were used informally as part of the Summer 2006 Outlook, giving greater confidence that resources existed to cover peak loads, plus planning reserves. In June 2006, staff worked with CMUA to obtain summer 2007 peak-load forecasts from all POUs in the California ISO balancing area. These data were used to segregate California ISO LCR estimates into those portions that were CPUC-jurisdictional versus other, and as part of the method to allocate total import capability for 2009 among all LSEs in the California ISO balancing area.

All POU, without regard to the balancing areas in which they serve load, are directed by AB 380 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. Several large and small POU in California are located in seven balancing areas outside the California ISO balancing area.^{14 15}

Mid-size LSEs (annual peak greater than 200 MW) and large LSEs (greater than 1,000 MW) are being asked to provide 10-year resource plans covering 2011 through 2020. The 10-year resource plan filings of mid-size and large POU will be compatible and comparable in all respects with the one-year resource adequacy filings from small POU. In effect, these projections can be summarized to provide a statewide snapshot of POU loads and resources for 2011, along with some long-term assessments of supply trends for the mid-size and large POU.

Assessments and evaluations of information collected from POU will involve:

- Review of the near-term supply/demand balances for each POU, for the aggregated supply/demand balances of all POU, and for each POU-centric balancing area.
- Review of the various planning reserve margins, procurement targets, and other criteria that each POU has set for itself to assure future resource adequacy.
- Review of the requirements on each POU that derive from its location within the California ISO balancing area or within another balancing area that has different requirements.
- Review of the options and flexible arrangements that may be available to each POU for maintaining reliability under adverse conditions or unexpected contingencies.

14 By size of combined POU loads, these seven balancing areas and their associated publicly owned utilities are LADWP (LADWP, Glendale, and Burbank), SMUD (SMUD, Modesto Irrigation District, Roseville, Redding, some WAPA loads, and Shasta Lake), Imperial Irrigation District, Turlock (Turlock and Merced irrigation districts), PacifiCorp (Surprise Valley), Sierra Pacific (Truckee Donner PUD), and Nevada Power (Needles).

15 Also, the Aha Macav Power Service electric utility serves load on Fort Mojave Indian Reservation lands in Arizona, Nevada, and California. Aha Macav is in the Western Area Lower Colorado balancing area operated by the Desert Southwest region of Western Area Power Administration.

Perhaps the most useful results from these reviews will be an identification of the most important and most common planning and procurement criteria used by POU's to have adequate resources for their end-use customers. A summary of these assessments will be included, as a staff report in support of the 2011 *IEPR*. These four "information-oriented" tasks will be the basis of a more nuanced assessment of POU resource adequacy activities. More specifically, this assessment will examine how explicit and detailed POU resource plans are for the seamless transition from load forecasting to procurement to scheduling and finally to the operating day. The assessment will also examine how some uncertainties and risks are accepted and managed, while other risks may be considered unacceptable (with plans to diminish or eliminate the risk).

2011 Filing Requirements for POU's

All POU's that operate in the California ISO balancing area are expected to have completed their final 2011 "year-ahead" local and system resource adequacy filings by November 1, 2010. These filings show how forecasted loads will be met during the five months of May through September 2011. The IRRP filings by POU's were a new requirement after FERC approved changes to the California ISO tariff in May 2006.

All other filing requirements that follow are unchanged from instructions adopted in December 2008 in support of the 2009 *IEPR*. In fulfillment of these requirements, each POU may state in its cover letter (or transmittal email) that previously provided narrative information on planning reserve margins, reliability standards, and resource adequacy conventions are current and correct. If a particular protocol, standard, or convention has changed, the utility is asked to identify this information in its cover letter, with an appropriate narrative summary, attachment, or link to Web-published documents.

The Energy Commission specifically asks each POU to identify its planning reserve margin (this is requested on Form S-1, line 32) and to describe capacity resource counting conventions that differ from the definitions and standards presented elsewhere in these instructions.

Medium and large POU's are asked to provide a detailed description of all resource adequacy and long-term reliability requirements that balancing area authorities or planning entities have identified as applicable to the LSE. This especially includes locally adopted standards and ordinances meant to ensure adequate electricity resources are available to the utility. A standard to have "adequate" resources must be qualified, specified, and somehow limited by practical considerations, since absolute supply adequacy for all contingencies is not physically possible. Similarly, an extremely high standard of resource adequacy may not be deemed prudent or affordable.

Narrative descriptions about POU resource adequacy obligations and standards should include all the following:

- Terms of existing tariffs and agreements that identify the specific nature of resource adequacy requirements that an LSE must satisfy.
- Planning reserve margins for capacity or energy, and any other elements of standardized evaluations that address the balance between forecasted loads and available resources.
- Operating reserve requirements established by the Western Electricity Coordinating Council, balancing areas, and other authorities as they affect and determine resource adequacy obligations.
- Any unit commitment and dispatch obligations imposed by balancing area authorities or other entities operating interconnected electric transmission systems, and a description of how the LSE meets these obligations with generation it owns or controls.
- Deliverability restrictions, dispatchability provisions, or transmission contingencies that affect the LSE's ability to rely upon specific resources, and a description of how these limitations might affect reliability of service.
- The strategy that the LSE intends to achieve and, once accomplished, maintain the level of resource adequacy it has determined to be appropriate for its customers.

POUs within the same balancing area are encouraged to consult and coordinate with each other and to consult with balancing area authorities on all relevant topics.

In the narrative filings by POUs on this topic, links to Web-published documents may be provided where the requested information is already available. The filings should identify particular sections or pages that address the obligations and standards listed above.

More specific questions about resource adequacy may be directed to Jim Woodward at jwoodwar@energy.state.ca.us or (916) 654-5180.

APPENDIX A:

How to Request Confidentiality

The 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.

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 California Code of Regulations, Title 20, Section 2505(a)(5). Note that 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 historic and forecast energy sales data may be disclosed if reported at the following levels:

- For individual ESPs, data may be aggregated at the statewide level by major customer sector.
- For the sum of all ESPs, data 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 electric service provider groups as these groups are defined by the U.S. Census Bureau in their North American Industry Classification System (NAICS) 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 can review the information and make a determination about its confidential status. To do this, please carefully read and follow the instructions below.

What a Confidentiality Application Must Have

To be docketed, the application for confidentiality must include three attributes:

- A hard copy of the application must be submitted to the Executive Director:
Melissa Jones, Executive Director
California Energy Commission
1516 Ninth Street MS-39
Sacramento, CA 95814-5504
- The information being provided to the Energy Commission must be submitted electronically in Word, Excel or Adobe files and on a common media format such as CD-ROM or DVD-ROM. This information should be marked electronically and externally as Docket #09-IEP-1B. The prospective confidential data categories must be clearly and properly labeled and referenced in the written application. Note, each IEPR topic area has its own sub-docket; electricity resource plans are filed in sub-docket "B".

Table A-1: 2011 IEPR Sub-dockets

11-IEP-1A	General/Scope
11-IEP-1B	Electricity Resource Plans
11-IEP-1C	Electricity Demand Forecast
11-IEP-1D	Electric Reliability
11-IEP-1E	Transmission Planning
11-IEP-1F	Energy Efficiency/Demand Response
11-IEP-1G	Renewables
11-IEP-1H	Distributed Generation
11-IEP-1J	Nuclear Issues
11-IEP-1K	Natural Gas Supply, Demand, Price
11-IEP-1L	Transportation Fuels and Infrastructure
11-IEP-1M	Land Use
11-IEP-1N	Research and Development
11-IEP-1O	Climate Change/GHG Emission Reduction

Source: California Energy Commission, June 8, 2010.

- A signed “penalty of perjury certification” must be included in hard copy and electronic format. Suggested standard 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).

What Happens if an Application Is Deficient

Applications deemed incomplete in the three attributes described earlier will not be docketed by Energy Commission staff. Such applications will be returned, and the submitted information will be placed in a confidential “suspense” file. The filer will be notified by mail and e-mail about deficient attributes in the application. The applicant has 14 calendar days to correct defects in the application and return an amended application to the Energy Commission.

After 14 days, all information associated with a still incomplete-application for confidentiality (based on the three attributes listed above) will be deemed publicly disclosable and will be docketed accordingly.

What a Confidentiality Application Must Include

A complete application for confidentiality contains the following information:

- 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 Excel 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 time period for which confidentiality is being sought for each information category (for example, until December 31, 2014).
- 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, or b) the public interest in non-disclosure of these particular facts clearly outweighs the public interest in disclosure.

What Happens if an 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 itself are incomplete or questionable, staff will contact the filer to resolve these uncertainties or obtain needed information.

Staff may append data and information to the supply forms as requested by the filer. Also, an updated or corrected Excel file may be forwarded by the filer to Energy Commission staff as these documents are not themselves docketed. Where an application is unclear or incomplete, a filer may submit a corrected, replacement application for confidentiality. By arrangement, a corrected application (still including the required three attributes) may be submitted electronically to the Docket Office. Once a docketed application is considered complete, staff prepares a recommendation for determinations by the Executive Director.

Determinations and Additional Information

The Executive Director signs confidentiality determination letters. The applicant has 14 calendar days to appeal this decision.

An applicant can request confidentiality at any time. The Energy Commission strongly encourages filers to provide data and any confidentiality requests concurrently.

More specific questions about confidentiality may be directed to Kerry Willis at kwillis@energy.state.ca.us or (916) 654-3967.

APPENDIX B

General Purposes, Assumptions, and Considerations

General Purposes and Authorities

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 request 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.” The S-1 and S-2 supply forms are designed to collect these categorical and quantitative descriptions of forecast LSE electricity supplies. While Section 1347 refers to “each LSE” being subject to an Energy 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, Section 1346 on electricity resource adequacy authorizes the Energy Commission to request “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 request “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 asked to provide their hourly loads for 2010 on Supply Form S-3. All LSEs are asked to report their historical annual peak demand. This data is to be reported on Supply Form S-1 for 2009 (the most recent year when these instructions are scheduled for adoption), and for 2010 (which will be the most recent year when the forms are due from LSEs). All LSEs are also asked to report on Supply Form S-2 how annual customer demand in 2009 and 2010 was served by the LSE’s supply resources. This information will be used to assess (as well as forecast) energy supply as authorized by Public Resources Code (PRC) 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.

In addition to reporting annual energy deliveries for the past year, LSEs are asked to report total annual retail sales. The authority to request retail sales data is in Public Utilities Code, Title 20, Sections 398.5 and 1394.

Needed Capacity, Retirements, and Repowering

All medium and large utilities are asked to identify new and existing capacity that will be needed to meet forecasted end-use loads over the next 10 years through 2020. The continued need for existing utility-owned generation, along with potential retirement and repowering possibilities, will be part of this demonstration.

Medium and large ESPs are asked to identify how their contractual obligations to direct access customers will be met over the next five years through 2015. ESPs are also asked to identify their expected new and renewing customer loads for the next five years, using protocols set by the CPUC.

LSEs are asked to identify their annual peak loads. Utilities are also asked to identify, if applicable, other forecasted loads included within their distribution systems. These load forecasts will help identify 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 ask IOUs and ESPs to apply the 15 percent planning reserve margin to the entire planning horizon (10 years for IOUs, 5 years for ESPs). This amount is included on the Excel template for Form S-1, line 8. This 15 percent planning reserve margin is appropriate for 10-year resource plans. All IOUs, all ESPs, and most POUs have used a 15 percent planning reserve margin in their previous 2005, 2007, and 2009 filings with the Energy Commission.

Some POUs have adopted a higher planning reserve margin based on their portfolio contingencies or reliability goals. POUs are asked to apply this 15 percent planning reserve margin, or their own adopted planning reserve criteria, for all 10 years in the planning horizon.

None of the ESPs and very few utilities can afford to secure all the generating resources needed to meet loads for the next 10 years. By 2020, most LSEs will have open positions for capacity in the summer months. 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 must now show that they have procured 115 percent of the capacity needed to meet hourly peak demand for the subsequent month. The “year-ahead” resource adequacy filings require a showing that 90 percent of this need has been procured (90 percent of 115 percent) for each of the subsequent summer months. In these year-ahead, all LSEs 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, the 10-year resource plans allow for an adjustment for peak coincidence. A forecast of non-coincident 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.

The year-ahead and month-ahead resource adequacy filings carry with them two significant regulatory obligations. One involves penalties for inadequate procurement, including the cost of backstop purchasing by the California ISO. The second involves a commitment by LSEs to make resources available to the California ISO. With appropriate exclusions and conditions, once a resource is listed in the resource adequacy filings, if that resource is not scheduled by the LSE in the day ahead, it must be made available to the California ISO for grid reliability or for sales within markets administered by the California ISO. Listing a resource in the 10-year resource plans carries no such obligations or potential penalties.

Loading Order Considerations

As with the request for data for the 2007 *IEPR* and 2009 *IEPR*, LSEs are asked 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. If the loading order program estimates are too optimistic, the volume limits that CPUC authorizes for individual IOU long-term procurement may be inappropriate, which in turn could adversely affect planning and operating reserve margins in future years.

The loading order is not to be confused with scheduling and dispatch order preferences. For example, demand response is high in the loading order, but dispatchable demand response interruptible and emergency options, herein considered a supply resource, are obviously low in the priorities for day-ahead scheduling and real-time dispatch. LSEs are not asked to comment directly on the decision criteria or analytical methods that were part of establishing loading order targets.

The resource plan is meant to be a practical guide based upon reasonable expectations, limitations, and contingencies as currently 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.

The resource plans can be used to demonstrate the extent to which LSEs expect to meet or exceed particular program goals. As such, the estimated numbers depicted here may serve as a useful measure of expected results given everything currently known about technical capabilities, market incentives, regulatory constraints, statutory mandates, economic conditions, and policy guidance. Some programmatic goals are general in nature, not yet quantified or tied to specific locations. For example, some legislation does not prescribe or proscribe specific procurement actions, such as the AB 1576 encouragement to repower older plants. Another non-prescriptive loading order preference is for utilities to simultaneously consider transmission and generation alternatives.

Definitions and Aggregated Data

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 demand-side management (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 power purchase agreements.

Planned resources are those that an LSE deems either most likely or most preferred as additions to the portfolio. For IOUs, planned resources are those specific facilities and signed power purchase agreements or facility construction contracts, including those not yet formally approved by the CPUC. 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 a Form S-5 for planned contractual resources. The listing of planned resources should reflect

the most probable long-term resource plan for an LSE and its preferred “loading order,”¹⁶ especially where an LSE must add new resources to accommodate forecast load growth or capacity retirements.

Generic resources include generating resources needed to serve forecast demand, including utility-owned facilities and power purchase agreements, and that are not specifically identified at this time by resource type or location.

Hydroelectric generation is considered to be an existing resource for the duration of time that an LSE has legal authority to integrate production of forecast energy and dependable capacity. After the expiration date of a Federal Energy Regulatory Commission (FERC) hydro license or operating agreement or integration agreement, it would be a planned resource if the LSE expects to retain it in its portfolio.

The term “planned resources” can include physical and contractual resources about which there is considerable uncertainty due to regulatory, financial, or legislative risks. For example, the need for regulatory approvals and permits might keep a specific planned resource from becoming a committed resource for many months.¹⁷

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.

Integration means the ability of an LSE or balancing authority (balancing area authority) to use the generation output of facilities to serve load or balance the grid. The rights and obligations to integrate the output from cogeneration, wind, and “run of river” hydro are

16 For example, the 2003 *Energy Action Plan* adopted the following loading order: First, the agencies want to optimize all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand. Second, recognizing that new generation is both necessary and desirable, the agencies would like to see these needs met first by renewable energy resources and distributed generation. Third, because the preferred resources require both sufficient investment and adequate time to “get to scale,” the agencies also will support additional clean, fossil fuel, central-station generation. Simultaneously, the agencies intend to improve the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation.

17 The distinction between planned and committed resources was important in past *Electricity Reports* (such as *ER 1994*); this distinction is not important for data collection for the 2011 *IEPR*. What is important, however, is the distinction between planned resources with specific, reportable attributes and generic resources that are more conjectural in nature.

typically detailed in contractual agreements. (Cogeneration is synonymous with combined heat and power or CHP.) Special integration concerns often exist for resources like this that are not dispatched by LSEs, especially those that operate intermittently, those that are difficult to predict or schedule day-ahead, and those that do not have an obligation to be available.

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

Deliverability means electricity resources must be available to the respective LSE load centers including transmission rights as needed. To be fully counted as existing or planned resources, each LSE is expected to perform deliverability screening, filtering, or other appropriate criteria for matching loads with resources. However, the disclosure of these criteria is not requested on these forms.¹⁸

Aggregated Data

As a general requirement, each resource should have a line-item entry on Forms S-1 and S-2. In general, each nuclear and fossil generating unit should be listed on a separate line on Forms S-1 and S-2. Renewable supplies will usually be aggregated at the plant or project level on these forms.

All micro-supply contracts supplying less than 1 MW may be aggregated by fuel type, resource type, or program type. Also, all programmatic adjustments to forecast load should be aggregated on one line for that program such as demand response/interruptible programs, self-generation, and the California Solar Initiative. The exception to this general guidance is that DG data should be aggregated into three distinct categories: customer self-supply that constitutes a reduction in forecast load, and DG supply to the LSE that is surplus to customer needs from renewable and non-renewable fuel technologies.

Utilities should report utility-controlled hydroelectric assets (other than qualifying facilities) in two aggregate categories: more than 30 MW nameplate, and less than or equal to 30 MW. IOUs should aggregate QF contractual resources by technology or fuel types (for example, biofuels, geothermal, small hydro, solar, wind, natural gas/cogeneration, and other).

¹⁸ The one notable exception to this general deliverability requirement is the long-term Sempra contract with the California Department of Water Resources (DWR), a contract that is not tied to specific generating plants and that allows a delivery point anywhere in the State of California.

APPENDIX C

Electricity Resource Planning Forms

Administrative Information - Electricity Resource Planning Forms

Name of Load-Serving Entity ("LSE")

LSE Name on Admin Tab	

Name of Resource Planning Coordinator

Persons Who Prepared Supply Forms

	S-1 CRATS	S-2 Energy Balance	S-3 Small POU Hourly Loads	S-4 Wind Nameplat e	S-5 Bilateral Contracts	Application for Confidentiality	Narrative Statements
Name:							
Title:							
Email:							
Telephone:							
Address:							
Address 2:							
City:							
State:							
Zip:							
Date Completed:							
Date Updated by LSE:							

**Back-up/Additional Contact Persons for Questions About These Forms
(Optional):**

Name:

Title:

Email:

Telephone:

Address:

Address 2:

City:

State:

Zip:

Electricity Resource Planning Form S-1
Capacity Resource Accounting Table (CRATs)
LSE Name on Admin Tab

Yellow fill relates to an application for confidentiality.

Cells with dark green font require data inputs.

Bold font cells sum automatically.

2011 peak MW numbers are illustrative.

Line	Capacity Resource Accounting Table Form S-1	2009	2010	2011	2012	...	2020
	PEAK LOAD CALCULATIONS (MW):	(â Prior Forecasts â)					
1	Forecast Total Peak-Hour 1-in-2 Demand			7,500			
2a	ESP Peak Load: Existing Customer Contracts						
2b	ESP Peak Load: New and Renewed Contracts						
2c	ESP Peak Load in PG&E service area						
2d	ESP Peak Load in SCE service area						
2e	ESP Peak Load in SDG&E service area						
3	Uncommitted Energy Efficiency (-)						
4	Demand Response / Interruptible Programs (-)			(100)			
5	Adjusted Peak-Hour Demand: End-Use Customers	0	0	7,400	0	0	0
6	Coincidence Adjustment (-)			(50)			
7	Coincident Peak-Hour Demand	0	0	7,350	0	0	0
8	Required Planning Reserve Margin	0	0	1,103	0	0	0
9	Credit for Imports That Carry Reserves (-)						
10	Firm Sales Obligations						
11	Firm LSE Peak-Hour Resource Requirement	0	0	8,453	0	0	0
	CAPACITY SUPPLY RESOURCES						
12a	Total Fossil Fuel Dependable Capacity	0	0	2,200	0	0	0
12b	[state fuel, then list each resource, e.g., Fossil Unit 1]			1,000			
12c	[fuel: Fossil Unit 2]			750			
12d	[fuel: Fossil Unit N, list planned resources last]			450			

13a	Total Dependable Nuclear Capacity	0	0	1,000	0	0	0
13b	[Nuclear Unit 1]			500			
13c	[Nuclear Unit 2]			500			
14a	Total Dependable Hydroelectric Capacity	0	0	1,000	0	0	0
14b	Total: Hydro Plants larger than 30 MW			900			
14c	Total: Hydro Plants 30 MW or less			100			
15a	Total Utility-Controlled Renewable Capacity	0	0	400	0	0	0
15b	[state fuel, then list each resource, e.g., Renewable Plant 1]			250			
15c	[fuel: Renewable Project 2]			130			
15d	[fuel: Renewable Project N, list planned resources last]			20			
16a	Total Capacity from DWR Contracts	0	0	1,000	0	0	0
16b	[name of DWR Contract 1]			400			
16c	[name of DWR Contract 2]			350			
16d	[name of DWR Contract N]			250			
17a	Total Qualifying Facility (QF) Capacity	0	0	800	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	Total Capacity from Renewable Energy Contracts	0	0	750	0	0	0
18b	Renewable DG Supply			50			
18c	[state fuel, then Renewable Contract 1 (Supplier Name)]			350			
18d	[fuel: Renewable Contract 2 (Supplier Name)]			200			
18e	[fuel: Renewable Contract N, list planned resources last]			150			

19a	Total Capacity from Other Bilateral Contracts	0	0	1,175	0	0	0
19b	Non-Renewable DG Supply			50			
19c	[Other Bilateral Contract 1 (Supplier Name)]			450			
19d	[Other Bilateral Contract 2 (Supplier Name)]			350			
19e	[Other Bilateral Contract 3 (Supplier Name)]			250			
19f	[Other Bilateral Contract N (Supplier Name)]			75			
20	Short-Term and Spot Market Purchases			50			
	CAPACITY BALANCE SUMMARY						
21	Total: Existing and Planned Capacity	0	0	8,375	0	0	0
22	Firm LSE Peak-Hour Resource Requirement	0	0	8,453	0	0	0
23	(Capacity Need) or Capacity Surplus	0	0	(78)	0	0	0
24	Generic Renewable Resources			18			
25	Generic Non-Renewable Resources			60			
26	Specified Planning Reserve Margin			15%			

Line	Historic LSE Peak Load:	Year 2009	Year 2010
27	Annual Peak Load / Actual Metered Deliveries (MW)		
28	Date of Peak Load for Annual Peak Deliveries	/09	/10
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 (MW)	0.0	0.0

Line **Notes**

X	
X	

Electricity Resource Planning Form S-2

Energy Balance Accounting Table

LSE Name on Admin Tab

Yellow fill matches an application for confidentiality.

Cells with dark green font require data inputs.

2011 GWh numbers are illustrative.

Bold font cells sum automatically.

Line	Energy Balance Table Form S-2	2009	2010	2011	2012	...	2020
	ENERGY DEMAND CALCULATIONS (GWh)	(â Actual Supply â)					
1	Forecast Total Energy Demand / Consumption			40,000			
2a	ESP Energy Demand: Existing Customer Contracts						
2b	ESP Energy Demand: New and Renewed Contracts						
2c	ESP Energy Demand in PG&E service area						
2d	ESP Energy Demand in SCE service area						
2e	ESP Energy Demand in SDG&E service area						
3	Uncommitted Energy Efficiency (-)						
4	Demand Response / Interruptible Programs (-)			(200)			
5	Adjusted Energy Demand / Consumption	0	0	39,800	0	0	0
6	Firm Sales Obligations			0			
7	Firm LSE Energy Requirement	0	0	39,800	0	0	0
	ENERGY SUPPLY RESOURCES						
8a	Total Fossil Energy Supply	0	0	15,000	0	0	0
8b	[state fuel, then list each resource, e.g., Fossil Unit 1]			8,000			
8c	[fuel: Fossil Unit 2]			4,000			
8d	[fuel: Fossil Unit N, list planned resources last]			3,000			
9a	Total Nuclear Energy Supply	0	0	7,000	0	0	0
9b	[Nuclear Unit 1]			3,500			
9c	[Nuclear Unit 2]			3,500			

10a	Total Hydroelectric Energy Generation	0	0	1,500	0	0	0
10b	Total Energy: Hydro Plants larger than 30 MW			1,400			
10c	Total Energy: Hydro Plants 30 MW or less			100			
10d	Hydroelectric Energy in Dry-Year Conditions			850			
10e	Hydroelectric Energy in Wet-Year Conditions			1,150			
11a	Total Utility-Controlled Renewable Energy	0	0	1,000	0	0	0
11b	[state fuel, then list each resource, e.g., Renewable Plant 1]			400			
11c	[fuel: Renewable Project 2]			350			
11d	[fuel: Renewable Project N, list planned resources last]			250			
12a	Total Energy Supply from DWR Contracts	0	0	450	0	0	0
12b	[name of DWR Contract 1]			300			
12c	[name of DWR Contract 2]			100			
12d	[name of DWR Contract N]			50			
13a	Total Energy Supply from QF Contracts	0	0	4,000	0	0	0
13b	Biofuels			300			
13c	Geothermal			1,200			
13d	Small Hydro			400			
13e	Solar			450			
13f	Wind			400			
13g	Natural Gas			1,200			
13h	Other			50			
14a	Total Energy Supply from Renewable Contracts	0	0	5,350	0	0	0
14b	Renewable DG Supply			200			
14c	[state fuel, then Renewable Contract 1 (Supplier Name)]			3,500			
14d	[fuel: Renewable Contract 2 (Supplier Name)]			1,500			
14e	[fuel: Renewable Contract N, list planned resources last]			150			
15a	Total Energy Supply from Other Bilateral Contracts	0	0	2,665	0	0	0

15b	Non-Renewable DG Supply			140			
15c	[Other Bilateral Contract 1 (Supplier Name)]			1,100			
15d	[Other Bilateral Contract 2 (Supplier Name)]			850			
15e	[Other Bilateral Contract 3 (Supplier Name)]			450			
15f	[Other Bilateral Contract N (Supplier Name)]			125			
16	Short Term and Spot Market Purchases			2,500			
	ENERGY BALANCE SUMMARY						
17	Total Energy: Existing and Planned Resources	0	0	39,465	0	0	0
18	Firm LSE Energy Requirement	0	0	39,800	0	0	0
19	(Energy Need) or Energy Surplus			(335)	0	0	0
20	Generic Renewable Energy			35			
21	Generic Non-Renewable Energy			300			
	RENEWABLE ENERGY ACCOUNTING						
22	Utility-Controlled Small Hydro	0	0	100	0	0	0
23	Other Hydroelectric Energy Deemed Renewable						
24	Utility-Controlled Renewable Resources (non-hydro)	0	0	1,000	0	0	0
25	QF Renewable Contract Resources for IOUs	0	0	2,750	0	0	0
26	Renewable Energy Contractual Resources	0	0	5,350	0	0	0
27	Other LSE-Defined Renewable Energy			50			
28	Private Supply Renewable Resources						
29	Tradeable REC Purchases			100			
30	Generic Renewable Energy Additions			35	0	0	0
31	Total Actual / Expected Renewable Energy	0	0	9,385	0	0	0
32	Total Retail Sales			38,100			
33	Renewable Energy as a Percentage of Retail Sales			25%			



Line **Notes**

X	
X	

ELECTRICITY RESOURCE PLANNING FORM S-3		
RECORDED LSE HOURLY LOADS FOR 2010		
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 2010, in megawatts, for each hour of each day. Begin with the hour that ended at 1 a.m. on January 1, 2010. 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.		
<i>Note: This form is a truncated version for printing and review purposes. Printing this entire form for all 8,760 hours will use 197 pages and is not recommended.</i>		
LSE Name: LSE Name on Admin Tab Scheduling Coordinator ID: Balancing Authority / TAC Area:		
Date (PST)	Hour Ending (PST)	Recorded Demand at Take Out (MW)
1/1/2010	1	
1/1/2010	2	
1/1/2010	3	
1/1/2010	4	
1/1/2010	5	
1/1/2010	6	
1/1/2010	7	
1/1/2010	8	
1/1/2010	9	
1/1/2010	10	
1/1/2010	11	
1/1/2010	12	
1/1/2010	13	
1/1/2010	14	
1/1/2010	15	
1/1/2010	16	

Electricity Resource Planning Form
S-4
Wind Resource Nameplate Capacity
 LSE Name on Admin Tab

Yellow fill matches an application for confidentiality.

Line	Wind Energy Project Names	Physical Location of Project	Inter-Connection Point (Substation & State)	Project Nameplate MW as of 1/1/11	Non-Operating Nameplate MW as of 1/1/11	LSE's Nameplate MW as of 1/1/11	Dependable MW for LSE as of 1/1/11	Expected Project Nameplate MW by 1/1/16
1	[existing utility owned]							
2	[planned utility owned]							
3	[existing joint ownership]							
4	[planned joint ownership]							
5	[existing contractual supplies]							
6	[planned contractual supplies]							

Line **Notes**

x	
x	

Line (cont.)	Owner's Name	Owner's Address	Owner's Contact Information
1			
2			
3			
4			
5			
6			
7			
8			

Electricity Resource Planning Form S-5
Bilateral Contracts and Power Purchase Agreements
LSE Name on Admin Tab

Yellow pattern cells are used to apply for confidentiality.

Contract Name:	
Supplier / Seller:	
Start Date:	
Expiration Date:	
Contract / Agreement Capacity:	
Scheduling Coordinator:	
Fuel Type:	
Delivery Points:	[balancing area and transmission zone]
	[more specific info such as substation & buss]
Locational Attributes of Unit:	[balancing area and transmission zone]
	[load pocket location and more specific attributes]
Contract / Agreement Products:	
Availability of Products:	
Must Take:	
Generating Units Specified:	
Capacity of the Units:	
Availability of the Units:	
Unit Contingent / LD Contract:	
Firm:	
Firming or Shaping:	
Contract / Agreement Type:	
Transmission Contingent & Path:	
Termination & Extension Rights:	
Performance Requirements:	
Notes:	(1)
	(2)

