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COMMISSION

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EFFICIENCY FOR CALIFORNIA:
2008 PROGRESS REPORT**

STAFF REPORT

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Abstract

This Achieving Cost-Effective Energy Efficiency for California: 2008 Progress Report documents the progress California's utilities are making in fulfilling the legislative mandate to invest in increased cost-effective energy efficiency as required by Assembly Bill 2021 (Levine, Chapter 734, Statutes of 2006).

The 2008 data used in this report was compiled from investor-owned utilities' annual reports filed with the California Public Utilities Commission and from publicly owned utilities' data collected by the California Municipal Utilities Association filed with the California Energy Commission.

The progress of publicly owned utilities' energy efficiency programs are measured with specific metrics for expenditures and savings accomplishments. While publicly owned utilities are increasing their efficiency budgets, most utilities have not demonstrated true integrated resource planning by diverting procurement funding to demand-side resources. Efficiency savings recorded by publicly owned utilities increased substantially from 2007 to 2008 reaching 66 percent of Assembly Bill 2021 adopted goals. Publicly owned utilities demonstrated their commitment to efficiency savings over the last year by expanding energy efficiency staff and customer programs. As in the 2008 Assembly Bill 2021 progress report, the 2009 targets are very high, a continuing concern is that the publicly owned utilities will not meet their ambitious goals. Slowing economic conditions in California are negatively affecting customer's willingness to invest in energy efficiency.

Energy efficiency program evaluation plays a prominent role for both investor-owned utilities and publicly owned utilities in this year's report. Many publicly owned utilities prepared evaluation plans or performed verification studies for the first time. While the results are preliminary, most publicly owned utility-verified savings seem to support the 2008 reported program savings.

Keywords: Energy efficiency, savings, demand reduction, peak demand, electricity consumption, natural gas, electric-peak demand reduction, potential estimates, targets, program evaluation, goals, measurement, verification, Assembly Bill 2021, Senate Bill 1037, investor-owned utilities, publicly owned utilities

Executive Summary

This Achieving Cost-Effective Energy Efficiency for California: 2008 Progress Report presents progress by California utilities during 2008 in achieving energy efficiency goals as required by Assembly Bill 2021 (Levine, Chapter 734, Statutes of 2006). The legislation set a goal of reducing total forecasted consumption by 10 percent over the next 10 years and is reinforced in Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006). The California Air Resources Board's Scoping Plan, also supports AB2021 goals and sets energy efficiency in the central role to reduce global warming.

In the interest of promoting increased energy efficiency in all California utilities, Assembly Bill 2021:

- Requires the California Energy Commission to develop statewide energy efficiency potential estimates and targets (or goals) for California's investor-owned and publicly owned utilities.
- Requires publicly owned utilities to identify all potentially achievable cost-effective electricity energy savings and establish annual targets for energy efficiency savings and demand reduction for the next 10-year period.
- Requires the Energy Commission to report, as part of its biennial *Integrated Energy Policy Report (IEPR)*, progress by utilities in implementing Assembly Bill 2021.

The 2009 staff report documents progress by investor-owned and publicly owned utilities in fulfilling these energy efficiency objectives. Ten-year statewide goals were adopted in December 2007. Targets submitted by the publicly owned utilities and the annual goals the California Public Utilities Commission (CPUC) set for the investor-owned utilities in Decision 04-09-060 comprise the bulk of the overall statewide energy goal set for 2007-2016.

During the CPUC's 2006-2008 efficiency program cycle, investor-owned utilities succeeded in meeting their goals as outlined in the CPUC's D. 04-09-060 and in the Energy Commission's Assembly Bill 2021 Report. Combined, all investor-owned utilities reported 10,514 gigawatt hours of annual energy savings, 1,810 megawatts of peak savings, and 141 million therms of natural gas savings. These reported accomplishments substantially exceeded their CPUC-mandated goals. However, measurement and verification studies completed on 2006-2007 programs indicate the possibility of *verified* efficiency program savings being less than those *reported*.

This report contains several metrics to measure the progress made by the publicly owned utilities energy efficiency programs. These metrics include: reported and projected energy efficiency expenditures, energy efficiency spending as percentage of revenue, reported and projected annual and peak energy savings relative to adopted targets, reported efficiency savings as a percentage of total electric sales, reported and projected annual peak savings relative to adopted targets, and portfolio cost-effectiveness.

Efficiency expenditures by the publicly owned utilities increased by 65 percent to \$104 million from 2007 to 2008. Annual efficiency savings reported by publicly owned utilities in 2008 increased by nearly 58 percent for energy savings and nearly 46 percent for peak savings over 2007. Despite these gains the publicly owned utilities collectively fell short of their adopted targets for 2008 by 34 percent for annual energy savings and by 66 percent for their peak savings target.

Publicly owned utilities reported on measurement and verification accomplishments for the first time. Many of the utilities completed evaluation plans, and others reported on actual study results in terms of verified savings for specific programs. While the results are preliminary, the verified savings confirm the 2008 reported program savings in most cases. Staff has not yet completed evaluating the methods and assumptions used in these studies.

The publicly owned utility community is on the right long-term track and are successfully demonstrating their commitment to energy efficiency as part of a larger responsibility to carbon emissions reduction. The Energy Commission staff is concerned, however, about the publicly owned utilities' ability to meet adopted goals for 2009–2010 given challenges with California's weak economy that are stressing local government budgets and diminishing consumer willingness to invest in energy efficiency. Publicly owned utilities must achieve an increase of 90 percent from their 2008 reported energy savings and an increase of 164 percent from their 2008 reported peak savings to reach their 2009 adopted targets.

Publicly owned utilities are encouraged to engage in integrated resource planning that compares cost-effectiveness of efficiency resources to supply options. Based on Total Resource Cost analysis, there is reason to believe publicly owned utilities could benefit from increased utility investment beyond the use of Public Goods Charge funds. If publicly owned utilities expanded using procurement funds for energy efficiency, they may be able to reach their targets. Publicly owned utilities are encouraged to use American Recovery and Reinvestment Act (ARRA) supplemental funding for efficiency as it becomes available through coordination with their local jurisdictions.

Assembly Bill 2021 requires the Energy Commission to provide a statewide estimate of energy efficiency potential and targets every three years. The statewide potential estimates, goals, and targets will be updated again in 2010. Both the publicly owned utilities and the investor-owned utilities, through the CPUC, will be required to identify all cost-effective electricity savings potential and to establish individual savings targets based on that potential. The Energy Commission will work intensively on this commitment over the next year and will report the results in the *2010 Integrated Energy Policy Report Update*.

This report provides recommendations that could assist the publicly owned utilities' efficiency endeavors to meet the 2009-2010 efficiency goals and improve the information supplied from the publicly owned utilities to the Energy Commission. Improved data reporting will result in a more in-depth understanding and analysis of POU efficiency activities and progress. Additional recommendations are included at the conclusion of the report.

- Publicly owned utilities should do everything reasonable to address the impact of the economic recession on energy efficiency programs. Publicly owned utilities should use their unique customer knowledge to focus attention on new customer segments, expand measures that are low or no-cost options (such as direct installation), and market new incentive tools. Strategies being developed by the investor-owned utilities, such as higher incentive levels, should be considered. Although the impacts will not take place until 2010-2011, publicly owned utilities are encouraged to apply for funding made available from the ARRA to augment their existing efficiency expenditures.
- Staff will work to develop protocols for the publicly owned utilities to provide information which explains 1) year-to-year differences in budget and savings accomplishments; and 2) methodologies and assumptions for estimating and verifying annual savings. Utilities must supply data explaining how these factors affect the magnitude and source of 2009-2010 expenditures and savings accomplishments in their next status report. In *Achieving Cost-Effective Energy Efficiency for California: An AB 2021 Progress Report* (December 2008), the publicly owned utilities were requested to supply additional information in the annual March report submitted by the California Municipal Utilities Association on the cause of yearly fluctuations in efficiency performance. Unlike the investor-owned utilities, publicly owned utility savings can vary widely in either direction. The response to this request was a small improvement.
- Publicly owned utilities will provide additional information on the role of energy efficiency in integrated resource planning in the 2010 California Municipal Utilities Association's annual March report. Staff encourages application of integrated resource planning and providing a true comparison between demand-side resources with supply-side resources using cost-effectiveness metrics.
- The publicly owned utilities will work with the Energy Commission and interested stakeholders in preparing their efficiency potential studies and 10-year energy and demand savings to provide an early demonstration of potential methods. The process for updating the efficiency potential estimates and targets required by Assembly Bill 2021 is underway. New goals are due to the Energy Commission for individual publicly owned utilities by June 1, 2010. This ensures rigorous assessment of the efficiency potential and increases consensus around the final targets. Publicly owned utilities, Energy Commission staff, and other parties will schedule regular meetings to discuss progress.
- Publicly owned utilities with residential and small commercial compact fluorescent light distribution programs that comprise a large portion of their annual efficiency savings will pursue impact evaluations for these programs in 2009-2010. There has been considerable information generated on this topic in the investor-owned utilities arena. To simplify their analysis, the publicly owned utilities will consider utilizing relevant investor-owned utilities analysis. There is sufficient uncertainty in all recent utilities' compact fluorescent light studies to warrant this evaluation a priority.

- The 2010 California Municipal Utilities Association's annual March report needs to include a discussion of the ways in which the evaluation studies *completed for 2008–2009 programs* resulted in modifications to the efficiency portfolio and specific efficiency programs in 2009–2010. This should be a continuing feature of subsequent status reports. The greatest value of measurement and verification studies to the publicly owned utilities, especially to smaller utilities, is an opportunity to improve program delivery and cost-effectiveness and to show that energy savings have been realized. Therefore, these studies need significant funding.

CHAPTER 1: Background

This report documents the progress that California’s utilities are making in fulfilling the legislative mandate (AB 2021, Levine, Chapter 734, Statutes of 2006) to invest in increased cost-effective energy efficiency. Investor-owned utilities (IOUs)¹ and publicly owned utilities (POUs) sponsor energy efficiency programs that, together with building and appliance standards and other efficiency efforts, substantially reduce California’s annual electric and natural gas consumption. In 2008, IOUs provided about 67 percent of the retail electricity consumed in California, while POUs provided about 25 percent, and direct access providers supplied the remainder. Of the 2008 utility efficiency programs, IOUs accounted for more than 90 percent of all utility energy savings.²

While California has a 30-year history in cost-effective energy efficiency, the focus on energy efficiency as a future resource was expanded in 2003 by the first *Energy Action Plan*.³ Senate Bill 1037 (Kehoe, Chapter 366, Statutes of 2005) made this policy into law by requiring electric utilities to meet their resource needs first with energy efficiency. SB 1037 requires the California Public Utilities Commission (CPUC), and the California Energy Commission, to:

- Identify all potentially achievable cost-effective electric and natural gas energy efficiency savings for the IOUs and set targets⁴ for achieving this potential.
- Review the energy procurement plans of IOUs.
- Consider cost-effective supply alternatives such as energy efficiency.

In addition to these IOU requirements, SB 1037 requires all POUs, regardless of size, to report investments in energy efficiency programs annually to their customers and to the Energy Commission.

The role of energy efficiency in California’s future was further underscored by climate change legislation. Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006) requires greenhouse gas emissions be reduced to 1990 levels by 2020. Customer-side energy

¹ California’s IOUs are Pacific Gas and Electric Co. (PG&E), Southern California Edison Co. (SCE), San Diego Gas & Electric Co. (Sempra Utilities) (SDG&E), and Southern California Gas Co. (Sempra Utilities) (SCG).

² California Energy Commission, *California Energy Demand 2008-2018 Staff Forecast*, CEC-200-0007-015-SF2, November 2007.

³ The three agencies were the California Public Utilities Commission, California Energy Commission, and then existing California Power Authority.

⁴ The terms for energy efficiency “targets” and “goals” are used interchangeably. There is an established convention (at least since 2004) that the CPUC and IOUs use the term “goals.” POUs have adopted the term “targets” since that is the term used in AB 2021.

efficiency is one of the primary approaches contributing to this goal in the electricity and natural gas sectors.

More specific legal directions were added in 2006 by AB 2021 which stressed actions to increase California's energy efficiency programs and:

- Ensure continued prudent investments in energy efficiency.
- Produce cost-effective energy savings.
- Reduce customer energy demand by 10 percent over the next 10 years.

Other benefits include the reduction of overall system costs, increased reliability, and increased public health and environmental benefits. Expanding California's energy efficiency programs improves air quality problems throughout the state and reduces greenhouse gas emissions. Energy savings achieved through this legislation are an essential component of the state's plan to meet Governor Schwarzenegger's greenhouse gas reduction targets established in Executive Order S-3-05.

AB 2021 directed POU's to "first acquire all available energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible." Additionally, the legislation requires each POU to:

- Identify, every three years, starting June 2007, all potentially achievable cost-effective electricity energy savings.
- Establish annual targets for energy efficiency savings and demand reduction for the next 10-year period, and report these targets to the Energy Commission.
- Annually report to its customers and the Energy Commission its investment in energy efficiency programs, description of programs, expenditures, cost-effectiveness, and expected and actual energy savings results; and sources of funding for investments.
- Report methods and input assumptions used to determine cost-effectiveness.
- Report independent evaluation, measurement, and verification results of the energy efficiency savings.
- Treat investments in energy efficiency as procurement investments made to achieve energy efficiency savings and demand reduction targets.

AB 2021 also directs the Energy Commission to:

- Provide, in consultation with the CPUC as the regulator of IOU energy efficiency programs, a statewide estimate of energy efficiency and demand reduction potential and targets for a 10-year period.
- Include the POU information in the *Integrated Energy Policy Report (IEPR)*, and include a comparison of each utility's energy efficiency targets and actual results for each POU.

- Provide recommendations to POUs, Legislature, and Governor if it is determined that improvements could be made in the level of collective achievement by POUs or in the level of achievement by any POU.

The first requirement of AB 2021 was met December 2007 when the energy agencies and the utilities, developed statewide targets and utility-specific targets.⁵ An overall statewide goal equivalent to all cost-effective efficiency economic potential was adopted and presented in the Energy Commission's 2007 IEPR.

In the 2008 IEPR update process, the first AB 2021 progress report was provided on 2007 IOU and POU energy efficiency activities and progress.⁶ In the IOU arena, energy efficiency accomplishments for the 2006–2008 program cycle and plans for the 2009–2011 program cycle were discussed in the progress report. This 2009 progress report contains an update on these topics and also addresses the CPUC's first interim *Energy Efficiency 2006-2007 Verification Report*, summarizing the measurement and verification (M&V) efforts of the program from 2006–2007. The POUs reported on activities to meet their 2008 energy efficiency program goals in their *Energy Efficiency in California's Public Power Sector: A Status Report*⁷. Evaluation plans and studies for the POUs are being reported for the first time in this report. After summarizing and assessing the POU material, this report concludes with recommendations for the POUs.

While activities are presented in this report for both the IOUs and the POUs, none of the utility savings accomplishments have been adjusted to reflect M&V results. As noted in the next section this adjustment process for the IOU's is taking place in CPUC and Energy Commission proceedings.⁸ For the POUs, program evaluation results on verified savings are too recent and too few to consider making savings adjustments based on savings realization rates resulting from M&V studies.

This final report contains revisions to staff's analysis and recommendations based on the June 9, 2009, workshop and subsequent comments. (Appendix B)

⁵ California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*, Final Staff Report, CEC-200-2007-019-SF, December 2007.

⁶ California Energy Commission, *Achieving Cost-Effective Energy Efficiency for California: An AB 2021 Progress Report*, CEC-20-2008-007, December 2008.

⁷ This annual report from the California Municipal Utilities Association (CMUA) to the Energy Commission is frequently referred to as the "annual CMUA Report" or "March report."

⁸ See CPUC's R.06-04-010, the current energy efficiency rulemaking initiated in 2006, and R.09-01-019, the new rulemaking on Risk Reward Incentive Mechanism (RRIM) initiated in 2009. The Energy Commission's 2009 IEPR proceeding includes analyses on the differences among reported (*ex ante*) savings, verified (*ex post*) savings, and savings estimates developed using the Energy Commission's demand forecast models.

CHAPTER 2: IOU Energy Efficiency Program Accomplishments

In 2008, the IOUs were in the third and final year of their 2006–2008 efficiency program cycle. Using program planning and measurement standards mandated by the CPUC for energy efficiency programs, each has reported strong individual performances for the overall 2006–2008 planning cycle.

Table 1 and Table 2 describe the IOUs’ self reported savings relative to CPUC-adopted annual savings goals for electricity savings (GWh), peak demand reduction (MW), and natural gas savings (million therms) (MMth).

Table 1: IOU First Year⁹ Reported Net Program Impacts (2006–2008)

Year		CPUC Mandated Goal	Reported Savings	Percentage of Goal
2006	Electricity (GWh)	2,032	1,716	85%
	Peak (MW)	442	300	68%
	Natural Gas (MMth)	30	25	83%
2007	Electricity (GWh)	2,275	3,889	171%
	Peak (MW)	478	640	134%
	Natural Gas (MMth)	37	51	132%
2008	Electricity (GWh)	2,505	4,909	196%
	Peak (MW)	528	870	165%
	Natural Gas (MMth)	44	69	157%

Source: CPUC Energy Division, *Energy Efficiency and Conservation Programs, Progress Report to the Legislature*, July 2009.

Table 1 shows the IOUs’ *ex ante* savings, that is, self reported savings which not been verified by third-party evaluators.¹⁰

⁹ The term “first year” refers to saving impacts that begin in a given year. Efficiency savings usually extend beyond the year in which they actually begin. As new savings programs begin over successive years, these first year savings become cumulative.

¹⁰ *Ex ante savings* are estimated or forecasted savings used for program planning. Once an evaluation has taken place and savings have been verified, the resulting savings, which may be revised, are referred to as *ex post savings*.

Table 2: IOU Cumulative Reported Net Program Impacts (2006-2008)

	PG&E	SCE	SDG&E	SCG	Total
Electricity (GWh)	5,445	4,119	950	0	10,514
Peak (MW)	894	746	170	0	1,810
Natural Gas (MMth)	72	0	7	62	141

Source: CPUC Energy Division, *Energy Efficiency and Conservation Programs, Progress Report to the Legislature*, July 2009.

The IOUs spent a total of \$316 million (2006), \$670 million (2008), and \$943 million (2009) on their efficiency portfolios.¹¹ **Table 3** shows the expenditure breakdown by utility for the 2006-2008 program cycle. The annual increase in expenditures mirrors a similarly rising trend in program accomplishments for those same years. The smaller 2006 accomplishments are attributed to the timing of the 2006 –2008 portfolio approval and implementation that didn't begin until late in 2006. The IOUs' performance in 2007 and 2008 was robust enough that their total savings-to-goal ratios were greater than 120 percent across all savings categories.

Table 3: IOU Energy Efficiency Expenditures (2006-2008) – \$ Millions

Utility	2006	2007	2008	2006 - 2008
PG&E	\$142	\$298	\$481	\$921
SCE	\$121	\$261	\$290	\$672
SDG&E	\$34	\$68	\$113	\$215
SCG	\$19	\$43	\$59	\$121

Source: CPUC Energy Division, *Energy Efficiency and Conservation Programs, Progress Report to the Legislature*, July 2009.

¹¹ CPUC Energy Division, *Energy Efficiency and Conservation Programs, Progress Report to the Legislature*, July 2009.

IOU Energy Efficiency 2006–2007 Verification Report

Measurement and verification (M&V) of savings are a critical feature of the CPUC's jurisdiction over IOU efficiency programs. M&V studies inform program planners who continually strive toward more cost-effective and ultimately more successful program designs. Equally important is the role M&V play in protecting IOU ratepayers from investing in efficiency programs that do not yield true savings value. The CPUC, through a mechanism known as Risk/Reward Incentive Mechanism (RRIM),¹² offers the IOUs shareholder earnings as an incentive to reach or exceed their energy efficiency goals. Within the context of the RRIM, the CPUC Energy Division must produce *ex post* savings estimates – savings that have been verified and that serve as the basis for IOU incentive payments.

The CPUC's first interim *Energy Efficiency 2006–2007 Verification Report (Verification Report)*, published in February 2009, updated the parameters used to estimate 2006-2007 efficiency program costs and benefits using results from third-party M&V studies from the 2004 and 2005 programs.¹³ The updated savings parameters were used to adjust the IOUs' reported *ex ante* savings accomplishments and to determine the amount of shareholder earnings each IOU would be eligible to claim.

The RRIM earnings accrue if the utility meets or exceeds the Minimum Performance Standard (MPS), a threshold of 85 percent of the CPUC's savings goals (80 percent for Southern California Gas). If the utility achieves 100 percent of the goals, the earnings rate increases as a reward for superior performance. The 85 percent and 100 percent threshold earnings rates, set at 9 percent and 12 percent respectively, are used to calculate a share of the Performance Earnings Basis (PEB), which determines the amount of shareholder incentives that the utility will be eligible to collect from electric distribution or gas transportation rates. The PEB is an estimate of the benefits created by the utility portfolio minus the costs of the utility portfolio, measured in monetary terms.¹⁴ **Table 4** shows the proportion of the reported savings reductions after the CPUC's Energy Division analysis on the IOUs reported portfolio savings. These reductions, in turn, lowered earnings estimates.

¹² Current CPUC decisions regulating IOU energy efficiency shareholder earnings in R. 06-04-010 are D.07-09-043 (2007) and 08-01-042 (2008).

¹³ CPUC, *Energy Efficiency 2006–2007 Verification Report*, prepared by Energy Division, February 5, 2009.

¹⁴ CPUC, *Energy Efficiency 2006–2007 Verification Report*, prepared by Energy Division, February 5, 2009.

Table 4: 2006–2007 IOUs Verified Savings as a Proportion of Reported Savings

	PG&E	SCE	SDG&E	SCG
Total Electricity Savings (GWh)	70.87%	78.38%	80.94%	
Total Peak Savings (MW)	72.40%	81.49%	87.96%	
Total Natural Gas Savings (MMTh)	85.94%		91.79%	81.11%

Source: CPUC Energy Division, *Energy Efficiency 2006-2007 Verification Report*, February 5, 2009.

The *Verification Report* suggests that, for program years 2006 and 2007, the IOUs realized a percentage of their reported accomplishments. CPUC Energy Division staff concluded that of the four IOUs with claimed earnings (totaling \$152 million collectively) only SCG was eligible to claim earnings and this was due to SCG's exclusively natural gas portfolio. Natural gas measures had higher verification results and earnings potential than electric measures, notably lighting, which comprises a large portion of all other IOUs' portfolios.¹⁵

Although the *Verification Report* was intended to serve as the primary mechanism for awarding utility earnings, due to concern surrounding its method, and the timing of its release, the report did not have any direct effect on the IOUs' first interim payment. In December 2008, the CPUC awarded the IOUs a combined total of \$82 million in earnings for program years 2006 and 2007 — 35 percent of the IOUs' original earnings claim.¹⁶

The *Verification Report*, published two months after the IOUs received their first interim payment, may still be used for planning. The background analyses of the *Verification Report* led to modifications of the CPUC's Database of Energy Efficiency Resources (DEER)¹⁷ database, which, in turn, affects the calculation of 2009–2011 portfolio savings. The Energy Commission is using data in the *Verification Report's* summary reports to determine efficiency savings embedded in the demand forecast.¹⁸ In a recently proposed decision, the CPUC states "... the *Verification Report* of 2006 and 2007 energy efficiency activities now

¹⁵ The CPUC Energy Division issued the second interim *Energy Efficiency 2006-2008 Verification Report* (Resolution E-4272) on August 5, 2009. This report proposes final adjustments to claimed savings for the entire 2006-2008 program cycle.

¹⁶ CPUC D.08-12-059, *Decision Granting in Part and Denying in Part the Petition for Modification*, January 2, 2009.

¹⁷ Database of Energy Efficiency Resources (DEER) contains the technical data for energy efficiency measures that are used to estimate savings impacts for planning purposes.

¹⁸ Energy Commission, "Quantifying Energy Efficiency in the Demand Forecast," 2009 IEPR Workshop, May 21, 2009.

provides 2006–2007 data, which can be reasonably projected to 2008 and beyond by the IOUs.”¹⁹ There is however disagreement on this application of M&V results.

IOU Efficiency Goals for 2009 and Beyond

IOU Goals for 2009–2011

In July 2008, the CPUC issued a decision on long-term energy efficiency goals, directing a new paradigm in savings objectives for the IOUs.²⁰ The CPUC recommended a “hybrid-goal structure” consisting of total market gross (TMG) goals and net utility-specific goals for each IOU service area for 2012 to 2020. The CPUC decision modifies the existing goals set in 2004 for the 2009–2011 program cycles by redefining the goals from net to gross savings.²¹ The CPUC and IOUs believe this savings choice is more realistic because it reflects the latest information on energy efficiency potential in Itron’s *2008 Goals Update Study*²². Because the previous 2004–2013 goals (defined as net) exceed the 2008 estimate of efficiency opportunities and because the goals were based upon assumptions that are now outdated, they are no longer an appropriate benchmark of future program accomplishments.

The July 2008 decision sets interim TMG goals to be used for AB 32 and resource procurement planning but postpones setting utility-specific goals until after program evaluations for 2005–2008 programs are completed in 2010.

The CPUC left unchanged the 2009–2011 program cycle goals set by D.09-04-060 (2004), however, IOUs will be measuring their program accomplishments by the revised definition of goals outlined in D.07-08-047 (2008). The redefinition of goals from net-to-gross asked what could be included in the gross impact definition. A comprehensive proposal has been

¹⁹ CPUC, Proceeding A.08-07-021, *Interim Decision Determining Policy and Counting Issues for 2009 to 2011 Energy Efficiency Programs*, April 21, 2009.

²⁰ CPUC, D.08-07-047, *Decision Adopting Interim Energy Efficiency Savings Goals for 2012 through 2020, and Defining Energy Efficiency Savings Goals for 2009 through 2011*, July 31, 2008. The development of the IOU goals for CPUC efficiency program cycle 2009–2011 is discussed at length in last year’s AB 2021 progress report (California Energy Commission, *Achieving Cost-Effective Energy Efficiency for California: An AB 2021 Progress Report*, CEC-200-20078-007, December 2008).

²¹ *Ibid*, pp. 28-32. Gross savings include naturally occurring and additional savings that may be related to a particular program but not its direct result. This broader definition will permit the IOUs to meet their goals using gross savings, that is, greater savings per efficiency measure. In theory, if the attribution is justified, the IOUs may claim savings from codes and standards activities, government partnerships, and other sources.

²² Itron, Inc., *California Energy Efficiency Potential Study*, prepared for the CPUC, September 10, 2008.

offered by the CPUC in an interim decision that details how the IOUs will achieve annual and cumulative goals and determine the cost-effectiveness of their portfolios.²³

Table 5: IOU Gross Savings Goals for 2009–2011

	2009	2010	2011	Cumulative 2009-2011
Energy (GWh)	2,538	2,465	2,513	7,516
Peak (MW)	535	519	530	1,584
Natural Gas (MMth)	52	54	57	163

Source: California Public Utilities Commission, D.08.07.047, Table 3, Page 29.

IOU Goals for 2012–2020

In updating the TMG goals for program years 2012 through 2020, the CPUC must consider the results of M&V studies for program years 2006 through 2008 along with revised estimates of energy efficiency potential.²⁴ Additionally, the results of a new CPUC proceeding established to evaluate and modify the IOU incentive mechanism will play a role in determining revised goals.

IOU Program Applications for 2009–2011

The IOUs originally filed their program applications for 2009–2011 in July 2008. Those applications were determined to be inadequate by the CPUC for reasons such as not sufficiently supporting the CPUC’s *California’s Long-Term Energy Efficiency Strategic Plan (CEESP)*. In response, the CPUC ordered the utilities to revisit their portfolio design to

²³ CPUC, D.09-05-037, *Interim Decision Determining Policy and Counting Issues for 2009 to 2011 Energy Efficiency Programs*, April 21, 2009.

²⁴ Savings goals for 2010-2012 are specified in the CPUC’s draft decision approving IOU energy efficiency portfolios and budgets. See CPUC, Proceeding A.08-07-02, *Proposed Decision Approving 2010-2012 Energy Efficiency Portfolios and Budgets*, August 21, 2009. The schedule for revising IOUs energy efficiency potential estimates and savings goals for subsequent years has not yet been determined.

better reflect state policies.²⁵ The IOUs worked closely with CPUC Energy Division staff to produce applications filed in March 2009 that more closely addressed the four initiatives of the CEESP²⁶:

- All new residential construction will use zero net energy by 2020.
- All new commercial construction will use zero net energy by 2030.
- Heating, ventilation, and air conditioning (HVAC) industry will be transformed.
- Low-income customers will be integrated into the mainstream energy efficiency portfolio.

On August 21, 2009, the CPUC issued a draft decision approving the energy efficiency portfolios and budgets for the next program cycle beginning on January 1, 2010, through the end of 2012. The program cycle was revised from 2009-2011 to 2010-2012 with 2009 functioning as a transition year; certain previously approved 2008 programs would continue with bridge funding until December 31, 2009.²⁷ The proposed funding for the 2010-2012 portfolios is \$2.85 billion.

²⁵ CPUC, *Assigned Commissioner's and Administrative Law Judge's Ruling Requiring Supplemental Filings*, October 30, 2008. See also CPUC, D.08-09-040, *Decision Adopting the California Long-Term Energy Efficiency Strategic Plan*, September 19, 2008.

²⁶ IOUs filed amended portfolio applications in Proceeding A.08-07-021 on March 2, 2009. Subsequent to D.09-05-037, the IOUs refiled applications on July 2, 2009, to incorporate the policies adopted in that decision.

²⁷ CPUC, Proceeding A.08-07-021, *Proposed Decision Approving 2010-2012 Energy Efficiency Portfolios and Budgets*, August 21, 2009.

CHAPTER 3: POU Energy Efficiency Program Metrics

California's POU's are locally controlled entities ranging in size from the state's third-largest utility, Los Angeles Department of Water and Power (LADWP), to very small entities serving less than a thousand customers. Among the 39 reporting POU's, LADWP and Sacramento Municipal Utility District (SMUD) serve approximately 63 percent of the retail sales, and the largest 15 POU's serve 97 percent of the total POU load.²⁸

The POU's have had energy efficiency programs for their customers for many years. Since electricity deregulation legislation in 1996, Assembly Bill 1890 (Peace, Chapter 854, Statutes of 1996), these programs have been funded from California's public goods charge (PGC). As noted in Chapter 1, the Energy Commission, the CPUC, and the utilities, developed statewide targets and utility-specific targets in December 2007²⁹ in response to AB 2021.

The POU's fulfill their reporting obligation by providing a joint report compiled by the California Municipal Utilities Association (CMUA) with assistance from the Northern California Power Agency (NCPA) and Southern California Public Power Authority (SCPPA).³⁰ In March 2009, CMUA provided the Energy Commission with the second progress report since the energy efficiency targets were adopted in December 2007.³¹

This report provides the performance measures, or metrics, that demonstrate the success and commitment of the POU's' efficiency expenditures and unverified self reported energy savings. These measures are:

- Changing annual magnitudes of efficiency expenditures.
- Reported expenditures as a percent of projected expenditures.
- Efficiency expenditures as percent of total utility revenue.

²⁸ The largest POU's, or "big 15" are: Anaheim Public Utilities, Burbank Water and Power, Glendale Water and Power, Imperial Irrigation District (IID), Los Angeles Department of Water and Power (LADWP), Lodi Electric Utility, Modesto Irrigation District (MID), City of Palo Alto, Pasadena Water and Power, Redding Electric Utility, Riverside Public Utilities, Roseville Electric, Silicon Valley Power, Sacramento Municipal Utility District (SMUD), and Turlock Irrigation District. Staff concentrates on these utilities because they comprised 96 percent of the efficiency savings in 2008.

²⁹ California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*, Final Staff Report, CEC-200-2007-019-SF, December 2007.

³⁰ The Power and Water Resource Pooling Authority (PWRPA) reported separately from CMUA and after issuance of the SB 1037 annual report. PWRPA spent \$975,000 on efficiency programs in 2008 for which first year savings of 748 MWh were reported from four projects, which used 34 percent of the funds.

³¹ CMUA, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009.

The measures evaluating energy and peak savings achievements are:

- Changing annual magnitudes of energy and peak savings.
- Reported energy and peak savings as a percentage of projected savings.
- Percentage of energy and peak savings achieved relative to adopted targets.
- Energy savings as a percentage of total utility sales.

POU Energy Efficiency Expenditure Metrics: Reported and Projected

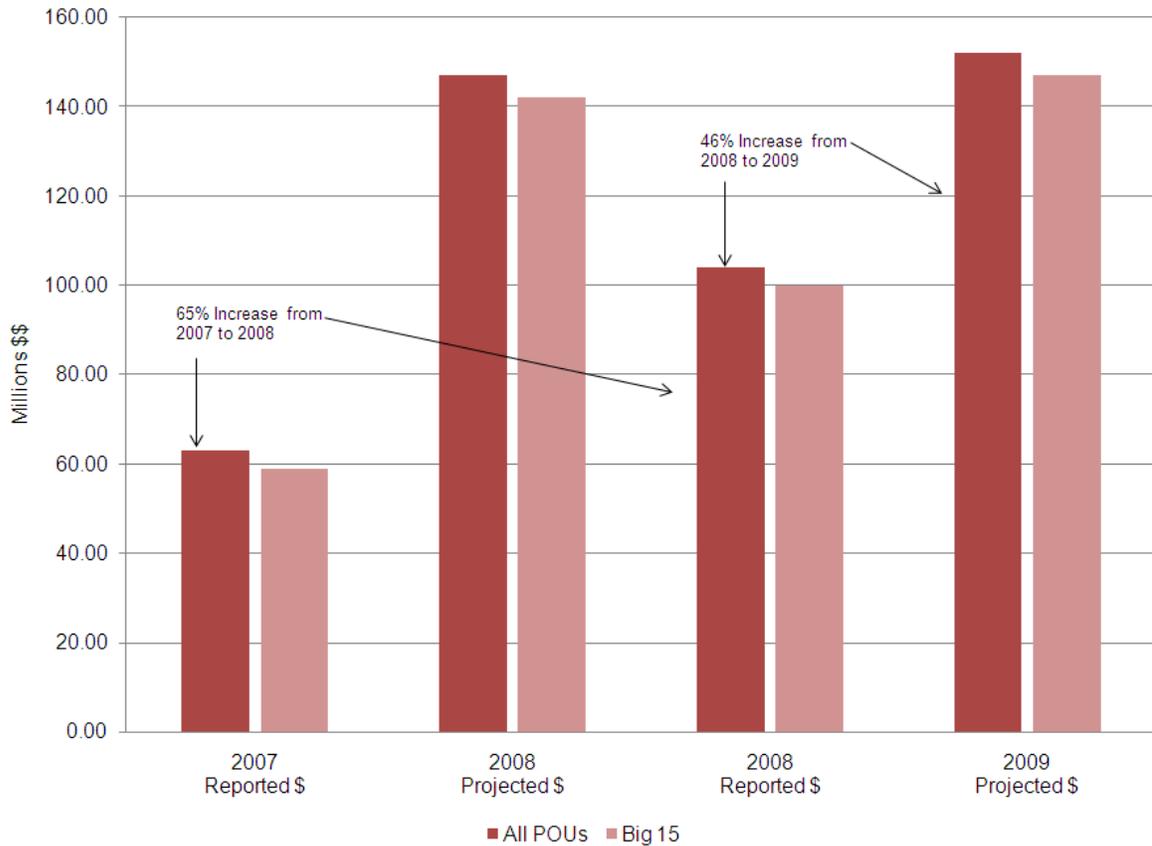
AB 2021 directs the Energy Commission to provide a comparison of each POU's targets and the utility's actual annual energy savings and demand reductions.³²

The POU's collectively spent \$104 million on energy efficiency programs in 2008, a 65 percent increase from their 2007 reported expenditures. In 2007, the POU's had projected they would spend \$147 million in 2008, 30 percent higher than they actually spent; the largest 15 POU's spent \$100 million, or 97 percent of this total. LADWP spent the largest amount at \$36 million, and SMUD spent the next highest at \$29 million. Combined they spent a total of 63 percent of the POU programs, roughly commensurate with their share of retail sales.

For 2009, the POU's project to spend \$152 million on energy efficiency programs, a 46 percent increase. LADWP is responsible for the majority of the increased projected spending, increasing from \$36 million to \$72 million dollars a 100 percent increase from 2008 to 2009. **Figure 1** illustrates the reported and projected energy efficiency expenditures for 2007 through 2009, with the supporting data contained in Appendix **Table A-1**.

³² AB 2021 (Levine, Chapter 734, Statutes of 2006), Section 3(f), amends Section 9615 of the Public Utilities Code.

Figure 1: POU Reported and Projected Energy Efficiency Expenditures for 2007–2009



Sources: California Municipal Utilities Association, *Energy Efficiency in California’s Public Power Sector: A Status Report*, March 2009.

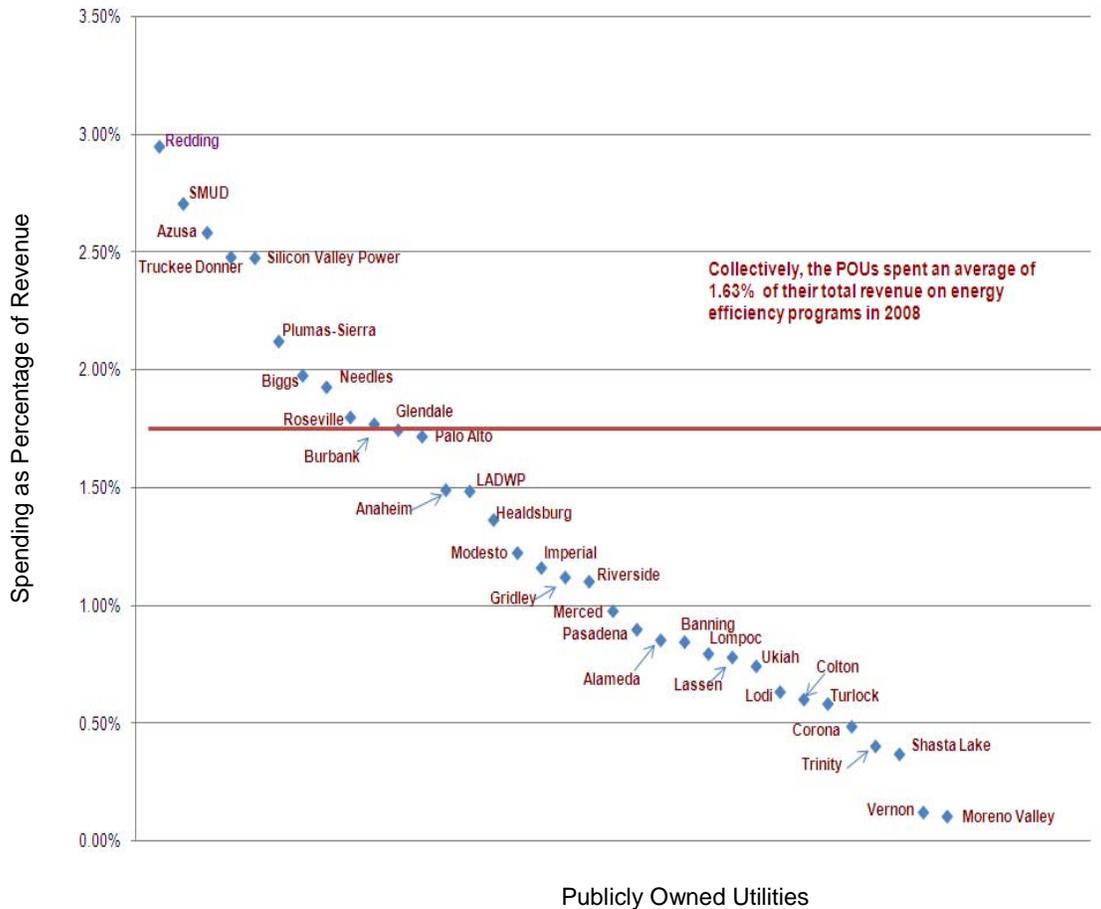
An important measurement of a utility’s commitment to energy efficiency is the amount of program expenditures relative to a utility’s total revenue.³³ In 1996, the Legislature mandated a variable minimum percentage that POU should collect through the PGC.³⁴ The

³³ Efficiency spending as a percentage of total utility revenue is a recognized metric indicated utility progress in energy savings. In 2007, this metric for U.S. utilities ranged from under 0.2 to nearly 2.5 percent. The latter is considered “aggressive” but may become an industry standard driven by policies for carbon emissions reductions. See <http://www.aceee.org/energy/state/policies/utpolicy.htm>.

³⁴ AB 1890 (Peace, Chapter 854, Statutes of 1996), Chapter 2.3, Article 8. The PGC is added to customer utility bills to cover costs related to “public interest” activities, which include energy efficiency. The PGC funds allocated to energy efficiency by the POU are intended to be equivalent to that allocated by the IOUs. For a discussion of PGC spending for energy efficiency by POU, see Natural Resources Defense Council, *A Review of Public Benefits Investment Information Available From California’s Consumer-Owned Electric Utilities*, February 23, 2005.

POUs spent an average of 1.63 percent of their total revenues on energy efficiency programs in 2008, a more than 60 percent increase from 2007.³⁵ The most significant increases in energy efficiency spending as a percentage of utility expenditures came from Azusa, LADWP, Needles, Redding, Silicon Valley Power, SMUD, and Truckee Donner. For these utilities, the average increase in energy efficiency spending was 73 percent for one year.³⁶

Figure 2: POU Energy Efficiency Spending as Percentage of Revenue (2008)



Sources: California Municipal Utilities Association, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009. EIA-861- Annual Electric Power Industry Report. File 2.

³⁵ Revenue data from EIA-861-Annual Electric Power Industry Report File 2; augmented with data from *SCPPA 2007-2008 Annual Report*, *2007-2008 NCPA Annual Report*, Sacramento Municipal Utility District, *2007 Annual Report*.

³⁶ The average excluded the outlier, city of Needles, which increased its efficiency spending from \$2,600 to \$165,000 in this time frame.

The primary source of funding for POU energy efficiency programs is the PGC. In some instances, local governing boards have allocated energy efficiency spending beyond the PGC using general fund and sometimes specifically targeting “procurement” funds, or what would be characterized as deferring generation purchases.³⁷

Following last year’s AB 2021 progress report, staff requested that the POUs identify funds other than PGC allocated to energy efficiency in their next report. Two utilities, Modesto Irrigation District (MID) and Alameda Municipal Power, have budgeted procurement funds for some portion of their total spending on energy efficiency programs in 2008 - 2009. In 2008, MID funded its energy efficiency programs with approximately 58 percent (\$2,100,000) coming from PGC and 42 percent (\$1,492,000) from its power procurement budget. Alameda Municipal Power has budgeted \$552,195 for its energy efficiency programs in 2009 of which 91 percent (\$502,195) is from PGC and 9 percent (\$50,000) is from its power procurement budget. POUs are increasing their efficiency budgets mainly from PGC sources. Concern remains that POUs are not sufficiently applying funds from sources other than PGC funding. Doing so would likely increase their program offerings and savings.

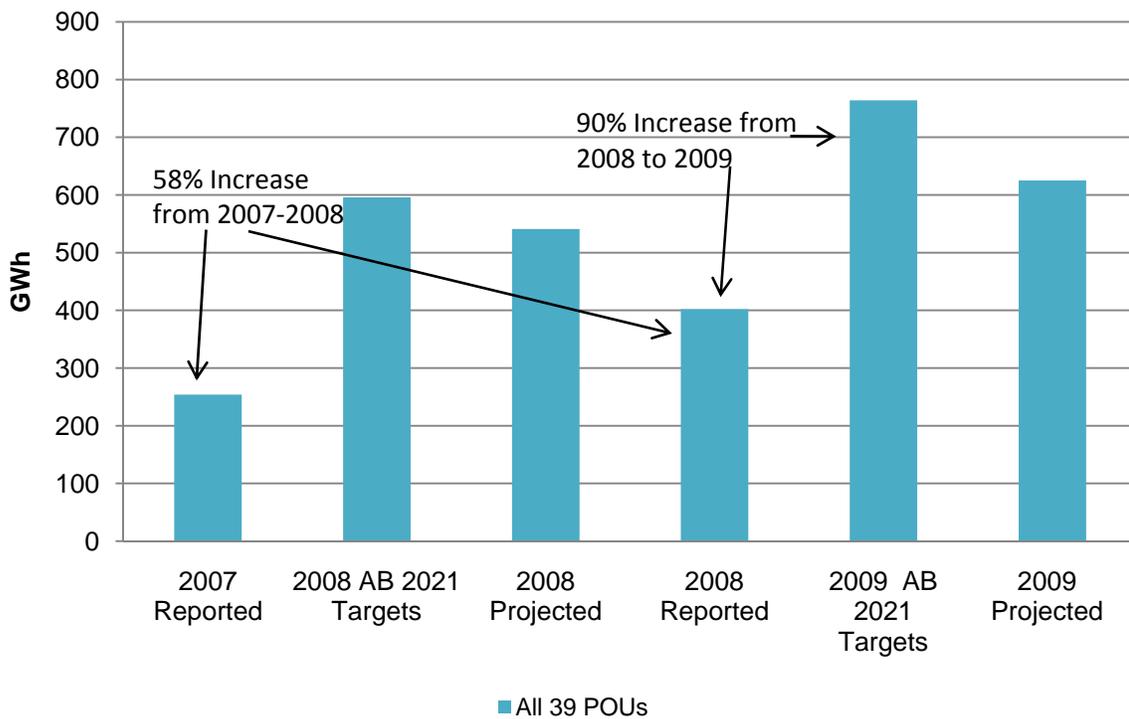
³⁷ CMUA, *Energy Efficiency in California’s Public Power Sector: A Status Report*, March 2009, page 19.

POU Annual and Peak Energy Savings' Metrics: Reported and Projected³⁸

POUs' expenditures resulted in an increase in reported energy efficiency savings.³⁹ In 2008, the POUs collectively provided 402 GWh of electric energy savings, which is a 58 percent increase from 2007. In 2007, the POUs projected their energy savings would be 541 GWh in 2008. The 2008 reported savings are roughly 26 percent less than projected and 34 percent less than their AB 2021 adopted targets (**Figure 3**).

Of the 39 POUs, the largest 15 POUs collectively provided 96 percent of annual energy savings in 2008. SMUD and LADWP provided 57 percent of all POU annual energy savings. To meet the 2009 adopted targets, POUs must achieve an increase of 90 percent from their 2008 reported savings to the 2009 adopted targets.

Figure 3: POU Reported and Projected Electric Energy Savings Relative to AB 2021 Adopted Targets (GWh)



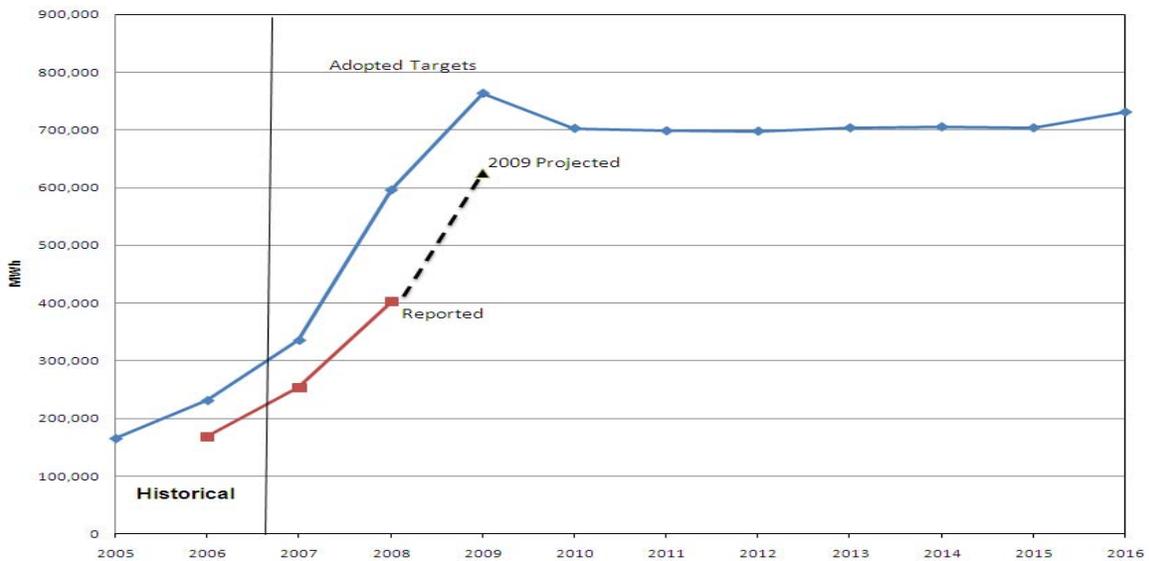
Sources: California Municipal Utilities Association, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009; and California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*. CEC-200-2007-019-SF, December 2007.

³⁸ As noted in Chapter 1, these POU savings are self-reported; they have not been adjusted as a result of measurement and verification studies.

³⁹ POUs report electric savings only. City of Palo Alto is the only POU that serves natural gas; there were no reported gas savings in 2009.

As predicted in the staff’s report *Achieving All Cost-Effective Energy Efficiency for California (2007)*, the POUs are experiencing difficulty meeting the targets in the early years when their programs require steeply ramped annual increases (**Figure 4**). In 2007, the POUs as a group met 74 percent of the adopted target, while in 2008, they met 66 percent of the adopted target. Because the POUs have fallen short of their 2007 and 2008 targets, they must increase their savings by 90 percent to make their 2009 target.

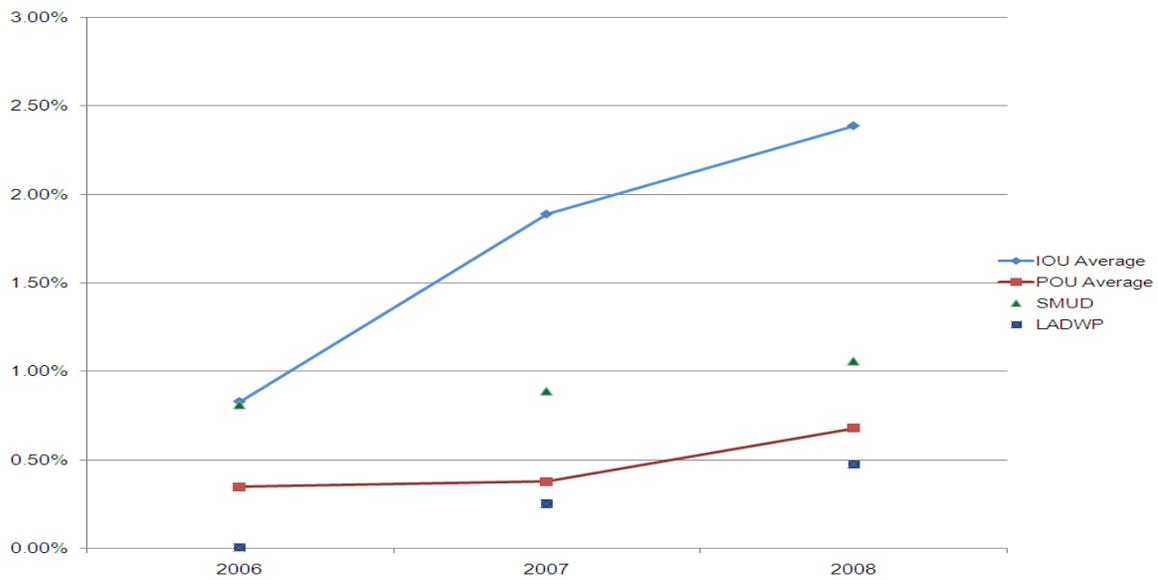
Figure 4: POU Adopted Targets Compared to Reported and Projected Annual Energy Savings



Sources: California Municipal Utilities Association, *Energy Efficiency in California’s Public Power Sector. A Status Report*, March 2009; and California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*. CEC-200-2007-019-SF, December 2007.

Efficiency savings as a percentage of total electric sales is a standard performance metric for efficiency programs.⁴⁰ In 2006, the POU's ratios for efficiency to electric sales ranged from 0.01 to 0.81 percent with SMUD at the top of the range (**Figure 5**).⁴¹ The POU's average savings increased from 0.35 to 0.68 percent of their total electric sales between 2006 and 2008. In 2008, the two largest POU's improved their performance over the last two years. SMUD exceeded 1 percent and LADWP approached 0.5 percent. For comparison, during 2006–2008, average efficiency savings to electric sales ratios for the IOUs are shown ranging from 0.83 percent to 2.39 percent.⁴²

Figure 5: POU Reported Efficiency Savings as a Percentage of Total Electric Sales



Sources: California Municipal Utilities Association, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009; and California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*. CEC-200-2007-019-SF, December 2007, CPUC Energy Division, Energy Efficiency Groupware Application Database, April 2009.

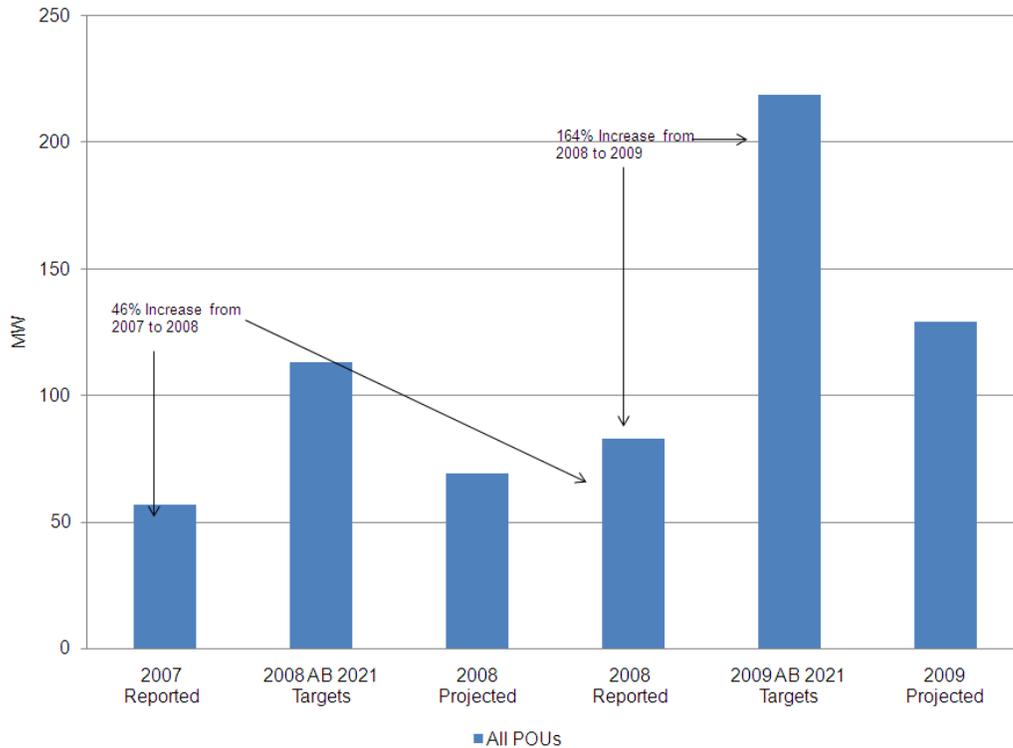
⁴⁰ Depending on the source, an exemplary performance using this metric would indicate savings between 1 and 2.5 percent of total utility sales. See United States Environmental Protection Agency, *National Action Plan for Energy Efficiency*, July 2006; and Kushler, M., York, D., and Witte, P., *Meeting Aggressive New State Goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*, American Council for an Energy Efficient Economy Report Number U091, March 2009.

⁴¹ California Energy Commission, *Achieving All Cost-Effective Energy Efficiency in California: An AB 2021*, CEC-200-2007-019-SF, December 2007.

⁴² Higher IOU savings-sales ratios are expected because the IOUs have used significant amounts of procurement funding for efficiency since 2004. These figures are based on *ex ante* efficiency savings.

In 2008, POUs collectively provided 83 MW of electric-peak savings, a 46 percent increase from 2007 over their projected peak savings of 69 MW (**Figure 6**). The 2008 reported savings are roughly 20 percent higher than the 2007 projection, underestimating earlier savings projections. The 2008 reported savings are 73 percent of their adopted targets. More than half of the POUs' total adopted target for peak energy savings was represented by LADWP, which continued to ramp up its peak savings programs in 2008. Over the last year, SMUD and LADWP combined recorded a 76 percent of all POU annual peak savings. The four utilities with the greatest peak savings are SMUD, LADWP, Anaheim, and Imperial Irrigation District; accounting for 75 percent of the 2008 peak savings. For the POUs to meet their target for 2009, they must achieve a 164 percent increase from their 2008 reported peak savings.

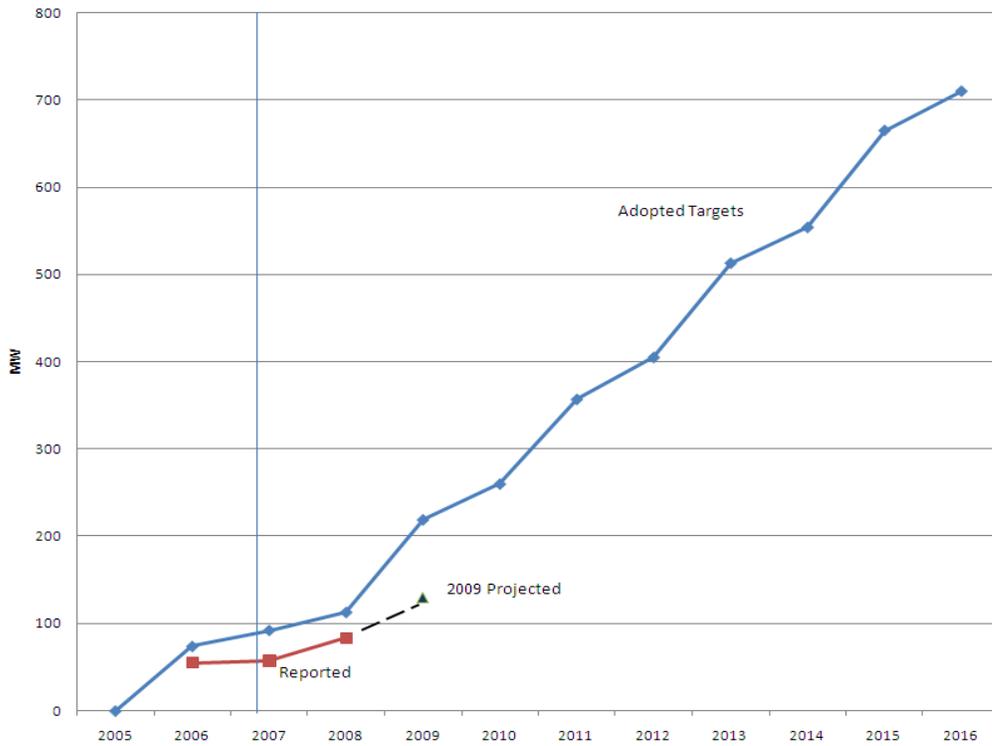
Figure 6: POU Reported and Projected Annual Peak Savings Relative to AB 2021 Adopted Targets (MW)



Sources: California Municipal Utilities Association, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009; and California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*, CEC-200-2007-019-SF.

Figure 7 illustrates the 2007–2016 trajectory of the annual AB 2021 peak targets adopted in 2007. The POU's increased their peak targets by 46 percent between 2007 and 2008. Meeting 61 percent of their target in 2007 and 73 percent of their target in 2008. In 2009, the POU's are projecting to reach 58 percent of their target.

Figure 7: POU Adopted Targets Compared to Reported and Projected Annual Peak Savings (MW)



Source: California Municipal Utilities Association, *Energy Efficiency in California's Public Power Sector. A Status Report*, March 2009; and California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California* CEC-200-2007-019-SF, December 2007.

By customer sector, programs for commercial and industrial (non-residential) customers contributed more than half of the efficiency energy savings for POU's. The energy end use that continued to dominate POU portfolios is residential and non-residential lighting. Lighting provided 63 percent of annual energy savings and more than half of all peak savings in 2008, roughly unchanged from last year. Typical program options include compact fluorescent lighting (CFL) distribution for both residential and small commercial customers.

Residential and non-residential air conditioning is the next most significant end use savings, contributing 20 percent of the annual energy savings and 28 percent of the peak savings. Some of the typical programs providing these savings include air conditioner rebates and refrigerator recycling or exchange programs.

CHAPTER 4: Staff Assessment of POU Progress in 2008

POUs over the last year made impressive strides to implement environmental initiatives in response to threats of global climate change. Integral to these initiatives in 2008 were significant steps taken by the POUs to surpass their 2007 efficiency expenditures and energy savings accomplishments. The March 2009 CMUA report outlines successful and innovative programs from many of the POUs.⁴³ The Energy Commission is required to make recommendations to the POUs, Legislature, and Governor if it determines improvements could be made in the level of aggregate achievement by POUs or in the level of achievement by a specific POU. Analysis for these recommendations would be greatly helped by the POUs' provision of explanatory documents for yearly fluctuations in efficiency expenditures and savings achievements. This request for information was made in staff's last progress report and again in this report's section on recommendations.

Energy Commission staff analyzed the 2008 data on efficiency program savings and expenditures relative to previous year accomplishments, to projections and, as required by AB 2021, to adopted targets. In 2008, the POUs increased their efficiency spending by a commendable 65 percent over 2007 from \$63 million to \$104 million. As a result of these modulated increases, the POUs made advances in their utilities' measure of efficiency expenditures relative to total utility revenues from 1 percent in 2007 to 1.63 percent in 2008. Their reported peak savings comprised 64 percent of their adopted target for 2008. These magnitudes, however, fell short of meeting previous years' projections. In 2008, efficiency spending was 30 percent below projected levels.

In 2008, the POUs increased their efficiency energy savings 58 percent over the previous year but fell 26 percent below previously projected savings for 2008. Their reported savings comprised 66 percent of the total energy target adopted for 2008. The POUs made small increases in efficiency savings as a percentage of total sales (from 0.38 to 0.68 percent). In 2008 the POUs increased their peak savings 46 percent over 2007 and exceeded their 2007 projection for 2008 by 20 percent.

Energy Commission staff considers progress to be reasonable if a POU comes within plus or minus 20 percent of its annual adopted target (**Table 6**). All but four of the largest POUs (Burbank, LADWP, Redding, and Riverside) had annual energy savings within the 20 percent band of their adopted 2008 targets. In 2007, only one-third of the largest POUs achieved savings in the 20 percent band.

⁴³ CMUA, *Energy Efficiency in California's Public Power Sector: A Status Report*, March 2009, pages 2-6.

**Table 6: POU Reported 2008 Energy Savings (MWh)
Compared to Targets and Performance Range**

15 Largest POU's	2008 Target	Target Minus 20%	2008 Reported Savings	Target Plus 20%
Anaheim	16,117	12,894	16,808	19,340
Burbank	11,307	9,046	8,719	13,568
Glendale	11,586	9,269	13,548	13,903
Imperial	29,000	23,200	30,644	34,800
LADWP	315,000	252,000	115,519	378,000
Lodi	2,000	1,600	3,091	2,400
Modesto	6,116	4,893	16,123	7,339
Palo Alto	2,800	2,240	4,399	3,360
Pasadena	10,000	8,000	8,164	12,000
Redding	2,803	2,242	1,640	3,364
Riverside	22,640	18,112	7,260	27,168
Roseville	8,716	6,973	9,314	10,459
Silicon Valley Power	25,762	20,610	24,509	30,914
SMUD	107,000	85,600	114,662	128,400
Turlock	7,271	5,817	10,937	8,725
Total	578,118	462,494	385,335	693,742

Source: Energy Commission staff.

The two largest utilities, LADWP and SMUD, are important factors in the overall success of the POU's in 2007 and 2008. In 2007, SMUD and LADWP comprised more than 70 percent of the savings. While LADWP missed its target in that year, SMUD exceeded its target by 30 percent. Even though 10 of the 15 large utilities did meet the 20 percent band of their target, all of the POU's, bolstered by SMUD's performance, achieved 74 percent of the overall savings target in 2007.

In 2008, only four of the big 15 missed the 20 percent band around their target. LADWP played a big role in 2008 as its savings almost doubled helping to push up the total savings for all the POU's. They still fell short of their very high target because of a start-up delay in a large program. In 2008 the POU's as a group reported achieving 66 percent of their target. In 2009, the POU savings totals are expected to reflect the rollout of substantial lighting programs in LAWDP and in Pasadena.

In **Table 7**, projected changes in savings accomplishments from 2008 are noted for the 15 largest POUs. Large increases are anticipated for Pasadena (111 percent) and LADWP (137 percent). Pasadena expects increased participation in two program areas, residential lighting and non-residential cooling.⁴⁴ LADWP's shortfall in 2008 resulted from a delay in the rollout of its CFL Distribution Program, which did get underway in 2009. Redding fell short of its 2008 targets (and expects to do so in 2009) due to lackluster activity in their commercial lighting program. Redding intends to evaluate modifying the incentive levels in key programs to increase participation. While Burbank is not projecting a large savings increase in 2009, it is expanding its low-income refrigerator exchange program and partnering with the Southern California Gas Company in a residential home audit and retrofit program, "Home House Call," to boost participation in 2009–2011.

Four utilities project a decrease in 2009 energy savings from 2008; the largest changes are expected by Lodi (-75 percent), Modesto Irrigation District (MID) (-57 percent), and Roseville (-30 percent). Lodi cites the slow economy's impact on customer spending and "market saturation" given high customer participation in programs since 1996. Roseville and MID expect lower savings in 2009 relative to last year because of slow economic conditions. Savings for MID were also higher in 2008 than are expected in 2009 because of a large industrial rebate last year that will not reoccur in 2009.

Of the large increases in savings reported in 2008 and projected for 2009, a high percentage are the result of expanding residential and small commercial lighting. As noted last year, CFL distribution programs are popular with nearly all utilities. While these estimated savings appear to be extremely cost-effective, the verified savings of similar lighting program designs are proving to be less than expected, as demonstrated in two recent evaluation studies for the CPUC.⁴⁵ This issue highlights the necessity for rigorous M&V activities in this particular program area.

⁴⁴ Pasadena's "Power of 10 Challenge" challenges customers to replace at least 10 of their incandescent lights with CFLs. Their non-residential "Energy Efficiency Partnering Program" provides rebates for cooling technologies among other items. There is also a non-residential direct install program featuring HVAC cycle management.

⁴⁵ Itron, Inc., *2004-2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation Report*, October 2007; CADMUS Group, *Residential Retrofit Contract Group First Draft Verification Report*, prepared for the CPUC, November 2008; Cadmus Group, *Compact Fluorescent Lamps Market Effects Interim Report*, prepared for the CPUC, January 2009.

Table 7: Projected Increases and Decreases in Annual Energy Savings by Large POUs for 2008–2009

Utilities	2008 Projected Savings MWh	2008 Reported Savings MWh	2009 Projected Savings MWh	2009 Projected Savings Compared to 2008 Reported Savings
Anaheim	15,231	16,808	25,712	53%
Burbank	8,005	8,719	8,275	-5%
Glendale	12,324	13,548	12,386	-9%
Imperial	30,080	30,644	37,500	22%
LADWP	275,088	115,519	273,682	137%
Lodi	2,900	3,091	773	-75%
Modesto	6,556	16,129	6,942	-57%
Palo Alto	2,694	4,399	4,619	5%
Pasadena	5,895	8,164	17,258	111%
Redding	2,815	1,640	2,802	71%
Riverside	11,020	7,260	12,189	68%
Roseville	7,751	9,314	6,528	-30%
Silicon Valley Power	23,176	24,509	26,350	8%
SMUD	107,000	114,662	155,832	36%
Turlock	9,371	10,937	12,592	15%
Total	519,906	385,343	603,440	56%
Total excluding LADWP	244,819	286,400	329,758	
Total excluding LADWP and SMUD	137,819	171,738	173,926	

Source: California Energy Commission staff, California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*, Final Staff Report, CEC-200-2007-019-SF, December 2007, California Municipal Utility Association (CMUA), *Energy Efficiency in California's Public Power Sector: A Status Report*. March 2009.

POU Demand Response and Smart Grid Activities

AB 2021 requires POUs to first meet their unmet resource needs through all available energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible. Seventeen POUs have or intend to implement a demand response program. Demand

response programs are generally tied to the size of the utility. In general, large utilities have such programs while smaller utilities do not.

The public power community are focusing more on the smart grid and the deployment of advanced metering infrastructure (AMI). While most demand response programs target commercial customers, AMI technologies (smart meters) enable residential customers to be better served by energy efficiency and demand response programs. The smart meter may eventually communicate with appliances and thermostats in homes or business. These devices could receive price and emergency signals from the utility and be programmed to be compatible with a consumer's needs and schedules. Making it easier for customers to use energy efficiently and control their energy costs. While only a few POU's have taken steps toward smart grid technologies, it is conceivable that more may follow due to the American Recovery and Reinvestment Act, which dedicated \$4.5 billion for smart grid development in the United States.

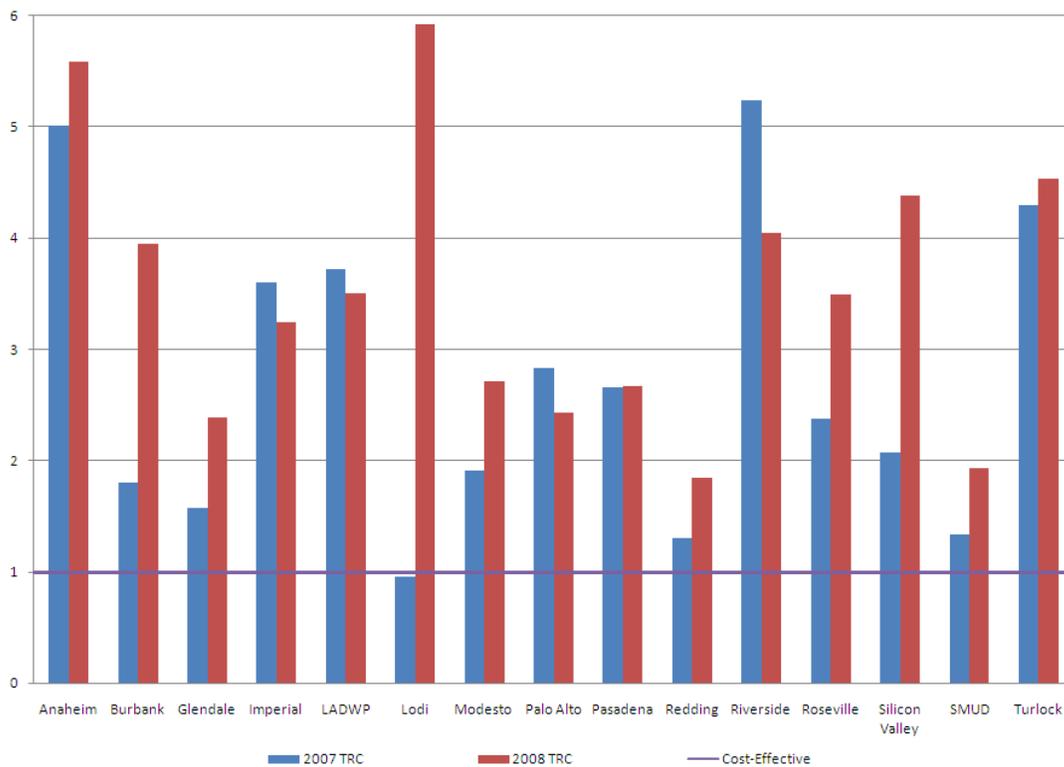
As a case study, SMUD plans a full deployment of its advanced metering infrastructure by 2012. Additionally, SMUD is developing a comprehensive suite of energy efficiency, renewable energy, and dispatchable and price demand response programs. This umbrella program involves marketing, research, development, and implementation strategies. Pilot programs are underway to investigate critical peak pricing, air conditioning load management using programmable communicating thermostats, and zero net energy homes, along with a full suite of residential and commercial energy efficiency programs.

POU Cost-Effectiveness of Energy Efficiency Portfolios

The value of energy efficiency as a resource is reflected in measures of program cost-effectiveness relative to other utility options. Availability of the E3 Reporting Tool "workpapers" from individual utilities would improve the evaluation of the cost-effectiveness of POU programs. In their 2009 CMUA report, the POU's included the Total Resource Cost (TRC) test for each utility's portfolio.⁴⁶ The average TRC was 3.31 for the POU's, implying that every program dollar resulted in more than three dollars of societal benefits. The largest 15 POU's had cost-effective program portfolios averaging a TRC of 3.5 with ranges from 5.9 (Lodi) to 1.84 (Redding) (**Figure 8**).

⁴⁶ *Total Resource Cost* (TRC) test is the most frequently used measure of the cost-effectiveness of an energy efficiency program. The TRC ratio includes the identified benefits of the program such as avoided generation costs divided by the net costs, which include both the utility and participant costs. When the TRC test ratio is greater than 1.0 for a utility program (or portfolio of programs), it is deemed to be cost-effective.

Figure 8: POU Portfolio Cost-Effectiveness



Sources: California Municipal Utilities Association, *Energy Efficiency in California’s Public Power Sector: A Status Report*, March 2008 and March 2009.

In 2008 TRCs were greater than in 2007 for 11 of the 15 largest POU’s (**Figure 8**). While this is a positive sign, interpretation should be cautious. Utilities can show fluctuating TRCs from year to year if a relatively small pool of efficiency program participants determine a program’s success.

Larger POU’s with TRCs consistently over 3 should consider expanding their energy efficiency program using utility funding beyond their PGC allocation. The TRC indicates an integrated resource approach would favor more efficiency in the utilities’ resource mix.

Since a large portion of the reported energy efficiency savings are attributable to very cost-effective CFL programs, it is expected some portfolios’ TRC will decline when those programs reach saturation or are otherwise discontinued as market transformation and new mandated lighting standards take effect. Many important and successful energy efficiency, demand response, and peak load reduction programs can be more expensive to implement, yielding a lower TRC.

While a comparison of TRCs among POU’s is fair, a comparison of TRCs between IOUs and POU’s is misleading. There are important differences in key TRC assumptions, mainly the

composition of programs within portfolios and the use of different versions of the Database for Energy Efficient Resources (DEER) to estimate savings.⁴⁷ In 2007, the POUs updated their cost-effectiveness algorithm in the E3 reporting tool to incorporate CPUC decisions on the TRC and the revised E3 reporting tool is expected to reflect all current CPUC TRC updates.

POU Progress in Measurement and Verification

The POU community made reasonable progress in efficiency program evaluation over the last year. POUs are required to submit the results of an independent report that measures and verifies the energy efficiency savings and demand reductions of their energy efficiency programs to the Energy Commission. POUs are in the early stages of developing common M&V methods and tools for this purpose. The 2009 CMUA report contains data from the first independent evaluations of POU efficiency programs.⁴⁸ Appendix **Table A-3** contains the list of POU M&V plans and studies.

POUs hired consultants to develop the E3 Energy Efficiency Reporting Tool⁴⁹ to calculate efficiency savings and measure cost-effectiveness of their efficiency program portfolios. The E3 Tool standardized quantification methods to estimate energy and peak reductions from efficiency programs. The E3 Tool foundations are derived from the 2005 DEER and 2005 IOU “work papers”⁵⁰ which provide program details mandated by the CPUC. The E3 Tool is very important to efficiency program planning and evaluation because its assumptions translate program activities into savings measured in kilowatt-hours and kilowatts that are at the core of the independent program evaluations.

Evaluation *plans* are the critical first step to outline the approach a POU will take to evaluate its entire efficiency portfolio of programs; the plan identifies what evaluation *studies* will be done and on what schedule. Evaluation *studies* execute M&V for specific programs. Over the

⁴⁷ Cost-effectiveness of 2006–2008 IOU portfolios based on TRCs for reported savings range from 1.6 to 2.25. For TRCs for 2006–2007 verified savings, see CPUC Energy Division, *Energy Efficiency and Conservation Programs, Progress Report to the Legislature*, July 2009.

⁴⁸ Many utilities have had procedures in place to track and verify program participants for the payment of efficiency program rebates.

⁴⁹ The E3 Reporting Tool was developed by two consultants, E3 and KEMA, in 2005-2006 specifically for the POUs. It is a spreadsheet model using mainly default assumptions that estimates utility-level energy, demand savings, and benefit cost tests (using total resource cost and other tests) at the efficiency end-use level.

⁵⁰ IOU “workpapers” that provide detailed savings estimations (assumptions and algorithms) were filed with their efficiency portfolio applications to CPUC for program years 2004-2005.

last year, many POU's completed an efficiency evaluation plan, and ⁵¹ members of the Northern California Power Agency (NCPA) contracted with an independent party to perform these evaluations. For the most part, these plans anticipated evaluations of specific programs from July 2007 through June 2008. In July 2009, Southern California Public Power Authority (SCPPA) awarded a contract to develop evaluation plans for its members. Most of the southern POU's, M&V plans are expected to be completed in the first quarter of 2010, and results will be included in the next annual report.

A number of Northern California POU's completed actual evaluation studies on specific programs by April 2009.⁵² For example, SMUD evaluates programs continually and completed several program M&V studies over the last year. Ultimately, all of its major programs will be evaluated at fixed intervals two to four years apart through 2017 funded by approximately 3 percent of its total energy efficiency budget.⁵³ LADWP has retained a third-party contractor to prepare M&V studies for its 2006–2008 programs; results are expected by the end of 2009.

Efficiency evaluation plans have two objectives:

- Identify evaluation priorities in an efficiency portfolio.
- Determine which M&V process and impact methods should be applied for each program.

Process evaluations assess program procedures, marketing to prospective participants, and delivery mechanisms such as rebates or other incentives. A process review may evaluate the selection of program measures and recommend the inclusion of a new product or elimination of one that no longer needs program incentives to get into the market.

Objectives of process evaluation include:

- Improving procedures that lead to increased program participation.
- Improving data collection.
- Improving program cost-effectiveness through the reduction of free ridership.⁵⁴

⁵¹ These POU's are City of Biggs, Gridley Municipal Utility, City of Healdsburg Municipal Utility, Lassen Municipal Utility District, Lodi Electric Utility, City of Lompoc, Modesto Irrigation District, Plumas-Sierra Rural Electric Cooperative, Redding Electric, Roseville Electric, Silicon Valley Power, Turlock ID, and Ukiah Public Utility.

⁵² Appendix Table A-3 shows POU's that have recently completed M&V plans and now have studies underway (due in late 2009) and those POU's with completed M&V studies.

⁵³ M&V expenses for POU's are not broken out from a budget category that includes marketing, M&V, and administrative costs. Utility incentives and direct install costs are reported separately.

⁵⁴ Program participants who receive rebates for energy efficiency products that they would have purchased anyway are known as "free riders." Free ridership is high with products that already have a high market acceptance and are widely available. Paying program incentives to "free riders" is seen as a waste of program funds. The terms "net and gross" savings are frequently used in evaluation

Impact evaluations assess energy and demand savings and cost-effectiveness of a program. Impact evaluation includes:

- “Paper trail” verification that efficiency actions were taken.
- Telephone or on-site inspection.
- Analysis of the savings, including a review of deemed savings or verification of savings through metering or billing (energy use) data.

Ultimately, choices are always subject to available budgets and how soon results are needed.⁵⁵ Impact evaluation priorities target programs with the greatest:

- Energy and demand savings compared to the overall portfolio.
- Uncertainty in savings measurements.

Ex ante savings (pre-verification savings impact estimates) are known as “deemed,” that is, based on engineering and behavioral assumptions. Impact evaluation methods are designed to test these assumptions and update deemed savings with more accurate “real-time” measurements. The resulting *ex post* savings are the actual measure of efficiency program savings and their value as a utility resource.

Non-residential lighting and HVAC measures typically comprise the largest portion of all savings in the 2007–2009 POU efficiency portfolios. *Ex ante* savings for lighting tend to be relatively straightforward because lighting equipment has standardized wattages. The wild card in lighting savings is the hours of operation where inaccurate data can significantly distort *ex ante* savings estimates. Savings for HVAC equipment are based on building simulation models with input data that may be very different from actual conditions at any given customer site. Given these considerations, most of the POU’s 2008 M&V plans contained these typical recommendations:

- Review database tracking systems to ensure the collection and accessibility of relevant information (such as lighting hours of operation) for M&V purposes.
- Review measures in residential portfolio to determine which measures (notably appliances) could be added and that could be eliminated due to high free ridership.
- Verify efficiency equipment installations through review of applications (paper trail), telephone, or on-site visits.
- Verify savings of a sample of program participants through a review of engineering assumptions to determine if deemed savings used are accurate given conditions in a POU.

literature. Savings are considered gross until adjustments for free riders (and other effects) are calculated. Adjusted savings are “net” of all effects.

⁵⁵ For a more complete description of these methods, see *Model Energy Efficiency Program Impact Guide, National Action Plan for Energy Efficiency*, United States Environmental Protection Agency, December 2007; and, *The California Evaluation Framework*, prepared for the CPUC, Tecmarket Works, June 2004.

- Verify savings of a sample of program participants using metered data or billing analysis (less frequent).

POUs realize the value of these recommendations for their efficiency program success. Following up on the recommendations in their plans, POUs completed M&V studies over the past year for specific POU programs, resulting in conclusions on both process improvements and electric (energy and demand) savings impacts.⁵⁶ A number of these studies began with a review of POUs' database tracking systems for efficiency programs. An objective was to assess if data collection and subsequent accessibility to data was conducive to evaluation. Many studies also contained a process review of the suitability of measures that comprised the residential programs. A few rebate and distribution measures were recommended for elimination because they had high free ridership; these included both dishwasher rebates and screw-in CFL distribution measures in different utilities.⁵⁷ On the other hand, it was found that certain measures, such as Energy Star® HD-ready televisions and DVD players, TV converter boxes, programmable thermostats, and residential water heaters should be added to the rebate programs.⁵⁸

Impact evaluations to determine if reported savings were realized were completed on a number of retrofit/rebate programs. Residential program measures included lighting, HVAC, and refrigerator recycling; non-residential programs included lighting, HVAC, and process (variable speed drives and compressed air) measures. A typical approach to evaluating these programs included:

- Reviews of customer applications.
- On-site inspections of a sample of sites to verify the installation of energy efficient equipment and real-time operations.
- Reviews of engineering assumptions used to calculate *ex ante* savings. In most instances, this level of rigor was considered sufficient.

For example, non-residential lighting retrofits, unless combined with other measures at the same site, were nearly always based on a sample of completed projects for which a review

⁵⁶ M&V studies were completed for the following POUs: City of Alameda, City of Biggs, Gridley Municipal Utility, City of Healdsburg, Lassen Municipal Utility District, Lodi Electric Utility, City of Lompoc, City of Palo Alto, Port of Oakland, Redding Electric Utility, Roseville Electric, Silicon Valley Power, SMUD, Turlock Irrigation District, Truckee Donner Public Utility District, and Ukiah Public Utility.

⁵⁷ On the other hand, another utility's impact evaluation showed a CFL distribution program with *ex post* savings exceeding *ex ante* savings by 5 percent. These differing results suggest a more in-depth review of evaluation methods will be needed for this measure over the next year.

⁵⁸For these recommendations see Summit Blue Consulting, *Process Evaluation of Lodi Electric Utility's Efficiency Programs and Impact Evaluation of the Non-Residential Custom Program-Lighting and Appliance Rebate Program: FY 2007/08, Final Report*, prepared for Lodi Electric Utility,(November 2008).

of *ex ante* savings algorithms and verification of installed fixtures, either through on-site inspection or through other contact with the customer, would take place.

In a few instances, methods included the metering of retrofit equipment using data loggers or statistical analysis of billing data to determine if a change in energy use could be detected. For example, SMUD studied residential air conditioning units using equipment metering and related performance testing methods in 2007.⁵⁹ Concurrently, Silicon Valley Power's 2008 study of its non-residential custom projects analyzed metering and billing data from sites that contained multiple measures (lighting, HVAC, and process).⁶⁰

The goal in any impact evaluation study is to determine how much of the planned *ex ante* savings are in fact realized over some period. The *savings realization rate* expresses this ratio of *ex post/ex ante* savings.⁶¹ In the impact evaluation studies performed on POU programs over the last year or so, savings realization rates for measures were very high, frequently ranging from 85 to more than 100 percent. In cases where specific program sites had low verified savings, there was usually a cause that could be readily identified.⁶²

Summary and Conclusions

The analysis of POU efficiency progress in 2008 yields both positive and negative results. Since 2006, the POUs as a group have increased the magnitude of efficiency funding yielding increased energy and peak savings. There is no doubt their efficiency spending and savings accomplishments have trended upward toward the adopted targets for 2007 through 2016, signaling a serious commitment to energy efficiency in the POU community. The year-to-year differences in these standard metrics are important to analyze because they help to explain fluctuations making up the longer-term trend. In this case, individual utility activity on an annual basis can provide reassurance that fluctuations will buoy rather than ultimately sink the trend.

⁵⁹ RLW Analytics, Inc., *Sacramento Municipal Utility District (SMUD), Residential HVAC Program Evaluation*, prepared for SMUD, March 31, 2008.

⁶⁰ Summit Blue Consulting, *Evaluation, Verification, and Measurement Study-FY 2007/08 Program for Silicon Valley Power (SVP)*, prepared for SVP, March 20, 2009.

⁶¹ This realization refers to gross savings only. With few exceptions, free ridership rates or other adjustments were not calculated.

⁶² It is not appropriate to compare IOU and POU savings realization rates for 2006–2008 due to differences in energy savings computations. Input assumptions to the algorithm that adjusts claimed (*ex ante*) savings to create verified (*ex post*) savings are different between the two types of utilities. Staff is initiating an investigation of this issue in 2009–2010 as part of a project to evaluate all POU M&V studies.

Despite the POU's' serious commitment, and the resulting positive savings trend, the adopted targets have yet to be fully attained. A number of reasons were raised in the draft report and in the June 9, 2009 IEPR workshop to explain why POU's may be falling short of their targets.

- During 2006–2007 in response to AB 2021, the POU's developed a potential study and used its findings to propose efficiency targets for individual utilities. For many POU's, this was the first time such targets were set, and the time to produce them was limited. Consequently, the magnitude and ramp-up trajectory may have been unrealistic.

In the 2007 AB 2021 Report,⁶³ staff predicted that the program ramp-up for most POU's was too steep. This has turned out to be true, despite the remarkable success of some to meet the challenge of the “stretch” targets. POU's are now engaging in the potential study work that will revise their targets and will, no doubt, bring the lessons of the last three years to bear in developing target trajectories for their portfolios.

- POU's are very heterogeneous and have unique customer characteristics, which may not be conducive to consistent growth in efficiency savings. Smaller utilities have a limited pool of possible participants and program choices attractive to them. If participation in programs is successful, measures can become saturated in a short period. This leaves increasingly less savings potential in subsequent years unless changes occur.

It is understandable that smaller utilities will be faced with fewer efficiency options depending on their unique customer bases. The success of their programs, especially non-residential, can depend on a small number of customers. POU's, on the other hand, can have the advantage of knowing their customers' needs and tailoring offerings in a unique way. This could result in an expansion, rather than contraction, of savings potential. When a percentage of customers reach saturation in one or more measures, it is time for change in the portfolio and/or program delivery channels. In the June 9, 2009 workshop, a city of Lodi representative spoke of the actions being taken by that POU to address saturated measures. Lodi is focusing attention on different customer sectors, developing new measures for major customers, and marketing new incentive tools to residential customers.⁶⁴

- The national economic recession that began in 2008 has repercussions in California energy efficiency programs. Utilities have begun to report reduced participation in programs that require customer investment.

The prevailing economic recession is especially challenging for the smallest POU's that may depend upon a small number of large non-residential accounts for a major portion

⁶³ California Energy Commission, *Achieving All Cost-Effective Energy Efficiency for California*, Final Staff Report, CEC-200-2007-019-SF, December 2007.

⁶⁴ Rob Lechner, Lodi Electric, 2009 Integrated Energy Policy Report (IEPR) workshop, California Energy Commission, June 9, 2009.

of their savings. However, POU's of all sizes will be affected. There are some who believe the economy will present opportunities for increased energy savings; time and research will tell. ⁶⁵ There are certainly signs that no-cost efficiency measures, or conservation, are being adopted but far fewer savings measures are receiving customer investment.⁶⁶ Some POU's will eventually have access to American Recovery and Reinvestment Act (ARRA) funding; however, this is not expected to have an impact until late into 2010. Despite what lies ahead for California's economic indicators, the POU's are to be commended for pursuing their efficiency programs with steady plans while trying to adapt to a challenging economic and marketing environment.

- There is a concern that if the POU's are not meeting their targets, they are not fulfilling their obligation under SB 1037 (Kehoe, Statutes of 2005, Chapter 366) to procure all cost-effective energy efficiency. POU's should apply principles of integrated resource planning (IRP) and truly comparing demand-side resources with supply-side resources using cost-effectiveness metrics. It is believed that such analyses would indicate that additional (procurement) funding be made available for efficiency programs to give the utilities a more cost-effective resource mix.

POU's are accustomed to funding energy efficiency through the PGC rather than through resource planning. Based on data submitted to the Energy Commission, it appears most POU's are using only PGC funding to finance efficiency portfolios.⁶⁷ In the future, it is hoped POU's will work within their agencies to communicate and effectively demonstrate to resource planners and key stakeholders what their utility's efficiency portfolio can bring to the resource table in a two- to three-year time frame. Staff is making recommendations to receive data from POU's on all sources of efficiency funding. The POU's are also being asked to provide data on efficiency portfolio costs and benefits, which will permit demand-supply resource comparisons to be analyzed using cost-effectiveness measures.

Finally, staff highly commends many POU's for the enthusiastic initiation of evaluation plans and studies. There is definitive progress being made. Most of the Northern California POU's completed evaluation plans and studies in 2008, and the Southern California POU's are implementing evaluation plans in 2009–2010. Staff plans to perform an in-depth analysis

⁶⁵ SCAPPA contracted with RKS Research (August 2009) to survey customer attitudes and behaviors towards efficiency. They expect to use the study results in the ongoing efficiency potential estimation for the POU's.

⁶⁶ This fact was reported by utility representatives in the June 9, 2009 IEPR workshop. Of course, the economic recession is also responsible for energy "demand destruction" through foreclosures and closing businesses.

⁶⁷ There is familiarity with treating efficiency as a resource obtained to some degree in their Integrated Resource Plan prepared for Western Area Power Administration every five years. Western Area Power Administration, *Energy Planning and Management Program, Including Integrated Resource Planning* (10 CFR, part 905).

of all studies in late 2009–2010. Acting upon the recommendations in evaluation reports can be extremely important to the long-run success of the POU efficiency programs. Especially for POUs with new programs, efficiency program evaluation can lead to substantially greater savings in the future than would be realized without the program improvements based on M&V results.

The POUs have been responsive to the requirements of AB 2021 during 2008 and in their planning for 2009 and beyond. Despite California’s currently depressed economic climate, most POUs still expect to increase their energy efficiency spending and, therefore, increase energy savings. They expect to aggressively pursue “continuous improvement” through M&V activities that will add value to the energy efficiency resource.

CHAPTER 5: Next Steps for POU Energy Efficiency

Staff, POU representatives, and other parties have worked together on recommendations made in staff's 2007 AB 2021 report. The "overall" recommendations contain new recommendations and an updated version of those earlier recommendations that need continued effort during 2009–2010.

Preparations for the 2010 Statewide Estimation of Energy Efficiency Potential and Revision of Energy Efficiency Goals

AB 2021 mandates the Energy Commission to provide a statewide estimate of energy efficiency potential and goals every three years. The next update of the potential estimates and goals will be in 2010. Inputs to this process come from both the POUs and the IOUs. The POUs are required to identify all cost-effective electricity savings potential and establish savings goals based on that potential. Through CPUC energy efficiency proceedings, the IOUs also identify electricity and natural gas savings potential and set savings goals that they use for both efficiency program and resource planning. Both POUs and IOUs revisit their energy efficiency potential estimates and goals every three years; however, they do not do so in the same years.

Goal setting for the IOUs by the CPUC began in 2004 with D.04-09-060, which established goals for 2004–2016. These goals were not updated in 2007 as scheduled; however, a major energy efficiency potential update effort was undertaken. The IOUs produced the *2008 IOU Energy Efficiency Potential Study*, which identified all potentially achievable cost-effective energy savings. This study was used to establish interim targets in July 2008 for each IOU service territory for 2012 through 2020. These interim targets will be used by the IOUs for procurement planning in 2010; however, a goals revision must be completed before 2011 in order to allow the IOUs to incorporate the new goals into their energy efficiency portfolio planning process for 2012 through 2014. Impact evaluation studies from 2006–2008 programs and DEER updates are scheduled for March 2010; it is expected that the 2012–2020 goals update will occur soon thereafter. The CPUC concluded that the update must be completed by October 2010 for adequate portfolio planning lead time.

Per AB2021 POUs are also required to identify all potentially achievable cost-effective electricity efficiency savings and to establish annual targets for energy efficiency savings and demand reduction over the next 10 years by June 1, 2007, and every three years thereafter. In support of this effort, the Northern California Power Agency (NCPA), in conjunction with the Southern California Public Power Authority (SCPPA), issued a request for proposals on behalf of 37 of the POUs to retain a qualified consultant to prepare an energy efficiency potential study. Given the size and some of the relatively unique circumstances facing the two largest POUs, LADWP and SMUD will produce independent potential studies. LADWP will likely revise its efficiency targets in response to the current economic conditions and other factors, while SMUD does not foresee any revision of its

targets. By July 31, 2010, all 39 of the reporting POUs plan to file their revised energy efficiency potential estimates and proposed targets for 2010–2020.

Overall Staff Recommendations

Energy Commission staff commends the publicly owned utilities for progress in energy efficiency. However, staff and other parties are very concerned that adopted efficiency targets were not met in 2007 or 2008. Staff presents recommendations that could assist the POUs' efficiency endeavors and improve the information supplied by the POUs to the Energy Commission. This information will result in a more in-depth understanding and analysis of POU efficiency activities and progress.

- POUs should do everything reasonable to mitigate the impact of the economic recession on participation in energy efficiency programs and ultimately on savings accomplishments. POUs should use their unique customer knowledge to focus attention on new customer segments, expand measures which are low or no-cost options to consumers (such as direct install), and market new incentive tools. Strategies being developed by the investor-owned utilities, such as higher incentive levels, should be considered. Although the impacts will not take place until 2010–2011, POUs are encouraged to apply for funding made available from the American Recovery and Reinvestment Act to augment their existing efficiency expenditures.
- Staff and POUs need to develop a framework for soliciting and providing information to explain year-to-year differences in budget and savings accomplishments, which are the building blocks of the trend toward greater efficiency. In *Achieving Cost-Effective Energy Efficiency for California: An AB 2021 Progress Report* (December 2008), the POUs were requested to supply additional information in the March 2009 CMUA report on the cause of yearly fluctuations in efficiency performance. Unlike the IOUs, POU savings can vary widely in either direction. The response to this request was a small improvement. Utilities must supply data explaining how these factors affect the magnitude and source of 2009–2010 expenditures and savings accomplishments in their next status report:
 - Changes in customer composition and/or behavior.
 - Changes in rates (where applicable).
 - Impacts of local government or utility priorities.
 - Impacts of regional and local economic conditions.
 - Receipt of any American Recovery and Reinvestment Act funding earmarked for efficiency programs—the POUs should indicate where these funds were used for energy efficiency projects along with the funding from procurement and PGC.
 - Other factors impacting annual level of efficiency funding and savings.

- In the 2010 CMUA report, POU will provide additional information on the role of energy efficiency in integrated resource planning. Staff encourages application of integrated resource planning and providing a true comparison between demand-side resources with supply-side resources using cost-effectiveness metrics. All publicly owned utilities will report:
 - How energy efficiency is accounted for in an integrated resource or procurement plan.
 - The source of all funds used for efficiency such as the PGC, procurement, and any others used.
 - The portion of the PGC funds invested in energy efficiency; low-income assistance; renewable energy; and research, development, and demonstration.
 - Whether or not energy savings are tracked or estimated for low-income assistance programs, and provide savings if available.
 - Levelized utility costs and benefits (in \$/KWh) of energy savings associated with their 2010 portfolios.
- The POU will work with the Energy Commission and interested stakeholders in preparing their efficiency potential studies and the AB 2021 10-year energy and demand savings, to provide an early demonstration of potential methodology. As noted earlier in the report, the process for updating the efficiency potential estimates and targets required by AB 2021 is underway. New goals are due the Energy Commission by June 1, 2010. This ensures rigorous assessment of the efficiency potential and increases consensus around the final targets. POU, Energy Commission staff, and other parties will schedule regular meetings to discuss progress.
- POU must increase the transparency of information on energy efficiency activities, expenditures, savings estimation, and cost-effectiveness calculations. Staff's evaluation of POU efficiency progress will benefit from data used to create the POU's annual status reports. Staff will work toward developing protocols for the POU to provide information to explain 1) year-to-year differences in budget and savings accomplishments; and 2) methods and assumptions for estimating and verifying annual savings. Staff and POU will discuss ways to upload and maintain data in an efficient manner.

Staff Recommendations for POU Efficiency Measurement and Verification

The work initiated in POU efficiency program measurement and verification responds to AB 2021's directive regarding independent evaluations of efficiency programs. More importantly, 2009 M&V products have the promise of substantially improving program delivery, energy and demand savings, and future evaluation efforts. Looking to 2009–2010, Energy Commission staff makes the following recommendations.

- Energy Commission staff should be informed of any deviations and the rationale for changes to the established values and methods in their E3 reporting tool. The source materials for the savings and cost-effectiveness model adapted for the POU in 2006 have been updated. DEER was updated in May 2008 with revisions affecting POU energy and demand savings estimates. The IOUs also have updated their work papers in the latest efficiency applications for the CPUC's 2009–2011 efficiency program planning cycle. These updates should be integral to a revision of the POU's E3 efficiency planning model. Reported energy efficiency savings will be based on the most recent version of the DEER database, which POU are now incorporating into their revised E3 reporting tool.
- Every POU should provide M&V plans and studies and verified program results in next year's report. Many POU, especially in Southern California, are just initiating their M&V plans and process reviews. Staff would appreciate a more detailed schedule of M&V plans and studies when available. Staff requests an opportunity to review the M&V plans and studies as they are completed before submission of the POU's 2009–2010 status report. POU are encouraged to work with evaluators to ensure the collection of data needed for evaluation is comprehensive. Impact evaluations will be impossible to perform without adequate information to measure the baseline conditions at customer sites.
- POU with residential and small commercial CFL distribution programs comprising a large portion of their annual efficiency savings should consider these for impact evaluation in 2009–2010. There has been considerable information generated on this topic in the IOU arena. To simplify analysis, POU's should decide what IOU analysis they can apply and what data may be unique to their service areas. There is sufficient uncertainty in both recent POU and IOU CFL studies to warrant this evaluation priority.
- POU should consider using the California Measurement Advisory Council for information on efficiency program evaluation.⁶⁸ The organization was created for use by the California IOU program evaluation community. Its value to POU as a repository for evaluation studies and as a discussion forum should be explored by POU and their representative association, CMUA.
- The 2010 California Municipal Utilities Association's annual March report needs to include a discussion of the ways in which the evaluation studies *completed for 2008–2009 programs* resulted in modifications to the efficiency portfolio and specific efficiency programs in 2009–2010. This should be a continuing feature of subsequent status reports. The greatest value of measurement and verification studies to the publicly owned utilities, especially to smaller utilities, is an opportunity to improve program delivery and cost-effectiveness and to show that energy savings have been realized.

⁶⁸ California Measurement Advisory Council information is available at <http://calmac.org>.

Glossary

Acronym	Definition
AB 2021	Assembly Bill 2021
AMI	Advanced metering infrastructure
ARRA	American Recovery and Reinvestment Act
CEESP	California's Long-Term Energy Efficiency Strategic Plan
CFL	Compact fluorescent light
CMUA	California Municipal Utilities Association
CPUC	California Public Utilities Commission
DEER	Database of Energy Efficiency Resources
GWh	Gigawatt hour
HVAC	Heating, ventilation and air conditioning
IOU	Investor-owned utility
LADWP	Los Angeles Department of Water and Power
M&V	Measurement and verification
MID	Modesto Irrigation District
MMth	Million therms
MW	Megawatt
NCPA	Northern California Power Agency
PGC	Public goods charge
POU	Publicly owned utility
RRIM	Risk Reward Incentive Mechanism
SCPPA	Southern California Public Power Authority
SMUD	Sacramento Municipal Utility District
TMG	Total market gross
TRC	Total Resource Cost

APPENDIX A: Data From Publicly Owned Utilities

Table A-1: POU Reported and Projected Expenditures

Largest Utilities	2007 Reported Spending (\$000)	2007 Projected Spending (\$000)	2007 Spending as % of Projection	2007 Reported Spending as % of Total Revenue	2008 Reported Spending (\$000)	2008 Spending as % of Projection	2008 Spending as % of Total Revenue	2009 Projected Expenditures (\$000)
Anaheim	2,046	1,273	62%	0.85%	3,655	140%	1.49%	5,546
Burbank	1,723	2,190	127%	1.20%	2,720	92%	1.77%	2,582
Glendale	2,886	2,903	101%	1.81%	2,947	92%	1.74%	2,694
Imperial	3,249	973	30%	0.79%	4,957	70%	1.16%	6,066
LADWP	12,550	29,421	234%	0.53%	35,942	51%	1.48%	71,976
Lodi	218	519	238%	0.37%	415	136%	0.63%	331
Modesto	2,154	1,708	79%	0.86%	3,139	118%	1.22%	1,351
Palo Alto	1,061	801	75%	1.24%	1,485	140%	1.71%	1,559
Pasadena	1,628	1,202	74%	1.16%	1,357	85%	0.89%	4,170
Redding	1,624	1,540	95%	2.15%	2,305	141%	2.95%	2,564
Riverside	1,945	1,079	55%	0.85%	2,739	110%	1.10%	2,830
Roseville	1,214	2,761	227%	1.15%	2,058	74%	1.80%	1,697
Silicon Valley	3,602	3,765	105%	1.63%	5,803	101%	2.47%	5,977
SMUD	21,938	21,599	98%	2.02%	28,965	84%	2.70%	35,609
Turlock	1,021	1,905	187%	0.55%	1,144	51%	0.58%	2,268
15 Largest Utilities	60,000	73,639	123%	1.14%	100,000	71%	1.68%	148,000
Other Utilities (19)*	3,623	3,405	94%	0.99%	4,277	80%	1.35%	4,901
Grand Total	64,000	77,000	120%	1.03%	104,000	71%	1.63%	153,000

* Revenue data was not available for five utilities in 2007 and 2008.

Sources: California Energy Commission staff. California Municipal Utilities Association. *Energy Efficiency in California's Public Power Sector. A Status Report*, March 2009.

**Table A- 2: Smaller POU's Energy Efficiency
Reported Savings Versus Targets (MWh)**

Utility	2008 Target	Target Minus 20%	2008 Reported Savings	Target Plus 20%
Alameda	760	608	2135	912
Azusa	2084	1667	2352	2501
Banning	873	698	634	1048
Biggs	106	85	133	127
Corona	467	374	23	560
Colton	2625	2100	1583	3150
Gridley	92	74	24	110
Healdsburg	198	158	236	238
Hercules	136	109	79	163
Industry	0	0	0	0
Island Energy	178	142	102	214
Lassen	733	586	123	880
Lompoc	1121	897	304	1345
Merced	3619	2895	1871	4343
Moreno Valley	822	658	298	986
Needles	817	654	72	980
Plumas-Sierra	621	497	422	745
Port of Oakland	884	707	280	1061
Rancho Cucamonga	448	358	359	538
Shasta Lake	129	103	30	155
Trinity	0	0	12	0
Truckee Donner	1001	801	4456	1201
Ukiah	198	158	279	238
Vernon	0	0	935	0
Total	17,912	13,830	16,741	20,744

Sources: California Energy Commission staff; California Municipal Utilities Association. *Energy Efficiency in California's Public Power Sector. A Status Report*, March 2009.

Table A-3: POU's With Measurement and Verification Plans and Studies in 2008

Utility	Most Recent Measurement and Verification Plans and Studies
Alameda	2008 Evaluation, Verification, and Measurement Study (June 2008)
Biggs	2008 Energy Efficiency Program Evaluation Plan (May 2008) Study: To be completed December 2009
Gridley	2008 Energy Efficiency Program Evaluation Plan (June 2008) Study: To be completed December 2009
Healdsburg	2008 Energy Efficiency Program Evaluation Plan (June 2008) Study: To be completed December 2009
Lassen	2008 Energy Efficiency Program Evaluation Plan (June 2008) Study: To be completed December 2009
Lodi	2008 Energy Efficiency Program Evaluation Plan (May 2008) Process Evaluation of Lodi Electric Utility's Efficiency Programs and Impact Evaluation of the Non- Residential Custom Program - Lighting and Appliance Rebate Program: FY 2007/08 (November 2008)
Lompoc	2008 Energy Efficiency Program Evaluation Plan (June 2008) Evaluation, Verification, and Measurement Study of Refrigerator and Freezer Replacement Programs (March 2009)
Modesto	Evaluation, Verification, and Measurement Plan FY 2008 Program (April 2009)
Palo Alto	Evaluation, Verification, and Measurement Study FY 2007/2008 Program (February 2009)
Plumas Sierra	2008 Energy Efficiency Program Evaluation Plan (May 2008)
Port of Oakland	Evaluation, Verification, and Measurement Study FY 2007/2008 Program (February 2009)
Redding	2008 Energy Efficiency Program Evaluation Plan (June 2008) Evaluation, Verification, and Measurement Study FY 2007/2008 Program (March 2009)
Roseville	Evaluation, Verification, and Measurement Plans (December 2008) Process and Impact Evaluation of Roseville Electric's Residential New Construction, HVAC Retrofit, and Commercial Custom Rebate Programs: FY 2007/08 (February 2009)
Silicon Valley Power	2008 Energy Efficiency Program Evaluation Plan (August 2008) Evaluation, Verification, and Measurement Study FY 2007/2008 Program (March 2009)

Utility	Most Recent Measurement and Verification Plans and Studies (continued)
SMUD	Measure and Verify Savings of Refrigerator Recycling Program (May 2007) Evaluation of Prescriptive Lighting Program (November 2007) Residential HVAC Program Evaluation (March 2008)
Truckee Donner	Evaluation, Measurement & Verification Report for Truckee Donner Public Utility District 2008 Energy Efficiency Programs (February 2009)
Turlock ID	2008 Energy Efficiency Program Evaluation Plan (May 2008) Evaluation, Verification, and Measurement Study FY 2008 Program (March 2009)
Ukiah	2008 Energy Efficiency Program Evaluation Plan (June 2008) Study (To be completed December 2009)

Reports were prepared by Summit Blue Consulting unless otherwise noted.
 Source: Northern California Power Agency (NCPA) Website: <http://www.ncpa.com/energy-efficiency-m-v-reports-2.html>. For 2009 EM&V Studies Lodi, Palo Alto, and Silicon Valley have contracted with Summit Blue and results of these studies will be completed by December 2009.

APPENDIX B: Public Comments and Staff Responses

- Southern California Public Power Authority (SCPPA)
- Natural Resources Defense Council (NRDC)
- City of Palo Alto
- Modesto Irrigation District (MID)
- Southern California Edison (SCE)

The comment letters summarized in this section are followed by staff's corresponding responses. The comment letters are available for review at ["www.energy.ca.gov/2009_energypolicy/documents/2009-06-09_workshop/comments/index.php"](http://www.energy.ca.gov/2009_energypolicy/documents/2009-06-09_workshop/comments/index.php).

Southern California Public Power Authority (SCPPA)

- SCPPA members are concerned that it will be difficult to maintain and increase program activity within the present economy. The success of efficiency programs can be dramatically affected by customer response and the publicly owned utilities (POUs) are concerned that their customers are viewing energy efficiency as a luxury that they cannot presently afford. It is important to note that local policy makers allocate public goods charge (PGC) funds among four authorized categories in accordance with the needs of their individual communities: low-income assistance, energy efficiency programs, renewable energy, and research & development. Priorities among program allocations are affected by constituents of POU communities; energy efficiency is only one need competing for funds.

Table B-1: SCPPA Member’s Public Benefits Expenditures

Public Benefit Programs SCPPA Members	Expenditures through June 2008	Percent of Total Funds
Low-income Assistance	\$331,840,000	36%
Energy Efficiency Programs	\$303,456,000	33%
Renewable (Load Side)	\$162,722,000	18%
Research & Development	\$94,023,000	10%
Administration	\$29,345,000	3%
Total:	\$921,386,000	100%

Source: Southern California Public Power Authority. *Comments on the Draft Staff Report*, Letter to California Energy Commission. July 1, 2009.

In addition, the available pool of funds in the present economy is declining: the PGC is funded as a percentage of utility energy sales which are dropping for some SCPPA members.

SCPPA’s member cities are dealing with difficult budget decisions and numerous program cuts for their constituents. SCPPA does not consider the re-direction of funds from other PGC categories to energy efficiency a viable consideration.

- SCPPA members are initiating measurement and verification programs to confirm the greatest impact and optimize delivery of energy efficiency programs. SCPPA has awarded on behalf of its members a contract for measurement and verification of

energy efficiency programs including evaluation protocols which are appropriate to each of the diverse service territories. These plans and initial program findings will be included in the next annual report.

- SCPPA has joined with the Northern California Power Agency (NCPA) in awarding a contract for a state-wide 2010 energy efficiency potential study. Additionally a contract has been awarded for corrections to the E3 reporting tool to accommodate DEER updates and improve the consistency of reporting. With these updates, NCPA anticipates delivering a revised energy efficiency portfolio and the confirmed tool for reporting results in 2010 and beyond. However, the existing targets were established under the assumptions of 2007, including the DEER metrics, and SCPAA intends to report the results for 2009-2010 using existing methodology.
- SCPPA members welcome the invitation to continue working together with the commission staff and wish to increase communications and contact to the extent feasible under our City(s) budget and travel restrictions. Included in ongoing communications will be updates regarding the balance of PGC funding, updates on stimulus funding, and updates on collaboration with other governments and utilities (such as overlaps with water and gas conservation programs).

SCPPA members are also pleased to offer to host workshop(s) during the development of our M&V studies and in anticipation of the energy efficiency potential study and will continue our efforts to explain annual program fluctuations due to customer response and program saturation.

- SCPPA has offered suggestions for corrections to specified tables and minor corrections.

Staff Response:

- Staff appreciates the funding and participation challenges facing all of the POUs. Eligible POUs are encouraged to apply for American Recovery and Reinvestment Act (ARRA) funds to supplement, not supplant, funding for energy efficiency programs in order to first acquire all available energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible as required by SB 1037. Staff understands that any effect from ARRA stimulus monies will likely not be realized within this current fiscal year. Staff recommends that POUs report on the use of ARRA funds used for energy efficiency programs beginning in March 2010 for 2009-2010 programs.
- The use of non-PGC funds should not be dismissed out of hand. Investments in energy efficiency programs are an effective and appropriate use of procurement funds. The POU's energy efficiency programs are largely cost-effective, and achieve real energy savings alleviating the need to procure that power. The reported average

TRC of 3.31 implies that every program dollar resulted in more than three dollars of societal benefits.

Some programs may benefit from being redesigned to encourage customer participation in the face of expected reductions resulting from this difficult economic environment. For example, increased rebates, direct installs, giveaway programs, and customer education focusing on the potential savings on their utility bill are being considered by some utilities such as the Truckee-Donner Public Utilities District.

- Staff understands that SCPPA is initiating their M&V plans and studies in summer 2009 for all of their members. Staff would appreciate a more detailed schedule of M&V plans and studies when available. Staff requests an opportunity to review the M&V plans and studies as they are completed prior to submission of the POU's 2009-2010 status report.
- Ideally, reported savings and M&V studies are to be based on the most recent version of savings planning assumptions, such as DEER, which staff understands the POU's are now incorporating into their revised E3 reporting tool. The POU's may consider using different scenarios which present savings calculated using the original planning assumptions and calculated using the revised assumptions for deemed savings.
- Staff appreciates the current open and cooperative working relationship; and will participate in meetings and workshops to the extent feasible. For those meetings where staff is unable to attend, we would appreciate being apprised of any significant developments in relation to SB 1037 or AB 2021.
- Tables A-1 and A-2 have been updated while tables of efficiency and demand response program offerings (Tables A-3 and A-4, included in the draft report) have been removed from the final report due to incomplete data for some utilities. Staff would appreciate a full accounting of efficiency program offerings in future status reports.

Natural Resources Defense Council (NRDC)

NRDC urges the Energy Commission to include five additional recommendations in the final staff report.

- NRDC urges the Energy Commission staff to work with the POU's to fully integrate energy efficiency into resource procurement investments, as the law requires. NRDC

understands the strides made by the POU's in energy efficiency and appreciates their current economic difficulties. However, NRDC is dismayed at the POU's' failure to meet their targets in 2007 and 2008; they expect little improvement in 2009. The POU's could achieve success if they would integrate energy efficiency into their long term planning and devote real procurement investment into the efficiency resource.

NRDC recommends that the Energy Commission play a more active role in POU integrated resource planning to insure that increased amounts of procurement and other funding is made available for efficiency programs rather than supply side resources. The Energy Commission can begin by enforcing its directive in the draft staff report (May 2009) that POU's identify in their next SB1037 report the use of funds other than PGC- allocated in energy efficiency. NRDC suggests POU's supply specific information: (1) How is energy efficiency accounted for in long term procurement plans or integrated resource plans? (2) What mechanisms are used to recover the costs of the energy efficiency programs? (3) What portion of the PGC is invested in energy efficiency, low-income assistance, renewable energy and RD&D? And, (4) What percent of efficiency funding comes from procurement budgets?

NRDC recommends that the Energy Commission ensure that all utilities receiving ARRA funds do so only after the POU has pursued all available internal funds (for example, procurement and PGC).

- NRDC urges the Energy Commission to continue working with the POU's to ensure they carry out a robust M&V process that meets the law's requirement and industry accepted standards for rigorous independent evaluation of energy savings.

NRDC requests that the Energy Commission provide a high-level summary of the status of the POU's' M&V efforts in its Final Report and make it clear that it will expect M&V plans and studies from all utilities next year. NRDC supports the Energy Commission's recommendation for evaluation of its' numerous CFL distribution programs emphasizing the importance of ensuring that efficiency measures yield real savings. Obtaining assurance that reported savings are real necessitates rigorous and transparent methodologies that can, when appropriate, be compared to investor-owned utilities.

- NRDC strongly recommends that the Energy Commission urge the POU's to consistently report industry-accepted metrics to provide a more complete indication of utility energy efficiency savings and investment achievements.

NRDC appreciated the additional metrics provided at the June 9 workshop and believe that more useful information of this comparative type should be provided by both the POU's and the Energy Commission. They urge the Energy Commission to

recommend that the POU consistently report the following metrics in addition to the data that they already provide: (1) total net benefits, (2) annual energy savings as a percent of projected savings and targets, (3) annual energy savings as a percent of electricity sales, and (4) the portfolio average cost per kWh which can be compared to supply-side options. NRDC believes it would be very useful to have all of the metrics reported by the POU and Energy Commission discussed in a comparative manner with IOUs and other utilities in the United States. In addition, benchmarking results can provide vital information to decision makers and promote among utilities a clear sense of industry achievement towards cost-effective efficiency.

- In advance of the AB 2021 goals update due next year, NRDC urges the Energy Commission staff to work closely with the POU and stakeholders to ensure the next goals are based on a rigorous assessment of the feasible potential.

NRDC encourages the Energy Commission to provide clear guidance for the next target setting proceeding. The Commission should ensure that the process is transparent and that its objectives are clear. Without a full understanding of the target setting process, it is difficult to determine whether shortfalls are due to lack of performance or to unrealistic targets. A collaborative process upfront can increase clarity of expectations and increase consensus around the final targets.

NRDC reiterated their desires for the Energy Commission to delineate these assumptions for the POU's next (2010) potential study and targets proceeding: 1) cost-effectiveness test should be the Total Resource Cost (TRC) Test; 2) energy efficiency measure savings and unit costs should be based on credible resources, such as DEER; 3) avoided costs should include generation, transmission, distribution, environmental costs, and should reflect time-varying value of savings; 4) discount rate should be the societal rate of 3 percent or no greater than the utility's average weighted cost of capital; and, 5) each utility should report the total net economic benefits as calculated from their TRC test.

- NRDC recommends that the Energy Commission urge those utilities with TRCs that are significantly above 1 to analyze their energy efficiency portfolios to enhance or expand their programs in order to capture all cost-effective energy efficiency savings.

POUs with TRCs greater than 3 may be ripe for expanded program offerings. NRDC recommends that Commission staff work with POU's possessing portfolios with TRCs substantially greater than 1 to determine if there is potential to add new programs to reach deeper savings.

Staff Response:

- The Energy Commission agrees with NRDC on this point and has demonstrated this in its recommendations. Both the Energy Commission and CPUC treat energy efficiency as a real resource by integrating energy efficiency savings into the demand forecast. The demand forecast is integral to the CPUC's Long Term Procurement Plan (LTPP) proceedings, which evaluates the IOUs' need for new fossil-fired resources.

This Final Report contains language which requires the POUs to supply funding data to the Commission from all Public Goods Charge (PGC) sources and from other non-PGC, i.e., procurement, sources. The Energy Commission staff will plan to attend POUs' public benefit committee meetings to learn more about the choices made concerning PGC funding at the POU level. Staff is especially interested in low-income assistance funding and in savings tracking for that program.

- Staff believes that the POUs are diligently pursuing the independent evaluation mandate for their efficiency programs. In this final report, staff has recommended that all of the POUs complete and submit their M&V studies in time for next year's report and submit to the Energy Commission as they are completed. Now, 15 POUs (principally the northern POUs) have completed M&V plans and/or studies (See Appendix Table A-3). In August 2009, the southern California POUs, through SCPPA, have hired two consultants to complete their M&V plans and studies. By the next progress report (2010), there should be a substantial amount of M&V data on critical programs from which to draw conclusions on POUs' *ex post* savings. Staff did not have the resources in 2009 to analyze in depth the studies that became available in March 2009. In 2010, staff is planning to thoroughly analyze the methodology and the results of the recent (2008-09) impact studies especially as they affect measure realization rates. A thorough understanding of these numbers is important to the measurement of efficiency potential in 2010 and to the development of efficiency forecasts.

Staff has recommended that the POUs participate in the California Measurement and Advisory Council (CALMAC) to facilitate measurement and evaluation activities. The Energy Commission, CPUC, and IOUs are active participants in CALMAC. CMUA has informed staff that they are considering participating in a similar forums hosted by the American Public Power Association of which the POUs are members.

- The final progress report contains metrics to assess energy efficiency expenditures, savings accomplishments, and cost-effectiveness. The seven metrics used in this final report are outlined in an earlier section. NRDC recommends that the Energy Commission continue to report on these metrics in future reports. They emphasized the metric of expenditures relative to a utility's revenue, noting that POUs' 1.3 percent was far below the "highly aggressive" investment standard of 2 percent of

NRDC recommends the Energy Commission include two additional metrics in the next progress report, total net benefits and the portfolio average cost per kWh. NRDC is interested in comparing efficiency with its supply side options and is recommending metrics to perform that comparison. Staff agrees that this is a desirable objective and includes in its recommendations a request for portfolio-levelized costs and benefits data from the POUs to perform this analysis.

NRDC also recommends that the Energy Commission include a discussion of the POUs' application of California's energy efficiency *best practices* in their portfolios. Best practices are energy efficiency measures that experts have agreed should be in most portfolios because they pass standards of reliable savings. It is reasonable to expect that POUs should adhere to accepted best practices where they are appropriate. Staff agrees that an evaluation of POU portfolio choices would be enhanced by a comparison with accepted energy efficiency best practices. Staff will investigate documents from National Energy Efficiency Best Practices Study that are currently in use by the IOUs.⁶⁹ It should be noted, however, that POUs have very heterogeneous characteristics and the application of a common set of best practices is unlikely to be appropriate.

- Staff agrees with NRDC's concerns for a more rigorous and transparent approach to efficiency potential and target setting. Staff plans to work cooperatively with the CPUC, NCPA, SCPPA, CMUA, the individual POUs, and other stakeholders to identify the level of potentially feasible energy efficiency savings and to set appropriate targets. The status report contains a recommendation for regular meetings and a workshop to provide direction and vet draft results prior to the formal submission. Staff agrees that the POUs should provide details on the methodology employed to determining the feasible potential used to develop their AB 2021 ten-year targets. This has been discussed with the POUs and will be part of the ongoing coordination effort. NRDC has proposed "expectations"; while the Energy Commission agrees with most of these, staff believes a full discussion should take place among the parties to develop desired outcomes.

In fall 2009, staff will initiate meetings with POU representatives, their contractors, and other parties to discuss methods and assumptions being developed for the potential study and the revised reporting tool. The Commission understands its

⁶⁹ National Energy Efficiency Best Practices Study, *Volume P1-Portfolio Best Practices Report*, Itron, Inc., July 2008, and *Energy Efficiency Best Practices: What's New?*, Itron, Inc., July 2008.

responsibility to assure transparency for all POU modeling and reporting tools and to provide guidance concerning acceptable targets. As NRDC points out throughout its comments, there are many standards of energy efficiency commitment and progress. Identifying the correct ones for each POU or most POU will be a challenge.

Staff agrees that POU with TRCs greater than 1 should be encouraged to expand program offerings using all available funding. As discussed in this report, however, many POU do not have consistently high TRCs year after year. POU possessing portfolios with TRCs that *consistently* approach or exceed 3 are in a position to add new programs to reach deeper savings.

City of Palo Alto

- Several efficiency programs were noted for inclusion in Appendix A on the two tables, which indicated the types of energy efficiency programs offered by the largest POU.

Staff Response:

- These tables have been removed from the final report due incomplete data from some utilities. Staff would appreciate a full accounting of efficiency and demand reduction program offerings in future status reports.

Modesto Irrigation District (MID)

- (p 23) Table 5. The 2008 MWh target for MID should be 6,116. The value listed (13,586) is incorrect.
- The tables in Appendix A lack some information for MID.

Staff Response:

- Staff updated the 2008 MWh targets.
- The status of M&V plans has been updated for MID in Appendix A. The tables referring to types of program offerings have been removed from the final report due to incomplete data from some utilities. Staff would appreciate a full accounting of efficiency and demand reduction program offerings in future status reports.

Southern California Edison (SCE)

- Staff's presentation at the June 9, 2009, workshop included a graph comparing the portfolio cost-effectiveness of IOUs and POU's energy efficiency programs. It is unclear whether the reported cost and benefits of the POU and IOU programs are directly comparable to one another. The programs offered by different utilities vary significantly, not all resulting in quantifiable resource benefits.
- NRDC posited that the POU's realization rates may be based on the 2005 version of the Database for Energy Efficiency Resources (DEER), rather than the 2008 DEER, which may contribute to artificially high realization rates. If the POU's EM&V studies modeled the methods in the *2006-2007 Energy Efficiency Verification Report* prepared by the CPUC Energy Division, the record in the proceeding discusses shortcomings of that report which may render it an unreliable indicator of actual energy efficiency savings.

Staff Response:

- Comparison of TRCs between IOUs and POU's is misleading. There are important differences in key TRC assumptions, mainly the composition of programs within portfolios and the use of different versions of the Database for Energy Efficiency Resources (DEER) to estimate savings.

The POU's were not guided by the 2006-2007 IOU Verification Report. They based their cost-effectiveness and realization rate methods on their original planning assumptions. They are now updating their E3 planning tools, however, they intend to use their original planning assumptions (including 2005 DEER) through 2010. Staff is investigating the comparability between IOU and POU metrics for future purposes of comparing portfolio (program or measure) cost-effectiveness and determining savings realization rates in M&V studies.