



California Public Utilities Commission

RENEWABLES PORTFOLIO STANDARD Quarterly Report



1st Quarter 2011



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 (Sher) and modified in 2006 under Senate Bill 107 (Simitian), 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 (CEC) 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.

While the RPS program is a major vehicle for new utility-scale renewable energy development in California, it is not the only means by which new renewable generation is installed to serve customers. Other means include the California Solar Initiative (CSI); Self-Generation Incentive Program (SGIP); feed-in tariffs; IOU solar photovoltaic (PV) procurement programs; Renewable Auction Mechanism (RAM); Qualifying Facility (QF) Program; and bilateral negotiations. Unlike the other programs listed, the CSI and SGIP provide incentives to customers to install distributed generation consisting of solar photovoltaic, small wind, or fuel-cells.¹ While the electricity generated from the CSI and SGIP does not currently contribute towards the RPS requirements, it indirectly contributes to the RPS by reducing electricity demand when serving customer load. Furthermore, it provides the customer clean, renewable, carbon-free electricity.

The Commission issues this report on the RPS program 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 electric retail sales² and analyzing this data provides significant insight into the state's RPS progress.

¹ More information on the CSI and SGIP can be found on the CPUC's website: <http://www.cpuc.ca.gov/PUC/energy/DistGen/>.

² According to the CEC's California Energy Demand 2010-2020 Adopted Forecast.

II. EXECUTIVE SUMMARY

Status of RPS Procurement

- Collectively, the large IOUs reported in their March 2011 Compliance Filings that they served 17.9% of their electricity with RPS-eligible generation in 2010, up from 15.4% in 2009. PG&E served 17.7% of its 2010 load³ with RPS-eligible renewable energy, SCE with 19.4%, and SDG&E with 11.9%.
- To date, 2,002 MW of new renewable capacity achieved commercial operation under the RPS program. 300 MW of new renewable capacity has come online in the first quarter of 2011, with an additional 589 MW forecast to come online by the end of the year.
- In their September 17, 2010 verified RPS compliance reports to the CPUC, PG&E, SCE, and SDG&E reported no RPS deficits for 2004, 2005, and 2006. No party submitted comments or motions for evidentiary hearing on the 2004-2006 verified data, and no party asserts any LSE is out of compliance. The CPUC has not found any LSE out of compliance. As a result, no non-compliance penalties have been levied.
- The CPUC will make compliance determinations for 2007-2010 once the Energy Commission verifies the load serving entity renewable electricity delivery claims.

Highlights of Recent and Upcoming Events

- To implement Senate Bill 32 (Negrete McLeod, 2009), the CPUC issued a ruling requesting responses on a number of topics. Briefs and reply briefs were filed in March.
- Investor-owned utilities, electric service providers, and community choice aggregators filed their March 2011 Compliance Filings. These reports provide actual, but unverified renewable procurement data for 2007-2010 and forecasted renewable procurement data out to 2020.
- The IOUs filed their Renewable Auction Mechanism (RAM) implementation advice letters, which are currently under review. The first RAM auction is anticipated in the third or fourth quarter of 2011.
- The CPUC issued the RPS Procurement Plans proposed decision, which would conditionally approve the IOUs' RPS procurement plans and multi-jurisdictional utilities integrated resource plans supplements. Once the proposed decision is approved, the IOUs will hold the 2011 RPS solicitation.
- CPUC staff held the second Renewable Distributed Energy Collaborative (Re-DEC) workshop in order to inform stakeholders of the latest developments in interconnection for small generators.

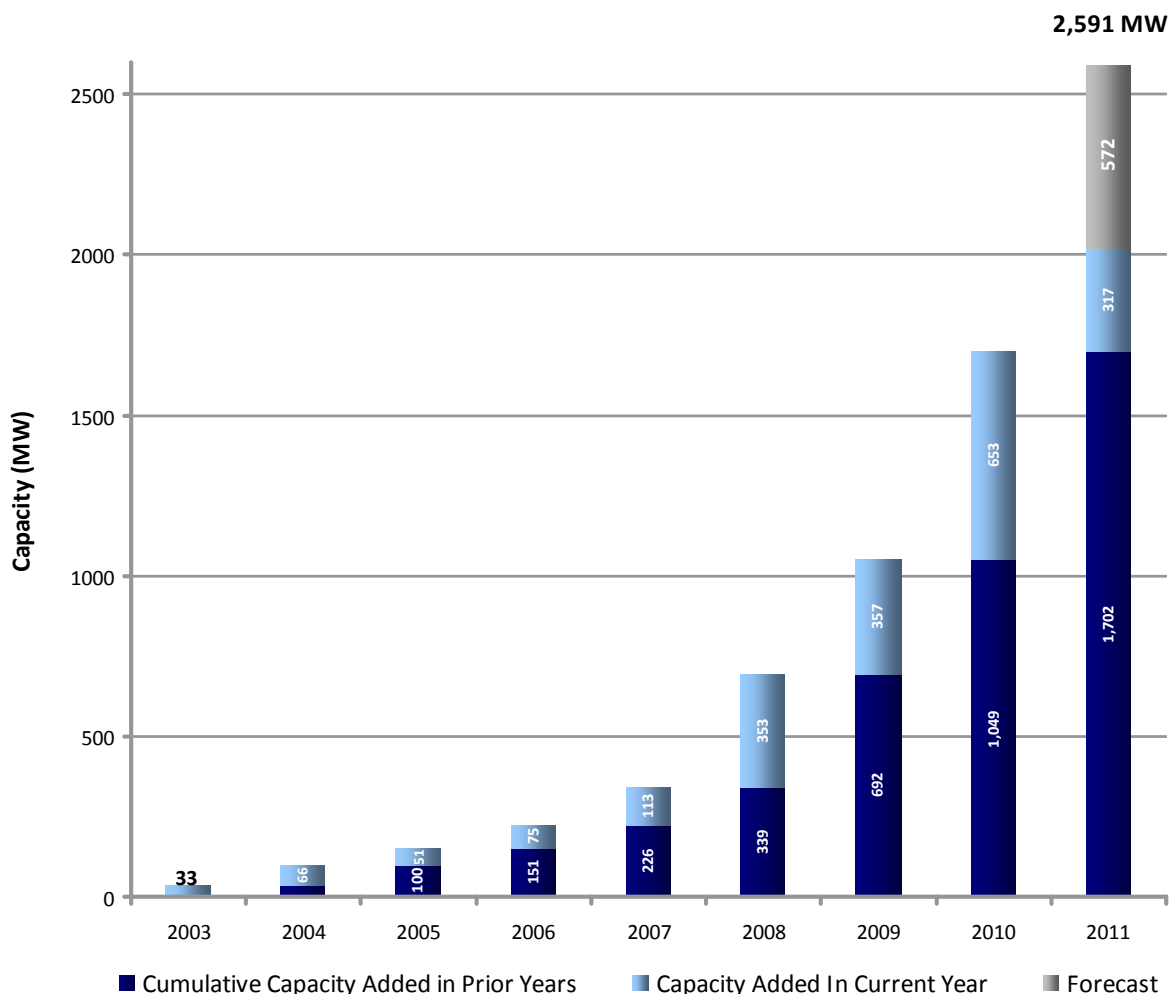
³ This percentage is dependent on the CPUC approving several PG&E contracts that are under review. If the contracts are rejected, PG&E's unverified RPS percentage would be 15.9% for 2010.

III. PROGRESS TOWARDS A 20% RPS BY 2010

New Renewable Capacity Added from 2003-2011

To date, 2,000 MW of new renewable capacity has achieved commercial operation under the RPS program. 300 MW of new renewable capacity has come online in the first quarter of 2011, with an additional 589 MW forecast to come online by the end of the year. The new online renewable capacity consisted of wind and solar PV projects.

Figure 1. RPS Capacity Installed Since 2003, By Year⁴



Source: California Public Utilities Commission, 1st Quarter 2011

⁴ Figure 1 only includes new or repowered projects under contract with the three large IOUs for 10 years or more.

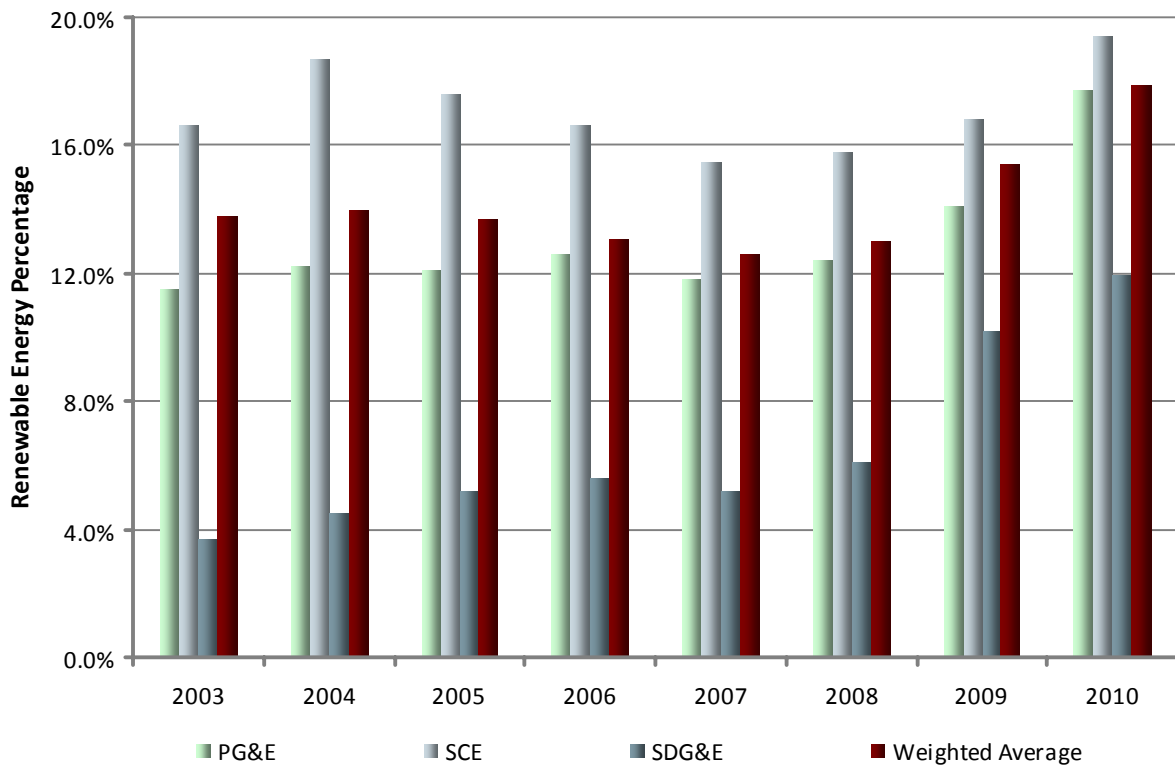
RPS Generation to Date

According to the IOUs' March 2011 Compliance Filings, the IOU RPS percentage in 2010 is 17.9%, a 2.5 percentage point increase from 2009. The RPS percentage in 2010 for each IOU compared to 2009 is:

- *PG&E*: 17.7%,⁵ a 3.6 percentage point increase
- *SCE*: 19.4%, a 2.6 percentage point increase
- *SDG&E*: 11.9%, a 1.7 percentage point increase

These increases are due to a number of factors: 1) new RPS facilities achieved commercial operation; 2) small RPS-eligible hydroelectric facilities generated more in 2010 than in 2007, 2008, and 2009; and 3) utility customers used less power in 2010 than the prior three years, which allowed renewable energy procurement to account for a greater percentage of retail sales. Figure 2 illustrates individual and aggregated renewable energy percentages since the beginning of the RPS program.

Figure 2. RPS Generation



Source: California Public Utilities Commission. 2nd Quarter 2010

⁵ This percentage is dependent on the CPUC approving several PG&E contracts that are under review. If the contracts are rejected, PG&E's unverified RPS percentage would be 15.9% for 2010.

Table 1 illustrates actual renewable generation for the years 2003-2010. The “Target” row shows the amount of renewable energy the utilities are required to purchase each year and the “RPS-Eligible” row shows the amount of renewable energy the utilities actually purchased. The next row calculates the renewable percentage, and the fourth row shows whether the utility is running a deficit or surplus. Utilities are allowed to bank any surplus renewable energy purchases for use in subsequent years and must make up any deficits they incur. Collectively, the IOU deficits in 2010 were 6,492 GWh, or approximately 2,316 MW assuming a 32% capacity factor, the average capacity factor for wind technology. According to current RPS compliance rules, the IOUs must make up past deficits in current or future years. See the section on RPS Compliance for more information on current compliance rules.

Table 1. Actual Renewable Energy Deliveries in Gigawatt Hours (GWh)

		Verified				IOU Self Reported			
		2003	2004	2005	2006	2007	2008	2009	2010
PG&E	Target (GWh)	7,022	7,733	8,454	9,178	9,941	10,732	11,547	15,554
	RPS-Eligible Procurement (GWh)	8,686	8,660	8,707	9,118	9,044	9,817	11,493	13,760
	RPS % of Bundled Sales	11.5%	12.2%	12.1%	12.6%	11.8%	12.4%	14.1%	17.7%
	Cumulative Deficit/Surplus (GWh)	1,664	2,592	2,844	2,785	1,888	973	919	-876
SCE	Target (GWh)	11,254	11,960	12,690	13,440	14,228	15,023	15,833	15,028
	RPS-Eligible Procurement (GWh)	12,421	13,182	12,882	12,486	12,261	12,574	13,622	14,548
	RPS % of Bundled Sales	16.6%	18.7%	17.6%	16.6%	15.5%	15.8%	16.8%	19.4%
	Cumulative Deficit/Surplus (GWh)	1,167	2,390	2,522	1,569	-399	-2,848	-5,058	-5,538
SDG&E	Target (GWh)	296	447	605	765	933	1,104	1,278	3,257
	RPS-Eligible Procurement (GWh)	550	678	825	900	881	1,047	1,784	1,940
	RPS % of Bundled Sales	3.7%	4.3%	5.2%	5.6%	5.2%	6.1%	10.2%	11.9%
	Cumulative Deficit/Surplus (GWh)	254	485	706	841	788	732	1,239	-78
TOTAL	Target (GWh)	18,572	20,139	21,748	23,382	25,102	26,859	26,900	33,839
	RPS-Eligible Procurement (GWh)	21,657	22,520	22,354	22,504	22,185	23,438	26,844	30,249
	RPS % of Bundled Sales	13.8%	14.1%	13.7%	13.1%	12.6%	13.0%	15.4%	17.9%
	Cumulative Deficit/Surplus (GWh)	3,085	5,466	6,072	5,194	2,277	-1,143	-2,900	-6,492

About Table 1:

- The blue text indicates an increase from the prior year, and the red text indicates a decrease.
- The CEC has verified the data for 2003-2006. The CPUC is able to make a compliance determination after the CEC verifies renewable energy claims.
- Data for 2007-2010 is self-reported by the IOUs in their March 2011 RPS Compliance Filings and has not been verified by the CEC.

Forecasted RPS Percentages 2011-2013

In their March 2011 RPS Compliance Filings, the IOUs forecasted the amount of renewable generation they expect to procure in future years. The RPS percentage is the amount of renewable generation divided by the amount of retail sales. In order to forecast future RPS percentages, it is necessary to forecast future retail sales. Table 2 below forecasts the RPS percentage for 2011-2013 based on two different forecasts. The first forecast is based on the IOUs' self-reported retail sales forecasts, which the IOUs filed in their March 2011 RPS compliance filings. The second forecast relies on the "Base Case" Load Forecast developed by CPUC staff for the 2010 Long-term Procurement Plan (LTPP) Proceeding, which is defined as the Energy Commission's Integrated Energy Policy Report's 2009 Load Forecast, plus incremental load reductions expected from combined heat and power installations and additional energy efficiency savings.⁶

As Table 2 indicates, the RPS percentage varies with each forecast. If actual retail sales are closer to the IOUs' forecast, because of lower-than-expected economic growth since the CEC's 2009 forecast, the IOUs will collectively reach the 20% RPS target in 2011. On the other hand, if the LTPP forecast is more accurate, then the IOUs will not reach the 20% RPS until 2013. Neither forecast takes into account the risk of project failure, which could decrease renewable generation, further reducing the RPS percentage.⁷

Table 2. RPS Percentage Forecast Based on Different IOU Retail Sales Forecasts (2011-2013)

	RPS % based on IOU forecast of retail sales			RPS % based on LTPP forecast of retail sales		
	2011	2012	2013	2011	2012	2013
PG&E	20.8%	21.4%	25.1%	18.5%	18.7%	22.1%
SCE	20.9%	25.4%	28.7%	17.9%	21.3%	24.5%
SDG&E	12.6%	16.1%	24.9%	10.7%	13.6%	21.4%
Total	20.0%	22.6%	26.7%	17.4%	19.4%	23.1%

⁶ See page 48 of Attachment 1 to the LTPP Scoping Memo, "Standardized Planning Assumptions (Part I) for System Resource Plans" for more information: <http://docs.cpuc.ca.gov/efile/RULINGS/130669.pdf>

⁷ CPUC staff is currently conducting a comprehensive "need analysis" to determine the IOUs' renewable net short for a 33% RPS and evaluating procurement options to fulfill the need.

RPS Compliance for 2004-2006

Process for Determining Compliance

Both the CPUC and the Energy Commission play a role in determining RPS compliance: the CPUC sets RPS targets and determines compliance with those targets. The Energy Commission verifies the amount of renewable energy procured and that RPS procurement exclusively serves California's RPS (i.e., no double counting of RPS generation).

The CPUC is able to make a compliance determination only after the Energy Commission issues a Verification Report verifying renewable energy claims. Thirty days after the Energy Commission issues its Verification Report, load serving entities are required to file a compliance report based on the verified data with the CPUC, which are subject to comments and motions for evidentiary hearing. If load serving entities are in compliance and their reports are not disputed, CPUC action is not likely to be necessary. On the other hand, if a report shows a load serving entity with a deficit, CPUC action may be needed if the load serving entity disputes the deficit. Load serving entities with deficits may be subject to penalties, which are set at 5 cents/kilowatt hour, with a limit of \$25 million per year per load serving entity.

RPS Requirements and Flexible Compliance

Load serving entities must increase renewable procurement by at least 1% of their retail sales annually, until they reach 20% by 2010 and maintain 20% thereafter. Load serving entities are allowed to defer the first year's entire target for up to three years. Pursuant to the RPS statute, the CPUC implemented flexible compliance rules that allow load serving entities to defer deficits for up to three years when using an allowable excuse.⁸

Verification of RPS Compliance and Compliance Status

In August 2010, the Energy Commission finalized its 2006 RPS verification report (including updates to some 2004 and 2005 data that CEC had previously verified). Load serving entities covered in the report were required to submit verified RPS compliance reports to the CPUC on September 17, 2010. In those reports, PG&E, SCE, and SDG&E reported no deficits for 2004, 2005, and 2006. No party submitted comments or motions for evidentiary hearing on the 2004-2006 verified data, and no party asserts any LSE is out of compliance. The CPUC has not found any LSE out of compliance and as a result, no non-compliance penalties have been levied.

⁸ See D.06-10-050, attachment A. Examples include insufficient transmission and project failure.

IV. PROGRAM UPDATE

System-Side Renewable Distributed Generation

Renewable Distributed Energy Collaborative (Re-DEC)

CPUC staff formed the Renewable Distributed Energy Collaborative (Re-DEC) in late 2009 to identify and address challenges associated with deployment of high penetrations of renewable distributed generation (DG). The first workshop in December 2009 focused on technical grid challenges with the intent of working with Re-DEC stakeholders to develop solutions. Due to the wide scope of issues, including technical, market, and process challenges, broad stakeholder coordination is required to identify and successfully implement solutions. As a result, the focus of Re-DEC is not to address every challenge, but rather to inform stakeholders of the appropriate forums that are already addressing those issues. Re-DEC will address challenges to key barriers at the intersection of policy and technology, starting with interconnection of system-side renewable DG to the distribution grid. Re-DEC forums will be held twice a year and the next workshop will be in third quarter of 2011.

On March 4, 2011, CPUC staff held the second Re-DEC workshop.⁹ The workshop was very well attended and included state policymakers, the California Independent System Operator (CAISO), the IOU distribution engineers, the Department of Energy (DOE), the national labs, renewable developers, renewable advocates, and other technical experts. The workshop covered the following topics:

- Summary of state's accomplishments over the past year in addressing challenges identified in the "Interconnection Challenges Matrix," which was presented at the first workshop in December 2009.¹⁰
- Summary of the CSI and DOE solar research development and deployment (RD&D) grants to fund grid integration studies that can facilitate interconnection and integration of solar PV.
- Overview of the CAISO, SCE, and PG&E interconnection reform of federal interconnection tariffs.¹¹
- Discussion of proposals to improve existing expedited interconnection processes for system-side renewable DG projects.
- Review of pilot study that uses software to identify preferred distribution interconnection points.
- Review of IOU interconnection maps, which provide renewable developers an indication where they may be able to interconnect at lower cost.

⁹ Workshop materials are available at www.cpuc.ca.gov/ReDEC

¹⁰ The Interconnection Challenges Matrix can be accessed at www.cpuc.ca.gov/ReDEC

¹¹ See the Q4 2010 RPS Report to the Legislature for a summary of the reform.

Based on stakeholder comments and requests, CPUC staff has identified the following next steps:

- Work with Energy Commission staff to better understand the similarities and differences between interconnection process and distribution system infrastructure in California compared to Germany and Spain in order learn from the European experience.
- Work with technical experts to identify a new set of interconnection screens that can safely and reliably allow a greater number of small renewable projects to interconnect to existing infrastructure without the need for time and resource intensive interconnection studies.
- Work with the utilities to identify areas of further study and research in order to improve integration and interconnection of small renewable generators.

Planning for a 33% RPS in 2020

The CPUC oversees a biannual process, called the Long-Term Procurement Plan (LTPP) proceeding, which considers the need for new generation resources to serve the energy and capacity needs of California's three large IOUs. In December 2010, following an extensive period of stakeholder review and formal comment, the Commission issued a Scoping Memo¹² in the 2010 LTPP proceeding that provided a set of Standardized Planning Assumptions to be used by the IOUs in the filing of their 10-year procurement plans.¹³

Because a 33% RPS would have a very significant impact on the need for any new procurement within the 2010-2020 timeframe, the Standardized Planning Assumptions also directed the IOUs to evaluate seven different RPS "scenarios." The seven scenarios, four portfolios of resources that achieve a 33% RPS under the "base case load" forecast; two that achieve a 33% RPS under lower and higher load forecasts; and one that achieves a 20% RPS in 2020 – include different mixes of RPS-eligible resources and are meant to represent "reasonably plausible" RPS portfolios in 2020.

The four "base case load" scenarios reflect different policy preferences. The *Trajectory Scenario* includes primarily those RPS resources that are already under contract or under negotiation with California utilities; the *Environmentally-Constrained Scenario* includes those resources that score best according to a high-level test of possible environmental concern; the *Cost-Constrained Scenario* chooses resources according to their value in energy markets; and the *Time-Constrained Scenario* includes those resources that are deemed the fastest to develop.¹⁴ All of the scenarios also take into account transmission constraints and timing in order to develop year-by-year forecasts of resource availability. The three remaining scenarios – the low and high-load sensitivity scenarios and the 20% RPS Scenario – are variations of the Trajectory Scenario, simply containing more or fewer of those commercial resources, depending on the higher or lower RPS generation requirement. Figure 3, below, shows the new generation, installed capacity, and resource mix of the seven RPS scenarios.

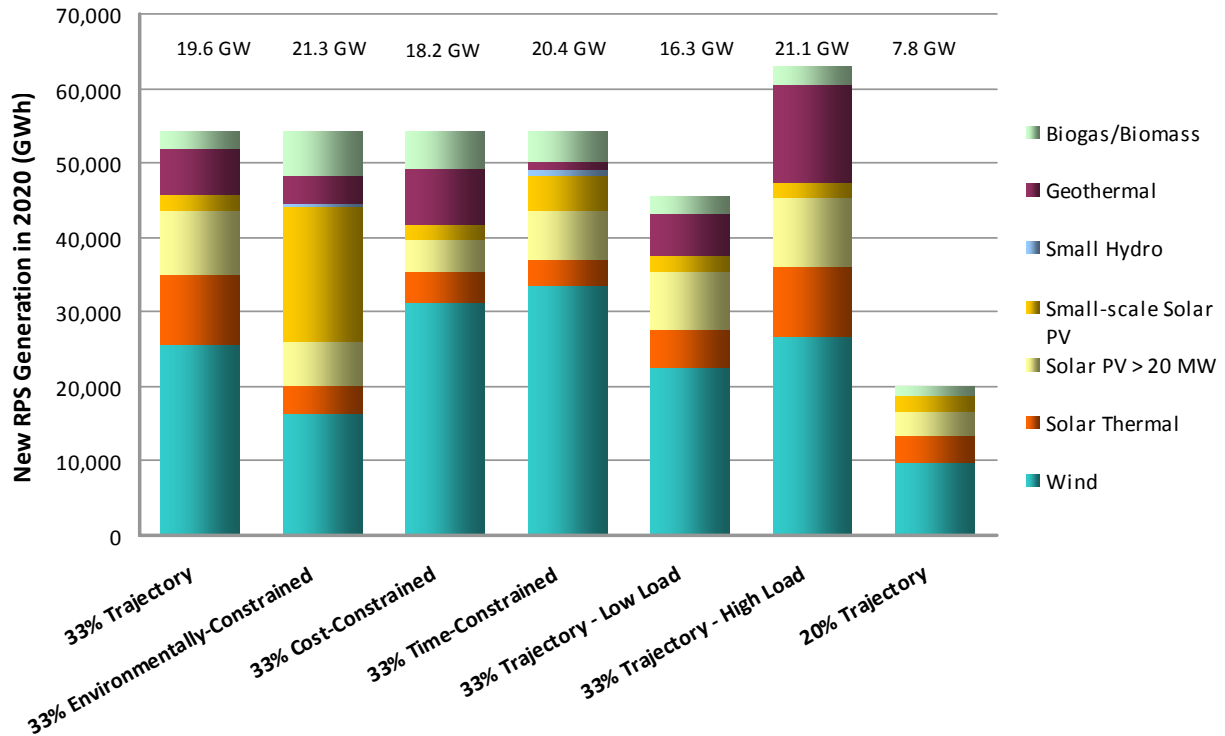
¹² See the 2010 LTPP website to link to the Scoping Memo:

http://www.cpuc.ca.gov/PUC/energy/Procurement/LTPP/ltp_history.htm

¹³ Planning assumptions include year-by-year assumptions regarding annual and peak load, achievement of energy efficiency goals, combined heat-and-power installations, gas price forecasts, etc.

¹⁴ In order to reflect the significant number of contracts California's utilities have already signed, all of the scenarios include a "Discounted Core" of those commercial projects that are considered the most likely to deliver pursuant to their contracts.

Figure 3. New Resources to Meet 33% and 20% RPS Scenarios in 2020



Source: California Public Utilities Commission, 1st Quarter 2011

New installed RPS capacity in each scenario is shown above each bar. Capacity varies by scenario even when generation is constant because of the different capacity factors of the different types of renewable energy resources in each scenario.

The December 3, 2010 Scoping Memo directed the IOUs to file long-term procurement plans containing the conventional resources needed to accommodate this final set of RPS scenarios, as well as the adopted standards on energy efficiency, DG, and other key planning inputs. Those plans must also include the total cost, greenhouse gas emissions, and risk associated with these full scenarios. The plans will present more detail than ever before on the cost, timing, and risk associated with a 33% RPS using the information from the CAISO’s renewables integration study (see next section), and high-level assessments of the new transmission needed under each scenario. The CPUC expects this information to inform a decision in the Commission’s LTPP proceeding about procurement of new system generation by the end of 2011. The CPUC will also evaluate whether the information gained through this long-term planning process has implications for and should be considered in the CPUC’s RPS procurement proceedings.

Renewables Integration

Renewables integration ensures that the energy transmission grid has enough flexible, controllable supply, or demand-side resources to accommodate the intermittency of renewable resources like wind and solar. As California continues to rapidly increase its use of intermittent renewables in coming years, the CPUC, CAISO, investor-owned utilities and a broad range of RPS stakeholders are using models to forecast how much and what kinds of new resources are needed to maintain grid reliability.

Potential resources that could be used to integrate renewables include operational changes to existing non-renewable generation, energy storage (including pumped hydro, flywheels and batteries), demand response, and new flexible gas-fired generation. Different technologies provide varying combinations of key attributes, which include start and ramp speeds, ramp duration, environmental impacts, and capital and operating costs.

Through the LTPP proceeding, the Commission is seeking to identify resources needed to meet system or local resource adequacy in California through 2020, and is also seeking to identify any resources needed for renewables integration. CAISO and PG&E have developed two independent computer models for estimating California renewables integration need and the associated cost, both of which are currently being reviewed by the Commission through the LTPP proceeding.

- In 2010, Energy Division held three stakeholder workshops to review the integration models' methodologies and early results using renewables planning assumptions from 2009.
- In the first and second quarter of 2011, CAISO and PG&E will each run their models using updated renewables planning assumptions approved by the Commission in the December 2010 LTPP Scoping Memo.
- Later in 2011, the Commission will review modeling results in the LTPP proceeding and determine whether to authorize the utilities to procure resources for renewables integration.
- Beyond 2011, it is anticipated that the Commission will continue to work with the CAISO, utilities, and other stakeholders on an ongoing basis to refine renewable integration model methods.

VI. RECENT AND UPCOMING EVENTS

Table 3. Recent and Upcoming Events

Timing	Deliverable	Notes
January 13, 2011	TRECs Decision D.11-01-025	The CPUC voted to largely reject Petitions for Modification of the decision authorizing tradable renewable energy credits (TRECs). All retail sellers can now buy, sell, and trade RECs separately from their underlying energy, and they can use them for RPS compliance. The Commission established temporary limits on the price large utilities can pay for TRECs and limits on how many TRECs can be used for RPS compliance by IOUs and Electric Service Providers (ESPs) through December 31, 2013.
January 13, 2011	SB 695 Decision D.11-01-026	The CPUC implemented SB 695, which requires, among other things, that once the CPUC has begun the process of reopening direct access transactions, the CPUC must ensure that ESPs are subject to the same RPS requirements as are the three large utilities. To equalize RPS requirements, the decision requires ESPs to file RPS procurement plans and also applies the temporary 25% TREC usage limit to ESPs.
February 11, 2011	RPS Procurement Plans Proposed Decision in R.08-08- 009	The proposed decision would conditionally approve the investor-owned utilities renewables procurement plans and multi-jurisdictional utilities integrated resource plan supplements. Approval of the proposed decision would authorize PG&E, SCE, and SDG&E to hold 2011 RPS solicitations for procuring renewable energy to meet their RPS requirements.
February 25, 2011	Renewable Auction Mechanism (RAM) Implementation Advice Letters	Pursuant to D.10-12-048, the IOUs filed advice letters to implement RAM. The advice letters include the IOUs' standard contracts, procurement protocols, auction dates, and the type and amount of each product that the IOU will solicit in each auction. The first RAM auction is anticipated to occur in the third or fourth quarter of 2011.
March 1, 2011	Compliance Filings	Investor-owned utilities, electric service providers, and community choice aggregators filed informational RPS Compliance reports. These reports provide unverified (self-reported) renewable procurement data for years 2007-2010 and forecast renewable procurement data out to 2020.

Timing	Deliverable	Notes
March 2 and 3, 2011	PG&E and SCE filed amended Wholesale Distribution Access Tariff (WDAT) language with the Federal Energy Regulatory Commission (FERC)	PG&E and SCE held stakeholder processes to update their WDAT interconnection tariffs, which are used to interconnect generators to the distribution system. PG&E and SCE filed their amended tariffs with FERC and are waiting for FERC approval.
March 4, 2011	Renewable Distributed Energy Collaborative (Re-DEC) Workshop	Staff held the second Re-DEC workshop in order to inform stakeholders of the latest developments in interconnection for small generators. The workshop updated stakeholders on the CAISO and IOU interconnection reform, the results of the CSI and DOE solar PV RD&D grants, and reviewed the IOU interconnection maps. In addition, stakeholders reviewed proposals to improve the interconnection screens for expedited interconnection processes.
March 25, 2011	IOUs file “bundled customer” plans in Track 2 of the 2010 Long-Term Procurement Plan (LTPP) proceeding	In Track 2 of the LTPP, each IOU must file a plan demonstrating how it intends to meet the energy needs of its retail electricity customers, from 2011-2020 (Track 1 considers the infrastructure need for new capacity to serve all distribution service customers, including Direct Access and Community Choice Aggregation). Each plan also includes the IOU’s planned approach to RPS compliance over the same period.
Second Quarter 2011	RPS RFO	If the RPS Procurement Plans proposed decision is approved, investor-owned utilities will hold 2011 RPS solicitations for procuring renewable energy and tradable renewable energy credits to meet their RPS requirements.