



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

**February 2014**





# Table of Contents

- INTRODUCTION ..... 1
  - Background..... 1
  - Summary ..... 2
- RENEWABLE PROGRAM COSTS AND SAVINGS..... 4
  - RPS Direct Expenditures..... 4
  - RPS Indirect Expenditures..... 9
  - RPS “Cost Savings” ..... 13
- DISTRIBUTED GENERATION COSTS AND SAVINGS..... 21
  - Self-Generation Incentive Program (SGIP)..... 21
  - California Solar Initiative (CSI)..... 22
  - Net Energy Metering (NEM)..... 24
  - California Solar Incentive Program (CSIP)..... 25
- PENDING NUCLEAR, FOSSIL AND OTHER PROCUREMENT EXPENDITURES ..... 26
- DECISIONS..... 28
- LOAD SERVED ..... 32
- UTILITY WORKFORCE DIVERSITY..... 34
- APPENDIX A..... 43

# 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).<sup>1</sup> Section 910 requires the California Public Utilities Commission (CPUC or Commission) to provide an annual report to the Legislature on 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.

In addition, SB 836 (Padilla, 2011)<sup>2</sup> requires the CPUC to report to the Legislature "the costs of all electricity procurement contracts for eligible renewable resources, including unbundled renewable energy credits, and all costs for utility-owned generation approved by the Commission." This report, referred to herein as the Padilla report, was first issued in February 2012 and will be issued annually thereafter.

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<sup>3</sup> (Liberty), and Bear Valley Electric Service (BVES) and relied on other publically available information.

---

<sup>1</sup> All further references to sections refer to the Pub. Util. Code unless otherwise specified.

<sup>2</sup> Codified in Pub. Util. Code Section 911.

<sup>3</sup> 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 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 2012 and 2013 costs/expenditures for the large IOUs - SCE, PG&E and SDG&E. In addition, 2011, 2012 and 2013 costs/expenditures for the small IOUs – Liberty, BVES and PacifiCorp.
- In 2012 PG&E, SCE, and SDG&E spent approximately \$1.2 billion, \$1.3 billion and \$191 million<sup>4</sup>, respectively, on RPS procurement. The large IOUs spent a combined total of \$2.7 billion on direct RPS procurement in 2012 (see Table 1).<sup>5</sup> RPS procurement comprised 19.0 percent PG&E's retail load in 2012, 19.9 percent of SCE's retail load and 20.3 percent of SDG&E's retail load.<sup>6</sup>
- The large IOUs forecast that 2013 RPS procurement will represent the following percentages of the utilities' retail sales: 23.7 percent for PG&E, 23.2 percent for SCE and 24.9 percent for SDG&E. PG&E, SCE, and SDG&E spent approximately \$1.7 billion, \$1.4 billion and \$316 million<sup>7</sup>, respectively. The large IOUs spent a combined total of \$3.4 billion on direct RPS procurement in 2013 (see Table 2).
- In 2011 RPS Liberty, BVES, and PacifiCorp spent approximately \$9.0 million, \$0.2 million and \$4.9 million, respectively, on RPS procurement. The small IOUs spent a combined total of \$14.1 million on direct RPS procurement. RPS procurement comprised 21.0 percent of Liberty's retail load in 2011, 1.6 percent of BVES's retail load and 23.5 percent of PacifiCorp's retail load (see Table 3).<sup>8</sup>
- 2012 RPS deliveries represented the following percentages of the small utilities' retail sales: 22.5 percent for Liberty, 8.3 percent for Bear Valley Electric Service Company (BVES) and 20.1 percent for PacifiCorp. Liberty, BVES, and PacifiCorp spent

---

<sup>4</sup> SDG&E's 2012 RPS procurement expenditures of \$191 million exclude solar PV expenditures which are confidential for 2012.

<sup>5</sup> 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.

<sup>6</sup> 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>.

<sup>7</sup> SDG&E's 2013 RPS procurement expenditures of \$316 million exclude geothermal expenditures which are confidential for 2013.

<sup>8</sup> PacifiCorp, BVES, and Liberty "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>.

approximately \$8.8 million, \$0.3 million and \$4.6 million, respectively. The small IOUs spent a combined total of \$13.7 million on direct RPS procurement in 2012 (see Table 4).

- The small IOUs forecast that 2013 RPS procurement will represent the following percentages of the utilities' retail sales: 21.8 percent for Liberty and 19.6 percent for PacifiCorp. Liberty spent approximately \$9.1 million on direct RPS procurement in 2013 (see Table 5). Energy Division staff requested 2013 procurement expenditure information from PacifiCorp, however, PacifiCorp responded that it could not provide procurement expenditure figures for 2013 because the numbers were not available at the time of Energy Division staff's data request. BVES responded to Energy Division staff's request, however, their procurement information for 2013 is confidential pursuant to CPUC confidentiality rules (see Table 5).
- 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.
- Average 2012 and 2013 RPS expenses compare favorably when compared to a long-term energy and capacity pricing 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 2012 electric portion of the Self-Generation Incentive Program (SGIP) and the California Solar Initiative (CSI) budgets for the large IOUs were \$75 million and \$230 million, respectively.
- The 2013 electric portion of the Self-Generation Incentive Program (SGIP) and the California Solar Initiative (CSI) budgets for the large IOUs were \$75 million and \$159 million, respectively. The benefits of these programs have been assessed in a variety of other reports referenced herein.
- Bundled retail loads of PG&E, SCE and SDG&E have decreased during four of the past five years. PG&E forecasts 75,537 GWh in retail sales for 2013, SCE forecasts 73,823 GWh and SDG&E forecasts 16,504 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)

*[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 2012 and 2013

On a generation basis, the large IOUs' 2012 RPS procurement represented the following percentages of the utilities' retail sales: 19.0 percent for PG&E, 19.9 percent for SCE and 20.3 percent for SDG&E.<sup>9</sup> PG&E, SCE, and SDG&E spent approximately \$1.2 billion, \$1.3 billion and \$191 million<sup>10</sup>, respectively, on direct RPS procurement in 2012 (see Table 1),<sup>11</sup> for a combined total of \$2.7 billion.<sup>12</sup> For 2012, RPS expenditures represented approximately 9.7 percent of PG&E's total revenue requirement of \$12.3 billion, 11.2 percent of SCE's total revenue requirement of \$11.3 billion and 6.3 percent of SDG&E's total revenue requirement of \$3 billion.<sup>13</sup> <sup>14</sup> These percentages differ because of the overall size of the utilities' revenue

---

<sup>9</sup> 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>.

<sup>10</sup> SDG&E's 2012 RPS procurement expenditures of \$191 million exclude solar PV expenditures which are confidential for 2012.

<sup>11</sup> 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.

<sup>12</sup> Total large IOU RPS procurement expenditures of \$2.7 billion exclude SDG&E solar PV expenditures which are confidential for 2012.

<sup>13</sup> CPUC, "Electric and Gas Utility Cost Report," April 2013, available at <http://www.cpuc.ca.gov/NR/rdonlyres/26E020D9-D7D1-45B3-A637-0E89456F1F9C/0/AB67CostReport201204252013.pdf>.

<sup>14</sup> "Total revenue requirement" consists of both the utility revenue requirement requested in General Rate Cases (GRCs) and the Energy Resource Recovery Account (ERRA) proceedings.

requirement and because the cost of renewables depend upon technology type and geographical location.<sup>15</sup>

**Table 1. Direct RPS Procurement Expenditures for RPS for 2012 (In Dollars)<sup>16</sup>**

|                        | PG&E                 | SCE                  | SDG&E               | Total                 |
|------------------------|----------------------|----------------------|---------------------|-----------------------|
| <b>Biogas</b>          | 5,327,725            | 35,156,543           | 14,617,844          | 55,102,111            |
| <b>Biomass</b>         | 305,276,780          | 8,227,073            | 32,938,250          | 346,442,103           |
| <b>Geothermal</b>      | 209,832,496          | 473,793,247          | 79,862,485          | 763,488,228           |
| <b>Small Hydro</b>     | 40,647,937           | 18,230,163           | 939,153             | 59,817,252            |
| <b>Solar PV</b>        | 176,371,704          | 10,245,933           | Confidential        | 186,617,637*          |
| <b>Solar Thermal</b>   | -                    | 101,611,519          | -                   | 101,611,519           |
| <b>Wind</b>            | 364,429,773          | 553,185,127          | 62,458,819          | 980,073,719           |
| <b>UOG Small Hydro</b> | 69,259,250           | 53,554,178           | -                   | 122,813,428           |
| <b>UOG Solar PV</b>    | 27,686,632           | 26,085,872           | -                   | 53,772,504            |
| <b>Total</b>           | <b>1,198,832,297</b> | <b>1,280,089,654</b> | <b>190,816,551*</b> | <b>2,669,738,501*</b> |

\* RPS procurement expenditure totals exclude SDG&E solar PV expenditures which are confidential for 2013.

The large IOUs forecast that 2013 RPS procurement will represent the following percentages of the utilities' retail sales: 23.7 percent for PG&E, 23.2 percent for SCE and 24.9 percent for SDG&E. PG&E, SCE, and SDG&E spent approximately \$1.6 billion, \$1.4 billion and \$316 million<sup>17</sup>, respectively, on direct RPS procurement in 2013 (see Table 2), for a combined total of \$3.4 billion.<sup>18</sup> For 2013, RPS expenditures represented approximately 13.4 percent of PG&E's total revenue requirement of \$12.4 billion, 11.9 percent of SCE's total revenue requirement of \$12 billion and 10 percent of SDG&E's revenue requirement of \$3 billion.<sup>19 20</sup> These percentages

<sup>15</sup> In addition, the figures above compare *actual* 2012 renewable expenditures with 2012 revenue requirements, which include *forecasted* fuel and purchase power expenditures; therefore, the comparisons will not be exact.

<sup>16</sup> These totals may not sum due to rounding error.

<sup>17</sup> SDG&E's 2013 RPS procurement expenditures of \$316 million exclude geothermal expenditures which are confidential for 2013.

<sup>18</sup> Total large IOU RPS procurement expenditures of \$3.4 billion exclude SDG&E geothermal expenditures which are confidential for 2013.

<sup>19</sup> CPUC, "2013 Senate Bill 695," June 2013, available at <http://www.cpuc.ca.gov/NR/rdonlyres/67AEBAAC-A9B7-4A28-9400-00598F92E0A0/0/SB695report2013final.pdf>.

<sup>20</sup> "Total revenue requirement" consists of both the utility revenue requirement requested in General Rate Cases (GRCs) and the Energy Resource Recovery Account (ERRA) proceedings.



differ because of the overall size of the utilities' revenue requirement and because the cost of renewables depend upon technology type and geographical location.<sup>21</sup>

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 (see Table 3 – Table 11 at the end of this section of the report). Total RPS procurement increased from approximately 32,695 GWh in 2011 to 32,931 GWh in 2012 and 39,136 GWh in 2013. Direct RPS expenditures increased as well, from \$2.5 billion in 2011 to \$2.7 billion in 2012 and \$3.4 billion in 2013. In 2012, the utilities' RPS portfolios (in dollar terms) were primarily comprised of wind (40 percent) and geothermal (30 percent) resources, followed by biomass (14 percent).

In 2013, the large IOUs' RPS portfolios (in dollar terms) were primarily comprised of wind (41 percent) and geothermal (25 percent) resources, followed by solar PV (19 percent). This resource mix will change over time as additional renewable resources, including recently contracted for utility-scale solar photovoltaic (PV) and solar thermal facilities, are brought on line to meet the 33 percent by 2020 mandate.

**Table 2. Direct RPS Procurement Expenditures for RPS for 2013 (In Dollars)<sup>22</sup>**

|                        | PG&E                 | SCE                  | SDG&E               | Total                 |
|------------------------|----------------------|----------------------|---------------------|-----------------------|
| <b>Biogas</b>          | 5,236,285            | 33,106,794           | 13,978,013          | 52,321,092            |
| <b>Biomass</b>         | 301,330,267          | -                    | 39,979,327          | 341,309,594           |
| <b>Geothermal</b>      | 276,048,824          | 475,302,436          | Confidential        | 751,351,260*          |
| <b>Small Hydro</b>     | 49,931,645           | 10,093,235           | 945,629             | 60,970,509            |
| <b>Solar PV</b>        | 494,542,606          | 29,244,334           | 100,750,774         | 624,537,713           |
| <b>Solar Thermal</b>   | 4,939,983            | 92,910,664           | -                   | 97,850,647            |
| <b>Wind</b>            | 418,510,566          | 738,687,271          | 160,713,424         | 1,317,911,261         |
| <b>UOG Small Hydro</b> | 70,192,482           | 31,414,124           | -                   | 101,606,606           |
| <b>UOG Solar PV</b>    | 41,921,738           | 26,085,872           | -                   | 68,007,610            |
| <b>Total</b>           | <b>1,662,654,395</b> | <b>1,436,844,730</b> | <b>316,367,167*</b> | <b>3,415,866,292*</b> |

\* RPS procurement expenditure totals exclude SDG&E geothermal expenditures which are confidential for 2013.

<sup>21</sup> In addition, the figures above compare *actual* 2013 renewable expenditures with 2013 revenue requirements, which include *forecasted* fuel and purchase power expenditures; therefore, the comparisons will not be exact.

<sup>22</sup> These totals may not sum due to rounding.

### Small IOU RPS Expenditures for 2011, 2012 and 2013

On a generation basis, the small IOUs 2011 RPS procurement represented the following percentages of the small IOUs' retail sales: 21.0 percent for Liberty, 1.6 percent for Bear Valley Electric Service Company (BVES) and 23.5 percent for PacifiCorp. Liberty, BVES, and PacifiCorp spent approximately \$9.0 million, \$0.2 million and \$4.9 million, respectively, on direct RPS procurement in 2011 (see Table 3), for a combined total of \$14.1 million.

**Table 3. Direct RPS Procurement Expenditures for RPS for 2011 (In Dollars)<sup>23</sup>**

|                        | PacifiCorp       | BVES           | Liberty          |
|------------------------|------------------|----------------|------------------|
| <b>Biogas</b>          | -                | 245,410        | -                |
| <b>Biomass</b>         | 81,494           | -              | -                |
| <b>Geothermal</b>      | -                | -              | 9,015,489        |
| <b>Small Hydro</b>     | 74,351           | -              | -                |
| <b>Wind</b>            | 3,948,642        | -              | -                |
| <b>UOG Small Hydro</b> | 286,229          | -              | -                |
| <b>UOG Geothermal</b>  | 111,965          | -              | -                |
| <b>UOG Wind</b>        | 447,642          | -              | -                |
| <b>Total</b>           | <b>4,950,323</b> | <b>245,410</b> | <b>9,015,489</b> |

On a generation basis, 2012 RPS deliveries represented the following percentages of the small IOUs' retail sales: 22.5 percent for Liberty, 8.3 percent for Bear Valley Electric Service Company (BVES) and 20.1 percent for PacifiCorp. Liberty, BVES, and PacifiCorp spent approximately \$8.8 million, \$0.3 million and \$4.6 million, respectively, on direct RPS procurement in 2012 (see Table 4), for a combined total of \$13.7 million.

**Table 4. Direct RPS Procurement Expenditures for RPS for 2012 (In Dollars)<sup>24</sup>**

|                        | PacifiCorp       | BVES           | Liberty          |
|------------------------|------------------|----------------|------------------|
| <b>Biogas</b>          | -                | 324,810        | -                |
| <b>Geothermal</b>      | -                | -              | 8,811,985        |
| <b>Small Hydro</b>     | 44,639           | -              | -                |
| <b>Wind</b>            | 3,790,964        | -              | -                |
| <b>UOG Small Hydro</b> | 251,799          | -              | -                |
| <b>UOG Geothermal</b>  | 111,912          | -              | -                |
| <b>UOG Wind</b>        | 411,965          | -              | -                |
| <b>Total</b>           | <b>4,611,280</b> | <b>324,810</b> | <b>8,811,985</b> |

The small IOUs forecast that 2013 RPS procurement will represent the following percentages of the utilities' retail sales: 21.8 percent for Liberty and 19.6 percent for PacifiCorp. Liberty spent approximately \$9.1 million on direct RPS procurement in 2013 (see Table 5). Energy Division staff requested 2013 procurement expenditure information from PacifiCorp, however, PacifiCorp responded that it could not provide procurement expenditure figures for 2013 because the numbers were not available at the time of Energy Division staff's data request.

<sup>23</sup> These totals may not sum due to rounding.

<sup>24</sup> These totals may not sum due to rounding.

BVES responded to Energy Division staff's request, however, their procurement information for 2013 is confidential pursuant to CPUC confidentiality rules.

**Table 5. Direct RPS Procurement Expenditures for RPS for 2013 (In Dollars)<sup>25</sup>**

|                   | PacifiCorp | BVES                | Liberty          |
|-------------------|------------|---------------------|------------------|
| <b>Geothermal</b> | NA         | -                   | 9,095,500        |
| <b>Wind</b>       | NA         | Confidential        | -                |
| <b>Total</b>      | <b>NA</b>  | <b>Confidential</b> | <b>9,095,500</b> |

### RPS Indirect Expenditures

In addition to direct RPS procurement expenditures, there are a variety of indirect costs that are potentially attributable to RPS resources, 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.

#### Large IOUs Administrative Expenditures for 2012

Administrative expenditures include utility or outside expenditures (e.g., legal fees) associated with administering the RPS program. PG&E identified 78.97 full-time equivalents (FTEs) that worked on RPS implementation in 2012. Specifically, 62.72 FTEs in energy procurement, 5.36 FTEs in the law department, 4.24 FTEs in regulatory affairs, and 6.65 FTE in electric transmission operations. PG&E estimates that the expenses for these staff were \$13.4 million.<sup>26</sup> In addition, PG&E identified additional administrative costs for 2012, which consists of \$39,879 for the Western Renewable Energy Generation Information System (WREGIS), \$313,207 tracked in the Renewable Portfolio Standard Memo Account (RPSCMA)<sup>27</sup>, \$294,576 for independent evaluator costs, and \$576,922 for external law department fees and expenses.

<sup>25</sup> These totals may not sum due to rounding.

<sup>26</sup> Of the \$13.4 million in payroll attributed to PG&E's RPS program in 2012, \$7.9 million is attributed to women, minorities, and veterans.

<sup>27</sup> In D.06-10-050 (as modified by D.11-01-016), the Commission authorized the Executive Director to hire and manage one or more outside contractors to perform for the Commission tasks and analysis regarding the Renewables Portfolio Standard ("RPS") program. The costs for this contractor(s) are paid by IOU customers, and tracked through the RPSCMA.

SCE identified 108 FTEs working on RPS matters in 2012, including 58.5 in transmission and distribution, 12.65 in the law department, 1.32 in settlements and operations service, 24.95 in the renewable alternative power department, 8 in the energy operations department, and 3 in the credit risk/collateral management department. SCE estimates that the expenses for these staff were \$13.8 million.<sup>28</sup> Additionally, SCE identified \$1,812,958 of additional administrative expenses, which consists of \$70,157 for Western Renewable Energy Generation Information System (WREGIS) fees and \$1,742,801 paid to outside firms for legal work on specifically identified RPS related matters.

SDGE identified 10.5 FTEs working on RPS matters in 2012, including 4 in the law department, 2.5 in the regulatory affairs department and 1 in the human resources department. SDG&E estimates that the expenses for these staff were \$2.0 million.<sup>29</sup> SDG&E was unable to provide any other administrative expenditures for RPS procurement that were incurred in 2012.

### Administrative Expenditures Large IOUs 2013

PG&E identified 79.75 full-time equivalents (FTEs) that worked on RPS implementation in 2013, including 65.87 FTEs in energy procurement, 4.07 FTEs in the law department, 3.91 FTEs in regulatory affairs, and 5.9 in electric transmission operations. PG&E estimates that the expenses for these staff were \$10.8 million.<sup>30</sup> In addition, PG&E identified additional administrative costs for 2013, which consists of \$281,546 for the Western Renewable Energy Generation Information System (WREGIS), \$87,189 tracked in the Renewable Portfolio Standard Memo Account (RPSCMA), \$145,055 for independent evaluator costs, and \$1,606,601 for external law department fees and expenses.

SCE identified 90 FTEs working on RPS matters in 2013, including 58.5 FTEs in the transmission and distribution department, 12.34 in the law department, 1.15 in the settlements and operations service department, 3 in the credit risk and collateral management department, 3.6 in the portfolio planning and analysis department, 22.12 in the energy contracts department, 8.4 in the trading and energy operations department, and 3.85 in the regulatory policy department. SCE estimates that the expenses for these staff were \$15.2 million.<sup>31</sup> SCE identified \$1,639,805 additional administrative expenses, which consists of \$89,305 for Western Renewable Energy Generation Information System (WREGIS) fees (includes January through November) and \$1,550,500 paid to outside firms for legal work on specifically identified RPS related matters.

SDGE identified 10 FTEs working on RPS matters in 2013, including 4 in the law department, 2.5 in the regulatory affairs department and 1 in the human resources department. SDG&E

---

<sup>28</sup> Of the \$13.8 million in payroll attributed to SCE's RPS program in 2013, \$9 million is attributed to women, minorities, and veterans.

<sup>29</sup> Of the \$2 million payroll attributed to SDG&E's RPS program in 2012, \$1.1 million is attributed to women, minorities, and veterans.

<sup>30</sup> Of the \$10.8 million payroll attributed to PG&E's RPS program in 2013, \$6.6 million is attributed to women, minorities, and veterans.

<sup>31</sup> Of the \$15.2 million payroll attributed to SCE's RPS program in 2013, \$9.9 million is attributed to women, minorities, and veterans.

estimates that the expenses for these staff are \$2.0 million.<sup>32</sup> SDG&E was unable to provide any other administrative expenditures for RPS procurement that were incurred in 2013.

#### Administrative Expenditures Small IOUs 2011-2013

BVES identified 2 FTEs that worked on the RPS program from 2011-2013. 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 \$76,000 for 2011, \$77,000 for 2012 and \$79,000 for 2013.

Additionally, BVES identified CAISO fees related to RPS expenditures for 2011. BVES estimates that the company paid CASIO \$19,130 in fees relating to 2011 RPS procurement. BVES states the company did not have any did not have any RPS related CAISO fees for 2012 or 2013, since the company did not procure any RPS electricity during 2012 and 2013.<sup>33</sup>

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.

#### 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 2012 and 2013 that may potentially be attributable to renewable resources:

- PG&E estimates that it incurred CAISO charges totaling \$7.8 million in 2012 that may be attributable to renewable resources.<sup>34</sup> PG&E estimates that it incurred CAISO charges totaling \$9.6 million in 2013 that may be attributable to renewable resources.

---

<sup>32</sup> Of the \$2 million payroll attributed to SDG&E's RPS program in 2013, \$1.1 million is attributed to women, minorities, and veterans.

<sup>33</sup> BVES's only RPS contracts for 2012 and 2013 were for unbundled, Category 3 RECs.

<sup>34</sup> 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.

- SCE identified \$6.7 million in CAISO costs associated with renewable integration that may be attributable to the RPS program in 2012, and \$7.8 in CAISO costs associated with RPS renewable integration in 2013.<sup>35</sup>
- SDG&E estimates \$18,198 of CAISO ancillary service costs<sup>36</sup> attributable to the RPS program in 2012. In addition to these costs, SDG&E paid costs of \$610,548 and \$26,383 for Participating Intermittent Resource Program allocation costs and fuel to supply costs for CAISO ancillary services, respectively. SDG&E estimates CAISO ancillary service costs of \$ 35,273 in 2013 due to RPS procurement, Participating Intermittent Resource Program allocation costs of \$ 711,206, and an additional \$ 52,716 for the cost of fuel to supply CAISO ancillary services.

In response to the Energy Division data request, the small IOUs identified the following integration costs for 2011, 2012 and 2013 that may be attributable to renewable resources:

- BVES estimates CAISO costs attributable to the RPS program in 2011 totaled \$19,130. All other RPS purchases in 2012 and 2013 were for REC only procurement and therefore 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 2011, 2012 or 2013, 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 2011, 2012 or 2013, nor any other direct costs attributed to the California RPS program.

### Transmission Expenditures

Over the next decade, a number of new transmission projects will be brought online, which will support the state's 33 percent RPS program. These projects will also increase reliability and provide transmission access for conventional resources, in addition to facilitating the delivery of renewable resources. Given the multiple benefits associated with these transmission projects, it is not yet clear how the costs of the 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.<sup>37</sup> In response to data requests, PG&E, SCE and SDG&E forecasted

---

<sup>35</sup> Categories identified by SCE included in these estimates are excess cost allocation, flexible ramping constraint, grid management charges, participating intermittent resources program allocation, decline pre-dispatch penalty, transmission loss obligation, and real-time market bid cost recovery allocation.

<sup>36</sup> 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).

<sup>37</sup> 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\\_CallISO\\_Presentation.pdf](http://www.energy.ca.gov/2011_energypolicy/documents/2011-05-17_workshop/presentations/02_CallISO_Presentation.pdf).



RPS transmission-related capital expenditures totaling \$10.4 billion through 2020, including \$0.9 billion for PG&E, \$6.7 billion for SCE and \$2.8 billion for SDG&E.

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

Related transmission costs are typically collected through rates after the 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 2012 or 2013 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.<sup>38</sup>

### Distribution Expenditures

In some cases, 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.<sup>39</sup> 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.

---

<sup>38</sup> CAISO, "July 01, 2013 TAC Rates – Updated January 27, 2014," January 2014, at [http://www.aiso.com/Documents/HighVoltageAccessChargeRatesEffective1Jul\\_2013\\_Updated27Jan\\_2014.pdf](http://www.aiso.com/Documents/HighVoltageAccessChargeRatesEffective1Jul_2013_Updated27Jan_2014.pdf).

<sup>39</sup> 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)

*[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 assessing the “benefits,” we assessed the benefits using the market price referent (MPR)<sup>40</sup>, but also present short-term prices for energy and capacity proposed by the utilities. The Commission has used the MPR in the past to evaluate the costs of RPS resources.<sup>41</sup> The Commission is currently evaluating other metrics for assessing RPS resource benefits and may use different measures in subsequent reports.

### Large IOU “Cost Savings” for 2012 and 2013

The 10-year and 20-year MPRs for contracts with a 2012 start date are 7.6 cents per kWh and 8.9 cents per kWh, based on 2011 MPR calculations.<sup>42</sup> Using the 20-year MPR of 8.9 cents per kWh to evaluate the utilities 2012 RPS portfolios results in “benefits,” or avoided costs of approximately \$147 million for PG&E, \$114 million for SCE, and \$101 million for SDG&E.

The 10-year and 20-year MPRs for contracts with a 2013 start date are 8.1 cents per kWh and 9.3 cents per kWh, based on 2011 MPR calculations. Using the 20-year MPR of 9.3 cents per kWh to evaluate the utilities 2013 RPS portfolios results in “benefits,” or avoided costs of approximately \$92 million for SCE and \$74 million for SDG&E. PG&E did not avoid any costs in 2013 and paid premium of \$25 million for their RPS procurement.

---

<sup>40</sup> 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.11-05-005.

<sup>41</sup> However, some parties have argued that the MPR does not reflect actual market conditions in part because the input assumptions become quickly outdated.

<sup>42</sup> 2011 MPR calculation is the most current update to the MPR. See CPUC Resolution E-4442, at [http://docs.cpuc.ca.gov/WORD\\_PDF/FINAL\\_RESOLUTION/154753.PDF](http://docs.cpuc.ca.gov/WORD_PDF/FINAL_RESOLUTION/154753.PDF)

By contrast, in response to Energy Division data requests, the utilities measured the 2012 costs savings using 2012 CAISO day-ahead market price (PG&E - 2.92 cents per kWh, SCE - 2.95 cents per kWh, and SDG&E - 3.15 cents per kWh) and, in the case of PG&E and SCE, the cost of capacity in the CAISO market (PG&E - \$67.50/kW-year; SCE - \$65.42/kW-year). Using these estimates, the utilities calculate the following avoided costs: PG&E - \$426 million or 4.2 cents per kWh, SCE - \$444 million or 2.9 cents per kWh, and SDG&E - \$85 million<sup>43</sup> or 2.5 cents per kWh.

The utilities also measured the 2013 costs savings using 2013 CAISO day-ahead market price (PG&E - 4.21 cents per kWh; SCE - 4.28 cents per kWh; SDG&E - 4.12 cents per kWh) and, in the case of PG&E and SCE, the cost of capacity in the CAISO market (PG&E - \$67.50/kW-year; SCE - \$67.50/kW-year). Using these estimates, the utilities calculate the following avoided costs: PG&E - \$713 million or 4.2 cents per kWh, SCE - \$732 million or 4.2 cents per kWh, and SDG&E - \$172 million<sup>44</sup> or 4.5 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 way of comparison, the overall generation rates in 2012 were approximately 7.9 cents per kWh for PG&E<sup>45</sup>, 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<sup>46</sup> avoided costs and it seems unlikely that the large IOUs would be able to procure 20 percent 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 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 the generating 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.

---

<sup>43</sup> SDG&E calculated the avoided costs based only on the avoided energy and did not include avoided capacity.

<sup>44</sup> SDG&E calculated the avoided costs based only on the avoided energy and did not include avoided capacity.

<sup>45</sup> PG&E, "2012 Annual Report," p.12, available at [http://investor.pgecorp.com/files/doc\\_downloads/2012\\_Annual\\_Report.pdf](http://investor.pgecorp.com/files/doc_downloads/2012_Annual_Report.pdf)

<sup>46</sup> CAISO hour ahead for generation and CAISO annual for capacity.

### Small IOU RPS “Cost Savings” for 2011, 2012 and 2013

The 10-year and 20-year MPRs for contracts with a 2011 start date are 8.8 cents per kWh and 10.1 cents per kWh, based on 2009 MPR calculations. While the 2011 adopted values are more current, and lower, they apply only to RPS contracts with start dates in 2012 and beyond. Using the 20-year MPR of 10.1 cents per kWh to evaluate the small IOUs’ 2012 RPS portfolios results in “benefits,” or avoided costs of approximately \$14 million for PacifiCorp and \$3 million for Liberty. BVES did not avoid any costs in 2011 and paid premium of \$20 thousand for their RPS procurement.

The 10-year and 20-year MPRs for contracts with a 2012 start date are 7.6 cents per kWh and 8.9 cents per kWh, based on 2011 MPR calculations. Using the 20-year MPR of 8.9 cents per kWh to evaluate the Small IOUs’ 2012 RPS portfolios results in “benefits,” or avoided costs of approximately \$9 million for PacifiCorp, \$0.6 million for BVES, and \$2 million for Liberty.

The 10-year and 20-year MPRs for contracts with a 2013 start date are 8.1 cents per kWh and 9.3 cents per kWh, based on 2011 MPR calculations. Using the 20-year MPR of 9.3 cents per kWh to evaluate the small IOUs’ 2013 RPS portfolios results in “benefits,” or avoided costs of approximately \$12 million for BVES and \$2 million for Liberty. PacifiCorp, responded that it could not provide any procurement expenditure figures for 2013, 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.

**Table 6. Large IOU RPS Expenditures (In Dollars) for 2012**

|                        | PG&E                 | SCE                  | SDG&E               | Total                 |
|------------------------|----------------------|----------------------|---------------------|-----------------------|
| <b>Biogas</b>          | 5,327,725            | 35,156,543           | 14,617,844          | 55,102,111            |
| <b>Biomass</b>         | 305,276,780          | 8,227,073            | 32,938,250          | 346,442,103           |
| <b>Geothermal</b>      | 209,832,496          | 473,793,247          | 79,862,485          | 763,488,228           |
| <b>Small Hydro</b>     | 40,647,937           | 18,230,163           | 939,153             | 59,817,252            |
| <b>Solar PV</b>        | 176,371,704          | 10,245,933           | Confidential        | 186,617,637*          |
| <b>Solar Thermal</b>   | -                    | 101,611,519          | -                   | 101,611,519           |
| <b>Wind</b>            | 364,429,773          | 553,185,127          | 62,458,819          | 980,073,719           |
| <b>UOG Small Hydro</b> | 69,259,250           | 53,554,178           | -                   | 122,813,428           |
| <b>UOG Solar PV</b>    | 27,686,632           | 26,085,872           | -                   | 53,772,504            |
| <b>Total</b>           | <b>1,198,832,297</b> | <b>1,280,089,654</b> | <b>190,816,551*</b> | <b>2,669,738,501*</b> |

\* RPS procurement expenditure totals exclude SDG&E solar PV expenditures which are confidential for 2012.

**Table 7. Large IOU RPS Generation (MWh) for 2012**

|                        | PG&E              | SCE               | SDG&E            | Total             |
|------------------------|-------------------|-------------------|------------------|-------------------|
| <b>Biogas</b>          | 111,875           | 499,348           | 225,642          | 836,866           |
| <b>Biomass</b>         | 3,267,005         | 114,694           | 527,203          | 3,908,902         |
| <b>Geothermal</b>      | 3,807,415         | 7,200,101         | 950,703          | 11,958,220        |
| <b>Small Hydro</b>     | 623,424           | 193,604           | 18,511           | 835,539           |
| <b>Solar PV</b>        | 1,006,144         | 73,823            | 872              | 1,080,840         |
| <b>Solar Thermal</b>   | -                 | 868,991           | -                | 868,991           |
| <b>Wind</b>            | 4,515,452         | 6,256,376         | 1,558,068        | 12,329,896        |
| <b>UOG Small Hydro</b> | 1,634,370         | 432,736           | -                | 2,067,106         |
| <b>UOG Solar PV</b>    | 165,318           | 29,306            | -                | 194,625           |
| <b>Total</b>           | <b>15,131,007</b> | <b>15,668,982</b> | <b>3,281,000</b> | <b>34,080,990</b> |

**Table 8. Large IOU RPS Costs (cents per kWh) for 2012**

|                         | PG&E        | SCE                 | SDG&E        | Average (\$/kWh) |
|-------------------------|-------------|---------------------|--------------|------------------|
| <b>Biogas</b>           | 4.76        | 7.04                | 6.48         | 6.58             |
| <b>Biomass</b>          | 9.34        | 7.17                | 6.25         | 8.86             |
| <b>Geothermal</b>       | 5.51        | 6.58                | 8.40         | 6.38             |
| <b>Small Hydro</b>      | 6.52        | 9.42                | 5.07         | 7.16             |
| <b>Solar PV</b>         | 17.53       | 13.88               | Confidential | 17.28            |
| <b>Solar Thermal</b>    | -           | 11.69               | -            | 11.69            |
| <b>Wind</b>             | 8.07        | 8.84                | 4.01         | 7.95             |
| <b>UOG Small Hydro</b>  | 4.24        | 12.38               | -            | 5.94             |
| <b>UOG Solar PV</b>     | 16.75       | 89.01 <sup>47</sup> | -            | 27.63            |
| <b>Average (\$/kWh)</b> | <b>7.92</b> | <b>8.17</b>         | <b>5.82</b>  | <b>7.83</b>      |

**Table 9. Large IOU RPS Procurement Expenditures (In Dollars) for 2013**

|                        | PG&E                 | SCE                  | SDG&E               | Total                 |
|------------------------|----------------------|----------------------|---------------------|-----------------------|
| <b>Biogas</b>          | 5,236,285            | 33,106,794           | 13,978,013          | 52,321,092            |
| <b>Biomass</b>         | 301,330,267          | -                    | 39,979,327          | 341,309,594           |
| <b>Geothermal</b>      | 276,048,824          | 475,302,436          | Confidential        | 751,351,260*          |
| <b>Small Hydro</b>     | 49,931,645           | 10,093,235           | 945,629             | 60,970,509            |
| <b>Solar PV</b>        | 494,542,606          | 29,244,334           | 100,750,774         | 624,537,713           |
| <b>Solar Thermal</b>   | 4,939,983            | 92,910,664           | -                   | 97,850,647            |
| <b>Wind</b>            | 418,510,566          | 738,687,271          | 160,713,424         | 1,317,911,261         |
| <b>UOG Small Hydro</b> | 70,192,482           | 31,414,124           | -                   | 101,606,606           |
| <b>UOG Solar PV</b>    | 41,921,738           | 26,085,872           | -                   | 68,007,610            |
| <b>Total</b>           | <b>1,662,654,395</b> | <b>1,436,844,730</b> | <b>316,367,167*</b> | <b>3,415,866,292*</b> |

\* RPS procurement expenditure totals exclude SDG&E geothermal expenditures which are confidential for 2013.

<sup>47</sup> The average price of SCE's UOG Solar PV is inflated because there were 13 UOG projects in 2012 that had expenditures but did not produce any electricity. Energy Division staff expect this number to decrease in future reports.

**Table 10. Large IOU RPS Generation (MWh) for 2013**

|                        | PG&E              | SCE               | SDG&E            | Total             |
|------------------------|-------------------|-------------------|------------------|-------------------|
| <b>Biogas</b>          | 88,204            | 485,115           | 176,301          | 749,621           |
| <b>Biomass</b>         | 3,098,003         | -                 | 432,079          | 3,530,082         |
| <b>Geothermal</b>      | 3,838,414         | 7,037,510         | 472,665          | 11,348,589        |
| <b>Small Hydro</b>     | 572,862           | 113,223           | 17,852           | 703,938           |
| <b>Solar PV</b>        | 3,257,627         | 245,853           | 969,679          | 4,473,160         |
| <b>Solar Thermal</b>   | 34,718            | 689,063           | -                | 723,782           |
| <b>Wind</b>            | 4,979,492         | 7,564,134         | 2,634,340        | 15,177,967        |
| <b>UOG Small Hydro</b> | 1,524,647         | 253,836           | -                | 1,778,484         |
| <b>UOG Solar PV</b>    | 258,557           | 55,506            | -                | 314,063           |
| <b>Total</b>           | <b>17,652,527</b> | <b>16,444,244</b> | <b>4,702,918</b> | <b>38,799,690</b> |

**Table 11. Large IOU RPS Costs (cents per kWh) for 2013**

|                         | PG&E        | SCE         | SDG&E        | Average (\$/kWh) |
|-------------------------|-------------|-------------|--------------|------------------|
| <b>Biogas</b>           | 5.94        | 6.82        | 7.93         | 6.98             |
| <b>Biomass</b>          | 9.73        | -           | 9.25         | 9.67             |
| <b>Geothermal</b>       | 7.19        | 6.75        | Confidential | 7.03             |
| <b>Small Hydro</b>      | 8.72        | 8.91        | 5.30         | 8.66             |
| <b>Solar PV</b>         | 15.18       | 11.90       | 10.39        | 13.96            |
| <b>Solar Thermal</b>    | 14.23       | 13.48       | -            | 13.52            |
| <b>Wind</b>             | 8.40        | 9.77        | 6.10         | 8.68             |
| <b>UOG Small Hydro</b>  | 4.60        | 12.38       | -            | 5.71             |
| <b>UOG Solar PV</b>     | 16.21       | 47.00       | -            | 21.65            |
| <b>Average (\$/kWh)</b> | <b>9.42</b> | <b>8.74</b> | <b>7.71</b>  | <b>8.92</b>      |

Table 12. Small IOU RPS Generation (MWh) for 2011

|                 | PacifiCorp     | BVES         | Liberty        |
|-----------------|----------------|--------------|----------------|
| Biogas          | -              | 2,231        | -              |
| Biomass         | 1,533          | -            | -              |
| Geothermal      | -              | -            | 124,129        |
| Small Hydro     | 41,770         | -            | -              |
| Wind            | 69,801         | -            | -              |
| UOG Small Hydro | 19,572         | -            | -              |
| UOG Geothermal  | 4,522          | -            | -              |
| UOG Wind        | 52,685         | -            | -              |
| <b>Total</b>    | <b>189,883</b> | <b>2,231</b> | <b>124,129</b> |

Table 13. Small IOU RPS Costs (cents per kWh) for 2011

|                         | PacifiCorp  | BVES         | Liberty     |
|-------------------------|-------------|--------------|-------------|
| Biogas                  | -           | 11.00        | -           |
| Biomass                 | 5.32        | -            | -           |
| Geothermal              | -           | -            | 7.26        |
| Small Hydro             | 0.18        | -            | -           |
| Wind                    | 5.66        | -            | -           |
| UOG Small Hydro         | 1.46        | -            | -           |
| UOG Geothermal          | 2.48        | -            | -           |
| UOG Wind                | 0.85        | -            | -           |
| <b>Weighted Average</b> | <b>2.61</b> | <b>11.00</b> | <b>7.26</b> |

Table 14. Small IOU RPS Generation (MWh) for 2012

|                 | PacifiCorp     | BVES          | Liberty        |
|-----------------|----------------|---------------|----------------|
| Biogas          | -              | 10,827        | -              |
| Geothermal      | -              | -             | 122,593        |
| Small Hydro     | 24,909         | -             | -              |
| Wind            | 66,865         | -             | -              |
| UOG Small Hydro | 14,418         | -             | -              |
| UOG Geothermal  | 4,301          | -             | -              |
| UOG Wind        | 47,057         | -             | -              |
| <b>Total</b>    | <b>157,550</b> | <b>10,827</b> | <b>122,593</b> |

Table 15. Small IOU RPS Costs (cents per kWh) for 2012

|                         | PacifiCorp  | BVES        | Liberty     |
|-------------------------|-------------|-------------|-------------|
| Biogas                  | -           | 3.00        | -           |
| Geothermal              | -           | -           | 7.19        |
| Small Hydro             | 0.18        | -           | -           |
| Wind                    | 5.67        | -           | -           |
| UOG Small Hydro         | 1.75        | -           | -           |
| UOG Geothermal          | 2.60        | -           | -           |
| UOG Wind                | 0.88        | -           | -           |
| <b>Weighted Average</b> | <b>2.93</b> | <b>3.00</b> | <b>7.19</b> |

Table 16. Small IOU RPS Generation (MWh) for 2013

|              | PacifiCorp | BVES                | Liberty        |
|--------------|------------|---------------------|----------------|
| Geothermal   | NA         | -                   | 120,694        |
| Wind         | NA         | Confidential        | -              |
| <b>Total</b> | <b>NA</b>  | <b>Confidential</b> | <b>120,694</b> |

Table 17. Small IOU RPS Costs (cents per kWh) for 2013

|                         | PacifiCorp | BVES                | Liberty     |
|-------------------------|------------|---------------------|-------------|
| Geothermal              | NA         | -                   | 7.54        |
| Wind                    | NA         | Confidential        | -           |
| <b>Weighted Average</b> | <b>NA</b>  | <b>Confidential</b> | <b>7.54</b> |



# 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 standard if 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 2006, and now it includes smaller 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 bonus for California-supplied 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.

The budget for the SGIP program has been \$83 million per year since 2007.<sup>48</sup> 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).<sup>49</sup> Funding for the program is expected through January 1, 2016, at which point the enabling legislation directs the Commission to provide repayment of all unallocated SGIP funds to reduce ratepayer costs.

**Table 18. Annual SGIP Budget (In Millions of Dollars)<sup>50</sup>**

|                                    | PG&E | SCE  | SDG&E | Annual Total |
|------------------------------------|------|------|-------|--------------|
| <b>Annual Budgets, 2007 – 2014</b> | \$36 | \$28 | \$11  | \$75         |

The costs and the benefits of the SGIP program were evaluated in a 2011 report<sup>51</sup> conducted by Itron.<sup>52</sup> 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.”

### California Solar Initiative (CSI)

The California Solar Initiative (CSI) is overseen by the Commission and provides incentives for solar PV system installations to customers of PG&E, SCE, and SDG&E. The CSI program provides upfront and performance-based incentives for solar systems installed on existing

<sup>48</sup> Prior to 2007, the Commission had authorized funding at \$125 million per year in D.01-03-073.

<sup>49</sup> The \$8 million allocated to SoCalGas is not included in the Table 18 because Section 910 only requests the costs incurred by electrical corporations.

<sup>50</sup> D.06-12-033, D.08-01-029, D.09-12-047, and D.11-12-030, December 15, 2011.

<sup>51</sup> 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](http://www.cpuc.ca.gov/NR/rdonlyres/25A04DD8-56B0-40BB-8891-A3E29B790551/0/SGIP2012ImpactReport_20140206.pdf)

<sup>52</sup> 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](http://www.cpuc.ca.gov/NR/rdonlyres/2EB97E1C-348C-4CC4-A3A5-D417B4DDD58F/0/SGIP_CE_Report_Final.pdf)

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 19), and the goal is to reach 1,940 megawatts (MW) of installed solar capacity by the end of 2016. The goal includes 1,750 MW of capacity from the general market program, as well as 190 MW from the low income programs.

**Table 19. Revised Annual CSI Revenue Requirements (In Millions of Dollars)<sup>53</sup>**

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

The costs and the benefits of the CSI program were evaluated in a 2011 report conducted by Energy and Environmental Economics, Inc. (E3).<sup>54</sup> This study evaluated the cost-effectiveness of solar PV and the CSI program from the following perspectives: society, participants, ratepayers and program administrators. The study found that “solar PV installed through the

<sup>53</sup> D.11-12-019, December 1, 2011, Table 4, p. 12, as revised by D.12-12-018, Table 2, p. 7.

<sup>54</sup> 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](ftp://ftp.cpuc.ca.gov/gopher-data/energy_division/csi/CSI%20Report_Complete_E3_Final.pdf)

program is cost-effective from the perspective of participants”<sup>55</sup> but that it did not project the total resource cost test “to achieve a positive benefit/cost ratio during the study period.”<sup>56</sup>

### **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. The vast majority of solar PV customer-generators choose to be on NEM tariffs, with over 160,000 residential and non-residential accounts currently enrolled in California’s NEM program.

The Commission submitted a net metering status report to lawmakers in March 2005,<sup>57</sup> and a ratepayer impacts evaluation of the NEM program in 2010.<sup>58</sup> An updated evaluation of the ratepayer impacts of NEM was submitted to the Legislature in October 2013, pursuant to Assembly Bill 2514 (Bradford, 2012).<sup>59</sup> The study evaluated the costs and benefits of the NEM program using two separate measures: A cost-benefit analysis using the traditional California Standard Practices Manual (SPM) Ratepayer Impact Measure (RIM) test, which estimates the net benefits (or costs) of a demand-side resource or program from the perspective of non-participating customers, and a cost of service test, which compares the utility cost of serving NEM customers with their actual bill payments. The study concluded that the ratepayer costs associated with NEM ranges from \$79 to \$252 million. In 2020, with a complete build out of systems to the NEM program cap, the ratepayer costs associated with NEM could range from \$370 million to \$1 billion per year. In looking at the cost of service analysis, the study also found that NEM customers appear to be paying more than their full cost of service. The report notes that a large portion of the cost impacts identified in the report are the result of current residential rate designs, and that any changes made to the NEM policy or to rate designs following Assembly Bill 327 (Perea, 2013) would have a significant impact on the study results.

---

<sup>55</sup> Ibid, p. 5.

<sup>56</sup> Ibid, p. 16.

<sup>57</sup> 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](http://docs.cpuc.ca.gov/WORD_PDF/REPORT/45133.PDF)

<sup>58</sup> 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](http://www.cpuc.ca.gov/NR/rdonlyres/0F42385A-FDBE-4B76-9AB3-E6AD522DB862/0/nem_combined.pdf)

<sup>59</sup> 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](http://www.cpuc.ca.gov/PUC/energy/Solar/nem_cost_effectiveness_evaluation.htm)

### 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.

**Table 20. CSIP Revenue Requirements (In Dollars)**

| Year         | Total Incentives   |
|--------------|--------------------|
| 2011         | \$380,507          |
| 2012         | \$901,742          |
| 2013         | \$1,203,306        |
| <b>Total</b> | <b>\$2,485,555</b> |

# 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), and focuses on decisions that are currently pending before the Commission. These include the following:

- A.12-11-009. Application of Pacific Gas and Electric Company for Authority, among other things, to increase rates and charges for electric and gas service effective on January 1, 2014. In this General Rate Case (GRC) application, PG&E requests a total revenue increase of \$1.181 billion in 2014, consisting of a \$517 million increase for electric distribution, a \$452 million increase for gas distribution and a \$212 million increase for electric generation. The total GRC revenue requirement for 2014 that PG&E is requesting is \$7.815 billion, consisting of \$4.617 billion for electric distribution, \$1.747 billion for gas distribution, and \$1.902 billion for electric generation.<sup>60</sup> In addition to the increases in 2014, PG&E also requests an increase of \$441 million in revenue requirement for 2015 and an increase of \$487 million in revenue requirement in 2016.
- 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 \$206 million in 2015, a 3% increase. SCE seeks approval for a GRC revenue requirement of \$6.452 billion in 2015.<sup>61</sup> SCE also seeks approval for a \$318 million revenue increase in 2016 and a \$317 million revenue increase in 2017.
- A.12-02-013. Application of Golden State Water Company, on Behalf of its Bear Valley Electric Service Division, for approval of costs and authority to increase general rates

---

<sup>60</sup>“GRC revenue requirement” only includes the utility revenue requirement requested in GRCs. This figures does not include any revenue requirement requested during the Energy Resource Recovery Account (ERRA) proceedings.

<sup>61</sup>“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.

and other charges for electric service by its Bear Valley Electric Service division. BVES requests a \$3.7 million revenue increase for 2013, which is about a 9% increase.

- I.12-10-13. Order Instituting Investigation on the Commission's Own Motion into the Rates, Operations, Practices, Services and Facilities of Southern California Edison Company and San Diego Gas and Electric Company Associated with the San Onofre Nuclear Generating Station Units 2 and 3. SCE and SDG&E's rates currently include approximately \$1.1 billion for San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. In the current phase of the proceedings, the Commission is considering what portion of that amount should remain in rates.
- A.12-12-012/A.12-12-013. Application of Pacific Gas and Electric Company in its 2012 Nuclear Decommissioning Cost Triennial Proceeding. PG&E requests approval for decommissioning costs for Humboldt Bay Power Plant, Diablo Canyon Power Plant, SONGS, and Palo Verde. PG&E seeks to collect \$82.5 million in annual revenue requirement for the Diablo Canyon Units 1 and 2 Decommissioning Trust and \$120.383 million in annual revenue requirement for the Humboldt Unit 3 Decommissioning Trust, effective January 1, 2014. The total Nuclear Decommissioning costs is \$212.897 million in revenue requirement, an increase of \$168.627 million over PG&E's currently authorized decommissioning revenue requirement of \$44.27 million. Additionally, PG&E also requests revenues to cover the costs of operating and maintaining the Humboldt Unit 3 site in a safe condition, in the amount of \$9.997 million in 2014, \$9.876 million in 2015, and \$9.475 million in 2016.
- A.13-08-001. Application of PacifiCorp for Authority to Update its Rates Pursuant to its Energy Cost Adjustment Clause, effective January 1, 2014. PacifiCorp seeks an increase of approximately \$1.6 million in rates, or 1.5 percent overall, for its California retail customers.
- A.13-09-017. Application of San Diego Gas & Electric for Adoption of its 2014 Energy Resource Recovery Account (ERRA) Revenue Requirement, Competition Transition Charge (CTC) Revenue Requirement and Local Generation Balancing Account (LGBA) Revenue Requirement Forecasts. SDG&E seeks a combined total revenue requirement increase of \$190.2 million, an 18% increase, over the 2013 ERRA forecast. Specifically, SDG&E requests approval of: (1) a 2014 ERRA revenue requirement of \$1.2 billion; (2) a 2014 CTC revenue requirement of \$14.6 million; (3) a 2014 LGBA revenue requirement of \$5.2 million.
- A.13-04-017. Application of San Diego Gas and Electric Company to request recovery of the under-collection in its Energy Resource Recovery Account (ERRA) under the ERRA Trigger Mechanism. SDG&E seeks recovery for the under-collection in its ERRA balance, which it forecasts to be \$150.8 million.
- A.13-08-022. Application of Southern California Edison Company requesting a Commission Decision Authorizing Recovery of a \$368.6 million under-collection in its Energy Resource Recovery Account (ERRA) under the ERRA Trigger mechanism.



# 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 21). This list includes only CPUC decisions, as specified in Section 910(a)(6), and not those 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, including expenses associated with operation and maintenance, administrative and general and customer service activities, depreciation, taxes, capital expenditures and return on capital expenditures placed into rate base. 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.

For the multi-jurisdictional utilities, the rate setting proceedings are unique for each utility. PacifiCorp and Liberty recover their distribution and generation costs through their GRC decisions, similar to the large IOUs. Recovery of their fuel and purchased power costs, however, are through their 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. Unlike PacifiCorp and Liberty, BVES recovers its distribution, generation, fuel and purchased power costs through its GRC decisions. In its pending 2013 GRC application, however, BVES is seeking Commission



approval to begin an ECAC process, whereby it can recover its fuel and purchased power every year through an ECAC decision, like PacifiCorp and Liberty.

In addition to the GRC, ERRA, and ECAC decisions, each year there are a host of 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 21. Major Decisions Approving Costs for Recovery in Rates for 2011, 2012 and 2013

|                               | BVES | Liberty     | PacifiCorp                                | PG&E                                      | SCE   | SDG&E   |
|-------------------------------|------|-------------|---|---|---|---|
| GRC                           |      | D.12-11-030 | D.10-09-010                               | D.07-03-044<br>D.11-05-018                | D.09-03-025<br>D.12-11-051  | D.08-07-046<br>D.13-05-010  |
| ERRA/ECAC                     |      | D.12-11-030 | D.10-11-021<br>D.12-03-022<br>D.13-09-011 | D.12-12-008<br>D.11-12-031<br>D.10-12-007 | D.10-02-019<br>D.11-04-006<br>D.12-07-007<br>D.13-10-052                                  | D.09-04-021<br>D.10-04-010<br>D.11-07-041<br>D.12-07-006<br>D.12-08-007<br>D.12-12-022<br>D.13-10-053 |
| AMI/Smart Meter/Smart Connect |      |             |   | D.06-07-027<br>D.09-03-026                | D.08-09-039   | D.07-04-043   |
| Energy Efficiency             |      | D.12-11-030 |   |   | D.09-09-047<br>D.11-12-036  |   |
| Energy Efficiency Incentives  |      | D.12-11-030 |   |   | D.10-12-049<br>D.12-11-015<br>D.12-12-032   |   |
| Low Income                    |      | D.12-06-023 |   |   | D.08-11-031<br>D.12-08-044  |   |
| Demand Response               |      |             |   |   | D.09-08-027   |   |
| SGIP                          |      |             |   |   | D.09-12-047   |   |
| CSI                           |      |             |   |   | D.10-09-046<br>D.11-07-031<br>D.11-12-019   |   |
| Solar PV                      |      |             |   | D.10-04-052                               | D.09-06-049   | D.10-09-016   |
| EPIC                          |      |             |   |   | D.12-05-006<br>D.12-05-037  |   |
| 21s Century Energy Systems    |      |             |   |   | D.12-12-031   |   |
| DWR Power and Bond Charge     |      |             |   |   | D.10-12-006 (2011 RRQ)<br>D.11-12-005 (2012 RRQ)<br>D.12-11-040 (2013 RRQ)<br>D.12-05-006 |   |

|                        |                      |   |   |   |   |   |
|------------------------|----------------------|---|---|---|---|---|
| <b>Cost of Capital</b> |                      |   |   | D.12-12-034   |   |   |
| <b>CARB</b>            |                      |   |   | D.12-10-044   |   |   |
| <b>Nuclear</b>         |                      |   |   | D.10-08-003<br>(Seismic Studies)  | D.05-12-040 (Steam Gen. Replacement)<br>D.10-07-047 (Decommissioning) |   |
| <b>Other</b>           | D.12-03-048<br>(RPS) | – | – D.11-05-002<br>& D.12-10-028 (Klamath Dam Removal)<br>– D.11-03-007 (Solar Incentive Program) | – D.10-06-048 (Cornerstone)<br>– D.08-02-009 & D.11-01-036 (Smart AC)<br>– D.11-07-039 (ERRA Review)<br>– D.09-09-020 (2011 Retirement Plan)<br>– D.06-11-048 (LTPP)<br>– D.08-02-019 (Colusa)<br>– D.10-04-028 (Fuel Cell) | – D.09-12-014 (Hydrogen Electric CA)<br>– D.10-07-049 (ERRA Review)   | – D.10-12-053 (Z-Factor)<br>– D.09-01-008 (Miramar Energy)<br>– D.10-10-004 (Catastrophic Events)<br>– D.09-09-011 (Pensions)<br>– D.08-02-034 (Rates)<br>– 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 23 provides bundled retail sales for PG&E, SCE, and SDG&E for the period 2003 through 2013. Retail sales is the basis for determining the RPS procurement requirement and includes 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 22. PG&E, SCE, and SDG&E Bundled Retail Sales, 2003 – 2013 (GWh)<sup>62</sup>**

| 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%            |

<sup>62</sup> PG&E, SCE and SDG&E reported historical retail sales amounts in their respective 2013 RPS Plans filed in the RPS proceeding (R.11-05-005). SDG&E, "2013 Renewables Portfolio Standard Procurement Plan Compliance Filing," November 29, 2012. SCE, "2013 Renewables Portfolio Standard Procurement Plan Compliance Filing," PG&E, "2013 Renewables Portfolio Standard Procurement Plan Compliance Filing,"

**Table 23. Liberty, PacifiCorp, and BVES Bundled Retail Sales, 2003 – 2013 (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%            | 139,405 | 6.18%             |

# 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 the years 2012-2013. 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 2012 PG&E hired 23 employees across the four departments<sup>63</sup> responsible for implementing the RPS program.<sup>64</sup> <sup>65</sup> In 2013 PG&E hired 15 employees, incremental to the 23 employees hired in 2012, across the four departments responsible for implementing the requirements of the RPS program.<sup>66</sup>

### 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 2013 due to significant internal reorganization carried out during this year. Using their best estimates, SCE believes that approximately 108 FTEs supported RPS related activities during 2012. Additionally, approximately 113 FTEs supported RPS related activities during 2013. Despite the increase in employees involved in implementing the RPS program from 2012 to 2013, SCE states that it is unclear whether the increase is due to additional hiring or simply 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

---

<sup>63</sup> The four departments responsible for implementing the RPS program are energy procurement, legal, regulatory affairs, and electric transmission operations.

<sup>64</sup> PG&E estimates that 228 total employees worked on implementing the RPS program during 2013, and 79.5 of these employees were considered FTEs.

<sup>65</sup> 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.

<sup>66</sup> 228 total employees worked in the four departments responsible for implementing the RPS program.

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.

#### 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

In response to Energy Division's data request, 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

In response to Energy Division's data request, 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<sup>67</sup> (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 2012 and 2013 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

---

<sup>67</sup> More GO 156 supplier diversity information available at the CPUC supplier diversity website, at <http://www.cpuc.ca.gov/puc/supplierdiversity/>

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 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 advise 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 certified MBEs through a network of local participating banks and funded through several sources including corporations, state governments and foundations.

Historically, PG&E did not track 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 the most recent RPS request for offers (RFO) and will 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.<sup>68</sup> 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.

SCE states that it continues to promote supplier diversity by participating in supplier diversity workshops and providing detailed information on WMDVBE participation in its power solicitation. SCE employees also offer one-on-one consultation meetings to WMDVBE participants to support more diversity amongst RPS suppliers.

Currently, information is not available to SCE regarding the number of new employees that SCE’s RPS counterparties have hired or the number of WMDVBE trained or hired by companies that entered into PPAs with SCE. However, SCE states that it will request the information from its operating eligible renewable energy resources under PPA with SCE.

## 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.

SDG&E was 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 SDG&E for 2012 and 2013. SDG&E intends to request this information from developers as a part of the RFO process going forward.

## 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 2013. 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 2011 or 2012.

---

<sup>68</sup>More diversity information available at the SCE’s supplier diversity website, at: <https://www.sce.com/wps/portal/home/partners/buying-selling/supplier-diversity>

## BVES

In response to Energy Division's data request, 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 for 2011, 2012 and/or 2013.

## 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 2011, 2012 and/or 2013.

## **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.)11-05-005.

## **More Information Needed: Supplemental Report in June**

Despite having two years to implement and track the information required from Pub. Util. Code 910, many of the responses of the large and small IOUs were largely qualitative and prospective of future policies. In order to fully comply with Pub. Util. Code Section 910, Energy Division will issue a supplement report 60 days after the IOUs submit their 2014 solicitation reports, which are due April 21, 2014, that contains more quantitative information of diversity recruitment and contracting.



## 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.