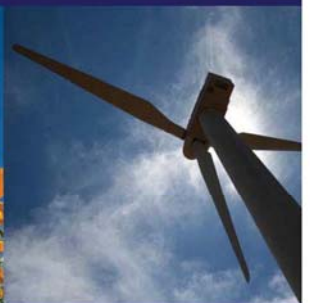




California Public Utilities Commission



# Renewables Portfolio Standard Quarterly Report Q1 2010



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## Cover Photo Credit

The large photo, courtesy of First Solar, features a 21 MW solar PV project in Blythe, CA. The project was developed by First Solar and is owned by NRG Energy.

# I. ABOUT THE RPS AND THIS REPORT

## **California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country**

Public Utilities Code Section 399.11 – 399.19, established in 2002 under Senate Bill 1078 and modified in 2006 under Senate Bill 107, requires investor-owned utilities (IOUs), electric service providers (ESPs) and community choice aggregators (CCAs) regulated by the California Public Utilities Commission (CPUC) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The CPUC and the California Energy Commission are jointly responsible for implementing the program. Governor Schwarzenegger's Executive Orders S-14-08, issued on November 17, 2008, and S-21-09, issued on September 15, 2009, established a further goal of 33% renewable energy by 2020.

The Commission issues this report every quarter pursuant to the 2006 Budget Act Supplemental Report Item 8660-001-0462. This report focuses on California's three large IOUs, Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E). These IOUs provide approximately 68% of the state's retail sales<sup>1</sup> and analyzing this data provides significant insight into the state's RPS progress.

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<sup>1</sup> According to the California Energy Commission's *California Energy Demand 2010-2020 Adopted Forecast*.

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## II. EXECUTIVE SUMMARY

### Status of RPS Procurement

- In 2009, 357 MW of new renewable capacity reached commercial operation.
- The largest solar photovoltaic (PV) facility in California reached commercial operation in 2009.
- The 2009 RPS solicitation resulted in 100 TWh of renewable energy bids and was the largest to date. The IOUs shortlisted over 23 TWh of bids.
- The CPUC has approved over 130 RPS contracts for more than 12,000 MW of capacity.

### Highlights of Recent and Upcoming Events

- The Commission's Energy Division staff held a workshop that addressed the 33% RPS Implementation Analysis and its incorporation into the IOUs' 2010 Long-Term Procurement Plans.
- The Commission adopted the 2009 Market Price Referent.
- The Commission issued a revised proposed decision authorizing the use of tradable renewable energy credits (RECs) for RPS compliance.
- Energy Division staff initiated the Renewable Distributed Energy Collaborative (Re-DEC). Re-DEC is a stakeholder collaboration to help identify the market, technical, and regulatory challenges to interconnecting large amounts of new renewable distributed energy generation on the utilities' distribution systems.
- The Commission issued a scoping memo for the renewables transmission proceeding. The scoping memo requested briefs related to cost-effective alternatives to transmission and back-stop cost recovery for renewable transmission.
- The Commission adopted a resolution implementing the competitive procurement portion of Southern California Edison's Solar PV program.
- The Commission issued a proposed and an alternate proposed decision that adopt, with modifications, Pacific Gas and Electric's Solar PV program.
- The Commission will issue a proposed decision approving the utilities' 2010 RPS procurement plans in the second quarter of this year.
- The Commission plans to issue a proposed decision regarding the expansion of the existing feed-in tariff program.

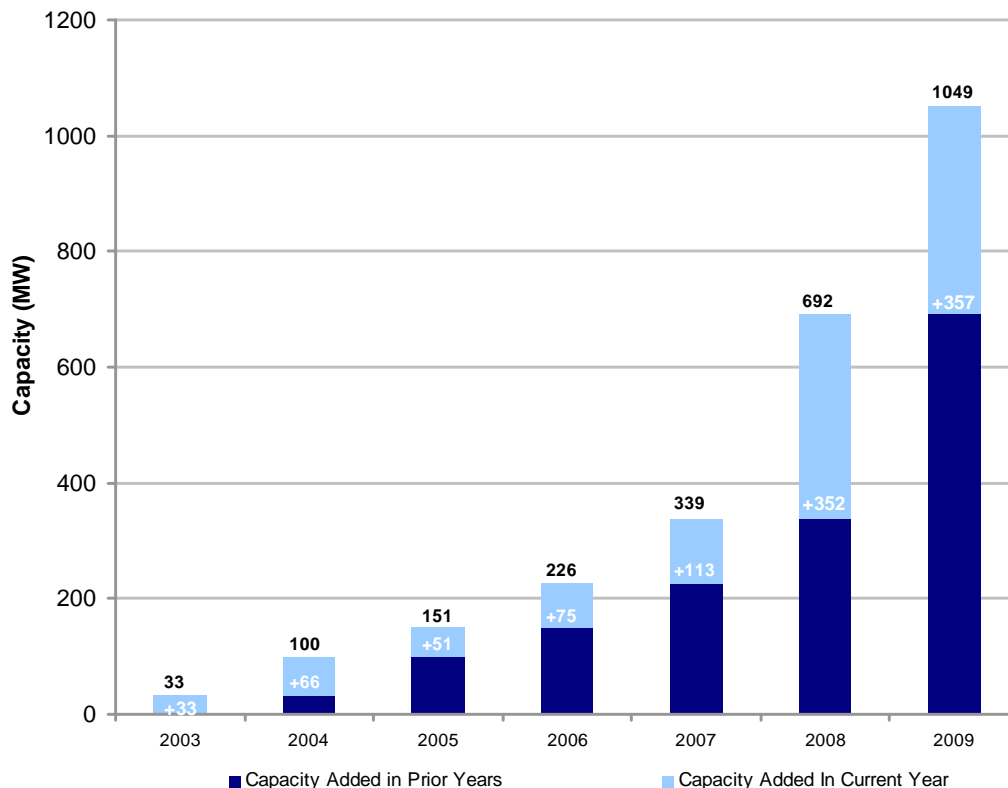


### III. PROGRESS TOWARDS A 20% RPS BY 2010

#### New Renewable Capacity Added in 2009

In 2009, 357 MW of new renewable capacity achieved commercial operation. In-state projects represented 71% of the new capacity, or 254 MW of the 357 MW. Capacity added in 2009 included biomass, biogas, geothermal, solar PV, small hydro, and wind. In comparison, new capacity added in 2008 was almost entirely wind. Figure 1 below shows the amount of new renewable capacity that has come online since 2003.

**Figure 1. RPS Capacity Installed Since 2003, By Year<sup>2</sup>**



Source: California Public Utilities Commission, 1st Quarter 2010

#### Largest Solar PV Facility in California Reaches Commercial Operation

Solar PV accounted for 25 MW of the new capacity added last year. In 2009, First Solar began operating its 21 MW solar PV plant in Blythe, which is under contract with Southern California Edison. The project, featured on the cover, is the largest solar PV installation in California and is expected to produce about 50



**PG&E's 2 MW Vaca-Dixon project**

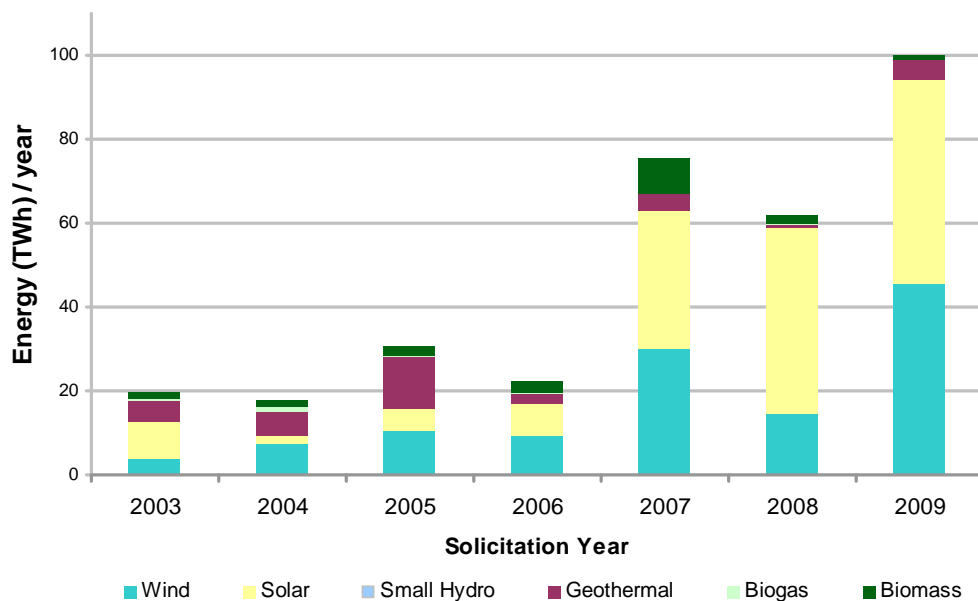
<sup>2</sup> Figure 1 only includes projects under contract for 10 years or more.

GWh per year. Two additional solar PV facilities reached commercial operation in 2009: SCE's 2 MW Chino project and PG&E's 2 MW Vaca-Dixon project.

### 2009 RPS Solicitation Results in 100 TWh<sup>3</sup> of Bids

The IOUs' 2009 RPS solicitation bids resulted in more proposed renewable generation than any other solicitation in RPS history. Developers offered to supply enough renewable generation to provide 50% of the IOUs' total load in 2020.<sup>4</sup> The IOUs shortlisted over 23 TWh of the bids, which equates to half of the generation needed to meet a 33% target in 2020.<sup>5</sup>

**Figure 2. Large IOU RPS Solicitation Bids by Technology**



Source: California Public Utilities Commission, 1st Quarter 2010

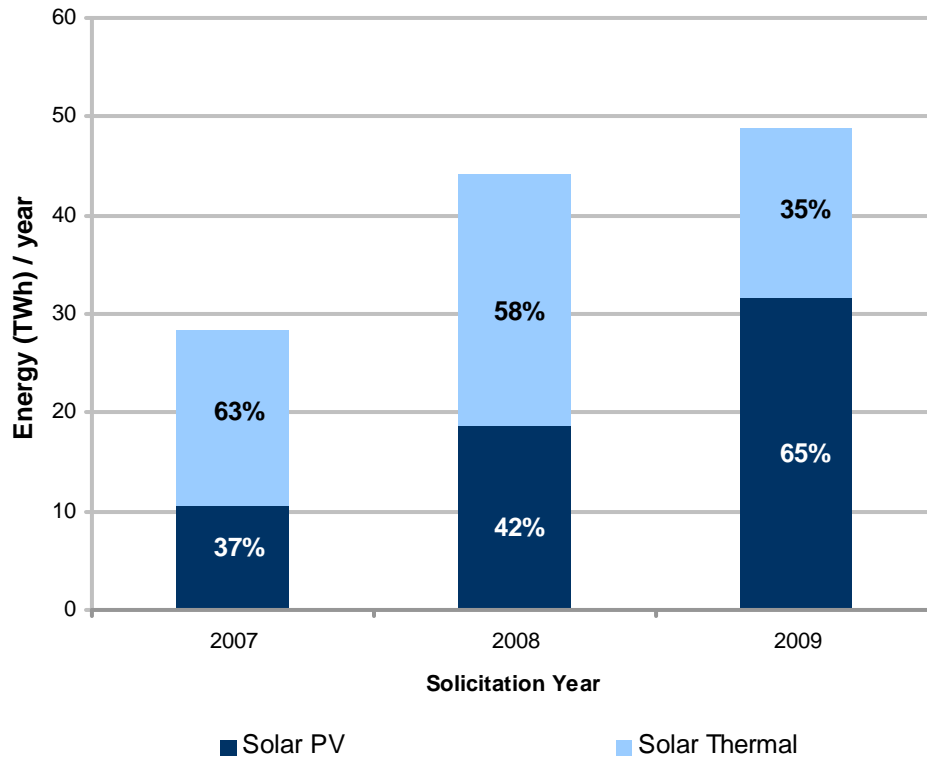
Solar and wind projects continue to make up the majority of bids in the RPS solicitations. In 2009, out-of-state wind made up two thirds of all wind generation bids. Solar PV bids increased significantly, making up 65% of the solar bids in 2009 compared to just 42% in 2008. Small solar PV projects (less than or equal to 20 MW) contributed over 4 TWh to the solicitation in 2009, compared to less than 1 TWh in 2008.

<sup>3</sup> Assuming a 30% capacity factor, 100 TWh is equivalent to approximately 38,000 MW of capacity.

<sup>4</sup> To the extent possible, projects offered in more than one IOU solicitation were only counted once in this figure.

<sup>5</sup> Compliance with the RPS program is based on actual delivered energy, not signed contracts.

**Figure 3. Large IOU RPS Solicitation - Solar Bids by Technology**



Source: California Public Utilities Commission, 1st Quarter 2010

#### **Contracts Submitted for CPUC Approval<sup>6</sup>**

In 2009, the CPUC approved 26 contracts for over 5,000 MW. Of the 5,000 MW, solar represented 2,300 MW of the approved capacity (1,300 MW were solar thermal) and wind represented 3,000 MW.

Pursuant to the CPUC confidentiality rules, RPS power purchase agreements (PPAs) become public after three years. PPAs that meet the above criteria are now available for download in the RPS Project Status table available at

<http://www.cpuc.ca.gov/renewables>.

<sup>6</sup> A comprehensive list of approved contracts can be found on the CPUC website:

[http://www.cpuc.ca.gov/NR/rdonlyres/B8B77156-2A7E-472B-A580-D9431C2284C8/0/RPS\\_Project\\_Status\\_Table\\_1st\\_Quarter\\_2010.xls](http://www.cpuc.ca.gov/NR/rdonlyres/B8B77156-2A7E-472B-A580-D9431C2284C8/0/RPS_Project_Status_Table_1st_Quarter_2010.xls)

**Table 1. CPUC-Approved IOU Contracts — New and Existing RPS-Eligible Facilities**

YEAR	PG&E		SCE		SDG&E		Large IOU Total	
	Number of Contracts	MW	Number of Contracts	MW	Number of Contracts	MW	Number of Contracts	MW
2002	4	119	0	0	15	237	19	356
2003	3	44	5	268	0	0	8	312
2004	1	18	0	0	3	96	4	114
2005	6	231	12	687	4	512	22	1,430
2006	9	430	0	0	0	0	9	430
2007	10	672	9	442	6	192	25	1,306
2008	7	651	12	1,883	5	278	24	2,812
2009	13	3,474	11	1,577	2	400	26	5,451
<b>TOTAL</b>	<b>53</b>	<b>5,639</b>	<b>49</b>	<b>4,857</b>	<b>35</b>	<b>1,715</b>	<b>137</b>	<b>12,211</b>

#### 2009 RPS Percentage

The IOUs will be reporting actual 2009 RPS procurement in their March RPS compliance reports;<sup>7</sup> therefore, the CPUC will be reporting the IOUs' 2009 RPS percentages in the next Quarterly Report to the Legislature.

## IV. PROGRAM UPDATE

### Distributed Generation

As highlighted in the Commission's 33% RPS Implementation Analysis Preliminary Results report,<sup>8</sup> system-side renewable distributed generation (DG) could play an important role in achieving a 33% RPS. New and proposed initiatives targeting system-side renewable DG include:

- Feed-in tariff program<sup>9</sup>
- Renewable Distributed Energy Collaborative (Re-DEC)<sup>10</sup>

<sup>7</sup> IOUs file semi-annual reports in March and August which contain self-reported data. The Energy Commission is responsible for verifying actual deliveries.

<sup>8</sup> <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/33implementation.htm>

<sup>9</sup> The feed-in tariff was established by AB 1969 for public water and wastewater facilities. It was expanded by Commission Decision 07-07-027 to include all RPS-eligible technologies. It was recently amended by Senate Bill (SB) 32. For more information visit <http://www.cpuc.ca.gov/feedintariff>

- IOU Solar PV Programs<sup>11</sup>
- Energy Division's staff proposal in Rulemaking (R.) 08-08-009 to expand the size and scope of system-side renewable DG procurement<sup>12</sup>

The first two items are discussed below. The last two items were discussed in the 4<sup>th</sup> Quarter 2009 Report to the Legislature.

### RPS Feed-in Tariff Program

The feed-in tariff (FiT) program resulted in 1 MW of new renewable capacity in 2009 from two small hydro facilities and one biogas facility. Currently, 31 projects (34.67 MW) have entered into FiT program contracts. Eight contracts (6 MW) are currently delivering, and 23 contracts (28.67 MW) are under development. Nine of the 23 contracts (13.41 MW) are for solar PV facilities. The following table provides a list of projects that are currently delivering energy under the FiT program.<sup>13</sup>

**Table 2. Projects Currently Delivering under the Feed-in Tariff**

IOU	Facility	Capacity (MW)	Energy (GWh)	Technology
PG&E	Buckeye Hydroelectric Project	0.4	3.5	Small Hydro
PG&E	Tunnel Hill Hydroelectric Project	0.6	5.2	Small Hydro
PG&E	Castelanelli Bros. Biogas	0.3	.365	Biogas
PG&E	Nevada Irrigation District (Combie North Powerhouse)	0.5	4.3	Small Hydro
PG&E	Snow Mountain Hydro, LLC Lost Creek 1	1.1	8.7	Small Hydro
PG&E	Snow Mountain Hydro, LLC Lost Creek 2	0.5	4.3	Small Hydro
SCE	Riverside County Waste Management	1.1	6.57	Landfill gas
SDG&E	Otay 1	1.5	13.1	Landfill gas

<sup>10</sup> <http://www.cpuc.ca.gov/PUC/energy/Renewables/Re-DEC.htm>

<sup>11</sup> See the 4<sup>th</sup> Quarter 2009 Report to the Legislature for a discussion on IOU solar PV programs: <http://www.cpuc.ca.gov/NR/rdonlyres/52BFA25E-0D2E-48C0-950C-9C82BFEEF54C/0/FourthQuarter2009RPSLegislativeReportFINAL.pdf>

<sup>12</sup> <http://docs.cpuc.ca.gov/efile/RULINGS/106274.htm>

<sup>13</sup> Projects delivering under the FiT include new and existing facilities. A comprehensive list of FiT projects can be found on the IOU FiT web pages listed on the CPUC's website: <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/feedintariffs.htm>



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### **Renewable Distributed Energy Collaborative (Re-DEC)**

Stakeholders have identified a number of challenges that impact both project developers and grid operators as increasing volumes of renewable DG attempt to interconnect to the distribution grid. As a result, the CPUC's Energy Division formed Re-DEC,<sup>14</sup> a working group that will bring together utility grid operators, renewable DG project developers, and renewable DG technology experts to better understand the issues and identify solutions.

On December 9, 2009, Energy Division staff officially kicked off Re-DEC with a workshop to identify the most critical near term interconnection challenges and to initiate a discussion to develop solutions. Based on participant feedback, Energy Division staff will propose a work plan for implementing solutions to address near-term challenges identified by Re-DEC.

## **Consideration of a 33% RPS in the Utilities' Long-Term Procurement Plans**

In December 2009, staff held a workshop to review comments on the June 2009 33% RPS Implementation Analysis Preliminary Results report, as an initial step towards a more formal vetting process of the report in the 2010 Long-Term Procurement Plan (LTPP) proceeding.

The LTPP proceeding is the forum in which IOUs receive authority to procure new conventional, i.e. non-renewable, energy and capacity resources. The 2010 LTPP considers conventional procurement needs out to 2020. Given the magnitude of the renewable energy build-out envisioned by a 33% RPS by 2020, the implications for non-renewable procurement are substantial.

The June 33% RPS Implementation Analysis was staff's first effort to implement the Commission's direction in the final decision of the 2006 LTPP, to work with parties "to refine a methodology for resource planning and analysis that will [...] adequately address the issue of a 33% renewables target by 2020 in subsequent LTPPs."<sup>15</sup> At the December 2009 workshop, staff and parties discussed comments on the June report, and staff presented a proposal for leveraging the report's methodology (updated to account for comments and new information) for use in the 2010 LTPP.

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<sup>14</sup> Information about Re-DEC, including workshop materials, is available on the CPUC's website: <http://www.cpuc.ca.gov/PUC/energy/Renewables/Re-DEC.htm>

<sup>15</sup> D. 07-12-052, page 256.

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In the first quarter of 2010, staff plans to issue an RPS Methods report in the LTPP proceeding, proposing the methodology, inputs and assumptions it would use to create several distinct portfolios of RPS resources – mixes of specific renewable resources that might be developed under a 33% RPS – for consideration in the LTPP. As proposed, these scenarios would be only illustrative for planning purposes, as the CPUC does not direct renewable procurement in the LTPP proceeding. It is envisioned that the annual RPS procurement plans would adopt specific procurement strategies and targets based on the analysis done in the LTPP.

## Recent and Upcoming Events

Timing	Deliverable	Notes
December 9, 2009	Renewable Distributed Energy Collaborative (Re-DEC)	Energy Division staff initiated a stakeholder collaboration to help identify the market, technical and regulatory challenges to interconnecting large amounts of new renewable energy generation facilities on the utilities' distribution systems. Re-DEC participants will adopt a work plan to address near-term challenges identified in Re-DEC.
December 10-11, 2009	Workshop on 33% RPS Implementation Analysis and consideration of a 33% RPS in the 2010 Long-Term Procurement Plans (LTPP)	The workshop discussed stakeholder comments on the 33% RPS Implementation Analysis Preliminary Results report as well as a proposed approach to considering a 33% RPS in the context of the IOUs' 2010 LTPP.
December 17, 2009	Resolution on the 2009 Market Price Referent (MPR)	The Commission adopted 2009 MPR values for use in the utilities' 2009 RPS solicitations and the feed-in tariff program's 2010 procurement cycle.
December 23, 2009	Revised proposed decision on tradable renewable energy credits (RECs)	The proposed decision would approve the use of REC-only contracts for all retail sellers, subject to a few limitations for utilities on the price they can pay for a REC and how many RECs can count towards a utility's annual procurement target.
January 12, 2010	Scoping memo for Renewables Transmission proceeding	The scoping memo requested briefs on implementing Public Utilities Code § 1002.3 and § 399.2.5, related to cost-effective alternatives to transmission and back-stop cost recovery for renewable transmission.
January 21, 2010	Resolution establishing competitive procurement process for Southern California Edison's (SCE) Solar PV program	The Commission adopted Resolution E-4299 implementing the competitive procurement portion of SCE's Solar PV Program, pursuant to D.09-06-049.

Timing	Deliverable	Notes
January 26, 2010	Proposed decision adopting a Solar PV Program for Pacific Gas and Electric (PG&E)	The proposed decision would adopt a Solar PV Program for PG&E for projects in the 3-20MW range. The proposed decision authorizes PG&E to execute contracts for up to 250 MW from independent power producers and up to 250 MW of utility-owned generation at prices determined by a competitive solicitation process.
January 26, 2010	Alternate proposed decision adopting a Solar PV Program for PG&E	The alternate proposed decision would adopt PG&E's Solar PV Program identified above, but allows projects between 1-3MW to also participate.
First Quarter, 2010	California Independent System Operator (CAISO) 33% RPS Integration Study Phase I Results	The study will examine the feasibility as well as cost and resources associated with integrating a 33% RPS into the California grid in 2020.
First Quarter, 2010	Staff RPS Methods Report	The report will propose a methodology and specific inputs and assumptions for constructing portfolios of RPS resources to consider in the LTPP.
First Quarter, 2010	Proposed decision regarding the expansion of the existing feed-in tariff program	The proposed decision would refine the existing feed-in tariff program set forth in Public Utilities Code Section 399.20 and Commission D.07-07-027. Program changes may include eligible project size, price, contract terms and conditions and procurement process.
Second Quarter, 2010	Proposed decision approving utilities' RPS Procurement Plans	The proposed decision would authorize utilities to hold 2010 RPS solicitations for procuring renewable energy to meet their RPS requirements.

### Contact Information

For more information, please visit our website at <http://www.cpuc.ca.gov/renewables> or contact Paul Douglas, RPS Program Supervisor, at [psd@cpuc.ca.gov](mailto:psd@cpuc.ca.gov).