



The Padilla Report to the Legislature

Reporting 2015 Renewable Procurement Costs in
Compliance with Senate Bill 836 (Padilla, 2011)

May 2016



ABOUT THIS REPORT

Senate Bill 836 (Public Utilities Code § 913.4) requires the California Public Utilities Commission (“CPUC” or “Commission”) to report to the Legislature “the costs of all electricity procurement contracts for eligible renewable energy resources, including unbundled renewable energy credits, and all costs for utility-owned generation approved by the Commission.” On May 1, 2015, the Energy Division released the fourth report on investor-owned utility (IOU) cost information for reporting year 2014. This report contains the IOU renewable procurement cost information for 2015.

I. EXECUTIVE SUMMARY

2015 PADILLA REPORT INFORMATION

- This report presents historical data on RPS Procurement Expenditures for RPS Eligible Generation in 2015, and Contract Prices for RPS Contracts Approved in 2015.
 - Calculations for the “Procurement Expenditures for RPS Eligible Generation in 2015” include any/all generation from online, RPS eligible facilities that generated RPS eligible electricity in 2015.
 - Calculations for the “Price of RPS Contracts Approved in 2015” include any/all RPS contracts that were approved by the CPUC in 2015.
 - “Procurement Expenditures for RPS Eligible Generation in 2015” do not include any generation from contracts that were approved by the CPUC in 2015. Typically, it takes an RPS contract multiple years to achieve commercial operation.

Price of RPS Contracts Approved in 2015

- The weighted average time-of-delivery (TOD) adjusted¹ contract price was approximately 6.9 cents/kilowatt hour (kWh) for all contracts approved in 2015.
- The average contract price for renewable portfolio standard (RPS) contracts in 2015 is lower than the average price of RPS contract that were approved in 2014; 7.4 cents/kWh in 2014 versus 6.9 cents/kWh in 2015.

¹ Actual renewable energy payments are based on the contract price multiplied by the IOU Time-of-Delivery (TOD) factors according to when the RPS facility actually generates electricity. TOD-adjustments effectively allocate higher costs to power supplied during on-peak hours and lower costs to power supplied during the off-peak hours.

- Contract prices for 2015 have declined relative to contract prices in prior years (2003-2014). The downward trending prices indicate that the renewable market in California is robust and competitive, and has matured since the start of the RPS program.

Procurement Expenditures for RPS Eligible Generation in 2015

- The weighted average TOD-adjusted RPS procurement expenditure for 2015 was approximately 10 cents/kWh for RPS procurement from all RPS contracts, including contracts for only renewable energy credits (RECs).
- As forecasted in prior reports, RPS procurement expenditures for bundled products in 2015 are lower than RPS procurement expenditures for bundled products in 2014; 10.1 cents/kWh in 2015 versus 10.3 cents/kWh in 2014.

Figure 1. Summary of RPS Procurement and Procurement Expenditures Percentages (2015)

	RPS Procurement Percentage ²	Total Procurement Expenditures ³ (\$000)	Total RPS Expenditures (\$000)	Percentage of RPS Expenditures to Total Expenditures
PG&E	31.4%	\$6,699,711	\$ 2,417,710	36.1%
SCE	24.7%	\$5,925,311	\$ 1,580,247	26.7%
SDG&E	36.0%	\$1,407,359	\$594,314	42.2%

² RPS Procurement Percentage compares the MWh of RPS procurement to the total MWh of Retail Sale load.

³ Total Procurement Expenditures includes all expenditures for all procurement from all sources, regardless of technology type.

II. 2015 PADILLA REPORT INFORMATION

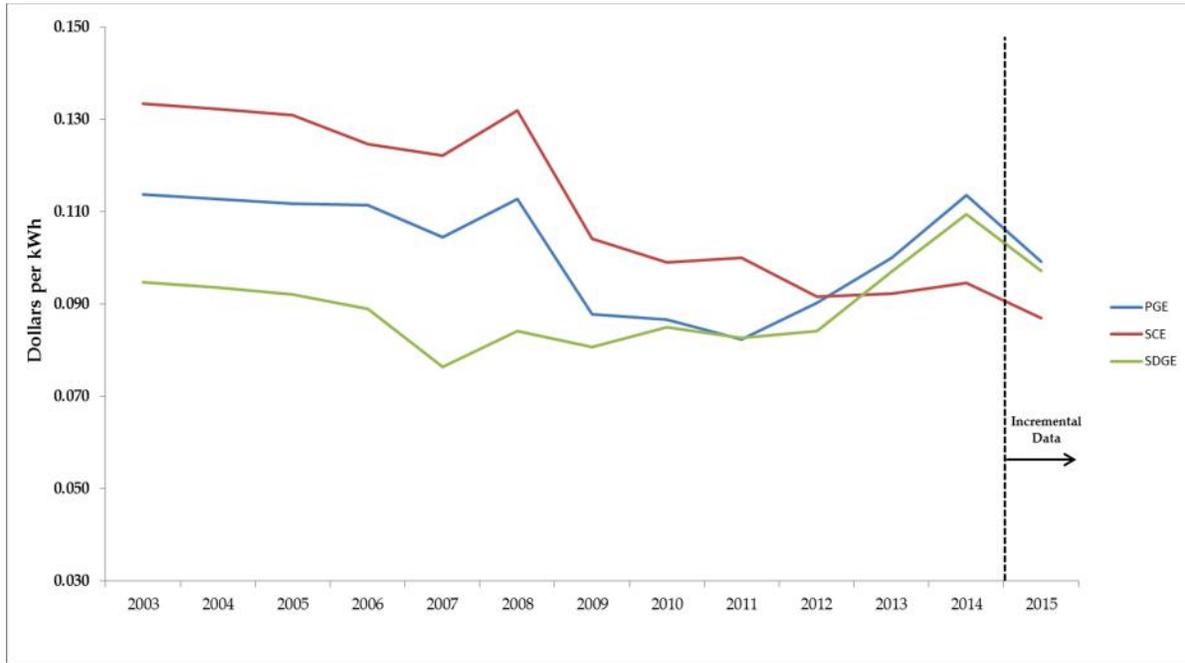
Tables A-1 and A-2 in Attachment A present the 2014 weighted average TOD-adjusted RPS procurement expenditures in 2015. Specifically Table A-1 includes all procurement expenditure information for all RPS eligible projects, including contracts for the procurement of only renewable energy credits, or REC-only, transactions for 2015. In contrast, Table A-2 presents the same procurement expenditure information as Table A-1, but for bundled energy projects only (contracts that only provide RECs are not included). Pursuant to the confidentiality rules in Public Utilities (Pub. Util.) Code § 911 and D.06-06-066, some of the costs in Attachment A have been redacted.

Figure 2 on the next page illustrates the annual weighted average TOD-adjusted RPS procurement expenditure for bundled renewable energy in real dollars⁴ per kilowatt hours (\$/kWh) for each of the investor-owned utilities (IOUs): Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E).

The key factor driving the cost differences between the utilities is the resource mix of RPS-eligible resources within an IOU's portfolio and the vintage of the IOU's RPS contracts. It is important to note that the resource mix will change over time as renewable prices and IOUs' RPS portfolios change over time.

⁴ The CPUC used the Handy-Whitman Index of Public Utility Construction Costs – Other Production Plant - Pacific region to calculate the real dollar amounts for year 2015.

Figure 2. Weighted Average TOD-Adjusted RPS Procurement Expenditures of Bundled Renewable Energy by Year in Real Dollars (2003 – 2015) ⁵



The average TOD-adjusted price of contracts approved by the CPUC from 2003 to 2015 has decreased from 9.4 cents to 6.9 cents/kWh in real dollars.⁶ The decrease in RPS contract prices in terms of real dollars indicates that the renewable market in California is robust and competitive and has matured since the start of the RPS program.

RPS contract prices approved by the CPUC in 2015 are lower than the prices of contracts approved in 2014 (6.9 cents in 2015 versus 7.4 cents in 2014). The lower contract prices are a result of projects selected from RPS solicitations in years 2013-2014 that were approved by the Commission.

⁵ The CPUC used the Handy- Whitman Index of Public Utility Construction Costs – Other Production Plant - Pacific region to calculate the real dollar amounts for year 2014.

⁶ The CPUC used the Handy- Whitman Index of Public Utility Construction Costs – Other Production Plant - Pacific region to calculate the real dollar amounts for year 2014.

ATTACHMENT A

REPORTING YEAR 2015 INVESTOR-OWNED UTILITY RPS PROCUREMENT EXPENDITURES PER SENATE BILL 836 (PUBLIC UTILITIES CODE § 911)

Tables A-1 and A-2 attached to this document show for each investor-owned utility (IOU) the weighted average TOD-adjusted RPS procurement expenditures for 2015. Per the confidentiality requirements in Public Utilities Code § 911, some of the data within this report is redacted. In addition:

- All procurement expenditure figures have been adjusted by time-of-delivery (TOD) factors since generators are paid based on the time that the facility delivers electricity, according to each IOU's TOD factors. For example, TOD-factors place a premium on generation that occurs during peak demand hours. Therefore, generators that provide electricity during peak hours when electricity is more valuable receive a higher payment for electricity during that time period based on the TOD adjustment.
- The "Average RPS Procurement Expenditures" represent the total weighted average payments made to renewable generators for that year.
- Procurement expenditures represent weighted averages on a per kilowatt hours basis. All figures are in 2015 dollars.

Table A-1. Weighted Average TOD-Adjusted RPS Procurement Expenditures (All Projects – Including REC-only transactions) for 2015 (\$/kWh)

	PG&E	SCE	SDG&E	Total
Biogas				
0-3 MW	0.1126	0.0865	0.1040	0.1006
+3-20 MW	Only 2 Projects	0.0858	0.0723	0.0913
+20-50 MW		Only 1 Project		Only 1 Project
Biogas Total	0.1046	0.0638	0.0855	0.0794
Biomass				
0-3 MW	Only 2 Projects			Only 2 Projects
+3-20 MW	0.0766		Only 1 Project	0.0425
+20-50 MW	0.1069		Only 1 Project	0.1012
+50-200 MW	Only 2 Projects			Only 2 Projects
Biomass Total	0.0990		Only 2 Projects	0.0897
Geothermal				
0-3 MW	Only 2 Projects			Only 2 Projects
+3-20 MW	0.0838	0.0776		0.0798
+20-50 MW		0.0616		0.0616
+50-200 MW		0.0666		0.0666
+200 MW	Only 1 Project	Only 1 Project		Only 2 Projects
Geothermal Total	0.0770	0.0608		0.0665
Small Hydro				
0-3 MW	0.0702	0.0843	Only 1 Project	0.0730
+3-20 MW	0.0939	0.1020	Only 2 Projects	0.0931
+20-30 MW	0.1333			0.1333
Small Hydro Total	0.1125	0.0902	0.0711	0.1109
Solar PV				
0-3 MW	0.1366	0.1370	0.1287	0.1367
+3-20 MW	0.1215	0.0950	0.0839	0.1074
+20-50 MW	0.1497	Only 1 Project	Only 2 Projects	0.1430
+50-200 MW	0.1439	Only 2 Projects	0.1421	0.1408
+200 MW	0.1611	0.1051		0.1399
Solar PV Total	0.1517	0.1062	0.1395	0.1355
Solar Thermal				
3-20 MW		Only 1 Project		Only 1 Project
+20-50 MW		0.1241		0.1241
+50-200 MW	Only 2 Projects	0.1447		0.1497
+200 MW	Only 2 Projects			Only 2 Projects
Solar Thermal Total	0.1906	0.1372		0.1720
Wind				
0-3 MW	Only 1 Project	0.0440		0.0440
+3-20 MW	0.0612	0.0498	0.0773	0.0563
+20-50 MW	0.0785	0.0700	Only 1 Project	0.0713
+50-200 MW	0.0786	0.1102	0.0697	0.0871
+200 MW		0.1009	Only 1 Project	0.1019
Wind Total	0.0779	0.0985	0.0767	0.0865
UOG Solar PV				
0-3 MW	0.4076	0.0362		0.0689
+3-20 MW	0.1516	0.0338		0.0778
UOG Solar PV Total	0.1555	0.0348		0.0777
UOG Small Hydro				
0-30 MW	0.0578	0.1053		0.0652
UOG Small Hydro Total	0.0578	0.1053		0.0652
Total	0.1103	0.0870	0.1019	0.1000

Table A-2. Weighted Average TOD-Adjusted RPS Procurement Expenditures (Bundled Energy Only) for 2015 (\$/kWh)

	PG&E	SCE	SDG&E	Total
Biogas				
0-3 MW	0.1126	0.0865	0.1040	0.1006
+3-20 MW	Only 2 Projects	0.0858	0.0723	0.0913
+20-50 MW		Only 1 Project		Only 1 Project
Biogas Total	0.1046	0.0638	0.0855	0.0794
Biomass				
0-3 MW	Only 2 Projects			Only 2 Projects
+3-20 MW	0.0891		Only 1 Project	0.0484
+20-50 MW	0.1069		Only 1 Project	0.1012
+50-200 MW	Only 2 Projects			Only 2 Projects
Biomass Total	0.1019		Only 2 Projects	0.0919
Geothermal				
0-3 MW	Only 2 Projects			Only 2 Projects
+3-20 MW	0.0838	0.0776		0.0798
+20-50 MW		0.0616		0.0616
+50-200 MW		0.0666		0.0666
+200 MW	Only 1 Project	Only 1 Project		Only 2 Projects
Geothermal Total	0.0770	0.0608		0.0665
Small Hydro				
0-3 MW	0.0702	0.0843	Only 1 Project	0.0730
+3-20 MW	0.0939	0.1020	Only 2 Projects	0.0931
+20-50 MW	0.1333			0.1333
Small Hydro Total	0.1125	0.0902	0.0711	0.1109
Solar PV				
0-3 MW	0.1366	0.1370	0.1287	0.1367
+3-20 MW	0.1215	0.0950	0.0839	0.1074
+20-50 MW	0.1497	Only 1 Project	Only 2 Projects	0.1430
+50-200 MW	0.1439	Only 2 Projects	0.1421	0.1408
+200 MW	0.1611	0.1051		0.1399
Solar PV Total	0.1517	0.1062	0.1395	0.1355
Solar Thermal				
+3-20 MW		Only 1 Project		Only 1 Project
+20-50 MW		0.1241		0.1241
+50-200 MW	Only 2 Projects	0.1447		0.1497
+200 MW	Only 2 Projects			Only 2 Projects
Solar Thermal Total	0.1906	0.1372		0.1720
Wind				
0-3 MW	0.0356	0.0440		0.0440
+3-20 MW	0.0612	0.0498	0.0773	0.0563
+20-50 MW	0.0785	0.0700	Only 1 Project	0.0713
+50-200 MW	0.0954	0.1102	0.1180	0.1042
+200 MW		0.1009	Only 1 Project	0.1019
Wind Total	0.0924	0.0985	0.1083	0.0977
UOG Solar PV				
0-3 MW	0.4076	0.0362		0.0689
+3-20 MW	0.1516	0.0338		0.0778
UOG Solar PV Total	0.1555	0.0348		0.0777
UOG Small Hydro				
0-30 MW	0.0578	0.1053		0.0652
UOG Small Hydro Total	0.0578	0.1053		0.0652
Total	0.1159	0.0870	0.1179	0.1017

ATTACHMENT B

REPORTING YEAR 2015 CONTRACT PRICE DATA PER SENATE BILL 836 (PUBLIC UTILITIES CODE § 911)

Table B-1 shows the weighted average TOD-adjusted contract price of all RPS contracts approved by the CPUC during 2015 for each investor-owned utility (IOU). Per the confidentiality requirements in Public Utilities Code § 911, some of the data within this report is redacted.:

- Contract prices were redacted if a) the power purchase agreement (PPA) is not already public on the CPUC's website per the CPUC's confidentiality rules, and b) there were less than three facilities in each category. If there was only one facility in a category and its PPA is publicly available on the CPUC's website, then the price information for that facility is reported. In addition, all qualifying facility (QF) contracts that do not require CPUC approval, feed-in tariff contracts, contracts with municipal governments, and utility-owned generation (UOG) costs are public and reported.
- Contract prices represent weighted averages on a per kilowatt hours basis. All figures are in 2015 dollars.
- All contract price figures have been adjusted by time-of-delivery (TOD) factors since generators are paid based on the time that the facility delivers electricity, according to each IOU's TOD factors. For example, IOU TOD-factors place a premium on generation that occurs during peak demand hours. Therefore, generators that provide electricity during peak hours when electricity is more valuable receive a higher payment for electricity during that time period based on the TOD adjustment.
- The "Average Price of Contracts Approved" includes all CPUC approved contracts except contracts that were subsequently terminated.

Table B-1. Weighted Average TOD-Adjusted Price of All Renewable Energy Contracts Approved (All Projects – Including REC-only transactions) for 2015 (\$/kWh)

	PG&E	SCE	Total
Geothermal			
+200 MW		Only 1 Project	Only 1 Project
Geothermal Total		Only 1 Project	Only 1 Project
Small hydro			
0-3 MW		Only 1 Project	Only 1 Project
Small hydro Total		Only 1 Project	Only 1 Project
Solar PV			
+3-20 MW	0.0677		0.0677
+20-50 MW		Only 2 Projects	Only 2 Projects
+50-200 MW		0.0661	0.0661
Solar PV Total	0.0677	0.0658	0.0659
Total	0.0677	0.0701	0.0700