California Public Utilities Commission

Report to the Legislature in Compliance with Public Utilities Code Section 910

May 2015

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INTRODUCTION

Background

In April 2011, Governor Brown signed Senate Bill (SB) 2 (1X) (Simitian, 2011) codifying the state's longstanding 33 percent Renewables Portfolio Standard (RPS) goal. In addition to increasing the state's RPS goal from 20 percent in 2010 to 33 percent by 2020, SB 2 (1X) added Section 910 to the Public Utilities Code (Pub. Util. Code).[1] Section 910 requires the California Public Utilities Commission (CPUC or Commission) to provide an annual report to the Legislature on the investor-owned utilities' (IOUs) direct and indirect costs and costs avoided (savings) with the RPS program and distributed generation programs. Section 910 also requests decision numbers, changes in retail sales, and qualitative and quantitative information about IOUs' diversity goals primarily related to its workforce directly involved in the RPS program. The complete text of Section 910 is provided as Appendix A.

Section 910 applies to all electrical corporations as defined in Section 218 and covers a broad array of IOUs' operations. To gather data and other information for this report, Energy Division staff issued data requests to Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), PacifiCorp, Liberty Utilities[2] (Liberty), and Bear Valley Electric Service (BVES) and relied on other publically available information.

[1] All further references to sections refer to the Pub. Util. Code unless otherwise specified.

[2] Formerly CalPeco.

Summary

This is the second report to the Legislature, pursuant to Section 910, referenced hereafter as the Section 910 Report. The scope of the information and data requested in Section 910 Report is broad. Specifically, Section 910 requests historic cost information related to the IOUs' compliance with the RPS as well as costs associated with customer distributed generation programs, which may not directly impact the RPS program. Below is a brief summary of the report:

- This report covers 2014 costs/expenditures for the large IOUs - SCE, PG&E and SDG&E, and 2014 costs/expenditures for the small IOUs – Liberty, Bear Valley Electric Service (BVES) and PacifiCorp.
- In 2014 PG&E, SCE, and SDG&E spent approximately $2.2 billion, $1.6 billion and $561 million, respectively, on RPS procurement. The large IOUs spent a combined total of $4.4 billion on direct RPS procurement in 2014 (see Table 1).[3]
- RPS procurement, equated to 27.9 percent of PG&E's retail load in 2014, 24.1 percent of SCE's retail load and 36.4 percent of SDG&E's retail load in 2014.[4]
- The small IOUs forecast that 2014 RPS procurement will represent the following percentages of the utilities' 2014 retail sales: 20.4 percent for Liberty and 21.7 percent for PacifiCorp.
- Liberty spent approximately $8.8 million on direct RPS procurement in 2014 (see Table 2). Energy Division staff also requested 2014 procurement expenditure information from PacifiCorp, however, PacifiCorp responded that it could not provide procurement expenditure figures for 2014 because the numbers were not available at the time of Energy Division staff's data request. Lastly, BVES responded to Energy Division staff's request but it is not presented in this report because their procurement information for 2014 is confidential pursuant to CPUC confidentiality rules (see Table 2).
- The indirect expenditures of the RPS program include utility administrative costs, costs associated with the integration of renewable resources, and expenses associated with the utilities' transmission and distribution systems. Currently, these costs are orders of magnitude smaller than direct RPS expenditures. Typically, RPS-related transmission projects are built both for system reliability and to facilitate deliverability of renewable resources. As a result, it is not clear what portion of these expenses should be attributed to renewable resources vs. conventional generation resources that may also benefit from new transmission projects. Consequently, this report presents totals for transmission

[3] Direct procurement expenditures for RPS-eligible contracts include actual annual time of delivery adjusted payments. These figures also include the revenue requirements associated with utility-owned generation (UOG) and are estimated based on allocations of approved revenue requirements.

[4] PG&E, SCE, and SDG&E "2012 Annual 33% RPS Compliance Reports," August 2013, available at http://www.cpuc.ca.gov/NR/rdonlyres/D42D859D-EA81-4B0D-B61C-B08B665FE02A/0/PublicRPSComplianceReportsAugust2013.zip .

expenditures but does not present transmission expenditures specific to renewable resources.

- Average 2014 RPS expenses compare favorably when compared to a long-term energy and capacity price forecast and unfavorably when compared to short-term prices for energy and capacity. The Commission has not adopted a methodology for determining the cost savings (benefits) of the RPS program although this may be developed in the current or future RPS proceeding.
- The 2014 electric portion of the Self-Generation Incentive Program (SGIP) and the California Solar Initiative (CSI) budgets for the large IOUs were $75 million and $189 million, respectively. The benefits of these programs have been assessed in a variety of reports referenced herein.
- Bundled retail loads of PG&E, SCE and SDG&E have decreased during four of the past five years. PG&E served 74,865 GWh in retail sales for 2014, SCE forecasts 73,249 GWh and SDG&E forecasts 16,471 GWh.
- PG&E, SCE, SDG&E, Liberty, BVES and PacifiCorp have programs in place to facilitate the development of a diverse workforce and the procurement of goods and services from diverse businesses.

RENEWABLE PROGRAM COSTS AND SAVINGS

This section addresses the costs and savings (or costs avoided) associated with renewable resources, consistent with the requirements of Section 910(a)(1) and (2). The costs and savings discussed in this section include direct and indirect costs associated with renewable resources and the potential cost savings associated with utility procurement of renewable resources.

> Section 910(a)(1)
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> *[The report shall summarize the following information…] All electrical corporation revenue requirement increases associated with meeting the renewables portfolio standard, as defined in Section 399.12, including direct procurement costs for eligible renewable energy resources and renewable energy credits, administrative expenses for procurement, expenses incurred to ensure a reliable supply of electricity, and expenses for upgrades to the electrical transmission and distribution grid necessary to the delivery of electricity from eligible renewable energy resources to load.*

RPS Direct Expenditures

Large IOU Expenditures for 2014

On a generation basis, the large IOUs' 2014 RPS procurement represented the following percentages of the utilities' retail sales: 27.9 percent for PG&E, 24.1 percent for SCE and 36.4 percent for SDG&E.[5] PG&E, SCE, and SDG&E spent approximately $2.2 billion, $1.6 billion and $561 million, respectively, on direct RPS procurement in 2014 (see Table 1),[6] for a combined total of $4.4 billion. For 2014, RPS expenditures represented approximately 17.7 percent of PG&E's total revenue requirement of $12.5 billion, 13.6 percent of SCE's total revenue requirement of $12.0 billion and 17.9 percent of SDG&E's total revenue requirement of $3.1 billion.[7] [8] These

[5] PG&E, SCE, and SDG&E "Annual 33% RPS Compliance Reports," from August 2014, available at http://www.cpuc.ca.gov/NR/rdonlyres/D42D859D-EA81-4B0D-B61C-B08B665FE02A/0/PublicRPSComplianceReportsAugust2014.zip .

[6] Direct procurement expenditures for RPS-eligible contracts include actual time of delivery adjusted payments. These figures also include the revenue requirements associated with utility-owned generation (UOG) and are estimated based on allocations of approved revenue requirements.

[7] CPUC, "Electric and Gas Utility Cost Report," April 2014, available at http://www.cpuc.ca.gov/NR/rdonlyres/E1804568-DF65-48A4-A00B-EB6D9AF63E4D/0/AB67CostReport2014.pdf .

[8] "Total revenue requirement" consists of both the utility revenue requirement requested in General Rate Cases (GRCs) and the Energy Resource Recovery Account (ERRA) proceedings.

percentages differ because of the overall size of the utilities' revenue requirement and because the cost of renewables depend upon technology type and geographical location.[9]

Table 1. Direct Large IOU RPS Procurement Expenditures for RPS for 2014 (In Dollars)[10] [11]

	PG&E	SCE	SDG&E	Total
Biogas	11,086,936	12,033	15,883,970	**26,982,939**
Biomass	318,115,579	32,902,375	34,707,093	**385,725,046**
Geothermal	325,868,761	486,386,894	12,841,312	**825,096,966**
Small Hydro	46,988,529	1,808,501	Confidential	**48,797,030**
Solar PV	803,806,130	202,449,991	311,306,210	**1,317,562,331**
Solar Thermal	173,855,613	112,008,674		**285,864,288**
Wind	437,158,797	750,333,395	186,079,985	**1,373,572,177**
UOG Small Hydro	66,650,348	40,436,699		**107,087,047**
UOG Solar PV	54,063,527	4,553,595	1,626,542	**60,243,664**
Total	**2,237,594,220**	**1,630,892,157**	**562,445,111***	**4,431,954,703***

* RPS procurement expenditure totals exclude SDG&E small hydro expenditures which are confidential for 2014.

Total RPS expenditures have increased over time because the large IOUs have increased their purchases of renewable resources and the mix of renewable resources has changed. Total RPS procurement increased from approximately 39,136 GWh in 2013 to 44,516 GWh in 2014. Direct RPS expenditures increased as well, from $3.4 billion in 2013 to $4.4 billion in 2014.

The disparate increase in procurement expenditures relative to MWhs procured may be attributed to the addition of 120 additional projects, with a weighted average price of 14.4 cents per kWh, which achieved commercial operation in 2014. These 120 projects accounted for approximately 14.2% of the total RPS generation in 2014. The contracts for the projects that came online in 2014 were largely executed between 2009 and 2012 and; as noted above, prices for contracts approved in 2014 are declining relative to contracts executed in earlier years (on a nominal basis).

In 2014 the large IOUs' RPS portfolios (in dollar terms) primarily comprised of wind (31 percent) and solar PV (30 percent) resources, followed by geothermal (19 percent). This resource mix will change over time as additional renewable resources, including recently

[9] In addition, the figures above compare ***actual*** 2014 renewable expenditures with 2014 revenue requirements, which include ***forecasted*** fuel and purchase power expenditures; therefore, the comparisons will not be exact.

[10] These totals may not sum due to rounding error. In addition, the total of SDG&E's procurement expenditures and the total for Small Hydro exclude the amount of expenditures associated with SDG&E's small hydro procurement (confidential until 2016).

[11] SDG&E was not able to provide final generation and procurement expenditure figures for their UOG solar PV program. Consequently, the figures in the following tables that related to SDG&E UOG solar PV were calculated using SDG&E's best estimate of UOG of generation and procurement expenditures.

contracted for utility-scale solar photovoltaic (PV) and solar thermal facilities, are brought on line to meet the 33 percent by 2020 mandate.

Small IOU RPS Expenditures for 2014

On a generation basis, the small IOUs 2014 RPS procurement represented the following percentages of the utilities' retail sales: 20.4 percent for Liberty and 21.7 percent for PacifiCorp. Specifically, Liberty spent approximately $8.8 million on direct RPS procurement in 2014 (see Table 2). Energy Division staff requested 2014 procurement expenditure information from PacifiCorp but however, PacifiCorp responded that it could not provide procurement expenditure figures for 2014 because the numbers were not available at the time of Energy Division staff's data request. Lastly, BVES responded to Energy Division staff's request but it is not presented in this report because their procurement information for 2014 is confidential pursuant to CPUC confidentiality rules.

Table 2. Direct Liberty RPS Procurement Expenditures for RPS for 2014 (In Dollars)

	PacifiCorp	BVES	Liberty
Geothermal	NA	-	8,802,103
Wind	NA	Confidential	-
Total	**NA**	**Confidential**	**8,802,103**

RPS Indirect Expenditures

In addition to direct RPS procurement expenditures, there are a variety of indirect costs that are potentially attributable to the RPS program, including utility administrative costs, costs associated with the integration of renewable resources, and expenses associated with upgrades to the utilities transmission and distribution systems.

In order to assess the magnitude of these expenditures, Energy Division sent data requests to the utilities requesting that they identify and quantify, to the extent possible, the indirect cost categories and the magnitude of these costs. Based on these responses, it appears that the utilities do not use a consistent methodology to track these expenditures in a manner that allows clear attribution to the RPS program. Below we discuss each of these cost categories and the cost estimates that were either provided by the utilities or were publically available from other sources.

RPS Program Administrative Expenditures for 2014 - Large IOUs

Administrative expenditures include utility expenditures or external expenditures (e.g., legal fees) associated with administering the RPS program. PG&E identified 53.35 full-time equivalents (FTEs) that worked on RPS implementation in 2014, including 43.67 FTEs in energy procurement, 2.65 FTEs in the law department, 4.37 FTEs in regulatory affairs, and 2.66 FTEs in electric transmission operations. PG&E estimates that the expenses for these staff were $9.4

million.[12] In addition, PG&E identified additional administrative costs for 2014, which consists of $198,207 for the Western Renewable Energy Generation Information System (WREGIS), $104,105 tracked in the Renewable Portfolio Standard Memo Account (RPSCMA), $279,401 for independent evaluator costs, and $2,284,247 for external law department fees and expenses.

SCE identified 121.88 FTEs working on RPS matters in 2014, including 54.6 FTEs in the transmission and distribution department, 11.82 FTEs in the law department, 3.78 FTEs in the settlements and operations service department, 3.94 FTEs in the credit risk and collateral management department, 3.95 FTEs in the portfolio planning and analysis department, 40.51 FTEs in the energy procurement and management department, 0.9 FTEs in the compliance and safety department, and 2.38 FTEs in the regulatory policy department. SCE estimates that the expenses for these staff were $11.2 million. SCE identified $1,904,315 additional administrative expenses, which consists of $515,554 for Western Renewable Energy Generation Information System (WREGIS) fees (includes January through November) and $1,388,761 paid to outside firms for legal work on specifically identified RPS-related matters.

SDGE identified 15 FTEs working on RPS matters in 2014, including 12.5 FTEs in the electric procurement department, 1.5 FTEs in the law department, and 1 FTEs in the regulatory affairs department. SDG&E estimates that the expenses for these staff are $1.6 million. Lastly, SDG&E was unable to provide any other administrative expenditures for RPS procurement that were incurred in 2014.

RPS Program Administrative Expenditures for 2014 - Small IOUs

BVES identified 2 FTEs that worked on the RPS program for 2014. Both employees working on the RPS were in the company's energy resources development department. BVES estimates the total expense for these employees was approximately $82,000 for 2014.

BVES states the company did not have any RPS-related CAISO fees for 2014 since the company did not procure any RPS electricity 2014.[13]

PacifiCorp and Liberty stated in their response to Energy Division's data request that they could not provide a number of employees information nor an estimate of payroll expenditures for employees who worked on the RPS program. They assert that since they operate in various different states, they do not maintain any full time employees specific to their California based operations.

[12] To calculate the total cost associated with the FTEs identified in PG&E's response, PG&E calculated the direct labor costs associated with each FTE's RPS-related activity and estimated benefits associated with RPS activity. For example, for the Law Department, FTEs include attorneys and associated staff. Total costs were calculated by multiplying the FTE hourly rate times RPS hours billed, then adding a pro-rata share of Company benefits. Each department utilized a 1.3957 benefits adder and an estimated allocation of the FTEs Short Term Incentive Plan amount.

[13] BVES's only RPS contracts that yielded RECs in 2014 were for unbundled RECs (Category 3).

Integration Expenditures

The need for integration services, commonly referred to as operational flexibility, is driven by intermittently generating resources and variability in system load. The California Independent System Operator (CAISO) and the Commission are working to determine the need for additional resources for operational flexibility and the extent to which a need may be associated with an increase in intermittent renewable generation. Thus, it is not yet clear what integration costs are directly attributable to the RPS program.

Nonetheless, in response to the Energy Division data request, the utilities identified the following integration costs for 2014 that may potentially be attributable to renewable resources:

- PG&E estimates that it incurred CAISO charges totaling $11.8 million in 2014 that may be attributable to renewable resources.[14]
- SCE identified $7.87 million in CAISO costs associated with renewable integration that may be attributable to the RPS program in 2014.[15]
- SDG&E estimates $33,695 of CAISO ancillary service costs[16] attributable to the RPS program in 2014. In addition to these costs, SDG&E paid costs of $224,786 for Participating Intermittent Resource Program, and fuel costs to supply CAISO with ancillary services.

In response to the Energy Division data request, the small IOUs identified the following integration costs for 2014 that may be attributable to renewable resources:

- BVES stated that all RPS purchases for 2014 were for REC-only procurement, which means that BVES did not incur any CAISO costs associated with those purchases.
- Liberty is in the NV Energy balancing authority and not part of the CAISO balancing authority. Thus, there were no CAISO charges attributable to the RPS program for 2014 nor any other direct costs attributed to the California RPS program.
- PacifiCorp stated that the company did not have any CAISO charges attributable to the RPS program for 2014 nor any other indirect costs attributed to the California RPS program.

[14] Categories identified by PG&E included in these estimates are system operations charge, market service fee, bid segment fee, inter scheduling trade fee, monthly intermittent resources export energy. allocation, intermittent resources net deviation allocation, intermittent resources net deviation settlement, forecasting service fee.

[15] Categories included in this estimate are excess cost allocation, flexible ramping constraint, grid management charges, participating intermittent resources program allocation, forecasting service fee, declined pre-dispatch penalty, real-time market bid cost recovery allocation, and transmission loss obligation.

[16] Cost of non-spinning reserve awards (implying startup of non-spinning reserve generators, generally peaking units and combined cycle duct firing) and regulation up awards (implying increased generation to meet reliability needs).

Transmission Expenditures

Over the next decade a number of new transmission projects will be brought online that will support the state's 33 percent RPS program. In addition to facilitating the delivery of renewable resources, these transmission projects will also increase reliability and provide transmission access for conventional resources. Given the multiple benefits associated with these transmission projects, it is not yet clear how the costs of these transmission lines should be allocated between renewable resources and other conventional resources.

In 2011 the CAISO estimated that the capital expenditures for these new transmission projects could approach $7.2 billion.[17] In response to data requests, PG&E, SCE and SDG&E forecasted RPS transmission-related capital expenditures totaling $9.5 billion through 2020, including $0.1 billion for PG&E, $6.9 billion for SCE and $2.5 billion for SDG&E.

Liberty, BVES and PacifiCorp do not own California transmission lines, nor do any of these utilities forecast any need for constructing or upgrading transmission lines in future operations.

Transmission costs are typically collected through rates after the transmission projects are placed into service. Because most of the RPS-related transmission projects identified by the CAISO and the utilities have not been completed, the transmission costs associated with most of these projects have not been included in 2014 rates.

Moreover, the costs of these transmission projects are collected over time – up to 30 - 50 years for transmission-related assets. As a very general rule of thumb, the amount collected in rates each year is roughly equivalent to 15 percent to 18 percent of the total capital expenditures. In addition, expenditures for high voltage transmission lines are allocated to all ISO load – e.g., PG&E, SDG&E customers will pay for the SCE RPS-related high voltage transmission projects.[18]

Distribution Expenditures

Interconnecting new renewable resources often require the utilities to upgrade their distribution system to accommodate distributed generation in a new location. Both the CPUC-jurisdictional interconnection tariff (Rule 21) and the IOUs' FERC-jurisdictional tariff (WDAT) require distribution system upgrades to be borne by the developer.[19] As a result, estimating these distribution costs separately would result in double counting, as these costs are likely to be included in the bid price from independent power producers and, therefore, included with direct RPS expenditures.

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[17] See CAISO presentation "Transmission needed to meet State Renewable Policy," May 2011, at http://www.energy.ca.gov/2011_energypolicy/documents/2011-05-17_workshop/presentations/02_CalISO_Presentation.pdf.

[18] CAISO, "July 01, 2013 TAC Rates – Updated January 27, 2014," January 2014, at http://www.caiso.com/Documents/HighVoltageAccessChargeRatesEffective1Jul_2013_Updated27Jan_2014.pdf .

[19] For example, PG&E indicates that "Interconnection Customer pays for the distribution system modifications triggered by the Interconnection Customer's generation project."

RPS "Cost Savings"

> Section 910(a)(2)
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> *[The report shall summarize the following information…] All cost savings experienced, or costs avoided, by electrical corporations as a result of meeting the renewables portfolio standard.*

It is difficult to quantify the cost savings, or costs avoided, associated with the RPS program. Specifically, determining the capacity costs savings of RPS procurement requires assessing whether or not the RPS program deferred and/or delayed construction of alternative generation facilities, and the theoretical cost of the alternative resources.

Given the difficulty inherent in quantifying the RPS program's "benefits," for this report, we assessed the benefits using the market price referent (MPR).[20] The Commission has used the MPR in the past to evaluate the above-market costs of RPS resources.[21] We also present a second comparison prepared by the utilities that utilizes short-term prices for energy and capacity. The Commission is currently evaluating other metrics for assessing RPS resource benefits and may use different measures in subsequent reports.

RPS Program "Cost Savings" for 2014 - Large IOUs

The 10-year and 20-year MPRs for contracts with a 2014 start date are 8.4 cents per kWh and 10.1 cents per kWh. Using the 20-year MPR of 10.1 cents per kWh to evaluate the utilities 2014 RPS portfolios results in "benefits" (avoided costs) of approximately $149 million for SCE and $44 million for SDG&E. PG&E did not avoid any costs in 2014 and paid a premium of $127 million for their RPS procurement compared to the MPR benchmark. The utilities' 2014 average RPS costs per kWh are shown in Table 5.

In contrast, the utilities measured the 2014 costs savings using 2014 CAISO day-ahead market price (PG&E - 4.89 cents per kWh, SCE - 4.66 cents per kWh, and SDG&E – 4.48 cents per kWh). In the case of PG&E and SCE, the cost of capacity in the CAISO market (PG&E - $43.08/kW-year; SCE - $70.32/kW-year). Using these estimates, the utilities calculate the following avoided

[20] The MPR is no longer calculated. The MPR was developed in order for the Commission to determine whether an RPS contract selected from a competitive solicitation had above-market costs associated with it. The MPR modeled what it would cost to own and operate a baseload combined cycle gas turbine (CCGT) power plant over various time periods. The cost of electricity generated by such a power plant, at an assumed technical capacity factor and set of costs, was the proxy for the long-term market price of electricity established by this Commission. SB 2 (1X) includes new provisions for setting an RPS procurement expenditure limitation, which the CPUC is implementing in R.15-02-020.

[21] However, some parties have argued that the MPR does not reflect actual market conditions in part because the input assumptions become quickly outdated.

costs: PG&E –$1.05 billion or 4.9 cents per kWh, SCE – $908 million or 5.2 cents per kWh, and SDG&E – $238 million[22] or 4.4 cents per kWh.

The concern with the IOUs' approach is two-fold. First, using the measure of savings (or costs avoided) proposed by utilities, few, if any resources in any of the large IOUs' portfolios would be considered cost-effective – even comparatively low-cost hydroelectric and nuclear resources. By comparison, the overall generation rates in 2014 were approximately 10.1 cents per kWh for PG&E[23], meaning that the average cost of generation resources far exceeded the avoided costs calculated by the large IOUs. Second, the large IOUs' calculations are based on short-run[24] avoided costs and it seems unlikely that the large IOUs would be able to procure 20 percent or more of their portfolios accounted for by the RPS program at these prices.

Today, the large IOUs and the CPUC assess the reasonableness of RPS contracts based on the net market value, according to a "least-cost, best-fit" evaluation methodology that is required by statute and defined by the CPUC. The net market value methodology was recently standardized and refined in D.12-11-016 to include the most significant costs and benefits associated with RPS procurement. The elements of the net market value calculation include the value for energy and capacity and the costs for transmission upgrades, congestion, and integration. A net market value metric may be a useful method for assessing the avoided costs for the RPS program, however, this metric has not been developed yet. A net market valuation metric and/or other RPS valuation benchmarks may be developed in the RPS proceeding, e.g., through the implementation of the new procurement expenditure limitation, or in other CPUC proceedings, and will be discussed in subsequent reports.

RPS Program "Cost Savings" for 2014 - Small IOU

The 10-year and 20-year MPRs for contracts with a 2014 start date are 8.4 cents per kWh and 10.1 cents per kWh. Using the 20-year MPR of 10.1 cents per kWh to evaluate the small IOUs' 2014 RPS portfolios results in "benefits" (avoided costs) of approximately $3.2 million for BVES and $3.1 million for Liberty. PacifiCorp responded that it could not provide any procurement expenditure figures for 2014 because the numbers were not available at the time of Energy Division staff's data request.

None of the small IOUs responded to the Energy Division data request with costs savings calculations utilizing CAISO day-ahead market prices or costs of capacity in the CAISO market.

[22] SDG&E calculated the avoided costs based only on the avoided energy and did not include avoided capacity.
[23] PG&E, "2014 Annual Report," p.45, available at http://investor.pgecorp.com/files/doc_financials/2015/2014-Annual-Report-final.pdf
[24] CAISO hour ahead for generation and CAISO annual for capacity.

Table 3. Large IOU RPS Expenditures (In Dollars) for 2014 [25]

	PG&E	SCE	SDG&E	Total
Biogas	11,086,936	12,033	15,883,970	**26,982,939**
Biomass	318,115,579	32,902,375	34,707,093	**385,725,046**
Geothermal	325,868,761	486,386,894	12,841,312	**825,096,966**
Small Hydro	46,988,529	1,808,501	Confidential	**48,797,030**
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UOG Small Hydro	66,650,348	40,436,699		**107,087,047**
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Total	**2,237,594,220**	**1,630,892,157**	**562,445,111***	**4,431,954,703***

* RPS procurement expenditure totals exclude SDG&E small hydro expenditures, which are confidential for 2014.

Table 4. Large IOU RPS Generation (MWh) for 2014[26]

	PG&E	SCE	SDG&E	Total
Biogas	112,160,876	210,780	187,731,366	**300,103,022**
Biomass	3,328,717,813	449,392,130	385,486,350	**4,163,596,293**
Geothermal	3,899,322,103	6,745,089,818	112,911,000	**10,757,322,921**
Small Hydro	421,773,994	28,127,439	16,798,830	**466,700,263**
Solar PV	5,266,029,858	1,838,339,286	2,596,466,510	**9,700,835,654**
Solar Thermal	878,905,242	751,904,813		**1,630,810,055**
Wind	5,358,545,749	7,431,800,408	2,699,882,579	**15,490,228,736**
UOG Small Hydro	1,292,551,560	275,159,499		**1,567,711,059**
UOG Solar PV	336,905,229	98,184,960	3,241,648	**438,331,837**
Total	**20,894,912,423**	**17,618,209,134**	**6,002,518,283**	**44,515,639,840**

[25] SDG&E was not able to provide final generation and procurement expenditure figures for their UOG solar PV program. Consequently, the figures in the following tables that related to SDG&E UOG solar PV were calculated using SDG&E's best estimates of UOG generation and procurement expenditures.
[26] Ibid.

Table 5. Large IOU RPS Costs (cents per kWh) for 2014[27]

	PG&E	SCE	SDG&E	Average (cents/kWh)
Biogas	9.88	5.71	8.46	**8.99**
Biomass	9.56	7.32	9.00	**9.26**
Geothermal	8.36	7.21	0.11	**7.67**
Small Hydro	11.14	6.43	Confidential	**10.46**
Solar PV	15.26	11.01	11.99	**13.58**
Solar Thermal	19.78	-	-	**17.53**
Wind	8.16	10.10	6.89	**8.87**
UOG Small Hydro	5.16	14.70	-	**6.83**
UOG Solar PV	16.05	4.64	50.18	**13.74**
Average (cents/kWh)	**10.71**	**9.26**	**9.40**	**9.96**

Table 6. Small IOU RPS Generation (MWh) for 2014

	PacifiCorp	BVES	Liberty
Geothermal	NA	-	118,630
Wind	NA	Confidential	-
Total	**NA**	**Confidential**	**118,630**

Table 7. Small IOU RPS Costs (cents per kWh) for 2014

	PacifiCorp	BVES	Liberty
Geothermal	NA	-	7.42
Wind	NA	Confidential	-
Weighted Average	**NA**	**Confidential**	**7.42**

[27] SDG&E was not able to provide final generation and procurement expenditure figures for their UOG solar PV program. Consequently, the figures in the following tables that related to SDG&E UOG solar PV were calculated using SDG&E's best estimates of UOG generation and procurement expenditures.

DISTRIBUTED GENERATION COSTS AND SAVINGS

Section 910(a)(3)

All costs incurred by electrical corporations for incentives for distributed and renewable generation, including the self-generation incentive program, the California Solar Initiative, and net energy metering.

Section 910(a)(4)

All cost savings experienced, or costs avoided, by electrical corporations as a result of incentives for distributed and renewable generation.

This section addresses the costs and savings associated with customer distributed generation programs of the three large IOUs, consistent with the requirements of Section 910(a)(3) and 910(a)(4). The distributed generation (DG) programs addressed in the report include the Self-Generation Incentive Program and the California Solar Initiative. This section also discusses net energy metering. It is important to note that customer distributed generation includes renewable as well as non-renewable resources, but does not directly count towards the 33 percent RPS unless the Renewable Energy Credits associated with RPS-eligible DG are procured by retail sellers and used for RPS compliance.

Self-Generation Incentive Program (SGIP)

The Self-Generation Incentive Program (SGIP) provides incentives to support new and emerging distributed energy resources installed on the customer's side of the utility meter. Qualifying technologies include wind turbines, waste heat to power technologies, pressure reduction turbines, internal combustion engines, microturbines, gas turbines, fuel cells, and advanced energy storage systems.

The SGIP was initially conceived as a peak-load reduction program in response to the energy crisis of 2001. Assembly Bill 970 (Ducheny, 2000) designed the program as a complement to the California Energy Commission's Emerging Renewables Program, which focused on smaller fuel cell and wind systems. Since 2001, the SGIP has evolved significantly; it no longer supports solar photovoltaic (PV) technologies, which were moved under the purview of the California Solar Initiative after its launch in 2007, and now it includes smaller-sized systems previously incentivized through the California Energy Commission's Emerging Renewables Program. It has also been modified to include energy storage technologies and an additional 20 percent incentive bonus for California-manufactured products.

Senate Bill 412 (Kehoe, 2009) modified the focus of the SGIP program to achieve greenhouse gas reductions. Specifically, SB 412 directed the Commission to identify energy resources which will contribute to greenhouse gas reduction goals and to set appropriate incentive levels to

encourage their adoption. The Commission took this opportunity to expand the portfolio of eligible technologies, modify the incentive approach, and enact other operational requirements - including warrantees and performance-based monitoring.

SB 861 (Trailer Bill, 2014) extended the SGIP, which was approaching its end, by five years. As a result, rate collections for the program will continue through 2019, and the program will be offered through 2020, at which point the enabling legislation directs the Commission to provide repayment of all unallocated SGIP funds to ratepayers.[28] The budget for the SGIP program has been $83 million per year since 2007.[29] Of the total budget, $36 million is allocated to PG&E, $28 million to SCE, $11 to SDG&E and $8 million to Southern California Gas (SoCalGas).[30]

Table 8. Annual SGIP Collections (In Millions of Dollars)[31]

	PG&E	SCE	SDG&E	Annual Total
Annual Budgets, 2007 – 2019	$36	$28	$11	$75

The costs and the benefits of the SGIP program were evaluated in a 2011 report[32] conducted by Itron.[33] This study evaluated the cost-effectiveness of distributed generation technologies using an economic model based on a Commission adopted cost-benefit methodology. The cost-effectiveness of distributed generation technologies were examined from three perspectives: society, participants, and program administrators. The societal version of the Total Resource Cost (STRC) test looks at the overall cost-effectiveness of DG technologies to society. The study concluded that, "[r]esults of the STRC test show that nearly all of the evaluated DG technologies are cost-effective to society at either 2010 or 2016 given the input assumptions used in the Base Scenario." The SGIP has commissioned another cost-effectiveness study, with the report expected to be published in the first half of 2015.

[28] D.14-12-033 implemented the rate collections authorized by SB 861.
[29] Prior to 2007, the Commission had authorized funding at $125 million per year in D.01-03-073.
[30] The $8 million allocated to SoCalGas is not included in the Table 8 because Section 910 only requests the costs incurred by electrical corporations.
[31] D.06-12-033, D.08-01-029, D.09-12-047, and D.11-12-030, December 15, 2011.
[32] The CPUC has released a SGIP Impact Evaluation report for 2012, however, the 2012 report looks at the impact of the program on peak demand and GHG reductions during 2012, while the 2011 report looks at the cost-effectiveness of participating technologies. The 2012 report is available at http://www.cpuc.ca.gov/NR/rdonlyres/25A04DD8-56B0-40BB-8891-A3E29B790551/0/SGIP2012ImpactReport_20140206.pdf
[33] Itron, "CPUC Self-Generation Incentive Program, Cost-Effectiveness of Distributed Generation Technologies, Final Report," February 2011, available at http://www.cpuc.ca.gov/NR/rdonlyres/2EB97E1C-348C-4CC4-A3A5-D417B4DDD58F/0/SGIP_CE_Report_Final.pdf

California Solar Initiative (CSI)

The California Solar Initiative (CSI) is overseen by the Commission and provides incentives for solar energy system installations to customers of PG&E, SCE, SoCalGas, and SDG&E. The CSI program provides upfront and performance-based incentives for solar systems installed on existing homes, as well as existing and new commercial, industrial, government, non-profit, and agricultural properties within the service territories of the IOUs.

The CSI program was authorized by the CPUC through a number of regulatory decisions throughout 2006. In addition, the legislature expressly authorized the CPUC to create the California Solar Initiative in 2006 in Senate Bill 1 (Murray). When it launched in 2007, the CSI built upon nearly 10 years of state support for solar, including other incentive programs such as the California Energy Commission's Emerging Renewables Program and SGIP.

The CSI program has an electric budget of $2.367 billion over 10 years (see Table 9), and the goal is to reach 1,940 megawatts (MW) of installed solar capacity from the general market and low income programs combined by the end of 2016.

Table 9. Revised Annual CSI Revenue Requirements (In Millions of Dollars)[34]

	PG&E	SCE	SDG&E	Total
Transfer from SGIP on 12/31/2006	$0	$105	$37	$141
2007	$140	$147	$33	$320
2008	$140	$147	$33	$320
2009	$140	$0	$0	$140
2010	$44	$110	$25	$179
2011	$105	$110	$25	$240
2012	$120	$110	$0	$230
2013	$85	$74	$0	$159
2014	$85	$74	$30	$189
2015	$94	$82	$31	$207
2016	$94	$81	$31	$207
Interest/Forfeited funds	$11	$18	$5	$34
Total	**$1,058**	**$1,058**	**$251**	**$2,367**

The costs and the benefits of the CSI program were evaluated in a 2011 report conducted by Energy and Environmental Economics, Inc. (E3).[35] This study evaluated the cost-effectiveness of solar PV and the CSI program from the following perspectives: society, participants, ratepayers

[34] D.11-12-019, December 1, 2011, Table 4, p. 12, as revised by D.12-12-018, Table 2, p. 7.
[35] E3, "California Solar Initiative Cost-Effectiveness Evaluation," April 2011, available at ftp://ftp.cpuc.ca.gov/gopher-data/energy_division/csi/CSI%20Report_Complete_E3_Final.pdf

and program administrators. The study found that "solar PV installed through the program is cost-effective from the perspective of participants"[36] but did not project the total resource cost test "to achieve a positive benefit/cost ratio during the study period."[37]

Net Energy Metering (NEM)

Customers who install small solar, wind, fuel cells, and other renewable-fueled generation facilities (1 MW or less) to serve all or a portion of onsite electricity needs are eligible for the state's net energy metering programs. NEM allows a customer-generator to receive a financial credit for power generated by their onsite system and fed back to the utility. The credit is used to offset the customers' electricity bill. NEM is an important element of the policy framework supporting direct customer investment in grid-tied distributed renewable energy generation, including customer-sited solar PV systems. As of March 2015, there were over 325,000 residential and non-residential accounts enrolled in California's NEM program.

The Commission submitted a net metering status report to lawmakers in March 2005,[38] and a ratepayer impacts evaluation of the NEM program in 2010.[39] An updated evaluation of the ratepayer impacts of NEM was submitted to the Legislature in October 2013, pursuant to Assembly Bill 2514 (Bradford, 2012).[40] The study found that NEM would result in non-participant ratepayer costs of approximately $1 billion per year in 2020, and that NEM customers were paying, on average, close to the utility's cost of providing service. The study also notes that any changes made to the NEM policy or to residential rate designs following Assembly Bill 327 (Perea, 2013) would have a significant impact on the study results.

California Solar Incentive Program (CSIP)

PacifiCorp California Solar Incentive Program (CSIP) provides residential and commercial Pacific Power customers located in California an upfront incentive for a portion of the initial cost of installing a PV system. The program is functionally the same as the CSI program managed by PG&E, SCE, and SDG&E, except that there is no provision of performance based incentives.

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[36] Ibid, p. 5.
[37] Ibid, p. 16.
[38] CPUC, "Update on Determining the Costs and Benefits of California's Net Metering Program as Required by Assembly Bill 58," March 29, 2005, available at http://docs.cpuc.ca.gov/WORD_PDF/REPORT/45133.PDF
[39] CPUC, "Introduction to the Net Energy Metering Cost Effectiveness Evaluation," March 2010, available at http://www.cpuc.ca.gov/NR/rdonlyres/0F42385A-FDBE-4B76-9AB3-E6AD522DB862/0/nem_combined.pdf
[40] CPUC, "California Net Energy Metering Ratepayer Impacts Evaluation," October 2013, available at http://www.cpuc.ca.gov/PUC/energy/Solar/nem_cost_effectiveness_evaluation.htm

Table 10. CSIP Revenue Requirements (In Dollars)

Year	Total Program Costs
2011	$380,507
2012	$901,742
2013	$1,220,826
2014	$135,623
Total	**$2,638,555**

PENDING NUCLEAR, FOSSIL AND OTHER PROCUREMENT EXPENDITURES

Section 910(a)(5)

All renewable, fossil fuel, and nuclear procurement costs, research, study, or pilot program costs, or other program costs for which an electrical corporation is seeking recovery in rates, that is pending determination or approval by the commission.

This section addresses expenses that are pending determination or approval by the CPUC, consistent with Section 910(a)(5). These include the following:

- A.13-11-003. Application of Southern California Edison Company for Authority to, among other things, Increase its Authorized Revenues for Electric Service in 2015, and to reflect that increase in rates. In this General Rate Case application, SCE requests a revenue increase of $80 million in 2015, a 1.4% increase. SCE seeks approval for a GRC revenue requirement of $6.452 billion in 2015.[41] SCE also seeks approval for a $286 million revenue increase in 2016 and a $315 million revenue increase in 2017.
- A.14-11-003. Application of San Diego Gas & Electric Company for authority to increase rates and charges for electric and gas service effective on January 1, 2016. SDG&E requests a 2016 electric base revenue requirement of $1.585 billion. This is an increase of approximately $20 million over the 2015 electric base revenue requirement authorized in SDG&E's 2012 GRC.
- A.14-12-007. Joint Application of Southern California Edison Company and San Diego Gas & Electric Company for 2014 SONGS Units 2 & 3 Decommissioning Cost Estimate and Related Decommissioning Issues. SCE requests a revenue decrease of $23 million, or 0.2%. SDG&E requests a revenue decrease of $8 million or 0.2%
- A.14-06-011. Application of Southern California Edison Company for Approval of its Forecast 2015 ERRA Proceeding Revenue Requirement. SCE requests a revenue increase of approximately $620 million for fuel and purchased power related costs.

[41] "GRC revenue requirement" only includes the utility revenue requirement requested in GRCs. This figures does not include any revenue requirement requested during the ERRA proceedings.

DECISIONS

Section 910(a)(6)

The decision number for each decision of the commission for recovery in rates of costs incurred by an electrical corporation since the preceding report.

This section provides the decision numbers approving costs for recovery in rates, consistent with Section 910(a)(6) (see Table 11). This list includes only CPUC decisions, as specified in Section 910(a)(6), and does not include decisions issued by the Federal Energy Regulatory Commission (FERC) approving transmission rates.

The primary decisions affecting CPUC-jurisdictional electric rates allow electric utilities to recover costs associated with their distribution and generation facilities and costs of their fuel and purchased power. The nature of the decisions approving those costs is different for the three major IOUs and the small and multi-jurisdictional utilities.

For the large IOUs, the primary rate-setting decisions are the general rate case (GRC) decisions and Energy Resource Recovery Account (ERRA) decisions. The major IOUs' GRC decisions approve an overall revenue requirement and yearly increases for costs associated with the utilities distribution system and utility-owned non-fuel generation facilities, operation and maintenance expenses, administrative and general expenses, customer service expenses, depreciation expenses, taxes, capital expenditures and return on capital investments. Decisions are typically issued every three to four years for each IOU. ERRA decisions approve the utilities' cost forecast for fuel and purchased power for the upcoming year and are typically issued annually for each IOU. To the extent that the utilities spend more or less than forecasted on fuel and purchased power, this is tracked in a balancing account and reviewed in ERRA review proceedings in subsequent years. The IOUs also each file an annual ERRA compliance application, which addresses fuel and purchase power operations for the prior calendar year.

The multi-jurisdictional utilities, which include Bear Valley, PacifiCorp, and Liberty, operate on a smaller scale compared to the three major IOUs. Like the three major IOUs, Bear Valley, PacifiCorp and Liberty recover their distribution and generation costs through their GRC decisions. Recovery of PacifiCorp's fuel and purchased power costs, however, is through its Energy Cost Adjustment Clause (ECAC) decisions which are issued every year. ECAC decisions are similar to the ERRA decisions in that they approve fuel and purchased power costs for the utilities each year, but ECAC decisions apply to multi-jurisdictional utilities while ERRA decisions apply to large IOUs. The CPUC approved an ECAC mechanism for Liberty in its 2013 GRC (D.12-11-030). Liberty only files a separate ECAC application when its total ECAC revenues are expected to change by more than 5% of those revenues being collected through its current ECAC rates. Liberty has not yet filed an ECAC application. D.14-11-002 in Bear Valley's 2013 GRC approved a Supply Adjustment Mechanism that allows it to file an application no more than once per year to recover in rates the most current estimate of its fuel and purchased power costs. Bear Valley has not yet filed such an application.

In addition to the GRC, ERRA, and ECAC decisions, each year there are many other decisions that approve revenues for recovery in rates, including decisions authorizing expenditures on the California Solar Initiative, the Self-Generation Incentive Program, demand response programs, public purpose programs (energy efficiency, low-income energy efficiency, the California Alternate Rates for Energy program), and DWR power and bond charges, among others.

Table 11. Major Decisions Approving Costs for Recovery in Rates for 2011, 2012, 2013 and 2014

	BVES	Liberty	PacifiCorp	PG&E	SCE	SDG&E
GRC	D.14-11-002	D.12-11-030	D.10-09-010	D.07-03-044 D.11-05-018 D.14-08-032	D.09-03-025 D.12-11-051	D.08-07-046 D.13-05-010
ERRA/ECAC		D.12-11-030	D.10-11-021 D.12-03-022 D.13-09-011 D.14-08-003 D.15-03-005	D.12-12-008 D.11-12-031 D.10-12-007 D.13-12-043 D.14-12-053	D.10-02-019 D.11-04-006 D.12-07-007 D.13-10-052 D.14-05-003	D.09-04-021 D.10-04-010 D.11-07-041 D.12-07-006 D.12-08-007 D.12-12-022 D.13-10-053 D.14-02-022 D.14-05-022 D.15-01-004
AMI/Smart Meter/Smart Connect				D.06-07-027 D.09-03-026	D.08-09-039	D.07-04-043
Energy Efficiency		D.12-11-030		D.09-09-047 D.11-12-036		
Energy Efficiency Incentives		D.12-11-030		D.10-12-049 D.12-11-015 D.12-12-032		
Low Income		D.12-06-023		D.08-11-031 D.12-08-044		
Demand Response				D.09-08-027		
SGIP				D.09-12-047		
CSI				D.10-09-046 D.11-07-031 D.11-12-019		
Solar PV				D.10-04-052	D.09-06-049	D.10-09-016
EPIC				D.12-05-006 D.12-05-037		
21s Century Energy Systems				D.12-12-031		

	BVES	Liberty	PacifiCorp	PG&E	SCE	SDG&E
DWR Power and Bond Charge				D.10-12-006 (2011 RRQ) D.11-12-005 (2012 RRQ) D.12-11-040 (2013 RRQ) D.12-05-006 D.13-11-003 (Kern River Transportation Agreement Cost Allocation) D.13-12-004 (2014 RRQ) D.14-12-002 (2015 RRQ)		
Cost of Capital				D.12-12-034		
CARB				D.12-10-044		
Nuclear				D.10-08-003 (Seismic Studies) D.12-09-008 (Seismic Studies) D.10-07-047 (Decommissioning) D.14-12-082 (Decommissioning)	D.05-12-040 (Steam Gen. Replacement) D.10-07-047 (Decommissioning) D.14-12-082 (Decommissioning) D.12-05-004 (Seismic studies at SONGS) D.14-11-040 (SONGS Steam Generators)	
Other	D.12-03-048 (RPS)	–	– D.11-05-002 & D.12-10-028 (Klamath Dam Removal) – D.11-03-007 (Solar Incentive Program)	– D.10-06-048 (Cornerstone) – D.08-02-009 & D.11-01-036 (Smart AC) – D.11-07-039 – (ERRA Review) – D.09-09-020 – (2011 Retirement Plan) – D.06-11-048 (LTPP) – D.08-02-019 (Colusa) – D.10-04-028 (Fuel Cell)	– D.09-12-014 (Hydrogen Electric CA) – D.10-07-049 (ERRA Review)	– D.10-12-053 (Z-Factor) – D.09-01-008 (Miramar Energy) – D.10-10-004 (Catastrophic Events) – D.09-09-011 (Pensions) – D.08-02-034 (Rates) – D.09-03-025 (SONGS)

ELECTRIC RETAIL LOAD SERVED

Section 910(a)(7)

Any change in the electrical load serviced by an electrical corporation since the preceding report.

This section addresses the changes in electrical load served by PG&E, SCE, and SDG&E, consistent with the requirements of Section 910(a)(7). Table 12 provides bundled retail sales for PG&E, SCE, and SDG&E for the period 2003 through 2014. Retail sales are the basis for determining the RPS procurement requirement and retail sales figures include only sales to bundled service customers for whom the IOUs supply power as well as provide transmission and distribution services.

As illustrated below, bundled retail sales have decreased for each of the IOUs for four of the past five years, likely due in part to the recession, increased implementation of energy efficiency and distributed generation technologies, and direct access migration.

Table 12. PG&E, SCE, and SDG&E Bundled Retail Sales, 2003 – 2014 (GWh)

Annual Retail Sales (GWh)	PG&E	Annual Change (%)	SCE	Annual Change (%)	SDG&E	Annual Change (%)
2003	71,099	base year	70,617	base year	15,044	base year
2004	72,114	1.41%	72,964	3.22%	15,812	4.86%
2005	72,372	0.36%	74,994	2.71%	16,002	1.19%
2006	76,356	5.22%	78,863	4.91%	16,847	5.02%
2007	79,078	3.44%	79,505	0.81%	17,056	1.23%
2008	81,524	3.00%	80,956	1.79%	17,410	2.03%
2009	79,624	-2.39%	78,048	-3.73%	16,994	-2.45%
2010	77,485	-2.76%	75,141	-3.87%	16,283	-4.37%
2011	74,864	-3.50%	73,777	-1.85%	16,249	-0.21%
2012	76,205	1.76%	75,597	2.41%	16,627	2.27%
2013	75,537	-0.88%	73,823	-2.40%	16,504	-0.74%
2014	74,865	-0.89%	73,249	-0.78%	16,471	-0.20%

Table 13. Liberty, PacifiCorp, and BVES Bundled Retail Sales, 2003 – 2014 (MWh)

Annual Retail Sales (MWh)	Liberty	Annual Change (%)	PacifiCorp	Annual Change (%)	BVES	Annual Change (%)
2003	-	not active	834,702	base year	132,850	base year
2004	-	not active	841,819	0.85%	135,759	2.14%
2005	-	not active	836,674	-0.61%	134,066	-1.26%
2006	-	not active	851,205	1.71%	141,235	5.08%
2007	-	not active	884,865	3.80%	140,441	-0.57%
2008	-	not active	882,854	-0.23%	137,358	-2.24%
2009	-	not active	848,225	-4.08%	136,365	-0.73%
2010	-	not active	830,645	-2.12%	132,167	-3.18%
2011	593,434	base year	808,648	-2.72%	136,724	3.33%
2012	545,400	-8.81%	782,661	-3.32%	130,784	-4.54%
2013	554,622	1.66%	777,219	-0.70%	133,438	6.18%
2014	591,589	6.67%	768,057	-1.18%	126,000	-5.57%

UTILITY WORKFORCE DIVERSITY

Section 910(a)(8)

The efforts each electrical corporation is taking to recruit and train employees to ensure an adequately trained and available workforce, including the number of new employees hired by the electrical corporation for purposes of implementing the requirements of Article 16 (commencing with Section 399.11) of Chapter 2.3, the goals adopted by the electrical corporation for increasing women, minority, and disabled veterans trained or hired for purposes of implementing the requirements of Article 16 (commencing with Section 399.11) of Chapter 2.3, and, to the extent information is available, the number of new employees hired and the number of women, minority, and disabled veterans trained or hired by persons or corporations owning or operating eligible renewable energy resources under contract with an electrical corporation. This paragraph does not provide the commission with authority to engage in, regulate, or expand its authority to include, workforce recruitment or training.

Section 910(a)(8) requests information on IOU workforce recruitment and training, including goals for increasing women, minority, and disabled veterans trained and/or hired to work on the RPS program. The following sections review programs that facilitate the development of a diverse workforce and the procurement of goods and services from diverse businesses amongst large and small IOUs.

Utility Labor Force Recruitment and Training

Section 910(a)(8) requests information about "The efforts each electrical corporation is taking to recruit and train employees to ensure an adequately trained and available workforce, including the number of new employees hired by the electrical corporation for purposes of implementing the requirements of Article 16 (commencing with Section 399.11) of Chapter 2.3 (the RPS Program)."

The following sections detail the recruitment, training and employment efforts described by each of the utilities for 2014. It also provides the utility hiring and staffing levels for implementing and administering the RPS program, as reported by the IOUs.

PG&E

PG&E states that it uses a variety of internal and external online resources to fill vacant job positions, including targeted professional affiliation groups. Once hired, new employees must complete training related to PG&E operations, but there is no unique training for employees implementing the requirements of the RPS program.

In 2014 PG&E hired 14 employees across the four departments[42] responsible for implementing the RPS program.[43] [44]

[42] The four departments responsible for implementing the RPS program are energy procurement, legal, regulatory affairs, and electric transmission operations.

SCE

SCE states that it recruits internally and externally to fill vacant positions, and seeks recent graduates and experienced professionals depending on the position. All employees that join SCE receive new-hire training modules that cover topics such as the California Independent System Operator markets, procurement processes, as well as on-the-job training specific to their position.

SCE states that incremental staffing for the implementation of the 33% RPS cannot be clearly identified for 2014. Using their best estimates, SCE believes that approximately 122 FTEs supported RPS-related activities during 2014. SCE attributes the increase from 113 FTEs in 2013 to 122 FTEs in 2014 to (1) a change in how SCE is accounting for certain responsibilities that count towards assisting the RPS, as well as (2) internal restructuring of existing resources.

SDG&E

SDG&E reports that it recruits future employees from targeted schools around the nation. The company focuses on recruiting students who excel in the fields of accounting, finance, engineering and information technology. Additionally, SDG&E participates in numerous outreach efforts to connect the company with the southern California community and to raise awareness of employment opportunities and job requirements. Finally, SDG&E reports that it uses targeted recruiting efforts through social media websites to recruit mid-career professionals, and also provides a "Career" section on their company website to recruit prospective employees.

SDG&E identified training options that are available to their employees, from a basic "Career Enhancement Program," which helps employees develop communication skills, basic math, and resume writing, to certification classes that provide employees with the knowledge and skills essential for success at different levels within the organization. Additionally, SDG&E offers specialized training for employees who are interested in management and executive management opportunities within the company.

SDG&E does not track information relating to the number of new employees hired and/or trained for purposes of implementing the requirements of the RPS program.

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[43] PG&E estimates that 172 total employees worked on implementing the RPS program during 2014.

[44] PG&E did not individually query each employee comprising those FTEs to respond to this data request. Instead, PG&E's queried its human resources records to obtain this voluntarily reported information. As discussed above, PG&E employees' identity information is voluntary and is self-reported.

PacifiCorp

PacifiCorp uses various recruitment efforts to find new employees. In their response to Energy Division's data request, PacifiCorp stated that the company searches for new employees through local newspapers, online message boards and participation in job and career fairs. All new employees are required to complete mandatory training courses on the company's code of conduct and utility safety within 30 days of being hired.

PacifiCorp does not track the number of incremental employees hired and/or trained for purposes of implementing the requirements of the RPS program in California.

BVES

In response to Energy Division's data request, BVES did not provide any information on their efforts to recruit new employees. BVES did state that the company does offer training to current and new employees to ensure they are knowledgeable of company and industry practice/procedures.

BVES does not track information relating to the number of new employees hired and/or trained for purposes of implementing the requirements of the RPS program.

Liberty

Liberty did not provide any information on their efforts to recruit new employees. Liberty stated that most of the employees that are responsible for implementing the California arm of their RPS program are contractors that are actually employed by NV Energy.

Liberty does not track information relating to the number of new employees hired and/or trained for purposes of implementing the requirements of the California RPS program.

Utility Workforce Diversity Goals

Section 910(a)(8) also requests information on "[T]he goals adopted by the electrical corporation for increasing women, minority, and disabled veterans trained or hired for purposes of implementing the requirements of the RPS program.

The large and small IOUs each reported having a goal of providing an equal employment opportunity in all aspects of their employment relationships, including recruitment, hiring, compensation and benefits, development, promotion, transfer, discipline, layoff/recall, and termination of employment for all employees.

The following sections discuss the individual policies of each utility for increasing women, minority, and disabled veterans trained or hired for purposes of implementing the requirements of the RPS program.

PG&E

PG&E states that the company has a standing goal of building a workforce that is representative of the communities it serves, and to fill vacant positions in parity with the relevant labor market

when any position(s) become available. Aside from this general goal, PG&E does not have any company policies for increasing women, minority, and disabled veterans trained or hired specifically for purposes of implementing the requirements of the RPS program.

SCE

SCE stated that the company works to ensure that their suppliers and workforce reflect the multicultural marketplace in which it operates. To achieve their diversity goals, SCE works closely with low-income, minority and women's groups to advance their employment opportunities. SCE provides reasonable accommodation, barring undue hardships, for known physical or mental limitations of otherwise qualified applicants or employees with disabilities, including disabled veterans.

However, SCE does not have goals adopted for increasing women, minority, and disabled veterans trained or hired specifically for purposes of implementing the requirements of the RPS program.

SDG&E

SDG&E stated the company works to increase corporate diversity through involvement with a variety of diversity organizations, e.g., the Society of Hispanic Professional Engineers (SHPE), the National Society of Black Engineers (NSBE), the Asian Business Association (ABA), the National Association of Black Accountants (NABA), and the Society of Women Engineers (SWE).

SDG&E described its workforce readiness program as a partnership with educational, trade, community, federal and state organizations to better prepare the future workforce for professional and trade opportunities in utilities, as well as other science, technology, engineering or math (STEM) careers. This initiative is focused on the need to prepare the future workforce and to help shrink the gap in education proficiency in economic and academically challenged communities. SDG&E's current programs are specifically designed to train and skill-up minority and female candidates to increase their marketability for positions that usually require less than two years of experience.

While SDG&E described involvement with diverse community organizations, the company does not have any specific goals targeted at increasing the number of women, minority, and disabled veterans for the specific purposes of implementing the requirements of the RPS program.

PacifiCorp

In their response to Energy Division's data request, PacifiCorp stated that the company does not track any metrics for increasing the number of women, minority and/or disabled veteran workers working in California. PacifiCorp creates and monitors affirmative action plans (AAP) as required under Executive Order 11246. Since PacifiCorp's California employee population is below 50 employees, there is no separate AAP created for these employees.

PacifiCorp did state that despite not having an AAP, the company is committed to the principles of affirmative action when hiring new employees.

BVES

BVES did not provide any information on their efforts to promote the hiring of women, minorities and disabled veterans. BVES did state that it provides equal opportunity in all aspects of its employment, including recruitment, training, compensation and promotion.

Liberty

Liberty does not currently have any company initiatives to promote the hiring of women, minority or disabled veteran workers. Liberty states that the company is an equal opportunity employer and is committed to ensuring an equal and diverse workforce to implement the RPS program.

RPS Program Supplier Diversity

Section 910(a)(8) also requests that Energy Division report "[T]o the extent information is available, the number of new employees hired and the number of women, minority, and disabled veterans trained or hired by persons or corporations owning or operating eligible renewable energy resources under contract with an electrical corporation."

Initiated in 1988, the CPUC's General Order 156[45] (GO 156) requires all investor-owned electric, gas, water and telecommunication utility companies with gross annual revenues in excess of $25 million and their regulated subsidiaries and affiliates, to develop and implement programs to increase the procurement of goods, services, and fuel from women, minority, and disabled veteran-owned business enterprises (WMDVBEs).

SCE, PG&E and SDG&E, state that they are committed to ensuring that their suppliers reflect the multicultural marketplace in which they operate, and are committed to supplier diversity. During 2014 each utility collaborated with representatives from the CPUC and existing and prospective electric commodity suppliers in a Supplier Diversity Roundtable (SDR) to develop and implement programs to increase the procurement from WMDVBEs. The SDR worked to build a cross-utility foundation to enable and accelerate the entry of WMDVBEs into the utility electric procurement market. The SDR also explored the barriers and accelerants for WMDVBEs doing business in renewables. Additionally, SCE, PG&E and SDG&E held a coordination event between their Conventional and Renewables Power Purchase Agreement (PPA) holders and WMDVBE goods and services suppliers to support greater diversity in utility RFOs.

Through collaborative efforts like the SDR, SCE, PG&E and SDG&E are meeting the GO 156 goals and seeing annual increases in procurement from diverse suppliers.

In addition to the group efforts listed above, each utility has implemented their own corporate policies to increase the amount of women, minority, and disabled veterans trained or hired by

[45] More GO 156 supplier diversity information available at the CPUC supplier diversity website, at http://www.cpuc.ca.gov/puc/supplierdiversity/

persons or corporations owning or operating eligible renewable energy resources that are under contract with an electrical corporation. The following sections detail each utilities individual effort to increase procurement from WMDVBEs

PG&E

PG&E reports that it relies on the widespread participation and contributions of employees in all departments to promote supplier diversity, including a specialized team of employees dedicated to educating PG&E's internal employees on the scope of PG&E's supplier diversity programs, key initiatives and programmatic milestones. Additionally, PG&E has established a technical assistance program where employees can provide targeted advice to DBEs looking to participate in the diversity program.

In addition to their internal endeavors, PG&E states that it engages in various external activities to increase diversity amongst suppliers. PG&E maintains an active engagement with the California Utilities Diversity Council (CUDC), a broad-based collaboration of utilities, diversity stakeholders and representatives from the CPUC that focus directed outreach programs that take advantage of California's rich diversity resources. To increase Disabled Veteran Business Enterprises (DVBE) utilization, PG&E has engaged in operations with the California Disabled Veteran Business (DVB) Alliance and the Elite Service-Disabled Veteran-Owned Business (SDVOB) Network to identify DVBEs for direct and subcontracting opportunities.

Finally, PG&E stated that it was an active participant in the in the Business Consortium Fund (BCF). The BCF is a minority business development company created by the National Minority Supplier Development Council to provide contract financing to certify MBEs through a network of local participating banks and funded through several sources including corporations, state governments and foundations.

Historically, PG&E has not tracked information regarding the number of new employees that PG&E RPS contractors/counterparties have hired or the number of women, minority, and/or disabled veterans trained or hired. However, PG&E claims that it has started collecting this information from their suppliers during their RPS request for offers (RFO) and should be able to provide more information in future reports.

SCE

SCE expressed support of GO 156 and supplier diversity through an industry letter that was circulated to DBE and other RPS suppliers on May 3, 2013. SCE has also established a WMDVBEs "Help & Guidance" website to provide more information on SCE's supplier diversity programs.[46] The website also includes tools, such as a "DBE Readiness Checklist" for selling power to SCE that outlines the process for different renewable programs, auctions and solicitations.

Additionally, SCE participated with representatives from the CPUC and existing and prospective electric commodity suppliers at the Western Systems Power Pool (WSPP)/North American Energy Market Association (NAEMA) conference in coordinating a Supplier Diversity Power Workshop. The Supplier Diversity Power Workshop effort to build a cross-utility foundation to educate Women, Minority, and Disabled Veterans Business Enterprises (WMDVBEs) on entry into the utility electric procurement market.

In their most recent RPS solicitation, SCE requested RPS counterparties report the number of their employees and the number of WMDVBE trained or hired by companies that entered into PPAs with SCE. The following is information that has been provided to SCE by counterparties at their discretion, regarding the number of new employees SCE RPS Power Purchase Agreement holders have trained or hired, separated to identify those that were WMDVBEs.

Table 14. Employees and WMDVBE Trained or Hired by Companies that entered into PPAs with SCE

Year	Number of New Employees	Number of Women, Minority, Disabled Veterans
Employees Hired by SCE	359	200
Employees Trained by Contracting Counter Parties	2	2

SDG&E

SDG&E has established internal departments such as Community Relations and Public Affairs to promote supplier diversity. SDG&E educates internal employees about supplier diversity options and programs through their quarterly meetings and internal communications. SDG&E's has designated a group of carefully selected management employees as "HR Champions," and will send these employees to community outreach events to promote SDG&E supplier diversity programs.

[46]More diversity information available at the SCE's supplier diversity website, at: https://www.sce.com/wps/portal/home/partners/buying-selling/supplier-diversity

SDG&E did not hold an RFO in 2014 and did not request this information in the past. As part of SDG&E's RPS RFO process, SDG&E will request this information from developers in future RFOs.

PacifiCorp

In response to the Energy Division data request, PacifiCorp stated that the company contracted persons or corporations that owned or operated RPS eligible renewable energy resources that had eleven employees in California during 2014. Of the eleven employees, one is female and two are minority. The company did not contract any person or company with employees that qualify as disabled veterans.

PacifiCorp was not able to provide information about the hiring of women, minorities or disabled veterans for years 2014.

BVES

In response to Energy Division's data request, BVES stated that the company is actively engaged in the GO 156 supplier diversity program at the CPUC. However, BVES does not specifically track information relating to how many women, minority, and/or disabled veterans were trained or hired by persons or corporations that entered into RPS contracts with BVES.

Liberty

In response to Energy Division's data request, Liberty did not provide any information on supplier diversity hires. Liberty stated that the company is currently unable to provide information relating to how many women, minority, and/or disabled veterans were trained or hired by persons or corporations that entered into RPS contracts with Liberty for 2014.

Evaluation Metrics for RPS Procurement

Both large and small IOUs employ "least-cost and best-fit" (LCBF) evaluation metrics to inform the procurement of RPS resources, a requirement of Public Utilities Code Section 399.13(a)(4). LCBF evaluation creates relative ranking of RPS procurement offers using quantitative and qualitative information about each proposed offer. The Commission intends to review the LCBF evaluation metrics, including project evaluation metrics for "workforce recruitment, training, and retention efforts, including the employment growth associated with the construction and operation of eligible renewable energy resources and goals for recruitment and training of women, minorities, and disabled veterans" under the current RPS Rulemaking (R.)15-02-020.

APPENDIX A

910. (a) By February 1 of each year, the commission shall prepare and submit to the policy and fiscal committees of the Legislature a written report summarizing the following information:

(1) All electrical corporation revenue requirement increases associated with meeting the renewables portfolio standard, as defined in Section 399.12, including direct procurement costs for eligible renewable energy resources and renewable energy credits, administrative expenses for procurement, expenses incurred to ensure a reliable supply of electricity, and expenses for upgrades to the electrical transmission and distribution grid necessary to the delivery of electricity from eligible renewable energy resources to load.

(2) All cost savings experienced, or costs avoided, by electrical corporations as a result of meeting the renewables portfolio standard.

(3) All costs incurred by electrical corporations for incentives for distributed and renewable generation, including the self-generation incentive program, the California Solar Initiative, and net energy metering.

(4) All cost savings experienced, or costs avoided, by electrical corporations as a result of incentives for distributed and renewable generation.

(5) All renewable, fossil fuel, and nuclear procurement costs, research, study, or pilot program costs, or other program costs for which an electrical corporation is seeking recovery in rates, that is pending determination or approval by the commission.

(6) The decision number for each decision of the commission of recovery in rates of costs incurred by an electrical corporation since the preceding report.

(7) Any change in the electrical load serviced by an electrical corporation since the preceding report.

(8) The efforts each electrical corporation is taking to recruit and train employees to ensure an adequately trained and available workforce, including the number of new employees hired by the electrical corporation for purposes of implementing the requirements of Article 16 (commencing with Section 399.11) of Chapter 2.3, the goals adopted by the electrical corporation for increasing women, minority, and disabled veterans trained or hired for purposes of implementing the requirements of Article 16 (commencing with Section 399.11) of Chapter 2.3, and, to the extent information is available, the number of new employees hired and the number of women, minority, and disabled veterans trained or hired by persons or corporations owning or operating eligible renewable energy resources under contract with an electrical corporation. This paragraph does not provide the commission with authority to engage in, regulate, or expand its authority to include, workforce recruitment or training.

(b) The commission may combine the information required by this section with the reports prepared pursuant to Article 16 (commencing with Section 399.11) of Chapter 2.3.