

INFORMATION NOTE : Renewable Energy Policy , California, USA



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Introduction

California is an internationally recognized front-runner in energy and environmental policy. This reputation originates from the fact that many energy and environmental policies that are established in California are subsequently adopted by other states in the U.S. In addition, California introduced the 'loading order' concept of prioritizing energy saving measures and renewable energy over new traditional energy facilities. While the fossil fuel and nuclear energy sources still dominate the electricity mix of California, the state has a relatively strong renewables electricity generation base. The renewables, including geothermal, hydro and pumped storage, together constitute 24.9 % of the electricity mix of California, as per the Energy Information Administration (EIA)¹.

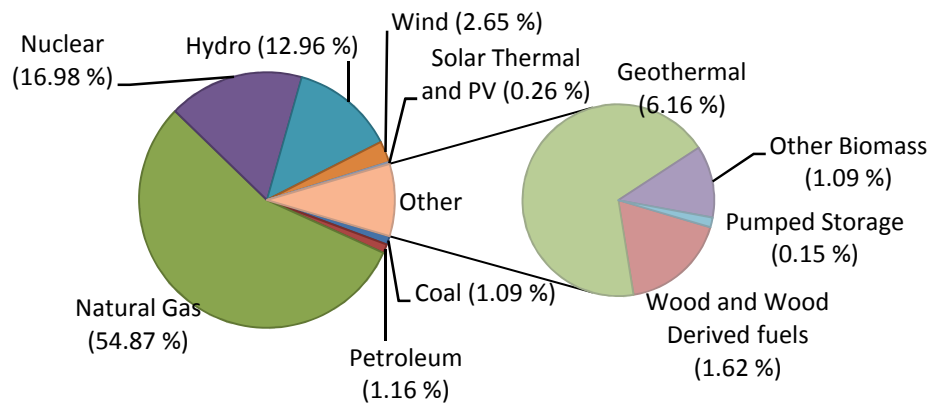


Exhibit 1. The in-state electricity mix of the State of California in the year 2007.
Source: Energy Information Administration (EIA)

This information note provides an overview of the current renewable energy policies, financial incentives and approval process for projects as applicable to the state of California.

Policy Overview

There are many initiatives to promote renewable energy in California. These are not just at the state level, but also at the county and municipal level². For investors and developers looking at sizable opportunities, it is important to be aware of three policy focus areas - Renewable Portfolio Standard, Renewable Energy Program and Bioenergy Action Plan.

Renewable Portfolio Standard

The Renewable Portfolio Standard (RPS)³ is the main driver of renewable energy deployment in the State of California⁴. The standard stipulates the most stringent target of the United States of 33 % renewables by 2020. Additionally, the passage of Assembly Bill 32 intertwines the renewable energy policy of California with the greenhouse gas reduction targets of California, increasing the importance of the RPS. The RPS mandates all utilities to increase their sales of eligible renewable energy resources by at least 1 percent of retail sales per year. The responsibility of the RPS is placed at the California Air Resources Board (CARB)⁵. The California Energy Commission (CEC)⁶ and the California Public Utilities Commission (CPUC)⁷ serve advisory roles.

Table 1 lists the technologies that are eligible under the California RPS. A large number of technologies are eligible for RPS certification. To qualify for the RPS the electricity needs to be produced in-state or produced out-of-state and delivered into the state. For most technologies it is required that the facility had to be

Table 1. Technologies eligible for RPS certification under the Californian RPS.

Solar Photovoltaic
Solar Thermal Electric
Wind
Biomass resources
Geothermal electric
Municipal Solid Waste Conversion
Hydroelectric
Ocean wave
Thermal and tidal energy
Fuel cells using renewable fuel
Landfill gas

¹ For more information see: http://www.eia.doe.gov/cneaf/electricity/epm/table1_6_a.html or http://energyalmanac.ca.gov/electricity/total_system_power.html

² For more information see: <http://www.dsireusa.org/incentives/index.cfm?re=1&ee=1&spv=0&st=0&srp=1&state=CA>

³ The RPS is a regulation that mandates a set target in renewable energy deployment that needs to be met in a certain target year.

⁴ For more information see: <http://www.energy.ca.gov/portfolio/index.html>

⁵ For more information see: <http://www.arb.ca.gov/homepage.htm>

⁶ For more information see: <http://www.energy.ca.gov/commission/index.html>

⁷ For more information see: <http://www.cpuc.ca.gov/puc/>

constructed after September 26, 1996. Tracking of renewable energy generation takes place through the Western Renewable Energy Generation Information System (WREGIS)⁸ and it creates WREGIS certificates for every renewable energy credit (REC)⁹ generated. The CPUC issued a decision in March 2010 authorizing the use of tradable RECs (TRECs) for compliance with the RPS. However, the CPUC then issued a decision on May 6, 2010 placing a temporary stay on the March decision and a moratorium on TRECs. Therefore, TRECs do not qualify for the California RPS at this time.

It is likely, however, that RECs will be traded in California in the future to help attain the RPS target. The March 2010 CPUC decision specifically mentions that there are no formal restrictions on who can participate in the California tradable REC market¹⁰. However, participants must meet the requirements set by WREGIS through which TREC trades will occur.

An important tool to promote RPS in California is “Net metering”. California’s net metering, in effect since 1996, requires all utilities (with the exception of the Los Angeles Department of Water and Power) to offer net metering to all customers for solar and wind-energy systems up to 1 MW. Investor owned utilities are additionally required to offer net metering for biogas-electric systems and fuel cells. The RECs associated with the electricity produced remain with the customer-generator. When the customer chooses to receive financial compensation for the net excess generation remaining, the utility will be granted the RECs associated with just that surplus they purchase.

Renewable Energy Program

Renewable Energy Program of the CEC provides several relevant programs to help attain the RPS target. These include:

- Existing Renewable Facilities Program (ERFP)¹¹ : The purpose of the ERFP is to allocate State funds to increase the competitiveness of existing¹² in-state renewable generating facilities.
- Emerging Renewable Program¹³ : This program was created to stimulate market demand for renewable energy systems that meet the eligibility requirements by offering rebates to reduce the initial cost of the system to the customer.
- The California Solar Initiative¹⁴ : This initiative offers rebates for customers to install solar installations on their roof.

The initiatives under the Renewable Energy Program are essentially meant to incentivize initial uptake of renewables that would help California meet its RPS targets. The program is financed by the “Public Benefit Funds”. California’s electric industry restructuring legislation of 1996 stipulates that the three major investor owned utilities (Southern California Edison, Pacific Gas and Electric, and San Diego Gas and Electric) should collect a ‘public goods surcharge’ on ratepayer electricity use from 1998 to 2001 and a fund was thus created. This “public benefits funds” was used to allocate US\$540 million to renewable energy deployment. Subsequent legislation extended the program for 10 years. Since the beginning of 2008, the CEC manages the funds for renewable energy deployment through the Renewable Energy Program¹⁵.

Bioenergy Action Plan

California generates over 80 million bone dry tons (BDT) of biomass annually and biomass is identified as a significant player to achieve the 2020 RPS targets. In Executive Order S-06-06, Governor Schwarzenegger established targets to increase the production and use of bioenergy, including ethanol and biodiesel. It specifically states:

- For biomass used for electricity, the state shall meet a 20 percent target within the established state goals for renewable generation for 2010 and 2020.

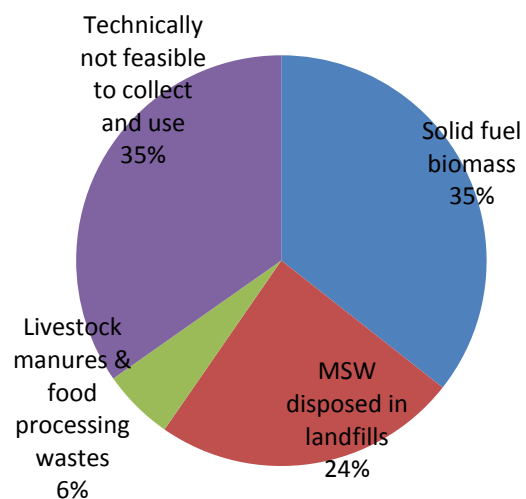


Exhibit 2. Break up of California Biomass

⁸ Coordinates: Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington, Wyoming. The two Canadian provinces that are also included are Alberta and British Columbia. For more information see: <http://www.wregis.org/>

⁹ One REC represents one MWh of electricity generated from a renewable resource.

¹⁰ For more information see: http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/115056.pdf

¹¹ For more information see: http://www.energy.ca.gov/renewables/existing_renewables/index.html

¹² Existing: operational on or prior to September 26, 1996

¹³ For more information see: http://www.energy.ca.gov/renewables/emerging_renewables/index.html

¹⁴ For more information see: <http://www.gosolarcalifornia.ca.gov/csi/index.php>

¹⁵ For more information see: <http://www.energy.ca.gov/renewables/index.html>

- For biofuels, the state shall produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050.

Note that since 2002, electricity generated from biomass fuels decreased from 6,192 GWh to 5,724 GWh in 2008 while the state's total electricity generation and demand has increased. To reach the RPS goal will require an additional 6,562 GWh of biopower generation annually¹⁶.

Financial Incentives Available

There are numerous financial incentives available for renewable energy technologies in California. The major incentives, categorized by technology, are discussed below.

Financial incentives for Solar

The Go Solar California! Initiative¹⁷ is the main initiative and it aims to increase the number of solar installations on the roofs of home owners and businesses. The joint effort of the CEC and the CPUC establishes the goal to install 3000 MW of solar energy by the end of 2016. The budget of the initiative is just under US\$4 billion to cover the period up to 2016. Within the Go Solar initiative, the California Solar Initiative (CSI)¹⁸ provides the financial incentives in the form of rebates. Customers of the Investor Owned Utilities (IOUs) of California are eligible for the CSI rebates. The rebates vary according to utility territory, system size, customer class, and performance and installation factors. The rebates automatically decline in steps based on the capacity in MW of the installation. Solar consumers are paid an incentive based on system performance. The incentives are either an upfront lump-sum payment based on expected performance (available only for systems <30 kW), or a monthly payment based on actual performance over five years. The performance based incentive is ideal for larger, commercial and government projects, while the expected performance based incentive is ideal for residential and small business projects. Several other initiatives exist under the Go Solar initiative such as the New Solar Homes Partnership and the affordable housing initiatives, but these are aimed solely at home owners.

In addition, the State of California has a property tax exclusion in effect for solar energy systems¹⁹. Certain types of solar energy systems installed between January 1, 1999 and December 31, 2016 are eligible for a property tax exclusion. Qualifying solar energy systems are those that are defined as 'thermally isolated from living space or any other area where the energy is used, to provide for the collection, storage, or distribution of solar energy'. 100 % of the system value is eligible for tax exclusion, while the dual use equipment and other components are eligible for a 75 % tax exclusion.

Financial incentives for small scale Wind

The CEC is offering a rebate on small scale wind (<50 kW) through its Emerging Renewables Program²⁰. All types of consumers are eligible for this rebate: residential, institutional, commercial, agricultural and industrial. To be eligible, the renewable energy systems must be permanently interconnected to the electrical distribution grid. The site where the system is installed must receive electrical distribution service from the utilities PG&E, SCE, SDG&E or BVE. As of January 2007, the rebate for the first 7.5 kW is set at \$2.50/watt, while the rebate for the increment between 7.5 kW and 30 kW is set at \$1.50/watt.

Financial incentives for Fuel Cell (includes biogas)

Next to small scale wind, the CEC also offers a rebate through its Emerging Renewables Program for fuel cells²¹. Fuel cells up to 30 kW using a renewable fuel are eligible for this rebate. The rebate offered is \$3.00/watt.

Financial incentives for Wind and Fuel cells above 30KW;

For wind and fuel cell installations above 30 kW, the self generation incentive is offered²². Since January 1, 2007 the self generation incentive no longer provides rebates for solar PV installations. The incentive ranges from \$1.00/watt – \$4.50/watt for renewable energy systems depending on the type of system. Retail customers of the IOUs of California are eligible for the self

¹⁶ For more information see: <http://www.energy.ca.gov/2010publications/CEC-500-2010-007/CEC-500-2010-007.PDF>

¹⁷ For more information see: <http://www.gosolarcalifornia.ca.gov/>

¹⁸ For more information see: <http://www.gosolarcalifornia.ca.gov/csi/index.php>

¹⁹ For more information see: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA25F&re=1&ee=1

²⁰ For more information see: <http://www.consumerenergycenter.org/erprebate/index.html>

²¹ For more information see: <http://www.consumerenergycenter.org/erprebate/index.html>

²² For more information see: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA23F&re=1&ee=1 and <http://www.cpuc.ca.gov/PUC/energy/DistGen/sgip/index.htm>

generation incentive. The maximum eligible system size is 5MW, although the incentive payment is capped at 3 MW. Table 2 lists the technologies and their associated incentives.

Table 2. Incentives for Wind and Fuel Cells above 30KW

Technology	Incentive
Wind turbines (minimum of 30 kW)	\$1.50/watt
Fuel cells using renewable fuel (minimum of 30 kW)	\$4.50/watt
Advanced energy storage with an eligible self generation incentive technology and four hour discharge period at rated capacity	\$2.00/watt
Fuel cell using non-renewable fuel	\$2.50/watt

Financial incentives for all Renewables (Feed in Tariff)

The feed in tariff allows eligible customer-generators to enter into long term standard contracts with their utilities to sell the electricity produced by small renewable energy systems (up to 3 MW) at market based prices²³. The price paid will be based on the CPUC's market price referent. All IOUs and publicly owned utilities with 75, 000 or more customers must make a standard feed in tariff available to their customers. As the feed in tariff is intended to help the utilities meet California's RPS, the green attributes associated with the energy, such as renewable energy credits (RECs) transfer to the utility with the sale. Any customer-generator who sells power to the utility under this tariff may not participate in other state incentive programs. The applicable sectors are: commercial, residential, industrial. The feed in tariff price is dependent on the Market Price Referent (MRP) and the time of delivery (TOD)²⁴ of the electricity to reflect price fluctuations due to peak and off peak demand. Table 3 lists the MPRs as they have been set by the CEC²⁵.

Table 3. The 2009 adopted MPRs by the CEC for the Feed-in Tariff of California.

Note: MPRs beyond 2015 have also been set and can be found through the link of footnote 23. To calculate the feed in tariff received the MPR needs to be multiplied by the TOD adjustment factor¹.

Adopted 2009 Market Price Referents (Nominal - dollars/kWh)

Contract Start Date	10- Year	15 - Year	20- Year	25 - Year
2010	0.08448	0.09066	0.09674	0.10020
2011	0.08843	0.09465	0.10098	0.10442
2012	0.09208	0.09852	0.10507	0.10852
2013	0.09543	0.10223	0.10898	0.11245
2014	0.09872	0.10593	0.11286	0.11636
2015	0.10168	0.10944	0.11647	0.12002

Other Financial Incentives

Although this report elaborates on the statewide financial incentives, many more incentives exist on the county and municipal level²⁶. In addition, the CPUC is currently considering implementing a Combined Heat and Power (CHP) feed in tariff²⁷.

Approval Process of Renewable Energy Projects

The approval process of renewable projects in California depends on the size and technology. Once these are met, there is a separate RPS certification process. The Exhibit 3 provides an overview.

²³ For more information see: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA167F&re=1&ee=1 and <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/feedintariffs.htm>

²⁴ To calculate the tariff TOD adjustment factors are needed. These can be found at: http://docs.cpuc.ca.gov/PUBLISHED/FINAL_RESOLUTION/111386.htm

²⁵ For more information see: <http://www.cpuc.ca.gov/PUC/energy/Renewables/Feed-in+Tariff+Price.htm>

²⁶ See for instance: <http://www.dsireusa.org/incentives/index.cfm?re=1&ee=1&spv=0&st=0&srp=1&state=CA>

²⁷ For more information see: <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/feedintariffs.htm>

CEC Licensing

The CEC licensing and approval process needs to be followed for (renewable) energy projects regarding thermal electric projects of 50 MW or larger²⁸. This includes technologies such as coal and natural gas power plants, but also large solar thermal power plants such as Concentrated Solar Power plants. In addition, for large scale solar thermal power plants a special Memorandum of Understanding has been signed between the CEC and the federal Bureau of Land Management (BLM) that outlines the roles of both agencies regarding the approval process of large solar thermal projects on federally owned land²⁹.

Distributed Licensing

The Distributed Energy Licensing Process needs to be followed for stationary applications of electric generating technologies which are smaller than 50 MW³⁰. They include generating technologies such as diesel engines, fuel cells, small and micro gas turbines, solar PV, and wind turbines and may be combined with electric storage technologies such as batteries and flywheels. Although wind turbines are often grouped in large wind farms, the licensing process for wind farms seems to be the Distributed Energy Licensing Process. Of course, due to the larger volumes of transmission, transmission licensing processes and guidelines of large scale projects do apply. For wind turbines a special report and guidelines apply: the guidelines to minimize impacts to birds and bats from wind energy development³¹.

Hydropower Licensing

The licensing and approval process for hydropower installations is supervised by the Federal Energy Regulatory Commission (FERC). The default procedure that needs to be followed to realize a hydropower energy project in California is the Integrated Licensing Process³².

RPS Certification

After licensing, the approval process for certification for RPS and funding under the renewable energy program of the CEC needs to be initiated. All renewable energy projects need to meet the general approval process criteria of the CEC³³. Depending on the technology and the time of construction of the project different programs under the renewable energy program are applicable. If the project was constructed on or prior to September 26, the approval process of the ERFP applies³⁴. Projects that meet the RPS certification eligibility criteria³⁵ are eligible for funding under the ERFP as well. If the project was constructed later than that date and it is not a solar energy project, the ERP approval process applies³⁶. Solar energy projects apply for funding under the Go Solar California! Initiative³⁷.

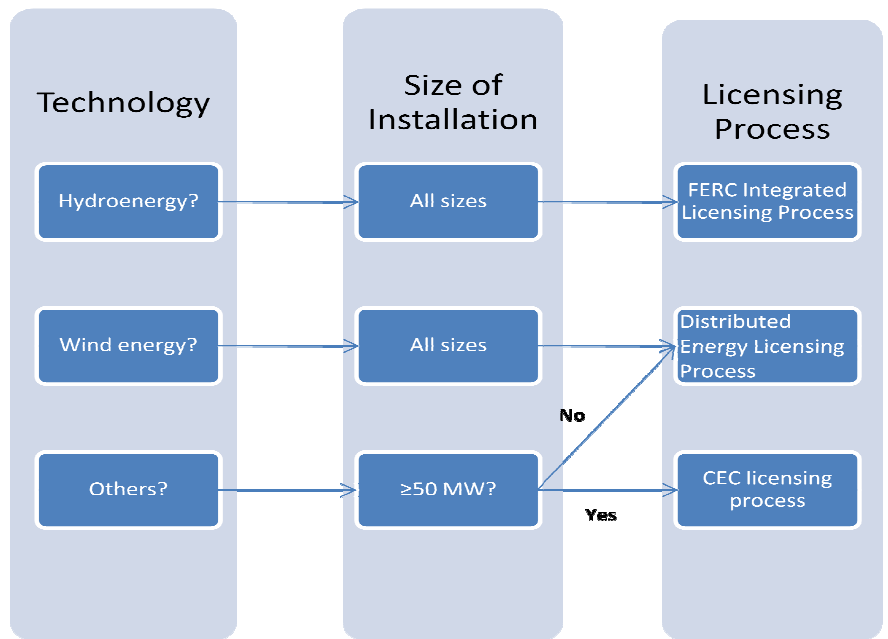


Exhibit 3. Approval process in California

²⁸ The licensing process is described in: http://www.energy.ca.gov/siting/documents/2000-12-07_700-00-007.PDF

²⁹ For more information see: http://www.energy.ca.gov/siting/solar/BLM_CEC_MOU.PDF and <http://www.energy.ca.gov/siting/solar/index.html>

³⁰ The licensing process itself is described in: http://www.energy.ca.gov/reports/2000-12-21_700-00-019.PDF

³¹ The guidelines can be found at: <http://www.energy.ca.gov/2007publications/CEC-700-2007-008/CEC-700-2007-008-CMF.PDF>

³² For more information see: <http://www.ferc.gov/industries/hydropower/gen-info/licensing/ilp.asp>

³³ For more information see: <http://www.energy.ca.gov/renewables/documents/index.html#overall> and open the overall renewable energy program guidebook

³⁴ For more information see: <http://www.energy.ca.gov/renewables/documents/index.html>

³⁵ Found in: <http://www.energy.ca.gov/2007publications/CEC-300-2007-006/CEC-300-2007-006-ED3-CMF.PDF>

³⁶ For more information see: http://www.energy.ca.gov/renewables/emerging_renewables/more_info.html

³⁷ For more information see: <http://www.gosolarcalifornia.ca.gov/>

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