

DIVISION OF RATEPAYER ADVOCATES
FEBRUARY 2011



GREEN RUSH

Investor-Owned
Utilities' Compliance
with the Renewables
Portfolio Standard



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INVESTOR-OWNED UTILITIES' COMPLIANCE WITH THE RENEWABLES PORTFOLIO STANDARD

FEBRUARY 2011

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The Division of Ratepayer Advocates is an independent branch of the California Public Utilities Commission (CPUC) which represents the ratepayers of California's investor-owned utilities. Its mission is to obtain the lowest possible rates for utility services consistent with safe and reliable service levels as well as environmental protections. In this report, the Division presents an analysis of the three investor-owned electric utilities' compliance with the state-mandated Renewables Portfolio Standard (RPS) from the perspective of procurement goals and costs to ratepayers.

This report is a public version of an internal DRA report of the same name. DRA has removed sensitive market information deemed confidential under the provisions stated in CPUC Decision 06-06-066.

EXECUTIVE SUMMARY

The Division of Ratepayer Advocates (DRA) represents the electricity consumers of California. This report analyzes the electric utilities' compliance with the state-mandated Renewables Portfolio Standard (RPS) from the perspective of procurement goals and costs to ratepayers.

DRA'S FINDINGS

DRA supports the RPS program and cost-effective renewables. However, DRA is concerned that the perceived urgency to comply with the RPS and continuing CPUC approval of high-priced contracts has created an inelastic demand and subsequently driven the renewable market to yield very high prices. We find that:

- The utilities are on track to achieve the 20% RPS goal by the end of flexible compliance in 2013 and are ahead of schedule to meet the 33% Renewable Energy Standard (RES) goal by 2020, even though some projects scheduled to come online will fail or be delayed.
- Above-Market Funds (AMFs)—an account of previously-collected funds to cover the costs of renewable energy that exceed the costs of comparable conventional generation—have failed as a cost-containment mechanism, having been fully allocated in 2009.
- The CPUC has approved nearly every renewable contract filed by the utilities, even when contracts rate poorly on least-cost, best fit criteria.

RECOMMENDATIONS

Given the utilities' progress toward meeting RPS goals, DRA recommends that cost-containment receive priority in the continuing implementation of the RPS program. The CPUC should use the following methods to balance concerns about project viability and portfolio diversity with cost-containment:

- Establish a limit on the volume-weighted average contract price for each utility in a given filing year.
- Require a formal Application instead of an Advice Letter for all contracts whose expected above-market costs exceed \$100 million.
- Increase accountability and transparency by establishing a clear cost reporting requirement for the utilities.

INTRODUCTION

The Global Warming Solutions Act of 2006 (AB 32) mandates that California reduce its greenhouse (GHG) emissions to 1990 levels – 427 million metric tons of carbon dioxide equivalent – by 2020. Although the electricity sector contributes about 25% to California’s GHG emissions¹, it is expected to provide well over a third of statewide emissions reductions.

California’s electric utilities have engaged in a number of programs designed to reduce GHG emissions, from demand-side management to altering power supply procurement strategies. A substantial portion of the utilities’ emissions reductions are expected to come from shifting electricity generation from fossil-fueled power plants to renewable sources. Eligible renewable sources include, among others: solar, wind, geothermal, small hydropower, and biomass.

This shift is mandated by the Renewables Portfolio Standard (RPS), which was first enacted by Senate Bill (SB) 1078 in 2002. In its current form, the RPS requires that the utilities procure 20% of their annual retail sales from renewable sources by the end of 2010. A flexible compliance mechanism allows the utilities to delay compliance with the 20% goal until 2013. In 2008, Governor Schwarzenegger issued Executive Order S-14-08, increasing the RPS target to 33% by the end of 2020.

While the RPS mandate has existed for some time, the utilities signed the majority of their new contracts in the last two years and continue to procure renewable generation at a rapid pace. In light of this, we ask: How close are California’s investor-owned utilities (IOUs) to complying with the RPS? How would ratepayers be best served moving ahead with the program?

This report is prepared by DRA, an independent division within the California Public Utilities Commission (CPUC). DRA represents the ratepayers of IOUs; together, the utilities provide 68% of the electricity in California. In this report, we analyze the utilities’ compliance with the RPS program, when they will meet their RPS targets, and the anticipated costs of the RPS program to ratepayers. Finally, we make recommendations to improve the cost-effectiveness of the program and ensure accountability.

BACKGROUND ON THE RPS

The California RPS Program was established in 2002 by SB 1078 and codified in California Public Utilities Code § 399.11, et seq. The statute required that each retail seller of electricity increase its total procurement of eligible renewable energy by at least one percent of annual retail sales per year so that 20% of its retail sales are supplied by eligible renewable energy resources by 2017. In 2006, SB 107 officially accelerated the state’s RPS target to 20% by the end of 2010. In 2008, Governor Schwarzenegger issued Executive Order S-14-08, setting a Renewable Energy Standard (RES) target of 33% by 2020, and in September 2010 the California Air Resources Board issued a series of interim targets for the years between 2010 and 2020.²

¹ California Air Resources Board. *California Greenhouse Gas Emission Inventory*. 28 October 2010. Web. 5 November 2010. <<http://www.arb.ca.gov/cc/inventory/inventory.htm>>.

² The interim targets are 20% for 2012–2014, 24% for 2015–2017, 28% for 2018–2019, and 33% for 2020 and beyond (Stanley Young. “California commits to more clean, green energy,” California Air Resources Board Press Release. September 23, 2010).

SB 107 also clarified and extended a flexible compliance mechanism for RPS that allows utilities to procure more generation in any one year than is necessary to achieve the yearly target and apply the excess amount toward shortfalls in the three preceding years. This “banking” of generation in effect allows the utilities to delay full compliance with the 20% RPS target until the end of 2013.³ For the 33% interim targets, the utilities may similarly earmark generation in excess of targets in a given year and apply the amount toward shortfalls in future years.

Several state agencies play a role in the RPS:

The **California Public Utilities Commission (CPUC)** implements the RPS program. It approves contracts for renewable energy presented by the three electric utilities and monitors each utility’s annual Request for Offers (RFO) solicitation for renewable energy contracts. The CPUC provides guidelines for procurement and feedback on negotiations between utilities and project developers. Finally, the CPUC officially determines whether utilities are in compliance with RPS targets and may impose penalties for non-compliance.

The **California Energy Commission (CEC)** certifies resources that meet eligibility criteria for the RPS.⁴ The CEC also verifies past renewable energy deliveries. Furthermore, the CEC operates a tracking and verification system to ensure that renewable energy output is counted only once for the purpose of the RPS and for verifying retail product claims in California or other states.⁵ In addition to its role in RPS certification and verification, the CEC approves permits for large-capacity (>50 MW) solar thermal and geothermal plants.

The state’s grid operator, the **California Independent System Operator (CAISO)**, participates in transmission planning for renewables and integrates them in real-time on the grid. As a result, the CAISO is sensitive to the intermittency of certain renewable resources and the need to use other power sources to smooth out their erratic production.

The **California Air Resources Board (ARB)** implements AB 32; as part of that effort, ARB also develops regulations for meeting a 33% renewables goal by 2020 and sets interim targets.

Finally, relevant city or county agencies manage environmental permitting to ensure compliance of new renewable projects (wind and small-capacity (<50MW) solar thermal facilities) with the California Environmental Quality Act.

PROGRESS TOWARDS MEETING RPS GOALS

DRA analyzed compliance with the RPS goals by examining all eligible renewable energy projects that the utilities have contracted. These projects include ongoing contracts with facilities that are currently online, new contracts with existing facilities, and contracts for projects that are not yet online. Projects not yet online are in various stages of development; major milestones in the development process include:

³ See CPUC Decision 08-02-008.

⁴ California Energy Commission. *Renewables Portfolio Standards (RPS) Proceeding - Docket # 03-RPS-1078*. 21 October 2010. Web. 5 November 2010. <<http://www.energy.ca.gov/portfolio/index.html>>

⁵ Ibid.

securing financing, obtaining all necessary permits, beginning construction, and commencement of commercial operations.

Figure 1 | Risk Profile of Executed RPS Contracts⁶

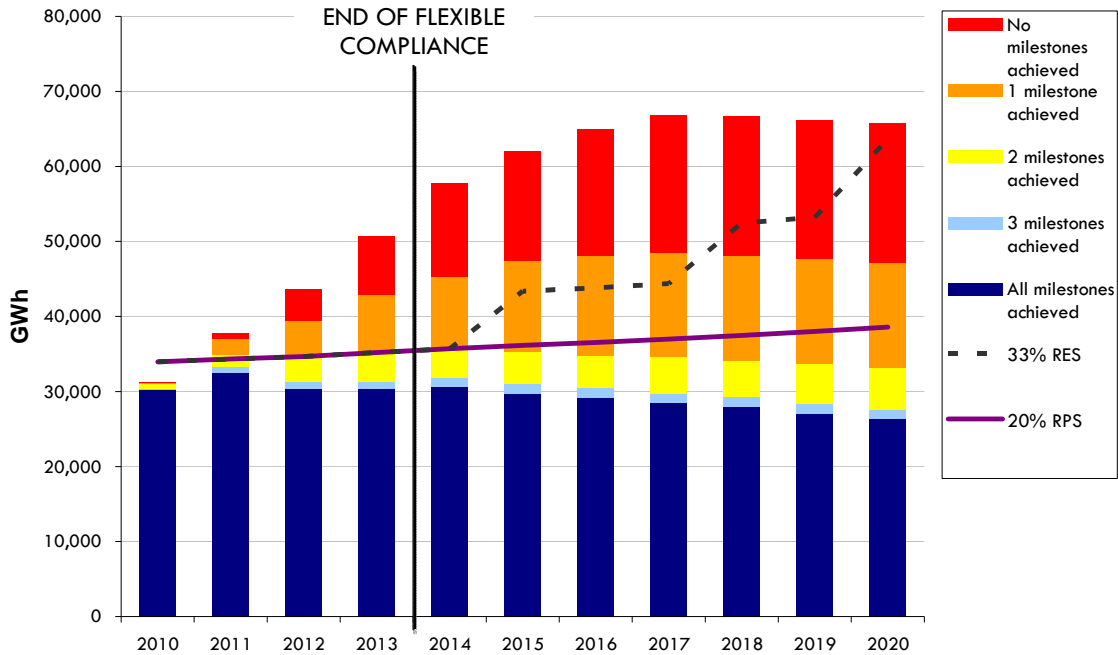


Figure 1 shows that PG&E, SCE, and SDG&E together are almost certain to meet the 20% RPS target by the end of the flexible compliance period in 2013. The utilities are also well on their way to meeting the 33% RES and interim targets at current rates of contract execution and approval.

The main source of uncertainty in forecasting RPS compliance is the rate of delay or failure for signed contracts and the attrition of contracts currently under negotiation. The average time from issuance of a Request for Offers (RFO) to energy delivery is between three and five years.⁷ CEC records indicate that 14% of contracts to date (representing 8% of expected GWh) have failed and 15% of contracts (representing 14% of expected GWh) are delayed.⁸ These numbers are conservative and likely to rise, as many projects are immature and have not yet proceeded to a stage where contract failure or project delay typically occurs.

⁶ Data from the August 2010 Compliance Reports and Project Development Status Reports (PDSRs) filed by PG&E, SCE, and SDG&E.

⁷ Analysis of August 2010 compliance reports from all IOUs indicates that projects begin delivering energy on average 3 years after the solicitation year. Analysis of August 2010 Project Development Status Reports, based on Actual or Expected contract online date (COD), shows that the average is 4.5 years after the solicitation year; contracts terminated prior to delivery are not included, and existing/re-power contracts are included.

⁸ See CEC Database of Investor-Owned Utilities' Contracts for Renewable Generation, Contracts Signed Towards Meeting the California RPS Targets at http://www.energy.ca.gov/portfolio/contracts_database.html

ABOVE-MARKET COSTS OF THE RPS

When seeking approval, RPS-eligible projects are compared to the Market Price Referent (MPR) to determine their “above-market” costs.⁹ Calculated by the CPUC after each RPS solicitation, the MPR is the benchmark against which the costs of renewables are assessed. The MPR represents the generic price of a new 500 MW natural gas-fired combined cycle gas turbine facility characterized by long-term ownership, operating, and fixed-price fuel costs.¹⁰ The applicable MPR for a project varies by start date and length of contract, and the MPR is updated annually to reflect current economic conditions.

More than half of all renewables contracts to date have prices in excess of the applicable MPR. On average, these contract prices are 15% higher than their applicable MPRs.¹¹

Figure 2 | Renewable Energy Contract Prices and Applicable MPRs¹²

IOU	Share of contracts above applicable MPR	Average applicable MPR (Levelized \$/MWh post-TOD)
PGE	77%	\$123.46
SCE	41%	\$92.27
SDGE	47%	\$100.57
All	59%	\$104.08

As a measure intended for cost-containment, the California legislature has mandated that the CPUC maintain an account of “above-market funds” (AMFs),¹³ which are allocated to each utility for competitively-sourced renewables projects above the MPR. The CPUC keeps a running total of AMFs for contracts which have received CPUC approval, and AMFs are paid out only as a renewable project delivers energy. Each utility was allocated a set amount of AMFs, which were collected from ratepayers previously through the Public Goods Charge included on monthly bills. Upon exhausting its share, each utility can continue to bear above-market renewable costs on a voluntary basis with CPUC approval.

The AMFs were fully allocated by the end of 2009. Since then, the utilities have continued to procure renewable energy on a voluntary basis with CPUC approval. Of the 184 renewable energy contracts presented to the CPUC for approval since 2002, only two have been rejected.¹⁴ As a result, the AMFs currently forecasted for all three utilities exceed \$6 billion, over seven times CPUC-specified amounts (see Figure 2). When these renewable contracts start delivering energy, costs will impact ratepayers.

⁹ Established by Public Utilities Code 399.15 pursuant to SB 1036 in 2007.

¹⁰ California Public Utilities Commission. *Market Price Referent*. 12 January 2010. Web. 5 November 2010. <<http://www.cpuc.ca.gov/PUC/energy/Renewables/mpr>>

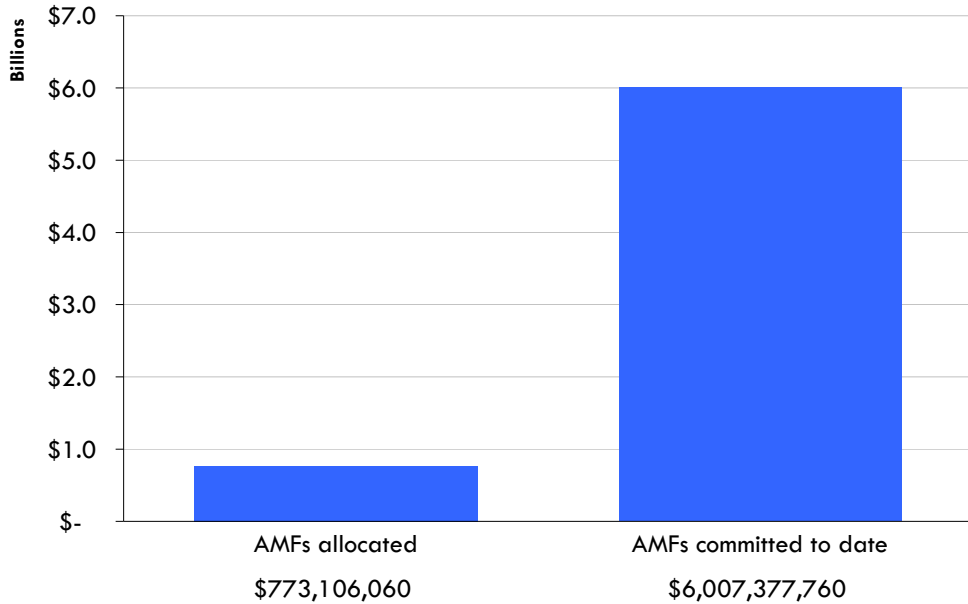
¹¹ Averages weighted by annual energy deliveries (GWh).

¹² Data from August 2010 PDSRs. Figures in nominal dollars. Averages volume-weighted by expected energy deliveries (GWh).

¹³ Established by Resolution E-4199 pursuant to SB 1078 in 2002 and SB 1036 in 2007. See <http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/SB1036implementation.htm> and http://docs.cpuc.ca.gov/word_pdf/FINAL_RESOLUTION/98603.pdf

¹⁴ PG&E’s Klickitat project was rejected on a legal technicality and PG&E’s Finavera wave project was rejected due to price and the highly experimental technology proposed.

Figure 3 | AMFs to date for RPS-eligible contracts¹⁵



AMFs are available only to competitively-sourced renewables projects—that is, projects that have been solicited through the utilities’ Request for Offers (RFO) process. Utilities also procure renewables projects outside of this process through bilateral negotiations.¹⁶ A comparison of bilaterals to their applicable MPRs further increases the total above-market costs of renewables by a substantial amount.

CONTRACT FAILURE AND PROJECT VIABILITY

Project viability is one of the most common rationales for higher-priced contracts.

Why do some proposed projects and contracts never reach commercial operation? According to project information provided by the utilities, project failure¹⁷ is most often the result of (in the order of most pronounced to least): problems in securing financing; inability to secure necessary permits and/or site control; and problems with transmission (either transmission is unavailable/delayed or upgrades are needed).

Utilities ascribe project delay to the same reasons. It is reasonable to presume some percentage of contracts will fail and/or be delayed, and the CPUC therefore supports the inclusion of procurement and planning provisions that account for some contract failure. However, unlike the planning reserve margin

¹⁵ Data from August 2010 AMF Calculators. Figures in nominal dollars.

¹⁶ Utilities generally use bilaterals for time-limited opportunities that cannot be accommodated in the current RFO solicitation. The CPUC approves these contracts in the same manner as RFO contracts.

¹⁷ In the *Assigned Commissioner’s Ruling Regarding Potential Renewables Portfolio Standard Development in Imperial Valley and Evaluation of Renewable Procurement Contracts*, part of Rulemaking (R.) 08-08-009, the CPUC states that it does not treat a contract as failed until the utility informs the CPUC that a project has been cancelled. As such, the utilities use broad terms to categorize their RPS projects at various stages of development.

for long-term procurement planning, the CPUC has not established a minimum or maximum amount of additional renewable energy the utilities must contract for in order to ensure a sufficient amount of renewable resources are available to meet their goals. The size of this margin is currently at the utility's discretion.

Partly as a response to uncertainty over contract quality, project viability is one of the main components by which projects are currently evaluated. Each utility uses a Commission-approved "least cost, best fit" (LCBF) method to evaluate proposed projects in a utilities' annual RFO. As part of this process, each project receives a project viability score. The utilities complete this assessment before a power purchase agreement (PPA) is approved; once the project is approved, the utilities keep the CPUC informed of the project's status through Project Development Status Reports. The CPUC's Energy Division staff uses these reports to identify any statewide or project-specific barriers that may affect the successful completion of the project.

In Decision (D.) 09-06-018, the *Decision Conditionally Accepting 2009 Renewables Portfolio Standard Procurement Plans and Integrated Resource Plan Supplements*, the CPUC adopted the Project Viability Calculator (PVC) as a screening tool to standardize the utilities' process for reviewing proposed projects.¹⁸ Project viability is scored by standardized categories and criteria in three critical areas of renewable development: Company/Development Team, Technology, and Development Milestones. Proposed projects are awarded more points, for example, if the project development team has prior experience developing other projects of the same technology; if the technology is feasible and has a high resource quality; and if the project has secured -- or is close to securing -- site control, its interconnection agreement, and any necessary permits. Such qualities provide an indication that a project is more likely to actually come online.

Since the PVC was standardized as a component of the bid evaluation process and is now included in all advice letters for renewable energy procurement, DRA has observed that PVC score is called upon to justify CPUC contract approval of some high-priced contracts. DRA questions the emphasis on viability over price of proposed projects when the IOUs are within reach of their 20% and 33% RPS goals and the CEC observes that only 14% of contracts fail. For example, the CPUC's recent approval of PG&E's Eurus contract at a price substantially higher than that of the applicable MPR demonstrates the extent to which project viability can take precedence over contract price.

¹⁸ (D.) 09-06-018 Decision Conditionally Accepting 2009 Renewables Portfolio Standard Procurement Plans and Integrated Resource Plan Supplements, Conclusion of Law 10, pg 78.

DRA'S FINDINGS

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RECOMMENDATIONS

Given the utilities' progress toward meeting RPS goals, DRA recommends that cost-containment receive priority in the continuing implementation of the RPS program. The CPUC should use the following methods to balance concerns about project viability and portfolio diversity with cost-containment:

Establish a limit on the volume-weighted average contract price for each utility in a given filing year.

Given the utilities' progress toward reaching RPS targets, it is incumbent upon the CPUC to give more weight to prices and more clearly consider costs to ratepayers.

Recognizing that portfolio diversity is a necessity, DRA proposes that the CPUC adopt a limit on the volume-weighted average contract price (in levelized \$/MWh) for each utility's approved contracts for a given filing year. The CPUC could change this volume-weighted average cap over time to allow greater or lesser flexibility for utilities' procurement of renewable energy. In this way, utilities can continue to pursue portfolio diversity while still containing costs. Furthermore, this limit should be confidential to avoid motivating developers to increase the bids of lower-cost projects.

Require an Application instead of an Advice Letter for all contracts whose expected above-market costs exceed \$100 million.¹⁹

In light of the utilities' progress toward achieving RPS targets, DRA recommends the higher level of scrutiny offered by the Application process for costly projects. Specifically, Applications should be required for projects with above-MPR costs exceeding \$100 million, as these few projects are responsible for the majority of above-market costs. The Application process allows parties to participate more fully and affords CPUC staff more time to analyze a proposed project and determine its worth relative to price.

¹⁹ According to August 2010 PDSRs, only 25% of contracts have Maximum Above-MPR Costs exceeding \$100 million; these same contracts account for nearly three quarters of the total of Maximum Above-MPR Costs.

Increase accountability and transparency by establishing a clear cost reporting requirement for the utilities. Currently, it is difficult to assess the total costs of the RPS program and utilities' progress toward meeting the RPS goals. The CPUC should require the utilities to add a clear and concise report to their biannual filings which enumerates: 1) The total costs of the RPS program expended thus far, 2) the anticipated total costs of RPS contracts for the next ten years, including integration costs, and 3) the utility's outstanding need for more RPS-eligible energy to meet upcoming goals through 2020.