DRAFT COMMITTEE REPORT

RENEWABLE ENERGY PROGRAM 2010 ANNUAL REPORT TO THE LEGISLATURE

OCOBER 2010

CEC-300-2010-010-CTD

CALIFORNIA ENERGY COMMISSION

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DISCLAIMER

This report was prepared by the California Energy Commission Renewables Committee as part of Renewable Energy Program – docket # 02-REN-1038 and RPS Proceeding – Docket # 03-RPS-1078. The report will be considered for adoption by the full Energy Commission at its Business Meeting on (December 1, 2010). The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted.

ACKNOWLEDGEMENTS

This report was also prepared with contributions from the following staff: Pamela Doughman, Bert Fegg, Tony Gonçalves, Gabriel Herrera.

ABSTRACT

The *Renewable Energy Program 2010 Annual Report to the Legislature* (*2010 Annual Report*) responds to a legislative directive to report annually on the results of the Renewable Energy Program's activities and status of funding. The comprehensive *2010 Annual Report* covers the period of July 1, 2009, through June 30, 2010, and includes information on the following fiscal and functional aspects of the Renewable Energy Program: allocation of Renewable Resource Trust Fund dollars, information on cash flow, program activities and results, and projects and funding awards.

Keywords: Renewable Energy Program, Renewable Resource Trust Fund, Renewables Portfolio Standard, Western Renewable Energy Generation Information System, New Renewable Facilities Program, New Renewable Resources Account, Existing Renewable Facilities Program, Emerging Renewables Program, California Solar Initiative, New Solar Homes Partnership, Senate Bill 1, Consumer Education Program, renewable energy, solar thermal, photovoltaic, biomass, fuel cell, geothermal, wind, distributed generation

Please use the following citation for this report:

Folkman, Jim, Lorraine Gonzalez, Mark Kootstra, James Lee, Brian McCollough, Sandy Miller, Amy Morgan, Payam Narvand, Sherrill Neidich, Le-Quyen Nguyen, Garry O'Neill, Heather Raitt, Rachel Salazar, Kate Zocchetti. 2010. *Renewable Energy Program 2010 Annual Report to the Legislature*. California Energy Commission. CEC-300-2010-CTD.

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CHAPTER 1: Introduction

The California Energy Commission is pleased to submit its *Renewable Energy Program 2010 Annual Report to the Legislature (2010 Annual Report)*, covering the period of July 1, 2009, through June 30, 2010. Public Resources Code Section 25748(a) requires the Energy Commission to report annually to the Legislature on the Renewable Energy Program and specifies that the report shall include the following:

> (1) A description of the allocation of funds among existing, new, and emerging technologies, the allocation of funds among programs, including consumer-side incentives, and the need for the reallocation of money among those technologies.
>
> (2) The status of account transfers and repayments.
>
> (3) A description of the cumulative commitment of claims by account, the relative demand for funds by account, and a forecast of future awards.
>
> (4) A description of the allocation of funds from interest on the accounts.
>
> (5) An itemized list, including project descriptions, award amounts, and outcomes for projects awarded funding in the prior year.

In addition, the *2010 Annual Report* must include a discussion of the progress being made toward achieving the Renewables Portfolio Standard (RPS) targets identified in Public Resources Code Section 25740 for each element of the Renewable Energy Program. Under current RPS law, retail energy sellers are required to increase procurement from eligible renewable energy resources by at least 1 percent of retail sales annually until they reach 20 percent by 2010. In 2006, Governor Arnold Schwarzenegger called for a 20 percent target within this RPS goal to be met with electricity from biomass. Executive Order S-14-08, signed in November 2008, and Executive Order S-21-09, signed in September 2009, set into motion higher RPS goals challenging California to obtain one-third of its electricity from renewables by 2020.

Lastly, the *2010 Annual Report* must identify the types and quantities of biomass fuels used by facilities receiving funds from the Existing Renewable Facilities Program and their impacts on improving air quality.

The authorization for the collection and expenditure of the funding for the Renewable Energy Program—California's public goods charge—is scheduled to end January 1, 2012.[1] These investor-owned utility (IOU) ratepayer collections, for programs in energy efficiency, renewable energy, and research and development, were extended from 2002 to 2012 with the enactment of

1 Section 399.8 (c) (1) of the Public Utilities Code states, "The commission (California Public Utilities Commission) shall require each electrical corporation to identify a separate rate component to collect revenues to fund energy efficiency, renewable energy, and research, development and demonstration programs authorized pursuant to this section beginning January 1, 2002, and ending January 1, 2012."

Assembly Bill 995 (Wright, Chapter 1051) and Senate Bill 1194 (Sher, Chapter 1050) in 2000. Without collections beyond 2011, the Renewable Energy Program's efforts to meet the goals of the New Solar Homes Partnership and the state's Renewables Portfolio Standard will be unfunded. The Energy Commission is seeking reauthorization of funding for the Renewable Energy Program.

Following a legislative history of the Renewable Energy Program, this report is divided into 10 chapters and an Appendix:

Chapter 1: Introduction

Chapter 2: Allocation of Funds

Chapter 3: Program Activities and Results

Chapter 4: Progress in Achieving RPS 20 Percent by 2010 Target

Chapter 5: Additional Renewable Energy Program Activities

Chapter 6: Historical Renewable Energy Program Activities

Chapter 7: Reallocation of Funds

Chapter 8: Account Transfers and Repayments

Chapter 9: Interest Expenditures

Chapter 10: Contributions to the Renewable Resource Trust Fund

Appendix: *2010 Annual Report to the Legislature Appendix*

The *2010 Annual Report* discusses the mandated items for fiscal year 2009-2010, with reference to prior and future fiscal years for context and comparison as appropriate.

Legislative History

1998 Through 2006

Beginning with the enactment of Assembly Bill (AB) 1890 (Brulte, Chapter 854, Statutes of 1996) and continuing through legislation passed in 2006, the state authorized ratepayer funding and established programs to dramatically increase the proportion of renewable energy and energy efficiency serving California utility customers. AB 1890 authorized the collection of funds from utility ratepayers through a nonbypassable system benefit charge to support existing, new, and emerging renewable resources, among other public goods.

Senate Bill 90 (Sher, Chapter 905, Statutes of 1997) authorized the Energy Commission to establish the Renewable Energy Program to distribute funds collected under AB 1890 and provide incentives for the deployment of renewable energy generation facilities. The Energy Commission, working with the California Public Utilities Commission (CPUC) and other state agencies, achieved initial success with those programs as the state sought to meet new electricity demand with environmentally benign resources. In light of the unwieldy wholesale electricity prices California faced in 2000 and 2001, and other problems in the market,

California's efforts to restructure the market shifted direction, which spawned the creation of the RPS.

Assembly Bill 995 (Wright, Chapter 1051, Statutes of 2000) and Senate Bill (SB) 1194 (Sher, Chapter 1050, Statutes of 2000) responded to the state's energy crisis by creating the Reliable Electric Service Investments Act, which extended the system benefit charge funding for energy efficiency, renewable energy, and research and development through 2011. Under this legislation, the Energy Commission retained the administration of renewable energy funding and was charged with preparing a five-year investment plan for the Renewable Energy Program for the period January 1, 2002, to January 1, 2007.[2]

Many of the recommendations put forward in the 2001 investment plan were codified by Senate Bill 1038 (Sher, Chapter 515, Statutes of 2002). A companion measure, Senate Bill 1078 (Sher, Chapter 516, Statutes of 2002), created the state's RPS to help diversify the state's electricity system and reduce its growing dependence on natural gas by increasing the percentage of renewables in the state's electricity mix to 20 percent by 2017. That legislation set specific requirements for the utilities, the CPUC, and the Energy Commission to ensure that the state meets the targets of the RPS.

Additional legislation enacted during the years 2003-2005 refined aspects of the Renewable Energy Program, and, consequently, the Energy Commission adopted changes to the program's various guidelines to reflect the following legislation:

- Senate Bill 704 (Florez, Chapter 480, Statutes of 2003) required the Energy Commission to allocate $6 million from the Renewable Resource Trust Fund (RRTF) for incentives to electricity-generating facilities that increased their usage of qualified agricultural biomass for the 2003-2004 fiscal year.
- Senate Bill 183 (Sher, Chapter 666, Statutes of 2003) amended and recast the provisions of Public Utilities Code Sections 383.5 and 445 governing the Renewable Energy Program into Public Resources Code Sections 25740 through 25751.
- Senate Bill 67 (Bowen, Chapter 731, Statutes of 2003) changed the eligibility requirements for renewable generators located out of state.
- Senate Bill 168 (Bowen, Chapter 733, Statutes of 2003) made technical amendments to Public Utilities Code Sections 383.5 and 445, which were chaptered out because SB 183 recast those provisions into the Public Resources Code.
- Assembly Bill 135 (Reyes, Chapter 867, Statutes of 2004) authorized the Energy Commission to immediately use up to $60 million of the funds in the RRTF to support the Emerging Renewables Program element of the Renewable Energy Program. These funds may be spent only until December 31, 2008, and are subject to the repayment requirements of Public Resources Code Section 25751(f).

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2 California Energy Commission, *Investing in Renewable Electricity Generation in California*, June 2001, P500-00-022, www.energy.ca.gov/reports/2001-06-21_500-00-022.PDF.

- Assembly Bill 200 (Leslie, Chapter 50, Statutes of 2005) modified the eligibility requirements for renewable generators located out of state serving the load of utilities such as Sierra Pacific Power Company and PacifiCorp that have a limited number of customers in California.

California's environmental and energy policy stakeholders defined 2006 as a watershed year with the legislative passage of Senate Bill 1 (Murray, Chapter 132, Statutes of 2006); Senate Bill 107 (Simitian, Chapter 464, Statutes of 2006); Senate Bill 1250 (Perata, Chapter 512, Statutes of 2006); the California Global Warming Solutions Act of 2006 (Assembly Bill 32, Núñez, Chapter 488, Statutes of 2006), Assembly Bill 2189 (Blakeslee, Chapter 747, Statutes of 2006), and Assembly Bill 1969 (Yee, Chapter 731, Statutes of 2006). These statutes affected implementation of the Energy Commission's Renewable Energy Program.

- SB 1 established in statute the California Solar Initiative (CSI), the largest solar installation incentive program of its kind in the country. With a goal of 3,000 megawatts (MW) of new, solar-produced electricity by the end of 2016, the program aims to move the state toward a cleaner energy future and help lower the cost of solar systems for consumers.
- SB 107 accelerated California's RPS target by requiring retail sellers of electricity to increase renewable energy purchases by at least 1 percent per year with a target of 20 percent renewables by 2010. It also added new components to the RPS program, including bringing publicly owned electric utilities (POUs) more fully into the RPS by requiring them to report to the Energy Commission their specific goals and progress toward the goals. Without tracking this additional data, it would not be possible to assess overall state progress toward the RPS goals.
- SB 1250 with SB 107 authorized the Energy Commission's ongoing use of public goods charge funds collected from January 1, 2007, through January 1, 2012, for the continued operation of the Renewable Energy Program.
- AB 2189 modified RPS eligibility requirements for small hydroelectric generation facilities regarding efficiency improvements that result in increased capacity.
- AB 1969 added Section 399.20 to the Public Utilities Code to encourage energy production from renewable resources at public water and wastewater facilities. In July 2007, CPUC Decision 07-07-027 implemented AB 1969 and adopted tariffs and standard contracts for water and wastewater customers and similar tariffs for other customers up to 1.5 MW in size for a cumulative statewide total of 250 MW. The Energy Commission incorporated these changes in its RPS guidelines to expand RPS eligibility to these facilities.

Also passed in 2006, AB 32 set a goal of reducing greenhouse gas emissions to 1990 levels by 2020. The codification of AB 32 represented a tremendous step forward as California took its place as an international leader in efforts to prevent catastrophic climate change induced by greenhouse gas emissions. Electricity generation from fossil fuel power plants and emissions

from the transportation sector are the two largest contributors to the state's greenhouse gas emissions.

2007 Through June 30, 2010

Senate Bill 1036 (Perata, Chapter 685, Statutes of 2007), effective January 1, 2008, recast California's RPS program and made several significant changes to the Renewable Energy Program. Among other directives, the legislation abolished the Energy Commission's authority to award supplemental energy payments (SEPs) meant to cover the above-market costs of procuring renewable energy for the RPS and eliminated the RRTF's New Renewable Resources Account effective July 1, 2008.

Through June 2010, other legislation affecting the Renewable Energy Program included the following:

- Assembly Bill 809 (Blakeslee, Chapter 684, Statutes of 2007) expanded the RPS eligibility of hydroelectric facilities by allowing the incremental generation associated with new efficiency improvements to large hydroelectric facilities to qualify for the RPS.
- Senate Bill 380 (Kehoe, Chapter 544, Statutes of 2008). SB 380 modifies the small renewable feed-in-tariff program[3] by expanding the eligible generators beyond water and wastewater facilities to include any customer that meets specific conditions. The bill requires that all electrical corporations within CPUC jurisdiction offer the small renewable feed-in tariff program. The bill retains the renewable facility capacity size limit of 1.5 MW and increases the statewide generating capacity limit from 250 MW to 500 MW.
- Assembly Bill 3048 (Committee on Utilities and Commerce, Chapter 558, Statutes of 2008) amended Section 25742 of the Public Resources Code to remove restrictions on the types of biomass fuels receiving production incentive payments from the Existing Renewable Facilities Program. These restrictions, which were instituted in SB 1250 in 2006, effectively prohibited the use of fuel from federal forests by biomass facilities receiving Existing Renewable Facilities Program funding because the statute required that the fuel must be harvested under an approved state timber harvest plan.
- Assembly Bill 811 (Levine, Chapter 159, Statutes of 2008) authorizes California cities and counties to designate areas within which city officials and willing property owners may enter into contractual assessments to finance the installation of distributed generation renewable energy sources, including solar and energy efficiency improvements. The financing arrangements would allow property owners to finance renewable generation and energy efficiency improvements through low-interest loans that would be repaid as an item on the property owner's property tax bill. The intention of the bill is to reduce the up-front and ongoing costs of installing alternative energy systems and energy conservation measures that are permanently affixed to a property.

3 A feed-in tariff offers fixed-price payments for energy from renewable sources.

- Assembly Bill 45 (Blakeslee, Chapter 404, Statutes of 2009) requires California counties to adopt wind ordinances by January 1, 2011, governing the installation of small wind turbines. The intent is to encourage local agencies to develop and adopt ordinances that facilitate the installation of small wind energy systems. AB 45 also requires the Energy Commission to provide a report to the Legislature on the status of small wind in California by January 1, 2016.
- Assembly Bill 920 (Huffman, Chapter 376, Statutes of 2009) expands the current net-metering programs for wind and solar power to allow net-metered customers to sell any excess electricity they produce over the course of a year to their electric utility. The customer-generator may annually elect to receive direct payment for the net surplus generation or to receive credit on their electric bill. The bill also provides that any renewable energy credit (REC), as defined, for net surplus electricity belongs to the electric utility purchasing the electricity and that net surplus electricity counts toward the electric utility's RPS purchasing requirements.
- Senate Bill 32 (Negrete, McLeod, Chapter 328, Statutes of 2009) revises and expands the current feed-in tariff program for eligible renewable electric generation facilities.
- Assembly Bill 162 (Ruskin, Chapter 313, Statutes of 2009) revised the utilities' disclosure of power sources to consumers and the Energy Commission and streamlined certain reporting requirements. The bill removed the Energy Commission's responsibilities to calculate net system power and requires the utilities to make information on power sources available to their customers annually.
- Assembly Bill 1351 (Blakeslee, Chapter 525, Statutes of 2009) authorizes a state board or agency to be the applicable entity to issue the RPS certification, pursuant to the federal Clean Water Act, for out-of-state hydroelectric generating facilities that have increased their generation incrementally via energy efficiency. The bill also requires that a hydroelectric facility be owned by a retail seller or local publicly owned electric utility (POU).
- Senate Bill 77 (Pavley, Chapter 15, Statutes of 2010) authorizes the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to establish a Property Assessed Clean Energy (PACE) Reserve program to assist local jurisdictions in financing the installation of distributed generation of renewable energy sources, or energy or water efficiency improvements. An amount up to $50 million was appropriated from the RRTF to CAEATFA for the PACE Reserve Program until January 1, 2015. The money is to remain in the RRTF until it is needed by CAEATFA, and all repayments will be deposited back into the RRTF.
- Senate Bill X8 34 (Padilla, Chapter 9, Statutes of 2010) authorizes the Department of Fish and Game, in consultation with the Energy Commission, to develop actions to mitigate the impacts on endangered and threatened species of solar energy projects that are eligible for federal funding and are proposed for siting in the California desert in the Desert Renewable Energy Conservation Plan planning area. The bill authorizes eligible project developers to meet their mitigation obligations by voluntarily paying fees for deposit into a fund that would be used by Department of Fish and Game to complete the

mitigation actions. In advance of receiving the fees, the bill authorizes a $10 million loan from the RRTF, to be repaid no later than December 31, 2012.

- Assembly Bill 510 (Skinner, Chapter 6, Statutes of 2010), increases the cap on the amount of solar or wind produced electricity that can be generated under the net-energy metering program from 2.5 percent to 5 percent of each utility's collective peak demand. It also requires a licensed contractor to inspect existing solar or wind generating facilities when a customer generator wants to enter the facility into a new net-energy metering contract, unless the facility and meter have been inspected in the prior three years.

Renewable Energy Program Elements

Since its beginning in 1998, the Renewable Energy Program has evolved under enacted legislation and has consisted of the following present and past elements:

- The Emerging Renewables Program provides rebates and production incentives to end-use consumers who purchase and install eligible renewable energy systems for on-site generation. Through 2006, eligible technologies were solar photovoltaic (PV), small wind, fuel cells using renewable fuels, and solar thermal electric. Effective in 2007, only small wind systems (rated output of 50 kilowatts [kW] or less) and fuel cells (using a renewable fuel) are eligible. The Energy Commission's New Solar Homes Partnership (NSHP) and the CPUC's CSI have replaced the solar component of the Emerging Renewables Program. The NSHP provides financial incentives and other support to home builders, encouraging the construction of new, energy-efficient solar homes.
- The Existing Renewable Facilities Program offers production incentives to existing solid-fuel biomass, solar thermal, and wind facilities. Incentive payments are tied to market prices, with no payments made if the market price is above a predetermined target price. Beginning in 2007, under a revised program structure, existing facilities must apply for funding and include a project-specific target price request and a cents-per-kilowatt-hour (cents/kWh) cap on funding for energy produced in a calendar year.
- The Consumer Education Program funds grants and contracts to increase public awareness of renewable energy and its benefits and helps build a consumer market for renewable energy and small-scale emerging renewable energy technologies.
- The New Renewable Facilities Program fostered the development of new in-state renewable electricity generation facilities by providing financial support. The program consisted of two parts. Under the first, production incentives awarded through competitive auctions provided support to prospective new renewable electricity generation projects. Once they came on-line, eligible projects received payments for their first five years of generation. Second, under the RPS, the New Renewable Facilities Program was to provide SEPs for up to 10 years to eligible projects for the above-market costs of meeting RPS requirements. In October 2007, however, the enactment of SB 1036 removed the Energy Commission's authority to award SEPs and abolished the New Renewable Resources Account as of July 1, 2008.

- The Customer Credit Program provided incentives to consumers who purchased renewable energy in the direct access market. This program allowed renewable energy providers to offer electricity products to their customers at prices competitive with conventional electricity products. The program was discontinued after payments made in December 2004 concluded Customer Credit Program activities.

The next chapter discusses RRTF funding and expenditures for each of the Renewable Energy Program elements.

CHAPTER 2:
Allocation of Funds

Since 1998, Renewable Energy Program funding allocations have supported renewable energy goals and policy priorities while responding to changing market conditions. Table 1 compares the Renewable Energy Program's original funding allocations under SB 90 (1998-2001) with SB 1038 (2002-2006) and the subsequent reallocation of SB 1038 Customer Credit Program funds upon discontinuation of that program consistent with the Energy Commission's *Customer Credit Report* [4] recommendations.

Table 1: Renewable Energy Program Funding Allocations 1998 Through 2006

Program	SB 90 1998-2001		SB 1038 2002-2006[5]		SB 1038 2002-2006 (Reallocation of Customer Credit)[5]	
	Percent of Total	$Million	Percent of Total	$Million	Percent of Total	$Million
New Renewable Facilities	30	162.0	51.5	347.625	51.5	347.625[6]
Emerging Renewables	10	54.0	17.5	118.125	26.5	178.875
Existing Renewables	45	243.0	20	135.000	20	135.000
Consumer Education	1	5.4	1	6.750	2	13.500
Customer Credit	14	75.6	10	67.500	0	0.000
TOTAL	100	540.0	100	675.000	100	675.000

Source: SB 90 (Sher, Chapter 905, Statutes of 1997) and SB 1038 (Sher, Chapter 515, Statutes of 2002).

Funding allocations for 2007-2011, legislated by SB 107 and SB 1250, were affected by the enactment of SB 1036, effective January 1, 2008. SB 1036 eliminated the New Renewable Resources Account, effectively reducing RRTF revenues by 51.5 percent, and established new funding allocations for the remaining programs: the Existing Renewable Facilities Program (20 percent), Emerging Renewables Program (79 percent), and Consumer Education Program (1 percent). Table 2 summarizes 2007 through 2011 funding.

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4 California Energy Commission, *Customer Credit Renewable Resources Account: Report to the Governor and the Legislature*, April 2003, 500-03-008F, www.energy.ca.gov/reports/2003-04-22_500-03-008F.PDF.

5 The total amount collected each year is adjusted annually at a rate equal to the lesser of the annual growth in electric commodity sales or inflation, as defined by the gross domestic product deflator.

6 Under SB 1036, these unencumbered funds are transferred back to the electrical corporations whose ratepayers contributed funds to support the RRTF less the remaining General Fund Loan of $18,200,000. The total amount of New Renewable Resources Account funds available for transfer to the utilities did not include $18,200,000 that is still owed to the RRTF from the General Fund as a result of monies borrowed under the Budget Act of 2002 (Statutes of 2002, Chapter 379).

Table 2: Renewable Energy Program Funding Allocations 2007 Through 2011

Program	SB 107 & SB 1250 2007[5]		SB 1036 2008-2011[5]	
	Percent of Total	$Million	Percent of Total	$Million
New Renewable Facilities	51.5	75.110[6]	0	0
Emerging Renewables	37.5	54.691	79	227.52
Existing Renewables	10	14.584	20	57.60
Consumer Education	1	1.459	1	2.88
TOTAL	100	145.844	100	288.00

Source: SB 107 (Simitian, Chapter 464, Statutes of 2006); SB 1250 (Perata, Chapter 512, Statutes of 2006), and SB 1036 (Perata, Chapter 685, Statutes of 2007).

The Renewable Energy Program retains the authority to reallocate funds among its programs, as detailed in Chapter 7 of this report.

Renewable Energy Program Disbursements

Since 1998, each of the Renewable Energy Program's elements has supported a targeted component of the renewable energy industry while fostering the industry's eventual self-sufficiency. Fund disbursements have paid for incentives for new and existing utility-scale renewable energy generating facilities; consumer rebates for on-site renewable energy systems; credits for choosing renewable energy; and customer information on the purchase, installation, and available incentives for renewable energy.

From the Renewable Energy Program's creation in 1998 through June 30, 2010, the Energy Commission has paid a total of $899 million[7,8] for program activities. More than $49 million is encumbered for projects in progress, with $47 million remaining to meet statutory requirements.[9] During the period of July 1, 2009, to June 30, 2010, approximately $72 million was deposited into the RRTF, and the Energy Commission disbursed more than $33 million to program participants. For further RRTF details, please refer to Table 11: Renewable Energy Program Cumulative Funding and Expenditures as of June 30, 2010.

7 This dollar amount does not include the $461,681,784 refunded to the IOUs under SB 1036.

8 Discussion of RRTF fiscal transactions does not include funds from the California Attorney General's Alternative Energy Retrofit Account (AGAERA) unless specifically noted. AGAERA provided match funds of $2.25 million for the Emerging Renewables Program's Solar Schools Program. This program disbursed rebates for the installation of solar photovoltaic systems for public and charter schools meeting certain eligibility requirements.

9 Reserved funds are committed to meet legislative mandates, but not yet formally assigned to specific projects. Legislative mandates are as follows: rebates for emerging renewable energy system installations, generation from existing renewable facilities, and consumer education activities.

The following summarizes Renewable Energy Program cumulative funds disbursed and market support accomplishments through June 2010:

- The Existing Renewable Facilities Program has helped 281 existing renewable facilities, representing 4,700 MW of renewable energy capacity, remain competitive or return to service with more than $314 million in funding. This disbursement also includes Existing Renewable Facilities Program funding for the Agriculture-to-Biomass Program. A total of $6 million was paid to biomass facilities that increased their use of qualified agricultural biomass for the 2003-2004 fiscal year.
- The New Renewable Facilities Program continued to support new renewable electricity generators. More than $76 million has been disbursed to 47 on-line projects. This has resulted in 489 MW of new renewable capacity added to California's electricity grid as a result of this program.
- Solar PV and wind energy systems installed on more than 28,540 homes and businesses are providing 126.1 MW of distributed capacity, bringing total Emerging Renewables Program rebate payments to more than $406 million.

  The Emerging Renewables Program for solar ended December 31, 2006, and was replaced by the New Solar Homes Partnership (NSHP). By June 30, 2010, a total of 1,093 NSHP applications, representing 10,785 residential solar systems, had applied for incentives. Total payments of $21 million have been made for 2,902 installed systems.
- Consumers statewide have been educated about renewable energy and its benefits via public service announcements, events, radio and television, newspaper and magazine articles, brochures, and fact sheets funded by the Consumer Education Program. Since 1999, the Consumer Education Program has expended $15 million to support 3 public awareness campaigns funded through contracts; 21 grant projects awarded for renewable energy information and outreach activities; the development of an electronic tracking system, called the Western Renewable Energy Generation Information System (WREGIS), to address long-term RPS tracking needs; and other consumer education activities promoting renewable energy.

  As part of its recent funding efforts, the Consumer Education Program supported a comprehensive NSHP public awareness campaign designed to encourage production home builders to participate in the NSHP and offer solar electric high-energy-efficiency homes as standard features to home buyers. The outreach efforts worked with the IOUs' new construction programs to jointly reach out to production home builders, home buyers, and solar manufacturers. The campaign also focused on developing partnerships to advance NSHP efforts.
- Among residential and small commercial customers who entered into direct access contracts with alternative providers, nearly 100 percent made renewable electricity purchases and were provided incentives through the Customer Credit Program. The discontinued program supported more than 200,000 customers purchasing renewable energy, with funds totaling over $65 million.

CHAPTER 3:
Program Activities and Results

Renewables Portfolio Standard

Background

The enactment of SB 1078 in September 2002 created California's RPS. SB 1078 required retail sellers of electricity to increase their procurement of eligible renewable energy resources by at least 1 percent per year so that 20 percent of their retail sales are procured from eligible renewable energy resources by 2017.

In September 2006, Governor Schwarzenegger signed SB 107, codifying the accelerated RPS goal of 20 percent renewables by 2010. SB 107 also required each of the state's POUs to report to the Energy Commission on its status of implementing an RPS program and the progress made toward achieving its RPS goals.

Recognizing the potential contribution that biomass could make to achieve this renewable energy goal and more, Governor Schwarzenegger signed Executive Order S-06-06 on April 25, 2006. This order committed California to expanding the sustainable use of bioenergy:

- By generating 20 percent of the state's renewable energy from biopower (biomass to electricity) by 2010 and 2020.
- By producing 20 percent of the biofuels (e.g., ethanol, biodiesel) consumed in California within the state by 2010, 40 percent by 2020, and 75 percent by 2050.

The *2004 Integrated Energy Policy Report (IEPR) Update*[10] endorsed RPS goals beyond 2010, and the *Energy Action Plan II,* adopted in September 2005, directed the evaluation and development of implementation paths for achieving renewable resource goals beyond 2010, including 33 percent renewables by 2020 for all load-serving entities.[11] In its *2007 IEPR,* the Energy Commission found that "the 33 percent goal by 2020 *is* feasible, but only if the state commits to significant investments in transmission infrastructure and makes some key changes in policy."[12]

In November 2008, Governor Schwarzenegger raised California's RPS goals to 33 percent by 2020 by signing Executive Order S-14-08.[13] The Energy Commission's *2008 IEPR Update*[14] noted

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10 California Energy Commission, *Integrated Energy Policy Report 2004 Update*, November 2004, 100-04-006CM, www.energy.ca.gov/reports/CEC-100-2004-006/CEC-100-2004-006CMF.PDF.

11 California Energy Commission and California Public Utilities Commission, *State of California Energy Action Plan II*, September 2005, www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF.

12 California Energy Commission, *Integrated Energy Policy Report 2007*, CEC-100-2007-008-CMF, p. 5, www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF.

13 Office of the Governor, Executive Order S-14-08, November 17, 2008, gov.ca.gov/executive-order/11072/.

14 California Energy Commission, *2008 Integrated Energy Policy Report Update*, November 2008, CEC-100-2008-008-CMF, www.energy.ca.gov/2008_energypolicy/index.html.

that the issues associated with transitioning to a higher renewable future should be evaluated including transmission barriers, grid impacts, contracting, and price impacts of increased use of renewables. The following year, Governor Schwarzenegger signed Executive Order S-21-09 directing the California Air Resources Board to enact regulations to achieve the goal of 33 percent renewable by 2020. Under Executive Order S-21-09, the California Air Resources Board has been working with the Energy Commission and the CPUC to ensure that a regulation adopted under authority of AB 32 is built upon the RPS Program and that it will regulate all California load-serving entities, including IOUs, POUs, electric service providers, and community choice aggregators. The Executive Order directed the California Air Resources Board to adopt a Renewable Electricity Standard regulation by July 31, 2010. On July 15, however, Governor Schwarzenegger asked the California Air Resources Board to postpone adopting the regulation until September 2010, due to pending legislation that could codify the 33 percent by 2020 renewable energy goal. In its *2009 IEPR*,[15] the Energy Commission encouraged the state to codify the 33 percent renewable target and to accelerate its permitting for renewable energy facilities in the state and for their supporting infrastructure.

In June 2008, the Energy Commission held the first of a series of workshops to gather stakeholder comments on using feed-in tariffs to support development of RPS-eligible generation. (A feed-in tariff offers fixed-price payments for energy from renewable sources.) The discussions at the workshops addressed the development of the report *California Feed-In Tariff Design and Policy Options*.[16] The report considered policy goals and objectives and presented the findings of a companion report, *Exploring Feed-In Tariffs for California: Feed-In Tariff Design and Implementation Issues and Options*, which was released in November 2008.[17]

Achieving a milestone in carrying out the responsibility to develop an accounting system to track and verify RPS procurement, the Energy Commission led the launch of WREGIS in June 2007. WREGIS is an electronic system that tracks and verifies renewables generation throughout the Western Interconnect. Beginning in 2008, the Energy Commission began requiring RPS participants—certified facilities, retail sellers, procurement entities, and third parties—to participate in WREGIS as part of RPS compliance.

The next section provides a discussion of the Energy Commission's and the CPUC's roles and activities in designing and implementing the RPS, the utilities' progress to date procuring renewables, and the progress in implementing WREGIS. The Energy Commission and the CPUC continue to work collaboratively to implement the program.

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15 California Energy Commission, *2009 Integrated Energy Policy Report*, December 2009, CEC-100-2009-003-CMF, www.energy.ca.gov/2009_energypolicy/index.html.

16 KEMA, Inc., *California Feed-In Tariff Design and Policy Options,* prepared for California Energy Commission, May 2009, CEC-300-2008-009F, www.energy.ca.gov/2008publications/CEC-300-2008-009/CEC-300-2008-009-F.PDF.

17 KEMA, Inc., *Exploring Feed-in Tariffs for California*, prepared for California Energy Commission, November 2008, CEC-300-2008-003-F, www.energy.ca.gov/2008publications/CEC-300-2008-003/CEC-300-2008-003-F.PDF.

Energy Commission's Renewables Portfolio Standard Roles

The Energy Commission implements the RPS through guidelines that were originally adopted in spring 2004, with revisions adopted in August 2004, April 2006, March 2007, and January 2008. The two Energy Commission guidebooks related to implementing the RPS Program are as follows:

- The *Renewables Portfolio Standard Eligibility Guidebook*[18] explains the requirements and process for certifying eligible renewable energy resources for California's RPS. The *Renewables Portfolio Standard Eligibility Guidebook* also describes how the Energy Commission tracks and verifies compliance with the RPS.
- The *Overall Program Guidebook for the Renewable Energy Program*[19] describes how the Renewable Energy Program is administered and includes information on requirements that apply to all Renewable Energy Program elements, including the RPS. The *Overall Program Guidebook* provides general information on applying for RPS certification and appealing the Energy Commission's decisions regarding revocation of RPS certification, as well as a glossary of terms that are used by the RPS and other Renewable Energy Program elements.

While the *Guidebooks* reflect current program requirements, the Energy Commission recognizes the need to revise them periodically to reflect market and regulatory developments and to incorporate the lessons learned from experience implementing the RPS. The Energy Commission intends to update these *Guidebooks* in late 2010.

The Energy Commission adopted the *2006 Renewables Portfolio Standard Procurement Verification Report (Verification Report*) on July 28, 2010.[20] The scope of this *Verification Report* has increased significantly relative to the reports released in previous years. Prior *Verification Reports* only analyzed procurement from the three large IOUs: Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E). Because the CPUC later established procurement and reporting requirements for other retail sellers, the *2006 Verification Report* includes an analysis of RPS claims made by electric service providers and the small and multijurisdictional utilities, in addition to the IOUs. The number of retail sellers that will now be included in the *2006 Verification Report* has increased from three to eleven, and multiple years are covered for some of the retail sellers that are reporting for the first time. The report compares procurement claims made by retail sellers with generation data submitted to various programs by generating facilities.

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18 California Energy Commission, *Renewables Portfolio Standard Eligibility Guidebook*, January 2008, CEC-300-2007-006-ED3-CMF, www.energy.ca.gov/2007publications/CEC-300-2007-006/CEC-300-2007-006-ED3-CMF.PDF.

19 California Energy Commission, *Overall Program Guidebook*, January 2008, CEC-300-2007-003-ED2-CMF, www.energy.ca.gov/2007publications/CEC-300-2007-003/CEC-300-2007-003-ED2-CMF.PDF.

20 California Energy Commission, *Renewables Portfolio Standard 2006 Procurement Verification – Commission Final Report*, August 2010, CEC-300-2009-006-CMF, www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-300-2009-006-CMF

A staff workshop was held at the Energy Commission March 26, 2009, to solicit public input on draft data and various issues to be included in the *2006 Verification Report*. One major issue addressed at the staff workshop was the IOUs' RPS procurement claims from facilities under contract with the Department of Water Resources that the CPUC assigned to the IOUs for management after California's 2001-2002 electricity crisis. At issue is whether those contracts specifically designated ownership of the renewable attributes. This issue is complicated and has many implications for the parties involved as well as for the voluntary (nonregulatory) market for renewable attributes, termed "renewable energy credits." Numerous entities provided oral and written comments, which the Energy Commission considered in developing the *2006 Verification Report*.

As required by SB 107, the CPUC could not authorize the use of RECs for RPS compliance until the Energy Commission and the CPUC determined that the tracking system is operational, that it is capable of verifying eligible generation and delivery, and that the generation is not double-counted within the service territory of the Western Electricity Coordinating Council (WECC). The Energy Commission and the CPUC jointly made this determination in identical reports released in 2008.[21] California utilities are now required to track all generation in WREGIS for the generation to count toward their RPS goals. Although WREGIS began operations in June 2007, the Energy Commission will not rely on WREGIS data for the *Verification Report* until the 2008 reporting year, when WREGIS is expected to provide generation data for RPS participants that were registered during 2008.

There are 939 facilities that have attained RPS eligibility from the Energy Commission by June 30, 2010, either through certification (664) or precertification (275). These facilities have a total capacity of 36.5 gigawatts, 21.8 gigawatts of which is proposed capacity from facilities that are precertified and not yet on-line. These data do not reflect activity in the application queue.

Figure 1 shows the number of facilities for which the Energy Commission has received applications for certification or precertification in the RPS program.

21 California Energy Commission and California Public Utilities Commission, *Joint Commission Report on Tracking System Operational Determination*, December 2008, CEC-300-2008-001-CMF, www.energy.ca.gov/2008publications/CEC-300-2008-001/CEC-300-2008-001-CMF.PDF.

Figure 1: Number of Facilities Entering the RPS Program

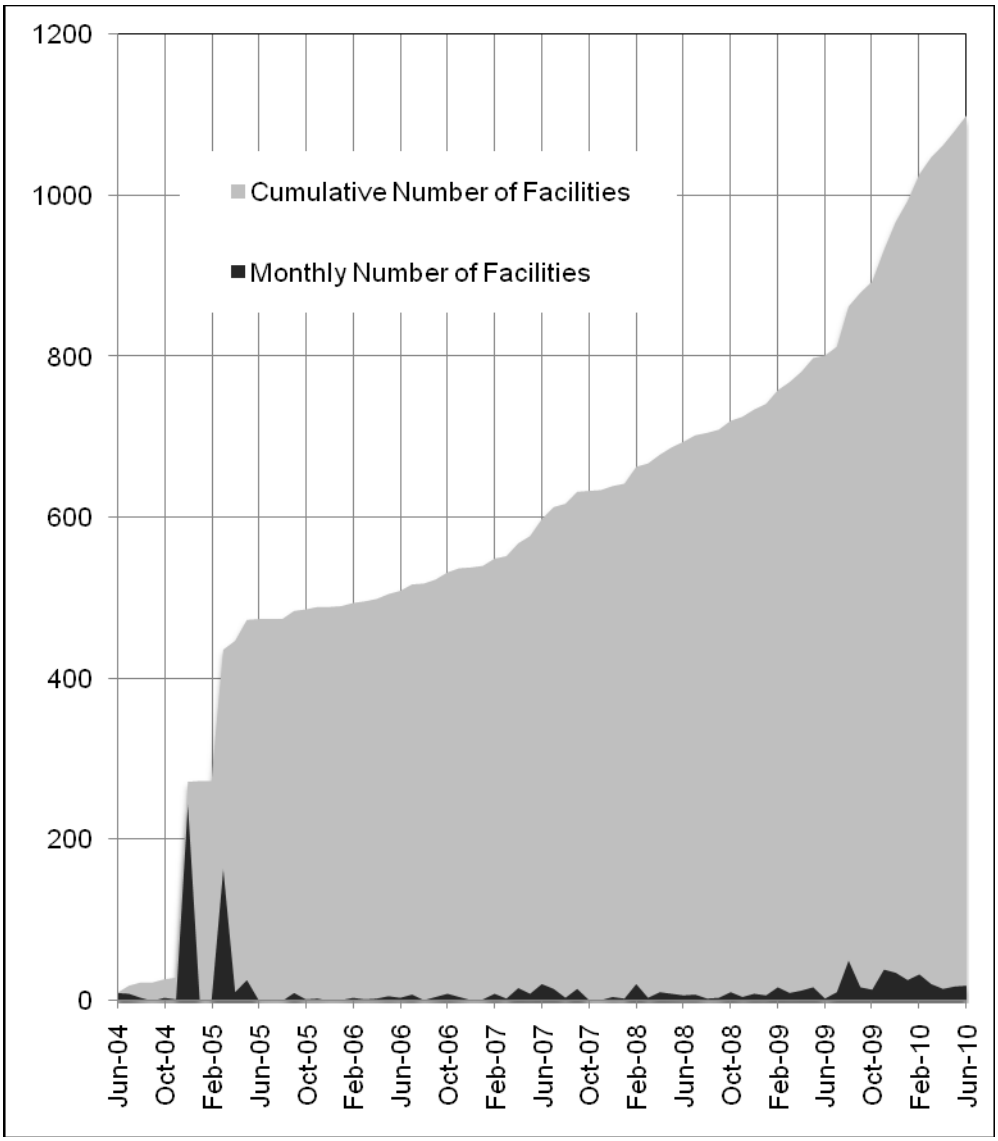

Figure 1 shows the cumulative number of facilities by month for which applications have been received by the Energy Commission for certification or precertification in the California RPS (facilities associated with amended applications and facilities determined to be ineligible are not included in this graph). As of June 30, 2010, the Energy Commission had received applications for 1,091 facilities, of which at least 16 were disapproved as ineligible. In fiscal year 2009-2010, the Energy Commission received applications for nearly 300 facilities, which is approximately the number of facilities new to the RPS program during the previous four fiscal years combined. This annual volume was exceeded only during the first year of the RPS certification program, fiscal year 2004-2005, when the IOUs submitted mass RPS applications for their existing facilities.

Source: California Energy Commission, Database of RPS Certified Facilities.

California Public Utilities Commission's Renewables Portfolio Standard Implementation

During fiscal year 2009-2010, the Energy Commission and the CPUC continued their collaboration on RPS implementation by addressing outstanding issues and fine-tuning RPS rules already in place.

The CPUC continued to refine rules for implementing feed-in tariffs under AB 1969 and SB 380[22] for facilities to sell renewable electricity generated from RPS-eligible renewable resources to electrical corporations for a price set at the market price referent (MPR).[23] The standard contracts apply to water and wastewater facilities 1.5 MW or smaller (1.0 MW and smaller for PacifiCorp, Sierra, Pacific Power Company, and Bear Valley Electric Service). The CPUC had originally expanded feed-in tariff eligibility to all RPS-eligible renewable resources in only PG&E and SCE territories. On September 18, 2008, in accordance with the changes mandated by SB 380, the CPUC approved an extension of feed-in tariffs in SDG&E territory to all renewable generators, bringing the scope of SDG&E's feed-in tariff in line with the scope of PG&E and SCE feed-in tariffs.[24]

The CPUC is investigating the expansion of feed-in tariffs for facilities up to 20 MW. On June 5, 2008, the CPUC issued an Amended Scoping Memo regarding tariff and standard contract implementation for RPS generators, with the project size increase of up to 20 MW being one of the issues upon which the CPUC invited comments.[25] Increasing the feed-in tariff project size cap is consistent with the Energy Commission's recommendation in the *2007 IEPR*, which stated that the CPUC should implement a feed-in tariff for all RPS-eligible renewable facilities up to 20 MW in size. On March 29, 2009, CPUC Energy Division staff proposed an expansion of the feed-in tariff up to 10 MW in size. On August 24, 2010, the CPUC issued a proposed decision to adopt a renewable auction mechanism to determine prices for standardized renewable energy contracts up to 20 MW.[26]

In the 2007-2008 fiscal year, the CPUC returned the SEP funds to the IOUs as required under SB 1036 but deferred defining the eligibility criteria and guidelines for administering the newly termed "above-market funds (AMFs)" until further public comment could be gathered. On

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22 SB 380, Statutes of 2008, Chapter 544, amended Section 399.20 of the Public Utilities Code.

23 CPUC Decision 07-07-027, July 26, 2007, R.06-05-027. The CPUC is charged with developing a market price referent, which is an estimate of the cost, over a 10-, 15-, 20- or 25-year period, to own and operate a new natural gas facility and earn a reasonable rate of return. Renewable contracts priced at or below the market price referent are considered per se reasonable. The CPUC determines an annual market price referent to coincide with each RPS solicitation cycle.

24 CPUC Decision 08-09-033, September 18, 2008, R.08-08-009.

25 CPUC, Amended Scoping Memo and Ruling of Assigned Commissioner Regarding Phase 2 of Tariff and Standard Contract Implementation for RPS Generators, June 5, 2008. R.06-05-027.

26 CPUC, Proposed Decision Adopting the Renewable Auction Mechanism, R. 08-08-009, August 24, 2010, http://docs.cpuc.ca.gov/efile/PD/122407.pdf.

March 12, 2009, the CPUC adopted Resolution E-4199, which set a limitation on total costs spent above the MPR for Bear Valley Electric Service, PG&E, SDG&E, and SCE renewable power purchase agreements from competitive solicitations. Resolution E-4199 adopted eligibility criteria and guidelines for approving requests for above-market costs of renewable energy contracts negotiated through a competitive solicitation. The resolution also required PG&E, SCE, and SDG&E to submit a confidential AMF calculator to the CPUC to determine the amount of remaining AMFs.[27]

Each of the three large IOUs listed above submitted AMF calculators to the CPUC, and in May 2009, the CPUC issued public letters stating the remaining AMF balances. At that time, PG&E had no funds remaining;[28] SCE had $221,874,570 remaining;[29] and SDG&E had no funds remaining.[30] Subsequently, SCE exhausted its remaining AMF balances.[31]

According to Public Utilities Code Section 399.15 (d)(3),

> (3) If the cost limitation for an electrical corporation is insufficient to support the total costs expended above the market prices determined in subdivision (c) for the procurement of eligible renewable energy resources satisfying the conditions of paragraph (2), the commission shall allow the electrical corporation to limit its procurement to the quantity of eligible renewable energy resources that can be procured at or below the market prices established in subdivision (c).

Because no AMF funds remain for PG&E, SCE, and SDG&E, these utilities are no longer obligated to procure renewables priced above the MPR. However, the utilities can voluntarily procure renewables priced above the MPR, and the CPUC could approve above-market cost recovery through rates.

Investor-Owned Utilities' Renewables Portfolio Standard Procurement

In addition to the annual RPS solicitations, bilateral contract negotiations, and feed-in tariffs, a number of other programs have been designed to increase IOUs' RPS renewable energy procurement. The programs consist of the following:

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27 CPUC, AMF Calculator, www.cpuc.ca.gov/NR/rdonlyres/38563BD6-CF38-4AD9-A075-6E576894A231/0/AMFs_Calculator_03122009.XLS.

28 CPUC, www.cpuc.ca.gov/NR/rdonlyres/88AD8A97-01E2-4077-8BA2-4D79AEB93D69/0/PGE_AMFsbalanceletterfromED_52809.pdf.

29 CPUC, www.cpuc.ca.gov/NR/rdonlyres/1C3DF1B7-067C-498F-81E2-73FF51E95EED/0/SCE_AMFsbalanceletterfromED_52809.pdf.

30 CPUC, www.cpuc.ca.gov/NR/rdonlyres/9BE777FC-CCB5-4F27-8EDE-65697EB3D3F1/0/SDGE_AMFsbalanceletterfromED_52809.pdf.

31 CPUC, September 24, 2009, Resolution E-4253, http://docs.cpuc.ca.gov/PUBLISHED/FINAL_RESOLUTION/107770.htm.

Pacific Gas and Electric Solar Power Initiative

In February 2009, PG&E launched a five-year program to develop 500 MW of solar PV power in its service area. The program consists of up to 250 MW of utility-owned PV generation and an additional 250 MW to be built and owned by independent developers. The utility's solar program targets mid-sized projects, typically 1 MW to 20 MW, mounted on the ground or rooftops. Where feasible, projects developed and owned by PG&E would be built on land already owned by the utility or near its substations to minimize the cost and delays of interconnecting them to the power grid. Contracts for projects developed by independent parties would be procured through a competitive solicitation process.

Southern California Edison Solar Photovoltaic Program

In June 2009, the CPUC's Decision 09-06-049[32] created SCE's Solar Photovoltaic Program. The Solar Photovoltaic Program is a five-year program in which SCE will develop 250 MW of utility-owned PV electricity generation and procure 250 MW of PV energy from independent power producers through a competitive solicitation process.

San Diego Gas & Electric's Solar Initiative

On Sept. 2, 2010, the CPUC approved SDG&E's solar power initiative that provides for 100 MW of PV solar energy. Under the initiative, 26 MW of utility-owned generation would be slated for construction on existing SDG&E property, with the remaining 74 MW to be purchased from independent power producers.

Southern California Edison Renewables Standard Contracts Program

Through its Renewables Standard Contracts Program, SCE is offering to purchase renewable energy and its associated green attributes from eligible renewable resource generating facilities with capacities not greater than 20 MW. This program was available until December 31, 2009, or until 250 MW in contracts have been executed, whichever occurs first. Two different standard contracts are offered depending on the generating facility's capacity: (1) greater than 1.5 MW but not greater than 5 MW, and (2) greater than 5 MW but not greater than 20 MW. Facilities with capacities that exceed 20 MW are not eligible for a renewables standard contract but may submit a proposal in SCE's annual RPS solicitation.

In total SCE has submitted 18 of these contracts for approval under the standard contract program by the end of the 2009-2010 fiscal year, totaling 196 MW to 210 MW in capacity. This capacity adds a total yearly generation of 494 GWh to 572 GWh to SCE's renewable portfolio.

Fiscal Year 2009-2010 Investor-Owned Utilities' RPS Procurement Results

PG&E Procurement Activity

PG&E submitted 30 RPS procurement contracts, 18 feed-in-tariff agreements, and 2 utility-owned facilities to the CPUC for approval. This procurement activity equals 3,616 MW to 3,768 MW of added capacity, which will account for 11,667 GWh to 12,447 GWh of new annual generation added to PG&E's renewable energy portfolio. These ranges reflect PG&E's build-out

32 CPUC, http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/102730.htm

options. For detailed information on individual PG&E contracts this fiscal year, see the *2010 Annual Report Appendix, Appendix A*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

SDG&E Procurement Activity

Total procurement for SDG&E equaled 290 MW to 338 MW of capacity and 905 GWh to 1,032 GWh of added generation annually. These ranges reflect SDG&E's build-out options. For detailed information on individual SDG&E contracts this fiscal year, see the *2010 Annual Report Appendix, Appendix A*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

SCE Procurement Activity

SCE contracts submitted to the CPUC will generate 5,732 GWh to 8,658 GWh annually, representing a total capacity of 2,347 MW to 2,678 MW. These ranges reflect SCE's build-out options. For detailed information on individual SCE contracts this fiscal year, see the *2010 Annual Report Appendix, Appendix A*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

CPUC Approval of IOU Contracts

The CPUC approved a total of 34 RPS contracts during the 2009-2010 fiscal year that were submitted by the IOUs in this or previous fiscal years, as summarized below. The CPUC approved 11 contracts submitted by SCE for a total capacity of 1,181 MW to 2,037 MW representing 2,739 GWh to 6,968 GWh of annual generation. PG&E saw 21 of its contracts approved in the past year, representing 3,027 MW of capacity and 11,760 GWh of annual generation. The CPUC approved 2 contracts submitted by SDG&E in fiscal year 2009-2010, which totaled 375 MW to 500 MW in capacity and 1,097 GWh to 1,492 GWh of annual generation. The total CPUC-approved contracts for the year represented 15,594 GWh to 20,220 GWh of annual generation from a total capacity of 4,583 MW to 5,564 MW, more than doubling the capacity and expected generation from contracts approved in the previous fiscal year. These ranges represent build-out options for the three IOUs. (Data may not sum due to rounding.)

Table 3 lists the capacity from active RPS contracts signed in 2002 or later for new, repowered, or restarted renewable energy facilities that have been approved by, or submitted for approval, to the CPUC as of July 2010. As shown, IOUs have signed contracts for 15,933 MW to 18,001 MW of new, repowered, or restarted renewable energy projects (range reflects build-out options) from competitive solicitations, bilateral negotiations, and other contracts between the utility and the developer, with 2,495 MW to 2,759 MW of capacity from these projects currently on-line. (Range reflects not only build-out options but also partially on-line facilities.) As of July, about 16 percent of the minimum capacity for new, repowered, or restarted facilities has begun operations. Of the 206 total active contracts, 56 are thought to be priced above the applicable MPR. Of the 109 contracts with activity during the 2009-2010 fiscal year, 36 were assumed to be priced above the applicable MPR. If all contracted projects come on line, projected energy deliveries from all new, repowered, and restarted projects are expected to be 45,998 GWh to 54,114 GWh, while the total deliveries, once on-line, are expected to range from 52,754 GWh to 62,520 GWh.

A detailed list of IOU-RPS contracts considered for CPUC approval in the 2009-2010 fiscal year is provided in the *2010 Annual Report Appendix, Appendix A*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html. For a complete list of IOU-RPS contracts from 2002 to date, please refer to the Energy Commission's website at. www.energy.ca.gov/portfolio/contracts_database.html.

Table 3: Capacity From IOU RPS Contracts for New, Repowered, or Restarted Renewables by Technology for Contracts Signed From 2002 to July 2010 (MW)

	PG&E	SCE	SDG&E	Total
Wind	2,684-2,709	3,325-4,043	891-1,050	6,900-7,803
Biogas	45-135	14-29	16	75-181
Biomass	117	48	36	201
Geothermal	61-100	203-583	60	324-743
Ocean	0	0	0	0
Small Hydropower	6	0	5	10
Solar Thermal	2,452	2,653-3,275	349	5,454-6,076
Solar Photovoltaic	2,144	714	110-130	2,968-2,988
Total	**7,509-7,662**	**6,957-8,693**	**1,467-1,646**	**15,933-18,001**

Capacity does not include contracts that have expired or been cancelled. Repowered capacity includes total capacity, not just additional expected capacity. Totals may not sum due to rounding.

Source: California Energy Commission, Database of IOU Contracts for Renewable Generation, August 2010 update. www.energy.ca.gov/portfolio/contracts_database.html.

Publicly Owned Electric Utilities' Renewables Portfolio Standard Procurement

Local POUs play a critical role in meeting the state's renewable energy goals. To track the efforts of the state's POUs in meeting their RPS requirements, the Energy Commission developed a database with information on POUs' RPS policies, renewable energy deliveries, renewables solicitations, and new renewable energy contracts. Information in the database was compiled from POUs' formal filings to the Energy Commission,[33] including their Energy Commission-POU-RPS forms and annual reports for the Power Source Disclosure Program, as well as a variety of other publicly available sources. The database has been updated to include data collected from 2003-2009 and the Energy Commission plans to continue with regular updates to the database as needed. The database is located at www.energy.ca.gov/2008publications/CEC-300-2008-005/index.html.

33 SB 107, Statutes of 2006, as codified in Public Utilities Code Section 387.

Renewables Portfolio Standard Tracking and Verification–WREGIS

The Energy Commission, together with APX, Inc., (APX) and WECC, implemented and put into operation the WREGIS, a regional renewable energy certificate tracking and registry system. WREGIS issues and tracks "WREGIS Certificates" to support verification of compliance with California's RPS and with regulatory and voluntary renewable energy programs in the Western Interconnect. The WREGIS software application became available for use on June 25, 2007, and the WREGIS staff began accepting applications for account holder registration. California utilities are now required to track all generation in WREGIS for the generation to count toward their RPS goals.

WREGIS consists of two components: (1) a renewable energy registry and tracking system and its technical infrastructure, provided by APX in San Jose, and (2) the administrative operations infrastructure and staff to develop and administer the WREGIS program, provided by WECC at its headquarters in Salt Lake City, Utah. The following are highlights of WREGIS/APX and WREGIS/WECC activities in fiscal year 2009-2010.

WREGIS/APX Activities

- The Energy Commission and APX contract will end on October 5, 2010. WECC is in negotiations with APX to enter into a separate contract between WECC and APX to continue operations of the WREGIS system and software. The contract was to be presented to the WECC board for possible approval at its quarterly meeting in July 2010. If approved, this contract will begin October 6, 2010, and will continue all previous services performed by APX.
- APX implemented several changes to the registry and tracking system throughout the fiscal year that were approved through the WREGIS change control process. The Energy Commission is represented on the Change Control Subcommittee as well as on the WREGIS Committee (the governance committee of WREGIS), which will issue final approval on all changes to the system.
- APX provided monthly performance status and operational reports to the Energy Commission documenting how APX and the WREGIS software met the standards of performance detailed in the Energy Commission/APX contract.

WREGIS/WECC Activities

The WREGIS Committee guides policies and makes decisions related to WREGIS activities, while the Energy Commission acts as the financial backstop for WECC with respect to WREGIS activities. The Energy Commission and WECC act under a $2.2 million contract, which formalizes the agreement to fund WREGIS activities at WECC and defines the roles and responsibilities of the Energy Commission and WECC. WREGIS staff at WECC is responsible for hosting WREGIS and administering the WREGIS program.

The WREGIS Committee is also responsible for ensuring that WECC can meet its commitment to have WREGIS self-funding within three years. To meet this goal, the WREGIS staff began collecting user fees on January 1, 2008, to offset costs. These fee levels were chosen carefully to achieve the goals and oversee the operations of WREGIS in a manner that is fair, credible,

consistent with the public interest, and responsive to the needs of participants. Since February 2009 through June 30, 2010, all WREGIS at WECC expenses have been met by user fees.

The following milestones toward self-sufficiency of funding for the WREGIS project occurred in fiscal year 2009-2010:

- The Energy Commission approved a one-year, no-cost time extension for the Energy Commission/WECC contract, extending the contract end date to March 30, 2012. This extension will provide the WREGIS program time to collect sufficient funds from user fees to become self-sustaining.
- WREGIS and Energy Commission staff, the WREGIS Committee, Stakeholder Advisory Committee, Policy Subcommittee, Change Control Subcommittee, and Operations Subcommittee participated in various meetings throughout the fiscal year with objectives to create opportunities for greater stakeholder input, discuss the budget and fee levels, improve the current program, and develop recommendations for the program's future.
- As of June 30, 2010, 347 account holders were registered in WREGIS, with another 16 pending complete registration. In addition, WREGIS staff has registered 1,385 active generators with an additional 45 pending approval. These numbers represent an account holder increase of 36 percent and a generator increase of 518 percent over the same time last year. Generally, account holders and generators are considered pending because they have yet to submit all necessary documentation, a signed terms of use (account holder agreement), or the annual fee.

Table 4 shows cumulative funding and expenditures for WREGIS development and implementation as of June 30, 2010.

Table 4: WREGIS Operations
Cumulative Funding and Expenditures as of June 30, 2010

Description	Funding	Expenditures as of 6/30/2009
APX, Inc., System Development and Technical Operations Contractor	$3,277,702	$2,407,827
Establish and operate WREGIS at the WECC	$2,202,750	$1,171,955
Knowledge Structures, Inc.[34]	$249,250	$232,219
KEMA-XENERGY technical support[35]	$70,293	$70,293
KEMA technical support[36]	$236,226	$185,320
Enterprise Networking Solutions[37]	$193,200	$193,200
Visionary Integration Professionals	$198,000	$238,000*
Public Sector Consultants	$55,100	$55,100
Personal Enterprises, Inc.	$115,200	$154,560**
TOTAL	**$6,597,721**	**$4,708,574**

*$198,000 from Consumer Education; $40,000 from ERPA
**$115,200 from Consumer Education; $39,360 from ERPA

Source: California Energy Commission WREGIS Operations database

Additional information for fiscal year 2009-2010 WREGIS development and implementation expenditures and encumbrances are reported in the section and *Appendix F* of its funding source, the Consumer Education Program.

New Renewable Facilities Program

Background

The New Renewable Facilities Program has fostered the development of new in-state renewable electricity generation by providing financial support to new projects. Under SB 90, the original program[38] provided production incentives to eligible renewable generating facilities that were

34 From April 2004 through January 2006, Knowledge Structures, Inc., helped the Energy Commission develop the request for proposals for the WREGIS System Development and Technical Operations Contractor.

35 KEMA-XENERGY, under Energy Commission Contract #500-01-036, was technical support contractor for the Renewable Energy Program from June 2002 through June 2005. KEMA-XENERGY subsequently changed its name to KEMA.

36 KEMA, under Energy Commission Contract #500-04-027, was technical support contractor for the Renewable Energy Program with a contract term of June 2005 through June 2008.

37 Beginning May 2005 through April 2006, Enterprise Networking Solutions served as the senior project manager consultant to manage and coordinate the implementation phase of the WREGIS project.

38 Original program under SB 90 is called the New Renewable Resources Account and is subsumed under the New Renewable Facilities Program.

first placed in operation between September 26, 1996, and July 1, 2002.[39] These incentives were paid in addition to what the facility was paid for its electricity. Under SB 1038, SB 1078, and SB 107,[40] the program evolved to offer financial production incentives (referred to as SEPs) to cover the above-market costs of meeting the RPS, subject to certain cost constraints. If an eligible facility secured a power purchase agreement with a retail seller through a competitive solicitation, it could apply for SEPs.

In October 2007, the enactment of SB 1036, effective January 1, 2008, radically affected the New Renewable Facilities Program. In accordance with the legislation's direction, the Energy Commission implemented the following:

- The Energy Commission terminated all pending awards made to projects under the RRTF's New Renewable Resources Account before January 1, 2002, unless the projects were on-line and operational by January 1, 2007.
- In March 2008, the Energy Commission refunded the New Renewable Resource Account's remaining unencumbered funds (totaling $461,681,784) to the electrical corporations whose ratepayers contributed funds to support the RRTF. These electrical corporations included PG&E, SDG&E, SCE, and Bear Valley Electric Service (a division of Golden State Water Company).
- The Energy Commission's authority to award SEPs was eliminated as of January 1, 2008. Beginning 2008, the CPUC assumed authority over the disposition of above-market costs for meeting the RPS.

In addition, the enactment of SB 1036 removed the New Renewable Resources Account from the RRTF effective July 1, 2008. Although the New Renewable Resources Account was eliminated, active New Renewable Facilities Program projects continued to be paid for generation from those projects' previously encumbered RRTF funding award dollars.

New Renewable Resources Account

The New Renewable Resources Account originally awarded funding through competitive auctions in which facilities bid for the amount of incentive they wished to receive, up to 1.5 cents/kWh. The Energy Commission accepted completed bids and awarded funding from lowest bid to highest, until the funds available for the auction were fully subscribed. The Energy Commission held three such auctions between March 1998 and June 2001 and conditionally awarded approximately $242 million to 81 renewable projects representing about 1,300 MW of capacity.

To receive funding from the Energy Commission, these facilities were required to meet a series of milestones and begin selling power to the grid. Once on-line, the projects were eligible to

39 After September 2000 and in accordance with PUC Section 383.5(c)(2)(B), project developers could petition for an extension of their funding awards due to a delayed on-line date that was determined by the Energy Commission to be the result of circumstances beyond the developer's control.

40 Program under SB 1038, SB 1078, and SB 107 is called the New Renewable Facilities Program.

receive incentive payments for a maximum of five years. Of the 81 original awardees, 34 projects were unable to meet their milestones for various reasons, including public opposition and the inability to secure a fuel supply or a power purchase contract. The Energy Commission canceled funding award agreements if projects could not meet all of their milestones or meet the terms and conditions of the conditional funding award agreements. Forty-seven projects were able to meet the terms of their funding award agreements and collect incentive payments. Table 5 summarizes these payments by technology.

Table 5: New Renewable Resources Account
Summary of On-Line Auction Winning Facilities and Payments

Technology	# of Projects	Capacity (MW)	Average Incentive (¢/kWh)	*Total Funds Paid*[1]
Biomass	2	11.30	1.30	*$2,485,743*
Geothermal	2	59.0	1.29	*$25,252,142*
Landfill Gas	15	39.57	1.11	*$12,350,303*
Small Hydro	3	31.25	1.05	*$2,926,016*
Wind	25	348.12	0.78	*$33,676,758.87*
Total	**47**[2]	**489.24**	**0.94**	***$76,690,962***

[1] The total funds paid for winning bidders in the second and third auctions reflects both the loss of potential bonuses for early on-line dates and 50% penalties for later on-line dates for those projects not yet on-line. The original Conditional Funding Awards for winning bidders in the second and third auctions included potential bonuses for early on-line dates and did not reflect potential penalties for later on-line dates. The total funds paid also reflects a reduction of funds for projects that have completed their five-year collection of funds, did not fully collect the total funds originally allocated to them in their Conditional Funding Award, and had the uncollected funds disencumbered.

[2] The Wintec #2 wind project was split into two projects during fiscal year 2005-2006, but to maintain consistency with previous years, it will continue to be treated as one project for this section.

Totals may not sum due to rounding.

Source: California Energy Commission New Renewable Resources Account database.

Program Accomplishments and Status

As of December 30, 2009, all New Renewable Resources Account winning projects reached the end of their five-year award agreements. During the 2009-2010 fiscal year, the final active project award, REN-98-016 Windland, Inc., received incentive payments totaling $564,059 for 41 GWh of renewable generation. Subsequently, the project account was closed, and unused funds were disencumbered.

Since 1998, the New Renewable Resources Account has been successful in increasing investment in new renewable power plants in California with payments of $76.7 million for 8,731 GWh of new renewable generation. A summary of the New Account's cumulative payments and generation for projects that received production incentives is detailed in the *2010 Annual Report Appendix*, *Appendix B*, on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

Emerging Renewables Program

Background

The Emerging Renewables Program provides incentives in the form of rebates to customers who install eligible renewable energy systems to offset part or all of their electricity needs at their homes or businesses. Along with expanding the sales of emerging renewable technology systems, the Emerging Renewables Program aims to encourage the siting of small, reliable distributed generating systems throughout California in locations where the produced electricity is both needed and consumed. The overall Emerging Renewables Program has changed over the years to become an umbrella program encompassing several discrete elements. The currently active components are discussed below.

The Emerging Renewables Program continues to focus on stimulating the market for small-scale distributed renewable energy until incentives are no longer needed to sustain the market for these technologies. Although price has been a major barrier to consumer adoption, rebates reduce the initial net purchase cost of the systems, thereby stimulating sales. Dramatic increases in demand for solar PV systems has encouraged manufacturers to expand their production volume, which in turn improves the distribution network and increases the number of qualified installers. Because the market's expansion improves economies of scale, the Energy Commission anticipates lower system costs over the long term, particularly as technology advances.

Emerging Renewables Program (1998-2006 and 2007-2011)

To be eligible to receive rebates from the Emerging Renewables Program, a number of basic criteria must be met. The generating system must be new, use an eligible technology type, and include other major system components (for example, inverters) approved by the Energy Commission. Qualifying systems must have a five-year warranty and be less than 30 kW in size.[41] In addition, the generating system must be installed on a site that is interconnected to an eligible electric utility (IOUs only) and must offset part or all of the electricity demands of its installation site.

From 1998 through 2006, eligible technologies were solar PV, small wind, fuel cells using renewable fuels, and solar thermal electric. Effective 2007, however, the solar portion of the Emerging Renewables Program ended and was replaced with the Energy Commission's New Solar Homes Partnership and the California Public Utilities Commission's California Solar Initiative. Fuel cells (less than 30 kW in size and using a renewable fuel) and small wind turbines (rated output of 50 kW or less) are still eligible for rebates under the Energy Commission's Emerging Renewables Program. To address these changes, in December 2006 the Energy Commission revised and adopted the *Emerging Renewables Program Guidebook (Eighth Edition)*, effectively removing eligible solar technologies.

41 Wind systems up to 50 kW in size may participate, but the rebates for such systems are limited because the rebate applies only to reducing the capital costs of 30 kW.

Since 2007, the Emerging Renewables Program has focused on providing incentives toward the purchase and installation of small wind systems and fuel cells using renewable fuel. In an effort to further improve the program, the Energy Commission incorporated additional revisions and adopted the *Emerging Renewables Program Guidebook, Tenth Edition* in April 2010. Some of the main changes included the following[42]:

- Increasing the rebate level and changing the rebate structure for small wind systems.
- Simplifying requirements for inverters that are used exclusively with small wind turbines or fuel cells.
- Changing the way incentives are calculated by removing the impact of the inverter efficiency.
- Increasing the reservation period.
- Simplifying the retailer registration process.
- Clarifying requirements and restrictions regarding leasing renewable energy systems.

Program Accomplishments and Status

During fiscal year 2009-2010, the Energy Commission paid $1.6 million to 87 rebate applicants for completed projects located in IOU service areas. Completed projects during the fiscal year represent 1,534 kW of generating capacity from PV and wind systems. Approximately 53 reservation requests for wind systems were received for 520 kW of wind capacity representing about $1,108,000 in encumbered funds. As of June 30, 2010, customers planning to install additional systems held approved rebate reservations totaling 1,344 kW of solar and wind capacity, encumbering about $3.1 million.

Since the Emerging Renewables Program's beginning in 1998 through June 2010, 28,542 emerging renewable systems have been installed with support from the program, representing 126.1 MW of distributed renewable electricity capacity, bringing total disbursements to about $406 million.

Details of Emerging Renewables Program projects and payments made during fiscal year 2009-2010 are available in the *2010 Annual Report Appendix*, *Appendix C*, on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

Emerging Renewables Program Support of Small Wind Systems

Since the inception of the Energy Commission's Emerging Renewables Program in 1998, California has seen significant fluctuation in the number of small wind systems installed annually, including a steady decline in rebate applications since 2006. With the removal of solar PV technology from the Emerging Renewables Program, Energy Commission staff in this program area has been able to focus more on small wind technology and has conducted the following activities:

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42 The *Emerging Renewables Program Guidebook* is available at: www.energy.ca.gov/2010publications/CEC-300-2010-003/CEC-300-2010-003-F.PDF

- A 2009 report on small wind market infrastructure conducted by KEMA[43] (the Renewable Energy Program's technical support contractor) and overseen by Energy Commission staff was helpful to identify the main barriers to small wind development in California. This report may serve as a starting point for future potential changes and improvements to the program.
- Consumer education is another effective vehicle that will be used to promote small wind technology and raise consumer awareness. In May 2010, the Energy Commission approved an interagency contract with the University of California, Davis, to create a Web-based program to evaluate the electrical performance of small wind turbines as well as provide an economic analysis of the payback on a small wind purchase and investment. When the model is completed, prospective customers can use the tool to estimate the overall financial value of a small wind turbine and be fully informed about the benefits and costs before considering purchasing a small wind system.

One of the main barriers to small wind development in California is inadequate or overly burdensome permitting processes. In response to these permitting issues, Governor Schwarzenegger signed Assembly Bill 45 (Blakeslee, Chapter 404, Statutes of 2009), which requires California counties to adopt ordinances governing the installation of small wind turbines by January 1, 2011. AB 45 outlines basic criteria that wind ordinances must address. Specifically, this bill states that if a county has not already adopted an ordinance to regulate the installation of small wind energy systems in the jurisdiction outside of "urbanized areas," it must adopt an ordinance to ensure the county is not applying overly restrictive or burdensome permitting requirements on small wind energy system installations. Counties do not have to follow the procedures in AB 45 if they already have adopted a small wind energy installation ordinance.

New Solar Homes Partnership

As part of California's comprehensive statewide solar program established in statute under SB 1, [44] the New Solar Homes Partnership (NSHP) program has been created to encourage the installation of 400 MW of solar systems on new homes by the end of the program, 2016. The $400 million program also has a goal that by the end of the 10-year program, 50 percent of the new homes annually constructed would have solar systems.

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43 KEMA, prepared under Energy Commission Contract #400-07-030, *Emerging Renewables Program, Small Wind Incentives Study*, July 2009, CEC #300-2009-003, www.energy.ca.gov/2009publications/CEC-300-2009-003/CEC-300-2009-003.PDF

44 SB 1 codified the largest solar program of its kind in the nation and will provide up to $3.35 billion in investor-owned and publicly owned utility ratepayer funding from 2007-2016 to help California move toward a cleaner energy future and help bring the costs of solar electricity down for California consumers. The overall program goal is to install 3,000 MW of solar generating capacity in the state by the end of 2016, with the NSHP contributing 400 MW toward this goal. The solar program will be a major source of dependable and environmentally friendly electricity and is a major tool in the state's promise to address climate change and to meet the Governor's goals to reduce greenhouse gas emissions. Both the NSHP and the CPUC-administered CSI programs became operational January 1, 2007.

Funding for the NSHP is through monies collected for the Renewable Energy Program's Emerging Renewables Program. Legislation authorizing the collection of funds for the Renewable Energy Program beyond 2011 is needed to enable the NSHP to meet its 400 MW/$400 million funding targets established by SB 1.

The NSHP offers financial incentives to encourage high-performing solar installations on new, energy-efficient residential construction, including new affordable housing. To qualify for NSHP incentives, energy efficiency standards for new residential housing must be at least Tier 1, or 15 percent greater efficiency than Title 24 residential building efficiency standards. In addition, homes must have ENERGY STAR® appliances, if provided by the builder. When the program began in 2007, the 2005 standards served as the benchmark for the Tier 1 efficiency requirements. On January 1, 2010, the 2008 standards became effective, and the *NSHP Guidebook* continues to require eligible residential units to achieve 15 percent higher efficiency than the 2008 standards.

Higher efficiency than the Tier 1 minimum requirement is supported. The NSHP program encourages builders to achieve Tier 2 efficiency levels that are 30 percent higher than Title 24 standards. Utility energy efficiency programs for new residential construction offer builders additional financial incentives to help offset the costs of achieving Tier 1 and Tier 2 efficiency requirements.

The program offers rebates based on the expected output of the systems. The rebates are paid up-front when the system has been completed. The overarching philosophy is that energy-efficient solar homes save homeowners money on their electric bills and protect the environment. Incentives currently range from $2.50 to $2.60 per watt for market rate housing and $3.30 to $3.50 per watt for affordable housing. The actual incentive amount for a particular solar energy system and installation depends on the expected performance-based incentive calculation of the system's expected performance compared to the Energy Commission-specified reference solar energy system. Funding can be reserved for 18 months up to 36 months, depending on the type of residential unit and commitment to energy efficiency.

Marketing support is provided to builders, as discussed in the Consumer Education program below.

2010 Guidebook Revisions

In response to comments from stakeholders on how to improve the NSHP program, revisions to the *New Solar Homes Partnership Guidebook* were adopted at the January 27 and April 7, 2010 Energy Commission Business Meetings. Guidebook changes include the following:

Market Rate Housing

- Clarifies the eligibility of leased systems and systems providing electricity under power purchase agreements in the program.
- Modifies the "Solar as an Option" program by allowing up to 50 percent of a project's residential units to reserve funding and extend the "solar as an option" reservation period to 36 months.

- Clarifies that builders/developers may submit applications for phases of six or more residential units to qualify for the "solar as standard" reservation.

Affordable Housing

- Clarifies that affordable housing projects with occupancy permits less than two years old may apply for program funding.
- Modifies the affordability restrictions for affordable housing projects from 45 years to 10 years.
- Clarifies the use of virtual net metering on affordable housing projects for purposes of program funding.
- Clarifies the time period for submitting finalized energy efficiency documents for affordable housing projects that have requested funding from the California Tax Credit Allocation Committee. Such projects are given up to 60 days after the approval from California Tax Credit Allocation Committee to provide finalized energy efficiency documentation.

General program changes include: 1) allowing system sizes that are increased after initial NSHP reservation approval time to receive the same incentive level at which the NSHP reservation was initially approved, 2) removing the system size justification requirement, 3) limiting incentives to the first 7.5 kW AC of a solar energy system installed for individual residential dwelling units, 4) updating the California Flexible Installation criteria tilt range to include flat installations, 5) modifying the energy efficiency tier levels under the new *2008 Building Energy Efficiency Standards*, 6) eliminating the NSHP-1.6 application process, 7) replacing the annual retailer registration using the NSHP-4 retailer form with an online registration process, 8) allowing applicants to secure the solar permit up to 180 days after receiving their occupancy permits, and 9) revising the NSHP application forms.

Program Administration

The NSHP program continues to be administered by the IOUs, with oversight by the Energy Commission. Because IOUs are familiar with new residential developments and offer financial incentives for higher energy efficiency in new residential construction, the degree of administrative integration and synergies between the IOUs' programs (energy efficiency, interconnection services, and other new production home services) adds further value to justify the addition of discrete NSHP components to the utilities' other programs. In addition, the structure of the utilities' new construction energy efficiency programs streamlines the energy efficiency component of the application process and avoids significant duplication with the NSHP.

NSHP working group meetings are held monthly between Energy Commission staff and utility program administrators to address and resolve program issues.

Program Activity

As of June 30, 2010, 1,093 applications, representing 10,785 residential solar PV systems, had applied for incentives. Of the 1,093 applications, 165 applications (representing 1,480 systems)

were under review; 928 applications (representing 9,305 residential systems) were listed as approved; and 2,902 of those approved systems had been paid. During the period July 1, 2009—June 30, 2010, total payments of $12,754,611 were made for 1,674 completed systems. Tables 6 and 7 summarize NSHP activity.[45]

Table 6: New Solar Homes Partnership Activity
2007 Through June 30, 2010
Residential Systems

Application Type	SUBMITTED			
	Under Review	Approved	Completed Systems	Total
Large Development (6+ homes)	1,317	5,740	2,051	9,108
Other Development*	7	192	118	317
Affordable Housing	30	129	382	541
Custom Home	126	342	351	819
Total	**1,480**	**6,403**	**2,902**	**10,785**

*Other development includes developments with fewer than 6 residential units, developments where solar will be installed on less than 50 percent of the residential units, and common areas of residential developments.

Source: California Energy Commission New Solar Homes Partnership database.

45 PG&E and SDG&E issue incentive payments directly to NSHP applicants and are later reimbursed by the Energy Commission upon request. Applicants to the SCE-administered NSHP are paid via the Energy Commission. The Energy Commission's reported quarterly disbursements may not include all of PG&E's and SDG&E's incentive payments for the reporting quarter. This is due to the time lag between those utilities issuing a payment, submitting a reimbursement request, and subsequently being reimbursed by the Energy Commission.

Table 7: New Solar Homes Partnership Activity
2007 Through June 30, 2010
MW and Payments

Application Type	Under Review/ Approved (MW)	Completed (MW)	Total (MW)	Completed and Paid ($ millions)
Large Development (6+ homes)	14.71	3.96	18.67	$10.98
Other Development*	0.59	0.23	0.82	$0.61
Affordable Housing	1.4	1.38	2.78	$4.77
Custom Home	2.8	1.93	4.73	$4.91
Total	19.5	7.5	27.0	$21.27

*Other development includes developments with fewer than 6 residential units, developments where solar will be installed on less than 50 percent of the residential units, and common areas of residential developments.

Source: California Energy Commission New Solar Homes Partnership database.

Overall, NSHP program activity has declined since fall 2009 due to the housing market downturn. From July 1, 2008, through June 30, 2009, 455 applications representing 4,770 systems were submitted to the NSHP program. In contrast, from July 1, 2009, through June 30, 2010, 488 applications representing 3,438 systems, were submitted to the NSHP program. Although the program's incentives are designed to decline to conform to SB 1 requirements, due to the reduced program activity caused by the poor housing market, and the prospect that some of the proposed developments with applications will ultimately not be built, the Energy Commission's Renewables Committee has decided to keep the incentives at their current levels during 2010 and convene a stakeholder's meeting in early 2011 to get input on when to reduce incentives.

Details of individual New Solar Homes Partnership projects and payments are available in the *2010 Annual Report Appendix, Appendix D*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

Additional NSHP Activities

The NSHP website includes a Web-application tool. The Web tool was originally designed for record retention and auditing and for application processing. Utilities and NSHP program participants are using this online tool to apply to the program (electronically upload and submit the required documents) and monitor the status and progress of their NSHP application. In October 2009, NSHP staff began working with a new programmer: Information, Integration, Innovation & Associates Inc. (I Cubed). I Cubed is completing work to streamline the existing web tool processes and update the material to match that of the newly revamped Go Solar California website. In response to changes to the *NSHP Guidebook* and stakeholder feedback,

I Cubed has also begun developing new enhancements that will incorporate the new changes to the *NSHP Guidebook* and add additional customer functionality.

Since March 2010, training workshops have been conducted around the state to inform interested parties of the revised *Guidebook*, program requirements, application process, and the online application tool. Over 400 people have attended the workshops, either in person or through Web conferencing.

In June 2010, the website www.gosolarcalifornia.org was significantly improved, providing even more information about both the NSHP and the CPUC's CSI programs. The website helps eligible consumers understand the incentive application process and provides a user-friendly calculator for computing the expected incentive amount based on data entered by the customer or applicant. Further, the website offers a wealth of information and posts announcements and events that relate to solar energy. To make it easier for interested applicants to find information, the website is arranged by application type: new homes, existing homes, nonresidential buildings, low-income and affordable housing, and municipal utility customers. Content for the website is provided by staff from the CPUC and the Energy Commission, and the website is maintained by the Energy Commission. Website content is posted as new information becomes available and is updated regularly.

A new home builder's kit is available to help guide builders through the application process and to provide them with information on how to team with the Energy Commission to market their solar homes. This builder's kit, which includes information about the program, case studies about builders and homeowners, and a summary of market research on homeowners' perception of solar energy, can be found at www.gosolarcalifornia.ca.gov/tools/marketing/index.php.

A similar builder's kit for affordable home developers is also available to provide the tools they need to face the unique challenges and costs associated with adding PV systems to their developments and provide helpful information on the application and financing process. The builder kit for affordable home developers is located at www.energy.ca.gov/2009publications/CEC-180-2009-001/CEC-180-2009-001.PDF.

Expenditures for the NSHP support contracts are reported under their funding source, the Consumer Education Program.

Existing Renewable Facilities Program

Background

The Existing Renewable Facilities Program provides production-based incentives for renewable energy facilities that began commercial operation before September 26, 1996. Currently, facilities receiving support from this program must generate and sell electricity to an IOU in

California using either solar thermal or solid-fuel biomass combustion technologies.[46] To receive funding, an eligible facility must have a contract price below a target price in a given month. Beginning in 2007, SB 1250 modified the program structure, requiring an evaluation of each facility on an annual basis. To perform this evaluation, the Energy Commission requires facilities to apply for funding annually. Energy Commission staff evaluates eligibility for Existing Renewable Facilities Program funds based on the criteria in Public Resources Code Section 25742. Specifically, the facility must be physically located in California and certified by the Energy Commission as eligible for California's RPS. Applicants must also provide the following information to the Energy Commission:

- The cumulative amount of funds the facility has previously received from the Energy Commission and other state sources.
- The value of any past and current federal or state tax credits.
- The facility's contract price for energy and capacity.
- The market value of the facility.
- An estimate of the incentive payment needed (in cents/kWh) during the calendar year; also an explanation of why this incentive level is needed.
- An explanation of how the incentive payments from the Existing Renewable Facilities Program will allow the facility to become cost-competitive by the end of 2011.

Energy Commission staff assigns each facility a target price every year based on each facility's utility contract terms and technology. Production incentives are paid on a cent-per-kWh basis for eligible generation. The incentive rate is calculated as the difference between the facility's contract price and its market price, up to a predetermined cent-per-kWh cap. The goal of the program is to create a self-sustaining industry for existing solid-fuel biomass and solar thermal facilities in California.

A facility seeking Existing Renewables Facilities Program funding is placed in one of five tiers based on the facility's renewable energy resource type, average annual energy price, and utility power purchase contract. Tables 8 and 9 show the funding tiers and applicable target price and production incentive cap for facilities participating in the Existing Renewable Facilities Program.

46 Although existing wind facilities are technically eligible for funding from 2007–2011, they currently do not require assistance and therefore have not been allocated any funds.

Table 8: Tiers for Facilities Participating in the Existing Renewable Facilities Program

Tier	Energy Resource	Average Annual Energy Price	Investor-Owned Utility Contract
Tier 1	Solar Thermal Electric	Facilities with power purchase contracts receiving fixed or variable monthly average energy prices for a majority of their generation at 4.0 cents/kWh or less.	PG&E, SCE, and SDG&E
Tier 2	Biomass	Facilities with power purchase contracts receiving fixed or variable monthly average energy prices for a majority of their generation at 5.0 cents/kWh or less.	PG&E and Sierra Pacific Power Company
Tier 3	Biomass	Facilities with power purchase contracts receiving fixed or variable monthly average energy prices for a majority of their generation at 5.0 cents/kWh or less.	SCE, SDG&E
Tier 4	Biomass and Solar Thermal Electric	Facilities with power purchase contracts receiving variable monthly energy payments based on the short-run avoided cost (SRAC) or facilities with contracts receiving fixed monthly average energy prices for a majority of their generation greater than 5.0 cents/kWh but less than or equal to 6.5 cents/kWh or facilities receiving all-in prices.	SCE, SDG&E
Tier 5	Biomass and Solar Thermal Electric	Facilities with power purchase contracts receiving variable monthly energy payments based on the SRAC or facilities with contracts receiving fixed monthly average energy prices for a majority of their generation greater than 5.0 cents/kWh but less than or equal to 6.8 cents/kWh or facilities receiving all-in prices.	PG&E and Sierra Pacific Power Company

Source: California Energy Commission, *Existing Renewable Facilities Program Guidebook, Sixth Edition*

Table 9: Target Prices and Caps (cents/kWh) From 2008 Through 2011

Tier	Target Price	Production Incentive Cap
Tier 1	6.2 cents/kWh	2.0 cents/kWh
Tier 2	6.5 cents/kWh	1.5 cents/kWh
Tier 3	6.2 cents/kWh	1.5 cents/kWh
Tier 4	6.2 cents/kWh	1.5 cents/kWh
Tier 5	6.5 cents/kWh	1.5 cents/kWh

Source: California Energy Commission, *Existing Renewable Facilities Program Guidebook, Sixth Edition*

The program is designed to fully fund incentive payments (assured payments) to facilities with fixed-price contracts below 5 cents per kWh – facilities in Tiers 1, 2, and 3 – then the balance of remaining funds is allocated to facilities in Tiers 4 and 5. Tier 4 and 5 payments are calculated and possibly adjusted based on estimated funds remaining during the calendar year. Total Existing Renewable Facilities Program payments are capped at $18 million per calendar year.

Fiscal Year 2009-2010 Program Impact

The original purpose of the Existing Renewable Facilities Program was to ease the transition for existing renewable facilities from high fixed-price contracts to lower variable-price contracts with the ultimate goal of creating a fully competitive renewable market in California. While the Energy Commission has deemed other existing renewable technologies competitive, existing solid-fuel biomass facilities continue to struggle in the market place. Many biomass facility operators contend that they could not operate at their current levels without financial assistance.

According to industry representatives, existing biomass cannot compete effectively with other renewables because, unlike other renewables, biomass facilities must procure their fuel and transport it to the facility. Fuel procurement and transportation costs average 2—6 cents per kWh.

In recent years, energy prices based on the SRAC (calculated based on the price of natural gas) have declined from over 7 cents per kWh to under 5 cents per kWh. During the summer of 2009, SRAC prices reached their lowest level since 2002 and hovered at nearly 3 cents per kWh through September 2009.

Low SRAC prices have limited the effectiveness of the Existing Renewable Facilities Program funds. Facilities that received SRAC prices continue to draw higher levels of funding from the Existing Renewable Facilities Program, resulting in minimal funding availability for the remaining Tier 4 and 5 facilities. For example, during the July through December generation period, Tier 4 and 5 facilities received $1 million in 2009 compared to $5 million during the same period in 2008. If SRAC prices continue at 2009 levels, Energy Commission staff estimate

that the Existing Renewable Facilities Program would require an additional allocation of more than $15 million in the 2010 calendar year to fund incentive payments to all eligible facilities. The current 2010 allocation for the Existing Renewable Facilities Program is estimated to be $14.4 million.

In the *2008 Renewable Energy Program Annual Report* (covering fiscal year 2007-2008), Energy Commission staff reported that Big Valley Power, a biomass facility, requested Existing Renewable Facilities Program funds for a capital improvement project that the facility operator believed would make it self-sustaining. One of the conditions of the request was that the facility would not reapply for future funding. Energy Commission staff has since learned that the facility was forced to shut down in 2009 due to low energy prices and difficulties in the lumber industry.

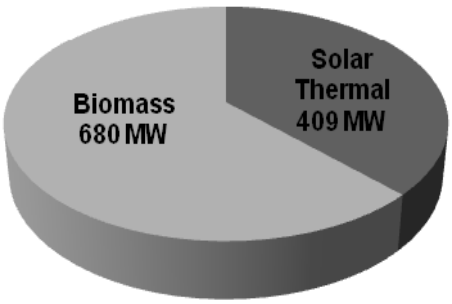
In addition, two other biomass facilities temporarily shut down in the last year: Covanta's Pacific Oroville Power biomass facility in Butte County and Sierra Pacific Industries Sonora biomass facility. These facilities and Big Valley Power are capable of restarting commercial operations; however, this depends on timber prices and a more robust timber industry.

On June 3, 2010, the Energy Commission held a workshop to seek public comment on barriers facing the development and sustainability of the California biomass industry. Staff will be using public and stakeholder comments from the workshop to draft recommendations for the Bioenergy Interagency Working Group to consider for inclusion in the *2010 Bioenergy Action Plan*. At the June 3 workshop, Phil Reese with the California Biomass Energy Alliance reported that existing biomass facilities cannot compete for biomass feedstock under their current contracts and will face additional challenges if they need to compete for fuel with new or repowered facilities that have more lucrative contracts. He stated that other facilities are in danger of permanently shutting down, while some are deferring maintenance and scheduled plant improvements.

Program Accomplishments and Status

In January 2010, the Energy Commission received and approved 35 applications for Existing Renewable Facilities Program funding. Applicants represented 27 solid-fuel biomass and 8 solar thermal facilities. Figure 2 provides the breakdown of eligible capacity by technology for calendar year 2010.

Figure 2: Existing Renewable Facilities Program Capacity (MW) for Calendar Year 2010



Source: California Energy Commission Existing Renewable Facilities Program database

The Energy Commission distributed the first payments from the Existing Renewable Facilities Program in March 1998. From the beginning of the program through June 30, 2010, the Energy Commission has paid more than $308 million for more than 83,312 GWh of generation from the Existing Renewable Facilities Program. Payments

for fiscal year 2009-2010 totaled $16.5 million on 4,249 GWh of generation. The *2010 Annual Report Appendix, Appendix E*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html, provides a project-by-project breakdown of payment and generation for the 2009-2010 fiscal year.

Table 10 summarizes payment information by technology since the beginning of the program.

Table 10: Existing Renewable Facilities Program Payments
January 1, 1998, to June 30, 2009

Technology	Generation (kWh)	Payments
Biomass	34,100,806,246	$204,866,611
Digester gas	46,951,481	$17,712
Geothermal	21,517,571,711	$16,393,710
Landfill gas	2,906,936,989	$2,779,033
Small hydro	2,061,599,882	$4,540,603
Solar thermal	8,557,044,899	$38,964,566
Waste tire	286,844,813	$4,207,418
Wind	13,647,877,825	$36,421,502
Total	83,125,633,846	**$308,191,155**

Source: California Energy Commission Existing Renewable Facilities Program database

Fuel Use by Biomass Facilities

As part of the reporting requirements for the *Renewable Energy Program Annual Report to the Legislature*, the Energy Commission must describe the types and quantities of biomass fuels used by each existing facility seeking an award. As stated in the *Existing Renewables Facilities Program Guidebook, Sixth Edition*:

> Applicants are required to provide fossil fuel and biomass fuel usage for the previous calendar year in the Biomass and Fossil Fuel Usage Report for Biomass Facilities (CEC-1250E-4). The CEC-1250E-4 requires the following information:
>
> 1) Type of fuel used: agricultural, solid waste, wood/waste from state forests
> 2) Quantity of biomass fuel in bone dry tons
> 3) Total energy input of biomass fuel (mmBTU)
> 4) Types of fossil fuel used
> 5) Total energy input of fossil fuel (mmBTU)[47]

47 California Energy Commission, *Existing Renewable Facilities Program Guidebook: Sixth Edition*, January 2009, CEC-300-2009-001-CMF, p. 19, www.energy.ca.gov/2009publications/CEC-300-2009-001/CEC-300-2009-001-CMF.PDF.

Biomass facilities participating in the Existing Renewable Facilities Program must use less than 5 percent fossil fuel to qualify for full incentive payments. Facilities that exceed the 5 percent de minimus qualify only for funding for generation from eligible biomass sources.

The *2010 Annual Report Appendix, Appendix E*, includes the quantities of the following types of biomass fuel used by each biomass facility: agricultural crops, agricultural waste, and agricultural residue; solid waste materials; and wood/forest wood waste.

2010 Bioenergy Action Plan

As stated earlier, Governor Arnold Schwarzenegger issued Executive Order S-06-06 on April 25, 2006, to increase substantially the production and use of bioenergy in California, noting that the increased use of biomass resources contributes solutions to California's critical waste disposal and environmental problems, including the risk of catastrophic wild fires, air pollution from open field burning, and greenhouse gas emissions from landfills. The Governor also established the Bioenergy Interagency Working Group, a working group of state agencies to address the challenges facing the biomass industry. The Bioenergy Interagency Working Group developed an action plan in 2006, listing 63 action items that the state agencies agreed to implement. In 2009, the Energy Commission determined that most of the actions were either completed or in progress; however significant barriers still exist, limiting new biopower development and threatening existing resources. As a result, the Energy Commission recommended updating the *2006 Bioenergy Action Plan* to develop new action items intended to spur growth in this industry.[48]

The *2010 Bioenergy Action Plan* will identify actions to advance the sustainable use of biomass and biogas for electricity generation and biofuel production in California. As mentioned above, the first workshop on this topic was held June 3, 2010. A second workshop is planned for the fall of 2010 to seek further input from stakeholders and the public as part of the development of the *2010 Bioenergy Action Plan*. As lead agency of the Bioenergy Interagency Working Group, the Energy Commission will work closely with this working group of state agencies in preparing the *2010 Bionenergy Action Plan* and will guide its development to help achieve the Governor's goals for bioenergy.

The *2010 Bioenergy Action Plan* will discuss strategies for overcoming the following barriers to biopower development in California:

- Difficulties in obtaining reliable and affordable feedstock materials.
- Lack of commercialization of emerging technologies.

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48 California Energy Commission, *2009 Progress to Plan–Bioenergy Action Plan for California*, April 2010, CEC-500-2010-007, p. 16, www.energy.ca.gov/2010publications/CEC-500-2010-007/CEC-500-2010-007.PDF

- High cost of pollution control equipment and advanced small-scale generation technologies.
- Conflicting regulations, legislative constraints, lengthy permitting and interconnection requirements, and conflicting gas quality standards that constrain bioenergy development.
- Difficulties in obtaining financing.

In addition, the *2010 Bioenergy Action Plan* will discuss potential indicators to measure the progress toward meeting bioenergy goals. For example, progress toward meeting electricity goals could be measured in megawatt hours of electricity generated; progress meeting in-state biofuel production goals could be measured in gallons of biofuel produced in California compared to gallons of biofuels consumed.

The *2010 Bioenergy Action Plan* will identify specific high priority actions. Actions are labeled a high priority if they:

- Address major challenges facing development and maintenance of biofuel and biopower facilities within the state.
- Can be completed by 2012.
- Can produce the most bioenergy within two to five years.

Consumer Education Program

Background

The Consumer Education Program is designed to increase public awareness of renewable energy and its benefits, and to help build a consumer market for renewable energy and small-scale emerging renewable technologies. Additionally, SB 1 mandates the Energy Commission to conduct the following consumer education activities:

- Publish educational materials designed to demonstrate how builders may incorporate solar energy systems during construction as well as energy efficiency measures that best complement solar energy systems.
- Provide assistance to builders and contractors. The assistance may include technical workshops, training, educational materials, and related research.

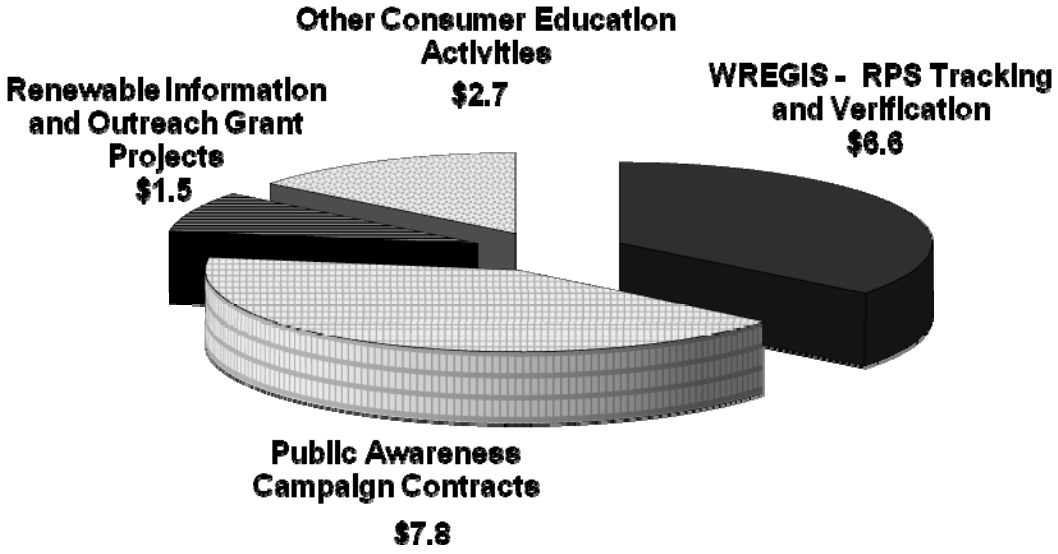
The four primary goals of the Consumer Education Program are to:

- Raise consumer awareness of renewable electricity generation and its benefits.
- Increase the purchases of small-scale emerging renewable systems installed on customer premises.
- Leverage strategic alliances and partnerships with organizations connected to renewable energy in California.

- Develop information, products, and processes that promote the renewable energy market in general, including those that add consumer value to renewable energy by verifying and tracking energy generation and verifying retail product claims.

Since 1999, the Consumer Education Program has spent or encumbered approximately $18.6 million to support 3 public awareness campaigns funded through contracts; 21 grant projects awarded for renewable energy information and outreach activities; the development of an electronic tracking system, WREGIS, to address long-term RPS tracking needs; and other consumer education activities promoting renewable energy. Figure 2 shows how Consumer Education Program funds have been allocated among activities.

Figure 3: Consumer Education Program Expenditures and Encumbrances ($ million) as of June 30, 2010



Source: California Energy Commission Consumer Education Program database.

Program Accomplishments and Status

Fiscal year 2009-20010 consumer education accomplishments and expenditures are discussed below. Additional WREGIS activities are included in Chapter 3.

WREGIS – RPS Tracking and Verification

- The WREGIS Committee held monthly conference calls to discuss and review policy issues related to WREGIS, such as minor changes to system functionality and program documents. Additionally, an Annual In-Person WREGIS Committee Meeting was held in November 2009. A major part of the agenda for this meeting was to discuss the WREGIS program's current status and plans for the future of the program.
- Following are WREGIS expenditures for fiscal year 2009-2010 (from the Consumer Education account unless noted otherwise):

- APX, Inc. contract for $3,277,702 for the services of a System Development and Technical Operations (SD&TO) Contractor for WREGIS. The SD&TO Contractor modified an existing generation registry and tracking system to serve the needs of WREGIS and will continue to perform operations and maintenance for the system at least through the end of the Energy Commission/APX contract in October 2010.

  Expended $203,650

- WECC contract for $2,202,750 for the administration of WREGIS. The WREGIS Administration staff runs the day-to-day operations of WREGIS.

  Expended $7,777

Edelman Public Awareness Campaign Contract for New Solar Homes Partnership

Edelman's three-year contract for $4.3 million, which concluded in December 2009, provided an array of marketing and communication services that support the NSHP by developing and implementing a statewide public awareness campaign to encourage the purchase of new solar homes and to help establish a self-sustaining solar homes market. Edelman was tasked with the following:

- Developing and presenting an approach for identifying California consumers most likely to purchase new solar homes.
- Developing a public awareness and marketing campaign, with related messages and strategies, to reach those consumers.
- Working with the Energy Commission to implement the campaign while coordinating activities among various public and private stakeholders.

Expenditures on work by Edelman in fiscal year 2009-2010 were $1,979,998.

The following summarizes Edelman's accomplishments in fiscal year 2009-2010.

Campaign Brand Identity:

Barcellona (part of the Edelman team) continued to promote the "Go Solar California" and "California Sun Certified Energy Efficient Home" brand and logo to help consumers and builders quickly identify and understand the benefits of solar energy and energy efficiency systems, as well as promoting the NSHP across all communications channels.

Brochures:

Edelman previously worked with Barcellona and individual subcontractors to develop audience-specific brochures that introduced the NSHP, explained how the program benefits them, and provided information about additional resources available through the program. During the fiscal year, the following brochures were distributed at events throughout the state and continue to be available online at www.GoSolarCalifornia.org.

- Builder Brochure – *Become a Builder Partner*
- Consumer Brochure – *Live, Work, and Play in a New California Sun Certified Energy Efficient Solar Home*

- Affordable-Home Developer Brochure – *Making Solar Affordable in New Affordable Homes*
- Realtor Brochure – *Save Your Clients Money and Energy in a New California Sun Certified Energy Efficient Solar Home*
- Municipal Brochure – *State and Local Incentives for Building New Energy Efficient Solar Homes*

Tool Kits:

Edelman continued to work with Barcellona and individual subcontractors to develop audience-specific tool kits that provide an in-depth look at the NSHP and how it can benefit the individual audiences targeted. These kits include step-by-step instructions about how to qualify for the NSHP and how to complete and submit applications. They also provided detailed information about the benefits of participating in the NSHP and provide tools to help each target audience maximize their participation and that of their constituents.

- Builder Outreach Kit – *California's Incentive Program for New Residential Energy Efficient Solar Homes Construction* includes a builder marketing benefits matrix, step-by-step application process, incentives information, marketing research, case studies and relevant news articles about new solar homes. The kit has been revised numerous times from 2007 through 2009 to include client-requested text edits, updated case studies, news articles, and a new layout. The electronic version was made available in 2009 at www.GoSolarCalifornia.org.
- New Home Builder Advertising Tool Kit – *California's Incentive Program for New Residential Energy Efficient Solar Homes Construction* includes a users' guide and four predesigned advertising concepts for builders to use when marketing their NSHP community. Each concept features color and black and white newspaper and magazine ads, Internet banners, micro-website home pages, billboard designs, and more. This tool kit was approved in June 2009 and made available online at www.GoSolarCalifornia.org.

Consumer Outreach:

- In 2009, the Go Solar California Sweepstakes offered participants a chance to win a Green Home Makeover, ENERGY STAR appliances, and Solio solar cell phone chargers after watching an educational video and completing a solar home quiz. The number of entries more than doubled over the 2008 sweepstakes with more than 31,000 received and 53 percent of all entries requesting additional information about energy efficiency and solar products. Approximately 130,000 consumers visited the Go Solar California website each month through the duration of the sweepstakes from April through October 2009. By the conclusion of the Edelman contract, more than $1.9 million in total partnership contributions were received for the 2008 and 2009 Go Solar California sweepstakes.
- The second annual Solar Energy Awareness Month events were held in August 2009 to increase outreach on solar and energy efficiency at the height of the summer home

buying season. Consumer events took place in three target markets: Sacramento, Los Angeles, and San Diego.

Builder Outreach:

- Edelman reached out to builders to offer marketing support and lines of communication for other opportunities that might arise. Edelman received a revised list of NSHP builder communities several times per year and worked to verify and update information for the best available contact at each community. The contractor also worked to gather images and logos from builders for inclusion on the Go Solar California website, along with other materials.
- In addition to coordinating builder marketing support activities, Edelman leveraged relationships with California builders to remain informed about industry trends and changes. Edelman conducted consistent outreach to and maintained relationships with over 23 builders throughout the three-year public awareness campaign.

Local Government Outreach:

Adi Liberman and Associates, an Edelman subcontractor, worked with the Energy Commission to develop and implement a comprehensive municipal outreach plan. The purpose of this outreach was to engage municipalities and partners to encourage local governments to adopt incentives that would promote the integration of solar technologies into new home communities. The incentives found to be most appropriate for adoption by local governments included permit fee waivers, regional building permit fast tracking, and technical assistance. Through municipal outreach, Adi Liberman and Associates and Edelman began communicating the benefits of the NSHP to local governments and partners and developed a "Solar Energy Municipal Tool Kit" to provide municipalities with important tools to aid them in adopting solar-friendly ordinances and programs. This Tool Kit is available at www.GoSolarCalifornia.org.

Consumer Media Outreach:

Throughout the term of the contract, Edelman identified, monitored, and reached out to the California media to showcase the benefits of energy efficiency and solar among a consumer audience. The team created numerous pitch opportunities aligned with NSHP messaging, crafted media pitches around events hosted by the NSHP and its partners, and updated media with information on the status of the NSHP.

Advertising:

- In 2009, Barcellona modified the 2008 campaign materials to reflect key research findings from the post-advertising research survey conducted by Fairbank, Maslin, Maullin, & Associates (a subcontractor to Edelman). The primary consumer message concentrated on the energy cost savings offered by new, energy-efficient solar homes; the second message was the Green Home Makeover, which was part of the 2009 Go Solar California sweepstakes. The content developed for the 2009 sweepstakes advertising campaign included sweepstakes website graphics (programmed by Clear Channel) and a sweepstakes educational video (developed by Edelman).

- The advertising buy for consumer outreach through Clear Channel and dozens of online outlets targeted the same regions of the state as the public education and outreach campaign. Advertising for the campaign focused primarily on encouraging prospective homeowners to seek out new homes with solar and energy efficiency features and helped support overall NSHP brand development.
- For builders, the advertising was focused on encouraging builders to seek information about the NSHP and to further incorporate and build new solar homes and energy-efficient features as standard. The advertising targeted California trade print and online publications.

Following is a summary of results for all advertising conducted from 2007 through 2009:

- 154,816,795 total estimated radio impressions were delivered
- 30,242,262 total online impressions were delivered
- Total radio and online impressions by market:
    - Fresno – 5,442,706 (4 percent)
    - Los Angeles – 28,144,766 (22 percent)
    - Riverside/San Bernardino – 12,958,699 (10 percent)
    - Sacramento – 18,382,703 (14 percent)
    - San Diego – 20,355,293 (16 percent)
    - San Francisco/San Jose – 44,323,857 (34 percent)
    - Multimarket – 21,384,397
- Clear Channel supported 29 events: 6 in 2008 and 23 in 2009

Affordable Housing:

Housing California and the NSHP Affordable Housing Working Group developed an Affordable-Home Developer Outreach Kit modeled after the Builder Outreach Kit. The Affordable-Home Developer Outreach Kit, released in 2009, guides nonprofit developers through the NSHP enrollment process and aligns with the NSHP Guidebook's existing guidelines and incentives offered to nonprofit developers throughout the state.

Website:

A major accomplishment of the Edelman contract was the development of the Go Solar California website designed to help educate consumers about the benefits of solar PV and solar thermal, raise consumer awareness about highly energy-efficient solar homes, and provide information about the state's various solar incentive programs. The website experienced a significant redesign and upgrade to rebuild, rebrand, and re-establish it as the key information source for Californians about energy-efficient and solar living. In June 2010, the Energy Commission and the CPUC rolled out an enhanced Go Solar California website that added new features, making the site even more useful and attractive to visitors.

Measuring Effectiveness of Public Awareness Campaign:

Edelman designed and implemented a method to measure the effectiveness of the public awareness campaign to ensure it would meet the Energy Commission's objectives and result in

increased purchases of new solar homes. A post-advertising campaign research survey was conducted in October 2009, by a subcontractor to Edelman: Fairbank, Maslin, Maullin & Associates. This survey assessed opinions about PV systems at the conclusion of the three year campaign and measured changes in awareness and attitudes as a result of the advertising that took place over the past year. The 2009 study, which used the same questions as in the 2008 study, revealed the following:

- Solar energy awareness remains the same in 2009 despite less marketing and media attention being devoted to roof-top solar energy issues compared to 2008. This suggests that the Go Solar California effort may have been successful in buoying awareness.
- Support for built-in solar electric systems for newly constructed homes has not waned among new homebuyers despite economic pressures and less focus on energy issues in the media.
- Consumers continue to believe that builders should provide built-in solar electric systems as standard features.
- Across all four surveys – from 2007 to 2009 – the value homeowners place on solar energy has remained constant.

ProProse Public Awareness Campaign Contract for New Solar Homes Partnership

ProProse provided support to the NSHP public awareness campaign through a California Multiple Award Schedule agreement. The original two-year agreement was for $105,000. The Energy Commission amended the contract, extending the term another 14 months (through December 2009), and increased funding by $145,000, for a total of $250,000.

As discussed above, ProProse jointly launched the 2008 and 2009 Go Solar California Sweepstakes with Edelman, which offered participants a chance to win a variety of "green" prizes after watching an educational Web-based video and completing a solar home quiz. ProProse, with Clear Channel and Edelman, jointly drafted the partnership framework for the 2009 Go Solar California sweepstakes to begin determining value available to partners who contribute prizes to the sweepstakes. ProProse also advised and provided technical input on multiple marketing and outreach projects.

Spent: $54,761

KEMA Technical Support Contracts

A second contract with KEMA, Incorporated (#400-07-030), was executed in July 2008 for a three-year term. The contract is scheduled to end April 30, 2011, for a total of $3,681,000. (Consumer Education Program dollars are funding $1 million of this amount.) Under this contract, KEMA provides technical assistance to the Renewable Energy Program, including Consumer Education-related activities. During fiscal year 2009-2010, KEMA did not conduct any Consumer Education work under this new contract; consequently, there are no Consumer Education-related KEMA expenditures to report for this period.

Other Consumer Education Activities

Clean Energy States Alliance

The Energy Commission renewed its membership in the Clean Energy States Alliance (CESA) with a one-year agreement beginning December 1, 2009, through November 30, 2010. CESA is a unique multistate collaboration of public clean energy funds and state agencies working together to promote clean energy technologies in their states and across the country. Twenty-three state clean energy programs are members of CESA, with more states joining each year.

CESA serves as a technical consultant to the state clean energy funds, developing effective strategies for improving the performance of state programs; working on joint state initiatives to accelerate the expansion of renewable energy markets on state, regional, and national levels; providing up-to-date information on clean energy issues and programs; and serving as a clearinghouse for information on funding opportunities and challenges for clean energy.

Spent: $82,943

Information, Integration, Innovation & Associates Inc.
CMAS #3-08-70-25094

This two-year contract for $75,000, executed in October 2009, provides maintenance and support services for the NSHP program Web tool. Working with NSHP staff, I Cubed is completing work to streamline the online program application tool processes and develop new enhancements in response to stakeholders' feedback. The requirements for these enhancements have been created, and a testing plan has been implemented.

Spent: $65,100

Key NSHP Focus Groups

The Edelman NSHP marketing and outreach contract concluded at the end of 2009. To continue to satisfy the mandates of SB 1 and achieve the goals of the NSHP, the Energy Commission is considering a new marketing and outreach campaign anticipated to begin mid-2011 through 2013.

In preparation for this, the Energy Commission's Consumer Education Program staff conducted several focus groups by interviewing and meeting with approximately 50 NSHP stakeholders representing key target audiences including developers, builders, solar installers, appraisers, real estate agents, and others. These efforts were specifically designed to obtain feedback on the effectiveness of the Go Solar California campaign to date and identify marketing and outreach gaps and needs. Key discussion topics included assessing target audience needs, obtaining recommendations on how best to market and educate target audiences, and identifying barriers to solar home construction and solar system purchases/ installations. It is anticipated that the results and findings of these focus group meetings will be incorporated into the scope of work for the next marketing and outreach request for proposal.

Spent: staff time only

Clean Power Estimator

The Clean Power Estimator is a calculation tool that allows an electric customer to evaluate the performance, costs, and savings of a solar electric system. The tool uses customer inputs such as system size and cost, location, and orientation, and combines them with precollected data (electric rate schedules; federal and state income tax rates; federal, state, and utility economic incentives; local weather data; electric load profiles; and PV system performance) and analyzes the information using published research methods to generate a customized estimate of the costs and savings of installing a PV system. This is a biennial fee the Energy Commission pays (every other year) for access, maintenance, and upkeep of the tool. The CPUC pays the cost for the Clean Power Estimator during the off years.

Spent: $20,000

C&G Technology Services, Inc.
CMAS #3-08-70-2273C

This $143,550 contract, executed in February 2010, creates a Web-based version of the California Utility Allowance Calculator (CUAC), which is currently a standalone Microsoft Access® database application. The CUAC is a tool designed to calculate project-specific utility allowances for low-income, multifamily housing projects. Energy Commission staff is working with the contractor on translating the current CUAC tool into a Web-based tool and making substantial upgrades. To date the contractor has delivered a software process map of the current CUAC.

Spent: $13,659

For further information about consumer education activities conducted from July 2009 through June 2010, please see the *2010 Annual Report Appendix, Appendix F*, located on the Energy Commission's website at www.energy.ca.gov/renewables/quarterly_updates/index.html.

CHAPTER 4:
Progress in Achieving Renewables Portfolio Standard 20 Percent by 2010 Target

The following responds to the *Annual Report*'s legislative requirement to address the progress being made toward achieving the RPS goal of 20 percent by 2010 by each element of the Renewable Energy Program. As reported in the CPUC's *Renewables Portfolio Standard Quarterly Report, Q2 2010*,[49] based on RPS contracts signed to date, the utilities are expected to be at about 18 percent in 2010 and 21 percent in 2011.

Emerging Renewables Program

The Emerging Renewables Program and NSHP are designed to encourage the development of renewable generation technologies for self-generation. Self-generation can also be defined as distributed generation to produce energy used on-site.

The Emerging Renewables Program and the NSHP guidelines recognize that the renewable energy market includes two commodities: the energy produced from renewable facilities (the electrons) and the renewable and environmental attributes of the energy, termed "renewable energy credits" or RECs. RECs can be created only if renewable energy is produced. Currently, only energy and RECs sold together, termed "bundled" energy, are eligible for the RPS. Since the Emerging Renewables Program and the NSHP support facilities that use the energy on-site, the associated RECs typically are not eligible for the RPS.

For distributed renewable energy facilities that do not participate in the Emerging Renewables Program or the NSHP, the distributed generation owner could enter into a standard offer contract/tariff to sell the excess energy and RECs to a retail seller to count toward RPS targets. Or the owner could enter into a contract to sell all of the energy and associated RECs to a retail seller for RPS purposes.[50]

However, the RPS statutes conditionally allow the CPUC to establish rules that would allow retail sellers to use "tradable" RECs for the RPS, the term used for RECs sold separately from the associated electricity. Several POUs consider tradable REC purchases to be a valid option for meeting adopted RPS targets in future years, but for now tradable REC purchases are uncommon. The CPUC is in the process of developing rules for tradable energy credits for IOU, electric service provider, and community choice aggregator RPS compliance. If the CPUC

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49 California Public Utilities Commission, *Renewables Portfolio Standard Quarterly Report, 2nd Quarter 2010*, www.cpuc.ca.gov/NR/rdonlyres/66FBACA7-173F-47FF-A5F4-BE8F9D70DD59/0/Q22010RPSReporttotheLegislature.pdf.

50 The standard contract/tariff is executed under Public Utilities Code 399.20 as implemented by the CPUC (Decision 07-07-027 in Ratemaking 06-05-027). However, distributed generation facilities that receive funding from the Emerging Renewables Program and NSHP do not qualify for the standard contract/tariff developed to implement Public Utilities Code 399.20.

authorizes the use of tradable RECs for these RPS programs, then the RECs from distributed generation consumed on-site could become RPS-eligible.

AB 920, signed by Governor Schwarzenegger in late 2009, will expand the current net-metering programs for wind and solar. The bill requires IOUs and POUs to offer a compensation option for "net generators." Net generators are customers who export more electricity to the grid than they import from the grid, based on a customer's 12-month annual billing cycle. AB 920 requires that RECs associated with any new surplus electricity sold to the utility will be owned by the utility, while RECs associated with electricity used onsite will be retained by the customer.

As of mid-2010, California has more than 665 MW of solar PV systems connected to the electric grid at over 65,000 customer sites; this is equivalent to one large power plant. This cumulative installed MW of solar PV is an aggregate number including all existing IOU solar programs (CSI, Self-Generation Incentive Program, NSHP, and Emerging Renewables Program) and POU solar programs.

Existing Renewable Facilities Program

Production incentives offered by the Existing Renewable Facilities Program assist existing RPS-eligible biomass and solar thermal facilities to remain on-line and stimulate restart of nonoperational biomass facilities. This helps meet the state's statutory RPS requirement of 20 percent by 2010 by maintaining and restarting existing baseline renewable generation.

In addition to the renewable energy goal established under the RPS statute, the Governor has set a further goal of meeting 20 percent of the RPS renewable energy goal with biopower.[51] Currently, generation from biopower resources provides about 20 percent of California's renewable energy. Of this 20 percent, more than 70 percent of California's biopower generation comes from solid-fuel biomass facilities receiving funding from the Existing Renewable Facilities Program.

One of the goals of the Existing Renewable Facilities Program is to help these facilities reach self-sustainability by 2011. Achieving this goal remains elusive due to the decreasing market price for natural gas and the continuing volatility in the price of diesel fuel. Diesel fuel costs are the single greatest contributor to the cost of biomass feedstock due to the distance the fuel must be transported.

Almost 27 percent of RPS procurement claims reported by PG&E in 2009 were from biomass facilities receiving funding from the Existing Renewable Facilities Program. In 2009, SDG&E reported that 19 percent of its RPS-eligible procurement came from the Covanta Delano biomass facility. In its funding application, Covanta Delano stated that the facility could not operate

51 Executive Order S-06-06 by the Governor of the State of California. The RPS statute requires the state's IOUs to provide 20 percent of their retail electricity sales through renewable energy resources. The Governor's Executive Order requires that 20 percent of California's renewable energy goals come from biomass facilities.

without Existing Renewable Facilities Program funding. For that same year, SCE reported that 9 percent of its RPS procurement came from generation produced by biomass and solar thermal facilities that received Existing Renewable Facilities Program funding.[52]

Production incentive payments to existing facilities help aging facilities pay for major maintenance and operational improvements that increase overall plant efficiency and/or reduce the cost of operation, both of which could result in additional generation. Examples include adding another cooling tower (biomass), replacing boiler tubes (biomass), and replacing broken mirrors and thermal conduction tubes (solar thermal).

Despite financial assistance through the Existing Renewable Facilities Program, representatives of the biomass facilities participating in the program have informed staff that they still face difficulties keeping their facilities on-line due to ongoing economic challenges. For example, many of the existing biomass facilities are nearly 30 years old and face financially taxing maintenance issues. As a cost-cutting measure, several facilities have begun curtailing generation, temporarily shutting down operations, or deferring needed maintenance until the financial climate improves. Since January 2009, five biomass facilities in California have temporarily shut down, three of which were still not operating by the end of the fiscal year.

Consumer Education Program

The Consumer Education Program plays an important role in increasing consumer awareness about renewable energy and emerging renewable systems through education, marketing, and outreach. However, the Consumer Education Program's information, products, and processes are not a direct component of the measured progress in achieving the 20 percent by 2010 RPS goal.

New Renewable Facilities Program

Before the passage of California's RPS in 2002, 31 New Renewable Resources Account auction-winning projects came on-line between 1998 and 2002, despite the beginning of California's energy crisis in 2000 and its effect on new renewable electricity-generating facilities.

Most of the New Renewable Resources Account projects were proceeding on schedule with minimal delays until late 2000, when the IOUs' financial difficulties began to strain California's electricity market. New electricity-generating projects began to encounter problems due to market uncertainties and found it difficult, and in some cases impossible, to secure power purchase agreements. Further, many projects were unable to obtain the financing needed to

52 Data based on the Energy Commission Existing Renewable Facilities Program database and IOUs' annual compliance filings with the CPUC. PG&E, SCE, and SDG&E annually file their RPS-procurement on March 1 and August 1 of each year. The March 1 report is used to determine compliance for the previous year(s). Note that this data is based on unverified procurement claims. www.cpuc.ca.gov/PUC/energy/Renewables/compliance.htm.

begin constructing facilities, purchasing equipment, or both. Permitting difficulties were a second factor in project delays. To help overcome these difficulties and ease California's anticipated energy shortage, the New Renewable Resources Account auction process incorporated a system of bonuses and penalties to encourage early on-line dates.

Following passage of the RPS, 16 new facilities were able to come on-line. The RPS helped many New Renewable Resource Account auction winners to obtain long-term power purchase agreements, which helped them secure financing needed for project development.

Of the 47 completed projects receiving support from the New Renewable Resources Account, 36 projects (representing more than 217 MW of annual capacity) sought and received Energy Commission certification for their energy to count toward retail sellers' RPS requirements. Many wind projects were consolidated when certified under the retail sellers' RPS programs. As a result, these 36 projects constitute 22 generating facilities eligible to support retail sellers' RPS programs. Since 1998, these facilities have generated more than 3,800 GWh of renewable generation. One of the 22 RPS-certified projects receiving incentive payments from the New Renewable Resources Account was certified in the 2009-2010 fiscal year; this facility produced 41 GWh of RPS-eligible generation during that period.

CHAPTER 5:
Additional Renewable Energy Program Activities

Senate Bill 1

Background

In August 2006, Governor Arnold Schwarzenegger approved SB 1, which codifies a comprehensive statewide solar energy incentive program. SB 1 consists of the CPUC's CSI program, the Energy Commission's NSHP, and the POUs' solar energy incentive programs. The goals of SB 1 for the next 10 years are to install 3,000 MW of new solar energy systems, establish a self-sufficient solar industry, and bring costs down to the point where solar energy systems are a viable mainstream option for both homes and businesses. SB 1 also has a goal to place solar energy systems on 50 percent of new homes in 13 years.[53]

Energy Commission's Senate Bill 1 Roles

SB 1 required the Energy Commission to adopt eligibility guidelines for solar energy systems[54] receiving ratepayer-funded incentives and identified the following conditions:

- High-quality solar energy systems with maximum system performance to promote the highest energy production per ratepayer dollar.
- Optimal system performance during periods of peak demand.
- Appropriate energy efficiency improvements in the new and existing home or commercial structure where the solar energy system is installed.

After several workshops and consideration of stakeholder comments, the Energy Commission adopted final guidelines in December 2007, *Guidelines for California's Solar Electric Incentive Programs (Senate Bill 1)*. A second edition to the guidelines was adopted in December 2008, and changes included addressing other solar electric generating technologies and specifying eligibility requirements, updating energy efficiency requirements by defining the tier levels for new construction buildings to reflect the adopted *2008 Title 24* (Part 6) *Building Energy Efficiency Standards*, addressing the concerns of the CPUC's CSI program administrators and publicly owned utilities, and making other nonsubstantive changes. The guidelines' third edition was adopted in June 2010. This edition changed the effective date to July 1, 2011, by when all eligible inverter-integrated meters must be tested to ± 5 percent accuracy; revised the Guidelines' stated effective date for the 2008 Building Energy Efficiency Standards to be consistent with the Energy Commission's separate decision to revise that date to January 1, 2010; clarified PV module eligibility requirements and the use of the "Shade Impact Factor" when accounting for

53 Public Resources Code Section 25780, as amended by SB 1 (Statutes of 2006, Murray, Chapter 132).

54 "Solar energy systems" means a solar energy device that has the primary purpose of providing for the collection and distribution of solar energy for the generation of electricity, that produces at least 1 kW and not more than 5 MW alternating current rated peak electricity, and that meets or exceeds the Energy Commission's established eligibility criteria (Public Resources Code Section 25781[e]).

shading using Monthly Solar Availability; and modified the Installer System Inspection alternate field verification protocol for multi-string arrays. The current *Guidelines for California's Solar Electric Incentive Programs (Senate Bill 1), Third Edition*, can be found on the Energy Commission's website at: www.energy.ca.gov//2010publications/CEC-300-2010-004/CEC-300-2010-004-CMF.PDF.

SB 1 responsibilities assigned to the Energy Commission and efforts to achieve these directives are listed below:

- Initiate a public proceeding to study and make findings on whether, and under what conditions, solar energy systems should be required on new residential and new nonresidential buildings, including the establishment of numerical targets. The study is to be updated periodically.
    - Public proceedings were formally initiated in July 2007, and a contract for the study began in January 2010. Preliminary work has begun on the study with a final report due in 2011.
- Develop an offset program that allows a developer or seller of production homes[55] to forego the offer requirement[56] on a project by installing solar energy systems generating specified amounts of electricity on other projects, including, but not limited to, low-income housing, multifamily, commercial, industrial, and institutional developments. The amount of electricity required to be generated from solar energy systems used as an offset must be equal to the amount of electricity generated by solar energy systems installed on a similarly sized project within that climate zone, assuming 20 percent of the prospective buyers would have installed solar energy systems.
    - Energy Commission staff held a Solar Offset Program pre-rulemaking workshop in May 2010 and Energy Commission staff is currently developing draft regulations. It is anticipated that the regulations will be implemented by the end of 2010.
- Publish educational materials designed to demonstrate how builders may incorporate solar energy systems during construction as well as energy efficiency measures that best complement solar energy systems.
    - A Builder Outreach Tool Kit was developed and is available. Builders are eligible for various promotional and advertising support levels based on the level of energy efficiency and percentage of homes with solar offered as a standard feature. The Tool Kit can be located on the Go Solar California website under the "Builders" tab at www.gosolarcalifornia.org/

55 "Production home" means a single-family residence constructed as part of a development of at least 50 homes per project that is intended or offered for sale.

56 SB 1 requires a seller of production homes to offer a solar energy system option to all customers that enter into negotiations to purchase a new production home constructed on land for which an application for a tentative subdivision map has been deemed complete on or after January 1, 2011, and disclose (1) the total installed cost of the solar energy system option and (2) the estimated cost savings associated with the solar energy system option.

- Develop and publish the estimated annual electrical generation and savings for solar energy systems. The estimates must vary by climate zone, type of system, size, lifecycle costs, electricity prices, and other factors that the Energy Commission determines to be relevant to a consumer when making a purchasing decision.
    - The Clean Power Estimator tool is being used to provide potential customers specific information about available economic incentives and tax benefits of purchasing a solar system. The tool can also inform these potential customers of the estimated annual electrical generation they can expect for purchasing a solar system. This tool is publicly available for use on the Go Solar California website at www.gosolarcalifornia.org/
- Provide assistance to builders and contractors, which could include technical workshops, training, educational materials, and related research.
    - The NSHP Marketing Outreach Effort is underway. A collaborative group consisting of builders, contractors, solar advocates, appraisers and other stakeholders has met to discuss the current Energy Commission marketing practices and identify marketing gaps and needs to encourage the installation of solar systems. The findings from this effort will be incorporated in a request for proposal solicitation effort which will be completed by the end of 2010.
- Conduct annual random audits of solar energy systems to evaluate their operational performance.
    - A work authorization with KEMA was completed in June 2009 to assist staff with developing a study for a statewide audit plan. KEMA's May 2009 report, *SB 1 Solar Auditing Program Options,* recommended that a self-reporting tool be developed. The Energy Commission is now working with a contractor to develop "PV Check." This Web-based tool will provide PV system owners with the ability to monitor their system's performance. The users will enter specified solar PV data into the PV Check tool, and the Energy Commission will take the data generated to gauge the performance of the PV systems. Users will consist of electric utility customers with NSHP-installed solar PV systems. At first, the PV Check will be used in a pilot/demo phase with a limited number of users, but after successful demonstration, this could lead to an expanded use by solar customers in the state.
- Evaluate the costs and benefits of having an increased number of operational solar energy systems as part of the electrical system with respect to their impact on the distribution, transmission, and supply of electricity, using the best available load profiling and distribution operations data from the CPUC, local POUs and electrical corporations, and performance audits of installed solar energy systems.
    - The Energy Commission was originally assigned this task, but the enactment of Assembly Bill 578 (Blakeslee, Chapter 627) in September 2008 reassigned the responsibility to the CPUC. The CPUC met this mandate by contracting with Itron, Inc., which developed the report titled *Impacts of Distributed Generation,* published in January 2010. The report can found on the CPUC's website at:

www.cpuc.ca.gov/NR/rdonlyres/750FD78D-9E2B-4837-A81A-6146A994CD62/0/ImpactsofDistributedGenerationReport_2010.pdf

In fiscal year 2009-2010, SB 1 implementation expenses were "staff time only" and were paid with RRTF administration funds.

CHAPTER 6:
Historical Renewable Energy Program Activities

Existing Renewable Facilities Program

Agriculture-to-Biomass Program

In September 2003, the Governor signed SB 704, which was intended to improve the air quality in California's agricultural areas by reducing the open-field burning of agricultural fuels. SB 704 required the Energy Commission to allocate $6 million from the RRTF for incentives to electricity-generating facilities that increased their use of qualified agricultural biomass for the 2003-2004 fiscal year. The Agriculture-to-Biomass Program, although not technically a part of the Renewable Energy Program, is discussed in this section because the funding for this program was reallocated from the Existing Renewable Facilities Program.

Funded for one year, the Agriculture-to-Biomass Program provided financial incentives to biomass facilities that purchased and converted these fuels for electricity generation from July 1, 2003, through June 30, 2004. Incentives were paid at a rate of $10 per green ton of eligible biomass fuel. Nine participants registered their facilities with the Energy Commission for funding. With final payments made in August 2004, total payments from the Agriculture-to-Biomass Program exhausted the $6.0 million allocation, and the program is now concluded.

Customer Credit Program

Summary

From 1998 through 2003, the Energy Commission used the $75.6 million initially allocated to the Customer Credit Program to foster market demand for renewable electricity. The funds were distributed via a "credit" to registered renewable providers who delivered eligible renewable energy to qualifying customers. The customer credit, a cents/kWh discount for eligible renewable electricity purchases, allowed providers to offer their products to customers at prices that were competitive with conventional electricity. Providers passed the credit along to their customers.

Since the electricity crisis in 2000 and 2001, changes in California's electricity market structure affected the Customer Credit Program. In 2001, the CPUC suspended customers' option for direct access contracting. Furthermore, the advent of the RPS in California suggested that a very different market would soon be in place for electricity consumers and providers. Although customers may no longer choose to switch from their IOUs to an electric service provider serving renewable energy, the RPS provides an alternative for supporting renewable energy generation that does not require customers to enter into direct access contracts.

As directed by SB 1038, on April 2, 2003, the Energy Commission produced the *Customer Credit Report* for the Governor and the Legislature on how to use the customer credit funds most effectively. In the report, the Energy Commission recommended that the Customer Credit

Program be discontinued. The report also included recommendations for reallocation of Customer Credit funds, as well as retroactive payments to eligible customers for the period January 1, 2002, through April 2, 2003.

In May 2004, consistent with the *Customer Credit Report* and under Public Resources Code Section 25748(b), the Energy Commission reallocated 90 percent of available Customer Credit funds to the Emerging Renewables Program and 10 percent to the Consumer Education Program. A final payment in December 2004 concluded Customer Credit Program activities, and the Energy Commission discontinued the program.

The balance of $315,829 (consisting of $276,909 in SB 90 money and $38,920 from Bear Valley Electric Service contributions) remaining in the Customer Credit Program account as a result of discontinuing the program was reallocated to the Emerging Renewables Program in August 2006. This reallocation effectively zeroed out the account. Cumulative payments made under the Customer Credit Program totaled about $65 million.

Emerging Renewables Program

Solar Schools Program

The successful litigation of energy contract settlements by the California Attorney General's office was responsible for the launch of the Solar Schools Program. These settlement funds (Attorney General's Alternative Energy Retrofit Account or AGAERA) were received by the California Power Authority who was directed to invest the funding in alternative energy and retrofit projects on public buildings. The Energy Commission's experience administering the Emerging Renewables Program, in addition to other programs that offered schools technical assistance with making energy improvements (Bright Schools and Energy Partnership), prompted the California Power Authority to enter into an interagency agreement with the Energy Commission to establish the Solar Schools Program in 2002. Through the original interagency agreement and subsequent amended agreement in 2004, the Energy Commission incorporated the Solar Schools Program into its Emerging Renewables Program.

The Solar Schools Program offered rebates to California schools that purchased and installed eligible solar PV systems. The rebate award was composed of a $3.20/watt rebate level matched by the same amount from the AGAERA funding, resulting in a $6.40/watt rebate. The Solar Schools Program was designed to provide up to 90 percent of the cost of the systems for qualifying schools. The other 10 percent could be financed by a low-cost energy efficiency loan offered by the Energy Commission's Energy Efficiency Financing Program.

In 2002, Department of Finance budget authority to expend the AGAERA funding was delayed. Consequently, the 15 schools that were initially approved were unable to receive their rebate awards until the Solar Schools Program was restarted in 2004. Final funding authority to expend the AGAERA funds was granted at the Energy Commission's May 19, 2004, Business Meeting. Program guidelines, including special funding requirements, were also adopted at the same time. Systems had to meet the California Division of State Architects' requirements for solar system installations, including structural support, to satisfy the Emerging Renewables

Program and Solar Schools Program requirements. The one-time rebate incentive of $6.40/watt—twice the amount of the Emerging Renewables Program rebate level at the time—was offered to public and charter schools meeting program eligibility requirements. Successful Solar Schools Program awardees met the following conditions:

- Established a solar energy curriculum tie-in plan to educate students on the benefits of solar energy.
- Committed to purchase, install, operate, and maintain an eligible PV system at the specified school site.
- Showed implementation of energy efficiency measures (such as the installation of high-efficiency fluorescent lighting in at least 80 percent of the classrooms).

More than 60 school districts located within the 3 major IOUs' service areas applied for the generous rebate incentive based on the current rebate level of the ERP matched by AGAERA funding. The Solar Schools Program enabled 31 eligible California schools to be awarded the $6.40/watt rebate to assist with the purchase and installation costs of their own solar PV system. Of these, three schools were unable to complete their projects for various reasons. By program's end on June 30, 2008, more than $3.9 million ($1.95 million RRTF and $1.95 million AGAERA) was paid out in rebate funding to 28 schools that had completed their solar PV projects. The Solar Schools Program added 6.42 MW of solar PV capacity in California.

Pilot Performance-Based Incentive Program

Beginning in 2005, the Emerging Renewables Program offered a performance-based incentive (PBI) option for customers installing solar PV systems. The PBI option offered customers $0.50 per kWh generated for three years. Collecting and reporting on the system performance was done either by the customer's electric utility or through a web-based monitoring system. Customers submit their production data quarterly to receive payment.[57]

During fiscal year 2009-2010, the Energy Commission paid $288,000 to 9 PBI participants. Since 2005, the Energy Commission has paid $1.6 million to 19 PBI participants representing 3.2 MW. Although the program is no longer accepting new applicants, some customers are still receiving payments because their three-year contracts have not yet finished. As of June 30, 2010, 19 customers still have funds encumbered as part of the PBI program totaling about $2.1 million.

57 Under SB 1, the Emerging Renewables Program stopped offering solar photovoltaic incentives to new applicants in 2007.

CHAPTER 7: Reallocation of Funds

The Energy Commission is authorized to reallocate RRTF funds among programs in a manner consistent with Public Resources Code Section 25748(b), which states that,

> (b) Money may be reallocated without further legislative action among existing, new, and emerging technologies and consumer-side programs in a manner consistent with the report [*Investing in Renewable Electricity Generation in California*][58] and with the latest report provided to the Legislature pursuant to this section, except that reallocations shall not increase the allocation established in Section 25742 [to the Existing Renewable Facilities Program].

Reallocations for Fiscal Year 2009-2010

There were no reallocations of RRTF funds in fiscal year 2009-2010.

The Energy Commission continues to value the ability to reallocate funds in response to varying market demands. Judicious management of ratepayer dollars has allowed underused program dollars to be moved to meet the needs of higher demand program areas as reported in previous *Annual Reports*. If necessary, the Energy Commission will continue exercising its authority to reallocate funds. This flexibility is particularly important to the Renewable Energy Program's efforts to meet California's renewable resource goals associated with the continued implementation of the NSHP as part of the SB 1 goal of 3,000 MW of distributed self-generation solar systems.

Continuing current practices, if the Energy Commission decides to further reallocate RRTF monies, it will do so with public input and will report the reallocations to the Legislature in the *Annual Report*.

Remaining Loans and Appropriations Against the RRTF as of June 30, 2010

- The Budget Act of 2002 (Items 3360-011-0382 and 3360-012-0382) directed the Energy Commission to loan RRTF dollars of $150 million to the General Fund and $8.9 million to the California Consumer Power and Conservation Financing Authority. In fiscal year 2004-2005, repayment of the $8.9 million loan was completed. The general fund, having remitted $131.8 million in June 2007, has an outstanding principal balance of $18.2 million on the $150 million loan.

58 California Energy Commission, *Investing in Renewable Electricity Generation in California*, June 2001, P500-00-022 (Public Resources Code Section 25741[e]), www.energy.ca.gov/reports/2001-06-21_500-00-022.PDF.

- In 2008, the Budget Act (Item 3360-011-0382) directed the Energy Commission to loan $10.9 million RRTF dollars to the general fund. The loan is to be repaid no later than June 30, 2013, with the condition that it must not adversely affect the Renewable Energy Program.
- The Budget Act of 2009 (Item 3360-011-0382) directed the Energy Commission to loan $35 million RRTF dollars to the general fund for use by State Parks. The loan is to be repaid no later than June 30, 2011.
- Senate Bill X8 34 (Padilla, Chapter 9, Statutes of 2010) authorized a $10 million loan from the RRTF to the Department of Fish and Game with loan repayment no later than December 31, 2012.
- Senate Bill 77, until January 1, 2015, appropriated up to $50 million from the RRTF to the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) for the purposes of a Property Assessed Clean Energy Reserve program. All repayments of moneys received by CAEATFA shall be deposited into the RRTF.

CHAPTER 8:
Account Transfers and Repayments

The Energy Commission prepared this chapter in accordance with Public Resources Code Section 25751(f), which authorizes the Energy Commission to transfer funds between program accounts within the RRTF (that is, the Emerging Renewable Resources Account, Existing Renewable Resources Account, and Renewable Resources Consumer Education Account[59]) for cash flow purposes, provided that the balance due each program account is restored and that the transfers do not adversely affect any of the programs.

The Account Transfers and Repayments chapter covers fiscal year 2009-2010 and responds to Public Resources Code Section 25748(a), which states that the Energy Commission shall report to the Legislature on "…The status of account transfers and repayments."

There were no transfers or repayments of funds between programs during fiscal year 2009-2010. Fund transfers and repayments could occur in the upcoming fiscal year and the Energy Commission will discuss any such transactions in its *Renewable Energy Program 2011 Annual Report to the Legislature*.

59 These accounts correspond to the Emerging Renewables Program, Existing Renewable Facilities Program, and Consumer Education Program, respectively.

CHAPTER 9:
Interest Expenditures

Public Resources Code Section 25748 requires the Energy Commission to address the allocation of funds from interest on the RRTF. As noted in the *Overall Program Guidebook* for the Renewable Energy Program, interest earned on the funds deposited in the RRTF may be used to augment funds for a particular program element at the Energy Commission's discretion. Additionally, such interest may be used to administer the Renewable Energy Program to the extent appropriated by the Legislature in the annual Budget Act.

In fiscal year 2009-2010, interest earned on the RRTF was $1.1 million for a cumulative total (from 1998 through June 30, 2010) of $100.9 million. As of June 30, 2010, cumulative interest expenditures and encumbrances totaled $52 million; reallocations totaled $19 million; and in fiscal year 2002-2003, interest totaling $5,300,135 was transferred to the general fund.[60]

Prior to 2004, interest funds, like voluntary contributions, had not been allocated to program elements under the Renewable Energy Program. However, in April 2004, due to escalating requests for rebate funds, the Energy Commission approved the reallocation of $10 million in RRTF interest to the Emerging Renewables Program. Subsequent demands on rebate dollars prompted additional RRTF interest reallocations in August 2006 and May 2007 ($6 million and $3 million, respectively). Information on these reallocations is detailed in previous *Annual Reports* located at www.energy.ca.gov/renewables/quarterly_updates/index.html.

RRTF interest also funds three specific areas described below. Dollars include both expenditures and encumbrances for fiscal year 2009-2010:

- **Support Services ($2,767,034) –** Refers to wages and benefits paid to Energy Commission staff working in the Renewable Energy Program; operating expenses in the form of general office supplies, printing, communications, postage, travel, training, facilities operations, data processing, equipment, and indirect charges.
- **Contractual ($1,999,144) –** Represents contracts that were expended or encumbered from RRTF interest. This includes contracts for technical support services; a contract with the Department of Finance for auditing services; and contracts with PG&E, SCE, and SDG&E to administer the NSHP.
- **Pro Rata ($2,697,776) –** A direct assessment against the RRTF is applied by the Department of Finance. This assessment is for the cost recovery of expenses incurred by control agencies in the administration of the RRTF. For example, Pro Rata includes the cost of processing claim schedules, journal entries, reports, and payroll for the State Controller, and the work of the Department of Finance budget analyst.

The Renewable Energy Program's administrative costs, funded through RRTF interest earnings, have averaged only 5.4 percent of total expenditures from program dollars since 1998.

60 Budget Act of 2002, Chapter 379, Statutes of 2002.

CHAPTER 10:
Contributions to the Renewable Resource Trust Fund

SB 1250 directs electrical corporations to allow their customers to make voluntary contributions in support of renewable resource technologies. These contributions are subsequently deposited into the RRTF. Before 2006, voluntary contributions had never been allocated to specific elements of the program. However, in mid-2006, a need for additional Emerging Renewables Program rebate funds was identified, prompting a reallocation of $19,417 from voluntary contributions. As of June 30, 2010, the balance of voluntary contributions is $62,337.

Golden State Water Company (doing business as Bear Valley Electric Service), an IOU, has also made contributions to the RRTF totaling $568,000 at the end of June 2010. These funds have been allocated to the program elements according to the percentage allocations specified in SB 90 and SB 1038; the reallocations recommended in the Energy Commission's Customer Credit Report under Public Resources Code Section 25748(b); SB 1250; SB 107; and SB 1036.

Table 11 provides a financial summary of the RRTF through June 30, 2010, reflecting cumulative funds collected, disbursed, reallocated, and encumbered since the beginning of the Renewable Energy Program in 1998. The table also shows funds transferred, loaned, and appropriated.

Table 11: Renewable Energy Program
Cumulative Funding and Expenditures as of June 30, 2010
($ Millions)[61]

	New Renewable Facilities Program[1,2]	Emerging Renewables Program[3,4]	Existing Renewable Facilities Program[5,6]	Consumer Education Program	Customer Credit Program	PROGRAM TOTAL
Collected Funds[7]	$592.894	$434.694	$432.023	$22.484	$75.639	$1,557.733
Intrafund Reallocations[8]	-32.544	177.171	-106.600		-10.316	27.711
Disbursements	-76.691	-427.979	-314.191	-15.157	-65.323	-899.341
New Renewable Facilities Disbursement to Utilities	-461.682					-461.682
Year-End Accruals			-4.018			-4.018
Encumbrances		-45.966		-3.128		-49.094
Loan to General Fund per Budget Act of 2002[9]	-18.200					-18.200
Loan to General Fund per Budget Act of 2008[10]						-10.900
Loan to General Fund per Budget Act of 2009[11]						-35.000
Loan to Dept. of Fish and Game per SB X8 34 (2010)[12]						-10.000
Appropriation for PACE Reserve program per SB 77 (2010)[13]						-50.000
REP BALANCE	**$3.777**	**$137.920**	**$7.214**	**$4.199**	**$0.000**	**$47.209**

[1]New Renewable Facilities Disbursement to Utilities includes $412,650,348 of unused SEPs dollars refunded to utilities pursuant to SB 1036, Statutes of 2007; and $49,031,436 in funds collected from the utilities prior to 2002 that became available due to the Energy Commission's cancellation of two project awards, REN-98-017 and REN-98-018.

[2]New Renewable Facilities balance consists of collected funds under SB 90 (1998-2001). This collection period preceded fund collections for SEPs under SB 1038 and SB 1250. Although the New Renewable Resources Account was eliminated pursuant to SB 1036 and effective July 1, 2008, active NRFP projects continued to be paid for generation from those projects' previously encumbered RRTF funding award dollars.

[3]Emerging Renewables disbursements include ERP $406,704,946 and NSHP $21,274,531.

[4]Emerging Renewables encumbrances include ERP $3,073,977 and NSHP $42,891,827.

[5]Existing Renewable Facilities disbursements include $6 million for the Agriculture Biomass-to-Energy Program.

[6]Existing Renewable Facilities Program accruals are staff's estimated payments for May and June 2010 generation.

[7]Collected funds include $568,000 from Bear Valley Electric Service.

[8]Intrafund reallocations include $27.711 million from sources outside investor-owned utility collected funds.

[9]$150 million loan to the state's General Fund pursuant to the 2002 Budget Act. The General Fund, having remitted $131.8 million in June 2007, has an outstanding principal balance of $18.2 million.

[10]$10.9 million loan to the state's General Fund pursuant to the 2008 Budget Act to be repaid no later than June 30, 2013.

[11]$35 million loan to the state's General Fund pursuant to the 2009 Budget Act to be repaid no later than December 31, 2012.

[12]$10 million loan to Department of Fish and Game pursuant to SB X8 34 (Statutes of 2010) to be repaid no later than December 31, 2012.

[13]$50 million appropriated for the Property Assessed Clean Energy (PACE) Reserve program pursuant to SB 77 (Statutes of 2010).

Note: Account balances are committed to meeting legislative mandates as follows: rebates for emerging renewable energy system installations, generation from existing renewable facilities, and consumer education activities.

61 This table contains data from the Energy Commission's Accounting Office. Accounting data may differ from Renewable Energy Program staff data reported in the table because funds may be returned, credited, or repaid that are not tracked in real time by Renewable Energy Program staff.

ACRONYMS

AB	Assembly Bill
AMFs	Above-market funds
AGAERA	Attorney General's Alternative Energy Retrofit Account
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CESA	Clean Energy States Alliance
CSI	California Solar Initiative
CPUC	California Public Utilities Commission
CUAC	California Utility Allowance Calculator
GWh	Gigawatt hours
IEPR	*Integrated Energy Policy Report*
IOU	Investor-owned utility
kW	Kilowatt
kWh	Kilowatt hours
mmBTU	Million metric british thermal units
MPR	Market Price Referent
MW	Megawatts
NSHP	New Solar Homes Partnership
PACE	Property Assessed Clean Energy
PBI	Performance-based incentive
PG&E	Pacific Gas and Electric Company
POU	Local publicly owned electric utility
PV	Photovoltaic
REC	Renewable energy credit
RPS	Renewables Portfolio Standard
RRTF	Renewable Resource Trust Fund
SB	Senate Bill
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
SEPs	Supplemental energy payments
SRAC	Short-run avoided cost
WECC	Western Electricity Coordinating Council
WREGIS	Western Renewable Energy Generation Information System