

THE CLEAN ENERGY RACE

How Do California's Public Utilities Measure Up?



Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

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This report and additional utility-specific fact sheets are available online (in PDF format) at www.ucsusa.org/cleanenergyrace.

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Introduction

California is home to some of the most progressive clean energy policies in the country. The state's Renewables Portfolio Standard (RPS) established a statewide goal to source 20 percent of retail electricity sales from clean, renewable resources such as the wind and sun by 2010, and requires each utility to reach 33 percent by 2020. The 33 percent RPS is one of the nation's most ambitious renewable energy programs in the amount of clean electricity it will generate and the breadth of utilities that must comply. However, the degree to which the RPS promotes the development of new clean energy resources—which reduce air pollution and global warming emissions and create green jobs—depends on how individual utilities choose to meet the standards.

The first RPS law, enacted in 2002, required California's investor-owned electric utilities (IOUs) to reach 20 percent renewables by 2010. Because California's publicly owned utilities (POUs) are primarily overseen by governing boards that are locally elected or appointed by elected officials, rather than by state agencies, the law gave the POUs flexibility in how they would meet the 2010 RPS. As a part of that flexibility, POUs could determine their own RPS targets based on the state's goal. When the state strengthened the RPS in 2011, it required all utilities, including the POUs, to reach 33 percent renewables by 2020.

POUs deliver one-quarter of California's electricity, including about half of the coal-fired electricity consumed in the state. POUs' investments in clean energy will therefore be critical to the state's efforts to reduce global warming emissions, improve air quality, and create green jobs.¹

However, little information on the RPS programs of the POUs has been released since the California Energy Commission (CEC) published a report on those investments through 2006.

To close that gap, we analyzed the renewable energy investments that California's 10 largest POUs made for their 2010 RPS programs. We assessed those investments against the state's 20 percent RPS benchmark,



Almost all of the 10 largest POUs have expanded their portfolios of renewable energy resources, but the quantity and types of investment vary significantly.

and evaluated the extent to which the investments promoted the development of new renewable energy resources. We also considered whether the investments are preparing the utilities to meet the 33 percent RPS by 2020. We found that almost all of these POUs have expanded their portfolios of renewable energy resources, but the quantity and types of investment vary significantly.

In the following sections, we provide background on California's RPS and its publicly owned utilities. We then describe the sources of electricity that the 10 largest POUs have used to meet customer demand, and how that mix has changed since the RPS was enacted in 2002. We also analyze the extent to which those investments have promoted the development of new renewable energy resources, and provide a foundation for meeting future RPS requirements. We conclude with recommendations on how POUs can comply with the 33 percent RPS in a way that maximizes environmental and economic benefits for the state. In addition, we developed fact sheets for each of the 10 POUs that contain more details about the utility's RPS investments.

¹ KEMA, Inc. 2008. *The progress of California's publicly owned utilities in implementing renewables portfolio standards*. CEC-300-2008-005. Oakland, CA: California Energy Commission.

Background

California's Renewables Portfolio Standard

The state's original RPS, enacted in 2002, required retail electricity sellers²—IOUs,³ electric service providers,⁴ and community-choice aggregators⁵—to obtain 20 percent of their retail electricity sales from renewables by 2017.⁶ In 2006, the legislature accelerated this requirement to 2010.⁷

The RPS law required POUs—municipal utilities, irrigation districts, and ports—to create their own programs for investing in renewable energy. The law directed POUs to adopt RPS targets that mirrored the obligations of retail electricity sellers, while taking into account the effects of those investments on rates, system reliability, and their own financial resources. Some POUs adopted the 20 percent RPS by 2010, while others set less ambitious targets.⁸ POUs that did not meet the state's target or their self-imposed goal suffered no formal penalties.

In 2011, California enacted a higher RPS requiring all utilities to obtain 33 percent of retail electricity sales from RPS-eligible renewables by 2020.⁹ The law specifically requires each utility to source an average of 20 percent of its sales from renewables between 2011 and 2013, 25 percent by 2016, and 33 percent by 2020.¹⁰ The law also requires utilities to make reasonable progress on renewable energy investments during the years between the compliance benchmarks.

The California Public Utilities Commission (CPUC) oversees the RPS program for the IOUs, and other California retail electricity sellers to a lesser extent. The CEC is responsible for certifying all RPS-eligible generation resources, and oversees elements of the RPS program for the POUs.



Electricity generated from geothermal heat is considered renewable under California's RPS.

2 For the definition of "retail seller," see California Public Utilities Code Section 399.12(j).

3 Investor-owned utilities are operated by publicly traded corporations and provide full electric services to customers.

4 Electric service providers are private companies that serve customers within the territory of an electric utility, but do not provide electricity transmission or distribution.

5 Community-choice aggregators are cities and counties that provide electricity to retail customers, but do not provide electricity transmission or distribution.

6 Senate Bill 1078 (Sher), enacted in 2002.

7 Senate Bill 107 (Simitian), enacted in 2006.

8 Los Angeles Department of Water and Power, Sacramento Municipal Utility District, and Imperial Irrigation District adopted an RPS goal of 20 percent by 2010; the city of Anaheim, 20 percent by 2015; Modesto Irrigation District, Turlock Irrigation District, and Roseville Electric, 20 percent by 2017; Burbank Water and Power, 10 percent by 2011 and 33 percent by 2020; the city of Riverside, 20 percent by 2025; and Silicon Valley Power, 20 percent by no specified date.

9 Senate Bill 2 (1X) (Simitian), enacted in 2011.

10 California Public Utilities Code Section 399.30 includes limited exceptions to this.

To be RPS-eligible, a renewable energy facility must generate electricity from the wind, sun, geothermal heat, biomass, biogas, fuel cells using renewable fuels, hydropower (small facilities not larger than 30 megawatts [MW] meeting certain conditions), municipal solid waste (facilities meeting certain conditions), or wave or tidal power. Facilities must be located in the territory of the Western Electricity Coordinating Council (WECC).¹¹

Under the original RPS, retail sellers including the large IOUs were required to obtain a CEC certification for any generator that sold electricity for their RPS programs. The CEC verified that the facility was using an RPS-eligible fuel and met several other criteria. For instance, if the renewable generation facility is not directly connected to a transmission network primarily in California, it must have begun operating on or after January 1, 2005, and not violate state environmental standards. If a facility is in the WECC but outside the United States, it must be managed in a way that is as protective of the environment as if it were in California.¹² Also, the law did not allow retail sellers to

The California Energy Commission is responsible for certifying all RPS-eligible generation resources, and oversees elements of the RPS program for the POU.

simply purchase renewable energy credits (RECs)—the environmental attributes associated with the generation of renewable electricity—to meet the 20 percent RPS. Instead, retail sellers were required to purchase RECs and electricity, and meet certain requirements to deliver the electricity to California.

While the original RPS did not require the POU to obtain a CEC certification from the generators that sold them RPS-eligible electricity, the 33 percent RPS does. However, the law allows a POU to continue receiving electricity from an out-of-state facility that was operating before January 1, 2005, if it was selling electricity to that POU as of June 1, 2010.

CONTINUED ON PAGE 6



11 The WECC includes Washington, Oregon, California, Idaho, Nevada, Arizona, Utah, Colorado, and Wyoming, and portions of Montana, South Dakota, New Mexico, and Texas. It also includes British Columbia and Alberta, and portions of Baja California in Mexico.

12 Exceptions to these rules apply to certain facilities. For a complete definition of RPS-eligible renewable resources, see California Public Resources Code Section 25741 and California Public Utilities Code Section 399.12(e). Senate Bill 2 (1X), enacted in 2011, allowed POU to count out-of-state renewable energy facilities that began operating before 2005 as RPS-eligible if a utility had a contract with a facility as of January 1, 2010.

Other Policies and Programs That Promote Renewable Electricity in California

The RPS complements a number of other state and federal policies and programs that support the development of new clean energy resources and reduce global warming emissions from California's electricity sector:

Global Warming Solutions Act¹³

This law, sometimes referred to as AB 32, requires California to reduce global warming emissions to 1990 levels by 2020. To fulfill this mandate, the state has adopted a suite of policies and programs, including emissions standards for new vehicles and vehicle fuels; energy efficiency standards for appliances, buildings, and industrial processes; a cap-and-trade program covering large emitters; and the 33 percent by 2020 RPS.

Go Solar California¹⁴

This program, a joint initiative of the CPUC and the CEC, establishes a goal to install three gigawatts (GW) of distributed solar capacity in California by 2016. The program requires IOUs and POU's to offer rebates and performance-based incentives to electricity customers who install solar panels on their homes and businesses. These customers receive credit on their bills for the electricity they generate. If they generate more electricity than they consume, they can sell the excess to the grid. The California Solar Initiative, the IOU-administered program, provides incentives for solar installations on existing homes

and businesses.¹⁵ The New Solar Homes Partnership provides funds for installing solar on new homes. Each POU administers its own solar rebate program.

Feed-in Tariff¹⁶

This program requires IOUs, and POU's with at least 75,000 retail electricity customers, to offer standard contracts to developers of renewable energy facilities with capacities of no more than three megawatts. The program is capped at 750 MW. The facilities must be built in the utility's service area and sell their electricity to that utility. These contracts include predetermined prices and other terms designed to reduce developers' time and expense in negotiating power purchase agreements with utilities.

Renewable Auction Mechanism¹⁷

This program, administered by the CPUC, requires California's IOUs to hold auctions twice a year, through which developers submit price bids to develop new renewable energy facilities with a capacity of 20 MW or less. Each IOU selects the least-costly project bids first, until it fully subscribes its allocated capacity for that auction. Developers must construct the projects within 18 months, with one six-month extension. The IOU capacity for each auction is currently capped at 250 MW, and the program is capped at one gigawatt.

Emissions Performance Standard¹⁸

This policy prohibits California utilities from signing or renewing long-term contracts for baseload electricity from facilities that produce more global warming emissions per kilowatt-hour than a natural gas combined-cycle plant. This policy mainly affects coal-fired power plants and relatively inefficient natural gas plants.

13 Assembly Bill 32 (Nunez and Pavley), enacted in 2006.

14 More information on Go Solar California is online at <http://www.gosolarcalifornia.ca.gov>.

15 Senate Bill 1 (Murray), enacted in 2006.

16 Assembly Bill 32 (Nunez and Pavley), enacted in 2006; Senate Bill 380 (Kehoe), enacted in 2008; and Senate Bill 32 (Negrete McLeod), enacted in 2009.

17 This program began in 2011 without prior legislation.

18 Senate Bill 1368 (Perata), enacted in 2006.



Self-Generation Incentive Program¹⁹

This program, administered by the CPUC, provides up-front and performance-based incentives for distributed generation facilities throughout California with low global warming emissions, such as small wind turbines and fuel cells. All facilities must be sized to produce electricity for on-site use. Funds for this program come from IOU ratepayers.

California's Energy Efficiency Laws²⁰

These laws direct utilities to meet electricity demand first through available, cost-effective, and reliable energy efficiency and demand-reduction investments. Investments in technologies that reduce the need to generate electricity lower a utility's RPS requirements because the RPS is calculated as a percentage of retail sales.

Governor's 12 GW Distributed Generation Goal

Governor Jerry Brown's Clean Energy Jobs Plan sets a goal of installing 12 GW of "renewable distributed generation" by 2020.²¹ This refers to small-scale,

decentralized facilities that are close to load centers and provide clean electricity, often without using transmission lines.

Federal Tax Incentives

The federal government provides production and investment tax credits to owners of new and upgraded renewable energy facilities. The credits vary by resource. Unless renewed by Congress, the current investment tax credit for solar will expire at the end of 2016. The production tax credit for wind is set to expire at the end of 2012, and the production tax credit for geothermal and bioenergy at the end of 2013.

Voluntary Utility Green Pricing Programs

Most of California's POU's offer programs through which customers can voluntarily purchase RECs associated with renewable energy generation. Most of these programs purchase the RECs without also buying the electricity generated by the clean energy facility. The POU's did not use REC-only purchases made through green pricing programs to meet the 2010 RPS.

19 In response to Assembly Bill 970 (Ducheny), enacted in 2000, the CPUC established this program in Decision 01-03-073.

20 Senate Bill 1037 (Kehoe), enacted in 2005, and Assembly Bill 2021 (Levine), enacted in 2006.

21 More information is online at http://www.jerrybrown.org/sites/default/files/6-15%20Clean_Energy%20Plan.pdf.

CONTINUED FROM PAGE 3

Origins of California's Publicly Owned Utilities

Two types of electric utilities emerged in the early decades of the 1900s, reflecting the belief that they should function as monopolies to capture economies of scale and avoid redundant distribution networks.²² Investor-owned electric utilities were allowed to function as monopolies in discrete regions, in return for accepting regulatory oversight of their prices and investments. Regulatory bodies such as the CPUC were formed to protect customers from price gouging, poor service, and costly investments.

Publicly owned utilities are overseen by local governing boards such as elected city councils, elected boards of directors, and boards of directors appointed by elected officials.

In a second type of monopolistic arrangement, some cities and irrigation districts established their own publicly owned utilities. These were overseen by local governing boards such as elected city councils, elected boards of directors, and boards of directors appointed by elected officials, rather than by the CPUC.

Most of the POU's we reviewed were established more than a century ago. Los Angeles Department of Water and Power and the three irrigation districts we analyzed—Imperial Irrigation District, Turlock Irrigation District, and Modesto Irrigation District—were created between 1887 and 1911 to deliver water for agricultural and residential uses. Each expanded into electricity service by building hydroelectric facilities on dams and the irrigation canals they managed.

The cities of Anaheim, Riverside, and Santa Clara first established electric utilities in the 1890s, to pro-



vide city street lighting.²³ The cities of Roseville, Burbank, and Sacramento assumed the role of providing electricity to their residents from investor-owned utilities in 1912, 1913, and 1946, respectively.

California's Electricity Providers Today

In 2010, California was home to 23 retail electricity sellers and 46 POU's.²⁴ While most of the latter are relatively small, some are quite large. Los Angeles Department of Water and Power is the largest publicly owned utility in the country, and the third-largest utility in California. Sacramento Municipal Utility District is the fifth-largest utility in California (Figure 1).

These California electricity providers procure electricity in a number of ways. These vehicles include:

Utility-owned facilities. A utility can build or purchase and own a power plant.

Contracts for electricity from specific facilities. A utility can sign contracts with independent producers,

22 Hirsch, R.F. 1999. *Power loss: The origins of deregulation and restructuring in the American electric utility system*. Cambridge, MA: MIT Press.

23 Santa Clara's electric utility is now called Silicon Valley Power.

24 See <http://www.energyalmanac.ca.gov/electricity/utilities.html>.

other utilities, and power traders for electricity from specific generating units.

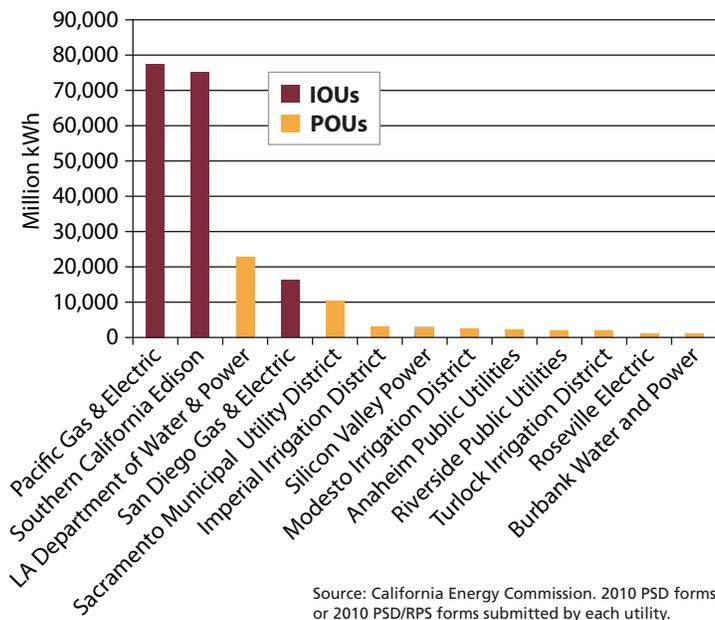
Contracts with a joint-powers authority. A utility can procure electricity through a joint-powers authority such as the Northern California Power Agency (NCPA), which purchases electricity and facilities on behalf of 14 member utilities in Northern California.²⁵ The Southern California Public Power Authority (SCPPA) purchases electricity and facilities on behalf of 12 member utilities in Southern California.²⁶

“Unspecified” market purchases. When a utility purchases electricity from another utility, a power broker, or the spot market²⁷—based on a mix of resources rather than specific facilities—that electricity is considered “unspecified.” We used the CEC’s analysis of resources supplying unspecified electricity to California to include unspecified purchases in the electricity mix of each utility.²⁸

In 2010, retail electricity sellers delivered nearly three-quarters of California’s electricity needs, and the POUs delivered one-quarter.²⁹ The 13 largest utilities in the state—which include three large IOUs and the 10 largest POUs—delivered 87 percent of the retail electricity sales in 2010. Slightly more than half of this electricity came from fossil fuels: natural gas and coal (Figure 2). In 2010, these 13 utilities sourced 17 percent of their electricity mix from renewables—less than California’s 20 percent RPS goal for that year.

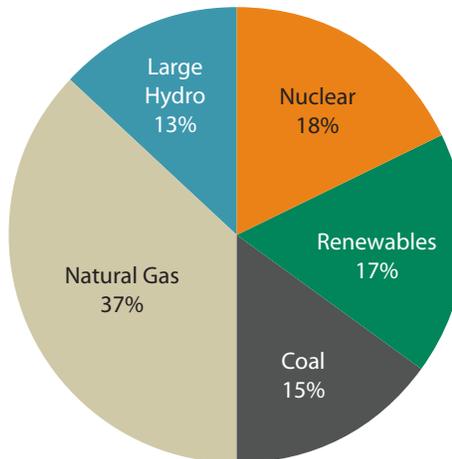
In 2010, retail electricity sellers delivered nearly three-quarters of California’s electricity needs, and the POUs delivered one-quarter.

FIGURE 1. Retail Electricity Sales of California’s 10 Largest POUs and Three Largest IOUs, 2010



Source: California Energy Commission. 2010 PSD forms or 2010 PSD/RPS forms submitted by each utility.

FIGURE 2. Electricity Mix of California’s 13 Largest Utilities, 2010



Source: California Energy Commission. California energy consumption database, electricity consumption by entity in 2010.

25 Members of the NCPA include Alameda Municipal Power, Bay Area Rapid Transit District, city of Biggs, city of Gridley, city of Healdsburg, city of Lompoc, city of Palo Alto, city of Ukiah, Lodi Electric Utility, Port of Oakland, Redding Electric Utility, Roseville Electric, Silicon Valley Power, and Truckee Donner Public Utility District.

26 Members of SCPPA include the cities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Pasadena, Riverside, and Vernon, the Imperial Irrigation District, and the Los Angeles Department of Water and Power.

27 California’s spot market is a real-time market for buying and selling electricity that is not purchased by a utility through a purchasing contract.

28 Nyberg, M. 2009. *2008 Net system power report*. California Energy Commission. CEC-200-2009-010.

29 California Energy Commission. California energy consumption database, electricity consumption by entity in 2010. Online at <http://ecdms.energy.ca.gov/>.

Data Sources for Our Analysis

We based our analysis primarily on the sources of electricity used to meet retail sales reported by each of California's 10 largest POUs in 2003 and 2010. For 2003, we obtained this information from power source disclosure (PSD) forms submitted by the POUs to the CEC. These forms provide information on the amount of electricity delivered in kilowatt-hours (kWh) from each facility from which the utility sourced electricity in that year.³⁰ Imperial Irrigation District and Burbank Water and Power, which did not submit complete PSD forms in 2003, gave us this information directly. For 2010, we obtained this information either from PSDs or from the combined PSD/RPS forms that the CEC introduced in 2010.

We obtained data on each renewable energy facility—including its location, first year of operation, and the length of this contract—from these forms, as well as press releases, annual reports, the websites of utilities and joint-powers authorities, online articles, and online databases.³¹ We also used S-5 forms, which provide information on electricity supply contracts, submitted by each utility to the CEC.³²

We also conducted telephone interviews with representatives from each of the POUs we analyzed, and followed up with e-mail as needed. These interviews provided an opportunity to inquire about each utility's RPS procurement strategy, as well as to confirm our understanding of its specific electricity purchases.

For our analysis, we classified each of the 10 largest POUs into one of three categories: "sprinting ahead," "on the right track, but must keep moving," or "false start." We based these rankings on the degree to which a utility's RPS investments by 2010



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had supported the development of new clean energy resources, and positioned it to meet future RPS requirements. To make that determination, we analyzed the share of RPS-eligible renewables in a utility's electricity mix in 2010, the length of each commitment to procure this electricity, and whether the electricity was generated by a new or existing clean energy facility.

³⁰ We assumed that these data were correct, and did not attempt to independently verify each reported source of electricity.

³¹ California Energy Commission. California power plant database. Online at <http://www.energyalmanac.ca.gov/electricity/index.html#table>. And: California Energy Commission. California quarterly fuel and energy report. Online at http://www.energyalmanac.ca.gov/electricity/web_qfer/Annual_Generation-Plant_Unit.php. And: California Energy Commission. California's Renewables Portfolio Standard (RPS) list of facilities. Online at http://www.energy.ca.gov/portfolio/documents/list_RPS_certified.html. And: U.S. Energy Information Administration. Annual electric generator report. EIA-860. Washington, DC. Online at <http://www.eia.gov/cneaf/electricity/page/eia860.html>.

³² See http://energyalmanac.ca.gov/electricity/s-5_supply_forms_2011/.

To compare the POU's RPS investments in 2010 with those of the three largest IOUs, we obtained data on the IOUs' renewable electricity and total retail sales from the semiannual RPS compliance forms that each submitted to the CPUC.³³ We obtained information on the first year of operation of the renewable energy facilities and the length of each contract from several databases. These included the CEC's Investor-Owned Utilities' Contracts for Renewable Generation and the Contracts Signed Towards Meeting the California RPS Targets,³⁴ the CPUC's RPS Project Status Table,³⁵ and the CEC's list of RPS certified facilities.³⁶ We obtained information on deliveries of nonrenewable electricity and unspecified market purchases from the 2010 PSD forms that each IOU submitted to the CEC.

To determine whether the contracts the IOUs reported on the 2010 RPS forms represented new clean energy investments or those they made before the first RPS was enacted in 2002, we compared electricity deliveries in 2010 to those reported on the 2001, 2002, and 2003 PSD forms. If a utility reported electricity from an RPS-eligible facility on both the RPS 2010 form and a PSD form in 2001, 2002, or 2003, we assumed that the deliveries came from an existing contract. If the earlier forms did not include deliveries from a facility appearing on the 2010 form, we assumed that they came from a new contract.

Total Electricity Procurement vs. Total Retail Sales

Figure 3 in this report (p. 10), and some of the figures in utility-specific fact sheets accompanying this report that show the POU's electricity mix by resource, depict total procurement as greater than 100 percent of retail sales. That is because some of the utilities recorded their purchases of electricity including that which was lost to transmission. Retail sales fig-

ures reflect only the total amount of electricity that actually reaches electricity consumers, after transmission line losses.

For 2003, utilities' PSD forms provide the amount of electricity procured from each generation facility, but do not provide total retail sales. We estimated the retail sales for each utility by assuming that the same proportion of electricity was lost during transmission in 2003 as was reported in 2010.

We analyzed the share of RPS-eligible renewables in a utility's electricity mix in 2010, the length of each commitment to procure this electricity, and whether the electricity was generated by a new or existing clean energy facility.

"Unspecified" Market Purchases

Consistent with the PSD forms, we applied the CEC's 2008 breakdown of the sources of unspecified market purchases to unspecified purchases in 2010, and the CEC's 2002 breakdown to unspecified purchases in 2003.

Non-RPS Renewables

The figures in this report that depict the electricity mix of each POU include a category called "non-RPS renewables." These refer to the share of unspecified market purchases that came from renewable resources. In these figures, "non-RPS renewables" do not include utilities' purchases for green pricing programs, or renewable energy generated by households or buildings for on-site use.

In 2010, the non-RPS renewables of the POU's were negligible because they purchased nearly all renewable electricity through specific contracts for their RPS programs. However, in 2003, unspecified market purchases still included noticeable amounts of renewable energy.

33 See <http://www.cpuc.ca.gov/PUC/energy/Renewables/compliance.htm>.

34 See http://www.energy.ca.gov/portfolio/contracts_database.html.

35 See <http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm>.

36 See http://www.energy.ca.gov/portfolio/documents/List_RPS_CERT.xls.

What's Powering California's 10 Largest POU's?

Since 2003, California's 10 largest POU's have made notable progress in investing in renewable energy resources. Collectively, they increased their RPS-eligible investments from 4.1 percent of retail electricity sales in 2003 to 18.8 percent in 2010. These investments replaced portions of the electricity the POU's purchased from coal, large hydropower, and nuclear facilities.

However, in 2010 the POU's still relied on fossil fuels to supply nearly two-thirds of their electricity sales (Figure 3). One-third of their retail sales came from natural gas and 31 percent from coal, including purchases from specific plants and "unspecified" market purchases. RPS renewables supplied 18.8 percent of POU's retail electricity sales that year, with the rest coming from large hydropower and nuclear facilities.

Natural Gas

Each of the 10 largest POU's built a new large natural gas facility or signed a long-term contract with such a facility between 2003 and 2010. These new facilities



Much of the coal-fired electricity generated for California's POU's comes from the Intermountain Power Plant in Utah.

accounted for more than half of all electricity sales from natural gas by these POU's in 2010.

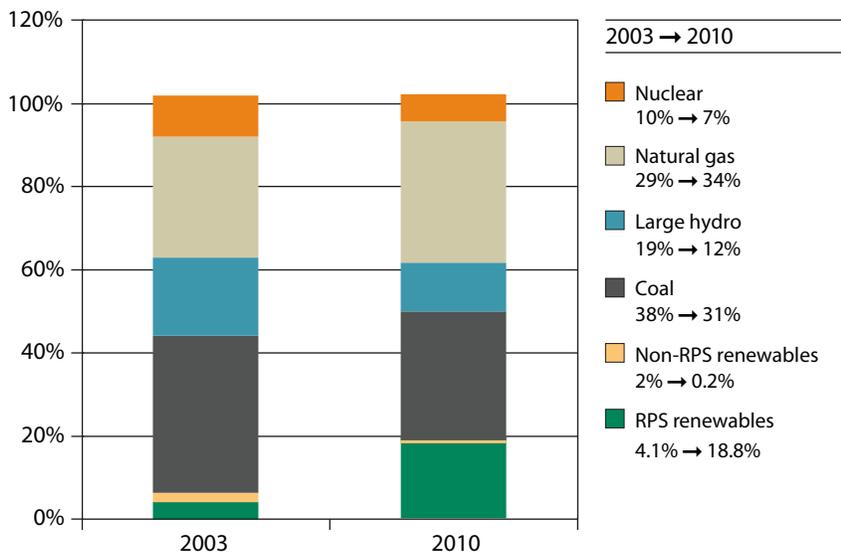
Some of the new plants supplied large portions of an individual utility's electricity sales. For example, electricity generated by Turlock's Walnut Energy Center accounted for 45 percent of the POU's retail electricity sales in 2010, and enabled the utility to sell additional gas-fired electricity to other utilities. SCPPA's Magnolia plant supplied 41 percent of Burbank Water and Power's electricity retail needs in 2010.

Electricity from these new natural gas plants more than offset reductions in natural-gas-fired electricity from unspecified market purchases, and from older utility-owned plants.

Coal

California's 10 largest POU's reduced their purchases of coal-fired electricity by nearly a fifth from 2003 to 2010. They did so by selling some of this electricity to other utilities, and by terminating several smaller contracts with the Desert Power Electricity Cooperative in Utah.

FIGURE 3. Electricity Mix for California's 10 Largest Publicly Owned Utilities, 2003 and 2010



Still, these POU's relied on coal to supply 31 percent of their retail electricity sales in 2010—three times more than the share of coal-based electricity sold by the three largest IOUs. Although the 10 largest POU's deliver only about a third as much electricity as the three largest IOUs, they delivered roughly the same amount of coal-fired electricity as the IOUs in 2010.

More than a quarter of the POU's electricity came from three coal-fired facilities outside California. More than half of that came from a single facility: the Intermountain Power Plant in Utah.³⁷ The remainder came from Navajo Station on the Navajo reservation in Arizona and the San Juan plant in New Mexico.

Large Hydropower

Reduced allotments of electricity from federal hydropower facilities, combined with relatively low amounts of rainfall, left California's POU's with 20 percent less electricity from large hydropower in 2010 than in 2003.

In 2010, large hydropower contributed 12 percent of the retail electricity sales of the 10 largest POU's. A quarter of this electricity came from federally owned facilities, including the Hoover Dam on the border of Arizona and Nevada. A quarter came from facilities owned by Sacramento Municipal Utility District (SMUD). Another quarter came from several large hydropower plants built in California by NCPA, Pacific Gas and Electric Company, Los Angeles Department of Water and Power, Modesto Irrigation District, and Turlock Irrigation District. The remaining quarter came from unspecified purchases.

Nuclear

Purchases of nuclear-based electricity by California's 10 largest POU's dropped 36 percent between 2003 and 2010, due to reductions in unspecified market purchases and reductions in purchases from specific nuclear facilities by Los Angeles Department of Water and Power (LADWP), Anaheim Public Utilities, and Riverside Public Utilities. In 2010 the Palo Verde nuclear plant in Arizona generated 82 percent of the nuclear-based electricity POU's purchased in 2010. These purchases occurred through a SCPPA contract involving LADWP, Imperial Irrigation District, and the cities of Riverside and Burbank. The city of Riverside also bought electricity from the San Onofre Nuclear Generating Station (SONGS) in San Diego County.

Unspecified Purchases

From 2003 to 2010, POU's reduced their unspecified market purchases from 25 percent to 14 percent of retail electricity sales. This electricity was composed mostly of generation from nuclear, coal, natural gas, and large hydropower facilities.

Despite this drop, unspecified market purchases in 2010 still accounted for nearly a quarter of POU's electricity from large hydropower, 18 percent of their electricity from natural gas, 16 percent from coal, and 10 percent from nuclear facilities.

Collectively, the 10 largest publicly owned utilities in California increased their RPS-eligible investments from 4.1 percent of retail electricity sales in 2003 to 18.8 percent in 2010.



Large hydropower from the Hoover Dam supplied the POU's with electricity in 2010.

37 California utilities purchased three-quarters of the electricity from this plant, for which Los Angeles Department of Water and Power serves as the operating agent. See <http://www.ipautah.com/> and <http://www.intermountainpower.com/>.

Investments in RPS Renewables by the POUs

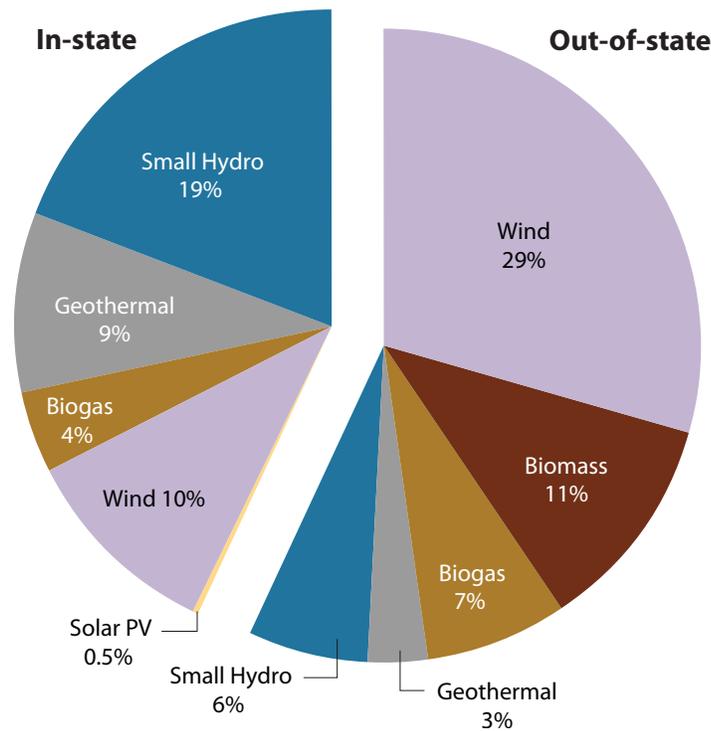
Utilities base decisions about investing in renewable energy on a variety of factors including the cost of the electricity, a facility’s proximity to transmission lines, and the utility’s overall portfolio of electricity generation resources.

In 2010, the 10 largest POUs obtained 43 percent of their RPS-eligible electricity from in-state sources (Figure 4). Small hydropower facilities—all built before the state’s first RPS law was enacted in 2002—contributed the largest share of in-state RPS electricity: 45 percent.



Assembling a wind turbine

FIGURE 4. RPS Renewables Mix of California’s 10 Largest Publicly Owned Utilities, 2010



Wind facilities in California, most built *after* 2002, accounted for 24 percent of in-state RPS-eligible purchases by these utilities. In-state geothermal facilities, most built *before* 2002, supplied 21 percent of this electricity. New and existing biogas facilities and solar photovoltaic (PV) installations—smaller-scale units in or close to utilities’ service areas—provided the remaining in-state clean electricity.

New wind projects in Washington, Oregon, Wyoming, and Utah provided slightly more than half of the POUs’ out-of-state purchases of RPS-eligible electricity. Biomass facilities in Washington, Idaho, and Canada provided the second-largest share of these purchases: 20 percent. POUs also bought electricity from out-of-state biogas, geothermal, and small hydropower facilities. The utilities did not disclose the locations of some of these facilities to the CEC.

The Benefits of Investing in In-State Resources

California is rich in renewable energy resources. When utilities invest in projects in the state, they create California jobs and other important economic benefits.³⁸

38 Next 10. 2012. *Many shades of green: California’s shift to a cleaner, more productive economy*. San Francisco, CA. Online at <http://www.next10.org>.

Some of the counties in California with the highest levels of unemployment, including Imperial, Kern, and Lake counties, are also those with some of the highest concentrations of renewable energy resources (see graphic, p.14).

Solano and Kern counties have hosted the largest increases in the construction of new renewable energy projects since 2002, in the form of new wind facilities. In 2010, these facilities generated 950 million kWh—enough to power more than 120,000 California homes. The High Winds facility in Solano County supplies electricity to SMUD, Modesto Irrigation District, and Anaheim Public Utilities, while new wind facilities in the Tehachapi Mountains in Kern County supply electricity to LADWP.

Mono and Imperial counties host the largest shares of in-state RPS resources used by POU's. Almost all these facilities—primarily small hydropower built along district irrigation systems—existed before the first RPS was enacted in 2002. LADWP's small hydropower facilities built along the Owens Valley canal system in Mono County produced 900 million kWh in 2010—enough to power more than 100,000 homes. Imperial

County also hosts small hydropower facilities along Imperial Irrigation District's canal system, and these also generated a large amount of electricity in 2010. Other small hydropower facilities used by POU's are located throughout the state.

Imperial, Lake, and Sonoma counties are home to

In 2010, the 10 largest POU's obtained 43 percent of their RPS-eligible electricity from in-state sources.

California's richest geothermal resources. Most of the geothermal plants in these counties were developed before the original RPS was enacted. The Salton Sea geothermal field in Imperial County, developed between 1982 and 2000, supplied 10 percent of the POU's' in-state RPS resources in 2010. The Geysers geothermal facility in Lake and Sonoma counties—the largest geothermal complex in the world—supplied the POU's with 11 percent of their in-state RPS resources in 2010.



In-State Renewable Energy Resources

of California's 10 Largest Publicly Owned Utilities, 2010

Investments in renewable energy are creating green jobs across California. This map shows RPS-eligible generation in California, by county, used by the 10 largest publicly owned utilities in 2010.

TYPE OF RENEWABLE ENERGY

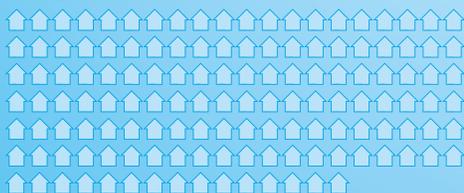
-  Biogas
-  Geothermal
-  Small Hydro
-  Solar PV
-  Wind

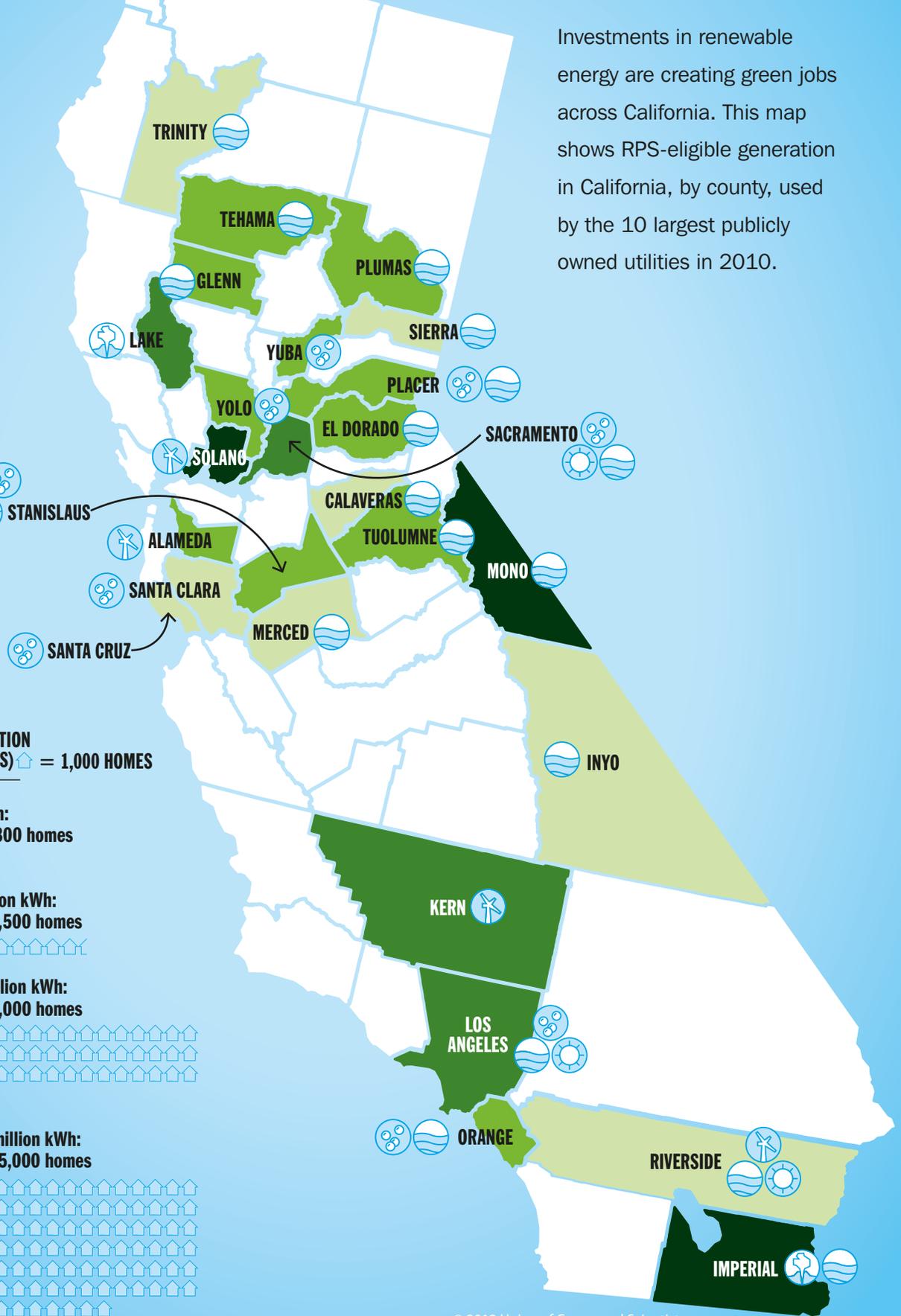
RENEWABLE ENERGY GENERATION (IN MILLION KILOWATT-HOURS) = 1,000 HOMES

-  up to 10 million kWh:
enough to power 1,300 homes

-  10 million–100 million kWh:
enough to power 13,500 homes

-  100 million–500 million kWh:
enough to power 68,000 homes

-  500 million–1,000 million kWh:
enough to power 135,000 homes




The Critical Importance of Long-Term Investments

One of the primary goals of the RPS is to promote the development of new renewable energy resources. How utilities invest in renewable energy affects the amount of new resources actually developed under the RPS.

When a POU makes a long-term commitment to purchase clean electricity from a prospective facility, or decides to build a clean energy facility outright, it provides the secure revenue source a developer needs to obtain financing for such facilities.³⁹ These long-term investments are the most direct way to promote the development of new clean energy resources.

Long-term commitments for renewable energy also lock in electricity prices, helping to shield ratepayers from the price swings typical of electricity purchased from natural-gas- and coal-fired facilities. Utilities do not have to spend money to hedge this risk. Long-term contracts also give utilities a long-range strategy for meeting future RPS requirements.

Long-term investments in renewable energy resources that existed before the first RPS provided a foundation for California's RPS program. These clean energy resources have benefited Californians for many years—some for decades—by reducing reliance on polluting fossil-fuel-based electricity and shielding ratepayers from some price volatility.

After the state enacted the first RPS, several POU's sought out long-term investments in existing clean energy resources. Because these investments simply repackaged electricity from existing projects, they did not promote the development of new renewable energy facilities. However, like all long-term contracts, they helped support the market for renewables, stabilize electricity prices, and give POU's a long-range strategy for meeting the 33 percent RPS.

Shorter-term commitments for renewable energy give prospective developers less financial security, and

Long-term investments are the most direct way to promote the development of new renewable energy resources.

are therefore less likely to promote the development of new resources. Shorter-term contracts also fail to provide a meaningful hedge against volatile fuel prices. If a utility signs short-term contracts with RPS-eligible facilities that expire before the 33 percent by 2020 RPS deadline, it will need to make other purchases or renegotiate contract prices—both of which can be more costly as compliance deadlines approach.

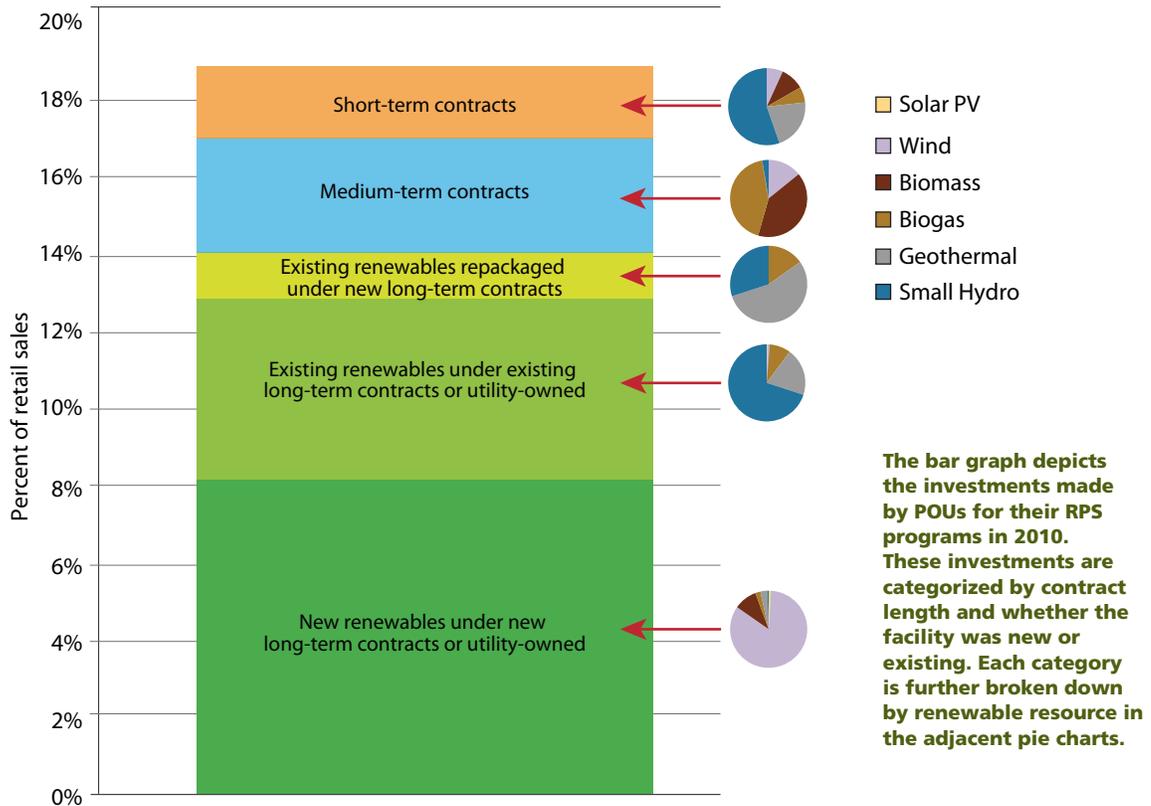
REC-only purchases, regardless of contract length, are also less likely to promote the development of new resources. These contracts do not include the electricity generated by the renewable energy facility, and so require a project developer to find a second buyer for its electricity, which can no longer be sold as renewable.

To determine which POU's have been the most effective at promoting the development of new renewable energy resources and are best positioned to meet future RPS requirements, we analyzed the renewable energy investments of the 10 largest POU's in 2010 by type of contract, and whether such contracts were for electricity from new or existing RPS generation facilities (Figure 5, p. 16, and graphic, p. 18). We defined “long-term” contracts as commitments of 10 or more years, “medium-term” contracts as lasting four to nine years, and “short-term” contracts as lasting three years or less.

We defined a “new” RPS facility as one that began operating on or after January 1, 2003—the beginning

39 Holt, E., L. Sumner, and L. Bird. 2011. *The role of renewable energy credits in developing new renewable energy projects*. NREL/TP-6A20-51904. Boulder, CO: National Renewable Electricity Laboratory.

FIGURE 5. POUs’ Investments in Renewables by Contract Type, 2010



More than three-quarters of the electricity under long-term contracts for new projects came from wind facilities built in California, Washington, Oregon, Utah, and Wyoming.

of the first full year of the original RPS program. We considered an “existing” facility as one that was operating before January 1, 2003. We similarly considered a contract as “new” if it was executed on or after January 1, 2003, and a contract as “existing” if it was executed before January 1, 2003.

New Renewables under New Long-Term Contracts or Utility-Owned

New renewables under new long-term contracts, and new utility-owned renewables, accounted for 43 percent of the POU’s RPS investments in 2010. These high-quality investments in clean energy generation added to the grid since 2003 totaled more than 4,000 gigawatt-hours (GWh)—equivalent to more than half the electricity San Francisco consumes each year.

Facilities built in California provided a little more than a quarter of this electricity, improving air quality, reducing global warming emissions, and creating jobs in the state. More than three-quarters of the new renewables under new long-term contracts came from wind facilities in Solano County and Washington, Oregon, Utah, and Wyoming. The remaining long-term commitments for new renewables included energy from biogas and geothermal facilities, and lesser amounts of energy from solar PV, biomass, and small hydropower facilities.

Existing Renewables under Existing Long-Term Contracts or Utility-Owned

Early investments by the POU’s in facilities that later became eligible for the RPS have helped increase and sustain California’s use of clean energy. Existing long-term commitments for electricity from existing facilities composed about a quarter of the RPS investments of the 10 largest POU’s in 2010. All of this electricity came from facilities in California.

Small hydropower facilities provided 70 percent of electricity in this category. The NCPA’s geothermal facility in Lake County, built in the 1980s, provided

another 20 percent of these pre-RPS renewables. The portfolios of the POU's also included small amounts of electricity from existing landfill biogas, wind, and solar PV facilities.

Early investments in wind include those made by Silicon Valley Power in the Altamont Pass. SMUD also made pre-2003 investments in the Solano Wind project, but we categorized these as new renewables under new long-term contracts because the owner replaced the turbines in 2003. LADWP, SMUD, and Riverside also invested in small amounts of solar PV before 2003.

Existing Renewables Repackaged under New Long-Term Contracts

Long-term contracts signed *after* 2003 for electricity from facilities built *before* 2003 accounted for 7 percent of the POU's RPS mix in 2010. All the electricity from these repackaged contracts came from existing geothermal, small hydropower, and landfill biogas facilities.

Medium-Term Contracts

By 2010, the POU's obtained 16 percent of their RPS mix through commitments lasting four to nine years. SMUD and LADWP signed all these contracts with out-of-state biomass, biogas, and small hydropower facilities. SMUD's contracts were almost all with existing

facilities that were built before the enactment of the RPS. Because LADWP did not disclose the specific facilities associated with its medium-term contracts, we could not determine whether its contracts were for new or existing renewables.

Short-Term Contracts

Contracts in this category accounted for 10 percent of the POU's RPS mix in 2010. Three contracts signed by LADWP with small, out-of-state hydropower and biogas facilities, and geothermal facilities in Mexico, accounted for 83 percent of this electricity. The remainder consisted of a one-year contract signed by Riverside for a small portion of the electricity from a new wind facility in Oregon, and several contracts lasting one or three years signed by Roseville Electric for electricity from biomass and wind facilities in Oregon, Wyoming, Washington, and British Columbia.

All of the electricity under repackaged contracts with existing facilities came from geothermal, small hydropower, and landfill biogas facilities.

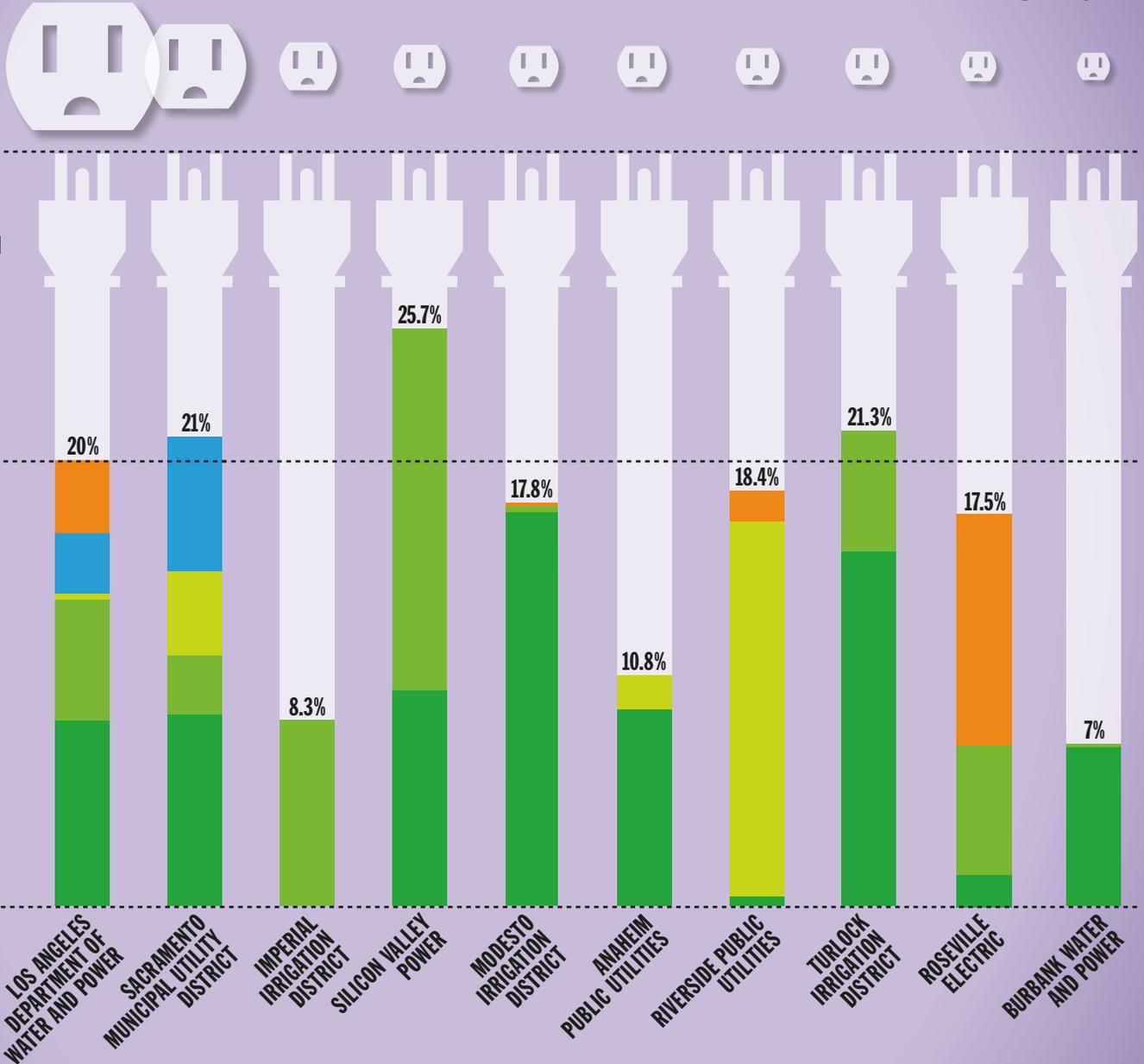


RPS Investments by Contract Type

for California's 10 Largest Publicly Owned Utilities, 2010

Utilities in California have many options for meeting California's renewable energy requirements. Long-term contracts are the most likely to promote construction of new renewable energy facilities, which means cleaner air and more green jobs.

Outlet size reflects the relative size of the utility in terms of its 2010 retail sales



SHORT-TERM CONTRACTS < 4 YEARS

MEDIUM-TERM CONTRACTS 4-9 YEARS

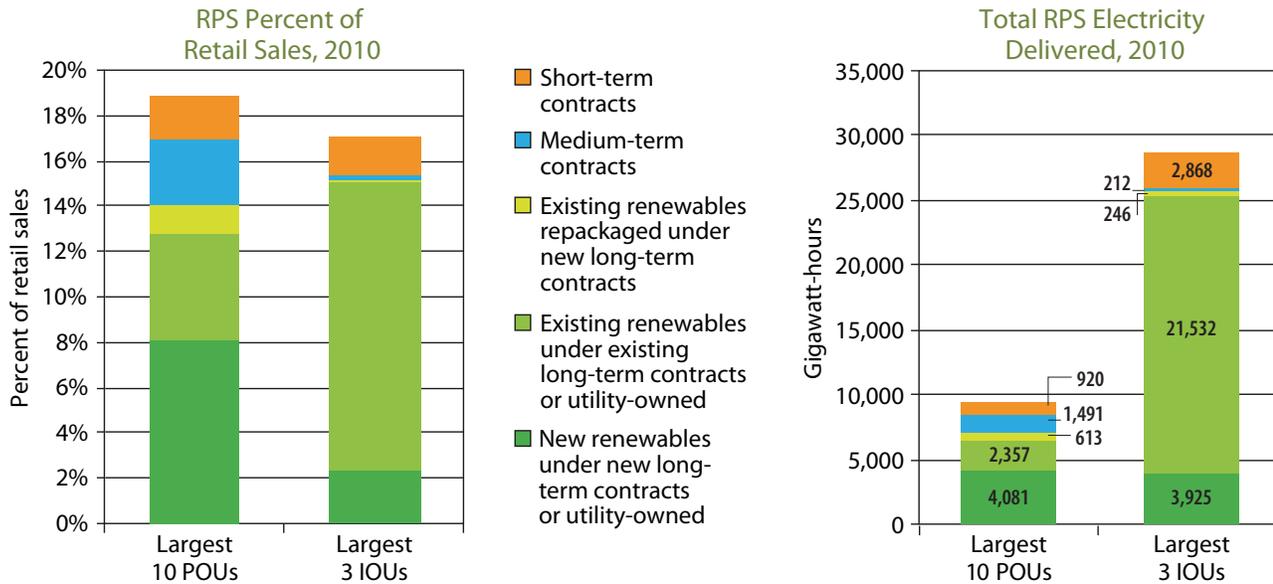
EXISTING RENEWABLES REPACKAGED UNDER NEW LONG-TERM CONTRACTS 10+ YEARS

EXISTING RENEWABLES UNDER EXISTING LONG-TERM CONTRACTS OR UTILITY-OWNED 10+ YEARS

NEW RENEWABLES UNDER NEW LONG-TERM CONTRACTS OR UTILITY-OWNED 10+ YEARS: THESE CONTRACTS ARE THE MOST DIRECT WAY TO PROMOTE DEVELOPMENT OF NEW RENEWABLES

NEW = RENEWABLE ENERGY CONTRACTS OR FACILITIES THAT DID NOT EXIST AS OF JAN. 1, 2003
 EXISTING = RENEWABLE ENERGY CONTRACTS OR FACILITIES THAT EXISTED AS OF JAN. 1, 2003

FIGURE 6. Renewable Energy Investments of the POUs and IOUs by Percent of Retail Sales and Total Electricity Delivered, 2010



Comparing the Renewable Energy Investments of the POUs and IOUs

The 10 largest POUs sourced 18.8 percent of their electricity from RPS-eligible renewables in 2010—a larger share than the three large IOUs, which reached 17 percent renewables (Figure 6). The POUs achieved this even though they were not required to reach 20 percent by 2010, and despite starting with a much lower share of renewables in 2003 than the IOUs: 4.1 percent versus 13.2 percent.⁴⁰ What’s more, even though the three IOUs delivered three times as much renewable electricity as the 10 POUs in 2010, the POUs sourced a slightly larger amount of electricity from new renewable energy facilities under new long-term contracts.

It is important to note that the IOUs had to obtain CEC certification for all their RPS-eligible facilities, while the POUs did not. That means the POUs counted electricity for their RPS programs that the IOUs may not have been able to purchase. In fact, the CEC would not have certified 13 percent of the POUs’ RPS investments in 2010 because the electricity was gener-

Even though California’s IOUs delivered three times as much renewable electricity as the 10 POUs in 2010, the POUs sourced a larger share of electricity from new facilities under new long-term contracts.

ated by facilities that were outside the state and had been operating before January 1, 2005.⁴¹ Whether the CEC would have certified another 15 percent of the POUs’ 2010 investments is questionable, because the online dates for the facilities are unknown, as is whether facilities outside the United States operated with an environmental protection standard equivalent to California’s.⁴²

40 We based this comparison on deliveries of electricity in 2003 for Southern California Edison and San Diego Gas and Electric, and deliveries in 2002 for Pacific Gas and Electric.

41 See Public Resources Code Section 25741(a)(2)(B).

42 See Public Resources Code Section 25741(a)(3).

Individual POUs' RPS Progress

Of the 10 POUs we analyzed, we found that four met California's 20 percent RPS goal in 2010: Silicon Valley Power, Turlock Irrigation District, SMUD, and LADWP.

The utilities' strategies for acquiring renewables, and the quality of those investments, varied greatly. Some—most notably Silicon Valley Power—invested in renewables long before the first RPS law was enacted. Such early investments provided a foundation on which utilities could build their RPS programs. Turlock and Modesto irrigation districts both started with negligible amounts of renewables in 2003, but exceeded 20 percent by the end of 2010 by making long-term investments in new projects.⁴³

LADWP, SMUD, and Roseville Electric relied on significant amounts of electricity procured through

short- and medium-term contracts, which enabled them to meet or come close to the 20 percent goal. However, these purchases provided little support for new renewable projects. In addition, these three utilities will need to secure more clean energy resources just to maintain existing levels of RPS investments, let alone reach the 33 percent RPS in 2020.

Anaheim, Riverside, Burbank, and Imperial Irrigation District signed numerous long-term agreements for electricity from new clean energy facilities. However, many of these projects never materialized, leaving these POUs short of the 20 percent RPS target. In interviews, representatives from most of the POUs we analyzed cited high contract failure rates, stemming partly from financing challenges.

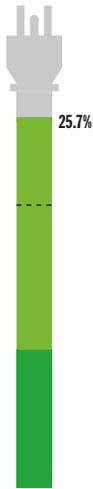


⁴³ While Modesto's renewables averaged 17.8 percent of retail electricity sales in 2010, a new wind project that began generating at the end of the year increased the utility's renewables in the final months of 2010 to more than 20 percent of retail sales.

LEGEND FOR "PLUG" GRAPHICS

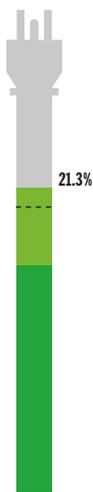
- Top of the plug: 33% 2020 RPS
- Dotted line: 20% 2010 RPS
- Percentage: POU share of RPS renewables
- Orange: Short-term contracts
- Blue: Medium-term contracts
- Yellow-green: Existing renewables repackaged under new long-term contracts
- Medium green: Existing renewables under existing long-term contracts, or utility-owned
- Dark green: New renewables under new long-term contracts, or utility-owned

Sprinting Ahead



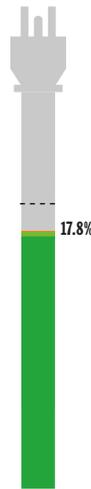
Silicon Valley Power (SVP)

In 2010, SVP sourced 25.7 percent of its electricity sales from renewables—the largest share among the utilities we reviewed. More than half of this electricity was from investments SVP made in the 1980s and 1990s in California geothermal, small hydropower, and wind. And almost all these investments occurred through long-term contracts, or were projects that SVP built itself. Such long-term investments most effectively promote the development of new clean energy resources, provide stable electricity prices for customers, and put the utility on track to reach the 33 percent RPS by 2020.



Turlock Irrigation District (TID)

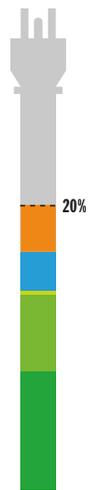
Renewable energy accounted for 21.3 percent of TID's retail electricity sales in 2010—the second-largest share among California's 10 largest publicly owned utilities. TID also sold excess renewable energy equal to 3.9 percent of its retail sales to other utilities, helping them meet their RPS obligations. Almost three-quarters of TID's renewable electricity came from facilities built after the state approved the first RPS in 2002—most from a single wind project in Washington. TID owns all of its RPS-eligible investments, independently or with other utilities. By making such long-term investments, TID has directly supported the development of new clean energy resources, and put itself on track to reach the 33 percent RPS by 2020.



Modesto Irrigation District (MID)

MID expanded its RPS-eligible renewable portfolio from close to zero in 2003 to 17.8 percent of retail electricity sales in 2010. Almost all these investments were made through long-term contracts with new wind energy facilities in California and the Pacific Northwest. That means almost all of MID's clean energy investments promoted the development of new resources. These investments put the utility on a solid path to fulfill the 33 percent RPS by 2020.

On the Right Track, but Must Keep Moving



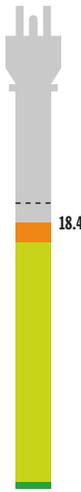
Los Angeles Department of Water and Power (LADWP)

Of the 10 publicly owned utilities we analyzed, LADWP was one of four to reach the state's 20 percent RPS by 2010. Long-term investments in seven new wind facilities in the Pacific Northwest, Utah, Wyoming, and California provided the largest share of LADWP's RPS mix—investments that directly support the development of new clean energy resources. However, nearly a third of LADWP's 2010 RPS investments occurred under contracts of five years or less—and more than half of those were for 18 months or less. That means a sizeable portion of LADWP's renewable energy investments were too short-lived to promote the construction of new clean energy facilities. And unless renewed, those investments will not help LADWP meet future RPS requirements.



Sacramento Municipal Utility District (SMUD)

By 2010, SMUD sourced 21 percent of its retail electricity sales from RPS renewables. The utility also made long-term investments in new renewable energy projects equivalent to another 2 percent of sales through its voluntary green pricing program. However, SMUD obtained nearly 70 percent of its 2010 RPS mix through contracts of 12 years or less, and 30 percent through contracts of eight years. Most of these contracts, if not renewed, will expire before 2020.



Riverside Public Utilities

From 2003 to 2010, Riverside expanded its share of renewables from almost 6 percent to 18.4 percent of retail electricity sales. Riverside did so primarily by expanding its contract for geothermal energy from an existing facility in Imperial County. The utility signed other long-term contracts with new geothermal projects that failed to materialize. If these projects had been built, they would have put Riverside on an accelerated pace to meet the 2020 RPS. Less than 2 percent of Riverside’s RPS investments occurred through long-term contracts with new clean energy resources. The utility has therefore had little influence on the development of new clean energy resources.



Anaheim Public Utilities

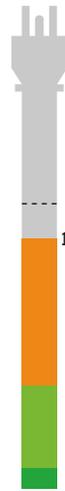
Anaheim began its RPS program with close to zero renewables in 2003. From 2003 to 2010, the utility focused on procuring renewable energy by signing long-term contracts with developers of new facilities—the type of investment that directly promotes new renewables. However, in 2010, just 10.8 percent of the utility’s retail electricity sales came from renewables. Several proposed facilities with which Anaheim had contracted failed to get off the ground, and a new geothermal facility generated less than half the expected electricity. If all the proposed projects that Anaheim contracted with had come online, and produced all the energy expected, renewables would have accounted for about a third of Anaheim’s retail electricity sales in 2010.

False Start



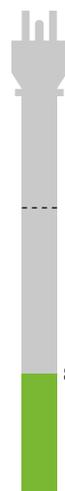
Burbank Water and Power

Burbank Water and Power is both the smallest utility we reviewed and the one that obtained the smallest share of its electricity from renewables in 2010. With only 7 percent of electricity sales from renewables in 2010, Burbank fell far short of the state’s 20 percent goal. Since the RPS was first enacted, Burbank joined other utilities in negotiating long-term contracts with several wind and small hydropower projects in the Pacific Northwest, three new geothermal projects, and one large solar project. However, only some of the wind projects and one small hydropower project came to fruition. Developers of the other projects faced barriers such as a lack of access to financing, challenges gaining access to transmission lines, difficulties with technological performance, and decisions by some utilities not to pursue joint contracts.



Roseville Electric

Roseville’s renewable energy investments represent a false start compared with the other nine utilities analyzed in this report. While Roseville sourced 17.5 percent of its electricity from renewables in 2010—close to the RPS goal—more than half of those investments lasted three years or less. Such short-term contracts do not support the development of new projects, which require revenue security. And such contracts, unless renewed, will not help Roseville meet its future RPS obligations.



Imperial Irrigation District (IID)

IID’s renewable energy program is a false start compared with those of the nine other utilities we analyzed. In 2010, RPS-eligible renewables supplied just 8.3 percent of IID’s retail electricity sales—far less than the state’s 20 percent goal. IID’s RPS mix only included small hydropower units the utility built from the 1930s to the 1980s. In 2004, IID began negotiating contracts for new renewables independently and through SCPPA. However, by 2010 these efforts had not yet yielded a constructed project.

Looking Ahead to 33 Percent

The 2010 RPS investment strategies of the 10 largest POU's varied considerably, so the impact of those strategies on the development of new clean energy resources also varied. Two-thirds of the electricity from renewables procured by California's 10 largest POU's in 2010 came from long-term investments, providing a foundation for meeting future RPS requirements while also supporting the development of new renewables. And 60 percent of these long-term investments were for new facilities built after the RPS was enacted in 2002. In fact, this newly created clean electricity slightly exceeded the amount of energy the IOUs obtained through this type of investment during the same time period.

While a number of POU's approached or met the 20 percent RPS by focusing their investment strategies on long-term investments, others did not pursue RPS investments as aggressively, or did so largely by signing shorter-term contracts that expanded their RPS portfolios only temporarily. Such short-term investments had little impact on promoting the development of new clean energy facilities, and will expire before 2020. These utilities will have to renegotiate these contracts at potentially higher prices, or procure more clean electricity, just to maintain their RPS investment levels, while also increasing their purchases to meet future RPS requirements.

We offer the following recommendations to the CEC, which oversees aspects of the 33 percent RPS program, and to the POU's themselves. Our recommendations aim to ensure not only that the RPS program reaches its goals, and but that it does so in a way that maximizes the environmental and economic benefits that clean energy can provide:

- **Make long-term investments.** To the greatest extent possible, POU's should focus on signing long-term contracts, or on building their own clean energy facilities. This approach will drive the development of new renewables, help stabilize electricity rates for customers, and provide a foundation for complying with future RPS requirements.



Solar thermal technologies use mirrors to concentrate the sun's energy and make steam.

Not all renewable energy investments are created equal. Short-term investments do little to promote the development of new renewable energy resources, and such investments made now will not help the utilities meet the 33 percent RPS in 2020.

Investments that spur the construction of new clean energy resources will also reduce the need for fossil-fuel-based electricity, reduce air pollution and global warming emissions, and create green jobs.

- **Make steady progress on complying with the RPS.** As noted, the most recent RPS law requires utilities to source an average of 20 percent of their electricity sales from renewables from 2011 to 2013, 25 percent by 2016, and 33 percent by



2020. The law also requires each utility to make “reasonable progress” between these compliance deadlines.⁴⁴

The CEC and the POUs should interpret “reasonable progress” as expanding the amount of electricity sourced from renewables in interim years, rather than waiting until the end of a compliance period. While utilities need some flexibility in meeting RPS requirements, POUs that wait until the end of a compliance period, or rely heavily on short-term investments, risk paying more for electricity or failing to fulfill the RPS.

- **Define criteria for flexible compliance up front.**

The RPS law allows the POUs to define the conditions under which a failure to comply with the RPS is justified. These conditions can include the cost of renewable electricity, inadequate transmission, project delays, or curtailment of renewable energy resources by a California “balancing authority.”⁴⁵ If the CEC determines that a POU has failed to meet its own conditions justifying non-compliance, it may refer the utility to the California Air Resources Board for enforcement.

The statute itself provides little detail on how to define the conditions that would justify RPS non-compliance. The CEC should give the POUs guidance on how to define conditions that would justify flexibility in their RPS programs before the POUs develop their own rules, and especially before they invoke them. If the CEC fails to do this at the beginning of the RPS program, the conditions

POUs set may differ widely by utility, and some may tailor conditions for non-compliance to specific situations they are already in, regardless of whether such conditions are reasonable. If the CEC does not provide guidance up front, it will have little information on which to base enforcement decisions years down the road.

- **Plan for project delays and failures.** Most of the POUs we analyzed experienced some degree of project failure. In some cases, this prevented them from meeting their own RPS targets. In the future, managing the risks of project delays and failures will be critical. Years after projects have failed to materialize, the CEC may find it difficult to determine whether a POU missed a deadline because of events outside its control, or because of inadequate risk management.

The POUs should submit RPS procurement plans to the CEC at least once every compliance period, and make them publicly available. These plans should map out how the utilities will reach the 33 percent RPS, and also identify strategies for managing the uncertainty of project timelines and the risk of project failure.

- **Insist on accurate reporting.** In the past, POUs have reported their electricity deliveries and RPS investments to the CEC inconsistently and, at times, incorrectly. Some reports have been incomplete. In the future, timely and accurate reporting will be critical to ensuring the success of the RPS program, and to establishing public accountability for meeting the standards.

⁴⁴ See Public Utilities Code Section 399.30(b)(2).

⁴⁵ See Public Utilities Code Section 399.30(d).

The CEC should expect the POU to submit accurate information on time, and impose penalties if they fail to do so. The reports should contain clear information on each RPS contract, including its length, the type of resource, its location, and how it fits into the categories of clean energy resources established in the RPS law enacted in 2011.

- **Do not exempt POU from meeting the RPS based on size alone.** Neither the size nor the location of the utilities we analyzed were strong indicators of whether they met the 2010 RPS goal, or chose to make high-quality, long-term investments. The CEC should therefore not automatically exempt smaller utilities from RPS requirements simply due to size.

The POU procured nearly a quarter of the electricity for their RPS programs by 2010 through NCPA and SCPPA, whose members include both small- and large-scale utilities. Smaller POU have also joined together to sign clean energy contracts outside NCPA and SCPPA. The POU should continue to seek opportunities for joint contracts, as well as their own investments in renewable energy projects.

Since 2003, California's 10 largest POU have made notable progress in investing in renewable energy resources. Collectively, they increased their RPS-eligible investments from 4.1 percent of retail electricity sales in 2003 to 18.8 percent in 2010. Even though the 10 largest POU delivered only one-third as much renewable electricity as the three largest IOUs, their RPS investments accounted for more than half of all the re-

newable electricity from long-term contracts with new facilities of these 13 utilities combined.

However, in 2010, the POU still relied on electricity from fossil fuels for two-thirds of their retail sales. Given their coal-heavy portfolios, the way in which the POU invest in renewables to meet the 33 percent by 2020 RPS will be critical to reducing the state's reliance on fossil-fuel-based electricity. Experience through 2010 shows that the POU must plan ahead for project delays and contract failure by making steady invest-



POUs' renewable energy programs should focus on long-term investments, to maximize the environmental and economic benefits of the RPS and to set the stage for an even greater commitment to renewables after 2020.



ments throughout a compliance period, and by signing contracts for more than the minimum amount of renewable energy needed to meet state standards.

A utility can take many approaches to procuring renewable energy. One of the primary purposes of California's RPS program is to expand the amount of electricity from clean, renewable sources—to improve air quality, reduce global warming emissions, and create green jobs. Utilities that invest in renewables by owning projects or signing long-term contracts support the development of new renewable energy resources most directly. Rules and strategies guiding the POU's future RPS programs should encourage these types of investments, to maximize the environmental and economic benefits of the RPS, and to set the stage for an even greater commitment to renewables after 2020.

THE CLEAN ENERGY RACE

How Do California's Public Utilities Measure Up?



California's publicly owned utilities (POUs), which supply about a quarter of the electricity used in the state, have made significant strides in investing in clean, renewable energy since the state passed its first Renewables Portfolio Standard (RPS) in 2002. The RPS set a goal for each California utility to obtain 20 percent of its electricity sales from renewable sources by 2010. In 2011, the law was strengthened to require all utilities to obtain 33 percent of their electricity from renewables by 2020.

The Clean Energy Race: How Do California's Public Utilities Measure Up? examines the renewable energy investments that California's 10 largest POUs made for their 2010 RPS programs. The report assesses these investments compared with the state's 20 percent RPS benchmark, and evaluates the extent to which these investments promoted the development of new renewable energy resources and how these investments are preparing the utilities to meet the 33 percent RPS by 2020.

Not all investments in renewable energy are created equal. A primary purpose of California's RPS program is to increase the amount of electricity generated from clean, renewable sources. Utilities that sign long-term contracts for new projects or own them outright most directly support the development of new renewable energy resources, which improve air quality, reduce global warming emissions, and create green jobs. Rules and strategies guiding the POUs' future RPS programs should encourage these types of investments, to maximize the environmental and economic benefits of the RPS and to set the stage for an even greater commitment to renewables after 2020.

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