

DOCKETED

Docket Number:	17-IEPR-07
Project Title:	Integrated Resource Planning
TN #:	217704-1
Document Title:	DRAFT Guidelines Tables Instructions Appendix C
Description:	IRP Guidelines Appendix C
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Organization:	California Energy Commission
Submitter Role:	Energy Commission
Submission Date:	5/24/2017 11:59:52 AM
Docketed Date:	5/24/2017

APPENDIX C: STANDARD REPORTING TABLES

Introduction

The Capacity Resource Accounting Table is used by the filing POU to report IRP scenario capacity in MW, to meet expected peak loads. It also provides the types of resources and, where known, the particular resource, such as a solar generation plant. The Energy Balance Table is similar to the CRAT table, but shows the filing POU's forecast of total energy demand in gigawatt-hours. Both tables must report all years in the planning horizon (2019 through 2030).

The following sections will outline instructions for completing reporting tables that will be required for the SB350 compliant planning scenario submitted to the Energy Commission under these guidelines. For each scenario, please assign a name or identification number. The IRP must include a description of the assumptions incorporated into each planning scenario.

Capacity Resource Accounting Table

The filing POU must use the CRAT to demonstrate annual peak capacity needs and how the POU expects to meet them (historical values are requested for 2017 and 2018). Supply resources include utility-owned, contracted-for generation and storage resources. These may be existing or planned (specific, identifiable and known) resources or “generic,” indicated by planning efforts and analysis, but not identified by name or location. They also include short term contracted for resources with unidentified generators or other counterparties, whose procurement is anticipated to occur only shortly before they are needed (spot and short term market purchases).

The table also distinguishes between RPS-eligible and non-RPS eligible resources. This is done to facilitate completion of the RPS Procurement Table with minimal effort.

Future resources yet to be identified are listed under “Generic Additions” with fuel source “to be determined” (TBD) selected. Use the most appropriate name or description for generic additions. If there is a strong likelihood that a future or planned resource type is known, then provide the best description of this capacity type and its intended fuel use.

Filing POUs should only report resource capacity that can be relied upon to perform. For contractual resources, show how much energy is expected to be available to meet annual peak loads (NQC or peak dependable capacity).

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

All filing POUs are required to forecast their total demand during their non-coincident peak¹ hour for each year in the forecast period. This number, in MW, include all power

¹ From this point on, (non-coincident) peak will be referred to as peak.

needed to serve end-use loads along with the power needed to deliver supplies to these loads. The annual peak hour estimates should include allowances for transmission losses, distribution line losses, and unaccounted for energy.

Line 1 should include any anticipated pumping and recharging loads during the peak hour. Reductions due to customer-owned generation that reduces the procurement obligations of POU's should be reflected in the values.

The estimated impact of committed energy efficiency savings and price-sensitive demand response programs and measures should be embedded in the value in line 1.

Lines 2 and 2a – Customer-side solar: nameplate capacity and peak hour output

List the nameplate capacity and peak hour output in lines 2 and 2a, respectively. These numbers will not be used in calculations but will indicate the amount of customer-side solar assumed by the utility to be deployed over the planning horizon and its impact on peak capacity needs.

Line 3 Peak Load Reduction due to thermal energy storage

Expected peak load reduction due to thermal energy storage deployed or incentivized by the utility, if any. This value, if non-zero, should already be reflected in line 1 and will not enter into calculations in the table.

Line 4 – Light Duty PEV consumption in peak hour

Report estimated electricity consumption by LD PEVs during the peak hour. This indicates the impact of LD PEV deployment on annual peak capacity needs and does not enter into any calculations in the table.

Line 5 - Additional Achievable Energy Efficiency Savings on Peak

Report estimates of feasible and cost-effective achievable energy efficiency savings on the peak from future programs that were assumed in the IRP scenario to be developed but are not yet implemented or funded.

Committed energy efficiency savings should be embedded in the value in line 1.

Line 6 – Demand Response / Interruptible Programs on Peak

Enter the MW impact on the peak hour of dispatchable, event-triggered demand response and interruptible load programs.

The estimated impact of price-sensitive demand response programs and measures should be embedded in the value in line 1.

Line 7 – Managed Peak Demand

The estimated impact of price-sensitive demand response programs and measures on the peak should be embedded in the value in line 1

The numbers entered in Lines 5 and 6 will automatically be subtracted from the Forecasted Total Peak-Hour 1-in-2 Demand to produce the Managed Peak Demand in line 7.

Line 8 - Planning Reserve Margin

Line 8 should indicate the planning reserve margin in MW used for resource planning for each year. If a planning reserve margin other than 15 percent is used for resource planning, the basis for value entered (for example, a different percentage, LOLE or LOLP studies, single largest contingency) should be provided in a note to the table or elsewhere in the IRP.

Line 9 - Firm Sales Obligations

On line 9, list total firm wholesale electricity supply (in MW) that the POU has contracted to deliver to other parties during the peak hour, both within and outside the POU's balancing area. Include line losses, station load, and any reserves for the sales obligations that are required.

Line 10 – Total Peak Procurement Requirement

Line 10 is the sum of lines 7, 8, and 9.

Lines 11a – 11g - Existing and Planned Utility-Owned Generation and Storage (not RPS eligible)

In this section, the POU should report the amount of capacity from each existing or planned utility-owned or -controlled generation source or multi hour energy storage device that is considered firm and reliable for meeting loads forecasted to occur in the annual peak hour.² This amount would be measurable at the busbar. For variable energy resources without flexible dispatch such as solar and wind, dependable capacity estimates should reflect the expected availability of energy from these resources at the time of the annual peak and the variable nature of this supply. Capacity values should not be adjusted for expected forced outage rates.

Insert additional rows if needed.

Lines 11h – 11n - Existing and Planned Long-Term Contracts (not RPS-eligible)

In this section, the POU should report the amount of firm capacity available during the peak hour from each existing bilateral contract and power purchase agreement that is more than three months. Each bilateral contract should be named and listed on a separate line beginning on line 11h.

Insert additional rows if needed.

² Planned resources are those resources that the POU has committed to construct or purchase but have yet to come on line or under utility control.

If a contract does not provide firm capacity during the peak hour but provides energy during the year (and is thus entered in the Energy Balance Table), enter the resource supply name and enter zero for the capacity amounts under the years covered by the contract. Contracts that provide less than 1 MW may be aggregated.

Line 11 - Total peak dependable capacity of existing and planned supply resources (not RPS-eligible)

Line 11 will be automatically calculated as the sum of lines 11a-11n.

Lines 12a - 12n Existing and Planned Utility-Owned RPS-eligible Resources

List each utility-owned or -controlled RPS-eligible generating resource and its dependable peak capacity values starting on line 12a.

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

Insert additional rows if needed.

Lines 12o - 12r existing and planned long-term Contract (RPS-eligible Resources)

Use lines 12o - 12r to enter the peak dependable capacity associated with contracts for RPS-eligible renewable energy. Contracts with duration of more than three consecutive months should be entered on separate lines. Contracts that provide less than 1 MW of capacity may be aggregated by fuel type. Contracts that are less than 3 months in duration are not reported in the CRAT.

Insert additional rows if needed. After the lines 12o - 12r are filled in, lines 11 and 12 will automatically be calculated.

Line 12 - Total peak dependable capacity of existing and planned RPS-eligible resources

Line 12 will be automatically calculated as the sum of lines 12a - 12n.

Line 13 - Total peak dependable capacity of existing and planned supply resources

Line 13 will be automatically calculated as the sum of lines 11 and 12.

Lines 14a - 14n - Non-RPS Eligible Generic Additions

List each generic non-RPS eligible resource and its peak dependable capacity value starting on line 14a. Insert additional rows if needed.

Line 14 - Total peak dependable capacity of generic supply resources (non RPS-eligible)

Line 14 will be automatically calculated as the sum of lines 14a - 14n.

Lines 15a - 15n - RPS Eligible Generic Additions

Enter each generic RPS eligible resource and its peak dependable capacity value.

Insert additional rows if needed.

Line 15 - Total peak dependable capacity of generic RPS-eligible resources

Line 15 will be automatically calculated as the sum of lines 15a - 15n.

Line 16 - Total peak dependable capacity of generic supply resources

Line 16 will be automatically calculated as the sum of lines 14 and 15.

Line 17 - Total peak procurement requirement

Line 17 will be copied from line 10.

Line 18 - Total peak dependable capacity of existing and planned supply resources

Line 18 will be copied from line 13.

Line 19 - Current capacity surplus (shortfall)

Line 19 will be calculated as the difference between lines 18 and 17.

Line 20 - Total peak dependable capacity of generic supply resources

Line 20 will be copied from line 16.

Line 21 - Planned capacity surplus/shortfall

Line 21 is the sum of lines 19 and 20. Any shortfall in planned capacity (a negative value on line 21) will be assumed to be addressed with short-term resources.

Energy Balance Accounting Table

In the EBT, POU's are required to provide estimates of annual retail sales and net energy for load (in MWh) through 2030 (historical values are requested for 2017 and 2018). The EBT provides a detailed estimate of the POU's annual energy needs through 2030, accounting for the impacts of AAEE and customer generation. The EBT also contains estimates of annual energy from supply resources, including utility-owned generation and multi hour storage resources, bilateral contracts, and spot market/short-term purchases.

Data submitted in the EBT should correspond with matching data in the CRAT. If a capacity-only resource is listed in the CRAT, this same resource should appear in the EBT with zero values for expected annual energy supply.

Line 1 - Retail sales to end-use customers

Enter projected annual retail sales, as defined in Title 20, section 3201. This should include metered city loads, and reflect the impact of committed energy efficiency measures and programs (but not AAEE).

Line 2 - Other loads

Enter loads for which there is not an associated RPS obligation, including pumping loads, multi hour storage loads (incremental net energy for load needed due to multi hour storage losses, including energy needed for pumped hydro storage) and other utility loads, e.g., unmetered city loads, but excluding firm sales obligations.

If multi hour storage loads are significant, they should be entered as a separate line item or items.

Line 3 - Unmanaged net energy for load

This entry should reflect the sum of lines 1 and 2 plus transmission and distribution losses, unaccounted for energy, and energy needed to serve station loads of utility-controlled resources.

If distributed generation injected on to the distribution system, does not affect retail sales estimates, but does affect estimated net energy for load requirements, and the amount of this energy is an assumption used in or output of modeling done for the IRP, it should be added as a line item in the Net Energy for Load Calculations section of the EBT.

Line 4 - Managed retail sales

This entry should reflect the estimated impact of AAEE on retail sales. The value entered here will be automatically copied to the RPT.

Line 5 - Managed net energy for load

This entry should reflect the estimated impact of AAEE on the utility's annual net energy for load requirements.

Line 6 - Firm sales obligations

Enter the net energy for load associated with firm (wholesale) sales obligations under long-term contracts (including generation to cover lines losses and station load). This should not include projected generation for sales into short-term and spot markets.

Line 7 - Total net energy for load

This will be automatically calculated as the sum of lines 5 and 6.

Line 8 - Customer-side solar generation

Enter estimated annual customer-side solar generation, both consumed on site and injected onto the distribution system.

Line 9 - Light Duty PEV electricity consumption/procurement requirement

Enter estimated annual LD PEV electricity consumption or the incremental net energy for load associated with this consumption. Indicate which one it is by modifying the line header.

Line 10 - Other transportation electricity consumption/procurement requirement

Enter the (incremental) consumption or increase in net energy for load associated with any other major transportation electrification program(s) developed, provided support by or otherwise encouraged by the utility. Indicate which is provided by modifying the line header. Any entries are optional. Details regarding the program(s) should be provided elsewhere in the IRP. The purpose of this entry is to provide quantitative information on the demand-side impact of major programs that increase net energy for load requirements while reducing GHG emissions.

Line 11 - Other electrification/fuel substitution; consumption/procurement requirement

Enter the (incremental) consumption or increase in net energy for load associated with any other major electrification (fuel substitution) program(s) developed, provided support by or otherwise encouraged by the utility. Indicate which is provided by modifying the line header. Any entries are optional. Details regarding the program(s) should be provided elsewhere in the IRP. The purpose of this entry is to provide quantitative information on the demand-side impact of major programs that increase net energy for load requirements while reducing GHG emissions.

Lines 12a - 12g - Existing and Planned Utility-Owned Generation Resources (not RPS-eligible)

Enter the projected annual energy from each existing and planned utility-owned or -controlled generation resource in the utility portfolio.

Insert additional rows if needed.

Values entered here should not include generation to meet firm wholesale obligations or sales into short-term and spot markets. If the utility has firm sales obligations under long-term contracts and elects to include the energy generated for these contracts, insert a note in the table to explain which generation resources and how much energy those resources are generating to meet the firm wholesale obligations.

Lines 12h - 12n - Existing and Planned Long-Term Contracts (not RPS-eligible)

Enter the projected annual energy from each existing and planned long-term contract in the utility portfolio. Insert additional rows if needed.

Line 12: Total energy from existing and planned supply resources (not RPS-eligible)

This is automatically calculated as the sum of lines 12a - 12n.

Lines 13a – 13h - Existing and Planned Utility-Owned RPS-eligible Generation Resources

Enter the projected annual energy from each existing and planned utility-owned or – controlled RPS-eligible generation resource. Insert additional rows if needed.

Lines 13i – 13n – Long-Term Contracts (RPS-eligible)

Use lines 13i – 13n to list power (yearly MWh) obtained from individual renewable energy contracts. Contracts longer than three consecutive months should be named and listed on separate lines beginning with line 14i.

Renewable contracts that provide less than 1 MW of supply may be aggregated by fuel type. State the fuel type first (geothermal, solar, wind, and so forth), then the contract name. Also include here any amounts of existing and expected renewable DG supply that is surplus to customer consumption during the year (in MWh). 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 would otherwise be supplied by the POU.

Insert additional rows if they are needed to list more supply resources.

Line 13: Total energy from existing and planned supply resources (RPS-eligible)

This is automatically calculated as the sum of lines 13a – 13n.

Line 14: Total energy from existing and planned supply resources

This is automatically calculated as the sum of lines 12 and 13.

Lines 15a – 15n – Non-RPS eligible generic additions

Enter the projected annual energy from each generic non-RPS eligible generation resource. Insert additional rows if needed.

Line 15: Total energy from Non-RPS eligible generic additions

This is automatically calculated as the sum of lines 15a – 15n.

Lines 16a – 16n - RPS-eligible generic additions

Enter the projected annual energy from each generic RPS-eligible generation resource. Insert additional rows if needed.

Line 16: Total energy from RPS-eligible generic additions

This is automatically calculated as the sum of lines 16a – 16n.

Line 17: Total energy from generic additions

This is automatically calculated as the sum of lines 15 and 16.

Line 18: Short-term and spot market purchases

Enter projected annual energy from short-term and spot market purchases

Line 19: Total energy from supply resources

This is automatically calculated as the sum of lines 14 and 17.

Line 20: Total net energy for load

This is automatically copied from line 7.

Line 21: Short term and spot market purchases

This is automatically copied from line 18.

Line 22: Imbalance

This is automatically calculated as the sum of lines 19 and 21, less line 20.

Greenhouse Gas Emissions Accounting Table

The GHG Emissions Accounting Table will show the POU's projected annual GHG emissions in million metric tons of carbon dioxide equivalent (MMt CO₂e) attributed to each generation resource in the POU's portfolio. In this table, emission intensities expressed in units of metric tons of carbon dioxide equivalent per megawatt-hour (Mt CO₂e/MWh) are assigned to each generator in a POU's portfolio. This is then multiplied by values reported in the EBT to arrive at annual GHG emissions for each resource and total amount of GHG emissions for the utilities' portfolio.

For existing resources, filing POU's are required to use emissions intensities developed for the Power Source Disclosure Program, under the Assembly Bill 1110 (Ting, Chapter 656, Statutes of 2016) Implementation Rulemaking (AB 1110).

A POU may develop emissions intensities and use them for their utility-owned generation. All energy procured that cannot be tracked back to a specific generation source, with exceptions as noted on page C-10, will be assigned an emission intensity of 0.428 Mt CO₂e/MWh, consistent with the value used by CARB for unspecified power imported from out of state. The utility may also develop and use emissions intensities for generic gas-fired generation additions to its portfolio. These values should be consistent with the performance and fuel consumption of new resources designed to be economical for the resource's dispatch profile.

The table distinguishes between supply resources that provide RPS-eligible energy and those that do not. This has been done to facilitate the joint completion of the EBT, RPT, and GEAT. As of this writing, it is not known whether any RPS-eligible resources will be assigned a non-zero emissions intensity in the AB 1110 Implementation Rulemaking. Should all RPS-eligible energy be determined to be zero-emission, sections asking for emissions from RPS-eligible resources will be removed.

Line 1a - 1g Existing and Planned Utility-Owned Generation (not RPS-eligible)

Enter the emissions intensity for each utility owned (not RPS-eligible) resource starting on line 1a. The emissions from the resource in each year can be estimated by multiplying the corresponding value in the EBT by the emissions intensity if the resource is not used to meet a firm sales obligation. If a share of the output from the resource is used to meet a firm sales obligation, the values will have to be calculated, with the share of output being deducted from the total (a note in the table should indicate which resources in the utility's portfolio have contributed to meeting firm sales obligations). Insert additional lines as needed.

Resources with an emissions intensity of zero or with zero output may be omitted.

Line 1h - 1n Existing and Planned Long-Term Contracts (not RPS-eligible)

If the contract specifies the generation resource provides energy, enter the emissions intensity for the resource in the appropriate cell, starting on line 1h. If the contract does not specify a resource or resources, use 0.428 Mt CO₂e/MWh. For contracts which provide energy from a defined portfolio of generation resources, estimate an emissions intensity based on expected amounts from each resource.

As done for lines 1a-1i, multiply the corresponding energy values in the EBT by the emissions intensity, making any adjustments that are necessary if energy delivered under the contract is used to meet firm sales obligations. Insert additional lines as needed.

Line 1 - Total GHG emissions of existing and planned supply resources (not RPS-eligible)

This is automatically calculated as the sum of lines 1a - 1n.

Lines 2a - 2g - Existing and Planned Utility-Owned Generation (RPS-eligible) and

Lines 2h - 2n - Existing and Planned Long-Term Contracts (RPS-eligible)

Only resources with non-zero emissions intensity should be listed in this section. For resources that have non-zero emissions intensity, then enter the emissions intensity for each of those resources. Insert additional lines as needed.

Line 2 - Total GHG emissions of existing and planned supply resources (RPS-eligible)

This is automatically calculated as the sum of lines 2a - 2n.

Line 3 - Total GHG emissions from existing and planned supply resources

This is automatically calculated as the sum of lines 1 and 2.

Lines 4a - 4n - Non-RPS eligible generic additions

For each generic non-RPS eligible resource, enter the emissions intensity, starting on line 4a. The utility may develop and use emissions intensities for generic gas-fired generation additions to its portfolio. These values should be consistent with the

expected performance and fuel consumption of new resources designed to be economical for the resource's dispatch profile. Insert additional lines as necessary.

Line 4 - Total GHG emissions from generic Non-RPS eligible additions

This is automatically calculated as the sum of lines 4a - 4n.

Lines 5a - 5n - Total GHG emissions from generic RPS eligible additions

Enter an emissions intensity and emissions values for any generic RPS-eligible resource that has a non-zero emissions value.

Line 5 - Total GHG emissions from generic RPS eligible additions

This is automatically calculated as the sum of lines 5a - 5n.

Line 6 - Total GHG emissions from generic supply resources

This is automatically calculated as the sum of lines 4 and 5.

Line 7 - GHG emissions from short term purchases

For each short term or spot market purchase, enter the emissions intensity. Short-term and spot market purchases are assigned an emissions intensity of 0.428 Mt CO₂e/MWh. Short term and spot market purchases are defined as contracts less than three months in duration.

Line 8 - Total GHG emissions to meet net energy for load

This is automatically calculated as the sum of lines 3, 6, and 7.

GHG EMISSIONS IMPACT OF TRANSPORTATION ELECTRIFICATION

Lines 9 -12 call for estimates of the GHG emissions impact of transportation electrification. This is being done to gain a better understanding of the impacts of transportation electrification on GHG emissions from the electricity sector; its submittal is voluntary.

Line 9 - GHG emissions reduction due to gasoline vehicle displacement by LD PEVs

Estimate of annual reductions in GHG emissions in the transportation sector due to the displacement of gasoline-powered vehicles by LD PEVs. This appears on the "Step 4" tab of the LD PEV Calculator provided by staff for utility use.

Line 10 - GHG emissions increase due to LD PEV electricity loads

Estimate of GHG emissions increase due to (incremental) electricity loads associated with LD PEV deployment. This appears on the "Step 4" tab of the LD PEV Calculator provided by staff for utility use.

Line 11 - GHG emissions reduction due to fuel displacement - other transportation electrification

Estimate of (gross) GHG emissions reductions in the transportation sector due to "other vehicle electrification." The POU may wish to indicate (in notes in the table, a spreadsheet, or elsewhere in the IRP) how the entered values were derived, and how

individual major projects and utility programs and measures contributed to the total reduction.

Line 12 - GHG emissions increase due to increased electricity loads - other transportation electrification

Estimate of GHG emissions increase due to (incremental) electricity loads associated with “other transportation electrification.” The POU may wish to indicate (in notes in the table, a spreadsheet, or elsewhere in the IRP) how the entered values were derived.

RPS Procurement Table

The RPS Procurement Table (RPT) is the standardized reporting table that identifies the renewable energy and renewable energy certificates (REC) procurement and retirement in each RPS compliance period through the planning horizon. The retail sales may be adjusted due to hydro procurement or green power programs as allowed under PUC Section 399.11 *et. seq.* RECs can be reported in this table and can be used towards satisfying requirements of the RPS. The table also provides for optional use of RECs in the form of historic carryover and excess procurement.

Begin completing the RPT by first indicating the name of the scenario being reported in cell B7.

Line 1 – Annual Retail sales

Line 1 will be automatically filled with the annual estimates of managed retail sales provided in the EBT.

Line 2 – Green pricing program exclusion

Enter the projected annual retail sales associated with green pricing programs that may be deducted from the retail sales value (in Line 1) used to calculate the RPS procurement obligation.

Line 3 – Soft target (Percentages)

Line 3 is the annual soft targets for the RPS.

Line 4 – Required procurement for compliance period

Line 4 is the required procurement of renewable energy (or required retirement of Renewable Energy Certificates) over the compliance period based on lines 1 through 3. Should a POU’s procurement requirement for the compliance period be affected by other factors or involve optional compliance measures, lines 2 through 4 may be edited or augmented to reflect how the procurement requirement is derived.

Line 5 – Excess balance/historic carryover at beginning/end of compliance period

If used for planning, enter the sum of the excess balance and historic carryover of Category 0, 1, and 2 RECs at the beginning of the third compliance period (2017–2020). Subsequent values on line 5 are automatically filled in based on this value and POU entries on lines 6 and 7.

Line 6 - Generation/net purchases

Enter the projected annual generation of RPS-eligible energy (by utility-owned generation or purchased under contract) plus projected net purchases of Category 0, 1 and 2 RECs. The sum of lines 13 and 16 from the EBT will automatically be entered here. This value only needs to be changed if the utility plans to purchase or sell Category 0, 1 or 2 RECs during the year.

Line 7 - Applied/retired

Enter the projected number of Category 0, 1 and 2 RECs that will be applied to the procurement obligation during the year. If the value differs from the corresponding entry in line 6, it will result in a change in the carryover (line 5) at the end of the compliance period.

Line 8 - Excess balance/historic carryover at beginning/end of compliance period

If used for planning, enter the sum of the excess balance and historic carryover of Category 3 RECs at the beginning of the third compliance period (2017 - 2020). Subsequent values on line 8 are automatically filled in based on this value and POU entries on lines 9 and 10.

Line 9 - Net purchases

Enter the projected net purchases of Category 3 RECs during the year.

Line 10 - Applied/retired

Enter the projected number of Category 3 RECs that will be applied to the procurement obligation during the year. If the value differs from the corresponding entry in line 9, it will result in a change in the carryover (line 8) at the end of the compliance period.

Line 11 - Total REC procurement in compliance period

Line 11 contains the projected number of RECs applied/retired in each year. It is automatically entered as the sum of lines 7 and 10.

Line 12 - Over/under procurement for compliance period

Line 12 contains the estimated over/under procurement of renewable energy (retirement of RECs) during the compliance period. It is automatically entered as the difference between lines 4 and 11.

